EMERGENCY MEDICAL SERVICES AUTHORITY
11120 INTERNATIONAL DR., 2ND FLOOR
RANCHO CORDOVA, CA 95670
(916) 322-4336 FAX (916) 324-2875

May 26, 2023

Nick Clay, EMS Administrator
Santa Barbara County EMS Agency
300 North San Antonio Rd.
Santa Barbara, CA 93110-1316

Dear Mr. Clay,

This letter is in response to Santa Barbara County Emergency Medical Services (EMS) Agency's 2017- 2022 EMS, Trauma, St-Elevation Myocardial Infarction (STEMI), Stroke and Quality Improvement (QI) plan submissions to the EMS Authority on January 31, 2023.

The EMS Authority has reviewed the EMS plan based on compliance with statutes, regulations, and case law. It has been determined that the plan meets all EMS system components identified in Health and Safety Code (HSC) § 1797.103 and is approved for implementation pursuant to HSC § 1797.105(b). Based on the transportation documentation provided, please find enclosed the ground exclusive operating area status, compiled by the EMS Authority.

The EMS Authority has also reviewed the Trauma, STEMI, Stroke, and QI plans based on compliance with Chapters 7, 7.1, 7.2, and 12 of the California Code of Regulations, Title 22, Division 9, and has been approved for implementation.

Per HSC § 1797.254, EMS Plans must be submitted to the EMS Authority annually. Your 2023 EMS plan will be due on or before May 26, 2024. Concurrently with the EMS plan, please submit an annual Trauma, STEMI, Stroke, and QI plan.

If you have any questions regarding the EMS Plan review, please contact Mr. Mark Olivas, Interim EMS Plans Coordinator, at (916) 204-7885 or mark.olivas@emsa.ca.gov.

Sincerely,

Tom McGinnis

Tom McGinnis
Chief, EMS Systems Division

Enclosure:
AW: rd

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(916) 322-4336 FAX (916) 324-2875

Santa Barbara County EMS Agency 2017-2022 EMS Plan Ground Exclusive Operating Areas	Non-Exclusive	Exclusive	Method to Achieve Exclusivity	Emergency Ambulance	ALS	LALS	All Emergency Ambulance	9-1-1 Emergency Response	7-digit Emergency	ALS Ambulance	All ALS and CCT Ambulance	BLS Non-Emergency	Standby Service with Transport Authorization
ZONE	**EXCLUSIVITY**			**TYPE**			**LEVEL**						
Service Area 1		X	Non-Competitive	X				X					
Service Area 2	X												
Service Area 3		X	Non-Competitive	X				X					

Santa Barbara County PUBLIC Health DEPARTMENT

EMS Plan: 2017, 2018, 2019, 2020, 2021, 2022

January 31, 2023

Acting Director Basnett
Emergency Medical Services Authority
10901 Gold Center Drive, Suite 400
Rancho Cordova, CA 95670

Ms. Basnett,

Please find the attached annual updated Santa Barbara County ***Emergency Medical Services (EMS) Plan*** for the following years: 2017, 2018, 2019, 2020, 2021, 2022; as well as the annual updates to the Santa Barbara County ***Trauma Plan*** for years: 2017, 2018, 2019, 2020, 2021, 2022; as well as the annual updates to the Santa Barbara County ***ST-Elevation Myocardial Infarction (STEMI) Plan*** for years: 2017, 2018, 2019, 2020, 2021, 2022; as well as the annual updates to the Santa Barbara County ***Stroke Plan*** for years: 2017, 2018, 2019, 2020, 2021, 2022; as well as updates to the annual Santa Barbara ***CQI Plan*** for years: 2017, 2018, 2019, 2020, 2021, 2022. These plans are submitted in accordance with *Health and Safety Code Sections 1797.103 and 1797.250 – 1797.258* and *Title 22, Division 9, Chapter 7, Trauma Care Systems, Chapter 7.1, STEMI Critical Care System, Chapter 7.2, Stroke Critical Care System* and *Chapter 12, EMS System Quality Improvement.*

EMS PLAN ANNUAL UPDATE

No significant changes were made to the EMS Plan for years: 2017, 2018, 2019, 2020, 2021, and 2022.
Key items are noted by year in each of the below sections.

System Organization and Management
No key items.

Ambulance Zone Summary
2020: *The Santa Barbara County EMS Agency (SBCEMSA) began the competitive process to select an exclusive ambulance provider as outlined in Health and Safety Code 1797.224. As of the time of this letter, the process is still ongoing.*

Assessment of Hospitals and Critical Care Centers
Since last updated in 2016, the hospital infrastructure has remained unchanged. There have been updates to the Specialty Care Centers, which are outlined in their respective summaries below.

EMS System Providers, Personnel, and Training
2018: *Local Optional Scope of Practice (paramedic) approved for: AIR-Q, Amiodarone, Push-dose Epinephrine, Tranexamic Acid (TXA).*
2019: *Local Optional Scope of Practice (paramedic) approved for: Fentanyl, Ketamine, Olanzapine, Unified Scope of Practice (Flight Paramedic),*

2020: *Local Optional Scope of Practice approved for: Administration of vaccines for influenza and SARS-CoV-2 (EMT and paramedic), provision of paramedical care at location other than the scene of an emergency.*
2020: *University of California Santa Barbara was approved by SBCEMSA to offer initial and refresher EMT training.*
2020: *Santa Barbara County Sheriff's Office, Search & Rescue was approved by SBCEMSA as Continuing Education Provider.*
2021: *Previous LOSOPs were extended.*

Public Information, Education and Awareness
No key items.

Communications
The Santa Barbara County EMS system utilizes as a single point of dispatch for ambulance resources, the Santa Barbara County Public Safety Dispatch Center, operated by the Santa Barbara County Sheriff's Office. This center provides EMD services for 9-1-1 calls where they are the primary public service answering point (PSAP). Santa Barbara City Police Department provides EMD services for 9-1-1 calls where they are the primary PSAP. EMD is not performed at any other PSAP in the county. The Santa Barbara County Public Safety Dispatch Center and the Santa Barbara City Police Department are public safety agencies and provide EMD services through utilization of the Medical Priority Dispatch System, approved by Santa Barbara County EMS Agency, in compliance with Health and Safety Codes 1797.223 and 1798.8 and California Code of Regulations (CCR) 100170.

Additionally, the Santa Barbara County Public Safety Dispatch Center dispatches county-based EMS aircraft, who utilize countywide frequencies and standard hospital communication capabilities, in compliance with local EMS policies and procedures and CCR 100306.

2022: *The Santa Barbara County Fire Department applied to be designated as an Emergency Medical Dispatch (EMD) center as outlined in Health and Safety Code 1797.223. At the time of the letter, SBCEMSA is evaluating their designation request to become an EMD center.*

Disaster Medical Response
In compliance with Health & Safety Code 1797.153, the EMS Agency Director serves alongside the Public Health Department Health Officer as the County's Medical Health Operational Area Coordinator (MHOAC). The County's MHOAC serves to cover the County's four (4) key services of Public Health, EMS, Environmental Health, and Behavioral/Mental Health, addressing all 17 key functions. As required in Health & Safety Code 1797.153 the MHOAC has cooperated with the county office of emergency services, local public health department, the local office of environmental health, the local department of mental health, the local fire departments, the regional disaster and medical health coordinator (RDMHC), and the regional office of the Office of Emergency Services, to develop a medical and health disaster plan for the operational area. The medical and disaster plans follows the Standard Emergency Management System and National Incident Management System.

Key Updates
In 2017 and 2018 Santa Barbara County experienced two major natural disasters that had significant impacts on the County's healthcare infrastructure. SBCEMSA, along with its partners worked to address and minimize the impacts the impacts of these disasters, ensuring the stability of the county's healthcare system.

Santa Barbara County PUBLIC Health DEPARTMENT

EMS Plan: 2017, 2018, 2019, 2020, 2021, 2022

In 2020, SBCEMSA played a significant role in supporting the County's Public Health Department in the response to the SARS-CoV-2 pandemic. Additionally, SBCEMSA's Director, serving as the County's Medical Health Operational Area Coordinator (MHOAC), managed the allocation and distribution of critical medical supplies to county healthcare providers.

TRAUMA PLAN ANNUAL UPDATE

Key items and changes are noted by year.

2017: *Santa Barbara Cottage Hospital was designated as a Level I Adult Trauma Center by SBCEMSA. Previously designated as a Level II Adult Trauma Center.*

2020: *Routine Trauma System meetings were paused as a result of the impact of SARS-CoV-2 on the healthcare system.*

2022: *Marian Regional Medical Center was verified as a Level II Adult Trauma Center by the American College of Surgeons. Previously verified as a Level III Adult Trauma Center. At the time of the letter, SBCEMSA is evaluating their designation request to become a Level II Adult Trauma Center.*

2022: *Spinal Motion Restriction Policy was developed aligning the County EMS System's use of long backboards with current research and best practice.*

STEMI PLAN ANNUAL UPDATE

Key items and changes are noted by year.

2017: SBCEMSA and EMS providers received the American Heart Association's Mission: Lifeline Gold Award

2018: SBCEMSA and EMS providers received the American Heart Association's Mission: Lifeline Gold Award

2019: SBCEMSA and EMS providers received the American Heart Association's Mission: Lifeline Gold Plus Award

2020: SBCEMSA and EMS providers received the American Heart Association's Mission: Lifeline Gold Plus Award

2020: *Routine STEMI System meetings were paused as a result of the impact of SARS-CoV-2 on the healthcare system.*

2021: SBCEMSA and EMS providers received the American Heart Association's Mission: Lifeline Gold Award

2022: SBCEMSA and EMS providers received the American Heart Association's Mission: Lifeline Gold Plus Award

STROKE PLAN ANNUAL UPDATE

Key items and changes are noted by year.

2017

*Santa Barbara Cottage Hospital was designated as a Primary Stroke Center by SBCEMSA. Previously designated as an Acute Stroke Ready Hospital.*2019

Santa Barbara Cottage Hospital was designated as a Comprehensive Stroke Center by SBCEMSA. Previously designated as a Primary Stroke Center.

2020: *Routine Stoke System meetings were paused as a result of the impact of SARS-CoV-2 on the healthcare system.*

2022: *Designated Acute Stroke Centers shifted from the use of Tissue Plasminogen Activator tPA to Tenecteplase which decreased the time from "Door to Needle" time*

2022: *SBCEMSA and Stroke System participants developed and deployed a Large Vessel Occlusion (LVO) recognition program, which included updated treatment and destination guidelines.*

CQI PLAN ANNUAL UPDATE

Key items and changes are noted by year.

2020: *Routine CQI System meetings were paused as a result of the impact of SARS-CoV-2 on the healthcare system.*

2020: *SBCEMSA began the implementation of a clinical evaluation tool FirstPass® as well as the development of the Patient Centric View module, which combines different provider patient care reports (PCRs) into one record and evaluates the overall care of the patient against pre-defined system metrics. As of the time of this letter, the project is still ongoing.*

Please feel free to contact us at (805) 681-5274 should you require any additional information or should you have any questions.

Respectfully,

Nick Clay
Director
Santa Barbara County EMS Agency

Daniel Shepherd, MD
Medical Director
Santa Barbara County EMS Agency

SYSTEM ORGANIZATION AND MANAGEMENT

EMS System: *Santa Barbara County EMS Agency*
Reporting Year: *2017, 2018, 2019, 2020, 2021, 2022*

1. Percentage of population served by each level of care by county:
(Identify for the maximum level of service offered; the total of a, b, and c should equal 100%.)

a) Basic Life Support (BLS)	0%
b) Limited Advanced Life Support (LALS)	0%
c) Advanced Life Support (ALS)	100%

2. Type of agency

a) Public Health Department	*Yes*
b) County Health Services Agency	
c) Other (non-health) County Department	
d) Joint Powers Agency	
e) Private Non-Profit Entity	
f) Other:	

3. The person responsible for day-to-day activities of the EMS agency reports to *D*
   a) Public Health Officer
   b) Health Services Agency Director/Administrator
   c) Board of Directors
   d) Other: *Public Health Deputy Director/Community Health*

4. Indicate the non-required functions which are performed by the agency:

Implementation of exclusive operating areas (ambulance franchising)	*Yes*
Designation of Trauma centers/trauma care system planning	*Yes*
Designation of STEMI centers/STEMI care system planning	*Yes*
Designation of Stroke centers/Stroke care system planning	*Yes*
Designation/approval of pediatric facilities	*No*
Development of transfer agreements	*Yes*
Enforcement of ambulance service contracts	*Yes*
Operation of ambulance service	*Yes*
Continuing education	*Yes*
Personnel training	*Yes*
Operation of oversight of EMS dispatch center (EMD Only)	*Yes*
Non-medical disaster planning	*Yes*
Administration of critical incident stress debriefing team (CISD)	*No*
Administration of disaster medical assistance team (DMAT)	*Yes*

5. Expenses (*Reporting Year:* July 2021 – June 2022)

Personnel Costs (excludes contract personnel)	*$879,232*
Services & Supplies	*$497,268*
Total Expenses	***$1,363,105***

6. Sources of Revenue

Adult Vehicle Code Fines	*$0*
Health/Safety Violations	*$77,138*
Administrative Services and/Collection Fee	*$535,668*
Ambulance Services	*$124,131*
EMS Certification Fees	*$32,293*
Other Services (Hospital Contracts)	*$542,374*
County General Fund	*$77,699*
Total Revenue	***$1,389,906***

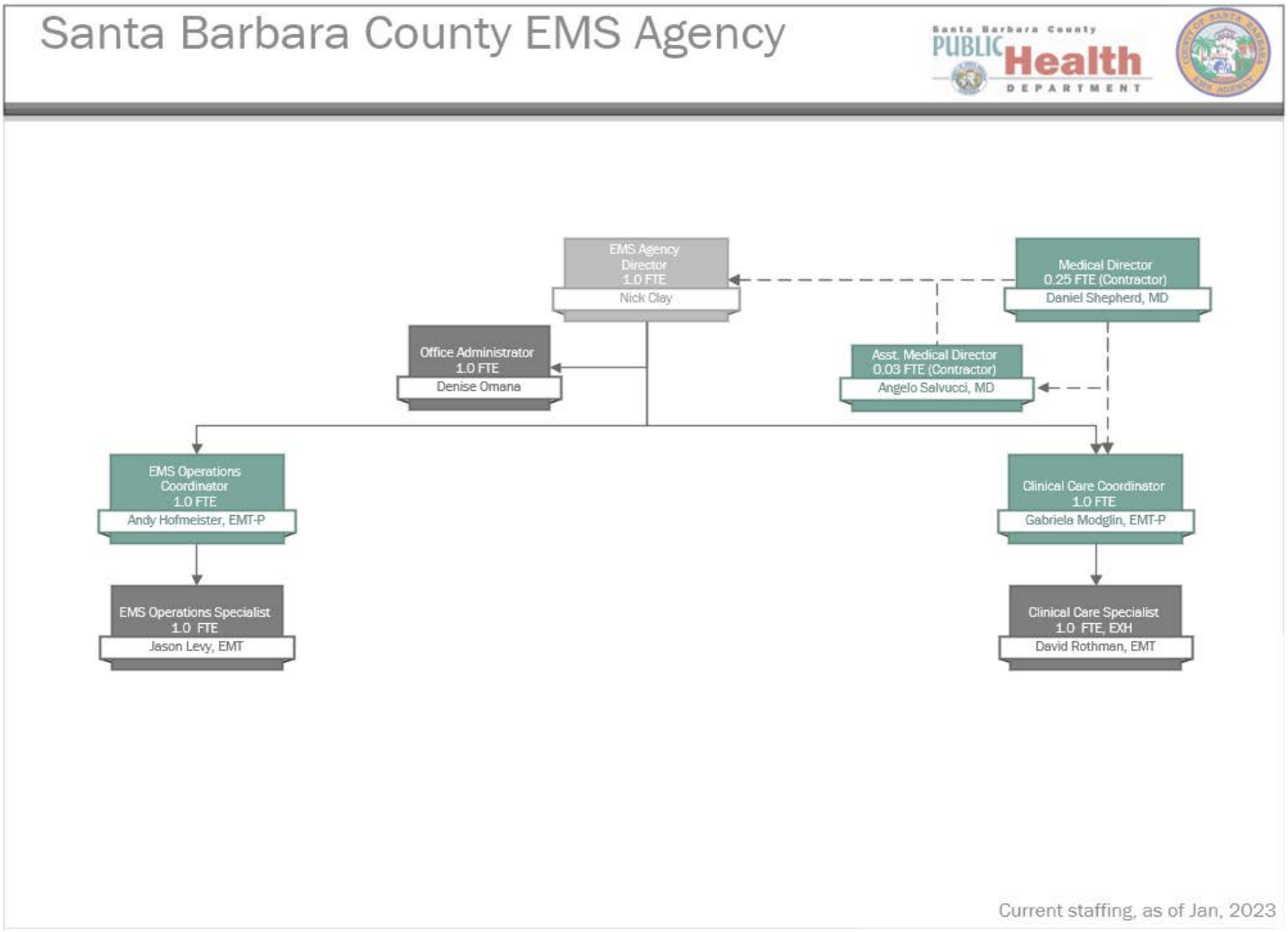
**Due to position vacancies the year's expenses were less than the revenue.*

7. Fee structure

EMT-I certification (excludes State fee)	*$116*
EMT-I recertification	*$59*
EMT-P accreditation	*$245*
Mobile Intensive Care Nurse/Authorized Registered Nurse certification	*$0*
EMT-I training program approval	*$0*
EMT-P training program approval	*$0*
Base hospital application	*$0*
Base hospital designation	*$0*
Trauma center application	*$0*
Trauma center designation (annual)	
Level I	*$188,865*
Level III	*$64,986*
STEMI center application	*$0*
STEMI center designation (annual)	*$32,463*
Stroke center application	*$0*
Stroke center designation	*$0*

Paramedic Accreditations						
	2017	**2018**	**2019**	**2020**	**2021**	**2022**
Total Accredited	20	13	17	16	22	30
Total re-verified	51	78	16	20	26	75

EMS AGENCY STRUCTURE



Job Title	Job Classification	FTE POSITIONS (EMS ONLY)	TOP SALARY BY HOURLY EQUIVALENT	BENEFITS (%of Salary)	COMMENTS
EMS Agency Director	Business Unit Leader	1	$62.86	51	
EMS Operations Coordinator	Performance Improvement Coordinator	1	$55.96	51	
Clinical Systems Coordinator	Performance Improvement Coordinator	1	$61.49	51	
Medical Director	Contractor	0.25	Contract Position	N/A	
Assistant Medical Director	Contractor	0.03	Contract Position		
EMS Operations Specialist	Business Development Specialist	1	$39.51	51	
Clinical Systems Specialist	Public Health Program Coordinator	1	$34.89	51	Extra help position
Office Administrator	Administrative Office Professional I	1	$25.94	51	

AMBULANCE SUMMARY

The following tables describe the ambulance operating zones in Santa Barbara County for the calendar years 2017 through 2022.

Local EMS Agency or County Name
Santa Barbara County EMS Agency
Area or subarea (zone) Name or Title
Zone 1
Area or subarea (Zone) Geographic Description
Zone 1 is the largest ambulance zone in Santa Barbara County covering approximately 93% of the county population. Zone 1 is described as the exclusive area designated by the County of Santa Barbara, as that portion of Santa Barbara County, California exclusive of that portion Eastward of Highway 166, 25 miles East of the junction of Highway 101 and 166, and all of Highway 33; and exclusive of the Lompoc Valley as defined in Service Area 2. Service Area 1 is a “grandfathered” exclusive operating area (EOA) that conforms to 1797.224 of the Health and Safety Code continuing the use of the existing provider in the same manner and scope, without interruption, since January 1, 1981. Service Area 1 is an EOA that was approved by the Santa Barbara County Board of Supervisors in 1980.
Current Provider Name
American Medical Response of Santa Barbara County, serving Service Area 1 since 1980.
☒Exclusive ☐Non-Exclusive

Local EMS Agency or County Name
Santa Barbara County EMS Agency
Area or subarea (zone) Name or Title
Zone 2
Area or subarea (Zone) Geographic Description
Zone 2 is the area designated by the County of Santa Barbara, as that portion of the Lompoc Valley beginning with the intersection of Northern boundary of Vandenberg Air Force Base and the coast proceeding to the junction of San Antonio Road and Vandenberg Road, East of San Antonio Road to Highway 135 to Harris Grade Road, South on Drum Canyon Road to Highway 246, a line due South to Highway 1, and a line West to a point on the coast two miles South of Jalama Beach Park. Zone 2 is a non-exclusive operating area. ALS transport services are furnished by provider agencies that have historically operated in those areas. There have been no changes in the configuration of these Service Areas and no change in the providers for this zone since our last plan update. The Santa Barbara County Fire Department provides back up ambulance service to this area when requested. Both agencies are under contract with the Santa Barbara County EMS Agency.
Current Provider Name
American Medical Response and the Santa Barbara County Fire Department are the primary ambulance services in Zone 2. Both agencies are under contract with the Santa Barbara County EMS Agency.
☐Exclusive ☒Non-Exclusive

Local EMS Agency or County Name
Santa Barbara County EMS Agency
Area or subarea (zone) Name or Title
Zone 3 (Service Area 3)
Area or subarea (Zone) Geographic Description
"Service Area 3" means that area 25 miles East of the intersection of Highway 101 along Highway 166 (Sierra Madre Rd) to Highway 33 and 166 south to 20 miles past Ventucopa. Service Area 3 qualifies as an exclusive operating area applicable under 1797.224. BLS transport services were furnished by the Santa Barbara County Fire Department since 1974 until 1992 when they upgraded to ALS transport services.
Current Provider Name
Santa Barbara County Fire Department has provided BLS ambulance service in Service Area 3 since 1974 increasing to ALS ambulance service in 1992.
☒Exclusive ☐Non-Exclusive

ASSESSMENT OF HOSPITALS AND CRITICAL CARE

Reporting Year: *2017, 2018, 2019, 2020, 2021, 2022*

EMS System Facility Statistics

Emergency Departments

Total number of emergency departments: 5

Hospitals with Written Agreements

Total number of receiving hospitals: 5
Total number of base hospitals: 5

Alternative Receiving Facilities

Do you have designated alternative receiving facilities? ☐ Yes ☒ No
Number of alternate receiving facilities: 0
Psychiatric Receiving Facilities: 0
Sobering Centers: 0

Specialty Care Systems

Trauma System

Do you have a trauma system? ☒ Yes ☐ No
Adult Trauma Centers:
Level I 1 *Level II* 0 *Level III* 1 *Level IV* 0
Pediatric Trauma Centers:
Level I 0 *Level II* 1 *Level III* 0 *Level IV* 0
Number of EMS patients meeting trauma triage criteria
a) Transported to a trauma center by ambulance: 1587
b) Not transported to a trauma center by ambulance: 150
Number of trauma patients transferred to a trauma center for a higher level of care:
a) From a non-trauma facility: 14
b) From a lower level trauma center: 1

STEMI System

Do you have a ST-Elevation Myocardial Infarction (STEMI) system? ☒ Yes ☐ No
Number of STEMI centers/hospitals designated by EMS Agency: 5
a) STEMI Receiving: 2
b) STEMI Referring: 3

Stroke System

Do you have a stroke system? ☒ Yes ☐ No
Number of stroke centers/hospitals (third party accreditation only): 4
a) Comprehensive Stroke Center (CSC): 1
b) Primary Stroke Center (PSC): 1
c) Acute Stroke Ready Hospital (ASRH): 2

EMS for Children

Do you have an EMS for children system? ☒ Yes ☐ No

Number of pediatric receiving centers: 1

a) Comprehensive: 1

EMS SYSTEM PROVIDERS, PERSONNEL, AND TRAINING

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name:	**Provider Number**	
American Medical Response West	S42-50088	
Ownership	**Level of Service**	
☒Private ☐Public	☒BLS ☐BLS-OS ☒ALS ☒CCT	☐First Response ☒Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
240 E. Highway 246, Ste. 300 Buellton, California 93427	(805) 688-6550	
Point of Contact		
Dave Schierman		

CY	Incident Count		Medical Director Retained	Contract with the LEMSA	Number of Stations
	All Incidents	Transports			
2017	42,695	31,357	Yes	Yes	7
2018	41,586	30,297	Yes	Yes	7
2019	41,431	29,612	Yes	Yes	7
2020	39,869	27,892	Yes	Yes	7
2021	43,902	30,824	Yes	Yes	7
2022	45,558	32,896	Yes	Yes	7

Training Program	Training Provider Number	Program Level
☒Continuing Education ☐Initial Training ☐Renewal Training	42-0750	☐First Aid ☒EMT ☐EMT- OS ☒EMT – P
Student Eligibility		**Expiration Date**
☒Employment only ☐Public		January 31, 2027

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Santa Barbara County Fire Department	S42-50841	
Ownership	**Level of Service**	
☐Private ☒Public	☒BLS ☐BLS-OS ☒ALS ☐CCT	☒First Response ☒Ground Transport ☒Rescue Air Transport ☐ Air Ambulance Transport
Provider Address	**Phone Number**	
4410 Cathedral Oaks Rd, Santa Barbara, CA 93110	(805) 681-5500	
Point of Contact		
Garrett Huff		

CY	Incident Count			Medical Director Retained	Contract with the LEMSA	Number of stations
	All Incidents	Ground Transports	Air Transports			
2017	12,341	973	12	Yes	Yes	16
2018	11,989	984	11	Yes	Yes	16
2019	11,822	997	9	Yes	Yes	16
2020	10,621	812	18	Yes	Yes	16
2021	12,042	1,003	22	Yes	Yes	16
2022	12,919	1,026	30	Yes	Yes	16

Training Program	Training Provider Number	Program Level
☒Continuing Education ☐Initial Training ☐Renewal Training	42-0300	☐First Aid ☒EMT ☐EMT- OS ☒EMT – P
Student Eligibility		**Expiration Date**
☒Employment only ☐Public		February 2, 2024

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Santa Barbara City Fire Department	S42-50840	
Ownership	**Level of Service**	
☐Private ☒Public	☒BLS ☐BLS-OS ☐ALS ☐CCT	☒First Response ☐Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
121 W. Carrillo St. Santa Barbara, CA 93101	(805) 963-1015	
Point of Contact		
Michael Hoose		

CY	Incident Count	Medical Director Retained	Contract with the LEMSA	Number of stations
2017	8,108	Yes	Yes	8
2018	7,953	Yes	Yes	8
2019	8,171	Yes	Yes	8
2020	8,068	Yes	Yes	8
2021	9,548	Yes	Yes	8
2022	9,479	Yes	Yes	8

Training Program	Training Provider Number	Program Level
☒Continuing Education ☐Initial Training ☐Renewal Training	42-0960	☐First Aid ☒EMT ☐EMT- OS ☐EMT – P
Student Eligibility		**Expiration Date**
☒Employment only ☐Public		February 2, 2024

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Santa Maria City Fire Department	S42-50840	
Ownership	**Level of Service**	
☐Private ☒Public	☒BLS ☐BLS-OS ☐ALS ☐CCT	☒First Response ☐Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
314 West Cook Street Santa Maria, California 93458	(805) 925-0951	
Point of Contact		
Jim Clayton		

CY	Incident Count	Medical Director Retained	Contract with the LEMSA	Number of stations
2017	6,324	Yes	Yes	6
2018	6,422	Yes	Yes	6
2019	7,907	Yes	Yes	6
2020	7,797	Yes	Yes	6
2021	8,092	Yes	Yes	6
2022	8,896	Yes	Yes	6

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Guadalupe Fire Department Department of Public Safety	S42-51325	
Ownership	**Level of Service**	
☐Private ☒Public	☐BLS ☒BLS-OS ☐ALS ☐CCT	☒First Response ☐Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
918 Obispo Street Guadalupe, California 93434	(805) 343-1340	
Point of Contact		
Fernando Garcia		

CY	Incident Count	Medical Director Retained	Contract with the LEMSA	Number of stations
2017	397	Yes	Yes	1
2018	415	Yes	Yes	1
2019	445	Yes	Yes	1
2020	456	Yes	Yes	1
2021	398	Yes	Yes	1
2022	463	Yes	Yes	1

Training Program	Training Provider Number	Program Level
☒Continuing Education ☐Initial Training ☐Renewal Training	42-0970	☐First Aid ☒EMT ☒EMT- OS ☐EMT – P
Student Eligibility		**Expiration Date**
☒Employment only ☐Public		January 31, 2027

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Lompoc City Fire Department	S42-51326	
Ownership	**Level of Service**	
☐Private ☒Public	☐BLS ☒BLS-OS ☐ALS ☐CCT	☒First Response ☐Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
115 South G Street Lompoc, California, 93436	(805) 736-4513	
Point of Contact		
Kevin Shay		

CY	Incident Count	Medical Director Retained	Contract with the LEMSA	Number of stations
2017	3,191	Yes	Yes	2
2018	3,055	Yes	Yes	2
2019	2,888	Yes	Yes	2
2020	2,937	Yes	Yes	2
2021	3,523	Yes	Yes	2
2022	3,863	Yes	Yes	2

Training Program	Training Provider Number	Program Level
☒Continuing Education ☒Initial Training ☒Renewal Training	42-0850	☐First Aid ☒EMT (CE) ☒EMT- OS (Training) ☐EMT – P
Student Eligibility		**Expiration Date**
☒Employment only ☐Public		January 31, 2027

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
CALSTAR	S42-50193	
Ownership	**Level of Service**	
☒Private ☐Public	☐BLS ☐BLS-OS ☐ALS ☒CCT	☐First Response ☐Ground Transport ☐Rescue Air Transport ☒Air Ambulance Transport
Provider Address	**Phone Number**	
3996 Mitchell Road Santa Maria, CA 93455	(805) 938-9001	
Point of Contact		
Aaron Hartney		

CY	Incident Count		Medical Director Retained	Contract with the LEMSA	Number of Stations
	All Incidents	Transports			
2017	131	130	Yes	Yes	1
2018	267	265	Yes	Yes	1
2019	206	205	Yes	Yes	1
2020	168	168	Yes	Yes	1
2021	154	152	Yes	Yes	1
2022	247	219	Yes	Yes	1

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Montecito Fire Protection District	S42-50639	
Ownership	**Level of Service**	
☐Private ☒Public	☐BLS ☐BLS-OS ☒ALS ☐CCT	☒First Response ☐Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
595 San Ysidro Road, Montecito, California 93108	(805) 969-7762	
Point of Contact		
Anthony Hudley		

CY	Incident Count	Medical Director Retained	Contract with the LEMSA	Number of Stations
2017	906	Yes	Yes	2
2018	756	Yes	Yes	2
2019	846	Yes	Yes	2
2020	732	Yes	Yes	2
2021	933	Yes	Yes	2
2022	948	Yes	Yes	2

Training Program	Training Provider Number	Program Level
☒Continuing Education ☐Initial Training ☐Renewal Training	42-0900	☐First Aid ☒EMT ☐EMT- OS ☒EMT – P
Student Eligibility		**Expiration Date**
☒Employment only ☐Public		February 2, 2024

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Carpinteria-Summerland Fire Protection District	S42-51268	
Ownership	**Level of Service**	
☐Private ☒Public	☐BLS ☐BLS-OS ☒ALS ☐CCT	☒First Response ☐Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
1140 Eugenia Place, Ste. A Carpinteria, CA 93013	(805) 684-4591	
Point of Contact		
Michael Hayek		

CY	Incident Count	Medical Director Retained	Contract with the LEMSA	Number of stations
2017	1,613	Yes	Yes	2
2018	1,594	Yes	Yes	2
2019	1,625	Yes	Yes	2
2020	1,557	Yes	Yes	2
2021	1,759	Yes	Yes	2
2022	1,823	Yes	Yes	2

Training Program	Training Program Number	Program Level
☒Continuing Education ☐Initial Training ☐Renewal Training	42-9200	☐First Aid ☒EMT ☐EMT- OS ☒EMT – P
Student Eligibility		**Expiration Date**
☒Employment only ☐Public		January 31, 2027

Local EMS Agency or County Name		
Santa Barbara County EMS Agency		
Provider Name	**Provider Number**	
Santa Barbara County Sheriff Search and Rescue	42-0430	
Ownership	**Level of Service**	
☐Private ☒Public	☐BLS ☐BLS-OS ☒ALS ☐CCT	☒First Response ☐Ground Transport ☐Rescue Air Transport ☐Air Ambulance Transport
Provider Address	**Phone Number**	
66 South San Antonio Rd Santa Barbara, CA 93110	(805) 684-4591	
Point of Contact		
Susie Theilmann, RN		
Training Program	**Program Level**	
☒Continuing Education ☐Initial Training ☐Renewal Training	☐First Aid ☒EMT ☐EMT- OS ☐EMT – P	
Student Eligibility	**Expiration Date**	
☒Employment only ☐Public	January 31, 2027	

Local EMS Agency or County Name	
Santa Barbara County EMS Agency	
Provider Name:	**Provider Number**
Santa Barbara City College	42-0400
Ownership	
☐Private ☒Public	
Provider Address	**Phone Number**
721 Cliff Drive Santa Barbara, CA 93109	
Point of Contact	
Mary Gauthier	
Training Program	**Program Level**
☒Continuing Education ☒Initial Training ☒Renewal Training	☒First Aid ☒EMT ☐EMT- OS ☐EMT – P
Student Eligibility	**Expiration Date**
☐Employment only ☒Public	January 31, 2027

Local EMS Agency or County Name	
Santa Barbara County EMS Agency	
Provider Name:	**Provider Number**
University of California, Santa Barbara School of Extended Learning	
Ownership	
☐Private ☒Public	
Provider Address	**Phone Number**
UC Santa Barbara School of Extended Learning Santa Barbara, California 93106	(805) 893-8000
Point of Contact	
Matthew McElhenie	
Training Program	**Program Level**
☐Continuing Education ☒Initial Training ☒Renewal Training	☒First Aid ☒EMT ☐EMT- OS ☐EMT – P
Student Eligibility	**Expiration Date**
☐Employment only ☒Public	September 23, 2023

Local EMS Agency or County Name	
Santa Barbara County EMS Agency	
Provider Name:	**Provider Number**
Allan Hancock Community College	42-0100
Ownership	
☐Private ☒Public	
Provider Address	**Phone Number**
Allan Hancock College 800 S. College Dr. Santa Maria, CA 93454	(805) 922-6966
Point of Contact	
Sue Roehl	
Training Program	**Program Level**
☒Continuing Education ☒Initial Training ☒Renewal Training	☐First Aid ☒EMT ☐EMT- OS ☐EMT – P
Student Eligibility	**Expiration Date**
☐Employment only ☒Public	January 31, 2027

Local EMS Agency or County Name	
Santa Barbara County EMS Agency	
Provider Name	**Provider Number**
Cottage Health Systems	42-7000
Ownership	**Level of Service**
☒Private ☐Public	
Provider Address	**Phone Number**
400 W Pueblo St, Santa Barbara, CA 93105	(805) 258-1287
Point of Contact	
Kelly Kam	
Training Program	**Program Level**
☒Continuing Education ☐Initial Training ☐Renewal Training	☐First Aid ☒EMT ☐EMT- OS ☒EMT – P
Student Eligibility	**Expiration Date**
☐Employment only ☒Public	January 31, 2027

Local EMS Agency or County Name	
Santa Barbara County EMS Agency	
Provider Name	**Provider Number**
NCTI - Santa Barbara	42-0001
Ownership	
☒Private ☐Public	
Provider Address	**Phone Number**
240 East HWY 246, Suite 110, Buellton CA 93427	(951) 683 - 2498
Point of Contact	
Dave Schierman	
Training Program	**Program Level**
☒Continuing Education ☒Initial Training ☒Renewal Training	☐First Aid ☒EMT ☐EMT- OS ☒EMT – P
Student Eligibility	**Expiration Date**
☐Employment only ☒Public	November 30, 2024

Local EMS Agency or County Name	
Santa Barbara County EMS Agency	
Provider Name	**Provider Number**
Santa Barbara County EMS Agency	42-0001
Ownership	
☐Private ☒Public	
Provider Address	**Phone Number**
300 N. San Antonio Santa Barbara, CA 93110	(805) 258-1287
Point of Contact	
Nick Clay, Director	
Training Program	**Program Level**
☒Continuing Education ☐Initial Training ☐Renewal Training	☒First Aid ☒EMT ☒EMT- OS ☒EMT – P
Student Eligibility	**Expiration Date**
☐Employment only ☒Public	December 31, 2099

PUBLIC INFORMATION, EDUCATION & AWARENESS

Number of programs EMS Agency provided to the public:

Reporting Year 2017

1 EMS Awareness	0 Bleeding Control
1 First Aid	1 CPR
0 Prevention Activities	1 Disaster Preparedness

Reporting Year 2018

1 EMS Awareness	0 Bleeding Control
1 First Aid	1 CPR
1 Prevention Activities	1 Disaster Preparedness

Reporting Year 2019

1 EMS Awareness	0 Bleeding Control
1 First Aid	1 CPR
1 Prevention Activities	1 Disaster Preparedness

Reporting Year 2020

1 EMS Awareness	0 Bleeding Control
0 First Aid	0 CPR
0 Prevention Activities	0 Disaster Preparedness

Reporting Year 2021

1 EMS Awareness	0 Bleeding Control
1 First Aid	0 CPR
3 Prevention Activities	1 Disaster Preparedness

Reporting Year 2022

2 EMS Awareness	0 Bleeding Control
1 First Aid	0 CPR
3 Prevention Activities	1 Disaster Preparedness

COMMUNICATIONS

Number of primary Public Answering Points (PSAP): 5
Number of secondary PSAPs: 1
Number of dispatch centers directly dispatching ambulances: 1
Number of EMS dispatch agencies utilizing EMD guidelines: 2
Number of designated dispatch centers for EMS aircraft: 1
Who is your primary dispatch agency for day-to day emergencies? Santa Barbara County Sheriff's Office
Do you have an operational area disaster communication system? ☒ Yes ☐ No
Identify other methods: Reddinet, ARES, Satellite Phone
Can all medical response units communicate on the same disaster communication system? ☒ Yes ☐ No
Do you participate in the Operational Area Satellite Information System? ☒ Yes ☐ No
Do you have a plan to utilize the Radio Amateur Civil Emergency Services as a back-up communication system? ☒ Yes ☐ No

DISASTER MEDICAL RESPONSE

EMS Agency Structure

Are you part of a multicounty EMS system for disaster response?	☐Yes ☒No
Are you a separate department or agency? a) To whom do you report? Public Health Department	☒Yes ☐No
What healthcare coalitions are you participating in? Santa Barbara County Health Care Coalition a) How often do you meet with the healthcare coalition? Monthly	
Do you have connection with your Disaster Healthcare Volunteer Administrators in your jurisdiction?	☒Yes ☐No
List all neighboring counties which you have written cooperative agreements and/or medical aid/assistance agreements with: Region I (San Luis Obispo County, Ventura County, Los Angeles County, Orange County) Region 6 (Imperial County, Inyo County, Mono County, Riverside County, San Bernardino County, San Diego County)	

EMS Agency Plans, Policies, Programs, and Teams

Do you have the following:

a) Disaster Plan?	☒Yes ☐No	Multi Casualty Incident Response
b) Active Shooter Policy?	☐Yes ☒No	
c) Hazardous Material (Hazmat) Plan?	☒Yes ☐No	Hazardous Material Incident/Decontamination of Patients
d) Disaster Medical Cache?	☒Yes ☐No	
e) Disaster Medical Support Group?	☒Yes ☐No	Medical Reserve Corp
f) Medical Assets	☒Yes ☐No	
g) Incident Command Organization Chart	☒Yes ☐No	
h) Communications Plan	☒Yes ☐No	ReddiNet Communication Policy
i) Ambulance Strike Team Leader Program	☐Yes ☒No	
j) EMS Authority Affiliated Strike Team (includes a Disaster Medical Support Unit)	☒Yes ☐No	n/a

EMS Agency System Operations and Resources

Do you have designated field treatment sites? a) Identify the locations: N/A b) How are they staffed: N/A c) Is there a supply system for supporting them for 72 hours?	☐Yes ☒No ☒Yes ☐No
Is there a mental/behavioral health program available for responders within the jurisdiction? a) Identify the program: Provided by each provider agency	☒Yes ☐No
Is there a team medical response capability? a) For each team, are they incorporated into the local response plan? b) Are they available for statewide response? c) Are they part of a formal out-of-state response system?	☒Yes ☐No ☒Yes ☐No ☒Yes ☐No ☐Yes ☒No
Are there HazMat trained medical response teams? a) At what HazMat level are they trained? FRA/FRO b) Is there capability to do decontamination in an emergency room? c) Is there capability to do decontamination in the field?	☒Yes ☐No ☒Yes ☐No ☒Yes ☐No ☒Yes ☐No
Identify who the Medical Health Operational Area Coordinator is: ☐ Health Officer ☒ EMS Agency ☐Jointly Appointed	
Do you have specific training for mass casualty incident policies?	☒Yes ☐No
Are you using the Standard Emergency Management System (SEMS)? a) Does it incorporate a form of Incident Command System (ICS) structure b) Are you integrated in the Medical/Health branch of the Operation Section in each operational area Emergency Operations Center within the jurisdiction?	☒Yes ☐No ☒Yes ☐No ☒Yes ☐No
Have you tested a multicausality incident plan this year?	☒Yes ☐No

	Real Event	Exercise	
2017	Isla Vista Halloween; DelTopia		
2018	Isla Vista Halloween; DelTopia 1/9 Debris Flow – Montecito		☒Yes ☐No
2019	Isla Vista Halloween; DelTopia	Santa Barbara Airport Triannual Drill; Santa Maria Airport Triannual Drill	☒Yes ☐No
2020	Isla Vista Halloween; DelTopia		☒Yes ☐No
2021	Isla Vista Halloween; DelTopia		☒Yes ☐No
2022	Isla Vista Halloween; DelTopia	Santa Barbara Airport Triannual Drill; Santa Maria Airport Triannual Drill	☒Yes ☐No

Do you have formal agreements with the following in your operational area to participate in disaster planning and response? a) Hospitals b) Community clinics	☒Yes ☐No ☒Yes ☐No

Santa Barbara County

EMS Plan: TRAUMA SYSTEM STATUS REPORT

2017

Trauma System Summary—Santa Barbara County continues to follow the trauma system plan that was developed and approved in 1999. Jennie Simon, RN, continues as the Santa Barbara County Trauma System Manager, focusing on support of the local trauma system. Five hospitals currently exist in Santa Barbara County. Cottage Health System encompasses three facilities; Santa Barbara Cottage Hospital (SBCH), the LEMSA designated and ACS verified Level II Adult and Pediatric Trauma Center in the county, as well as two non-trauma facilities, Santa Ynez Valley Cottage Hospital (SYVCH) and Goleta Valley Cottage Hospital (GVCH). These three hospitals primarily support the southern region of our county. The northern region of our county is served by two additional hospitals; Marian Regional Medical Center (MRMC,) an ACS verified and LEMSA designated Level III Trauma Center and Lompoc Valley Medical Center (LVMC), a non-trauma facility.

Changes in Trauma System —

The overall structure of the Santa Barbara County Trauma System has not had significant changes during the prior two years. Santa Barbara Cottage Hospital (SBCH,) originally designated as a level II Trauma Center by the LEMSA in June of 2001, and first verified by the American College of Surgeons as a Level II Trauma Center in 2005, is currently mid-cycle of their LEMSA designation (June 30, 2015 – July 1, 2017) as both a Level II adult and pediatric trauma center. The American College of Surgeons has verified SBCH again from May 2014 until September 2017. Marian Regional Medical Center (MRMC) was originally designated by the LEMSA as a Level III adult trauma center in April, 2013. MRMC completed their ACS verification review in August of 2015, at which time they received a preliminary one year verification. In August of 2016, MRMC completed the requested ACS requirements and received an additional two years of verification, through August, 2018. MRMC is also currently mid-cycle with their LEMSA designation of June 30, 2015 – July 1, 2017.

Trauma patients in the prehospital environment continue to be identified utilizing Santa Barbara County EMS Policy 510: Trauma Triage Criteria and Patient Destination. This policy is scheduled for review and renewal at our next Trauma System Committee meeting, and no changes are

anticipated at this time. The EMS Agency continues to work with local hospitals to achieve a standardized approach to identifying and guiding the transfer of critical trauma patients from non-trauma hospitals to a trauma center.

Number and Designation Level of Trauma Centers—

Hospital	Trauma Level	Date Designation/Verification
Marian Regional Medical Center (MRMC)	3	ACS Verification - August 2015 LEMSA Designation - June 2015 (most recent)
Santa Barbara Cottage Hospital (SBCH)	2	ACS Verification – May 2014 LEMSA Designation – June 2015 (most recent)
Santa Barbara Cottage Hospital Children's Medical Center (SBCH)	2- Pediatric	ACS Verification – May 2014 LEMSA Designation – June 2015 (most recent)

Trauma System Goals and Objectives—

1. **Identification and Access:** The EMS Agency continues to improve injury identification and access to the EMS system. Patients are tracked through an online trauma registry system, Lancet Trauma One. Patients are entered into the system by the Trauma Centers. This data is then transferred to the central registry at the County EMS Agency for system reporting and review purposes. Information in the registry system is used as part of the performance improvement process and to ensure trauma patients have access to the most

appropriate level of trauma care based on injury severity. The local trauma data dictionary is reviewed and updated by the Trauma System Committee (TSC) annually in conjunction with the NTDB annual updates. We have completed the work with Lancet and the two trauma centers to update both hospital registries and the county registry to be current to the local data dictionary as well as current NTDB version. The next phase of this project, standardizing the information collected for all three counties; Ventura, Santa Barbara and San Luis Obispo, has begun at the tri-county Trauma Audit Committee (TAC) meetings.

2. **Pre-hospital Care/Transportation:** The EMS Agency assures high quality pre-hospital treatment and transportation systems. The EMS field trauma triage and destination policy was updated in August 2014, see attachment. American Medical Response (AMR) is the advance life support ambulance service contracted in Santa Barbara County. In addition, Santa Barbara County Fire Protection District also provides limited ambulance transportation in three areas of the County. Santa Barbara County has a designated air ambulance provider, CALSTAR, based in Santa Maria. In addition the County Air Operations, jointly run by the County Fire and Sheriff's Department, have several designated air rescue helicopters available. All pre-hospital personnel are required to meet educational requirements that include trauma treatment and trauma system issues. Both Trauma Centers actively participate in this education, including case reviews and trauma triage skill competency sessions. In addition, the trauma triage guidelines have been incorporated in to the local Multi Casualty Incident Plan, and all field providers, both BLS and ALS, have been trained to these guidelines. The EMS Agency works closely with all pre-hospital providers to identify any transportation issues related to the rapid care and transport of trauma patients.

3. **Hospital Care:** The EMS Agency continues to work successfully with each non-trauma hospital to develop plans for the rapid assessment, stabilization and transfer of any critically injured trauma patients that may present in their facility. There are very few of these cases that occur in our county, and for those that do, the EMS Agency provides a forum for open discussion and peer review of medical care amongst the trauma medical directors, emergency department medical directors and trauma program managers.

4. **Evaluation:** The EMS Agency's goal is to provide continuous monitoring of the trauma system to ensure appropriate access, triage and treatment of the trauma patient and to assist with identifying needed refinements of our current trauma system. The prehospital Continuous Quality Improvement Committee is tasked with weekly audits of all patient care records indicating an injury, and meets monthly to discuss any issues identified related to trauma triage. The Trauma System Advisory Committee (TSC) meets four times a year to review and receive input on proposed changes to field triage, transport destination and transfer policies, and to make recommendations to the EMS Agency. In addition, TSC discusses best practices and reviews trauma cases specifically for Santa Barbara County. Trauma programs from Santa Barbara County, Ventura County and San Luis Obispo County also meet three times a year to participate in a regional Trauma Audit Committee (TAC) to review and discuss trauma issues that potentially affect the region. At this meeting, each trauma center also presents preselected cases that they have identified as showing potential opportunities for trauma care and system wide improvements.

5. **Prevention:** The EMS Agency's goal to integrate injury prevention program standards into the trauma system is ongoing. Trauma prevention education and activities are vested primarily with the trauma centers. The two main programs continue; Santa Barbara Cottage Hospital's sports head injury education and outreach program and Marian Regional Medical Center's outreach education program through the local court system on the potential medical outcomes of driving under the influence. In addition, the two Trauma Centers provide fall prevention outreach efforts, and have recently joined together to collaborate with local fire departments on a county-wide Fall Prevention Program. This program is being designed to target the vulnerable senior populations that have a history of high utilization of the 911 system for fall type incidents. The Santa Barbara Cottage Hospital Injury Prevention Program was recently recognized a Safe Kids California Coalition Coordinator for our area, which will help to improve education and outreach efforts for pediatric injury prevention in our communities. The EMS Agency's Trauma System Manager continues to be a member of the County's Child Death Review Team, providing input on all traumatic child deaths. The EMS Agency continues to assist with injury data collection utilizing both the Trauma System Manager and Epidemiologist to assist and make available this information to any agencies interested in developing prevention programs.

6. **Administration:** The EMS Agency has established a program of leadership and oversight to facilitate the implementation of the trauma plan. This is an ongoing process as updates or improvements are deemed necessary.

7. **Disaster:** The EMS Agency has integrated disaster/emergency preparedness with the trauma system. Mass Casualty Incidents (MCI) can be monitored with the ReddiNet system. The MCI plan has been updated to incorporate the changes with trauma center designations. All hospitals and American Medical Response are able to enter/review data for disaster/MCI situations. All hospitals are "base hospitals" and can provide guidance for pre-hospital personnel. Disaster /MCI Communication drills are performed bi-monthly utilizing ReddiNet and reviewed quarterly at the and all hospitals participate in the statewide health and medical disaster exercise.

8. **Finance:** The EMS Agency monitors, evaluates and modifies the trauma system components as appropriate, based on the financial assessment of the trauma system. The EMS Agency has negotiated trauma center agreements with SBCH and MRMC for service charges associated with the direct cost of the trauma system to support the ongoing oversight and system performance improvements.

Changes to Implementation Schedule—no changes are anticipated at this time.

System Performance Improvement— The EMS Agency participates in Continuous Quality Improvement programs which include trauma care and EMS performance. Within the county, the Trauma System Committee (TSC) meets quarterly to review local data reports and discuss local system issues. Local policies and education efforts are reviewed and developed by TSC, utilizing the input and data of participants from both hospital and prehospital entities. We anticipate this

group will be involved in the development of a new Trauma System Plan for Santa Barbara County in the near future.

The tri-county regional Trauma Audit Committee that includes Santa Barbara, Ventura and San Luis Obispo Counties, continues to meet three times a year, rotating locations amongst the counties. This meeting, where best practices are discussed and problem solving ideas are shared, has excellent participation and has become a strong component of system and region performance improvement. Santa Barbara and San Luis Obispo EMS Agencies now the share QI data for any patients that cross county lines as agreed to by a MOU that facilitates the provision of optimal care for patients with traumatic injuries through regional recognition of the designated hospitals in both counties.

The surrounding counties all work well together and have been strengthening access to trauma services in the region. A tri-county Trauma Education Consortium is currently being developed to facilitate improved sharing of trauma education resources for both the hospital and prehospital participants. Santa Barbara EMS Agency continues to participate in the Southwest Regional Trauma Care Committee and all three of the tri-counties LEMSA trauma staff participate at the SWRTCC and are active on the committees to support regional trauma system improvement activities. The Trauma System Manager as well the Trauma Program Managers from both trauma centers in the county are all active members of the Trauma Managers Association of California (TMAC.)

Progress on addressing EMS Authority Trauma System Plan Comments —

No issues identified in prior plan approval.

Other Issues —

None at this time.

Santa Barbara County

EMS Plan: TRAUMA SYSTEM STATUS REPORT

December 2018

Trauma System Summary—Santa Barbara County continues to follow the trauma system plan that was developed and approved in 1999. Michele Combs, RN, serves as the Santa Barbara County Trauma System Manager, focusing on support of the local trauma system. Five hospitals currently exist in Santa Barbara County. Cottage Health System encompasses three facilities; Santa Barbara Cottage Hospital (SBCH), the LEMSA designated and ACS verified Level I Adult and Level II Pediatric Trauma Center in the county, as well as two non-trauma facilities, Santa Ynez Valley Cottage Hospital (SYVCH) and Goleta Valley Cottage Hospital (GVCH). These three hospitals primarily support the southern region of our county. The northern region of our county is served by two additional hospitals; Marian Regional Medical Center (MRMC,) an ACS verified and LEMSA designated Level III Trauma Center and Lompoc Valley Medical Center (LVMC), a non-trauma facility.

Changes in Trauma System —

The overall structure of the Santa Barbara County Trauma System has not had significant changes during the prior two years. Santa Barbara Cottage Hospital (SBCH,) originally designated as a level II Trauma Center by the LEMSA in June of 2001, and first verified by the American College of Surgeons as a Level II Trauma Center in 2005, has been verified and designation as a Level I Trauma Center on August 29, 2017 for 3 years through August 29, 2020 and is currently mid-cycle of their LEMSA designation (June 30, 2017 – July 1, 2019 as both a Level II adult and Level II pediatric trauma center. The American College of Surgeons has verified SBCH again from May 2014 until September 2017. Marian Regional Medical Center (MRMC) was originally designated by the LEMSA as a Level III adult trauma center in April, 2013. MRMC completed their ACS verification review in August of 2015, at which time they received a preliminary one year verification. In August of 2016, MRMC completed the requested ACS requirements and received an additional two years of verification, through August, 2018. Currently re-verified on July 2018 for 1 year, through July 30, 2019. MRMC is also currently mid-cycle with their LEMSA designation June 30, 2017 - July 1, 2019. Trauma patients in the prehospital environment continue to be identified utilizing Santa Barbara County EMS Policy 510: Trauma Triage Criteria and Patient Destination. This policy is scheduled for

review and renewal at our next Trauma System Committee meeting, and no changes are anticipated at this time. The EMS Agency continues to work with local hospitals to achieve a standardized approach to identifying and guiding the transfer of critical trauma patients from non-trauma hospitals to a trauma center.

Number and Designation Level of Trauma Centers—

Hospital	Trauma Level	Date Designation/Verification
Marian Regional Medical Center (MRMC)	3	ACS Verification - July 2018 (most recent) LEMSA Designation - June 2017 (most recent)
Santa Barbara Cottage Hospital (SBCH)	1	ACS Verification – August 2017 (most recent) LEMSA Designation – June 2017 (most recent)
Santa Barbara Cottage Hospital Children's Medical Center (SBCH)	2- Pediatric	ACS Verification – August 2017 (most recent) LEMSA Designation – June 2017 (most recent)

Trauma System Goals and Objectives—

1. **Identification and Access:** The EMS Agency continues to improve injury identification and access to the EMS system. Patients are tracked through an work station based trauma registry system, Lancet Trauma One. Patients are entered into the system by the Trauma Centers. This data is then transferred to the central registry at the County EMS Agency for system reporting and review purposes. Information in the registry system is used as part of the performance improvement process and to ensure trauma patients have access to the most appropriate level of trauma care based on injury severity. The local trauma data dictionary is reviewed and updated by the Trauma System Committee (TSC) annually in conjunction with the NTDB annual updates. Standardized information is now being collected for all three counties; Ventura, Santa Barbara and San Luis Obispo at the tri-county Trauma Audit Committee (TAC) meetings.

2. **Pre-hospital Care/Transportation:** The EMS Agency assures high quality pre-hospital treatment and transportation systems. The EMS field trauma triage and destination policy was updated in August 2018, see attachment. American Medical Response (AMR) is the advance life support ambulance service contracted in Santa Barbara County. In addition, Santa Barbara County Fire Protection District also provides limited ambulance transportation in three areas of the County. Santa Barbara County has a designated air ambulance provider, REACH, based in Santa Maria. In addition the County Air Operations, jointly run by the County Fire and Sheriff's Department, have several designated air rescue helicopters available. All pre-hospital personnel are required to meet educational requirements that include trauma treatment and trauma system issues. Both Trauma Centers actively participate in this education, including case reviews and trauma triage skill competency sessions. In addition, the trauma triage guidelines have been incorporated in to the local Multi Casualty Incident Plan, and all field providers, both BLS and ALS, have been trained to these guidelines. The EMS Agency works closely with all pre-hospital providers to identify any transportation issues related to the rapid care and transport of trauma patients.

3. **Hospital Care:** The EMS Agency continues to work successfully with each non-trauma hospital to develop plans for the rapid assessment, stabilization and transfer of any critically injured trauma patients that may present in their facility. There are very few of these cases that occur in our county, and for those that do, the EMS Agency provides a forum for open discussion and peer review of medical care amongst the trauma medical directors, emergency department medical directors and trauma program managers.

4. **Evaluation:** The EMS Agency's goal is to provide continuous monitoring of the trauma system to ensure appropriate access, triage and treatment of the trauma patient and to assist with identifying needed refinements of our current trauma system. The prehospital Continuous Quality Improvement Committee is tasked with weekly audits of all patient care records indicating an injury, and meets monthly to discuss any issues identified related to trauma triage. The Trauma System Advisory Committee (TSC) meets four times a year to review and receive input on proposed changes to field triage, transport destination and transfer policies, and to make recommendations to the EMS Agency. In addition, TSC discusses best practices and reviews trauma cases specifically for Santa Barbara County. Trauma programs from Santa Barbara County, Ventura County and San Luis Obispo County also meet three times a year to participate in a regional Trauma

Audit Committee (TAC) to review and discuss trauma issues that potentially affect the region. At this meeting, each trauma center also presents preselected cases that they have identified as showing potential opportunities for trauma care and system wide improvements.

5. **Prevention:** The EMS Agency's goal to integrate injury prevention program standards into the trauma system is ongoing. Trauma prevention education and activities are vested primarily with the trauma centers. The two main programs continue; Santa Barbara Cottage Hospital's sports head injury education and outreach program and Marian Regional Medical Center's outreach education program through the local court system on the potential medical outcomes of driving under the influence. In addition, the two Trauma Centers implemented Stop the bleed programs, training public safety and the general public in the use of tourniquets and bleeding control and also provide fall prevention outreach efforts, and have recently joined together to collaborate with local fire departments on a county-wide Fall Prevention Program. This program is being designed to target the vulnerable senior populations that have a history of high utilization of the 911 system for fall type incidents. The Santa Barbara Cottage Hospital Injury Prevention Program continues to bea Safe Kids California Coalition Coordinator for our area, which will help to improve education and outreach efforts for pediatric injury prevention in our communities. The EMS Agency's Trauma System Manager continues to be a member of the County's Child Death Review Team, providing input on all traumatic child deaths. The EMS Agency continues to assist with injury data collection utilizing both the Trauma System Manager and Epidemiologist to assist and make available this information to any agencies interested in developing prevention programs.

6. **Administration:** The EMS Agency has established a program of leadership and oversight to facilitate the implementation of the trauma plan. This is an ongoing process as updates or improvements are deemed necessary.

7. **Disaster:** The EMS Agency has integrated disaster/emergency preparedness with the trauma system. Mass Casualty Incidents (MCI) can be monitored with the ReddiNet system. The MCI plan has been updated to incorporate the changes with trauma center designations. All hospitals and American Medical Response are able to enter/review data for disaster/MCI situations. All hospitals are "base hospitals" and can provide guidance for pre-hospital personnel. Disaster /MCI Communication drills are performed bi-monthly utilizing ReddiNet and reviewed quarterly and all hospitals participate in the statewide health and medical disaster exercise.

8. **Finance:** The EMS Agency monitors, evaluates and modifies the trauma system components as appropriate, based on the financial assessment of the trauma system. The EMS Agency has negotiated trauma center agreements with SBCH and MRMC for service charges associated with the direct cost of the trauma system to support the ongoing oversight and system performance improvements.

Changes to Implementation Schedule—no changes are anticipated at this time.

System Performance Improvement— The EMS Agency participates in Continuous Quality Improvement programs which include trauma care and EMS performance. Within the county, the Trauma System Committee (TSC) meets quarterly to review local data reports and discuss local system issues. Local policies and education efforts are reviewed and developed by TSC, utilizing the input and data of participants from both hospital and prehospital entities. We anticipate this group will be involved in the development of a new Trauma System Plan for Santa Barbara County in the near future.

The tri-county regional Trauma Audit Committee (TAC) that includes Santa Barbara, Ventura and San Luis Obispo Counties, continues to meet three times a year, rotating locations amongst the counties. This meeting, where best practices are discussed and problem solving ideas are shared, has excellent participation and has become a strong component of system and region performance improvement. Most recently, the TAC committee has collaborated on new Scope of Practice additions to be implemented in the region. Santa Barbara, Ventura and San Luis Obispo EMS Agencies share QI data for any patients that cross county lines as agreed to by a MOU that facilitates the provision of optimal care for patients with traumatic injuries through regional recognition of the designated hospitals in both counties.

The surrounding counties all work well together and have been strengthening access to trauma services in the region. Santa Barbara EMS Agency continues to participate in the Southwest Regional Trauma Care Committee and all three of the tri-counties LEMSA trauma staff participate at the SWRTCC and are active on the committees to support regional trauma system improvement activities. The Santa Barbara County EMS Trauma System Manager is an active member of the Trauma Managers Association of California (TMAC.)

Progress on addressing EMS Authority Trauma System Plan Comments —

No issues identified in prior plan approval.

Other Issues —

None at this time.

Santa Barbara County

EMS Plan: TRAUMA SYSTEM STATUS REPORT

2019

Trauma System Summary—Santa Barbara County continues to follow the trauma system plan that was developed and approved in 1999. Michele Combs, RN, serves as the Santa Barbara County Trauma System Manager, focusing on support of the local trauma system. Five hospitals currently exist in Santa Barbara County. Cottage Health System encompasses three facilities; Santa Barbara Cottage Hospital (SBCH), the LEMSA designated and ACS verified Level I Adult and Level II Pediatric Trauma Center in the county, as well as two non-trauma facilities, Santa Ynez Valley Cottage Hospital (SYVCH) and Goleta Valley Cottage Hospital (GVCH). These three hospitals primarily support the southern region of our county. The northern region of our county is served by two additional hospitals; Marian Regional Medical Center (MRMC,) an ACS verified and LEMSA designated Level III Trauma Center and Lompoc Valley Medical Center (LVMC), a non-trauma facility.

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Number and Designation Level of Trauma Centers—

Hospital	Trauma Level	Date Designation/Verification
Marian Regional Medical Center (MRMC)	3	ACS Verification - July 2018 (most recent) LEMSA Designation - June 2017 (most recent)
Santa Barbara Cottage Hospital (SBCH)	1	ACS Verification – August 2017 (most recent) LEMSA Designation – June 2017 (most recent)
Santa Barbara Cottage Hospital Children's Medical Center (SBCH)	2- Pediatric	ACS Verification – August 2017 (most recent) LEMSA Designation – June 2017 (most recent)

Trauma System Goals and Objectives—

1. **Identification and Access:** The EMS Agency continues to improve injury identification and access to the EMS system. Patients are tracked through an work station based trauma registry system, Lancet Trauma One. Patients are entered into the system by the Trauma Centers. This data is then transferred to the central registry at the County EMS Agency for system reporting and review purposes. Information in the registry system is used as part of the performance improvement process and to ensure trauma patients have access to the most appropriate level of trauma care based on injury severity. The local trauma data dictionary is reviewed and updated by the Trauma System Committee (TSC) annually in conjunction with the NTDB annual updates. Standardized information is now being collected for all three counties; Ventura, Santa Barbara and San Luis Obispo at the tri-county Trauma Audit Committee (TAC) meetings.

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3. **Hospital Care:** The EMS Agency continues to work successfully with each non-trauma hospital to develop plans for the rapid assessment, stabilization and transfer of any critically injured trauma patients that may present in their facility. There are very few of these cases that occur in our county, and for those that do, the EMS Agency provides a forum for open discussion and peer review of medical care amongst the trauma medical directors, emergency department medical directors and trauma program managers.

4. **Evaluation:** The EMS Agency's goal is to provide continuous monitoring of the trauma system to ensure appropriate access, triage and treatment of the trauma patient and to assist with identifying needed refinements of our current trauma system. The prehospital Continuous Quality Improvement Committee is tasked with weekly audits of all patient care records indicating an injury, and meets monthly to discuss any issues identified related to trauma triage. The Trauma System Advisory Committee (TSC) meets four times a year to review and receive input on proposed changes to field triage, transport destination and transfer policies, and to make recommendations to the EMS Agency. In addition, TSC discusses best practices and reviews trauma cases specifically for Santa Barbara County. Trauma programs from Santa Barbara County, Ventura County and San Luis Obispo County also meet three times a year to participate in a regional Trauma Audit Committee (TAC) to review and discuss trauma issues that potentially affect the region. At this meeting, each trauma center also presents preselected cases that they have

identified as showing potential opportunities for trauma care and system wide improvements.

5. **Prevention:** The EMS Agency's goal to integrate injury prevention program standards into the trauma system is ongoing. Trauma prevention education and activities are vested primarily with the trauma centers. The two main programs continue; Santa Barbara Cottage Hospital's sports head injury education and outreach program and Marian Regional Medical Center's outreach education program through the local court system on the potential medical outcomes of driving under the influence. In addition, the two Trauma Centers implemented Stop the bleed programs, training public safety and the general public in the use of tourniquets and bleeding control and also provide fall prevention outreach efforts, and have recently joined together to collaborate with local fire departments on a county-wide Fall Prevention Program. This program is being designed to target the vulnerable senior populations that have a history of high utilization of the 911 system for fall type incidents. The Santa Barbara Cottage Hospital Injury Prevention Program continues to bea Safe Kids California Coalition Coordinator for our area, which will help to improve education and outreach efforts for pediatric injury prevention in our communities. The EMS Agency's Trauma System Manager continues to be a member of the County's Child Death Review Team, providing input on all traumatic child deaths. The EMS Agency continues to assist with injury data collection utilizing both the Trauma System Manager and Epidemiologist to assist and make available this information to any agencies interested in developing prevention programs.

6. **Administration:** The EMS Agency has established a program of leadership and oversight to facilitate the implementation of the trauma plan. This is an ongoing process as updates or improvements are deemed necessary.

7. **Disaster:** The EMS Agency has integrated disaster/emergency preparedness with the trauma system. Mass Casualty Incidents (MCI) can be monitored with the ReddiNet system. The MCI plan has been updated to incorporate the changes with trauma center designations. All hospitals and American Medical Response are able to enter/review data for disaster/MCI situations. All hospitals are "base hospitals" and can provide guidance for pre-hospital personnel. Disaster /MCI Communication drills are performed bi-monthly utilizing ReddiNet and reviewed quarterly and all hospitals participate in the statewide health and medical disaster exercise.

8. **Finance:** The EMS Agency monitors, evaluates and modifies the trauma system components as appropriate, based on the financial assessment of the trauma system. The EMS Agency has negotiated trauma center agreements with SBCH and MRMC for service charges associated with the direct cost of the trauma system to support the ongoing oversight and system performance improvements.

Changes to Implementation Schedule—no changes are anticipated at this time.

System Performance Improvement— The EMS Agency participates in Continuous Quality Improvement programs which include trauma care and EMS performance. Within the county, the Trauma System Committee (TSC) meets quarterly to review local data reports and discuss local system issues. Local policies and education efforts are reviewed and developed by TSC, utilizing the input and data of participants from both hospital and prehospital entities. We anticipate this group will be involved in the development of a new Trauma System Plan for Santa Barbara County in the near future.

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The surrounding counties all work well together and have been strengthening access to trauma services in the region. Santa Barbara EMS Agency continues to participate in the Southwest Regional Trauma Care Committee and all three of the tri-counties LEMSA trauma staff participate at the SWRTCC and are active on the committees to support regional trauma system improvement activities. The Santa Barbara County EMS Trauma System Manager is an active member of the Trauma Managers Association of California (TMAC.)

Progress on addressing EMS Authority Trauma System Plan Comments —

No issues identified in prior plan approval.

Other Issues —

None at this time.

Santa Barbara County EMS Agency

Trauma System of Care Plan

Update 2020

Trauma System Summary

Santa Barbara County continues to follow the trauma system plan that was developed and approved in 1999. Gabriela Modglin, BS, EMT-P, serves as the Santa Barbara County Trauma System Manager, focusing on support of the local trauma system. Five hospitals currently exist in Santa Barbara County. Cottage Health System encompasses three facilities: Santa Barbara Cottage Hospital (SBCH), the LEMSA designated Level I Adult and Level II Pediatric Trauma Center in the county, as well as two non-trauma facilities, Santa Ynez Valley Cottage Hospital (SYVCH) and Goleta Valley Cottage Hospital (GVCH). These three hospitals primarily support the southern region of our county. The northern region of our county is served by two additional hospitals: Marian Regional Medical Center (MRMC), the LEMSA designated Level III Trauma Center, and Lompoc Valley Medical Center (LVMC), a non-trauma facility.

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Trauma Centers: Designation and Verification Dates

Name/Address	Trauma Level	Date of Designation	Date of Verification
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Trauma System Goals and Objectives

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SANTA BARBARA COUNTY EMS AGENCY

TRAUMA SYSTEM OF CARE

UPDATE 2021

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Other Issues —

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Santa Barbara County EMS Agency

Trauma System of Care

UPDATE 2022

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SANTA BARBARA COUNTY EMS AGENCY

ORGANIZATION

Mouhanad Hammami, MD, MHSA

Director of Public Health

Henning Ansorg, M.D.

Health Officer

Daniel Shepherd, M.D.

EMS Agency Medical Director

Nick Clay

EMS Agency Director

Gabriela Modglin, BS, Paramedic

EMS Agency Specialty Care Systems Coordinator

Santa Barbara County PUBLIC Health DEPARTMENT

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Santa Barbara County has seen the trauma centers evolve from their original verification status, continuing to develop increased staffing and services for the injured trauma patient and injury prevention community.

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    - First verified by the American College of Surgeons (ACS) as a Level II Trauma Center in 2005;
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    - Designated by the LEMSA as a Level III Adult Trauma Center;
    - In June 2022, MRMC was evaluated by the ACS as a Level II Trauma Center, and obtained an official letter from the ACS verifying them as a Level II in the Fall of 2022. MRMC does not have LEMSA-designation as a Level II Trauma Center.

SBCEMSA continues to work with local hospitals to achieve a standardized approach to identifying and guiding the transfer of critical trauma patients from non-trauma hospitals to a trauma center. All trauma patient data is inputted into the TraumaOne registry, a platform accessible to the trauma centers and SBCEMSA alike. Data is then extracted by the registry, and uploaded into the State's Patient Registry data repository for quarterly reporting.

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Transport Zones. Although these policies are scheduled for review, we are pending the trauma system assessment to make any recommended changes to policy (see *Changes in Trauma System*).

CHANGES IN TRAUMA SYSTEM

The overall structure of the Santa Barbara County Trauma System has remained unchanged from previous years; however, SBCEMSA anticipated a significant change in our county's trauma system, trauma triage, and destination decision algorithm in 2023. In the fall of 2022, MRMC obtained a letter from the American College of Surgeons verifying them as a Level II trauma center. This garnered significant discussion within our Trauma System Committee, system participants and stakeholders, on how this increased level of care would impact current policies and procedures, particularly on prehospital trauma triage and selection of appropriate destination. SBCEMSA, with the support of the trauma centers, has enlisted a third-party consultant to assess the Santa Barbara County Trauma System and trauma triage criteria using data-driven recommendations to support local changes. SBCEMSA is pending the conclusion of the trauma system assessment and consultant recommendations to designate MRMC as a Level II trauma center. SBCEMSA anticipates that the assessment will be completed by Spring of 2023.

TRAUMA CENTERS: DESIGNATION AND VERIFICATION DATES

Name/Address	Trauma Level	Date of Designation	Date of Verification
Marian Regional Medical Center 1400 E. Church St. Santa Maria, CA 93454	3	June 1, 2017	July 1, 2018
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	1	June 1, 2017	August 1, 2017
SB Cottage Children's Medical Center Pueblo at Bath Street Santa Barbara, CA 93105	2 (Pediatric)	June 1, 2017	August 1, 2017

TRAUMA SYSTEM GOALS AND OBJECTIVES

1. **Identification and Access:** The EMS Agency continues to improve injury identification and access to the EMS system. Patients are tracked through a work station based trauma registry system, Lancet Trauma One. Patients are entered into the system by the Trauma Centers. This data is then transferred to the central registry at the County EMS Agency for system reporting and review purposes. Information in the registry system is used as part of the performance improvement process and to ensure trauma patients have access to the most appropriate level of trauma care based on injury severity. The local trauma data dictionary is reviewed and updated by the Trauma System Committee (TSC) annually in conjunction with the NTDB annual updates. Standardized information is now being collected for all three counties; Ventura, Santa Barbara and San Luis Obispo at the tri-county Trauma Audit Committee (TAC) meetings.

2. **Pre-hospital Care/Transportation:** The EMS Agency assures high quality pre-hospital treatment and transportation systems. The EMS field trauma triage and destination policy was updated in August 2018, see attachment. American Medical Response (AMR) is the advance life support ambulance service contracted in Santa Barbara County. In addition, Santa Barbara County Fire Protection District also provides limited ambulance transportation in three areas of the County. Santa Barbara County has a designated air ambulance provider, REACH, based in Santa Maria. In addition the County Air Operations, jointly run by the County Fire and Sheriff's Department, have several designated air rescue helicopters available. All pre-hospital personnel are required to meet educational requirements that include trauma treatment and trauma system issues. Both Trauma Centers actively participate in this education, including case reviews and trauma triage skill competency sessions. In addition, the trauma triage guidelines have been incorporated in to the local Multi Casualty Incident Plan, and all field providers, both BLS and ALS, have been trained to these guidelines. The EMS Agency works closely with all pre-hospital providers to identify any transportation issues related to the rapid care and transport of trauma patients.

3. **Hospital Care:** The EMS Agency continues to work successfully with each non-trauma hospital to develop plans for the rapid assessment, stabilization and transfer of any critically injured trauma patients that may present in their facility. There are very few of these cases that occur in our county, and for those that do, the EMS Agency provides a forum for open discussion and peer review of medical care amongst the trauma medical directors, emergency department medical directors and trauma program managers.

4. **Evaluation:** The EMS Agency's goal is to provide continuous monitoring of the trauma system to ensure appropriate access, triage and treatment of the trauma patient and to assist with identifying needed refinements of our current trauma system. The prehospital Continuous Quality Improvement Committee is tasked with weekly audits of all patient care records indicating an injury, and meets monthly to discuss any issues identified related to trauma triage. The Trauma System Advisory Committee (TSC) meets four times a year to review and receive input on proposed changes to field triage, transport destination and transfer policies, and to make recommendations to the EMS Agency. In addition, TSC discusses best practices and reviews trauma cases specifically for Santa Barbara County. Trauma programs from Santa Barbara County, Ventura County and San

Luis Obispo County also meet three times a year to participate in a regional Trauma Audit Committee (TAC) to review and discuss trauma issues that potentially affect the region. At this meeting, each trauma center also presents preselected cases that they have identified as showing potential opportunities for trauma care and system wide improvements.

5. **Prevention:** The EMS Agency's goal to integrate injury prevention program standards into the trauma system is ongoing. Trauma prevention education and activities are vested primarily with the trauma centers. The two main programs continue; Santa Barbara Cottage Hospital's sports head injury education and outreach program and Marian Regional Medical Center's outreach education program through the local court system on the potential medical outcomes of driving under the influence. In addition, the two Trauma Centers implemented Stop the Bleed programs, training public safety and the general public in the use of tourniquets and bleeding control and also provide fall prevention outreach efforts, and have recently joined together to collaborate with local fire departments on a county-wide Fall Prevention Program. This program is being designed to target the vulnerable senior populations that have a history of high utilization of the 911 system for fall type incidents. The Santa Barbara Cottage Hospital Injury Prevention Program continues to be a Safe Kids California Coalition Coordinator for our area, which will help to improve education and outreach efforts for pediatric injury prevention in our communities. The EMS Agency's Trauma System Manager continues to be a member of the County's Child Death Review Team, providing input on all traumatic child deaths. The EMS Agency continues to assist with injury data collection utilizing both the Trauma System Manager and Epidemiologist to assist and make available this information to any agencies interested in developing prevention programs.

6. **Administration:** The EMS Agency has established a program of leadership and oversight to facilitate the implementation of the trauma plan. This is an ongoing process as updates or improvements are deemed necessary.

7. **Disaster:** The EMS Agency has integrated disaster/emergency preparedness with the trauma system. Mass Casualty Incidents (MCI) can be monitored with the ReddiNet system. The MCI plan has been updated to incorporate the changes with trauma center designations. All hospitals and American Medical Response are able to enter/review data for disaster/MCI situations. All hospitals are "base hospitals" and can provide guidance for pre-hospital personnel. Disaster /MCI Communication drills are performed bi-monthly utilizing ReddiNet and reviewed quarterly and all hospitals participate in the statewide health and medical disaster exercise.

8. **Finance:** The EMS Agency monitors, evaluates and modifies the trauma system components as appropriate, based on the financial assessment of the trauma system. The EMS Agency has negotiated trauma center agreements with SBCH and MRMC for service charges associated with the direct cost of the trauma system to support the ongoing oversight and system performance improvements.

CHANGES TO IMPLEMENTATION SCHEDULE — No changes are anticipated at this time.

SYSTEM PERFORMANCE IMPROVEMENT — The EMS Agency participates in Continuous Quality Improvement programs which include trauma care and EMS performance. Within the county, the Trauma System Committee (TSC) meets quarterly to review local data reports and discuss local system issues. Local policies and education efforts are reviewed and developed by TSC, utilizing the input and data of participants from both hospital and prehospital entities. We anticipate this group will be involved in the development of a new Trauma System Plan for Santa Barbara County in the near future.

The tri-county regional Trauma Audit Committee (TAC) that includes Santa Barbara, Ventura and San Luis Obispo Counties, continues to meet three times a year, rotating locations amongst the counties. This meeting, where best practices are discussed and problem solving ideas are shared, has excellent participation and has become a strong component of system and region performance improvement. Most recently, the TAC committee has collaborated on new Scope of Practice additions to be implemented in the region. Santa Barbara, Ventura and San Luis Obispo EMS Agencies share QI data for any patients that cross county lines as agreed to by a MOU that facilitates the provision of optimal care for patients with traumatic injuries through regional recognition of the designated hospitals in both counties.

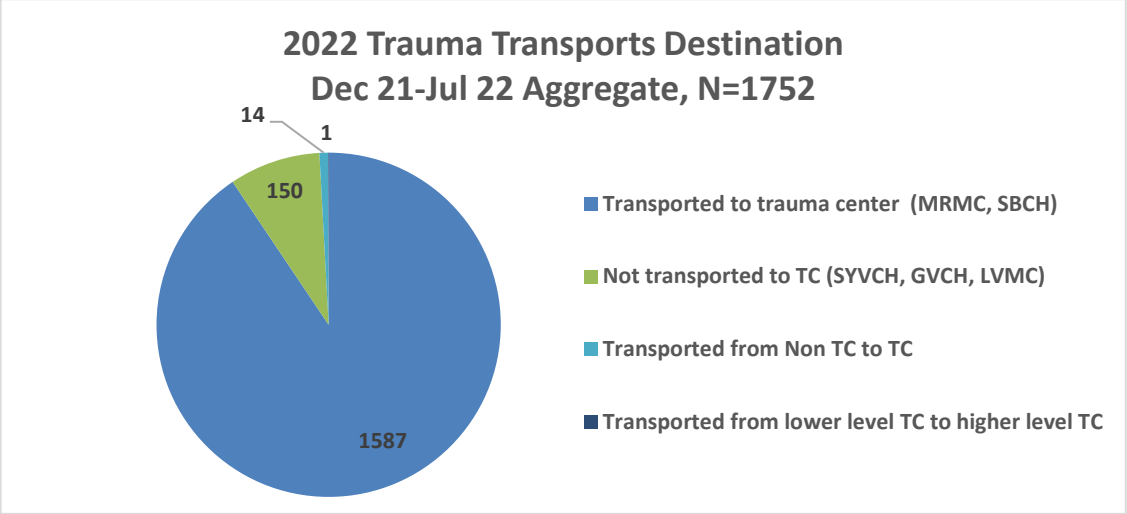
The surrounding counties all work well together and have been strengthening access to trauma services in the region. Santa Barbara EMS Agency continues to participate in the Southwest Regional Trauma Care Committee and all three of the tri-counties LEMSA trauma staff participate at the SWRTCC and are active on the committees to support regional trauma system improvement activities. The Santa Barbara County EMS Trauma System Manager is an active member of the Trauma Managers Association of California (TMAC.)

DATA COLLECTION AND EVALUATION — The EMS Agency collects and reviews prehospital trauma care data elements through electronic Patient Care Record (ePCR) extraction. The Agency is accountable for regular, ongoing analysis and interpretation of the prehospital trauma case reviews. Data aids in understanding how well the system works, identifying potential areas and trends for improvement and education, setting measurable goals, and monitoring the effectiveness of change. The EMS Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements and trends at the tri-annual Trauma System Committee Meetings.

The periodic performance evaluation of the Trauma care system includes, but is not limited to, a review of the following:

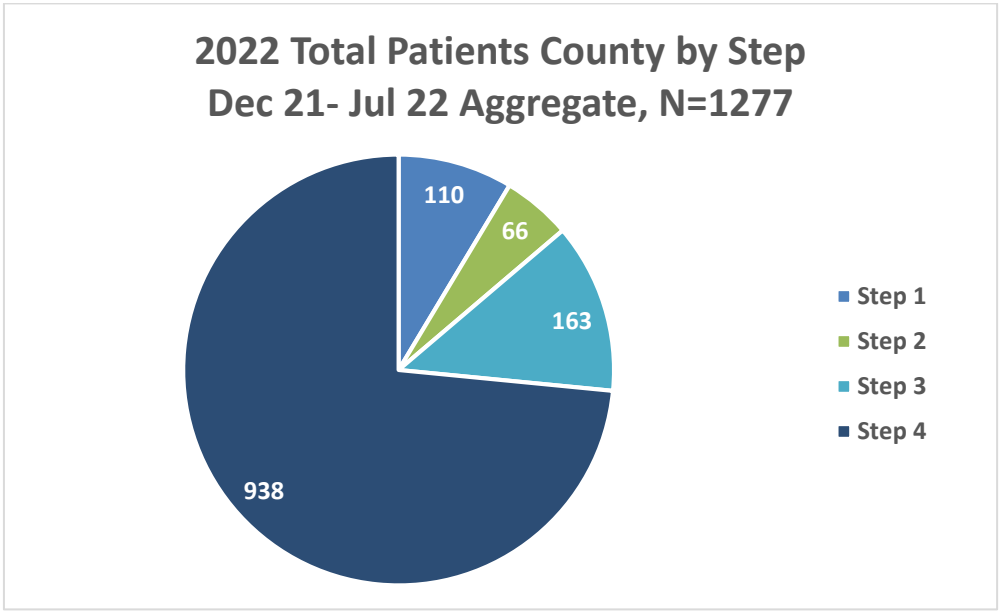
- System Design, including monitoring of trauma patient destination, appropriate and timely care, prompt transfer to appropriate trauma level hospital (if indicated), and monitoring to related metrics.
- Evaluate the appropriateness of prehospital & hospital care from data in compliance with the most current version of CEMIS and NEMSIS.
- The graph below, referencing the data currently available in the trauma registry (T1 and T2 2022), demonstrates the total number of trauma patients within that timeframe and their corresponding destination and/or need for transfer. Criteria for

this Graph: (Transports) Patients with traumatic injury transported by ambulance, and prehospital providers documented trauma triage (step) criteria; (Transfers) Patients with traumatic injuries that were transferred to a non-trauma hospital, that had an ISS>15, that ultimately required transfer to a trauma center for higher level of care. Our next Trauma Systems Committee (TSC) meeting will be held in March

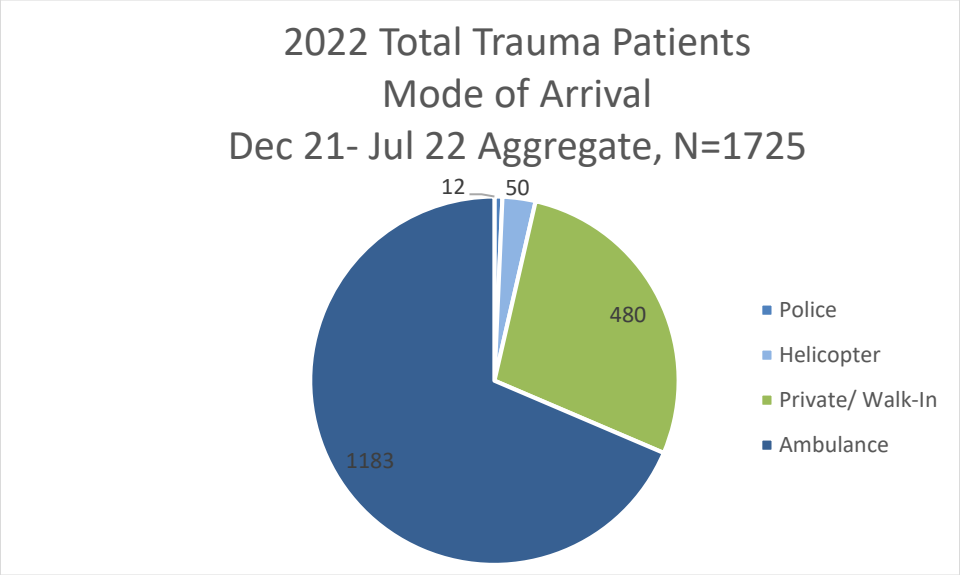


2023, at which point we will have data available for T3 August-Nov 2022.

- The graph below shows the frequency of when a prehospital provider steps a patient in accordance with SBCEMSA Policy 510 – Trauma Triage Criteria and Patient Destination. The graph shown below only includes data from T1 and T2 2022, as the next Trauma T3 meeting will be held in March 2023.



- The graph below shows the mode of arrival for all documented trauma criteria step patients in the prehospital field. The data shown is from T1 and T2 2022, as T3 2022 data is not currently available.



Progress on addressing EMS Authority Trauma System Plan Comments —

No issues identified in prior plan approval.

OTHER ISSUES —

None at this time.

Santa Barbara County EMS Agency

STEMI Critical Care System Plan

2017

Santa Barbara County Emergency Medical Services Agency
Public Health Department

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EMS Director

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Section I: Plan Overview

A. Introduction

Patients suffering from an ST Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a receiving hospital, which have specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and Cardiac Arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre arrival instructions for management of chest pain and cardiac arrest, pre-hospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. Purpose

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan designs a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate SRC destination for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely, optimal STEMI services in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor outcomes and participate in continuous quality improvement efforts

C. Overview

An organized, systematic approach to STEMI patients results in a reduction in patient mortality and morbidity. For the last two years, Santa Barbara County EMS Agency along with its seven pre-hospital partnered agencies, have received the Mission Lifeline Gold Award by the American Heart Association for our STEMI Systems of Care

performance measures for the past 3 years. 2017 the agency received the Gold Plus award, the highest award given by the American Heart Association.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California

State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients both within and outside of the county as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

1. Operation of a countywide, inclusive STEMI Critical Care System.
2. Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county.
3. Aeromedical response and transportation requirements.
4. Operational requirements for STEMI Receiving Centers (SRC).
5. Designation and contract with SRCs to provide STEMI care services.
6. A clear line of authority for the countywide STEMI system administration.
7. Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH).

The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. Philosophy/Goals

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, the county. To this end, SRCs are designated to optimize

both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources. The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed. The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

1. **STEMI Receiving Centers**

   Two hospitals, one in north county and one in south county, are designated as an SRC.

2. **Inclusive**

   Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

3. **Continuous Quality Improvement/Outcome**

   Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

4. **Prevention/Education**
   Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

5. **Continuum of Services**

   The STEMI Critical Care System program is an integrated system comprised of pre-hospital agencies and hospitals.

E. Legal Basis

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. Plan Method

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

Section II: Overview of Santa Barbara County

A. Geography

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities intensify this problem by limiting accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility and result in a high-crash rate for the area and also hinders the accessibility to healthcare services, especially for rural residents.

B. Transportation

The automobile is the predominate form of transportation in Santa Barbara County. One major artery, Highway 101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller arteries, Highway 166 (from New Cuyama), Highway 154 (connects Goleta to Los Olivos and reconnects with Highway 101), and Highway 1 (connects to Highway 101 above Gaviota, breaks off to the west off the City of Lompoc and then meanders north to San Luis Obispo County), also transact Santa Barbara County. There is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the county.

Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. Demographics

In 2017, the population was 444,112.

Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $75,646. The demographics of the County indicate that there are many concentrated low-income areas. Census reports show that 12.9% of the County residents live at or below the poverty level (compared with 13.2% of the State population).

In 2017, the population over 65 years of age in Santa Barbara County was 14.9%. As the population of Santa Barbara County continues to age, there will be an increased demand for EMS services in the over 65 age group.

D. Epidemiology

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and heart disease, which is consistent with the trend throughout California and the United States. The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2017.

1. Heart Disease
2. Cancer
3. Alzheimer's Disease
4. Chronic Respiratory Disease
5. Cerebrovascular Disease (Stroke)

E. EMS Dispatch

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. Emergency Medical Care Resources

1. Prehospital

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. Santa Barbara County Hospitals

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Name/Address	No. of Beds	No of ICU Beds	No of PED. Beds	Base Hospital	SRC or SRH	Agreement Expire date
Goleta Valley Cottage Hospital 351 Patterson Ave. Santa Barbara, CA 93160	122	10	2	Y	SRH	12/31/2019
Lompoc Valley Medical Center 1515 E. Ocean Ave. Lompoc, CA 93436	60	4	0	Y	SRH	12/31/2019
Marian Regional Medical Center 1400 E. Church St. Santa Maria, CA 93454	130	20	8	Y	SRC	12/31/2019
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y	SRC	12/31/2019
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Rd. Solvang, CA 93463	30	4	0	Y	SRH	12/31/2019

SECTION III: System Administration

A. Lead Agency

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be

responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include but are not limited to:

a. Ongoing performance evaluation and quality improvement of the STEMI System.
b. Assessing needs and resource requirements of the county.
c. Assigning roles to system participants.
d. Monitoring the STEMI registry data system.
e. Monitoring the system to determine compliance with appropriate law, regulations, policies, procedures and contracts.
f. Evaluating the impact of the system and revising the system design as needed.

B. STEMI Center Fees

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. Multidisciplinary STEMI Quality Improvement Committee

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. It provides for countywide input of knowledgeable hospital and prehospital individuals and organizations into the discussion and resolution of STEMI system issues. It also fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system. This committee meets three times a year.

The functions of the STEMI Committee are:

a. Conduct assessment of the STEMI system needs and resources in the county.
b. Provide overall direction and coordination to for policymaking and program oversite.
c. Analyze the results of data collection and the monitoring system.
d. Present case studies for review and quality improvement.
e. Maintains compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases.

D. Medical Control

Medical control and direction of the STEMI system is an essential ingredient of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

Section IV: System Operational Components

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. Prehospital Providers

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

a. Criteria for activation of a field STEMI
b. Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
c. STEMI protocols readily available for pre hospital treatment
d. Triage and Destination to the closest, most appropriate SRC

B. Hospital Providers

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but not limited to:

- Designated as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. Prehospital Transportation

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Santa Barbara County Fire Department ALS Air Rescue can be utilized for STEMI scene transports.

D. Interfacility Transfers

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital,

will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place to for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. Diversion

If the situation arises when the cath lab in unavailable, or no cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients are not diverted.

Section V: Quality Improvement

A. Data Collection

Currently SBCEMSA is using Get With The Guidelines-Coronary Artery Disease (GWTG-CAD) Registry. Data elements from the STEMI registry are reviewed and maintained by SBCEMSA for overall monitoring of the system. Specific patient and physician identifiers are stripped from the data to assure confidentiality. CAD contains the recommended minimum data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge. All prehospital ALS providers utilize a standardized paramedic care report in Image Trend. SBCEMSA collects data electronically from all ALS and BLS service providers through Image Trend and reports State Core Measures related to STEMI care using CHEMSIS.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

B. Data Evaluation

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

1. System design
2. Appropriateness of pre hospital care from data in compliance with the most current version of CHEMSIS and NEMSIS, may include:

    a. STEMI activations
    b. On scene time
    c. Accuracy of ECG interpretation

d. Appropriateness of pre hospital care, including type and amount of intervention
e. Patient contact to ECG performed within 10 min
f. Early notification of Code STEMI within 10 min
g. Appropriateness of receiving hospital destination
h. ROSC patients with POS STEMI ECG

3. Verification that designated SRCs are fulfilling their STEMI care system responsibilities.
4. All hospitals that receive STEMI patients via EMS will participate in the data collection process. Hospital data, including:

a. STEMI activations and specialist notifications
b. Door to ECG within 10 min
c. Percutaneous coronary intervention, times and outcomes
d. Door to reperfusion time within 90 min
e. Patient transfers from SRH to SRC with regard to their appropriateness and patient outcome
f. SRH Door In/Door Out time within 30 minutes for transfers to SRC
g. STEMI related deaths, complications
h. SRC diversion hours

Section VI: Community Education

A. Community Outreach and training

1. Hands-Only CPR
   a. Community Events by all Santa Barbara County pre hospital providers, the EMS Agency and SBCEMSA Medical Reserve Corps
   b. Offer school Hands-Only CPR training as a graduation requirement

2. Cardiovascular Disease Prevention
   a. Pamphlet and handouts for Blood Pressure monitoring, recognizing signs and symptoms of a heart attack, use of 911

B. Survivor Recognition

3. Annual Cardiac Arrest Survivor Celebration

Section VII: Appendices

A. Summary of related STEMI Policies

Appendix A	SBCEMSA Policy 600: Receiving Hospital Standards
Appendix B	SBCEMSA Policy 640: STEMI Receiving Center Standards
Appendix C	SBCEMSA Policy 641: Transfer Guidelines
Appendix D	SBCEMSA Policy 539: 12 Lead ECG
Appendix E	SBCEMSA Policy 533.11: Chest Pain-Acute Coronary Syndrome

Appendix A

SBCEMSA Policy 600: Receiving Hospital Standards

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	600
DATE ISSUED:	06/2002
DATE REVIEWED/REVISED:	9/2015
DATE TO BE REVIEWED:	9/2017

RECEIVING HOSPITAL STANDARDS

Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

Policy: A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

Procedure:

A. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:

1. Be licensed by the State Department of Health Services as a general acute care hospital.
2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
4. Operate an Intensive Care Unit.
5. Have operating room services available within 30 minutes.
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:

Cardiology	Orthopedic Surgery	Thoracic Surgery
Anesthesiology	General Surgery	Pediatrics
Neurosurgery	General Medicine	Obstetrics

7. Have the following services available within 20 minutes:
   X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.

10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:

    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.

11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.

    a. All Receiving Hospital physicians shall:
        1. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
        2. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
        3. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.

    b. All Receiving Hospital Registered Nurses shall:
        1. Be regular hospital staff assigned solely to the Emergency Department for that shift.
        2. Maintain current Advanced Cardiac Life Support certification.

    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

12. Actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance.

13. Agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

B. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program

participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.

C. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.

D. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

Appendix B

SBCEMSA Policy 640: Cardiac and STEMI Care System General Guidelines

CARDIAC AND STEMI CARE SYSTEM GENERAL GUIDELINES

I. Purpose: To provide standards and guidelines for the Cardiac and STEMI Care System which serves the County of Santa Barbara. To provide all ST Elevation Myocardial Infarction (STEMI) and patient suffering from cardiovascular emergencies accessibility to an organized, multi-disciplinary and inclusive system of Cardiac care. To ensure that all STEMI positive patients are taken to the closest most appropriate medical facility that meets the needs of the patient and applies the standards established for this Cardiac Care system.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101 & 1798.105. California Code of Regulations, Title 22, Division 9, Section 100270.119,100270.121 and 100270.123.

III. Definitions: None

IV. Policy:
A. The Santa Barbara County EMS Agency (SBCEMSA) and all system participants will be involved in an organized Cardiac and STEMI Care System, the guidelines of which are outlined here.
B. There shall be a written agreement between designated STEMI Receiving Centers (SRC), STEMI Reffering Hospitals (SRH) and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

V. Procedure:
A. CARDIAC and STEMI CARE SYSTEM – GENERAL GUIDELINES
1. Multi-disciplinary nature of the Cardiac Care System
a. SBCEMSA recognizes the multi-disciplinary nature of a systemized approach to cardiac care. SBCEMSA has adopted policies, guidelines and triage criteria that provide for the coordination of all resources and ensure the accessibility to the closest, most appropriate medical facility for all cardiac patients, regardless of their ability to pay for such services.
b. SBCEMSA has established a Cardiac and STEMI Care Performance Improvement Process, STEMI Quality Improvement Committee, and the Cardiac Arrest Management Quality Improvement Committee. These processes and committees represent all involved disciplines to ensure a broad-based quality review of all Cardiac and STEMI Care System activities.
2. Public Information and Education about the Cardiac and STEMI System
a. SBCEMSA is committed to the establishment of Cardiac and STEMI system support and the promotion of awareness and prevention and education.
b. SBCEMSA facilitates speakers to address public groups, and serves as a resource for cardiac

information, education, and prevention.

c. SBCEMSA assists community and professional groups in the development and dissemination of education to the public.

3. Marketing and Advertising

a. All marketing and promotional plans, with respect to STEMI Receiving Center designation shall be submitted to SBCEMSA for review and approval, prior to implementation. Such plans will be reviewed by SBCEMSA based on the following guidelines:

i. Shall provide accurate information;

ii. Shall not provide false claims;

iii. Shall not be critical of other providers; and

iv. Shall not use financial rewards to any provider to increase its census.

4. EMS Dispatching

a. SBCEMSA has approved dispatching policies and procedures for the Santa Barbara County (County). The dispatch of prehospital care providers will continue, as per the operational procedure for the County.

5. Communication System

a. Santa Barbara County utilizes the 9-1-1 universal emergency number.

b. All Santa Barbara County approved transporting prehospital care providers shall be equipped with County approved radio/communication systems to communicate with all local hospitals. Presently all units have a cell phone and a 10 channel UHF mobile radio installed in their vehicles.

c. SBCEMSA has adopted policies, which address the requirements for field personnel to make base hospital contact, procedures/skills, which may be performed prior to base hospital contact, and communication failure policy/protocols.

6. Transportation including Interfacility Transfer of STEMI Patients and Transfer from STEMI Referral Hospital to STEMI Receiving/ROSC Center.

a. As an inclusive Cardiac and STEMI Care System, all hospitals have a role in providing cardiac care to patients.

b. The transferring facility, in conjunction with the higher-level facility, shall be responsible for obtaining the appropriate level of care during transport.

7. Training of Prehospital EMS Personnel

a. SBCEMSA will facilitate training for all prehospital providers on any policy and/or operational change associated with Cardiac and STEMI Care System implementation.

b. Designated facilities will provide training to hospital staff on Cardiac and STEMI system policies and procedures.

8. Medical Control and Accountability, including Triage and Treatment Protocols

a. Each designated STEMI center shall:

i. Provide base hospital medical control for field prehospital care providers.

ii. Participate in the SBCEMSA data collection system.

iii. Participate in the SBCEMSA continuous quality improvement program.

VI. References:

A. Santa Barbara County Cardiac and STEMI Care System Plan

B. Policy 643 Cardiac and STEMI Care System Performance Improvement Process

VII. Attachments: None

Appendix C

SBCEMSA Policy 641: STEMI Center Standards

STEMI CENTER STANDARDS

I. **Purpose:** To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. **Authority:**Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. **Definitions:**

A. *"STEMI receiving center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH":* a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. **Policy:**

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities

a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.

3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.
      ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.
   b. SRC STEMI Coordinator:
      i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.
   c. Physician Consultants:
      i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.
4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an “Acute MI Suspected” or “Meets ST Elevation MI Criteria.”
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.

ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital
iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.

6. Quality Improvement

a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
    i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a “STEMI Activation” patient, within 72 hours.
b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.
    i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:

1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.

4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Defelop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:

1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
   a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
   b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

v. Procedure:

A. Designation

1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
   a. Application:
      i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
   b. Approval:
      i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
         (a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and

STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI system QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
   i. SRCs shall be reviewed on a biannual basis.
   ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
   iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
   iv. SRCs shall receive notification of evaluation from the SBCEMSA.
   v. SRCs shall respond in writing regarding program compliance.
   vi. On-site SRC visits for evaluative purposes may occur.
   vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 Cardiac and STEMI System General Guidelines
C. Policy 641 STEMI Center Guidlines
D. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix D

SBCEMSA Policy 642: STEMI Transfer Guidelines

STEMI TRANSFER GUIDELINES

I. Purpose: To define the “Code STEMI” process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:
A. STEMI: ST Segment Elevation Myocardial Infarction
B. STEMI Receiving Center (SRC): An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to EMS Policy 640.
C. STEMI Referral Hospital (SRH): An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in EMS Policy 600 and is not designated as a STEMI Receiving Center according to EMS Policy 640.
D. PCI: Percutaneous Coronary Intervention.

IV. Policy:
A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. STEMI Referral Hospital (SRH) will:
1. Assemble and maintain a “STEMI Pack” in the emergency department to contain all of the following:
a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
b. Preprinted template order sheet with recommended prior-to-transfer treatments. Treatment guidelines will be developed with input from the SRH and SRC cardiologists,
c. Patient Consent/Transfer Forms.
d. Treatment summary sheet.
e. Santa Barbara County EMS Code STEMI transfer form.
2. Have policies, procedures, and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times
3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.
C. Dispatch will:
1. Respond to a “Code STEMI” transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
2. Ambulance or helicopter transporting agencies will:
a. Respond immediately upon request for “Code STEMI” transfer.
D. STEMI Receiving Centers will:
1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
3. Immediately upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.

4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:
A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
1. Determine availability of the SRC by checking ReddiNet.
2. Immediately call the County Dispatch Center at to request an air or ground ambulance (ALS or CCT).
a. Advise that they have a Code STEMI transfer to [SRC].
3. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
4. Perform, as time allows, indicated diagnostic tests and treatments.
5. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
a. Aspirin 324mg PO
b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
c. Clopidogrel (Plavix®) is NOT to be administered.
6. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMS STEMI Coordinator.
b. Include copies of the ED face sheet and demographic information.
7. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
8. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.
B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
1. Upon notification, the ambulance will respond Code 3 (lights and siren)
2. The patient shall be urgently transferred without delay.
a. Every effort will be made to minimize on-scene time.
3. All forms should be completed prior to ambulance arrival.
4. Any diagnostic test results may be relayed to the SRC after patient departure.
5. Intravenous drips may be discontinued or remain on the ED pump.
6. Ambulance personnel will place defibrillation pads on the patient.
C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.
1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:
A. Policy 600 Receiving Hospital Standards

B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments
A. STEMI Transfer Form

Appendix E

SBCEMSA Policy 643: STEMI Performance Improvement Process

STEMI PERFORMANCE IMPROVEMENT PROCESS

I. Purpose: Santa Barbara County Emergency Medical Services Agency (SBCEMSA) will ensure quality within the Cardiac and STEMI Care System through a Performance Improvement Process. This includes monitoring of program structure, process,outcome standards, review of STEMI-related deaths, major complications, and transfers through the creation of a multidisciplinary STEMI Quality Improvement (QI) Committee, including both prehospital and hospital

members.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.107 and 1798.161. California Code of Regulations, Title 22, Division 9, Chapter 7, Sections 100270.110, 100270.123 and 100270.1271.

III. Definitions: None

IV. Policy:

A. The SBCEMSA Medical Director shall establish a STEMI System QI Commitee

1. The STEMI System QI Committee is an advisory committee to the SBCEMSA on issues related to STEMI patient care and the Cardiac and STEMI Care System.

a. The STEMI care administered to patients of the Santa Barbara County Cardiac and STEMI Care System will be reviewed for appropriateness of care, protocol adherance and patient outcome.

B. Committee membership is assigned by the SBCEMSA and includes:

1. SBCEMSA Specialty Care Systems Coordinator (Co-Chair)
2. SBCEMSA Medical Director (Chair)
3. STEMI Center Medical Directors & STEMI Nurse Coordinators
4. ALS transport provider representative(s), as needed

C. STEMI meetings will be held on a regular basis and limited to committee members and invited guests, approved by Committee Chair

V. Procedure:

A. Scope of Process and Outcome Standards Review:

1. Preliminary Review: Occurs at the STEMI Center Medical Director and STEMI Nurse Coordinator level.
   a. All deaths, questionable cases and negative outcomes maybe referred to the STEMI System QI Commitee
   b. These charts will be brought to the STEMI System QI Commitee by each facility's STEMI Nurse Coordinator
   c. This committee will meet three (3) times per year, unless additional meetings are necessary.
   d. Any STEMI Program Medical Director has the right to bring up any case he/she feels should be reviewed even if it does not meet the physician STEMI audit criteria.

2. The SBCEMSA Specialty Care Systems Coordinator will review all cases entered into the STEMI Registry database on a monthly basis for compliance with the following:
   a. Policies, procedures and protocols
   b. Prehospital treatment of STEMI patients to include appropriateness of response, evaluation, treatment, and transport by prehospital personnel
   c. Appropriate use of STEMI Triage and 12-Lead Criteria
   d. Complications will be referred to Medical Director for review
   e. All helicopter transports of STEMI patients
3. The STEMI Nurse Coordinator from each designated facility will work with the SBCEMSA Specialty Care Systems Coordinator to obtain the

necessary chart materials for the medical review process and the Committee meetings.

4. Physician STEMI Audit Criteria (any of the below):
    a. All STEMI Deaths
    b. Door to reperfusion times > 90 minutes
    c. Major complications
    d. STEMI transfers from another hospital
    e. Unplanned return to cath lab within 24 hours

B. STEMI Data Entry

1. All designated STEMI centers are required to submit STEMI care data into the SBCEMSA approved STEMI registry/database.
2. The STEMI Nurse Coordinator from

each designated facility will submit STEMI data to SBCEMSA on a monthly basis.

C. Attendance:

1. Attendance for all committee members is mandatory.

a. The STEMI Medical Directors and STEMI Nurse Coordinators must attend 75% of the scheduled meetings annually.

b. Committee members shall notify the Committee Chair (or designee) at least three (3) business days in advance of the meeting if they are unable to attend.

i. Alternate committee members must be approved at least three (3) business days in advance by the Committee Chair (or designee)

2. The Committee Chair (or designee)

shall approve all requests for guests to attend the meeting.

a. Requests for guests must be made at least three (3) business days in advance.

b. The Committee Chair reserves the right to approve or deny requests

D. Meeting Documentation:

1. The agenda, minutes, monthly EMS reports and chart materials will be distributed to members in advance of the meeting.

2. Members are expected to review meeting materials prior to attendance.

E. Confidentiality:

1. All proceedings, documents, and discussions of the STEMI System QI Committee are confidential and are covered under Sections 1040 and 1157.7 of the Evidence Code: “The

prohibition relating to discovery of testimony provided to the Committee will be applicable to all proceedings and records of this Committee, which is one established by a local government agency asqualified to render specialty health care services".

2. All members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through medical review committee membership.
   a. Updated on an annual basis.
   b. Prior to the guest(s) participating in the meeting, the Committee Chair (or designee) is responsible for explaining, and obtaining, a signed confidentiality agreement from invited guests.

c. Guests may or may not be invited to the entire meeting at the discretion of the Committee Chair.

3. No copies of records are to leave the room in which STEMI System QI Commitee meetings are held; all copies will be shredded at the SBCEMSA Office.

VI. References:

A. Policy 110 Standing and Ad-Hoc Committees

B. Evidence Code Section 1040 and 1157.7

VII. Attachments: None

Appendix F

SBCEMSA Policy 539: 12 Lead ECG

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	539
DATE ISSUED:	03/2010
DATE REVIEWED/REVISED:	9/24/2015
DATE TO BE REVIEWED:	01/2018

12-Lead ECG

Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECG's) and procedures for identification, treatment, and transportation of patents with a suspected STEMI.

Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

Definitions:

1. STEMI: ST Segment Elevation Myocardial Infarction.
2. STEMI Receiving Center (SRC): an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County's EMS Policy 640.

Policy: Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome

B. Contraindications: **DO NOT** perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.

C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ** ACUTE MI SUSPECTED** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
   4. If interpretation is ***ACUTE MI SUSPECTED** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
   5. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:
   1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
   2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
   3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department.
   4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
   5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
   6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
   7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics (or private physician's office, Clinics, or Urgent Care Centers) will be turned over

to the transporting paramedic. Copies will be retained by the first responding paramedic.

8. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
9. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:
   1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All <u>original</u> Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature <u>written legibly on the original tracing</u> itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical

Information Act (CMIA) compliance when transmitting information to the EMS Agency.

Appendix G

SBCEMSA Policy 533.11: Chest Pain-Acute Coronary Syndrome

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen if dyspnea, signs of heart failure or shock, or SpO_2 < 94%-99%
- Assist patient with prescribed Nitroglycerin as needed for chest pain
  - Hold if SBP < 110 mmHg

Expanded Scope

- NTG 0.4mg SL (spray or tabs) every 5 min until pain resolved.
  - Hold NTG if SBP <110

ALS Prior to Base Hospital Contact

- Perform 12-lead ECG (prior to medication administration if possible)
  - Refer to Policy 539: 12-Lead ECG
  - If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present, expedite transport to closest STEMI Receiving Center
- Document all initial and ongoing rhythm strips and ECG changes
- Apply defibrillation pads onto the patient
- For continuous chest pain consistent with acute coronary syndrome:
  - Nitroglycerin
    - SL or lingual spray – 0.4 mg every 5 min for continued pain
      - No max dosage
      - Maintain SBP > 110 mmHg
      - If normal SBP < 110 mmHg, then maintain SBP > 90 mmHg
  - Aspirin
    - PO – 324 mg
- Vascular access
  - 2 attempts only prior to Base Hospital contact
- If pain persists and not relieved by NTG:
  - Refer to Policy 533-03: Pain Control
    - Maintain SBP > 110 mmHg
- If patient presents or becomes hypotensive:
  - Elevate legs
  - Normal Saline
    - IV/IO bolus – 250 mL
      - Unless CHF is present
- Ventricular Ectopy –runs of V-Tach (wide complex, heart rate >100bpm, >30 second duration)
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline

- Deliver over 10 minutes

Base Hospital Orders only

- If hypotensive and signs of CHF are present or no response to fluid therapy:
  - Push dose epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
- Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

- Nitroglycerin is contraindicated when erectile dysfunction medications (Viagra, Levitra, and Cialis) have been recently used (Viagra or Levitra within 24 hours; Cialis within 48 hours). NTG then may only be given by ED Physician order

Santa Barbara County EMS Agency

STEMI Critical Care System Plan

2018

Santa Barbara County Emergency Medical Services Agency
Public Health Department

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Table of Contents

Section I: Plan Overview

A. Introduction

Patients suffering from an ST Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a receiving hospital, which have specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and Cardiac Arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre arrival instructions for management of chest pain and cardiac arrest, pre-hospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. Purpose

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan designs a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate SRC destination for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely, optimal STEMI services in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor outcomes and participate in continuous quality improvement efforts

C. Overview

An organized, systematic approach to STEMI patients results in a reduction in patient mortality and morbidity. For the last two years, Santa Barbara County EMS Agency along with its seven pre-hospital partnered agencies, have received the Mission Lifeline Gold Award by the American Heart Association for our STEMI Systems of Care

performance measures for the past 4 years. 2018 the agency received the Gold Plus award, the highest award given by the American Heart Association.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California

State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients both within and outside of the county as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

1. Operation of a countywide, inclusive STEMI Critical Care System.
2. Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county.
3. Aeromedical response and transportation requirements.
4. Operational requirements for STEMI Receiving Centers (SRC).
5. Designation and contract with SRCs to provide STEMI care services.
6. A clear line of authority for the countywide STEMI system administration.
7. Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH).

The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. Philosophy/Goals

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, the county. To this end, SRCs are designated to optimize

both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources. The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed. The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

1. **STEMI Receiving Centers**

   Two hospitals, one in north county and one in south county, are designated as an SRC.

2. **Inclusive**

   Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

3. **Continuous Quality Improvement/Outcome**

   Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

4. **Prevention/Education**
   Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

5. **Continuum of Services**

   The STEMI Critical Care System program is an integrated system comprised of pre-hospital agencies and hospitals.

E. Legal Basis

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. Plan Method

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

Section II: Overview of Santa Barbara County

A. Geography

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities intensify this problem by limiting accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility and result in a high-crash rate for the area and also hinders the accessibility to healthcare services, especially for rural residents.

B. Transportation

The automobile is the predominate form of transportation in Santa Barbara County. One major artery, Highway 101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller arteries, Highway 166 (from New Cuyama), Highway 154 (connects Goleta to Los Olivos and reconnects with Highway 101), and Highway 1 (connects to Highway 101 above Gaviota, breaks off to the west off the City of Lompoc and then meanders north to San Luis Obispo County), also transact Santa Barbara County. There is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the county.

Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. Demographics

In 2018, the population was 444,112.

Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $78591. The demographics of the County indicate that there are many concentrated low-income areas. Census reports show that 12.9% of the County residents live at or below the poverty level (compared with 13.2% of the State population).

In 2017, the population over 65 years of age in Santa Barbara County was 14.9%. As the population of Santa Barbara County continues to age, there will be an increased demand for EMS services in the over 65 age group.

D. Epidemiology

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and heart disease, which is consistent with the trend throughout California and the United States. The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2017.

1. Heart Disease
2. Cancer
3. Alzheimer's Disease
4. Chronic Respiratory Disease
5. Cerebrovascular Disease (Stroke)

E. EMS Dispatch

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. Emergency Medical Care Resources

1. Prehospital

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. Santa Barbara County Hospitals

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Name/Address	No. of Beds	No of ICU Beds	No of PED. Beds	Base Hospital	SRC or SRH	Agreement Expire date
Goleta Valley Cottage Hospital 351 Patterson Ave. Santa Barbara, CA 93160	122	10	2	Y	SRH	12/31/2019
Lompoc Valley Medical Center 1515 E. Ocean Ave. Lompoc, CA 93436	60	4	0	Y	SRH	12/31/2019
Marian Regional Medical Center 1400 E. Church St. Santa Maria, CA 93454	130	20	8	Y	SRC	12/31/2019
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y	SRC	12/31/2019
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Rd. Solvang, CA 93463	30	4	0	Y	SRH	12/31/2019

SECTION III: System Administration

A. Lead Agency

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be

responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include but are not limited to:

a. Ongoing performance evaluation and quality improvement of the STEMI System.
b. Assessing needs and resource requirements of the county.
c. Assigning roles to system participants.
d. Monitoring the STEMI registry data system.
e. Monitoring the system to determine compliance with appropriate law, regulations, policies, procedures and contracts.
f. Evaluating the impact of the system and revising the system design as needed.

B. STEMI Center Fees

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. Multidisciplinary STEMI Quality Improvement Committee

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. It provides for countywide input of knowledgeable hospital and prehospital individuals and organizations into the discussion and resolution of STEMI system issues. It also fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system. This committee meets three times a year.

The functions of the STEMI Committee are:

a. Conduct assessment of the STEMI system needs and resources in the county.
b. Provide overall direction and coordination to for policymaking and program oversite.
c. Analyze the results of data collection and the monitoring system.
d. Present case studies for review and quality improvement.
e. Maintains compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases.

D. Medical Control

Medical control and direction of the STEMI system is an essential ingredient of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

Section IV: System Operational Components

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. Prehospital Providers

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

a. Criteria for activation of a field STEMI
b. Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
c. STEMI protocols readily available for pre hospital treatment
d. Triage and Destination to the closest, most appropriate SRC

B. Hospital Providers

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but not limited to:

- Designated as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. Prehospital Transportation

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Santa Barbara County Fire Department ALS Air Rescue can be utilized for STEMI scene transports.

D. Interfacility Transfers

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital,

will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place to for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. Diversion

If the situation arises when the cath lab in unavailable, or no cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients are not diverted.

Section V: Quality Improvement

A. Data Collection

Currently SBCEMSA is using Get With The Guidelines-Coronary Artery Disease (GWTG-CAD) Registry. Data elements from the STEMI registry are reviewed and maintained by SBCEMSA for overall monitoring of the system. Specific patient and physician identifiers are stripped from the data to assure confidentiality. CAD contains the recommended minimum data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge. All prehospital ALS providers utilize a standardized paramedic care report in Image Trend. SBCEMSA collects data electronically from all ALS and BLS service providers through Image Trend and reports State Core Measures related to STEMI care using CHEMSIS.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

B. Data Evaluation

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

1. System design
2. Appropriateness of pre hospital care from data in compliance with the most current version of CHEMSIS and NEMSIS, may include:

    a. STEMI activations
    b. On scene time
    c. Accuracy of ECG interpretation

d. Appropriateness of pre hospital care, including type and amount of intervention
e. Patient contact to ECG performed within 10 min
f. Early notification of Code STEMI within 10 min
g. Appropriateness of receiving hospital destination
h. ROSC patients with POS STEMI ECG

3. Verification that designated SRCs are fulfilling their STEMI care system responsibilities.
4. All hospitals that receive STEMI patients via EMS will participate in the data collection process. Hospital data, including:

a. STEMI activations and specialist notifications
b. Door to ECG within 10 min
c. Percutaneous coronary intervention, times and outcomes
d. Door to reperfusion time within 90 min
e. Patient transfers from SRH to SRC with regard to their appropriateness and patient outcome
f. SRH Door In/Door Out time within 30 minutes for transfers to SRC
g. STEMI related deaths, complications
h. SRC diversion hours

Section VI: Community Education

A. Community Outreach and training

1. Hands-Only CPR
   a. Community Events by all Santa Barbara County pre hospital providers, the EMS Agency and SBCEMSA Medical Reserve Corps
   b. Offer school Hands-Only CPR training as a graduation requirement

2. Cardiovascular Disease Prevention
   a. Pamphlet and handouts for Blood Pressure monitoring, recognizing signs and symptoms of a heart attack, use of 911

B. Survivor Recognition

3. Annual Cardiac Arrest Survivor Celebration

Section VII: Appendices

A. Summary of related STEMI Policies

Appendix A	SBCEMSA Policy 600: Receiving Hospital Standards
Appendix B	SBCEMSA Policy 640: STEMI Receiving Center Standards
Appendix C	SBCEMSA Policy 641: Transfer Guidelines
Appendix D	SBCEMSA Policy 539: 12 Lead ECG
Appendix E	SBCEMSA Policy 533.11: Chest Pain-Acute Coronary Syndrome

Appendix A

SBCEMSA Policy 600: Receiving Hospital Standards

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	600
DATE ISSUED:	06/2002
DATE REVIEWED/REVISED:	9/2015
DATE TO BE REVIEWED:	9/2017

RECEIVING HOSPITAL STANDARDS

Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

Policy: A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

Procedure:

A. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:

1. Be licensed by the State Department of Health Services as a general acute care hospital.
2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
4. Operate an Intensive Care Unit.
5. Have operating room services available within 30 minutes.
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:

Cardiology	Orthopedic Surgery	Thoracic Surgery
Anesthesiology	General Surgery	Pediatrics
Neurosurgery	General Medicine	Obstetrics

7. Have the following services available within 20 minutes:
   X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.

10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:

    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.

11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.

    a. All Receiving Hospital physicians shall:
        1. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
        2. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
        3. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.

    b. All Receiving Hospital Registered Nurses shall:
        1. Be regular hospital staff assigned solely to the Emergency Department for that shift.
        2. Maintain current Advanced Cardiac Life Support certification.

    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

12. Actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance.

13. Agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

B. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program

participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.

C. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.

D. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

Appendix B

SBCEMSA Policy 640: Cardiac and STEMI Care System General Guidelines

CARDIAC AND STEMI CARE SYSTEM GENERAL GUIDELINES

I. Purpose: To provide standards and guidelines for the Cardiac and STEMI Care System which serves the County of Santa Barbara. To provide all ST Elevation Myocardial Infarction (STEMI) and patient suffering from cardiovascular emergencies accessibility to an organized, multi-disciplinary and inclusive system of Cardiac care. To ensure that all STEMI positive patients are taken to the closest most appropriate medical facility that meets the needs of the patient and applies the standards established for this Cardiac Care system.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101 & 1798.105. California Code of Regulations, Title 22, Division 9, Section 100270.119,100270.121 and 100270.123.

III. Definitions: None

IV. Policy:
A. The Santa Barbara County EMS Agency (SBCEMSA) and all system participants will be involved in an organized Cardiac and STEMI Care System, the guidelines of which are outlined here.
B. There shall be a written agreement between designated STEMI Receiving Centers (SRC), STEMI Reffering Hospitals (SRH) and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

V. Procedure:
A. CARDIAC and STEMI CARE SYSTEM – GENERAL GUIDELINES
1. Multi-disciplinary nature of the Cardiac Care System
a. SBCEMSA recognizes the multi-disciplinary nature of a systemized approach to cardiac care. SBCEMSA has adopted policies, guidelines and triage criteria that provide for the coordination of all resources and ensure the accessibility to the closest, most appropriate medical facility for all cardiac patients, regardless of their ability to pay for such services.
b. SBCEMSA has established a Cardiac and STEMI Care Performance Improvement Process, STEMI Quality Improvement Committee, and the Cardiac Arrest Management Quality Improvement Committee. These processes and committees represent all involved disciplines to ensure a broad-based quality review of all Cardiac and STEMI Care System activities.
2. Public Information and Education about the Cardiac and STEMI System
a. SBCEMSA is committed to the establishment of Cardiac and STEMI system support and the promotion of awareness and prevention and education.
b. SBCEMSA facilitates speakers to address public groups, and serves as a resource for cardiac

information, education, and prevention.

c. SBCEMSA assists community and professional groups in the development and dissemination of education to the public.

3. Marketing and Advertising

a. All marketing and promotional plans, with respect to STEMI Receiving Center designation shall be submitted to SBCEMSA for review and approval, prior to implementation. Such plans will be reviewed by SBCEMSA based on the following guidelines:

i. Shall provide accurate information;

ii. Shall not provide false claims;

iii. Shall not be critical of other providers; and

iv. Shall not use financial rewards to any provider to increase its census.

4. EMS Dispatching

a. SBCEMSA has approved dispatching policies and procedures for the Santa Barbara County (County). The dispatch of prehospital care providers will continue, as per the operational procedure for the County.

5. Communication System

a. Santa Barbara County utilizes the 9-1-1 universal emergency number.

b. All Santa Barbara County approved transporting prehospital care providers shall be equipped with County approved radio/communication systems to communicate with all local hospitals. Presently all units have a cell phone and a 10 channel UHF mobile radio installed in their vehicles.

c. SBCEMSA has adopted policies, which address the requirements for field personnel to make base hospital contact, procedures/skills, which may be performed prior to base hospital contact, and communication failure policy/protocols.

6. Transportation including Interfacility Transfer of STEMI Patients and Transfer from STEMI Referral Hospital to STEMI Receiving/ROSC Center.

a. As an inclusive Cardiac and STEMI Care System, all hospitals have a role in providing cardiac care to patients.

b. The transferring facility, in conjunction with the higher-level facility, shall be responsible for obtaining the appropriate level of care during transport.

7. Training of Prehospital EMS Personnel

a. SBCEMSA will facilitate training for all prehospital providers on any policy and/or operational change associated with Cardiac and STEMI Care System implementation.

b. Designated facilities will provide training to hospital staff on Cardiac and STEMI system policies and procedures.

8. Medical Control and Accountability, including Triage and Treatment Protocols

a. Each designated STEMI center shall:

i. Provide base hospital medical control for field prehospital care providers.

ii. Participate in the SBCEMSA data collection system.

iii. Participate in the SBCEMSA continuous quality improvement program.

VI. References:

A. Santa Barbara County Cardiac and STEMI Care System Plan

B. Policy 643 Cardiac and STEMI Care System Performance Improvement Process

VII. Attachments: None

Appendix C

SBCEMSA Policy 641: STEMI Center Standards

STEMI CENTER STANDARDS

I. **Purpose:** To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. **Authority:**Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. **Definitions:**

A. *"STEMI receiving center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH":* a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. **Policy:**

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities

a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.

3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.
      ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.
   b. SRC STEMI Coordinator:
      i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.
   c. Physician Consultants:
      i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.
4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an “Acute MI Suspected” or “Meets ST Elevation MI Criteria.”
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.

ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital
iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.

6. Quality Improvement

a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
    i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a “STEMI Activation” patient, within 72 hours.
b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.
    i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:

1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.

4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Defelop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:

1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
   a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
   b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

v. Procedure:

A. Designation

1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
   a. Application:
      i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
   b. Approval:
      i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
         (a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and

STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI system QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
   i. SRCs shall be reviewed on a biannual basis.
   ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
   iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
   iv. SRCs shall receive notification of evaluation from the SBCEMSA.
   v. SRCs shall respond in writing regarding program compliance.
   vi. On-site SRC visits for evaluative purposes may occur.
   vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 Cardiac and STEMI System General Guidelines
C. Policy 641 STEMI Center Guidlines
D. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix D

SBCEMSA Policy 642: STEMI Transfer Guidelines

STEMI TRANSFER GUIDELINES

I. Purpose: To define the “Code STEMI” process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:
A. STEMI: ST Segment Elevation Myocardial Infarction
B. STEMI Receiving Center (SRC): An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to EMS Policy 640.
C. STEMI Referral Hospital (SRH): An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in EMS Policy 600 and is not designated as a STEMI Receiving Center according to EMS Policy 640.
D. PCI: Percutaneous Coronary Intervention.

IV. Policy:
A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. STEMI Referral Hospital (SRH) will:
1. Assemble and maintain a “STEMI Pack” in the emergency department to contain all of the following:
a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
b. Preprinted template order sheet with recommended prior-to-transfer treatments. Treatment guidelines will be developed with input from the SRH and SRC cardiologists,
c. Patient Consent/Transfer Forms.
d. Treatment summary sheet.
e. Santa Barbara County EMS Code STEMI transfer form.
2. Have policies, procedures, and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times
3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.
C. Dispatch will:
1. Respond to a “Code STEMI” transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
2. Ambulance or helicopter transporting agencies will:
a. Respond immediately upon request for “Code STEMI” transfer.
D. STEMI Receiving Centers will:
1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
3. Immediately upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.

4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:
A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
1. Determine availability of the SRC by checking ReddiNet.
2. Immediately call the County Dispatch Center at to request an air or ground ambulance (ALS or CCT).
a. Advise that they have a Code STEMI transfer to [SRC].
3. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
4. Perform, as time allows, indicated diagnostic tests and treatments.
5. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
a. Aspirin 324mg PO
b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
c. Clopidogrel (Plavix®) is NOT to be administered.
6. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMS STEMI Coordinator.
b. Include copies of the ED face sheet and demographic information.
7. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
8. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.
B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
1. Upon notification, the ambulance will respond Code 3 (lights and siren)
2. The patient shall be urgently transferred without delay.
a. Every effort will be made to minimize on-scene time.
3. All forms should be completed prior to ambulance arrival.
4. Any diagnostic test results may be relayed to the SRC after patient departure.
5. Intravenous drips may be discontinued or remain on the ED pump.
6. Ambulance personnel will place defibrillation pads on the patient.
C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.
1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:
A. Policy 600 Receiving Hospital Standards

B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments
A. STEMI Transfer Form

Appendix E

SBCEMSA Policy 643: STEMI Performance Improvement Process

STEMI PERFORMANCE IMPROVEMENT PROCESS

I. Purpose: Santa Barbara County Emergency Medical Services Agency (SBCEMSA) will ensure quality within the Cardiac and STEMI Care System through a Performance Improvement Process. This includes monitoring of program structure, process,outcome standards, review of STEMI-related deaths, major complications, and transfers through the creation of a multidisciplinary STEMI Quality Improvement (QI) Committee, including both prehospital and hospital

members.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.107 and 1798.161. California Code of Regulations, Title 22, Division 9, Chapter 7, Sections 100270.110, 100270.123 and 100270.1271.

III. Definitions: None

IV. Policy:

A. The SBCEMSA Medical Director shall establish a STEMI System QI Commitee

1. The STEMI System QI Committee is an advisory committee to the SBCEMSA on issues related to STEMI patient care and the Cardiac and STEMI Care System.

a. The STEMI care administered to patients of the Santa Barbara County Cardiac and STEMI Care System will be reviewed for appropriateness of care, protocol adherance and patient outcome.

B. Committee membership is assigned by the SBCEMSA and includes:

1. SBCEMSA Specialty Care Systems Coordinator (Co-Chair)
2. SBCEMSA Medical Director (Chair)
3. STEMI Center Medical Directors & STEMI Nurse Coordinators
4. ALS transport provider representative(s), as needed

C. STEMI meetings will be held on a regular basis and limited to committee members and invited guests, approved by Committee Chair

V. Procedure:

A. Scope of Process and Outcome Standards Review:

1. Preliminary Review: Occurs at the STEMI Center Medical Director and STEMI Nurse Coordinator level.
   a. All deaths, questionable cases and negative outcomes maybe referred to the STEMI System QI Commitee
   b. These charts will be brought to the STEMI System QI Commitee by each facility's STEMI Nurse Coordinator
   c. This committee will meet three (3) times per year, unless additional meetings are necessary.
   d. Any STEMI Program Medical Director has the right to bring up any case he/she feels should be reviewed even if it does not meet the physician STEMI audit criteria.

2. The SBCEMSA Specialty Care Systems Coordinator will review all cases entered into the STEMI Registry database on a monthly basis for compliance with the following:
   a. Policies, procedures and protocols
   b. Prehospital treatment of STEMI patients to include appropriateness of response, evaluation, treatment, and transport by prehospital personnel
   c. Appropriate use of STEMI Triage and 12-Lead Criteria
   d. Complications will be referred to Medical Director for review
   e. All helicopter transports of STEMI patients
3. The STEMI Nurse Coordinator from each designated facility will work with the SBCEMSA Specialty Care Systems Coordinator to obtain the

necessary chart materials for the medical review process and the Committee meetings.

4. Physician STEMI Audit Criteria (any of the below):
    a. All STEMI Deaths
    b. Door to reperfusion times > 90 minutes
    c. Major complications
    d. STEMI transfers from another hospital
    e. Unplanned return to cath lab within 24 hours

B. STEMI Data Entry

1. All designated STEMI centers are required to submit STEMI care data into the SBCEMSA approved STEMI registry/database.
2. The STEMI Nurse Coordinator from

each designated facility will submit STEMI data to SBCEMSA on a monthly basis.

C. Attendance:

1. Attendance for all committee members is mandatory.

a. The STEMI Medical Directors and STEMI Nurse Coordinators must attend 75% of the scheduled meetings annually.

b. Committee members shall notify the Committee Chair (or designee) at least three (3) business days in advance of the meeting if they are unable to attend.

i. Alternate committee members must be approved at least three (3) business days in advance by the Committee Chair (or designee)

2. The Committee Chair (or designee)

shall approve all requests for guests to attend the meeting.

a. Requests for guests must be made at least three (3) business days in advance.

b. The Committee Chair reserves the right to approve or deny requests

D. Meeting Documentation:

1. The agenda, minutes, monthly EMS reports and chart materials will be distributed to members in advance of the meeting.

2. Members are expected to review meeting materials prior to attendance.

E. Confidentiality:

1. All proceedings, documents, and discussions of the STEMI System QI Committee are confidential and are covered under Sections 1040 and 1157.7 of the Evidence Code: “The

prohibition relating to discovery of testimony provided to the Committee will be applicable to all proceedings and records of this Committee, which is one established by a local government agency asqualified to render specialty health care services".

2. All members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through medical review committee membership.
   a. Updated on an annual basis.
   b. Prior to the guest(s) participating in the meeting, the Committee Chair (or designee) is responsible for explaining, and obtaining, a signed confidentiality agreement from invited guests.

c. Guests may or may not be invited to the entire meeting at the discretion of the Committee Chair.

3. No copies of records are to leave the room in which STEMI System QI Commitee meetings are held; all copies will be shredded at the SBCEMSA Office.

VI. References:

A. Policy 110 Standing and Ad-Hoc Committees

B. Evidence Code Section 1040 and 1157.7

VII. Attachments: None

Appendix F

SBCEMSA Policy 539: 12 Lead ECG

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	539
DATE ISSUED:	03/2010
DATE REVIEWED/REVISED:	9/24/2015
DATE TO BE REVIEWED:	01/2018

12-Lead ECG

Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECG's) and procedures for identification, treatment, and transportation of patents with a suspected STEMI.

Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

Definitions:

1. STEMI: ST Segment Elevation Myocardial Infarction.
2. STEMI Receiving Center (SRC): an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County's EMS Policy 640.

Policy: Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome

B. Contraindications: **DO NOT** perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.

C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ** ACUTE MI SUSPECTED** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
   4. If interpretation is ***ACUTE MI SUSPECTED** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
   5. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:
   1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
   2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
   3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department.
   4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
   5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
   6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
   7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics (or private physician's office, Clinics, or Urgent Care Centers) will be turned over

to the transporting paramedic. Copies will be retained by the first responding paramedic.

8. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
9. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:
   1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All <u>original</u> Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature <u>written legibly on the original tracing</u> itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical

Information Act (CMIA) compliance when transmitting information to the EMS Agency.

Appendix G

SBCEMSA Policy 533.11: Chest Pain-Acute Coronary Syndrome

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen if dyspnea, signs of heart failure or shock, or SpO_2 < 94%-99%
- Assist patient with prescribed Nitroglycerin as needed for chest pain
  - Hold if SBP < 110 mmHg

Expanded Scope

- NTG 0.4mg SL (spray or tabs) every 5 min until pain resolved.
  - Hold NTG if SBP <110

ALS Prior to Base Hospital Contact

- Perform 12-lead ECG (prior to medication administration if possible)
  - Refer to Policy 539: 12-Lead ECG
  - If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present, expedite transport to closest STEMI Receiving Center
- Document all initial and ongoing rhythm strips and ECG changes
- Apply defibrillation pads onto the patient
- For continuous chest pain consistent with acute coronary syndrome:
  - Nitroglycerin
    - SL or lingual spray – 0.4 mg every 5 min for continued pain
      - No max dosage
      - Maintain SBP > 110 mmHg
      - If normal SBP < 110 mmHg, then maintain SBP > 90 mmHg
  - Aspirin
    - PO – 324 mg
- Vascular access
  - 2 attempts only prior to Base Hospital contact
- If pain persists and not relieved by NTG:
  - Refer to Policy 533-03: Pain Control
    - Maintain SBP > 110 mmHg
- If patient presents or becomes hypotensive:
  - Elevate legs
  - Normal Saline
    - IV/IO bolus – 250 mL
      - Unless CHF is present
- Ventricular Ectopy –runs of V-Tach (wide complex, heart rate >100bpm, >30 second duration)
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline

- Deliver over 10 minutes

Base Hospital Orders only

- If hypotensive and signs of CHF are present or no response to fluid therapy:
  - Push dose epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
- Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

- Nitroglycerin is contraindicated when erectile dysfunction medications (Viagra, Levitra, and Cialis) have been recently used (Viagra or Levitra within 24 hours; Cialis within 48 hours). NTG then may only be given by ED Physician order

Santa Barbara County EMS Agency

STEMI Critical Care System Plan

2019

Santa Barbara County Emergency Medical Services Agency
Public Health Department

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Section I: Plan Overview

A. Introduction

Patients suffering from an ST Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a receiving hospital, which have specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and Cardiac Arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre arrival instructions for management of chest pain and cardiac arrest, pre-hospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. Purpose

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan designs a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate SRC destination for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely, optimal STEMI services in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor outcomes and participate in continuous quality improvement efforts

C. Overview

An organized, systematic approach to STEMI patients results in a reduction in patient mortality and morbidity. For the last three years, Santa Barbara County EMS Agency along with its eight pre-hospital partnered agencies, have received the Mission Lifeline

Gold Award by the American Heart Association for our STEMI Systems of Care performance measures for the past 5 years. 2019 the agency received the Gold Plus award, the highest award given by the American Heart Association.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California

State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients both within and outside of the county as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

1. Operation of a countywide, inclusive STEMI Critical Care System.
2. Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county.
3. Aeromedical response and transportation requirements.
4. Operational requirements for STEMI Receiving Centers (SRC).
5. Designation and contract with SRCs to provide STEMI care services.
6. A clear line of authority for the countywide STEMI system administration.
7. Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH).

The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. Philosophy/Goals

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, the county. To this end, SRCs are designated to optimize both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources. The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed. The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

1. **STEMI Receiving Centers**

   Two hospitals, one in north county and one in south county, are designated as an SRC.

2. **Inclusive**

   Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

3. **Continuous Quality Improvement/Outcome**

   Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

4. **Prevention/Education**
   Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

5. **Continuum of Services**

   The STEMI Critical Care System program is an integrated system comprised of pre-hospital agencies and hospitals.

E. Legal Basis

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. Plan Method

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

Section II: Overview of Santa Barbara County

A. Geography

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities intensify this problem by limiting accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility and result in a high-crash rate for the area and also hinders the accessibility to healthcare services, especially for rural residents.

B. Transportation

The automobile is the predominate form of transportation in Santa Barbara County. One major artery, Highway 101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller arteries, Highway 166 (from New Cuyama), Highway 154 (connects Goleta to Los Olivos and reconnects with Highway 101), and Highway 1 (connects to Highway 101 above Gaviota, breaks off to the west off the City of Lompoc and then meanders north to San Luis Obispo County), also transact Santa Barbara County. There is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the county.

Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. Demographics

In 2018, the population was 446,527.

Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $68,023. The demographics of the County indicate that there are many concentrated low-income areas. Census reports show that 14.2% of the County residents live at or below the poverty level (compared with 13.2% of the State population).

In 2018, the population over 65 years of age in Santa Barbara County was 15.3%. As the population of Santa Barbara County continues to age, there will be an increased demand for EMS services in the over 65 age group.

D. Epidemiology

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and heart disease, which is consistent with the trend throughout California and the United States. The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2017.

1. Heart Disease
2. Cancer
3. Alzheimer's Disease
4. Chronic Respiratory Disease
5. Cerebrovascular Disease (Stroke)

E. EMS Dispatch

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. Emergency Medical Care Resources

1. Prehospital

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. Santa Barbara County Hospitals

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Name/Address	No. of Beds	No of ICU Beds	No of PED. Beds	Base Hospital	SRC or SRH	Agreement Expire date
Goleta Valley Cottage Hospital 351 Patterson Ave. Santa Barbara, CA 93160	122	10	2	Y	SRH	12/31/2019
Lompoc Valley Medical Center 1515 E. Ocean Ave. Lompoc, CA 93436	60	4	0	Y	SRH	12/31/2019
Marian Regional Medical Center 1400 E. Church St. Santa Maria, CA 93454	130	20	8	Y	SRC	12/31/2019
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y	SRC	12/31/2019
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Rd. Solvang, CA 93463	30	4	0	Y	SRH	12/31/2019

SECTION III: System Administration

A. Lead Agency

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be

responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include but are not limited to:

a. Ongoing performance evaluation and quality improvement of the STEMI System.
b. Assessing needs and resource requirements of the county.
c. Assigning roles to system participants.
d. Monitoring the STEMI registry data system.
e. Monitoring the system to determine compliance with appropriate law, regulations, policies, procedures and contracts.
f. Evaluating the impact of the system and revising the system design as needed.

B. STEMI Center Fees

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. Multidisciplinary STEMI Quality Improvement Committee

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. It provides for countywide input of knowledgeable hospital and prehospital individuals and organizations into the discussion and resolution of STEMI system issues. It also fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system. This committee meets three times a year.

The functions of the STEMI Committee are:

a. Conduct assessment of the STEMI system needs and resources in the county.
b. Provide overall direction and coordination to for policymaking and program oversite.
c. Analyze the results of data collection and the monitoring system.
d. Present case studies for review and quality improvement.
e. Maintains compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases.

D. Medical Control

Medical control and direction of the STEMI system is an essential ingredient of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

Section IV: System Operational Components

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. Prehospital Providers

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

a. Criteria for activation of a field STEMI
b. Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
c. STEMI protocols readily available for pre hospital treatment
d. Triage and Destination to the closest, most appropriate SRC

B. Hospital Providers

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but not limited to:

- Designated as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. Prehospital Transportation

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Santa Barbara County Fire Department ALS Air Rescue can be utilized for STEMI scene transports.

D. Interfacility Transfers

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital,

will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place to for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. Diversion

If the situation arises when the cath lab in unavailable, or no cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients are not diverted.

Section V: Quality Improvement

A. Data Collection

Currently SBCEMSA is using Get With The Guidelines-Coronary Artery Disease (GWTG-CAD) Registry. Data elements from the STEMI registry are reviewed and maintained by SBCEMSA for overall monitoring of the system. Specific patient and physician identifiers are stripped from the data to assure confidentiality. CAD contains the recommended minimum data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge. All prehospital ALS providers utilize a standardized paramedic care report in Image Trend. SBCEMSA collects data electronically from all ALS and BLS service providers through Image Trend and reports State Core Measures related to STEMI care using CHEMSIS.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

B. Data Evaluation

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

1. System design
2. Appropriateness of pre hospital care from data in compliance with the most current version of CHEMSIS and NEMSIS, may include:

    a. STEMI activations
    b. On scene time

c. Accuracy of ECG interpretation
d. Appropriateness of pre hospital care, including type and amount of intervention
e. Patient contact to ECG performed within 10 min
f. Early notification of Code STEMI within 10 min
g. Appropriateness of receiving hospital destination
h. ROSC patients with POS STEMI ECG

3. Verification that designated SRCs are fulfilling their STEMI care system responsibilities.
4. All hospitals that receive STEMI patients via EMS will participate in the data collection process. Hospital data, including:

a. STEMI activations and specialist notifications
b. Door to ECG within 10 min
c. Percutaneous coronary intervention, times and outcomes
d. Door to reperfusion time within 90 min
e. Patient transfers from SRH to SRC with regard to their appropriateness and patient outcome
f. SRH Door In/Door Out time within 30 minutes for transfers to SRC
g. STEMI related deaths, complications
h. SRC diversion hours

Section VI: Community Education

A. Community Outreach and training

1. Hands-Only CPR
   a. Community Events by all Santa Barbara County pre hospital providers, the EMS Agency and SBCEMSA Medical Reserve Corps
   b. Offer school Hands-Only CPR training as a graduation requirement

2. Cardiovascular Disease Prevention
   a. Pamphlet and handouts for Blood Pressure monitoring, recognizing signs and symptoms of a heart attack, use of 911

B. Survivor Recognition

3. Annual Cardiac Arrest Survivor Celebration

Section VII: Appendices

Appendix A

SBCEMSA Policy 600: Receiving Hospital Standards

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	600
DATE ISSUED:	06/2002
DATE REVIEWED/REVISED:	9/2015
DATE TO BE REVIEWED:	9/2017

RECEIVING HOSPITAL STANDARDS

Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

Policy: A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

Procedure:

A. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:

1. Be licensed by the State Department of Health Services as a general acute care hospital.
2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
4. Operate an Intensive Care Unit.
5. Have operating room services available within 30 minutes.
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:

Cardiology	Orthopedic Surgery	Thoracic Surgery
Anesthesiology	General Surgery	Pediatrics
Neurosurgery	General Medicine	Obstetrics

APPROVED:

John H. Eaglesham, EMS Director

Angelo Salvucci, MD, EMS Medical Director

7. Have the following services available within 20 minutes:
   X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:

    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.

11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.

    a. All Receiving Hospital physicians shall:
       1. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       2. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       3. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.

    b. All Receiving Hospital Registered Nurses shall:
       1. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       2. Maintain current Advanced Cardiac Life Support certification.

    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

12. Actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance.

13. Agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication

form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

B. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.

C. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.

D. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

Appendix B

SBCEMSA Policy 641: STEMI Center Standards

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	641
Original Issue Date:	March, 2010
Last Reviewed/Revised:	November 12, 2019
Effective Date:	December 01, 2019
Next Review:	November, 2021

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI CENTER STANDARDS

I. **Purpose:** To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. **Authority:**Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. **Definitions:**

A. *"STEMI receiving center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH"*: a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. **Policy:**

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities
   a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
   b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.
3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.
      ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

b. SRC STEMI Coordinator:
   i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.
c. Physician Consultants:
   i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.

4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an "Acute MI Suspected" or "Meets ST Elevation MI Criteria."
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.
      ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
      iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital
      iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
      v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
      vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
      vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.
6. Quality Improvement
   a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
      i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a "STEMI Activation" patient, within 72 hours.
   b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
   c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.

i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:
1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.
4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Defelop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:
1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
   a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
   b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

V. Procedure:

A. Designation
1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
   a. Application:
      i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
   b. Approval:
      i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
         (a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI system QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
      i. SRCs shall be reviewed on a biannual basis.
      ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
      iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
      iv. SRCs shall receive notification of evaluation from the SBCEMSA.
      v. SRCs shall respond in writing regarding program compliance.
      vi. On-site SRC visits for evaluative purposes may occur.
      vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 Cardiac and STEMI System
C. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix C

SBCEMSA Policy 642: STEMI Transfer Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	642
Original Issue Date:	March, 2010
Last Reviewed/Revised:	November 12, 2019
Effective Date:	December 01, 2019
Next Review:	November, 2021

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI TRANSFER GUIDELINES

I. Purpose: To define the "Code STEMI" process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:

A. *STEMI:* ST Segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to EMS Policy 640.

C. *STEMI Referral Hospital (SRH):* An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in EMS Policy 600 and is not designated as a STEMI Receiving Center according to EMS Policy 640.

D. *PCI:* Percutaneous Coronary Intervention.

IV. Policy:

A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. STEMI Referral Hospital (SRH) will:

1. Assemble and maintain a "STEMI Pack" in the emergency department to contain all of the following:
   a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
   b. Preprinted template order sheet with recommended prior-to-transfer treatments. Treatment guidelines will be developed with input from the SRH and SRC cardiologists,
   c. Patient Consent/Transfer Forms.
   d. Treatment summary sheet.
   e. Santa Barbara County EMS Code STEMI transfer form.
2. Have policies, procedures, and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times
3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.

C. Dispatch will:

1. Respond to a "Code STEMI" transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
2. Ambulance or helicopter transporting agencies will:
   a. Respond immediately upon request for "Code STEMI" transfer.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

D. STEMI Receiving Centers will:
   1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
   2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
   3. Immediately upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.
   4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
   5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
   6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:

A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
   1. Determine availability of the SRC by checking ReddiNet.
   2. Immediately call the County Dispatch Center at to request an air or ground ambulance (ALS or CCT).
      a. Advise that they have a Code STEMI transfer to [SRC].
   3. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
   4. Perform, as time allows, indicated diagnostic tests and treatments.
   5. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
      a. Aspirin 324mg PO
      b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
      c. Clopidogrel (Plavix®) is NOT to be administered.
   6. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
      a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMS STEMI Coordinator.
      b. Include copies of the ED face sheet and demographic information.
   7. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
   8. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.

B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
   1. Upon notification, the ambulance will respond Code 3 (lights and siren)
   2. The patient shall be urgently transferred without delay.
      a. Every effort will be made to minimize on-scene time.
   3. All forms should be completed prior to ambulance arrival.
   4. Any diagnostic test results may be relayed to the SRC after patient departure.
   5. Intravenous drips may be discontinued or remain on the ED pump.
   6. Ambulance personnel will place defibrillation pads on the patient.

C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

STEMI TRANSFER GUIDELINES

1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
   a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
   b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
   c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments

A. STEMI Transfer Form

Appendix D

SBCEMSA Policy 539: 12-Lead ECG Process

Policy Number:	*539*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*June 26, 2018*
Effective Date:	*September 1, 2018*
Next Review:	*June, 2019*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

12-LEAD ECG PROCESS

I. Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECGs) and procedures for identification, treatment, and transportation of patients with a suspected ST-segment Elevation Myocardial Infarction (STEMI).

II. Authority: California Health and Safety Code, Sections 1797.204, 1797.220 and 1798. California Code of Regulations, Title 22, Division 9, Sections 100148, 100169 and 100170.

III. Definitions:

A. *STEMI:* ST-segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County EMS Policy 640

IV. Policy:

A. Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy.

B. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

V. Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome

B. Contraindications: DO NOT perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.

C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. Assure proper skin preparation prior to attaching electrodes. Check for loose electrodes or those with dry gel.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

4. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
5. If interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
6. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:

1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department. The name and date of birth of the patient may be communicated to the receiving hospital physician.
4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***:
   a. Apply defibrillatopr pads to prepare for possible ventricular tachycardia/fibrillation
   b. Patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field.
8. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics will be turned over to the transporting paramedic. Copies will be retained by the first responding paramedic.
9. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
10. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:

1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you

may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.
   3. Obtain the original or copy of the office ECG and deliver to the hospital.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All original Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. ***All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature written legibly on the original tracing itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.***
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical Information Act (CMIA) compliance when transmitting information to the EMS Agency.

VI. References:

A. Policy 303 Mandatory Base Hospital Contact and Communication Policy
B. Policy 640 STEMI Receiving Center Guidelines

VII. Attachments: None

Appendix E

SBCEMSA Policy 533.11: Chest Pain - Acute Coronary Syndrome

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen if dyspnea, signs of heart failure or shock, or SpO_2 < 94%-99%
- Assist patient with prescribed Nitroglycerin as needed for chest pain
  - Hold if SBP < 110 mmHg

Expanded Scope

- NTG 0.4mg SL (spray or tabs) Q5 min until pain resolved.
  - Hold NTG if SBP <110

ALS Prior to Base Hospital Contact

- Perform 12-lead ECG (prior to medication administration if possible)
  - Refer to Policy 539: 12-Lead ECG
  - If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present, expedite transport to closest STEMI Receiving Center
- Document all initial and ongoing rhythm strips and ECG changes
- Apply defibrillation pads onto the patient
- For continuous chest pain consistent with acute coronary syndrome:
  - Nitroglycerin
    - SL or lingual spray – 0.4 mg q 5 min for continued pain
      - No max dosage
      - Maintain SBP > 110 mmHg
      - If normal SBP < 110 mmHg, then maintain SBP > 90 mmHg
  - Aspirin
    - PO – 324 mg
- Vascular access
  - 2 attempts only prior to Base Hospital contact
- If pain persists and not relieved by NTG:
  - Refer to Policy 533-03: Pain Control
    - Maintain SBP > 110 mmHg
- If patient presents or becomes hypotensive:
  - Elevate legs
  - Normal Saline
    - IV/IO bolus – 250 mL
      - Unless CHF is present
- Ventricular Ectopy –runs of V-Tach (wide complex, heart rate >100bpm, >30 second duration)
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline
    - Deliver over 10 minutes

Base Hospital Orders only

- If hypotensive and signs of CHF are present or no response to fluid therapy:
  - Push dose epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
- Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

- Nitroglycerin is contraindicated when erectile dysfunction medications (Viagra, Levitra, and Cialis) have been recently used (Viagra or Levitra within 24 hours; Cialis within 48 hours). NTG then may only be given by ED Physician order

Santa Barbara County EMS Agency

STEMI Critical Care System Plan

2019

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Table of Contents

Section I: Plan Overview

A. Introduction

Patients suffering from an ST Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a receiving hospital, which have specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and Cardiac Arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre arrival instructions for management of chest pain and cardiac arrest, pre-hospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. Purpose

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan designs a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate SRC destination for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely, optimal STEMI services in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor outcomes and participate in continuous quality improvement efforts

C. Overview

An organized, systematic approach to STEMI patients results in a reduction in patient mortality and morbidity. For the last three years, Santa Barbara County EMS Agency along with its eight pre-hospital partnered agencies, have received the Mission Lifeline

Gold Award by the American Heart Association for our STEMI Systems of Care performance measures for the past 5 years. 2019 the agency received the Gold Plus award, the highest award given by the American Heart Association.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California

State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients both within and outside of the county as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

1. Operation of a countywide, inclusive STEMI Critical Care System.
2. Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county.
3. Aeromedical response and transportation requirements.
4. Operational requirements for STEMI Receiving Centers (SRC).
5. Designation and contract with SRCs to provide STEMI care services.
6. A clear line of authority for the countywide STEMI system administration.
7. Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH).

The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. Philosophy/Goals

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, the county. To this end, SRCs are designated to optimize both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources. The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed. The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

1. **STEMI Receiving Centers**

   Two hospitals, one in north county and one in south county, are designated as an SRC.

2. **Inclusive**

   Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

3. **Continuous Quality Improvement/Outcome**

   Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

4. **Prevention/Education**
   Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

5. **Continuum of Services**

   The STEMI Critical Care System program is an integrated system comprised of pre-hospital agencies and hospitals.

E. Legal Basis

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. Plan Method

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

Section II: Overview of Santa Barbara County

A. Geography

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities intensify this problem by limiting accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility and result in a high-crash rate for the area and also hinders the accessibility to healthcare services, especially for rural residents.

B. Transportation

The automobile is the predominate form of transportation in Santa Barbara County. One major artery, Highway 101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller arteries, Highway 166 (from New Cuyama), Highway 154 (connects Goleta to Los Olivos and reconnects with Highway 101), and Highway 1 (connects to Highway 101 above Gaviota, breaks off to the west off the City of Lompoc and then meanders north to San Luis Obispo County), also transact Santa Barbara County. There is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the county.

Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. Demographics

In 2018, the population was 446,527.

Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $68,023. The demographics of the County indicate that there are many concentrated low-income areas. Census reports show that 14.2% of the County residents live at or below the poverty level (compared with 13.2% of the State population).

In 2018, the population over 65 years of age in Santa Barbara County was 15.3%. As the population of Santa Barbara County continues to age, there will be an increased demand for EMS services in the over 65 age group.

D. Epidemiology

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and heart disease, which is consistent with the trend throughout California and the United States. The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2017.

1. Heart Disease
2. Cancer
3. Alzheimer's Disease
4. Chronic Respiratory Disease
5. Cerebrovascular Disease (Stroke)

E. EMS Dispatch

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. Emergency Medical Care Resources

1. Prehospital

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. Santa Barbara County Hospitals

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Name/Address	No. of Beds	No of ICU Beds	No of PED. Beds	Base Hospital	SRC or SRH	Agreement Expire date
Goleta Valley Cottage Hospital 351 Patterson Ave. Santa Barbara, CA 93160	122	10	2	Y	SRH	12/31/2019
Lompoc Valley Medical Center 1515 E. Ocean Ave. Lompoc, CA 93436	60	4	0	Y	SRH	12/31/2019
Marian Regional Medical Center 1400 E. Church St. Santa Maria, CA 93454	130	20	8	Y	SRC	12/31/2019
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y	SRC	12/31/2019
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Rd. Solvang, CA 93463	30	4	0	Y	SRH	12/31/2019

SECTION III: System Administration

A. Lead Agency

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be

responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include but are not limited to:

a. Ongoing performance evaluation and quality improvement of the STEMI System.
b. Assessing needs and resource requirements of the county.
c. Assigning roles to system participants.
d. Monitoring the STEMI registry data system.
e. Monitoring the system to determine compliance with appropriate law, regulations, policies, procedures and contracts.
f. Evaluating the impact of the system and revising the system design as needed.

B. STEMI Center Fees

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. Multidisciplinary STEMI Quality Improvement Committee

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. It provides for countywide input of knowledgeable hospital and prehospital individuals and organizations into the discussion and resolution of STEMI system issues. It also fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system. This committee meets three times a year.

The functions of the STEMI Committee are:

a. Conduct assessment of the STEMI system needs and resources in the county.
b. Provide overall direction and coordination to for policymaking and program oversite.
c. Analyze the results of data collection and the monitoring system.
d. Present case studies for review and quality improvement.
e. Maintains compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases.

D. Medical Control

Medical control and direction of the STEMI system is an essential ingredient of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

Section IV: System Operational Components

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. Prehospital Providers

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

a. Criteria for activation of a field STEMI
b. Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
c. STEMI protocols readily available for pre hospital treatment
d. Triage and Destination to the closest, most appropriate SRC

B. Hospital Providers

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but not limited to:

- Designated as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. Prehospital Transportation

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Santa Barbara County Fire Department ALS Air Rescue can be utilized for STEMI scene transports.

D. Interfacility Transfers

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital,

will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place to for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. Diversion

If the situation arises when the cath lab in unavailable, or no cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients are not diverted.

Section V: Quality Improvement

A. Data Collection

Currently SBCEMSA is using Get With The Guidelines-Coronary Artery Disease (GWTG-CAD) Registry. Data elements from the STEMI registry are reviewed and maintained by SBCEMSA for overall monitoring of the system. Specific patient and physician identifiers are stripped from the data to assure confidentiality. CAD contains the recommended minimum data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge. All prehospital ALS providers utilize a standardized paramedic care report in Image Trend. SBCEMSA collects data electronically from all ALS and BLS service providers through Image Trend and reports State Core Measures related to STEMI care using CHEMSIS.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

B. Data Evaluation

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

1. System design
2. Appropriateness of pre hospital care from data in compliance with the most current version of CHEMSIS and NEMSIS, may include:

    a. STEMI activations
    b. On scene time

c. Accuracy of ECG interpretation
d. Appropriateness of pre hospital care, including type and amount of intervention
e. Patient contact to ECG performed within 10 min
f. Early notification of Code STEMI within 10 min
g. Appropriateness of receiving hospital destination
h. ROSC patients with POS STEMI ECG

3. Verification that designated SRCs are fulfilling their STEMI care system responsibilities.
4. All hospitals that receive STEMI patients via EMS will participate in the data collection process. Hospital data, including:

a. STEMI activations and specialist notifications
b. Door to ECG within 10 min
c. Percutaneous coronary intervention, times and outcomes
d. Door to reperfusion time within 90 min
e. Patient transfers from SRH to SRC with regard to their appropriateness and patient outcome
f. SRH Door In/Door Out time within 30 minutes for transfers to SRC
g. STEMI related deaths, complications
h. SRC diversion hours

Section VI: Community Education

A. Community Outreach and training

1. Hands-Only CPR
   a. Community Events by all Santa Barbara County pre hospital providers, the EMS Agency and SBCEMSA Medical Reserve Corps
   b. Offer school Hands-Only CPR training as a graduation requirement

2. Cardiovascular Disease Prevention
   a. Pamphlet and handouts for Blood Pressure monitoring, recognizing signs and symptoms of a heart attack, use of 911

B. Survivor Recognition

3. Annual Cardiac Arrest Survivor Celebration

Section VII: Appendices

Appendix A

SBCEMSA Policy 600: Receiving Hospital Standards

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	600
DATE ISSUED:	06/2002
DATE REVIEWED/REVISED:	9/2015
DATE TO BE REVIEWED:	9/2017

RECEIVING HOSPITAL STANDARDS

Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

Policy: A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

Procedure:

A. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:

1. Be licensed by the State Department of Health Services as a general acute care hospital.
2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
4. Operate an Intensive Care Unit.
5. Have operating room services available within 30 minutes.
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:

Cardiology	Orthopedic Surgery	Thoracic Surgery
Anesthesiology	General Surgery	Pediatrics
Neurosurgery	General Medicine	Obstetrics

APPROVED:

John H. Eaglesham, EMS Director

Angelo Salvucci, MD, EMS Medical Director

7. Have the following services available within 20 minutes:
   X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:

    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.

11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.

    a. All Receiving Hospital physicians shall:
       1. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       2. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       3. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.

    b. All Receiving Hospital Registered Nurses shall:
       1. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       2. Maintain current Advanced Cardiac Life Support certification.

    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

12. Actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance.

13. Agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication

form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

B. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.

C. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.

D. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

Appendix B

SBCEMSA Policy 641: STEMI Center Standards

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	641
Original Issue Date:	March, 2010
Last Reviewed/Revised:	November 12, 2019
Effective Date:	December 01, 2019
Next Review:	November, 2021

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI CENTER STANDARDS

I. **Purpose:** To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. **Authority:**Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. **Definitions:**

A. *"STEMI receiving center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH"*: a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. **Policy:**

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities
   a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
   b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.
3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.
      ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

b. SRC STEMI Coordinator:
   i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.
c. Physician Consultants:
   i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.

4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an "Acute MI Suspected" or "Meets ST Elevation MI Criteria."
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.
      ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
      iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital
      iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
      v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
      vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
      vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.
6. Quality Improvement
   a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
      i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a "STEMI Activation" patient, within 72 hours.
   b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
   c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.

i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:
1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.
4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Defelop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:
1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
   a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
   b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

V. Procedure:

A. Designation
1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
   a. Application:
      i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
   b. Approval:
      i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
         (a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI system QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
      i. SRCs shall be reviewed on a biannual basis.
      ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
      iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
      iv. SRCs shall receive notification of evaluation from the SBCEMSA.
      v. SRCs shall respond in writing regarding program compliance.
      vi. On-site SRC visits for evaluative purposes may occur.
      vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 Cardiac and STEMI System
C. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix C

SBCEMSA Policy 642: STEMI Transfer Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	642
Original Issue Date:	March, 2010
Last Reviewed/Revised:	November 12, 2019
Effective Date:	December 01, 2019
Next Review:	November, 2021

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI TRANSFER GUIDELINES

I. Purpose: To define the "Code STEMI" process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:

A. *STEMI:* ST Segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to EMS Policy 640.

C. *STEMI Referral Hospital (SRH):* An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in EMS Policy 600 and is not designated as a STEMI Receiving Center according to EMS Policy 640.

D. *PCI:* Percutaneous Coronary Intervention.

IV. Policy:

A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. STEMI Referral Hospital (SRH) will:

1. Assemble and maintain a "STEMI Pack" in the emergency department to contain all of the following:
   a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
   b. Preprinted template order sheet with recommended prior-to-transfer treatments. Treatment guidelines will be developed with input from the SRH and SRC cardiologists,
   c. Patient Consent/Transfer Forms.
   d. Treatment summary sheet.
   e. Santa Barbara County EMS Code STEMI transfer form.
2. Have policies, procedures, and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times
3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.

C. Dispatch will:

1. Respond to a "Code STEMI" transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
2. Ambulance or helicopter transporting agencies will:
   a. Respond immediately upon request for "Code STEMI" transfer.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

D. STEMI Receiving Centers will:
   1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
   2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
   3. Immediately upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.
   4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
   5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
   6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:

A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
   1. Determine availability of the SRC by checking ReddiNet.
   2. Immediately call the County Dispatch Center at to request an air or ground ambulance (ALS or CCT).
      a. Advise that they have a Code STEMI transfer to [SRC].
   3. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
   4. Perform, as time allows, indicated diagnostic tests and treatments.
   5. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
      a. Aspirin 324mg PO
      b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
      c. Clopidogrel (Plavix®) is NOT to be administered.
   6. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
      a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMS STEMI Coordinator.
      b. Include copies of the ED face sheet and demographic information.
   7. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
   8. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.

B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
   1. Upon notification, the ambulance will respond Code 3 (lights and siren)
   2. The patient shall be urgently transferred without delay.
      a. Every effort will be made to minimize on-scene time.
   3. All forms should be completed prior to ambulance arrival.
   4. Any diagnostic test results may be relayed to the SRC after patient departure.
   5. Intravenous drips may be discontinued or remain on the ED pump.
   6. Ambulance personnel will place defibrillation pads on the patient.

C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

STEMI TRANSFER GUIDELINES

1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
   a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
   b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
   c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments

A. STEMI Transfer Form

Appendix D

SBCEMSA Policy 539: 12-Lead ECG Process

Policy Number:	*539*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*June 26, 2018*
Effective Date:	*September 1, 2018*
Next Review:	*June, 2019*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

12-LEAD ECG PROCESS

I. Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECGs) and procedures for identification, treatment, and transportation of patients with a suspected ST-segment Elevation Myocardial Infarction (STEMI).

II. Authority: California Health and Safety Code, Sections 1797.204, 1797.220 and 1798. California Code of Regulations, Title 22, Division 9, Sections 100148, 100169 and 100170.

III. Definitions:

A. *STEMI:* ST-segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County EMS Policy 640

IV. Policy:

A. Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy.

B. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

V. Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome

B. Contraindications: DO NOT perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.

C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. Assure proper skin preparation prior to attaching electrodes. Check for loose electrodes or those with dry gel.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

4. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
5. If interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
6. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:

1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department. The name and date of birth of the patient may be communicated to the receiving hospital physician.
4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***:
   a. Apply defibrillatopr pads to prepare for possible ventricular tachycardia/fibrillation
   b. Patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field.
8. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics will be turned over to the transporting paramedic. Copies will be retained by the first responding paramedic.
9. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
10. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:

1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you

may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.
   3. Obtain the original or copy of the office ECG and deliver to the hospital.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All original Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. ***All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature written legibly on the original tracing itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.***
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical Information Act (CMIA) compliance when transmitting information to the EMS Agency.

VI. References:

A. Policy 303 Mandatory Base Hospital Contact and Communication Policy
B. Policy 640 STEMI Receiving Center Guidelines

VII. Attachments: None

Appendix E

SBCEMSA Policy 533.11: Chest Pain - Acute Coronary Syndrome

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen if dyspnea, signs of heart failure or shock, or SpO_2 < 94%-99%
- Assist patient with prescribed Nitroglycerin as needed for chest pain
  - Hold if SBP < 110 mmHg

Expanded Scope

- NTG 0.4mg SL (spray or tabs) Q5 min until pain resolved.
  - Hold NTG if SBP <110

ALS Prior to Base Hospital Contact

- Perform 12-lead ECG (prior to medication administration if possible)
  - Refer to Policy 539: 12-Lead ECG
  - If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present, expedite transport to closest STEMI Receiving Center
- Document all initial and ongoing rhythm strips and ECG changes
- Apply defibrillation pads onto the patient
- For continuous chest pain consistent with acute coronary syndrome:
  - Nitroglycerin
    - SL or lingual spray – 0.4 mg q 5 min for continued pain
      - No max dosage
      - Maintain SBP > 110 mmHg
      - If normal SBP < 110 mmHg, then maintain SBP > 90 mmHg
  - Aspirin
    - PO – 324 mg
- Vascular access
  - 2 attempts only prior to Base Hospital contact
- If pain persists and not relieved by NTG:
  - Refer to Policy 533-03: Pain Control
    - Maintain SBP > 110 mmHg
- If patient presents or becomes hypotensive:
  - Elevate legs
  - Normal Saline
    - IV/IO bolus – 250 mL
      - Unless CHF is present
- Ventricular Ectopy –runs of V-Tach (wide complex, heart rate >100bpm, >30 second duration)
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline
    - Deliver over 10 minutes

Base Hospital Orders only

- If hypotensive and signs of CHF are present or no response to fluid therapy:
  - Push dose epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
- Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

- Nitroglycerin is contraindicated when erectile dysfunction medications (Viagra, Levitra, and Cialis) have been recently used (Viagra or Levitra within 24 hours; Cialis within 48 hours). NTG then may only be given by ED Physician order

Santa Barbara County EMS Agency

STEMI Critical Care System

2020

SANTA BARBARA COUNTY EMS AGENCY
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Section I: Plan Overview

A. INTRODUCTION

Patients suffering from an ST-Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a receiving hospital, which have specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and Cardiac Arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre-arrival instructions for management of chest pain and cardiac arrest, prehospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. PURPOSE

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan outlines a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate, SRC for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely STEMI services, and ensure optimal care is available in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor patient outcomes and participate in continuous quality improvement efforts

C. OVERVIEW

An organized, systematic approach to STEMI patients results in a reduction in patient morbidity and mortality. For the past seven years, Santa Barbara County EMS Agency (SBCEMSA) along with its eight prehospital partnering agencies, have received the American Heart Association Mission Lifeline Gold Award for our STEMI Systems of Care. The Mission Lifeline Award uses national benchmarks and performance measures to determine if an EMS system is providing the accepted standard of patient care. SBCEMSA has consistently superseded the Mission Lifeline Gold Award standards, and in 2021, SBCEMSA and partners received the Gold Plus award for the third consecutive year. The Gold Plus award is the highest award given by the American Heart Association to acknowledge a distinguished EMS system with exemplary patient care benchmarks.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients within, and outside of, Santa Barbara County as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

- Operation of a countywide, inclusive STEMI Critical Care System
- Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county
- Aeromedical response and transportation requirements
- Operational requirements for STEMI Receiving Centers (SRC)
- Designation and contract with SRCs to provide STEMI care services
- A clear line of authority for the countywide STEMI system administration
- Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH). The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. PHILOSOPHY/GOALS

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, Santa Barbara County. To this end, SRCs are designated to optimize both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources.

The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed.

The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

- **STEMI Receiving Centers**

  Two hospitals, one in North County and one in South County, have SRC designations.

- **Inclusive**

  Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

- **Continuous Quality Improvement**

  Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

- **Prevention/Education**

  Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

- **Continuum of Services**

  The STEMI Critical Care System program is an integrated system comprised of prehospital agencies and hospitals.

E. LEGAL BASIS

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. PLAN METHOD

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo, also have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

SECTION II: OVERVIEW OF SANTA BARBARA COUNTY

A. GEOGRAPHY

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis

Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities limit accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility which greatly contributes to high-crash rates in rural areas of Santa Barbara County. Additionally, these dense fog conditions may limit access to healthcare services and render resident's incapable of utilizing air ambulance transport due to poor visibility and unsafe flying conditions.

B. TRANSPORTATION

The automobile is the predominate form of transportation in Santa Barbara County. One major roadway, Highway-101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller roadways, Highway 166, Highway 154, and Highway 1, also transect Santa Barbara County. There is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the County.

Residents in rural areas of the county often times require the transport/transfer of critical patients by means of air ambulance. Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. DEMOGRAPHICS

In 2020, the population was 447,218. Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $74,798 with a poverty rate of 14.8%. The demographics of the County indicate that there are many concentrated low-income areas (compared with 18.5% of the State population). The population over 65 years of age in Santa Barbara County was 19%. As the population of Santa Barbara County continues to age, there is an increased demand for EMS in the greater than 65 age group.

D. EPIDEMIOLOGY

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and coronary heart disease, which is consistent with the trend throughout California and the United States.

The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2020.

1. All cancers
2. Coronary Heart Disease
3. Alzheimer's Disease
4. Accidents
5. Cerebrovascular Disease (Stroke)

E. EMS DISPATCH

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. EMERGENCY MEDICAL CARE RESOURCES

1. PREHOSPITAL

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. SANTA BARBARA COUNTY HOSPITALS

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Hospital Name & Address	Number of Beds	Number of ICU Beds	Number of Pediatric Beds	Base Hospital (Y/N)
Goleta Valley Cottage Hospital 351 Patterson Avenue Santa Barbara, CA 93160	122	10	2	Y
Lompoc Valley Medical Center 1515 E. Ocean Avenue Lompoc, CA 93436	60	4	0	Y
Marian Regional Medical Center 1400 E. Church Street Santa Maria, CA 93454	130	20	8	Y
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Road Solvang, CA 93463	30	4	0	Y

SECTION III: SYSTEM ADMINISTRATION

A. LEAD AGENCY

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include, but are not limited to:

- Ongoing performance evaluation and quality improvement of the STEMI System
- Assessing needs and resource requirements of the county
- Assigning roles to system participants
- Monitoring the STEMI registry data system
- Monitoring the system to determine compliance with appropriate laws, regulations, policies, procedures and contracts
- Evaluating the impact of the system and revising its design as needed

B. STEMI CENTER FEES

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. MULTIDISCIPLINARY STEMI QUALITY IMPROVEMENT COMMITTEE

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. The Committee meets three times a year to discuss and resolve STEMI system issues. It is comprised of countywide Stakeholders from local hospital and prehospital agencies involved in the overall care of STEMI patients. The Committee fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system.

The functions of the STEMI Committee are:

- Conduct assessment of the STEMI system needs and resources in the county
- Provide overall direction and coordination for policymaking and program oversite
- Analyze the results of data collection and the monitoring system
- Present case studies for review and quality improvement
- Maintain compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases

D. MEDICAL CONTROL

Medical control and direction of the STEMI system is an essential component of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

SECTION IV: SYSTEM OPERATIONAL COMPONENTS

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. PREHOSPITAL PROVIDERS

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

- Criteria for activation of a field STEMI
- Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
- STEMI protocols readily available for prehospital treatment
- Triage and Destination to the closest, most appropriate SRC

B. HOSPITAL PROVIDERS

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but are not limited to:

- Act as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. PREHOSPITAL TRANSPORTATION

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Mercy Air (located in San Luis Obispo) and Santa Barbara County Fire Department ALS Air Rescue can be utilized for Stroke scene transports.

D. INTERFACILITY TRANSFERS

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital, will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. DIVERSION

If the situation arises where the catheterization lab is unavailable, or no Cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients, however, are not subject to diversion.

SECTION V: QUALITY IMPROVEMENT

A. DATA COLLECTION

The primary aim of Santa Barbara County's STEMI Critical Care System is to develop a comprehensive system that provides timely access to proven treatments necessary to reduce morbidity and mortality. It is through continuous quality improvement efforts that stroke patients receive care based on best practices. Implementation of quality improvement programs and clinical best practices reduces morbidity and mortality, hence improves patient outcomes.

Currently, SBCEMSA collects stroke prehospital data elements through electronic Patient Care Record (ePCR) extraction. Data elements that are specific to STEMI Centers are extracted through a common software registry platform shared with the hospitals called *Get With The Guidelines – Coronary Artery Disease (GWTG-CAD).* Specific patient and physician identifiers are stripped from the data to assure confidentiality. GWTG-CAD contains the recommended minimum data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

B. DATA EVALUATION

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

- System Design
- Appropriateness of pre hospital care from data in compliance with the most current version of CHEMSIS and NEMSIS, may include:
  - STEMI activations
  - On scene time
  - Accuracy of ECG interpretation
  - Appropriateness of prehospital care, including type and amount of intervention
  - Patient contact to ECG performed within 10 minutes
  - Early notification of Code STEMI within 10 minutes
  - Appropriateness of receiving hospital destination
  - ROSC patients with POS STEMI ECG

- ❖ Verification that designated SRCs are fulfilling their STEMI care system responsibilities.
- ❖ All hospitals that receive STEMI patients via EMS will participate in the data collection process. Hospital data, including:
  - STEMI activations and specialist notifications
  - Door-to-ECG within 10 minutes
  - Percutaneous coronary intervention (PCI), times and outcomes
  - Door-to-reperfusion time within 90 minutes
  - Patient transfers from SRH to SRC with regard to their appropriateness and patient outcome
  - SRH Door In/Door Out time within 30 minutes for transfers to SRC
  - STEMI-related deaths, complications
  - SRC diversion hours

SECTION VI: COMMUNITY EDUCATION

A. COMMUNITY OUTREACH AND TRAINING

- ❖ Hands-Only CPR
  - In-person community outreach has been limited due to the COVID-19 pandemic
- ❖ Cardiovascular Disease Prevention
  - Pamphlet and handouts for Blood Pressure monitoring, recognizing signs and symptoms of a heart attack, use of 911

B. SURVIVOR RECOGNITION

- ❖ Annual Cardiac Arrest Survivor Celebration
  - Due to the COVID-19 pandemic, the annual Cardiac Arrest Survivor Celebration has been postponed until further notice.

SECTION VII: APPENDICES

Appendix A

SBCEMSA POLICY 600: RECEIVING HOSPITAL STANDARDS

Policy Number:	*600*
Original Issue Date:	*June, 2002*
Last Reviewed/Revised:	*February 19, 2020*
Effective Date:	*March 01, 2020*
Next Review:	*February, 2022*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

RECEIVING HOSPITAL STANDARDS

I. Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100170.

III. Definitions: None

IV. Policy:

A. A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

V. Procedure:

A. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.
   1. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.
   2. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

B. The Receiving Hospital shall agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

C. The Receiving Hospital shall actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance

D. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:
   1. Be licensed by the State Department of Health Services as a general acute care hospital.
   2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
   3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
   4. Operate an Intensive Care Unit.
   5. Have operating room services available within 30 minutes.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Daniel Shepherd, MD, EMS Agency Medical Director

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

RECEIVING HOSPITAL STANDARDS

6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:
   a. Cardiology
   b. Orthopedic Surgery
   c. Thoracic Surgery
   d. Anesthesiology
   e. General Surgery
   f. Pediatrics
   g. Neurosurgery
   h. General Medicine
   i. Obstetrics
7. Have the following services available within 20 minutes:
   a. X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:
    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.
11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.
    a. All Receiving Hospital physicians shall:
       i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.
    b. All Receiving Hospital Registered Nurses shall:
       i. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       ii. Maintain current Advanced Cardiac Life Support certification.
    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

VI. References: None

VII. Attachments: None

Appendix B

SBCEMSA POLICY 641: STEMI CENTER STANDARDS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*641*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI CENTER STANDARDS

I. Purpose: To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. Definitions:

A. *"STEMI receiving center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH"*: a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. Policy:

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities
   a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
   b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.
3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.
      ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

b. SRC STEMI Coordinator:
   i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.
c. Physician Consultants:
   i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.

4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an "Acute MI Suspected" or "Meets ST Elevation MI Criteria."
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.
      ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
      iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital
      iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
      v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
      vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
      vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.
6. Quality Improvement
   a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
      i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a "STEMI Activation" patient, within 72 hours.
   b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
   c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.

i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:
1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.
4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Defelop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:
1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
   a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
   b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

V. Procedure:

A. Designation
1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
   a. Application:
      i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
   b. Approval:
      i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
         (a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

STEMI CENTER STANDARDS

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI system QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
      i. SRCs shall be reviewed on a biannual basis.
      ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
      iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
      iv. SRCs shall receive notification of evaluation from the SBCEMSA.
      v. SRCs shall respond in writing regarding program compliance.
      vi. On-site SRC visits for evaluative purposes may occur.
      vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 Cardiac and STEMI System
C. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix C

SBCEMSA POLICY 642: STEMI TRANSFER GUIDELINES

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*642*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI TRANSFER GUIDELINES

I. Purpose: To define the "Code STEMI" process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:

A. *STEMI:* ST Segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to EMS Policy 640.

C. *STEMI Referral Hospital (SRH):* An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in EMS Policy 600 and is not designated as a STEMI Receiving Center according to EMS Policy 640.

D. *PCI:* Percutaneous Coronary Intervention.

IV. Policy:

A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. STEMI Referral Hospital (SRH) will:

1. Assemble and maintain a "STEMI Pack" in the emergency department to contain all of the following:
   a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
   b. Preprinted template order sheet with recommended prior-to-transfer treatments. Treatment guidelines will be developed with input from the SRH and SRC cardiologists,
   c. Patient Consent/Transfer Forms.
   d. Treatment summary sheet.
   e. Santa Barbara County EMS Code STEMI transfer form.
2. Have policies, procedures, and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times
3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.

C. Dispatch will:

1. Respond to a "Code STEMI" transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
2. Ambulance or helicopter transporting agencies will:
   a. Respond immediately upon request for "Code STEMI" transfer.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

D. STEMI Receiving Centers will:
1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
3. Immediately upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.
4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:

A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
1. Determine availability of the SRC by checking ReddiNet.
2. Immediately call the County Dispatch Center at to request an air or ground ambulance (ALS or CCT).
   a. Advise that they have a Code STEMI transfer to [SRC].
3. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
4. Perform, as time allows, indicated diagnostic tests and treatments.
5. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
   a. Aspirin 324mg PO
   b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
   c. Clopidogrel (Plavix®) is NOT to be administered.
6. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
   a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMS STEMI Coordinator.
   b. Include copies of the ED face sheet and demographic information.
7. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
8. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.

B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
1. Upon notification, the ambulance will respond Code 3 (lights and siren)
2. The patient shall be urgently transferred without delay.
   a. Every effort will be made to minimize on-scene time.
3. All forms should be completed prior to ambulance arrival.
4. Any diagnostic test results may be relayed to the SRC after patient departure.
5. Intravenous drips may be discontinued or remain on the ED pump.
6. Ambulance personnel will place defibrillation pads on the patient.

C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

STEMI TRANSFER GUIDELINES

1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
   a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
   b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
   c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments

A. STEMI Transfer Form

Appendix D

SBCEMSA POLICY 539: 12-LEAD ECG PROCESS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*539*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*June 26, 2018*
Effective Date:	*September 1, 2018*
Next Review:	*June, 2019*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

12-LEAD ECG PROCESS

I. Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECGs) and procedures for identification, treatment, and transportation of patients with a suspected ST-segment Elevation Myocardial Infarction (STEMI).

II. Authority: California Health and Safety Code, Sections 1797.204, 1797.220 and 1798. California Code of Regulations, Title 22, Division 9, Sections 100148, 100169 and 100170.

III. Definitions:

A. *STEMI:* ST-segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County EMS Policy 640

IV. Policy:

A. Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy.

B. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

V. Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome

B. Contraindications: **DO NOT** perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.

C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. Assure proper skin preparation prior to attaching electrodes. Check for loose electrodes or those with dry gel.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

4. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
5. If interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
6. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:

1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department. The name and date of birth of the patient may be communicated to the receiving hospital physician.
4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***:
   a. Apply defibrillatopr pads to prepare for possible ventricular tachycardia/fibrillation
   b. Patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field.
8. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics will be turned over to the transporting paramedic. Copies will be retained by the first responding paramedic.
9. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
10. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:

1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you

may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.
   3. Obtain the original or copy of the office ECG and deliver to the hospital.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All original Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. ***All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature written legibly on the original tracing itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.***
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical Information Act (CMIA) compliance when transmitting information to the EMS Agency.

VI. References:
   A. Policy 303 Mandatory Base Hospital Contact and Communication Policy
   B. Policy 640 STEMI Receiving Center Guidelines

VII. Attachments: None

Appendix E

SBCEMSA POLICY 533.11: CHEST PAIN - ACUTE CORONARY SYNDROME

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen if dyspnea, signs of heart failure or shock, or SpO_2 < 94%-99%
- Assist patient with prescribed Nitroglycerin as needed for chest pain
  - Hold if SBP <110 mmHg

Expanded Scope

- NTG 0.4mg SL (spray or tabs) every 5 min until pain resolved.
  - Hold NTG if SBP <110

ALS Prior to Base Hospital Contact

- Perform 12-lead ECG (prior to medication administration if possible)
  - Refer to Policy 539: 12-Lead ECG
  - If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present, expedite transport to closest STEMI Receiving Center
- Document all initial and ongoing rhythm strips and ECG changes
- Apply defibrillation pads onto the patient
- For continuous chest pain consistent with acute coronary syndrome:
  - Nitroglycerin
    - SL or lingual spray – 0.4mg every 5 min for continued pain
      - No max dosage
      - Maintain SBP >110mmHg
      - If normal SBP <110mmHg, then maintain SBP >90 mmHg
  - Aspirin
    - PO – 324 mg
- Vascular access
  - 2 attempts only prior to Base Hospital contact
- If pain persists and not relieved by NTG:
  - Refer to Policy 533-03: Pain Control
    - Maintain SBP >110 mmHg
- If patient presents or becomes hypotensive:
  - Elevate legs
  - Normal Saline
    - IV/IO bolus – 250mL
      - Unless CHF is present
- Ventricular Ectopy – runs of V-Tach (wide complex, heart rate >100bpm, >30 second duration)
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline
    - Deliver over 10 minutes

Effective Date: January 1, 2020 | Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021

Signature on File
Angelo Salvucci, MD, EMS Medical Director

Base Hospital Orders only

- If hypotensive and signs of CHF are present or no response to fluid therapy:
  - Push dose epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
- Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

- Nitroglycerin is contraindicated when erectile dysfunction medications (Viagra, Levitra, and Cialis) have been recently used (Viagra or Levitra within 24 hours; Cialis within 48 hours). NTG then may only be given by ED Physician order

Santa Barbara County EMS Agency

STEMI Critical System of Care

UPDATE 2021

TABLE OF CONTENTS

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EMS Agency Specialty Care Systems Coordinator

A. INTRODUCTION

Patients suffering from an ST-Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a specialty care hospital with specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and cardiac arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination of care has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre-arrival instructions for management of chest pain and cardiac arrest, prehospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. PURPOSE

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals is required for a quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan outlines a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate, SRC for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely STEMI services, and ensure optimal care is available in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor patient outcomes and participate in continuous quality improvement efforts

C. OVERVIEW

An organized, systematic approach to STEMI patients results in a reduction in patient morbidity and mortality. For the past six years, Santa Barbara County EMS Agency (SBCEMSA) along with its eight prehospital partnering agencies, have received the American Heart Association Mission Lifeline Gold Award for our STEMI Systems of Care. The Mission Lifeline Award uses national benchmarks and performance measures to determine if an EMS system is providing the accepted standard of patient care. SBCEMSA has consistently superseded the Mission Lifeline Gold Award standards, and in 2020, SBCEMSA and partners received the Gold Plus award for the second consecutive year. The Gold Plus award is the highest award given by the American Heart Association to acknowledge a distinguished EMS system with exemplary patient care benchmarks.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients within, and outside of, Santa Barbara County as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

- Operation of a countywide, inclusive STEMI Critical Care System
- Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county
- Aeromedical response and transportation requirements
- Operational requirements for STEMI Receiving Centers (SRC)
- Designation and contract with SRCs to provide STEMI care services
- A clear line of authority for the countywide STEMI system administration
- Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH). The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. PHILOSOPHY/GOALS

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, Santa Barbara County. To this end, SRCs are designated to optimize both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources.

The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed.

The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

- **STEMI Receiving Centers**

  Two hospitals, one in North County and one in South County, have SRC designations.

- **Inclusive**

  Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

- **Continuous Quality Improvement**

  Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

- **Prevention/Education**

  Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

- **Continuum of Services**

  The STEMI Critical Care System program is an integrated system comprised of prehospital agencies and hospitals.

E. LEGAL BASIS

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. PLAN METHOD

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo, also have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

SECTION II: OVERVIEW OF SANTA BARBARA COUNTY

A. GEOGRAPHY

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis

Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities limit accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary.

Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility which greatly contributes to high-crash rates in rural areas of Santa Barbara County. Additionally, these dense fog conditions may limit access to healthcare services and render resident's incapable of utilizing air ambulance transport due to poor visibility and unsafe flying conditions.

B. TRANSPORTATION

The automobile is the predominate form of transportation in Santa Barbara County. One major roadway, Highway-101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller roadways, Highway 166, Highway 154, and Highway 1, also transect Santa Barbara County. There

is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the county.

Residents in rural areas of the county often times require the transport/transfer of critical patients by means of air ambulance. Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria

Airports. There are also scheduled charter services from Lompoc Airport and private services

available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. DEMOGRAPHICS

In 2019, the population was 446,499. Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the average household income is $89,241 with a poverty rate of 13.22%. The demographics of the County indicate that there are many concentrated low-income areas (compared with 19% of the State population). The population over 65 years of age in Santa Barbara County was 15.7%. As the population of Santa Barbara County continues to age, there is an increased demand for EMS in the greater than 65 age group.

D. EPIDEMIOLOGY

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and coronary heart disease, which is consistent with the trend throughout California and the United States.

The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2019.

1. All cancers
2. Coronary Heart Disease
3. Alzheimer's Disease
4. Accidents
5. Cerebrovascular Disease (Stroke)

E. EMS DISPATCH

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. EMERGENCY MEDICAL CARE RESOURCES

1. PREHOSPITAL

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care

system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. Santa Barbara County Hospitals

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Hospital Name & Address	Number of Beds	Number of ICU Beds	Number of Pediatric Beds	Base Hospital (Y/N)
Goleta Valley Cottage Hospital 351 Patterson Avenue Santa Barbara, CA 93160	122	10	2	Y
Lompoc Valley Medical Center 1515 E. Ocean Avenue Lompoc, CA 93436	60	4	0	Y
Marian Regional Medical Center 1400 E. Church Street Santa Maria, CA 93454	130	20	8	Y
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Road Solvang, CA 93463	30	4	0	Y

SECTION III: SYSTEM ADMINISTRATION

A. LEAD AGENCY

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include, but are not limited to:

- Ongoing performance evaluation and quality improvement of the STEMI System
- Assessing needs and resource requirements of the county
- Assigning roles to system participants
- Monitoring the STEMI registry data system
- Monitoring the system to determine compliance with appropriate laws, regulations, policies, procedures and contracts
- Evaluating the impact of the system and revising its design as needed

B. STEMI CENTER FEES

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. MULTIDISCIPLINARY STEMI QUALITY IMPROVEMENT COMMITTEE

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. The Committee meets three times a year to discuss and resolve STEMI system issues. It is comprised of countywide Stakeholders from local hospital and prehospital agencies involved in the overall care of STEMI patients. The Committee fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system.

The functions of the STEMI Committee are:

- Conduct assessment of the STEMI system needs and resources in the county
- Provide overall direction and coordination for policymaking and program oversite
- Analyze the results of data collection and the monitoring system
- Present case studies for review and quality improvement

- Maintain compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases

D. MEDICAL CONTROL

Medical control and direction of the STEMI system is an essential component of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

SECTION IV: SYSTEM OPERATIONAL COMPONENTS

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. PREHOSPITAL PROVIDERS

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

- Criteria for activation of a field STEMI
- Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
- STEMI protocols readily available for prehospital treatment
- Triage and Destination to the closest, most appropriate SRC

B. HOSPITAL PROVIDERS

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but are not limited to:

- Act as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. PREHOSPITAL TRANSPORTATION

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Mercy Air (located in San Luis Obispo) and Santa Barbara County Fire Department ALS Air Rescue can be utilized for Stroke scene transports.

D. INTERFACILITY TRANSFERS

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital, will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. DIVERSION

If the situation arises where the catheterization lab is unavailable, or no Cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients, however, are not subject to diversion.

SECTION V: QUALITY IMPROVEMENT

A. DATA COLLECTION

Currently SBCEMSA is using *Get With The Guidelines-Coronary Artery Disease (GWTG-CAD) Registry*. Data elements from the STEMI registry are reviewed and maintained by SBCEMSA for overall monitoring of the system. Specific patient and physician identifiers are stripped from the data to assure confidentiality. CAD contains the recommended minimum

data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge. SBCEMSA collects data electronically from all ALS and BLS service providers through *ImageTrend* and reports State Core Measures related to STEMI care using CHEMSIS.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

B. DATA EVALUATION

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

- System design
- Appropriateness of pre hospital care from data in compliance with the most current version of CHEMSIS and NEMSIS, may include:
  - STEMI activations
  - On scene time
  - Accuracy of ECG interpretation
  - Appropriateness of prehospital care, including type and amount of intervention
  - Patient contact to ECG performed within 10 minutes
  - Early notification of Code STEMI within 10 minutes
  - Appropriateness of receiving hospital destination
  - ROSC patients with POS STEMI ECG
- Verification that designated SRCs are fulfilling their STEMI care system responsibilities.
- All hospitals that receive STEMI patients via EMS will participate in the data collection process. Hospital data, including:
  - STEMI activations and specialist notifications
  - Door to ECG within 10 minutes
  - Percutaneous coronary intervention, times and outcomes
  - Door to reperfusion time within 90 minutes
  - Patient transfers from SRH to SRC with regard to their appropriateness and patient outcome
  - SRH Door In/Door Out time within 30 minutes for transfers to SRC

- STEMI related deaths, complications
- SRC diversion hours

SECTION VI: COMMUNITY EDUCATION

A. COMMUNITY OUTREACH AND TRAINING

- Hands-Only CPR
  - Community Events by all Santa Barbara County prehospital providers, the EMS Agency and SBCEMSA Medical Reserve Corps
  - Offer school Hands-Only CPR training as a graduation requirement

- Cardiovascular Disease Prevention
  - Pamphlet and handouts for Blood Pressure monitoring, recognizing signs and symptoms of a heart attack, use of 911

B. SURVIVOR RECOGNITION

- Annual Cardiac Arrest Survivor Celebration
  - Due to the COVID-19 pandemic, the annual Cardiac Arrest Survivor Celebration has been postponed until further notice.

SECTION VII: APPENDICES

Appendix A – Policy 600: Receiving Hospital Standards

Appendix B – Policy 641: STEMI Center Standards

Appendix C – Policy 642: STEMI Transfer Guidelines

Appendix D – Policy 539: 12-Lead ECG Process

Appendix E – Policy 533: Chest Pain – Acute Coronary Syndrome

Appendix A

SBCEMSA POLICY 600: RECEIVING HOSPITAL STANDARDS

Policy Number:	*600*
Original Issue Date:	*June, 2002*
Last Reviewed/Revised:	*February 19, 2020*
Effective Date:	*March 01, 2020*
Next Review:	*February, 2022*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

RECEIVING HOSPITAL STANDARDS

I. Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100170.

III. Definitions: None

IV. Policy:

A. A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

V. Procedure:

A. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.
   1. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.
   2. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

B. The Receiving Hospital shall agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

C. The Receiving Hospital shall actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance

D. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:
   1. Be licensed by the State Department of Health Services as a general acute care hospital.
   2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
   3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
   4. Operate an Intensive Care Unit.
   5. Have operating room services available within 30 minutes.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Daniel Shepherd, MD, EMS Agency Medical Director

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

RECEIVING HOSPITAL STANDARDS

6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:
   a. Cardiology
   b. Orthopedic Surgery
   c. Thoracic Surgery
   d. Anesthesiology
   e. General Surgery
   f. Pediatrics
   g. Neurosurgery
   h. General Medicine
   i. Obstetrics
7. Have the following services available within 20 minutes:
   a. X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:
    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.
11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.
    a. All Receiving Hospital physicians shall:
       i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.
    b. All Receiving Hospital Registered Nurses shall:
       i. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       ii. Maintain current Advanced Cardiac Life Support certification.
    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

VI. References: None

VII. Attachments: None

Appendix B

SBCEMSA POLICY 641: STEMI CENTER STANDARDS

STEMI CENTER STANDARDS

I. Purpose: To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. Definitions:

A. *"STEMI receiving center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH"*: a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. Policy:

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities
   a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
   b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.
3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.
      ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

b. SRC STEMI Coordinator:
   i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.
c. Physician Consultants:
   i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.

4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an "Acute MI Suspected" or "Meets ST Elevation MI Criteria."
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.
      ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
      iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital
      iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
      v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
      vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
      vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.
6. Quality Improvement
   a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
      i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a "STEMI Activation" patient, within 72 hours.
   b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
   c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.

i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:
1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.
4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Defelop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:
1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
   a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
   b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

V. Procedure:

A. Designation
1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
   a. Application:
      i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
   b. Approval:
      i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
         (a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

STEMI CENTER STANDARDS

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI system QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
   i. SRCs shall be reviewed on a biannual basis.
   ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
   iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
   iv. SRCs shall receive notification of evaluation from the SBCEMSA.
   v. SRCs shall respond in writing regarding program compliance.
   vi. On-site SRC visits for evaluative purposes may occur.
   vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 Cardiac and STEMI System
C. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix C

SBCEMSA POLICY 642: STEMI TRANSFER GUIDELINES

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*642*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI TRANSFER GUIDELINES

I. Purpose: To define the "Code STEMI" process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:

A. *STEMI:* ST Segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to EMS Policy 640.

C. *STEMI Referral Hospital (SRH):* An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in EMS Policy 600 and is not designated as a STEMI Receiving Center according to EMS Policy 640.

D. *PCI:* Percutaneous Coronary Intervention.

IV. Policy:

A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. STEMI Referral Hospital (SRH) will:

1. Assemble and maintain a "STEMI Pack" in the emergency department to contain all of the following:
   a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
   b. Preprinted template order sheet with recommended prior-to-transfer treatments. Treatment guidelines will be developed with input from the SRH and SRC cardiologists,
   c. Patient Consent/Transfer Forms.
   d. Treatment summary sheet.
   e. Santa Barbara County EMS Code STEMI transfer form.
2. Have policies, procedures, and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times
3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.

C. Dispatch will:

1. Respond to a "Code STEMI" transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
2. Ambulance or helicopter transporting agencies will:
   a. Respond immediately upon request for "Code STEMI" transfer.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

D. STEMI Receiving Centers will:
1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
3. Immediately upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.
4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:

A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
1. Determine availability of the SRC by checking ReddiNet.
2. Immediately call the County Dispatch Center at to request an air or ground ambulance (ALS or CCT).
   a. Advise that they have a Code STEMI transfer to [SRC].
3. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
4. Perform, as time allows, indicated diagnostic tests and treatments.
5. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
   a. Aspirin 324mg PO
   b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
   c. Clopidogrel (Plavix®) is NOT to be administered.
6. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
   a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMS STEMI Coordinator.
   b. Include copies of the ED face sheet and demographic information.
7. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
8. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.

B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
1. Upon notification, the ambulance will respond Code 3 (lights and siren)
2. The patient shall be urgently transferred without delay.
   a. Every effort will be made to minimize on-scene time.
3. All forms should be completed prior to ambulance arrival.
4. Any diagnostic test results may be relayed to the SRC after patient departure.
5. Intravenous drips may be discontinued or remain on the ED pump.
6. Ambulance personnel will place defibrillation pads on the patient.

C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

STEMI TRANSFER GUIDELINES

1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
   a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
   b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
   c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments

A. STEMI Transfer Form

Appendix D

SBCEMSA POLICY 539: 12-LEAD ECG PROCESS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	539
Original Issue Date:	March, 2010
Last Reviewed/Revised:	June 26, 2018
Effective Date:	September 1, 2018
Next Review:	June, 2019

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

12-LEAD ECG PROCESS

I. Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECGs) and procedures for identification, treatment, and transportation of patients with a suspected ST-segment Elevation Myocardial Infarction (STEMI).

II. Authority: California Health and Safety Code, Sections 1797.204, 1797.220 and 1798. California Code of Regulations, Title 22, Division 9, Sections 100148, 100169 and 100170.

III. Definitions:

A. *STEMI:* ST-segment Elevation Myocardial Infarction

B. *STEMI Receiving Center (SRC):* an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County EMS Policy 640

IV. Policy:

A. Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy.

B. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

V. Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome

B. Contraindications: DO NOT perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.

C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. Assure proper skin preparation prior to attaching electrodes. Check for loose electrodes or those with dry gel.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

4. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
5. If interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
6. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:

1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department. The name and date of birth of the patient may be communicated to the receiving hospital physician.
4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***:
   a. Apply defibrillatopr pads to prepare for possible ventricular tachycardia/fibrillation
   b. Patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field.
8. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics will be turned over to the transporting paramedic. Copies will be retained by the first responding paramedic.
9. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
10. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:

1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you

may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.
   3. Obtain the original or copy of the office ECG and deliver to the hospital.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All original Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. ***All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature written legibly on the original tracing itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.***
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical Information Act (CMIA) compliance when transmitting information to the EMS Agency.

VI. References:
   A. Policy 303 Mandatory Base Hospital Contact and Communication Policy
   B. Policy 640 STEMI Receiving Center Guidelines

VII. Attachments: None

Appendix E

SBCEMSA POLICY 533.11: CHEST PAIN - ACUTE CORONARY SYNDROME

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen if dyspnea, signs of heart failure or shock, or SpO_2 < 94%-99%
- Assist patient with prescribed Nitroglycerin as needed for chest pain
  - Hold if SBP <110 mmHg

Expanded Scope

- NTG 0.4mg SL (spray or tabs) every 5 min until pain resolved.
  - Hold NTG if SBP <110

ALS Prior to Base Hospital Contact

- Perform 12-lead ECG (prior to medication administration if possible)
  - Refer to Policy 539: 12-Lead ECG
  - If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present, expedite transport to closest STEMI Receiving Center
- Document all initial and ongoing rhythm strips and ECG changes
- Apply defibrillation pads onto the patient
- For continuous chest pain consistent with acute coronary syndrome:
  - Nitroglycerin
    - SL or lingual spray – 0.4mg every 5 min for continued pain
      - No max dosage
      - Maintain SBP >110mmHg
      - If normal SBP <110mmHg, then maintain SBP >90 mmHg
  - Aspirin
    - PO – 324 mg
- Vascular access
  - 2 attempts only prior to Base Hospital contact
- If pain persists and not relieved by NTG:
  - Refer to Policy 533-03: Pain Control
    - Maintain SBP >110 mmHg
- If patient presents or becomes hypotensive:
  - Elevate legs
  - Normal Saline
    - IV/IO bolus – 250mL
      - Unless CHF is present
- Ventricular Ectopy – runs of V-Tach (wide complex, heart rate >100bpm, >30 second duration)
  - Amiodarone
    - IV/IO – 150mg in 100mL 0.9% normal saline
    - Deliver over 10 minutes

Effective Date: January 1, 2020 | Last Reviewed/Revised: December 31, 2019
Next Review: December 31, 2021

Signature on File
Angelo Salvucci, MD, EMS Medical Director

Base Hospital Orders only

- If hypotensive and signs of CHF are present or no response to fluid therapy:
  - Push dose epinephrine
    - IV/IO
      - 10mcg (1mL) every 3 min slow IV push
      - Titrate to SBP >90
    - Refer to Policy 533-10: Push Dose Epinephrine
- Consult with ED Physician for further treatment measures

Communication Failure Protocol

N/A

Additional Information

- Nitroglycerin is contraindicated when erectile dysfunction medications (Viagra, Levitra, and Cialis) have been recently used (Viagra or Levitra within 24 hours; Cialis within 48 hours). NTG then may only be given by ED Physician order

Santa Barbara County EMS Agency

STEMI Critical System of Care

UPDATE 2022

TABLE OF CONTENTS

SANTA BARBARA COUNTY EMS AGENCY

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Santa Barbara County PUBLIC Health DEPARTMENT

Section I: Plan Overview

A. INTRODUCTION

Patients suffering from an ST-Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a specialty care hospital with specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and cardiac arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination of care has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre-arrival instructions for management of chest pain and cardiac arrest, prehospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. PURPOSE

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals is required for a quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan outlines a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate, SRC for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely STEMI services, and ensure optimal care is available in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor patient outcomes and participate in continuous quality improvement efforts

C. OVERVIEW

An organized, systematic approach to STEMI patients results in a reduction in patient morbidity and mortality. For the past seven years, Santa Barbara County EMS Agency (SBCEMSA) along with its eight prehospital partnering agencies, have received the American Heart Association Mission Lifeline Gold Award for our STEMI Systems of Care. The Mission Lifeline Award uses national benchmarks and performance measures to determine if an EMS system is providing the accepted standard of patient care. SBCEMSA has consistently superseded the Mission Lifeline Gold Award standards, and in 2022, SBCEMSA and partners received the Gold Plus award. The Gold Plus award is the highest award given by the American Heart Association to acknowledge a distinguished EMS system with exemplary patient care benchmarks.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients within, and outside of, Santa Barbara County as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

- Operation of a countywide, inclusive STEMI Critical Care System
- Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county
- Aeromedical response and transportation requirements
- Operational requirements for STEMI Receiving Centers (SRC)
- Designation and contract with SRCs to provide STEMI care services
- A clear line of authority for the countywide STEMI system administration
- Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH). The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. PHILOSOPHY/GOALS

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, Santa Barbara County. To this end, SRCs are designated to optimize both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources.

The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed.

The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

- **STEMI Receiving Centers**

  Two hospitals, one in North County and one in South County, have SRC designations.

- **Inclusive**

  Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

- **Continuous Quality Improvement**

  Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

- **Prevention/Education**

  Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

- **Continuum of Services**

  The STEMI Critical Care System program is an integrated system comprised of prehospital agencies and hospitals.

E. LEGAL BASIS

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. PLAN METHOD

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo, also have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

SECTION II: OVERVIEW OF SANTA BARBARA COUNTY

A. GEOGRAPHY

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis

Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities limit accessibility to health care.

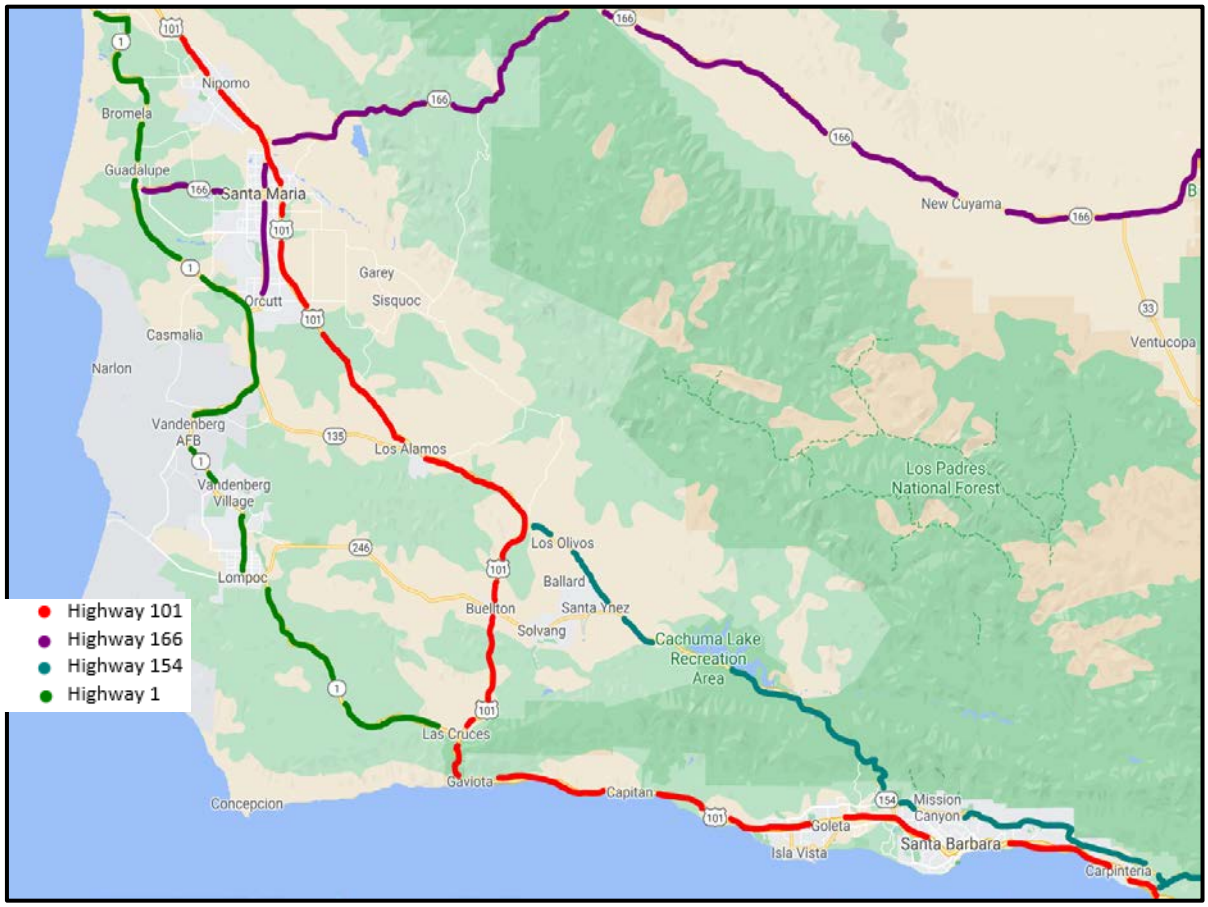
Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from

runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility which greatly contributes to high-crash rates in rural areas of Santa Barbara County. Additionally, these dense fog conditions may limit access to healthcare services and render resident's incapable of utilizing air ambulance transport due to poor visibility and unsafe flying conditions.

B. TRANSPORTATION

The automobile is the predominate form of transportation in Santa Barbara County. One major roadway, Highway-101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller roadways, Highway 166, Highway 154, and Highway 1, also transect Santa Barbara County. There is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the county.



Residents in rural areas of the county often times require the transport/transfer of critical patients by means of air ambulance. Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. DEMOGRAPHICS

In 2021, the population was 446,475. Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the average household income is $84,356 with a poverty rate of 15.2%. The demographics of the County indicate that there are many concentrated low-income areas (compared with 19% of the State population). The population over 65 years of age in Santa Barbara County was 16.0%. As the population of Santa Barbara County continues to age, there is an increased demand for EMS in the greater than 65 age group.

D. EPIDEMIOLOGY

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and coronary heart disease, which is consistent with the trend throughout California and the United States.

The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2018-2020* (the report reflecting current year data will be published summer of 2023):

1. All cancers
2. Coronary Heart Disease
3. Alzheimer's Disease
4. Accidents
5. Cerebrovascular Disease (Stroke)

E. EMS DISPATCH

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. EMERGENCY MEDICAL CARE RESOURCES

1. PREHOSPITAL

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. SANTA BARBARA COUNTY HOSPITALS

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Hospital Name & Address	Number of Beds	Number of ICU Beds	Number of Pediatric Beds	Base Hospital (Y/N)
Goleta Valley Cottage Hospital 351 Patterson Avenue Santa Barbara, CA 93160	122	10	2	Y
Lompoc Valley Medical Center 1515 E. Ocean Avenue Lompoc, CA 93436	60	4	0	Y
Marian Regional Medical Center 1400 E. Church Street Santa Maria, CA 93454	130	20	8	Y
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Road Solvang, CA 93463	30	4	0	Y

SECTION III: SYSTEM ADMINISTRATION

A. LEAD AGENCY

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include, but are not limited to:

- Ongoing performance evaluation and quality improvement of the STEMI System
- Assessing needs and resource requirements of the county
- Assigning roles to system participants
- Monitoring the STEMI registry data system
- Monitoring the system to determine compliance with appropriate laws, regulations, policies, procedures and contracts
- Evaluating the impact of the system and revising its design as needed

B. STEMI CENTER FEES

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. MULTIDISCIPLINARY STEMI QUALITY IMPROVEMENT COMMITTEE

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. The Committee meets three times a year to discuss and resolve STEMI system issues. It is comprised of countywide Stakeholders from local hospital and prehospital agencies involved in the overall care of STEMI patients. The Committee fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system.

The functions of the STEMI Committee are:

- Conduct assessment of the STEMI system needs and resources in the county
- Provide overall direction and coordination for policymaking and program oversite
- Analyze the results of data collection and the monitoring system
- Present case studies for review and quality improvement
- Maintain compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases

D. MEDICAL CONTROL

Medical control and direction of the STEMI system is an essential component of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

SECTION IV: SYSTEM OPERATIONAL COMPONENTS

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. PREHOSPITAL PROVIDERS

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

- Criteria for activation of a field STEMI
- Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
- STEMI protocols readily available for prehospital treatment
- Triage and Destination to the closest, most appropriate SRC

B. HOSPITAL PROVIDERS

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but are not limited to:

- Act as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. PREHOSPITAL TRANSPORTATION

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Mercy Air (located in San Luis Obispo) and Santa Barbara County Fire Department ALS Air Rescue can be utilized for Stroke scene transports.

D. INTERFACILITY TRANSFERS

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital, will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. DIVERSION

If the situation arises where the catheterization lab is unavailable, or no Cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients, however, are not subject to diversion.

SECTION V: QUALITY IMPROVEMENT

A. DATA COLLECTION

Currently SBCEMSA is using *Get With The Guidelines-Coronary Artery Disease (GWTG-CAD) Registry*. Data elements from the STEMI registry are reviewed and maintained by SBCEMSA for overall monitoring of the system. Specific patient and physician identifiers are stripped from the data to assure confidentiality. CAD contains the recommended minimum data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge. SBCEMSA collects data electronically from all ALS and BLS service providers through *ImageTrend* and reports State Core Measures related to STEMI care using CEMSIS.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

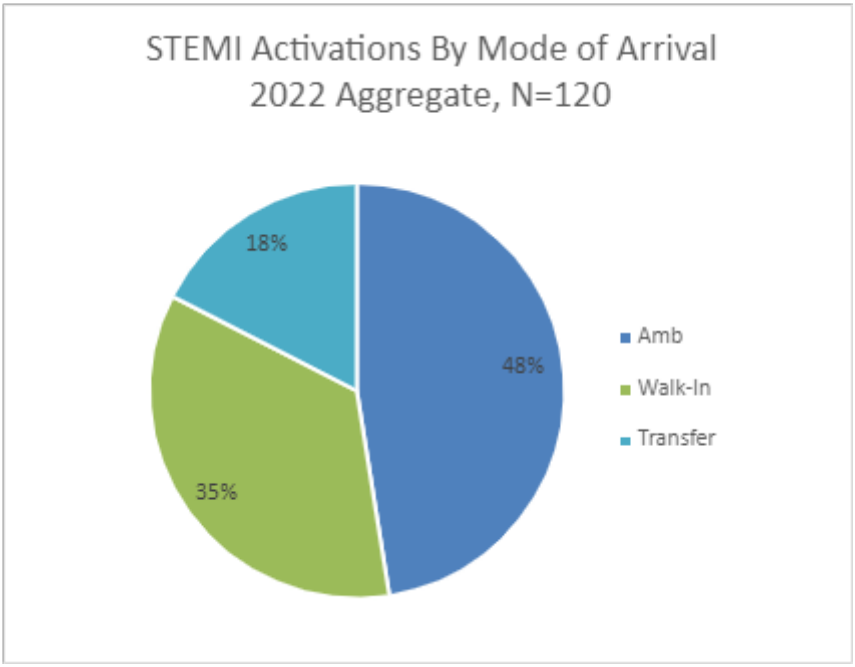
B. DATA EVALUATION

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

- System Design, including monitoring of STEMI patient destination, appropriate and timely care, prompt transfer to SRC (if indicated), and monitoring of related metrics.
- Evaluate the appropriateness of prehospital & hospital care from data in compliance with the most current version of CEMSIS and NEMSIS, may include:
  - STEMI Activations per STEMI Receiving Hospital (SRC)
  - First Medical Contact (FMC) Time to Percutaneous Coronary Intervention (PCI)
  - Dispatch Time to Percutaneous Coronary Intervention (PCI) Time
  - EMS ECG Performed within 10 minutes
  - Prehospital Notification (to Base Hospital) of positive (POS) STEMI interpretation of ECG within 10 minutes of capture
  - Appropriateness of receiving hospital destination
  - ROSC patients with POS STEMI ECG
  - Internal STEMI activations and notification of specialists
  - ECG within 10 minutes of arrival to Receiving Hospital

- Percutaneous Coronary Intervention (PCI) Intervals for EMS, Walk-In, & Transfers
  - SRH Door-In/Door-Out Time for patient's requiring transfer to an SRC
  - Quality Improvement Review of STEMI-related Deaths & Complications

❖ The graph below demonstrates the STEMI Activations by Mode of Arrival, aggregated data for 2022. This includes patients that were activated as a "STEMI" delineated by their mode of arrival to the STEMI Receiving Hospital (SRC).



❖ The graph below demonstrates several key metrics evaluated within our STEMI program. This chart includes evaluation of the following metrics:

a. EMS Door-to-PCI (percutaneous coronary intervention) time;

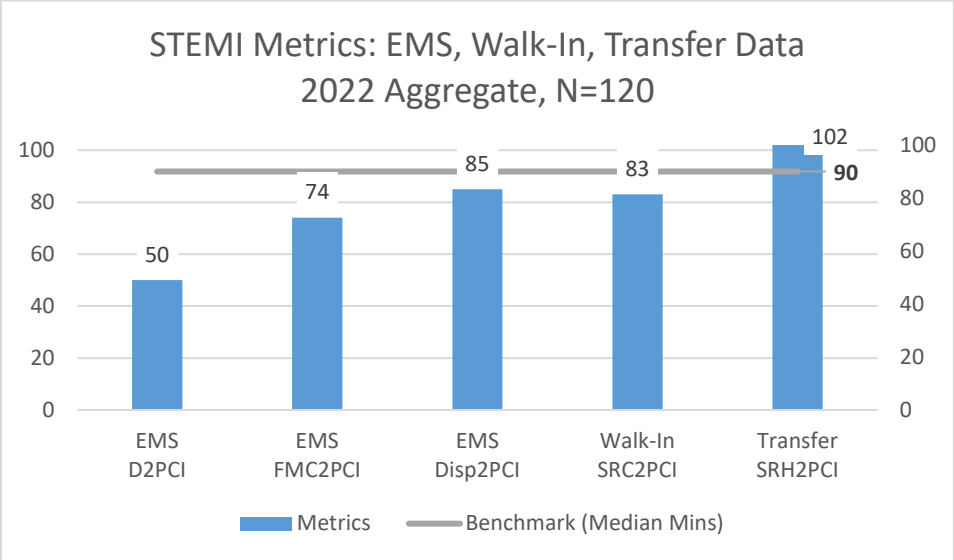
b. EMS First Medical Contact (FMC)-to-PCI;

c. EMS Dispatch-to-PCI;

d. SRC-to-PCI (Walk-In);

e. SRC-to-PCI (Transfers from SRH to SRC, measures SRC D2PCI)

- The American Heart Association (AHA) & local benchmarks for metrics “a-e” is ≤ 90 minutes, whereas the benchmarks for patient’s originating from a STEMI Referring Hospital (SRH) requiring transfer to an SRC is benchmark of ≤ 120 minutes.



SECTION VI: COMMUNITY EDUCATION

A. COMMUNITY OUTREACH AND TRAINING

- Hands-Only CPR
  - Postponed secondary to impact from COVID and social distancing requirements. Plan is to resume in 2023.

B. SURVIVOR RECOGNITION

- Annual Cardiac Arrest Survivor Celebration
  - Due to the COVID-19 pandemic, the annual Cardiac Arrest Survivor Celebration has been postponed until further notice.

SECTION VII: APPENDICES

Appendix A – Policy 600: Receiving Hospital Standards

Appendix B – Policy 641: STEMI Center Standards

Appendix C – Policy 642: STEMI Transfer Guidelines

Appendix D – Policy 539: 12-Lead ECG Process

Appendix E – Policy 533: Chest Pain – Acute Coronary Syndrome

Appendix A

SBCEMSA POLICY 600: RECEIVING HOSPITAL STANDARDS

Policy Number:	600
Original Issue Date:	June 2002
Last Reviewed/Revised:	October 1, 2022
Effective Date:	December 1, 2022
Next Review:	October 2024

RECEIVING HOSPITAL STANDARDS

I. Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101,1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

III. Definitions:

A. *Receiving Hospital:* A licensed acute care hospital, or a hospital otherwise recognized and approved by SBCEMSA, that provides basic or comprehensive emergency patient care and is actively utilized within the EMS system.

IV. Policy:

A. A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

V. Procedure:

A. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.
   1. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five (5) years.
   2. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

B. The Receiving Hospital shall agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

C. The Receiving Hospital shall actively participate in various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director or designee.

D. The Receiving Hospital shall assist the EMS Medical Director or designee, in the collection of statistics and review of necessary records for program evaluation and compliance.

E. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:
   1. Be licensed by the State Department of Health Services as a general acute care hospital
   2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Daniel Shepherd, MD, EMS Agency Medical Director

3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency
4. Operate an Intensive Care Unit
5. Have operating room services available within 30 minutes
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:
   a. Cardiology
   b. Orthopedic Surgery
   c. Thoracic Surgery
   d. Anesthesiology
   e. General Surgery
   f. Pediatrics
   g. Neurosurgery
   h. General Medicine
   i. Obstetrics
7. Have the following services available within 20 minutes:
   a. X-Ray
   b. Laboratory
   c. Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy
9. Have the capability at all times to communicate with the ambulances and the Base Hospital
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care
11. The RH Medical Director shall:
    a. Be regularly assigned to the Emergency Department
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures
    c. Coordinate Receiving Hospital activities with the Base Hospital
    d. Attend the Emergency Medical Advisory Committee (EMAC)
    e. Provide Emergency Department staff education
12. Agree to provide at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse.
    a. Criteria for RH ED Physicians
       i. Must be certified by the American Board of Emergency Medicine; OR
       ii. Fulfill the following criteria to be considered a specialist in Emergency Medicine:
           i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times
           ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification
           iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine
    b. Criteria for RH ED Registered Nurses
       i. Be regular hospital staff assigned solely to the Emergency Department for that shift
       ii. Maintain current Advanced Cardiac Life Support certification
    c. Other Emergency Department Personnel
       i. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Life Support certification

F. Other SBCEMSA-Approved Receiving Hospitals

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

RECEIVING HOSPITAL STANDARDS

1. A hospital that does not meet all of the criteria as an acute care hospital, but is utilized within the EMS system as a receiving hospital to provide basic or advanced emergency care, may be approved and designated as a "Receiving Hospital" by SBCEMSA.
2. The SBCEMSA-Approved Receiving Hospital Must:
   a. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy
   b. Have the capability at all times to communicate with the ambulances and the Base Hospital
   c. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care
   d. The RH Medical Director shall:
      i. Be regularly assigned to the Emergency Department
      ii. Have knowledge of local EMS Agency Advanced Life Support policies and procedures
      iii. Coordinate Receiving Hospital activities with the Base Hospital
      iv. Attend the Emergency Medical Advisory Committee (EMAC)
      v. Provide Emergency Department staff education
3. Agree to provide at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse
   a. Criteria for RH ED Physicians
      i. Must be certified by the American Board of Emergency Medicine; OR
      ii. Fulfill the following criteria to be considered a specialist in Emergency Medicine:
         i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times
         ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification
         iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine
   b. Criteria for RH ED Registered Nurses
      i. Be regular hospital staff assigned solely to the Emergency Department for that shift
      ii. Maintain current Advanced Cardiac Life Support certification
   c. Other Emergency Department Personnel
      i. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Life Support certification

V. References: None

VI. Attachments: None

Appendix B

SBCEMSA POLICY 641: STEMI CENTER STANDARDS

Policy Number:	*641*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*January 01, 2020*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI CENTER STANDARDS

I. Purpose: To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. Definitions:

A. *"STEMI Receiving Center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH":* a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. Policy:

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600 Receiving Hospital Standards.
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities
   a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
   b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.
3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.

b. SRC STEMI Coordinator:
   i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.

c. Physician Consultants:
   i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.

4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an "Acute MI Suspected" or "Meets ST Elevation MI Criteria."
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.
      ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
      iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital.
      iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
      v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
      vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
      vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.
6. Quality Improvement
   a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
      i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a "STEMI Activation" patient, within 72 hours.

b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.
i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:
1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.
4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Develop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:
1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

V. Procedure:

A. Designation
1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
a. Application:
i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
b. Approval:
i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
(a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital

administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI System QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
      i. SRCs shall be reviewed on a biannual basis.
      ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
      iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
      iv. SRCs shall receive notification of evaluation from the SBCEMSA.
      v. SRCs shall respond in writing regarding program compliance.
      vi. On-site SRC visits for evaluative purposes may occur.
      vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 Cardiac and STEMI System General Guidelines
C. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix C

SBCEMSA POLICY 642: STEMI TRANSFER GUIDELINES

Policy Number:	*642*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*January 01, 2020*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI TRANSFER GUIDELINES

I. Purpose: To define the "Code STEMI" process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:

A. *STEMI:* ST Segment Elevation Myocardial Infarction
B. *STEMI Receiving Center (SRC):* An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to SBCEMSA Policy 640.
C. *STEMI Referral Hospital (SRH):* An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in SBCEMSA Policy 600 and is not designated as a STEMI Receiving Center according to SBCEMSA Policy 640.
D. *PCI:* Percutaneous Coronary Intervention

IV. Policy:

A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. STEMI Referral Hospital (SRH) will:
   1. Assemble and maintain a "STEMI Pack" in the emergency department to contain all of the following:
      a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
      b. Preprinted template order sheet with recommended prior-to-transfer treatments.
         i. Treatment guidelines will be developed with input from the SRH and SRC cardiologists.
      c. Patient Consent/Transfer Forms.
      d. Treatment summary sheet.
      e. Santa Barbara County EMSA Code STEMI transfer form.
   2. Have policies, procedures and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times.
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
   4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.
C. Dispatch will:
   1. Respond to a "Code STEMI" transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
   2. Ambulance or helicopter transporting agencies will:

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

a. Respond immediately upon request for "Code STEMI" transfer.

D. STEMI Receiving Centers will:
1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
3. Immediately, upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.
4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:

A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
1. Determine availability of the SRC by checking ReddiNet.
2. Immediately call the County Dispatch Center to request an air or ground ambulance (ALS or CCT).
   a. Advise that they have a Code STEMI transfer to [SRC].
   b. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
3. Perform, as time allows, indicated diagnostic tests and treatments.
4. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
   a. Aspirin 324mg PO
   b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
   c. Clopidogrel (Plavix®) is NOT to be administered.
5. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
   a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMSA Specialty Care System Coordinator.
   b. Include copies of the ED face sheet and demographic information.
6. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
7. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.

B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
1. Upon notification, the ambulance will respond Code 3 (lights and siren).
2. The patient shall be urgently transferred without delay.
   a. Every effort will be made to minimize on-scene time.
3. All forms should be completed prior to ambulance arrival.
4. Any diagnostic test results may be relayed to the SRC after patient departure.
5. Intravenous drips may be discontinued or remain on the ED pump.
6. Ambulance personnel will place defibrillation pads on the patient.

C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.
   1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
      a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
      b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
      c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments: None

Appendix D

SBCEMSA POLICY 539: 12-LEAD ECG PROCESS

Policy Number:	*539*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*June 26, 2018*
Effective Date:	*September 1, 2018*
Next Review:	*June, 2019*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

12-LEAD ECG PROCESS

I. Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECGs) and procedures for identification, treatment, and transportation of patients with a suspected ST-segment Elevation Myocardial Infarction (STEMI).

II. Authority: California Health and Safety Code, Sections 1797.204, 1797.220 and 1798. California Code of Regulations, Title 22, Division 9, Sections 100148, 100169 and 100170.

III. Definitions:

A. *STEMI:* ST-segment Elevation Myocardial Infarction
B. *STEMI Receiving Center (SRC):* an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County EMS Policy 640

IV. Policy:

A. Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy.
B. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

V. Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome
B. Contraindications: **DO NOT** perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.
C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. Assure proper skin preparation prior to attaching electrodes. Check for loose electrodes or those with dry gel.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

4. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
5. If interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
6. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:

1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department. The name and date of birth of the patient may be communicated to the receiving hospital physician.
4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***:
   a. Apply defibrillatopr pads to prepare for possible ventricular tachycardia/fibrillation
   b. Patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field.
8. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics will be turned over to the transporting paramedic. Copies will be retained by the first responding paramedic.
9. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
10. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:

1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you

may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.
   3. Obtain the original or copy of the office ECG and deliver to the hospital.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All original Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. ***All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature written legibly on the original tracing itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.***
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical Information Act (CMIA) compliance when transmitting information to the EMS Agency.

VI. References:

A. Policy 303 Mandatory Base Hospital Contact and Communication Policy
B. Policy 640 STEMI Receiving Center Guidelines

VII. Attachments: None

Appendix E

SBCEMSA POLICY 533.11: CHEST PAIN - ACUTE CORONARY SYNDROME

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen as indicated
  - Refer to Policy 533-02 Airway Management
- Assist patient with prescribed **Nitroglycerin** (NTG) as needed for chest pain
- Hold if SBP < 110 mmHg

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

Perform 12-Lead ECG

- Refer to Policy 539: 12-Lead ECG
- If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present:
  - Place defibrillation pads on the patient and expedite transport to closest STEMI Receiving Center (SRC)*

For ongoing or recurrent chest pain consistent with acute coronary syndrome

Nitroglycerin

- Sublingual or lingual spray – 0.4mg every 5 mins for continued pain
  - No max dosage
- Maintain SBP > 110mmHg
  - If normal SBP < 110mmHg, then maintain SBP > 90mmHg

Aspirin

- PO – 324mg

Vascular Access

- 2 attempts prior to base hospital contact

*Pain refractory to **Nitroglycerin***

- Refer to Policy 533-03: Pain Control
- Maintain SBP > 110 mmHg

Hypotension present and/or develops

- Elevate legs
- Unless signs of CHF are present, **Normal Saline**
  - IV/IO bolus – 250mL

Ventricular ectopy – Runs of V-Tach (wide-complex, HR > 150bpm, > 30sec duration)

Amiodarone

- IV/IO – 150mg in 100mL 0.9% **Normal Saline** administered over 10 mins

Base Hospital Orders Only

Hypotension, signs of CHF are present, and/or no response to fluid therapy

Push-Dose Epinephrine

- IV/IO – 10mcg (1mL) every 3 mins slow IV push
- Titrate to SBP > 90mmHg
- Refer to Policy 533-10: Push Dose Epinephrine

Consult with ED Physician for further treatment measures.

Additional Information

Medication Considerations:

- Perform 12-Lead ECG prior to medication administration (if possible)
- **Nitroglycerin** is contraindicated when phosphodiesterase (PDE) medications (**Viagra®, Levitra®,** and **Cialis®**) have been recently used (**Viagra** or **Levitra** within 24hours; **Cialis** within 48hours). **Nitroglycerin** may only be given by BH Physician Order.

**Transport Considerations:*

- 12-Lead ECG interpretation of "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***"
  - Stable vital signs and/or patient condition → consider Code-2 transport to SRC
  - Unstable vital signs and/or patient condition → Code-3 transport to SRC

Santa Barbara County EMS Agency

STEMI Critical System of Care

UPDATE 2022

TABLE OF CONTENTS

SANTA BARBARA COUNTY EMS AGENCY

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Santa Barbara County PUBLIC Health DEPARTMENT

Section I: Plan Overview

A. INTRODUCTION

Patients suffering from an ST-Elevation Myocardial Infarction (STEMI) have the best chance of survival when they receive rapid assessment and transport to a specialty care hospital with specialized equipment and personnel to treat these deadly heart attacks. The Santa Barbara County STEMI System began in 2010 and currently has two STEMI Receiving Centers (SRC). STEMI system performance is based on standards developed by the American College of Cardiology, the American Heart Association and the California Department of Public Health. The STEMI Critical Care System is part of our broader Cardiac System of Care, which encompasses all aspects of cardiac care, including STEMI, non-STEMI and cardiac arrest. One example is the investment in our Cardiac Arrest Management (CAM) program. Streamlined coordination of care has improved the likelihood of surviving cardiac events through 911 Emergency Medical Dispatch for pre-arrival instructions for management of chest pain and cardiac arrest, prehospital response of cardiac arrest with Pit Crew style CPR and CAM protocols, specific triage and destination policies, and access to specialty care hospitals.

B. PURPOSE

The STEMI Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a comprehensive STEMI program for the county that addresses the needs of the patient suffering from an acute STEMI. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality STEMI services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals is required for a quality STEMI system. It is only through this partnership and adherence to quality STEMI care standards that the goals of this plan will be achieved.

This STEMI Plan outlines a countywide STEMI system in order to:

1. Rapidly identify STEMI patients through assessment and ECG interpretation
2. Assure timely transport to the closest, most appropriate, SRC for definitive care
3. Identify, monitor and measure preventable death and disability from a STEMI
4. Monitor and assure timely STEMI services, and ensure optimal care is available in a cost-efficient manner through close coordination of prehospital and hospital services
5. Monitor patient outcomes and participate in continuous quality improvement efforts

C. OVERVIEW

An organized, systematic approach to STEMI patients results in a reduction in patient morbidity and mortality. For the past seven years, Santa Barbara County EMS Agency (SBCEMSA) along with its eight prehospital partnering agencies, have received the American Heart Association Mission Lifeline Gold Award for our STEMI Systems of Care. The Mission Lifeline Award uses national benchmarks and performance measures to determine if an EMS system is providing the accepted standard of patient care. SBCEMSA has consistently superseded the Mission Lifeline Gold Award standards, and in 2022, SBCEMSA and partners received the Gold Plus award. The Gold Plus award is the highest award given by the American Heart Association to acknowledge a distinguished EMS system with exemplary patient care benchmarks.

The intent of this plan is to formalize Santa Barbara County's STEMI care system by defining the roles and responsibilities of the SRCs in accordance with the California State Regulations. The system is based on an inclusive model, encouraging all hospitals to participate at some level, dependent upon their resources. Using this approach makes the best use of available resources, matches patient needs to level of care, and engages all acute care facilities in the management of STEMI patients.

The facility standards contained in this document are based upon the California Code of Regulations, Division 9, Chapter 7.1 ST-Elevation Myocardial Infarction Critical Care System. Interfacility transfer agreements have been established to facilitate the rapid and appropriate transfer of patients within, and outside of, Santa Barbara County as their medical care needs dictate.

The Santa Barbara County EMS Agency (SBCEMSA) rigorously monitors the system established by this plan through review of Cardiac Care Registry data, outcome studies and site visits. The planning of care for these patients is coordinated with all other components of the EMS system. A Continuous Quality Improvement (CQI) model has been instituted for system review and a comprehensive management information system has been implemented to ensure the seamless integration of dispatch, prehospital, hospital and registry information.

This plan defines:

- Operation of a countywide, inclusive STEMI Critical Care System
- Prehospital STEMI treatment and transportation protocols, which recognize the urban, semi-rural and rural nature of the county
- Aeromedical response and transportation requirements
- Operational requirements for STEMI Receiving Centers (SRC)
- Designation and contract with SRCs to provide STEMI care services
- A clear line of authority for the countywide STEMI system administration
- Continuous Quality Improvement program, including a STEMI registry

This STEMI Critical Care System Plan includes two SRCs and three STEMI Referral Hospitals (SRH). The five Base Hospitals provide on-line communications and medical control to the field personnel. All prehospital care personnel are trained on appropriate STEMI treatment, triage and destination protocols.

D. PHILOSOPHY/GOALS

The goal for the SBCEMSA STEMI Plan is to assure high quality STEMI care to all residents of, and visitors to, Santa Barbara County. To this end, SRCs are designated to optimize both care and access. A priority consideration in this plan is to provide high quality STEMI services to the population served while remaining cognizant of the available resources.

The hospitals will be integrated into a total system of care that includes prevention programs as well as comprehensive treatment, prehospital through rehabilitation and follow-up. Air medical dispatch procedures will be evaluated and revised as needed.

The STEMI system of care is monitored by SBCEMSA and the STEMI Committee.

The philosophy of the SBCEMSA STEMI Plan calls for the following elements:

- **STEMI Receiving Centers**

  Two hospitals, one in North County and one in South County, have SRC designations.

- **Inclusive**

  Participation of all hospitals are encouraged countywide, with a demonstrated and documented commitment to quality care.

- **Continuous Quality Improvement**

  Orientation towards a continuous quality improvement process and an emphasis on patient outcomes is the primary focus of program evaluation.

- **Prevention/Education**

  Prevention and education classes are offered by the SRCs and the SBCEMSA agency as community outreach.

- **Continuum of Services**

  The STEMI Critical Care System program is an integrated system comprised of prehospital agencies and hospitals.

E. LEGAL BASIS

SBCEMSA, under the authority of the California Code of Regulations (CCR), Title 22, Division 9, Chapter 7.1, develops this STEMI Plan. Responsibility for the plan's development, implementation and oversight rests with SBCEMSA.

F. PLAN METHOD

Designation of SRCs in Santa Barbara County are based on standards developed by the American College of Cardiology, the American Heart Association, the California Department of Public Health, and the California Code of Regulations, Division 9, Chapter 7.1.

Our neighboring counties, Ventura and San Luis Obispo, also have designated SRCs. SBCEMSA has coordinated with EMS agencies located within close proximity to ensure the integration of adjacent STEMI systems for efficient care of STEMI patients.

SECTION II: OVERVIEW OF SANTA BARBARA COUNTY

A. GEOGRAPHY

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis

Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities limit accessibility to health care.

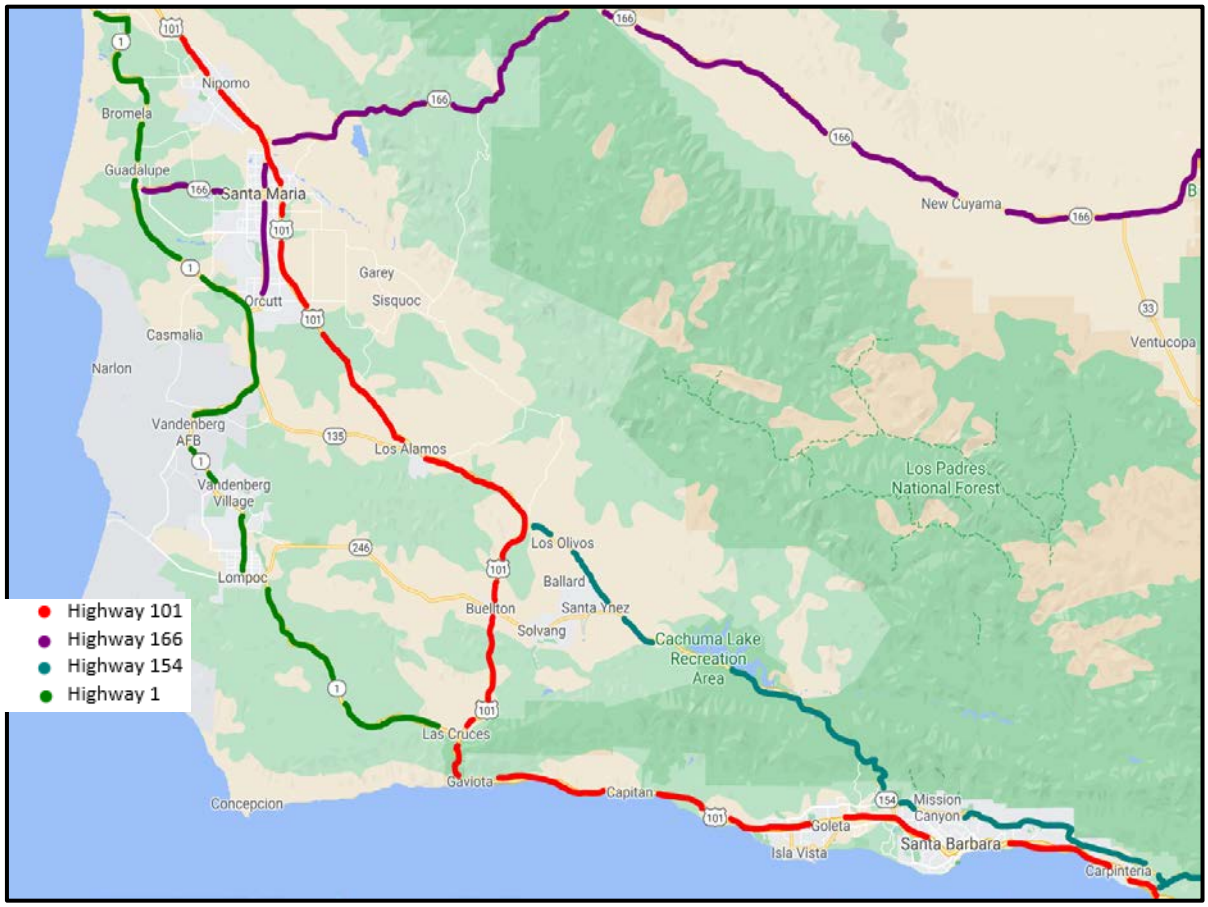
Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from

runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility which greatly contributes to high-crash rates in rural areas of Santa Barbara County. Additionally, these dense fog conditions may limit access to healthcare services and render resident's incapable of utilizing air ambulance transport due to poor visibility and unsafe flying conditions.

B. TRANSPORTATION

The automobile is the predominate form of transportation in Santa Barbara County. One major roadway, Highway-101, transects the area from south to north along the edge of the Pacific Ocean until the community of Gaviota is reached where the freeway heads inland. Three other smaller roadways, Highway 166, Highway 154, and Highway 1, also transect Santa Barbara County. There is a network of county and city roads which provide access between the incorporated cities and the agricultural lands and rural communities of the county.



Residents in rural areas of the county often times require the transport/transfer of critical patients by means of air ambulance. Santa Barbara Cottage Hospital on the South Coast has a helipad and Marian Regional Medical Center in North County also has a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.

C. DEMOGRAPHICS

In 2021, the population was 446,475. Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the average household income is $84,356 with a poverty rate of 15.2%. The demographics of the County indicate that there are many concentrated low-income areas (compared with 19% of the State population). The population over 65 years of age in Santa Barbara County was 16.0%. As the population of Santa Barbara County continues to age, there is an increased demand for EMS in the greater than 65 age group.

D. EPIDEMIOLOGY

Data from the Vital Records Department of Public Health show that the major causes of death in Santa Barbara County are from cancer and coronary heart disease, which is consistent with the trend throughout California and the United States.

The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2018-2020* (the report reflecting current year data will be published summer of 2023):

1. All cancers
2. Coronary Heart Disease
3. Alzheimer's Disease
4. Accidents
5. Cerebrovascular Disease (Stroke)

E. EMS DISPATCH

EMS dispatching for Santa Barbara County is provided for and coordinated through the Santa Barbara Sheriff's Department.

F. EMERGENCY MEDICAL CARE RESOURCES

1. PREHOSPITAL

The County is covered by private and public ALS ambulance response supported by simultaneous dispatch of ALS and/or BLS first responder fire department personnel. Because the STEMI care system is an integrated system, the prehospital portion will not differ significantly in terms of training, equipment or response patterns. Prehospital providers are currently trained in the principles of field resuscitation of STEMI patients and meet all of the State requirements for education.

All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

2. SANTA BARBARA COUNTY HOSPITALS

Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC).

Hospital Name & Address	Number of Beds	Number of ICU Beds	Number of Pediatric Beds	Base Hospital (Y/N)
Goleta Valley Cottage Hospital 351 Patterson Avenue Santa Barbara, CA 93160	122	10	2	Y
Lompoc Valley Medical Center 1515 E. Ocean Avenue Lompoc, CA 93436	60	4	0	Y
Marian Regional Medical Center 1400 E. Church Street Santa Maria, CA 93454	130	20	8	Y
Santa Barbara Cottage Hospital Pueblo at Bath Street Santa Barbara, CA 93105	436	22	17	Y
Santa Ynez Valley Cottage Hospital 700 Alamo Pintado Road Solvang, CA 93463	30	4	0	Y

SECTION III: SYSTEM ADMINISTRATION

A. LEAD AGENCY

California statute assigns the responsibility to adopt and implement STEMI regulations, designate STEMI Receiving Centers, establish data collection systems and monitor STEMI care performance to the local EMS Agency. The lead agency for EMS and the STEMI care system in Santa Barbara County is the Santa Barbara County EMS Agency. SBCEMSA staff and the EMS Medical Director will be responsible for administering the plan and coordinating activities of the STEMI care system and integrating this system with all components of the EMS system.

These responsibilities include, but are not limited to:

- Ongoing performance evaluation and quality improvement of the STEMI System
- Assessing needs and resource requirements of the county
- Assigning roles to system participants
- Monitoring the STEMI registry data system
- Monitoring the system to determine compliance with appropriate laws, regulations, policies, procedures and contracts
- Evaluating the impact of the system and revising its design as needed

B. STEMI CENTER FEES

SBCEMSA has developed a fee structure that covers a portion of the direct cost of the designation process and to effectively monitor and evaluate the STEMI care system.

C. MULTIDISCIPLINARY STEMI QUALITY IMPROVEMENT COMMITTEE

The Multidisciplinary STEMI Quality Improvement Committee was created as a function of the planning process and continues as a part of this plan. The Committee meets three times a year to discuss and resolve STEMI system issues. It is comprised of countywide Stakeholders from local hospital and prehospital agencies involved in the overall care of STEMI patients. The Committee fosters communication between SBCEMSA and various groups with an interest in the county's STEMI system.

The functions of the STEMI Committee are:

- Conduct assessment of the STEMI system needs and resources in the county
- Provide overall direction and coordination for policymaking and program oversite
- Analyze the results of data collection and the monitoring system
- Present case studies for review and quality improvement
- Maintain compliance with the California Evidence Code, Section 1157.7 to ensure confidentiality and a disclosure-protected review of selected STEMI cases

D. MEDICAL CONTROL

Medical control and direction of the STEMI system is an essential component of the Santa Barbara County STEMI Plan and is the overall responsibility of the local EMS Medical Director. Medical control includes medical supervision of prehospital care services and the provision of medical supervision of the overall STEMI System Plan and ongoing monitoring.

SECTION IV: SYSTEM OPERATIONAL COMPONENTS

A set of policies have been developed which direct the STEMI system to provide a clear understanding of the structure of the system and manner in which the system utilizes the resources available to it.

A. PREHOSPITAL PROVIDERS

Prehospital personnel in Santa Barbara County are trained in criteria for activation of a pre hospital STEMI Alert. The STEMI system policies will include the following:

- Criteria for activation of a field STEMI
- Early notification of impending STEMI arrival to the SRC via Base Hospital radio report via 10 Channel UHF mobile radio as noted in SBCEMSA Policy 539.
- STEMI protocols readily available for prehospital treatment
- Triage and Destination to the closest, most appropriate SRC

B. HOSPITAL PROVIDERS

There are two designated STEMI Receiving Centers (SRC). The SRC responsibilities include, but are not limited to:

- Act as a Santa Barbara County SRC according to the STEMI Receiving Center Standards Policy 600
- Provide base station medical control for field prehospital providers
- Automatically accept any STEMI patients from EMS and SRH

C. PREHOSPITAL TRANSPORTATION

For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors.

Ground transport times for the majority of the County is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Mercy Air (located in San Luis Obispo) and Santa Barbara County Fire Department ALS Air Rescue can be utilized for Stroke scene transports.

D. INTERFACILITY TRANSFERS

STEMI Receiving Centers (SRC) and STEMI Referral Hospitals (SRH) have developed transfer procedure criteria agreements based on their capabilities and resources. Patients, who require treatment not available at the receiving hospital, will be transferred expeditiously to the appropriate facility. This may include out-of-county facilities.

STEMI Referral Hospitals (SRH) have written policies in place for rapid transports of STEMI patients to an SRC. The SRH emergency department maintains a standardized procedure for the treatment of STEMI patients and will track and monitor the treatment of STEMI patients for potential improvement initiatives.

E. DIVERSION

If the situation arises where the catheterization lab is unavailable, or no Cardiologists are available, the SRC may go on SRC diversion via ReddiNet. ROSC patients, however, are not subject to diversion.

SECTION V: QUALITY IMPROVEMENT

A. DATA COLLECTION

Currently SBCEMSA is using *Get With The Guidelines-Coronary Artery Disease (GWTG-CAD) Registry*. Data elements from the STEMI registry are reviewed and maintained by SBCEMSA for overall monitoring of the system. Specific patient and physician identifiers are stripped from the data to assure confidentiality. CAD contains the recommended minimum data as set forth by the American Heart Association and The Joint Commission and incorporates details from arrival through discharge. SBCEMSA collects data electronically from all ALS and BLS service providers through *ImageTrend* and reports State Core Measures related to STEMI care using CEMSIS.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the STEMI data. The Agency provides ongoing feedback through regular reporting and presents benchmarking goals on data elements at the STEMI Committee meetings. SBCEMSA and the STEMI Committee have the responsibility to review STEMI cases with patient outcomes and to revise STEMI Policies and procedures as necessary for progressive improvement of STEMI care.

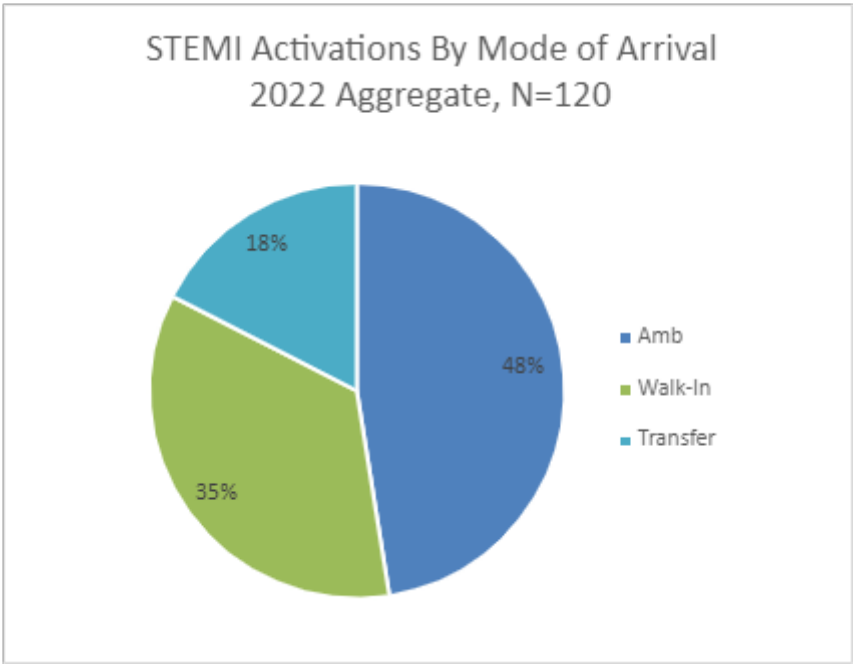
B. DATA EVALUATION

The periodic performance evaluation of the STEMI care system includes, but is not limited to, a review of the following:

- System Design, including monitoring of STEMI patient destination, appropriate and timely care, prompt transfer to SRC (if indicated), and monitoring of related metrics.
- Evaluate the appropriateness of prehospital & hospital care from data in compliance with the most current version of CEMSIS and NEMSIS, may include:
  - STEMI Activations per STEMI Receiving Hospital (SRC)
  - First Medical Contact (FMC) Time to Percutaneous Coronary Intervention (PCI)
  - Dispatch Time to Percutaneous Coronary Intervention (PCI) Time
  - EMS ECG Performed within 10 minutes
  - Prehospital Notification (to Base Hospital) of positive (POS) STEMI interpretation of ECG within 10 minutes of capture
  - Appropriateness of receiving hospital destination
  - ROSC patients with POS STEMI ECG
  - Internal STEMI activations and notification of specialists
  - ECG within 10 minutes of arrival to Receiving Hospital

- Percutaneous Coronary Intervention (PCI) Intervals for EMS, Walk-In, & Transfers
  - SRH Door-In/Door-Out Time for patient's requiring transfer to an SRC
  - Quality Improvement Review of STEMI-related Deaths & Complications

❖ The graph below demonstrates the STEMI Activations by Mode of Arrival, aggregated data for 2022. This includes patients that were activated as a "STEMI" delineated by their mode of arrival to the STEMI Receiving Hospital (SRC).



❖ The graph below demonstrates several key metrics evaluated within our STEMI program. This chart includes evaluation of the following metrics:

a. EMS Door-to-PCI (percutaneous coronary intervention) time;

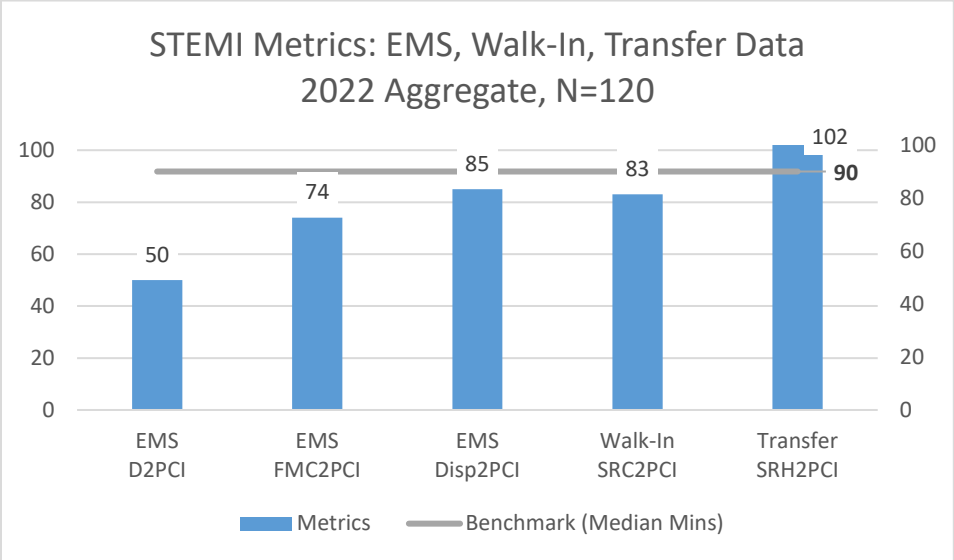
b. EMS First Medical Contact (FMC)-to-PCI;

c. EMS Dispatch-to-PCI;

d. SRC-to-PCI (Walk-In);

e. SRC-to-PCI (Transfers from SRH to SRC, measures SRC D2PCI)

- The American Heart Association (AHA) & local benchmarks for metrics “a-e” is ≤ 90 minutes, whereas the benchmarks for patient’s originating from a STEMI Referring Hospital (SRH) requiring transfer to an SRC is benchmark of ≤ 120 minutes.



SECTION VI: COMMUNITY EDUCATION

A. COMMUNITY OUTREACH AND TRAINING

- Hands-Only CPR
  - Postponed secondary to impact from COVID and social distancing requirements. Plan is to resume in 2023.

B. SURVIVOR RECOGNITION

- Annual Cardiac Arrest Survivor Celebration
  - Due to the COVID-19 pandemic, the annual Cardiac Arrest Survivor Celebration has been postponed until further notice.

SECTION VII: APPENDICES

Appendix A – Policy 600: Receiving Hospital Standards

Appendix B – Policy 641: STEMI Center Standards

Appendix C – Policy 642: STEMI Transfer Guidelines

Appendix D – Policy 539: 12-Lead ECG Process

Appendix E – Policy 533: Chest Pain – Acute Coronary Syndrome

Appendix A

SBCEMSA POLICY 600: RECEIVING HOSPITAL STANDARDS

Policy Number:	600
Original Issue Date:	June 2002
Last Reviewed/Revised:	October 1, 2022
Effective Date:	December 1, 2022
Next Review:	October 2024

RECEIVING HOSPITAL STANDARDS

I. Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101,1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

III. Definitions:

A. *Receiving Hospital:* A licensed acute care hospital, or a hospital otherwise recognized and approved by SBCEMSA, that provides basic or comprehensive emergency patient care and is actively utilized within the EMS system.

IV. Policy:

A. A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

V. Procedure:

A. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.
   1. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five (5) years.
   2. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

B. The Receiving Hospital shall agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

C. The Receiving Hospital shall actively participate in various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director or designee.

D. The Receiving Hospital shall assist the EMS Medical Director or designee, in the collection of statistics and review of necessary records for program evaluation and compliance.

E. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:
   1. Be licensed by the State Department of Health Services as a general acute care hospital
   2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657

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Daniel Shepherd, MD, EMS Agency Medical Director

3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency
4. Operate an Intensive Care Unit
5. Have operating room services available within 30 minutes
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:
   a. Cardiology
   b. Orthopedic Surgery
   c. Thoracic Surgery
   d. Anesthesiology
   e. General Surgery
   f. Pediatrics
   g. Neurosurgery
   h. General Medicine
   i. Obstetrics
7. Have the following services available within 20 minutes:
   a. X-Ray
   b. Laboratory
   c. Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy
9. Have the capability at all times to communicate with the ambulances and the Base Hospital
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care
11. The RH Medical Director shall:
    a. Be regularly assigned to the Emergency Department
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures
    c. Coordinate Receiving Hospital activities with the Base Hospital
    d. Attend the Emergency Medical Advisory Committee (EMAC)
    e. Provide Emergency Department staff education
12. Agree to provide at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse.
    a. Criteria for RH ED Physicians
       i. Must be certified by the American Board of Emergency Medicine; OR
       ii. Fulfill the following criteria to be considered a specialist in Emergency Medicine:
           i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times
           ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification
           iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine
    b. Criteria for RH ED Registered Nurses
       i. Be regular hospital staff assigned solely to the Emergency Department for that shift
       ii. Maintain current Advanced Cardiac Life Support certification
    c. Other Emergency Department Personnel
       i. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Life Support certification

F. Other SBCEMSA-Approved Receiving Hospitals

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

RECEIVING HOSPITAL STANDARDS

1. A hospital that does not meet all of the criteria as an acute care hospital, but is utilized within the EMS system as a receiving hospital to provide basic or advanced emergency care, may be approved and designated as a "Receiving Hospital" by SBCEMSA.
2. The SBCEMSA-Approved Receiving Hospital Must:
   a. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy
   b. Have the capability at all times to communicate with the ambulances and the Base Hospital
   c. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care
   d. The RH Medical Director shall:
      i. Be regularly assigned to the Emergency Department
      ii. Have knowledge of local EMS Agency Advanced Life Support policies and procedures
      iii. Coordinate Receiving Hospital activities with the Base Hospital
      iv. Attend the Emergency Medical Advisory Committee (EMAC)
      v. Provide Emergency Department staff education
3. Agree to provide at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse
   a. Criteria for RH ED Physicians
      i. Must be certified by the American Board of Emergency Medicine; OR
      ii. Fulfill the following criteria to be considered a specialist in Emergency Medicine:
         i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times
         ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification
         iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine
   b. Criteria for RH ED Registered Nurses
      i. Be regular hospital staff assigned solely to the Emergency Department for that shift
      ii. Maintain current Advanced Cardiac Life Support certification
   c. Other Emergency Department Personnel
      i. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Life Support certification

V. References: None

VI. Attachments: None

Appendix B

SBCEMSA POLICY 641: STEMI CENTER STANDARDS

Policy Number:	*641*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*January 01, 2020*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI CENTER STANDARDS

I. Purpose: To define the criteria for designation as a STEMI Receiving Center (SRC) and STEMI Referring Hospital (SRH) in Santa Barbara County.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.117, 100270.118, 100270.124 and 100270.125.

III. Definitions:

A. *"STEMI Receiving Center" or "SRC"* : a licensed general acute care facility that meets the minimum hospital STEMI care requirements and is available 24/7/365 and able to perform PCI.

B. *"STEMI referring hospital" or "SRH":* a licensed general acute care facility that meets the minimum hospital STEMI care requirements and has a process for immediate transport of suspected STEMI patients to a SRC.

IV. Policy:

A. There shall be a written agreement between all designated STEMI Receiving Centers, STEMI Referral Hospitals and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. A STEMI Receiving Center (SRC), approved and designated by Santa Barbara County EMS Agency (SBCEMSA) shall meet the following requirements:

1. Hospital Requirements for a SRC
   a. Currently recognized as a Receiving Hospital according to SBCEMSA Policy 600 Receiving Hospital Standards.
   b. Holds a Special permit for a Cardiac Catheterization Laboratory from the California State Department of Health Services (DHS).
   c. Holds a special permit issued by DHS for Cardiovascular Surgery Service or has established current transfer agreements with a hospital or hospitals holding such a special permit.
2. SRC Hospital Capabilities
   a. Cardiac Catheterization Laboratory available 24 hours per day / 7 days per week.
   b. A mechanical ventricular assist device, such as Intra Aortic Balloon Pump or Impella shall be available on site 24 hours per day / 7 days per week with a person capable of operating this equipment.
3. Personnel
   a. SRC Medical Director:
      i. The SRC shall designate a medical director for the STEMI program who shall be a physician certified by the American Board of Internal Medicine (ABIM) with current ABIM sub-specialty certification in Cardiovascular Disease, and Interventional Cardiology who will ensure compliance with these SRC standards and perform ongoing Quality Improvement (QI) as part of the hospital QI Program.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

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Angelo Salvucci, MD, EMS Agency Medical Director

ii. The SRC Medical Director must be a credentialed member of the medical staff with PCI privileges.

b. SRC STEMI Coordinator:
   i. The SRC shall designate a STEMI Coordinator for the STEMI program who shall be a registered nurse with experience in Emergency Medicine or Cardiovascular Care, who shall assist the SRC Medical Director to ensure compliance with these SRC standards and the QI program.

c. Physician Consultants:
   i. The SRC shall maintain a daily roster of on-call Interventional Cardiologists-with privileges for PCI and credentialed by the hospital in accordance with the American College of Cardiology/American Heart Association national standards. These physicians must respond immediately upon notification and be promptly available when a STEMI patient presents to the hospital.

4. Clinical Process Performance Standard
   i. The overall goal of the Cardica and STEMI Care System in Santa Barbara County is to minimize the interval between first medical contact to coronary artery reperfusion.
   ii. SRCs will adopt evidence-based strategies to reduce time to reperfusion.
5. Develop internal policies and procedures for the following:
   a. Code STEMI: The interventional cardiologist and cardiac catheterization lab team will be immediately contacted upon notification by prehospital personnel that they are transporting a patient on whom a 12-lead ECG that has been interpreted as an "Acute MI Suspected" or "Meets ST Elevation MI Criteria."
      i. Interventional cardiologist and cardiac catheterization laboratory staff will be required to respond immediately upon notification and have a response time standard of under 30 minutes.
      ii. Emergency medicine physicians will have the authority to activate the cardiac catheterization laboratory staff.
      iii. Allow the automatic acceptance of any STEMI patient from a Santa Barbara County Hospital.
      iv. An interventional cardiologist assumes care of the patient from the time the patient arrives at the SRC.
      v. To accept all patients meeting STEMI patient triage criteria or upon transfer notification from a STEMI Referral Hospital, except when on an internal disaster, and provide a plan for triage and treatment of simultaneously presenting STEMI patients, regardless of ICU/CCU or ED status.
      vi. Identify criteria for patients to receive emergent angiography or emergent fibrinolysis based on physician decisions for individual patients.
      vii. Any STEMI Receiving Center that has been activated from the field is to ensure that the transporting paramedic is placed in radio contact with the Base Station physician prior to ED arrival.
6. Quality Improvement
   a. The Quality Improvement program will include a process for the SRC to review all cases of STEMI patients taken to the catheterization laboratory at the end of the procedure and provide immediate feedback to the staff in the emergency department and the catheterization laboratory – prior to the end of that shift.
      i. Formal feedback utilizing the standardized format designated by SBCEMSA, will be provided to any prehospital agency or SRH that participated in the care of a "STEMI Activation" patient, within 72 hours.

b. An SRC QI program shall be established to review performance and outcome data for STEMI patients.
c. The SRC will actively participate in the Santa Barbara County EMS STEMI QI Program.
i. This will require regular meeting attendance by the SRC Medical Director or designee, who will be a staff interventional cardiologist, and the SRC STEMI Coordinator.

C. A STEMI Referrall Hospital (SRH), approved and designated by (SBCEMSA) shall meet the following requirements:
1. Available to provide care for STEMI patients twenty-four (24) hours per day, seven (7) days per week, three hundred and sixty-five (365) days per year.
2. Develop written protocols to identify STEMI patients and provide an optimal reperfusion strategy, using fibrinolytic therapy.
3. The emergency department shall maintain a standardized procedure for the treatment of STEMI patients.
4. The hospital shall have a transfer process through interfacility transfer agreements, and have pre-arranged agreements with SBCEMSA for rapid transport of STEMI patients to a SRC.
5. Develop a program to track and improve treatment of STEMI patients.
6. The hospital must have a plan to work with a STEMI receiving center and participate in the quality improvement process as required by the SBCEMSA.
7. A SRH designated by SBCEMSA shall have a review conducted every three years.
8. Additional requirements may be stipulated by the SBCEMSA medical director.

D. Data Collection:
1. The SBCEMSA shall implement a standardized data collection and reporting process for the Cardiac and STEMI Care System. The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated SRCs and SRHs within the Santa Barbara County Cardiac and STEMI Care System shall participate in the data collection process in accordance with SBCEMSA policies and procedures.
a. Data will be entered into an SBCEMSA-approved registry and submitted monthly, by no later than the 15th of the following month.
b. In consultation with the STEMI CQI Committee, SBCEMSA may require additional data be submitted.

V. Procedure:

A. Designation
1. An SRC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
a. Application:
i. Eligible hospitals shall submit a written letter of intent and request for SRC approval to the SBCEMSA documenting the compliance of the hospital with Santa Barbara County SRC Standards.
b. Approval:
i. SRC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after receipt of the request for approval, application completion and submission of all required documentation.
(a) SRC designation approval shall be dependent on the creation of a written agreement between the newly designated STEMI Receiving Center and the Santa Barbara County EMS Agency indicating the commitment of hospital

administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.

2. Revocation
   a. SRC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in STEMI System QI activities
      iii. Other criteria as defined and reviewed by the STEMI QI Committee
3. Redesignation
      i. SRCs shall be reviewed on a biannual basis.
      ii. SBCEMSA may suspend or revoke the approval of a SRC at any time for failure to comply with any applicable policies, procedures, or regulations.
      iii. An SRC may be re-designated following a satisfactory Santa Barbara County EMS Agency review every year.
      iv. SRCs shall receive notification of evaluation from the SBCEMSA.
      v. SRCs shall respond in writing regarding program compliance.
      vi. On-site SRC visits for evaluative purposes may occur.
      vii. SRCs shall notify SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance or performance.
4. Discontinuation
   a. The SRC shall submit a written 180 calendar day notice to the SBCEMSA prior to the discontinuation of SRC services.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 Cardiac and STEMI System General Guidelines
C. Policy 642 STEMI Transfer Guidelines

VII. Attachments: None

Appendix C

SBCEMSA POLICY 642: STEMI TRANSFER GUIDELINES

Policy Number:	*642*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*January 01, 2020*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STEMI TRANSFER GUIDELINES

I. Purpose: To define the "Code STEMI" process by which patients with a STEMI are transferred from a STEMI Referral Hospital (SRH) to a STEMI Receiving Center (SRC) for emergency percutaneous coronary intervention (PCI).

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100147 and 100169.

III. Definitions:

A. *STEMI:* ST Segment Elevation Myocardial Infarction
B. *STEMI Receiving Center (SRC):* An acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to SBCEMSA Policy 640.
C. *STEMI Referral Hospital (SRH):* An acute care hospital in Santa Barbara County that meets the requirements for a receiving hospital in SBCEMSA Policy 600 and is not designated as a STEMI Receiving Center according to SBCEMSA Policy 640.
D. *PCI:* Percutaneous Coronary Intervention

IV. Policy:

A. All hospitals within the Santa Barbara County Cardiac and STEMI Care System shall have written transfer agreements with the higher level designated STEMI Receiving Centers within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Cardiac and STEMI Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. STEMI Referral Hospital (SRH) will:
   1. Assemble and maintain a "STEMI Pack" in the emergency department to contain all of the following:
      a. Checklist with phone numbers of Santa Barbara County STEMI Receiving Centers (SRC).
      b. Preprinted template order sheet with recommended prior-to-transfer treatments.
         i. Treatment guidelines will be developed with input from the SRH and SRC cardiologists.
      c. Patient Consent/Transfer Forms.
      d. Treatment summary sheet.
      e. Santa Barbara County EMSA Code STEMI transfer form.
   2. Have policies, procedures and a quality improvement system in place to minimize door-to-ECG, ECG-to-interpretation, STEMI-Dx-to-transfer times, and Door In/Door out times.
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
   4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the SRC as appropriate.
C. Dispatch will:
   1. Respond to a "Code STEMI" transfer request by immediately dispatching the closest available ALS ambulance or air or ground CCT unit to the requesting SRH.
   2. Ambulance or helicopter transporting agencies will:

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a. Respond immediately upon request for "Code STEMI" transfer.

D. STEMI Receiving Centers will:
1. Maintain accurate status information on ReddiNet regarding the availability of a cardiac catheterization lab.
2. Publish a single phone number, that is answered 24/7, to receive notification of a STEMI transfer.
3. Immediately, upon initial notification by a transferring physician at an SRH, automatically accept in all transfer patients who have been diagnosed with a STEMI and who, in the judgment of the transferring physician, require urgent PCI.
4. Authorize the emergency physician to automatically accept transfer of any patient with a STEMI.
5. Establish an internal communications plan that assures the immediate notification of all necessary individuals, including the cardiac catheterization services staff and on-call interventional cardiologist, of the transfer.
6. Adopt procedures to make an ICU/CCU bed available or to make alternate arrangements for post-PCI care.

V. Procedure:

A. Upon diagnosis of STEMI, and after discussion with the patient, the SRH will:
1. Determine availability of the SRC by checking ReddiNet.
2. Immediately call the County Dispatch Center to request an air or ground ambulance (ALS or CCT).
   a. Advise that they have a Code STEMI transfer to [SRC].
   b. After calling for ambulance, the SRH transferring physician will notify the SRC emergency physician of the transfer.
3. Perform, as time allows, indicated diagnostic tests and treatments.
4. Unless contraindicated, the following medications are recommended for administration by the STEMI Referral Hospital prior to transfer:
   a. Aspirin 324mg PO
   b. Heparin 50units/kg of actual body weight (maximum 5,000 units) IV.
   c. Clopidogrel (Plavix®) is NOT to be administered.
5. Complete transfer consent, and, as time allows, a treatment summary, and Code STEMI transfer data forms.
   a. If this cannot be done prior to transfer, fax immediately to the accepting SRC and SBCEMSA Specialty Care System Coordinator.
   b. Include copies of the ED face sheet and demographic information.
6. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the SRC.
7. Contact SRC for nurse report at the time, or immediately after, the ambulance departs.

B. Upon request for "Code STEMI" transfer, the dispatch center will dispatch the closest available ambulance or CCT unit per hospital direction, and notify responder of a "Code STEMI" request.
1. Upon notification, the ambulance will respond Code 3 (lights and siren).
2. The patient shall be urgently transferred without delay.
   a. Every effort will be made to minimize on-scene time.
3. All forms should be completed prior to ambulance arrival.
4. Any diagnostic test results may be relayed to the SRC after patient departure.
5. Intravenous drips may be discontinued or remain on the ED pump.
6. Ambulance personnel will place defibrillation pads on the patient.

C. Upon notification, the SRC will notify the interventional cardiologist and cardiac catheterization staff, who will respond immediately and prepare for the PCI procedure.
   1. The SRH and SRC shall review all STEMI transfers within 24 hours for appropriate and timely care and to identify opportunities for improvement.
      a. The SRH STEMI Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hours.
      b. SRC will submit feedback utilizing the standardized format designated by the SBCEMSA within 72 hours.
      c. Results may be reviewed and discussed at the SBCEMSA STEMI System committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 641 STEMI Center Standards
C. Policy 511 – Transport Zones

VII. Attachments: None

Appendix D

SBCEMSA POLICY 539: 12-LEAD ECG PROCESS

Policy Number:	*539*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*June 26, 2018*
Effective Date:	*September 1, 2018*
Next Review:	*June, 2019*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

12-LEAD ECG PROCESS

I. Purpose: To define the indications, procedure and documentation for obtaining 12-lead Electrocardiograms (ECGs) and procedures for identification, treatment, and transportation of patients with a suspected ST-segment Elevation Myocardial Infarction (STEMI).

II. Authority: California Health and Safety Code, Sections 1797.204, 1797.220 and 1798. California Code of Regulations, Title 22, Division 9, Sections 100148, 100169 and 100170.

III. Definitions:

A. *STEMI:* ST-segment Elevation Myocardial Infarction
B. *STEMI Receiving Center (SRC):* an acute care hospital with percutaneous coronary intervention (PCI) services that has been designated according to Santa Barbara County EMS Policy 640

IV. Policy:

A. Paramedics will obtain 12-lead ECGs in patients suspected of having an acute coronary syndrome and provide treatment in accordance with this policy.
B. Only paramedics who have received appropriate training are authorized to obtain a 12-lead ECG on patients.

V. Procedure:

A. Indications for 12-lead ECG: Medical history and/or presenting complaints consistent with an acute coronary syndrome. Patients will have one or more of the following:
   1. Chest or upper abdominal discomfort suggestive of acute coronary syndrome
   2. New onset cardiac dysrhythmias (including adult cardiac arrest if return of spontaneous circulation)
   3. Unexplained syncope or near syncope
   4. Unexplained acute generalized weakness with or without diaphoresis
   5. Acute onset of dyspnea suggestive of congestive heart failure
   6. Other signs or symptoms suggestive of acute coronary syndrome
B. Contraindications: **DO NOT** perform ECG on these patients:
   1. Trauma: There must be no delay in transport.
   2. Cardiac Arrest (unless return of spontaneous circulation).
   3. Clarification: Patient having a pacemaker is NOT a contraindication to performing a 12-lead ECG.
C. ECG Procedure:
   1. Attempt to obtain ECG during initial patient evaluation. If the ECG can be completed without delay (less than 3 minutes after patient contact), and the patient is not in severe distress, perform ECG prior to oxygen or to medication administration.
   2. The ECG should be done before moving the patient.
   3. Assure proper skin preparation prior to attaching electrodes. Check for loose electrodes or those with dry gel.

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Angelo Salvucci, MD, EMS Agency Medical Director

4. If the ECG is of poor quality (artifact or wandering baseline, or a paced rhythm is suspected), ECG may be repeated to a total of 3. In all such cases, the Base Hospital must be notified of the poor quality in the verbal report. May also repeat ECG if interpretation is NOT ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and patient's condition worsens such that paramedic believes that the ECG may have changed to show an acute MI.
5. If interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, verify by history and physical exam that the patient does not have a pacemaker or Implantable Cardiac Defibrillator (ICD).
6. Monitors will be in 12-lead status ONLY for the time of initial 12-lead capture. Once a satisfactory strip has been achieved; all monitors will be set to operate in Lead II or Pads status. If, in the paramedic's opinion, an additional 12-lead is warranted by patient condition, the paramedic may then repeat the 12-lead as necessary.

D. Hospital Communication/Transportation:

1. If ECG is of good quality and interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, the Base Hospital will be the appropriate SRC.
2. If the ECG is of poor quality (significant wandering baseline and/or artifact, or an ICD or pacemaker is suspected), the Base Hospital within that hospital service area will be contacted.
3. Any paramedic activating a "Code STEMI" from the field must request to speak with the Base Station physician prior to arrival at the SRC Emergency Department. The name and date of birth of the patient may be communicated to the receiving hospital physician.
4. If ECG interpretation begins with ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, report that to the SRC at the beginning of the report. Report if ECG quality is poor (wandering baseline or artifact). All other information, except that listed in items 2, 4, and 5 below, is optional and can be given at the paramedic and hospital's discretion.
5. Paramedics are to ask the patient if they have a cardiologist and report that information to the Base Hospital.
6. If ECG Interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***:
   a. Apply defibrillatopr pads to prepare for possible ventricular tachycardia/fibrillation
   b. Patients should be transported to the closest and most appropriate SRC depending on patient preference and cardiac catheterization lab availability. Hospital may direct ambulance (air or ground) to alternative SRC if cardiac catheterization lab not available.
7. If the ECG interpretation is ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***, and the underlying rhythm reads, "Atrial Flutter" the SRC Hospital shall be notified at the beginning of the report. The Cath Lab will NOT be activated from the field.
8. Unless accompanying the patient to the hospital, all original Prehospital ECG's performed by first responder paramedics will be turned over to the transporting paramedic. Copies will be retained by the first responding paramedic.
9. For all patients activated as a "Code STEMI" from the field a Code 3 transport will be considered, at the paramedic's discretion. If a patient is not transported Code 3, documentation must include the reason for a different level of transport.
10. Prehospital ECGs will be handed to the receiving medical practitioner for review. The receiving practitioner will be requested to initial, time and date the ECG to indicate they have received and reviewed the ECG.

E. Patient Treatment:

1. Patient Communication: If the ECG interpretation is "Acute MI Suspected" or "***MEETS ST ELEVATION MI CRITERIA***", the patient should be told that "according to the ECG you

may be having a heart attack". If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or "you are not having a heart attack". If the patient asks what the ECG shows, tell him/her that it will be read by the emergency department MD.

F. Physician Office, Clinic, or Urgent Care Center ECG's
   1. If an ECG is obtained at an outpatient medical facility, and the physician interpretation is "Acute MI" or "STEMI", the patient will be treated as an ***ACUTE MI SUSPECTED*** or ***MEETS ST ELEVATION MI CRITERIA***. An additional ECG may be performed by EMS at the discretion of the paramedic.
   2. In the presence of any signs or symptoms suggestive of acute coronary syndrome, if there is no interpretation of "Acute MI" or of "STEMI", then repeat the ECG prior to transport.
   3. Obtain the original or copy of the office ECG and deliver to the hospital.

G. Documentation
   1. It is the responsibility of all responding agencies to complete the electronic Patient Care Report (ePCR), and if an ALS provider also, attach all ECG's performed.
   2. Document in the narrative that an ECG was obtained and the findings.
   3. All notifications, alerts and comments (such as "poor ECG quality", "Atrial Flutter", etc.) made to the Base Hospital should be documented in the ePCR narrative.
   4. All original Prehospital 12-Lead ECG(s) will be turned in to the receiving hospital by handing it/them to the receiving medical practitioner assuming care of the patient.
   5. ***All CODE STEMI PECG's must have a physician interpretation (ED-MD or Cardiologist) with date, time, and signature written legibly on the original tracing itself. This document will then be incorporated into the medical record as per the institution's policy. A copy must be forwarded to the EMS Agency STEMI Coordinator along with the Cath Lab/STEMI report.***
   6. A copy of each 12-lead ECG (positive or negative) will be filed with the ePCR as a trailing document for all STEMI activation calls.
   7. Any Prehospital ECG determined by the Hospital physician to be a False Positive or False Negative must be electronically transmitted to the EMS Agency STEMI Coordinator within 4 days of the call date.
   8. Agencies will follow their own internal policies for Health Insurance Portability and Accountability Act (HIPAA) and California Confidentiality of Medical Information Act (CMIA) compliance when transmitting information to the EMS Agency.

VI. References:

A. Policy 303 Mandatory Base Hospital Contact and Communication Policy
B. Policy 640 STEMI Receiving Center Guidelines

VII. Attachments: None

Appendix E

SBCEMSA POLICY 533.11: CHEST PAIN - ACUTE CORONARY SYNDROME

CHEST PAIN – ACUTE CORONARY SYNDROME

ADULT

BLS Procedures

- Administer oxygen as indicated
  - Refer to Policy 533-02 Airway Management
- Assist patient with prescribed **Nitroglycerin** (NTG) as needed for chest pain
- Hold if SBP < 110 mmHg

Expanded Scope

Same as BLS

ALS Prior to Base Hospital Contact

Perform 12-Lead ECG

- Refer to Policy 539: 12-Lead ECG
- If "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***" is present:
  - Place defibrillation pads on the patient and expedite transport to closest STEMI Receiving Center (SRC)*

For ongoing or recurrent chest pain consistent with acute coronary syndrome

Nitroglycerin

- Sublingual or lingual spray – 0.4mg every 5 mins for continued pain
  - No max dosage
- Maintain SBP > 110mmHg
  - If normal SBP < 110mmHg, then maintain SBP > 90mmHg

Aspirin

- PO – 324mg

Vascular Access

- 2 attempts prior to base hospital contact

*Pain refractory to **Nitroglycerin***

- Refer to Policy 533-03: Pain Control
- Maintain SBP > 110 mmHg

Hypotension present and/or develops

- Elevate legs
- Unless signs of CHF are present, **Normal Saline**
  - IV/IO bolus – 250mL

Ventricular ectopy – Runs of V-Tach (wide-complex, HR > 150bpm, > 30sec duration)

Amiodarone

- IV/IO – 150mg in 100mL 0.9% **Normal Saline** administered over 10 mins

Base Hospital Orders Only

Hypotension, signs of CHF are present, and/or no response to fluid therapy

Push-Dose Epinephrine

- IV/IO – 10mcg (1mL) every 3 mins slow IV push
- Titrate to SBP > 90mmHg
- Refer to Policy 533-10: Push Dose Epinephrine

Consult with ED Physician for further treatment measures.

Additional Information

Medication Considerations:

- Perform 12-Lead ECG prior to medication administration (if possible)
- **Nitroglycerin** is contraindicated when phosphodiesterase (PDE) medications (**Viagra®, Levitra®,** and **Cialis®**) have been recently used (**Viagra** or **Levitra** within 24hours; **Cialis** within 48hours). **Nitroglycerin** may only be given by BH Physician Order.

**Transport Considerations:*

- 12-Lead ECG interpretation of "MEETS ST ELEVATION MI CRITERIA" or "***ACUTE MI SUSPECTED***"
  - Stable vital signs and/or patient condition → consider Code-2 transport to SRC
  - Unstable vital signs and/or patient condition → Code-3 transport to SRC

Santa Barbara County EMS Agency

Stroke Critical Care System Plan 2017

Table of Contents

Santa Barbara County EMS Agency Organization

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Executive Summary

California statute mandates the Emergency Medical Services Authority (EMSA) to adopt necessary regulations to carry out the coordination and integration of all state activities concerning Emergency Medical Services (EMS) (Health and Safety Code §1797.107). In addition, State statute allows the EMS Authority to establish guidelines for hospital facilities, in cooperation with affected medical organizations, according to critical care capabilities (Health and Safety Code §1798.150). As a result of these statutes, the EMS Authority established a multidisciplinary stroke taskforce for the development of Stroke System of Care Regulations for California.[1] California's Statewide Stroke Critical Care System is described in the California Code of Regulations; Title 22, Division 9, Chapter 7.2. These regulations outline the requirements of all components of the Stroke Critical Care System including the Local Emergency Medical Services Agency (LEMSA), prehospital providers, and hospitals.

Because data management, quality improvement and the evaluation process all have a vital role in providing high quality care to the stroke patient; these items have also been identified in the regulations. The overall goal of the regulations is to reduce morbidity and mortality from acute stroke disease by improving the delivery of emergency medical care within the communities of California.

Santa Barbara County Emergency Medical Services Agency (SBCEMSA) already has many of the regulations in place, including prehospital care policies to identify stroke patients, identify designated stroke receiving hospitals, and stroke destination policies. As a requirement of the California Regulations, this document is to serve as a formal written plan for the SBCEMSA Stroke Critical Care System. SBCEMSAs Stroke Critical Care System Plan has been written in accordance with Title 22, Division 9, Chapter 7.2 of the California Code of Regulations.

Stroke Critical Care System

Every year approximately 795,000 adult Americans suffer a stroke. A stroke death occurs every four minutes. Stroke is the most common cause of adult long-term disability in the United States. It is a life-changing event that places heavy burden on patients, families, and caregivers. When a patient is suffering an ischemic stroke, timely intervention is critical to reverse the damage, reduce mortality, morbidity, and disability in addition to improving survivor quality of life.

Hospitals have traditionally been designated as a stroke receiving hospital by their Local EMS Agency because of differing standards from one geographic area to the next. Public safety is best served when patients receive a standard of care based on national standards and best practices. This implementation of standardized statewide requirements for stroke care will provide consistent care across the state.[2] Santa Barbara County's Stroke Critical Care System is a subspecialty care component of the EMS system that was developed by the SBCEMSA. This critical care system links prehospital and in-hospital care to deliver treatment to stroke patients who potentially require immediate medical or surgical intervention.

[1] https://emsa.ca.gov/about-stroke/

[2] https://emsa.ca.gov/wp-content/uploads/sites/47/2018/04/Stroke-ISOR.pdf

Stroke Continuum of Care

The Stroke Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a coordinate, comprehensive stroke program for the county that addresses the needs of the patient suffering from an acute stroke. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality stroke services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality stroke system. It is only through this partnership and adherence to quality stroke care standards that the goals of this plan will be achieved.

This Stroke Critical Care System Plan designs a countywide stroke system in order to:

Rapidly identify stroke patients through assessment;
Assure timely transport to the closest, most appropriate Acute Stroke Center destination for definitive care;
Identify, monitor and measure preventable death and disability from stroke and other cardiovascular events;
Monitor and assure timely, optimal stroke services in a cost-efficient manner through close coordination of prehospital and hospital services; and
Monitor outcomes and participate in continuous quality improvement efforts

Stroke systems of care improve care and support for stroke patients throughout their health care journey. We know that what matters to a patient's outcome is reducing the time from the first symptoms of stroke through the transition from EMS to hospital intervention. Together, EMS agencies, hospitals, and health care facilities collect and analyze data about stroke patients and care. When best practices and data are shared, the different disciplines can work together to improve patient care.[3]

The continuum of care is important to caregivers and patients alike. It leads to an improvement of patient satisfaction levels, reduces costs, and improves health. Keeping up the continuum of care is especially significant for specific patient populations such as those patients who are more dependent on the health services, elderly patients, patients suffering from complex medical conditions, mentally vulnerable patients and patients with chronic diseases. Due to the aforementioned examples, the continuum of care is particularly beneficial to the stroke patient population. Stroke systems of care depend on robust collaboration to ensure that the continuum of care is optimally exercised.

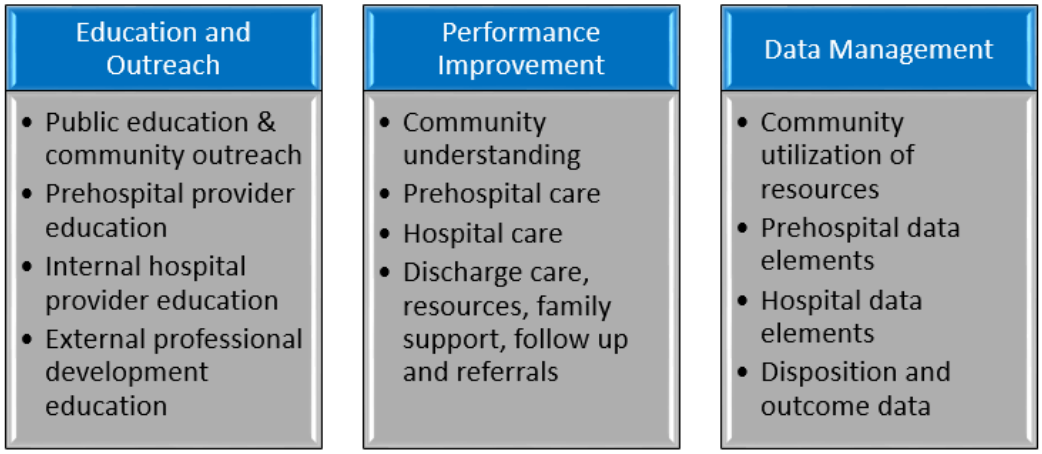
Three Areas of Collaboration: A Team Approach

Recognizing that patient outcomes are greatly dependent on the rapid and quality of care within each level of care on the continuum, it is critical for Santa Barbara County providers to work in collaboration with a team approach wherever possible. Common themes span across the Prehospital, In-Hospital and Post-Hospital levels that identify opportunities to maximize SBCEMSA's team approach to care of the stroke patient.

Education of the community, EMS and other healthcare professionals promote and support an integrated system of care. Inter-professional and interdisciplinary education systems prepare care providers to work collaboratively together as a team. When combined with community education and outreach efforts, the patients and their families have an active role in their personal health and well-being.

[3] https://www.cdc.gov/dhdsp/programs/about_pcnasp.htm

Performance Improvement invariably involves work across multiple systems and disciplines within a practice. Within the healthcare practice continuum, this is particularly applicable as patients have various formal and informal care providers throughout their course of illness and into their discharge disposition.
Good data can help identify, verify and proactively address issues, measure progress and capitalize on opportunities. When data is gathered, tracked, and analyzed in a credible way over time, it becomes possible to measure progress and success. Policies, procedures, services, and interventions can then be evaluated, modified, and improved.



A team approach from a truly integrated healthcare system will go beyond education, outreach, performance improvement and data management /sharing. SBCEMSAs aim is to create a seamless system, which requires EMS professionals and community partners to commit to the same-shared objectives and find ways to achieve them together. This team approach from a people-centered EMS system takes advantages of the strengths and resources brought by each organization and provider to protect the health and wellness of individuals and communities.

Stakeholders

Santa Barbara County EMS Agency

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities intensify this problem by limiting accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility and result in a high-crash rate for the area and also hinders the accessibility to healthcare services, especially for rural residents.

Santa Barbara Cottage Hospital on the South Coast and Marian Regional Medical Center in North County each have a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.
In 2016, the population was 444,998. Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $75,646. The demographics of the County indicate that there are many concentrated low-income areas. Census reports show that 15.1% of the County residents live at or below the poverty level (compared with 13.2% of the State population).

In 2016, the population over 65 years of age in Santa Barbara County was 14.9%. As the population of Santa Barbara County continues to age, there will be an increased demand for EMS services in the over 65 age group.

Epidemiology

Data from the Vital Records Department of Public Health show that the 5th cause of death in Santa Barbara County are Cerebrovascular Disease (Stroke), which is consistent with the trend throughout California and the United States.

Vision, Mission Statement and Values

SBCEMSA's specialty care programs are further refined by the agency's commitment to excellence as defined in the Vision, Mission, Values, and Principles:

Vision

To provide leadership and planning that is pro-active, continuously seeking ways to improve and optimize emergency medical services

Mission Statement

To protect and improve health and safety of the people in Santa Barbara County through the provision of high quality emergency and disaster medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.

Values

We value the patient as the focus of all we do
We value our system participants
We value honesty and integrity
We value respect, fairness and trust
We value teamwork, cooperation and creative problem solving

Santa Barbara County Stroke Centers

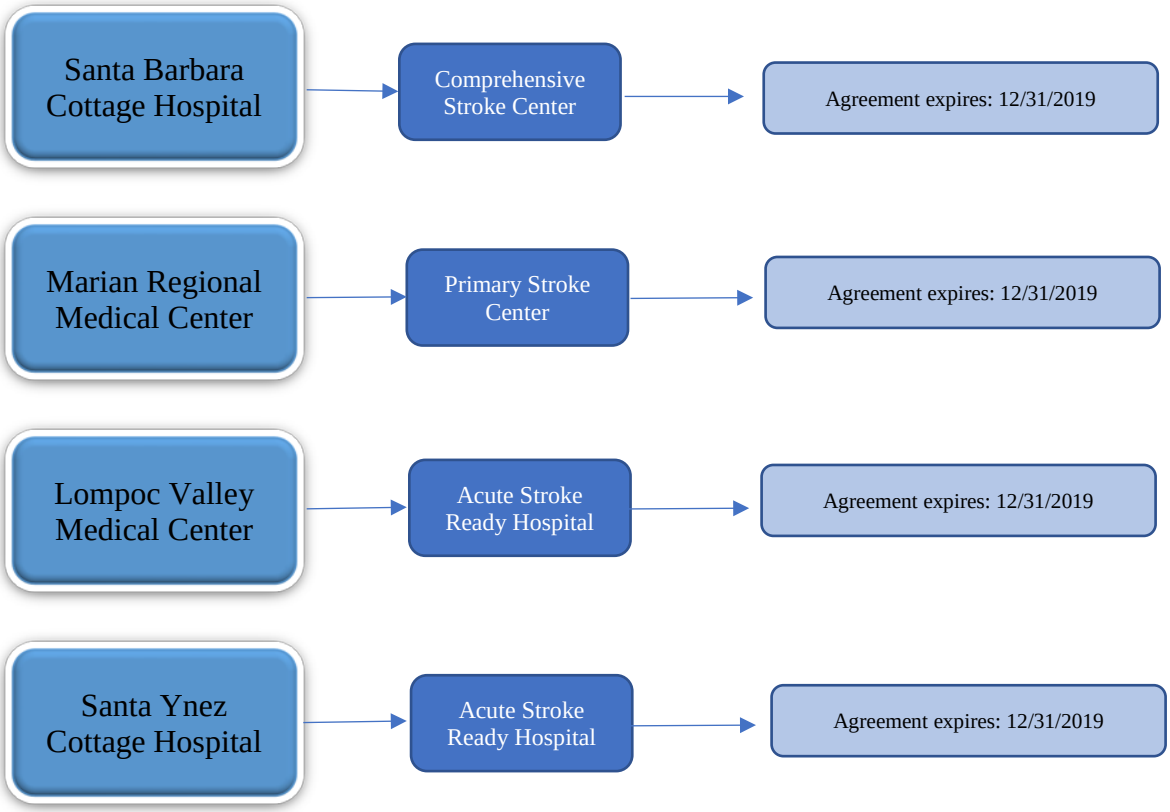
Santa Barbara County has five (5) prehospital receiving centers (Policy 600). Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director

and a Prehospital Care Coordinator (PCC). Two Base Hospitals are certified as Acute Stroke Ready Hospitals, one as a Primary Stroke Center, one as a Comprehensive Stroke Center and one hospital remains only as a Base Hospital with no Stroke certification or designation.

The California State Regulations define a Primary Stroke Center as a hospital that "…stabilizes and treats acute stroke patients, providing initial acute care, and may transfer to one or more higher level of care centers when clinically warranted".

The California State Regulations define a Comprehensive Stroke Center as a hospital that "…diagnose and treat all stroke cases and provide the highest level of care for stroke patients".

The California State Regulations define an Acute Stroke Ready Hospital as a hospital that "…able to provide the minimum level of critical care services for stroke patients in the emergency department, and are paired with one or more hospitals with a higher level of stroke services".



Santa Barbara County Emergency Medical Services Agency has written agreements with hospitals that are designated stroke receiving hospitals. To be considered for stroke receiving center designation, hospitals must hold current certification with The Joint Commission, American Heart Association or the Center for Improvement in Healthcare Quality.

Stroke Centers must also maintain compliance with SBCEMSAs designation criteria outlined in *Policy 651 Stroke Center Standards.*

Santa Barbara County Prehospital Providers

The County of Santa Barbara is comprised of a mix of public and private EMS Advanced Life Support (ALS) providers as well as a number of Basic Life Support (BLS) First Responders. A combination of ground, air and specialty CCT transport are all offered within the county. The community can access emergency transport services via public providers through the 9-1-1 system. All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

Once on scene, the first responder and ambulance transport crews coordinate their efforts to rapidly identify, treat, and transport stroke patients to the most appropriate Stroke Receiving Center. When needed, prehospital providers can contact base hospital personnel for medical direction. Field crews notify the Stroke Receiving Center of the incoming patient with a *"Stroke Alert"* radio report in order to allow hospital staff to prepare for expeditious triage and treatment upon patient arrival.

Prehospital providers work closely with the hospital staff to ensure that all pertinent information is relayed for a seamless transition within the continuum of care. The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

The Stroke Patient

SBCEMSA believes that early identification of stroke symptoms by emergency medical personnel is a valuable part of optimal care for the victims of stroke. EMS professionals should attempt to determine the time the patient was last known to be neurological symptom free. It is imperative that both field and hospital clinicians are well trained and educated on stroke assessments including the utilization of the Cincinnati Stroke Scale.

SBCEMSA has a policy in place to assist field providers in the rapid identification of a patient who may be suffering a stroke. *Policy 533:22 Stroke;* gives direction for treatment therapies when the patient meets acute Stroke Alert criteria.

Destination

In stroke systems of care, stroke patients should be transported to the most appropriate facility staffed and equipped to manage an acute stroke patient. This determination will include assessments of local resources and transport times. [4] For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors. Ground transport times for the majority of the county is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Santa Barbara County Fire Department ALS Air Rescue can be utilized for STEMI scene transports.

[4] Recommendations for The Establishment of an Optimal System of Acute Stroke Care for Adults pp 26

Communication

Emergency Medical Service personnel should provide pre-hospital notification to the stroke-receiving center that a suspected stroke patient is enroute via Base Hospital radio report via 10 Channel UHF mobile radio, so that the appropriate hospital resources may be mobilized before patient arrival.[5]

Santa Barbara County Emergency Medical Services Agency has a policy in place to give direction on administering a notification report to receiving hospitals. *Policy 305; EMS Radio Report Format*; addresses the minimum acceptable information to be communicated and provides a standardized and consistent approach to prehospital notifications.

Inter-Facility Transfers

Four out of five of Santa Barbara County's receiving hospitals are currently certified as one of three levels of stroke centers. Patients, who require treatment not available at the receiving hospital, are transferred expeditiously to the appropriate facility. This may include out-of-county facilities. Each receiving hospital has:

Pre-arranged agreements with stroke receiving hospitals (primary or comprehensive) for transfer of patients
Pre-arranged agreements with EMS providers for rapid transport of patients who are eligible for time-sensitive treatments
Emergency departments maintain a standardized procedure for the treatment of stroke patients and will track and monitor the treatment and transfer of stroke patients for potential improvement initiatives
Inter-facility transfers may apply to patients who would benefit from being transferred emergently from a non-stroke-receiving hospital to a stroke-receiving hospital, or patients who might benefit from being transferred from a stroke-receiving hospital with primary stroke center capabilities to a comprehensive stroke center or equivalent.[6] In either case, emergency transfer protocols are pre-arranged, and it is understood that transport should be provided with the urgency of a 911 response.

Santa Barbara County Emergency Medical Services Agency has a policy in place to provide guidelines for ambulance transport of patients between acute care hospitals. *Policy XXX; Stroke Transfer Guidelines*; outlines transfer procedures, automatic acceptance and medical control to ensure that patient needs are being met while providing quality rapid transport to definitive treatment.

Data Collection

The primary aim of Santa Barbara County's Stroke Critical Care System is to develop a comprehensive system that provides timely access to proven treatments necessary to reduce morbidity and mortality. It is through continuous quality improvement efforts that stroke patients receive care based on best practices.

[5] 2018 Guidelines for Management of Acute Ischemic Stroke pp 7
[6] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/CDPH-Stroke-Document-2010-Published.pdf

Implementation of quality improvement programs and clinical best practices reduces morbidity and mortality, hence improves patient outcomes.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the pre-hospital stroke case reviews and the submitted hospital stroke data. Retrospective data collection and analysis lie at the heart of quality improvement. Data aids in understanding how well the systems work, identifying potential areas and trends for improvement and education, setting measurable goals, and monitoring the effectiveness of change. The goal is to connect data from across the continuum of care from pre-hospital to in-hospital to post-hospital disposition in order to optimally evaluate patient outcomes.[7]

Currently, SBCEMSA collects stroke pre-hospital care data elements through Patient Care Record (PCR) extraction. Data elements that are specific to Stroke centers are extracted through a common software registry platform shared with the hospitals called *Get with the Guidelines: Stroke.*

Stroke Quality Improvement

Reaching for excellence in any system requires a functional decision making process among the team of workers and users within that system. Inherent to this process is the need to know how the system is functioning and what to do to fix or improve it. The concept of continuous quality improvement (CQI) particularly in the field of health care relies mainly upon the following fundamental components:

The availability of reliable and trusted information
The ability to effectively communicate that information in easy to understand ways
A standardized approach to reaching decisions and acting on those decisions
Quality Improvement stresses understanding complex processes, measuring performance using reliable statistical methods, and using that information to build quality into the process.[8] The performance evaluation reviews system design, appropriateness of pre hospital care, and meeting and exceeding national standard goals and guidelines.

Stroke Care Committee

As the delivery of stroke care evolves to become more interconnected, coordinating care between prehospital providers, nurses, physicians, and other disciplines has become increasingly important. In its simplest form, interprofessional collaboration is the practice of approaching patient care from a team-based perspective.

When implementing interprofessional collaboration, learning to work together, and respecting one another's perspectives in healthcare, multiple disciplines can work more effectively as a team to help improve patient outcomes. In addition, it improves the coordination and communication between healthcare professionals and thus in turn, improves the quality and safety of patient care.

[7] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/Core-Measure-Report-for-2016-Data.pdf
[8] Stroup, Craig, *Fundamentals of Emergency Medical Services System Evaluation and Quality Improvement* (Pinecrest Publishing House, 2015), 5.

SBCEMSA has a Stroke Care Committee that has representation from each of the Stroke Centers as well as members that represent the prehospital providers in our area. The Stroke Care Committee meets regularly and is tasked at reviewing performance data, identifying areas in need of improvement, carrying out, and monitoring improvement efforts. For these activities, the committee uses a variety of QI approaches and tools, including Plan, Do, Study, Act (PDSA) cycles, assessments, audits and feedback, benchmarking, case review and best practices research. The Stroke Care Committee provides expertise to address potential quality improvement initiatives within the stroke system, which contributes, to the development or revision of stroke related policies, procedures and treatment protocols.

Education and Outreach

Enhancing interdisciplinary collaboration and coordination in healthcare is imperative. Collaboration between professions starts with interdisciplinary education. To break down those walls, health professionals must begin working together. Interdisciplinary education will lead to more effective communication across disciplines and, ultimately, safer, more affordable, and higher quality care. [9]

There is also a vital component of public education and outreach that contributes to the health and wellness of a community. One of the goals identified in Healthy People 2020 is to increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and injury, improve health, and enhance quality of life. Educational and community-based programs play a key role in:

Preventing disease and injury
Improving health
Enhancing quality of life

Public education and outreach will continue to contribute to the improvement of health outcomes in the United States and is a major component of the Santa Barbara County Stroke Critical Care System. Understanding the critical role that cardiovascular disease prevention education and outreach has in healthcare, SBCEMSA encourages collaboration of providers to identify and coordinate education and outreach efforts within the community.

Emergency Medical Services Education, is education that is designed specifically for the EMS providers. This may include live lecture, online PowerPoint lectures with pre and post quizzes to evaluate learning. In addition, it may include run reviews or protocol updates.

Public Education and Outreach is specific to bringing stroke education to the community members. This area of education provides the greatest opportunity for the EMS Agency to partner with both prehospital providers and the stroke centers to deliver a comprehensive message of heart and vascular health to the members of the community.

Neighboring EMS Agencies

[9] https://www.rwjf.org/en/library/articles-and-news/2010/11/interdisciplinary-collaboration-improves-safety-quality-of-care-.html

Due to the complex nature of an EMS System that has multiple agencies that provide local operational oversight, it is imperative to have processes in place in which patients' care is uninterrupted despite crossing county line. SBCEMSA has established Stroke Critical Care System agreements with each of the Local EMS Agencies who have a bordering county to Santa Barbara County.

Appendices:

Appendix A
SBCEMSA Policy 600: Receiving Hospital Standards
Appendix B
SBCEMSA Policy 650: Stroke General Guidelines
Appendix C
SBCEMSA Policy 651: Stroke Center Standards
Appendix D
SBCEMSA Policy 652: Stroke Transfer Guidelines
Appendix E
SBCEMSA Policy 653: Stroke Performance Improvement Process

Appendix A
SBCEMSA Policy 600: Receiving Hospital Standards

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	600
DATE ISSUED:	06/2002
DATE REVIEWED/REVISED:	9/2015
DATE TO BE REVIEWED:	9/2017

RECEIVING HOSPITAL STANDARDS

Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

Policy: A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

Procedure:

A. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:

1. Be licensed by the State Department of Health Services as a general acute care hospital.
2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
4. Operate an Intensive Care Unit.
5. Have operating room services available within 30 minutes.
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:

Cardiology	Orthopedic Surgery	Thoracic Surgery
Anesthesiology	General Surgery	Pediatrics
Neurosurgery	General Medicine	Obstetrics

APPROVED:

John H. Eagleham, EMS Director

Angelo Salvucci, MD, EMS Medical Director

7. Have the following services available within 20 minutes:
   X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:

    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.

11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.

    a. All Receiving Hospital physicians shall:
       1. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       2. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       3. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.

    b. All Receiving Hospital Registered Nurses shall:
       1. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       2. Maintain current Advanced Cardiac Life Support certification.

    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

12. Actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance.

13. Agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication

form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

B. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.

C. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.

D. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

Appendix B
SBCEMSA Policy 650: Stroke General Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*650*
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE CARE SYSTEM GENERAL GUIDELINES

I. Purpose: To provide standards and guidelines for the Stroke Care System which serves the County of Santa Barbara. To provide all presumed Acute Stroke patients the accessibility to an organized, multi-disciplinary and inclusive system of Stroke care. To ensure that all presumed Acute Stroke patients are taken to the closest most appropriate medical facility that meets the needs of the patient and applies the standards established for this Stroke Care System.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Section 100270.220 and 100270.221.

III. Definitions: None

IV. Policy:

A. There shall be a written agreement between all hospitals within Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. The Santa Barbara County EMS Agency (SBCEMSA) and all system participants will be involved in an organized Stroke Care System, the guidelines of which are outlined here:

1. Multi-disciplinary nature of the Stroke Care System
   a. SBCEMSA recognizes the multi-disciplinary nature of a systemized approach to stroke care.
   b. SBCEMSA has adopted policies, guidelines and triage criteria that provide for the coordination of all resources and ensure the accessibility to the closest, most appropriate medical facility for all stroke patients, regardless of their ability to pay for such services.
   c. SBCEMSA has established a Stroke Care System Performance Improvement Process, and the Stroke Care System Quality Improvement Committee. These processes and committees represent all involved disciplines to ensure a broad-based quality review of all Stroke Care System activities.
2. Public Information and Education about the Stroke Care System
   a. SBCEMSA is committed to the establishment of Stroke Care System support and the promotion of awareness and prevention education.
   b. SBCEMSA facilitates speakers to address public groups, and serves as a resource for stroke information, education, and prevention.
   c. SBCEMSA assists community and professional groups in the development and dissemination of education to the public.

V. Procedure:

A. Stroke Care System – GENERAL GUIDELINES

1. Marketing and Advertising

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

a. All marketing and promotional plans, with respect to Stroke center designation shall be submitted to SBCEMSA for review and approval, prior to implementation. Such plans will be reviewed by SBCEMSA based on the following guidelines:
   i. Shall provide accurate information;
   ii. Shall not provide false claims;
   iii. Shall not be critical of other providers; and
   iv. Shall not use financial rewards to any provider to increase its census.

2. EMS Dispatching
   a. The SBCEMSA has approved dispatching policies and procedures for the County. The dispatch of prehospital care providers will continue, as per the operational procedure for the County.
3. Training of Prehospital EMS Personnel
   a. SBCEMSA will facilitate training for all prehospital providers on any policy and/or operational change associated with Stroke Care System implementation.
   b. All level of designated stroke facilities will provide training to hospital staff on Stroke Care System policies and procedures.
4. Medical Control and Accountability, including Triage and Treatment Protocols
   a. Each designated Acute Stroke Center center shall:
      i. Provide base hospital medical control for field prehospital care providers.
      ii. Participate in the SBCEMSA data collection system.
      iii. Participate in the SBCEMSA continuous quality improvement program.

VI. References:

A. SBCEMSA Stroke Care System Plan

VII. Attachments: None

Appendix C
SBCEMSA Policy 651: Stroke Center Standards

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*651*
Original Issue Date:	*January 01, 2016*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

ACUTE STROKE CENTER (ASC) STANDARDS

Purpose: To define the criteria for designation as an Acute Stroke Center (ASC) in Santa Barbara County.

I. **Authority:** California Health and Safety Code, Sections 1797.114, 1797.220, 1798, 1798.2, and California Code of Regulations, Title 22, Sections 100270.223, 100270.224, 100270.225 and 100270.226.

Definitions:

A. *Primary Stroke Center (PSC):* A hospital certified by an accrediting healthcare organization.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Acute Stroke Center (ASC):* Thrombectomy-capable, Comprehensive, Primary or Acute Stroke Ready Hospitals that meet the requirements of, and are designated by, the Santa Barbara County EMS Agency.
D. Thrombectomy-Capable Stroke Center (TCSC): Provides endovascular procedures and post-procedural care.
E. Comprehensive Stroke Center (CSC): Highest level of stroke certification available. Provides advanced neuro interventional procedures for the most complex stroke cases.

Policy:

F. There shall be a written agreement between all Acute Stroke Centers in Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Trauma System participation as specified by State regulations and SBCEMSA policies and procedures.
G. An Acute Stroke Center (ASC), approved and designated by SBCEMSA shall meet the following requirements:
   1. All the requirements of a Receiving Hospital as listed in SBCEMSA Policy 600.
   2. Certification as a Comprehensive Stroke Center (CSC), Thrombectomy-Capable Stroke Center (TSC), Primary Stroke Center (PSC) or an Acute Stroke Ready Hospital (ASRH) by either The Joint Commission (TJC), the Center for Improvement in Healthcare Quality (CIHQ) or the American Heart Association (AHA).
   3. Actively participate in SBCEMSA's Stroke Quality Improvement Program including:
      a. Participate in the creation of a standardized data registry under the direction of SBCEMSA
      b. Submit data into the registry 60 days after the end of the month in which the patient's hospital admission took place
   4. Acute Stroke Centers (ASC) must have policies and procedures that allow the automatic acceptance of any acute stroke patient requiring immediate intervention (fibrinolytic or endovascular procedure) from a hospital within Santa Barbara County that is not designated as an ASC, upon notification by the transferring physician.
H. Data Entry

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

ACUTE STROKE CENTER STANDARDS

1. The SBCEMSA shall implement a standardized data collection and reporting process for the Stroke Care System.The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated Stroke centers are required to submit Stroke care data into the SBCEMSA's designated Stroke registry.
   a. The Stroke Nurse Coordinator from each designated facility will submit Stroke data to SBCEMSA on a monthly basis through registry entry
      i. Data will be entered into an SBCEMSA-approved registry and submitted monthly, no later than 60 days after the Stroke admit date
      ii. Data registry costs shall be incurred by the designated Stroke Centers

Procedure:

I. Designation Process
   1. Application:
      a. An ASC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
         i. Eligible hospitals will submit a written request for ASC designation to the EMS Agency no later than 60 days prior to the desired date of designation, documenting the compliance of the hospital with Santa Barbara County ASC standards.
   2. Approval:
      a. Upon receiving a written request for ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with state requirements.
      b. ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after the receipt of the request for approval and all required documentation and completion of the SBCEMSA site survey.
         i. ASC designation approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
   3. The SBCEMSA may deny, suspend, or revoke the designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
      a. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.
   4. ASCs shall be reviewed on a biannual basis.
      a. ASCs shall receive notification of evaluation from the EMS Agency.
      b. ASCs shall respond in writing regarding program compliance.
      c. On-site ASC visits for evaluative purposes may occur.
      d. ASCs shall notify the SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance performance.
   5. Revocation.
      a. ASC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSApolicies, procedures or regulations. This includes but is not limited to:
         i. Failure to provide required data
         ii. Failure to participate in Stroke system QI activities
         iii. Other criteria as defined and reviewed by the Stroke QI Committee

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

ACUTE STROKE CENTER STANDARDS

J. Provisional Designation Process
   1. The SBCEMSA may grant provisional designation as an ASC to a requesting hospital that has satisfied the requirements of an ASC as outlined in Section B of this policy, but has yet to receive certification as a CSC, TSC, PSC or ASRH. Only when the following requirements are satisfied, will the SBCEMSA grant a provisional designation.
      a. Application:
         i. Eligible hospitals shall submit a written request for provisional ASC designation to the SBCEMSA no later than 60 days prior to the desired date of the provisional designation, documenting the compliance of the hospital with Santa Barbara County ASC Standards.
      b. Provisional approval:
         i. Upon receiving a written request for provisional ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with stated requirements.
         ii. Provisional ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within two weeks after receipt of the request for approval and all required documentation, as well as the completion of the SBCEMSA on-site survey. ASC provisional approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
         iii. To receive Provisional Designation, the facility must have satisfied all requirements of The Joint Commission (TJC) or Center for Improvement of HealthCare Quality (CIHQ) for CSC, TSC, PSC or ASRH, and have only a pending site survey and certification from TJC or CIHQ.
         iv. Certification as aCSC, TSC, PSC, or ASRH shall occur no later than six (6) months following provisional designation as an ASC by the EMS Agency.
      c. The SBCEMSA may deny, suspend, or revoke the provisional designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
         i. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the provisional ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.

II. References:

A. Policy 600 Receiving Hospital Standards

III. Attachments: None

Appendix D
SBCEMSA Policy 652: Stroke Transfer Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	652
Original Issue Date:	March, 2010
Last Reviewed/Revised:	November 12, 2019
Effective Date:	December 01, 2019
Next Review:	November, 2021

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE TRANSFER GUIDELINES

I. Purpose: To define the "Code Stroke" process by which patients with an acute stroke are transferred from a Acute Stroke Center or non-stroke hospital to a higher level of Stroke Center such as Primary Stroke Center (PSC), Thrombectomy Capable Stroke Center(TCSC) or Comprehensive Stroke Center(CSC) for emergency intervention.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.220 and 100270.222.

III. Definitions:

A. *Acute Stroke Center (ASC):* Primary Stroke Centers or Acute Stroke Ready Hospitals who have met the requirements of, and are designated by, the Santa Barbara County EMS Agency.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Primary Stroke Center (PSC):* A hospital that is certified by an accrediting healthcare organization diagnostic, pharmacological and acute stroke care, not requiring endovascular intervention.
D. *Thrombectomy-Capable Stroke Center (TCSC)*: Provides endovascular procedures and post-procedural care
E. *Comprehensive Stroke Center (CSC):* Highest level of stroke certification available. Provides advanced neuroendovascular interventional procedures for the most complex stroke cases.

IV. Policy:

A. All Hospitals within the Santa Barbara County Stroke Care System shall have written transfer agreements with the higher level designated Stroke Center Facilities within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. Patient transfer from: Acute Stroke Centers (ASC) to a higher level of care Stroke Center (ASRH to PSC; ASRH to TCSC/CSC; PSC to TCSC/CSC):
   1. After Stroke evaluation, arrange immediate transport for patients requiring a higher level of care than can be given at the current ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize Door to CT performance and interpretation times, door to tPA times, Door In/Door out time and other time intervals set forth by the Stroke Care Quality Improvement System Committee.
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
   4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the ASC, as appropriate.
   5. Upon identification of the patient needing transport, have procedures in place to call dispatch for a Level one transport for Stroke Alert.
   6. Maintain transfer agreements with surrounding ASCs.
   7. Establish policies and procedures for notifying the receiving ASC of the impending arrival of Acute Stroke patient

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

8. Pt records or test results shall not delay transport to an ASC

C. Non-Stroke Hospital
   1. Immediate transfer of patients with suspected Acute Stroke system to the nearest ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize "Door In/Door out time".
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the Acute Stroke Center as appropriate.

D. Ambulance or helicopter transporting agencies will:
   1. Respond immediately upon request for Level 1 Stroke Alert transfer.

E. Acute Stroke Centers will:
   1. Maintain accurate status information on ReddiNet regarding the availability of a CT Scanner, per SBCEMSAPolicy 307 ReddiNet Communications
   2. Immediately upon initial notification by a transferring physician, automatically accept in all transfer patients who have been diagnosed with an Acute Stroke and who, in the judgment of the transferring physician, require urgent higher level of care.
   3. Authorize the emergency physician to automatically accept transfer of any patient with an Acute Stroke.
   4. Establish an internal communications plan that assures the immediate notification of all necessary individualsof the transfer.

V. Procedure:

A. Upon diagnosis of Acute stroke and the need for transfer to a higher level of care, and after discussion with the patient, the ASC will:
   1. Determine availability of the receiving ASC by checking ReddiNet.
   2. Immediately call the County Dispatch Center to request an air or ground ambulance (ALS or CCT).
   3. Advise that they have a Code Stroke transfer.
   4. After calling for ambulance, the transferring physician will notify the receiving ASC emergency physician of the transfer.
   5. Perform, as time allows, indicated diagnostic tests and treatments.
   6. Complete transfer consent, Stroke transfer data forms and, as time allows, a treatment summary.
      a. If this cannot be done prior to transfer, fax immediately to the accepting ASC and SBCEMSA Specialty Care Programs Coordinator.
   7. Include copies of the ED face sheet and demographic information.
   8. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to therecieving ASC.
   9. Contact ASC for nurse report at the time, or immediately after, the ambulance departs with the patient.

B. Upon request for Level 1 Code Stroke transfer, the dispatch center will dispatch the closest available ambulance or CCT unit, per hospital direction.

C. The patient shall be urgently transferred without delay. Every effort will be made to minimize on-scene time.
   1. All forms should be completed prior to ambulance arrival.
   2. Any diagnostic test results may be relayed to the receiving ASC after patient departure.
   3. Intravenous drips may be discontinued or remain on the ED pump if appropriate for level of service.

D. Upon notification, the receiving ASC will notify the Stroke team staff, who will respond immediately

E. All ASCs shall review all Stroke transfers within 72 hours for appropriate and timely care and to identify opportunities for improvement. The Stroke Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hoursResults may be reviewed and discussed at the SBCEMSA Stroke System Committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 STEMI Receiving Center Standards
C. Policy 511 EMS Transport Zones
D. Policy 307 Reddinet Communications

VII. Attachments

A. Stroke Transfer Form

Appendix E
SBCEMSA Policy 653: Stroke Performance Improvement Process

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	653
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE PERFORMANCE IMPROVEMENT PROCESS

I. Purpose: Santa Barbara County Emergency Medical Services Agency (SBCEMSA) will ensure quality within the Stroke Care System through a Performance Improvement Process. This includes monitoring of structural, process and outcome standards.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Sections 100270.228 and 100270.229.

III. Definitions: None

IV. Policy:

A. The SBCEMSA Medical Director shall establish a Stroke Care System Quality Improvement (QI) Commitee

B. The Stroke Care System QI Committee is an advisory committee to the SBCEMSA on issues related to Stroke patient care and the Stroke system.
   1. The Stroke care administered to patients of the Santa Barbara County Stroke Care System will be reviewed for appropriateness of care and patient outcome.

C. Committee membership is assigned by the SBCEMSA and includes:
   1. SBCEMSA Specialty Care Systems Coordinator (Co-Chair)
   2. SBCEMSA Medical Director (Chair)
   3. Stroke Center Medical Directors & Stroke Nurse Coordinators
   4. ALS transport provider representative(s), as needed

D. Stroke Care System QI Committee meetings will be held on a regular basis and limited to committee members and invited guests, approved by Committee Chair

V. Procedure:

A. Scope of Process and Outcome Standards Review:
   1. Preliminary Review: Occurs at the Stroke Center, Medical Director and Stroke Nurse Coordinator level. This internal review takes place monthly.
      a. All deaths, questionable cases and negative outcomes may be referred to the Stroke Care System QI Commitee
      b. These charts will be brought to the Stroke Care System QI Commitee by each facility's Stroke Nurse Coordinator.
      c. This committee will meet three (3) times per year, unless additional meetings are necessary.
      d. Any Stroke Program Medical Director has the right to bring up any case he/she feels should be reviewed even if it does not meet the physician Stroke audit criteria.
   2. The SBCEMSA Specialty Care Systems Coordinator will review all cases entered into the Stroke Registry database on a monthly basis for compliance with the following:
      a. Policies, procedures and protocols,
      b. Prehospital treatment of Stroke patients to include appropriateness of response, evaluation, treatment, and transport by prehospital personnel.
      c. Appropriate use of prehospital Stroke Alert and Hospital Code Stroke Triage Criteria

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, SBEMSA Director

SIGNATURE ON FILE
Angelo Salvucci, MD, SBEMSA Medical Director

d. Complications will be referred to SBCEMSA Medical Director for review
e. All helicopter transports of Stroke patients

3. The Stroke Nurse Coordinator from each designated facility will work with the SBCEMSA Specialty Care Systems Coordinator to obtain the necessary chart materials for the medical review process and the Committee meetings.
4. Physician Stroke Audit Criteria (any of the below, but not limited to):
   a. All Stroke Deaths
   b. Door to reperfusion times
   c. Major complications
   d. Stroke transfers from another hospital

B. Attendance:

1. Attendance for all committee members is mandatory.
   a. The Stroke Medical Directors and Stroke Nurse Coordinators must attend 75% of the scheduled meetings annually.
   b. Committee members shall notify the Committee Chair (or designee) at least three (3) business days in advance of the meeting if they are unable to attend.
      i. Alternate committee members must be approved at least three (3) business days in advance by the Committee Chair (or designee)
2. The Committee Chair (or designee) shall approve all requests for guests to attend the meeting.
   a. Requests for guests must be made at least three (3) business days in advance.
   b. The Committee Chair reserves the right to approve or deny requests

C. Meeting Documentation:

1. The agenda, minutes, monthly EMS reports and chart materials will be distributed to members in advance of the meeting.
2. Members are expected to review meeting materials prior to attendance.

D. Confidentiality:

All proceedings, documents, and discussions of the Stroke Care System QI Committee are confidential and are covered under Sections 1040 and 1157.7 of the Evidence Code: "The prohibition relating to discovery of testimony provided to the Committee will be applicable to all proceedings and records of this Committee, which is one established by a local government agency as qualified to render specialty health care services".

1. All members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through medical review committee membership. These are updated on an annual basis.
   a. Prior to the guest(s) participating in the meeting, the Committee Chair (or designee) is responsible for explaining, and obtaining, a signed confidentiality agreement from invited guests.
   b. Guests may or may not be invited to the entire meeting at the discretion of the Committee Chair.
2. No copies of records are to leave the room in which Stroke Care System QI Commitee meetings are held; all copies will be shredded at the SBCEMSA Office.

VI. References: None

VII. Attachments: None

Santa Barbara County EMS Agency

Stroke Critical Care System Plan 2018

Table of Contents

Santa Barbara County EMS Agency Organization

Van Do-Reynoso, MPH, PhD
Director of Public Health

Henning Ansorg, M.D.
Health Officer

Nick Clay, Paramedic
EMS Agency Director

Angelo Salvucci, M.D.
EMS Agency Medical Director

Michele Combs, BSN
EMS Agency Specialty Care Systems Coordinator

Executive Summary

California statute mandates the Emergency Medical Services Authority (EMSA) to adopt necessary regulations to carry out the coordination and integration of all state activities concerning Emergency Medical Services (EMS) (Health and Safety Code §1797.107). In addition, State statute allows the EMS Authority to establish guidelines for hospital facilities, in cooperation with affected medical organizations, according to critical care capabilities (Health and Safety Code §1798.150). As a result of these statutes, the EMS Authority established a multidisciplinary stroke taskforce for the development of Stroke System of Care Regulations for California.[1] California's Statewide Stroke Critical Care System is described in the California Code of Regulations; Title 22, Division 9, Chapter 7.2. These regulations outline the requirements of all components of the Stroke Critical Care System including the Local Emergency Medical Services Agency (LEMSA), prehospital providers, and hospitals.

Because data management, quality improvement and the evaluation process all have a vital role in providing high quality care to the stroke patient; these items have also been identified in the regulations. The overall goal of the regulations is to reduce morbidity and mortality from acute stroke disease by improving the delivery of emergency medical care within the communities of California.

Santa Barbara County Emergency Medical Services Agency (SBCEMSA) already has many of the regulations in place, including prehospital care policies to identify stroke patients, identify designated stroke receiving hospitals, and stroke destination policies. As a requirement of the California Regulations, this document is to serve as a formal written plan for the SBCEMSA Stroke Critical Care System. SBCEMSAs Stroke Critical Care System Plan has been written in accordance with Title 22, Division 9, Chapter 7.2 of the California Code of Regulations.

Stroke Critical Care System

Every year approximately 795,000 adult Americans suffer a stroke. A stroke death occurs every four minutes. Stroke is the most common cause of adult long-term disability in the United States. It is a life-changing event that places heavy burden on patients, families, and caregivers. When a patient is suffering an ischemic stroke, timely intervention is critical to reverse the damage, reduce mortality, morbidity, and disability in addition to improving survivor quality of life.

Hospitals have traditionally been designated as a stroke receiving hospital by their Local EMS Agency because of differing standards from one geographic area to the next. Public safety is best served when patients receive a standard of care based on national standards and best practices. This implementation of standardized statewide requirements for stroke care will provide consistent care across the state.[2] Santa Barbara County's Stroke Critical Care System is a subspecialty care component of the EMS system that was developed by the SBCEMSA. This critical care system links prehospital and in-hospital care to deliver treatment to stroke patients who potentially require immediate medical or surgical intervention.

[1] https://emsa.ca.gov/about-stroke/

[2] https://emsa.ca.gov/wp-content/uploads/sites/47/2018/04/Stroke-ISOR.pdf

Stroke Continuum of Care

The Stroke Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a coordinate, comprehensive stroke program for the county that addresses the needs of the patient suffering from an acute stroke. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality stroke services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality stroke system. It is only through this partnership and adherence to quality stroke care standards that the goals of this plan will be achieved.

This Stroke Critical Care System Plan designs a countywide stroke system in order to:

Rapidly identify stroke patients through assessment;
Assure timely transport to the closest, most appropriate Acute Stroke Center destination for definitive care;
Identify, monitor and measure preventable death and disability from stroke and other cardiovascular events;
Monitor and assure timely, optimal stroke services in a cost-efficient manner through close coordination of prehospital and hospital services; and
Monitor outcomes and participate in continuous quality improvement efforts

Stroke systems of care improve care and support for stroke patients throughout their health care journey. We know that what matters to a patient's outcome is reducing the time from the first symptoms of stroke through the transition from EMS to hospital intervention. Together, EMS agencies, hospitals, and health care facilities collect and analyze data about stroke patients and care. When best practices and data are shared, the different disciplines can work together to improve patient care.[3]

The continuum of care is important to caregivers and patients alike. It leads to an improvement of patient satisfaction levels, reduces costs, and improves health. Keeping up the continuum of care is especially significant for specific patient populations such as those patients who are more dependent on the health services, elderly patients, patients suffering from complex medical conditions, mentally vulnerable patients and patients with chronic diseases. Due to the aforementioned examples, the continuum of care is particularly beneficial to the stroke patient population. Stroke systems of care depend on robust collaboration to ensure that the continuum of care is optimally exercised.

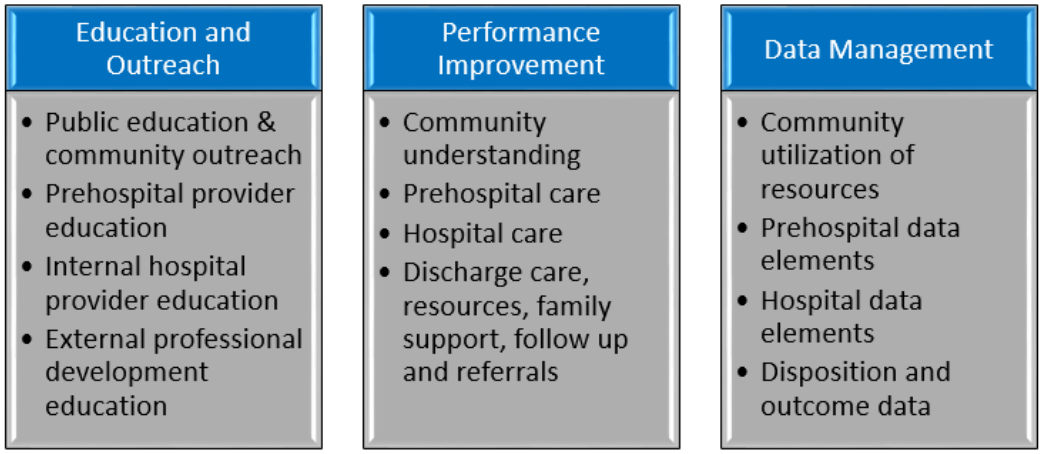
Three Areas of Collaboration: A Team Approach

Recognizing that patient outcomes are greatly dependent on the rapid and quality of care within each level of care on the continuum, it is critical for Santa Barbara County providers to work in collaboration with a team approach wherever possible. Common themes span across the Prehospital, In-Hospital and Post-Hospital levels that identify opportunities to maximize SBCEMSA's team approach to care of the stroke patient.

Education of the community, EMS and other healthcare professionals promote and support an integrated system of care. Inter-professional and interdisciplinary education systems prepare care providers to work collaboratively together as a team. When combined with community education and outreach efforts, the patients and their families have an active role in their personal health and well-being.

[3] https://www.cdc.gov/dhdsp/programs/about_pcnasp.htm

Performance Improvement invariably involves work across multiple systems and disciplines within a practice. Within the healthcare practice continuum, this is particularly applicable as patients have various formal and informal care providers throughout their course of illness and into their discharge disposition.
Good data can help identify, verify and proactively address issues, measure progress and capitalize on opportunities. When data is gathered, tracked, and analyzed in a credible way over time, it becomes possible to measure progress and success. Policies, procedures, services, and interventions can then be evaluated, modified, and improved.



A team approach from a truly integrated healthcare system will go beyond education, outreach, performance improvement and data management /sharing. SBCEMSAs aim is to create a seamless system, which requires EMS professionals and community partners to commit to the same-shared objectives and find ways to achieve them together. This team approach from a people-centered EMS system takes advantages of the strengths and resources brought by each organization and provider to protect the health and wellness of individuals and communities.

Stakeholders

Santa Barbara County EMS Agency

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities intensify this problem by limiting accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility and result in a high-crash rate for the area and also hinders the accessibility to healthcare services, especially for rural residents.

Santa Barbara Cottage Hospital on the South Coast and Marian Regional Medical Center in North County each have a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.
In 2017, the population was 444,112. Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $78,591. The demographics of the County indicate that there are many concentrated low-income areas. Census reports show that 12.9% of the County residents live at or below the poverty level (compared with 13.2% of the State population).

In 2017, the population over 65 years of age in Santa Barbara County was 14.9%. As the population of Santa Barbara County continues to age, there will be an increased demand for EMS services in the over 65 age group.

Epidemiology

Data from the Vital Records Department of Public Health show that the 5th cause of death in Santa Barbara County are Cerebrovascular Disease (Stroke), which is consistent with the trend throughout California and the United States. The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2017.

Heart Disease
Cancer
Alzheimer's Disease
Chronic Respiratory Disease
Cerebrovascular Disease (Stroke)

Vision, Mission Statement and Values

SBCEMSA's specialty care programs are further refined by the agency's commitment to excellence as defined in the Vision, Mission, Values, and Principles:

Vision

To provide leadership and planning that is pro-active, continuously seeking ways to improve and optimize emergency medical services

Mission Statement

To protect and improve health and safety of the people in Santa Barbara County through the provision of high quality emergency and disaster medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.

Values

We value the patient as the focus of all we do
We value our system participants
We value honesty and integrity

We value respect, fairness and trust
We value teamwork, cooperation and creative problem solving

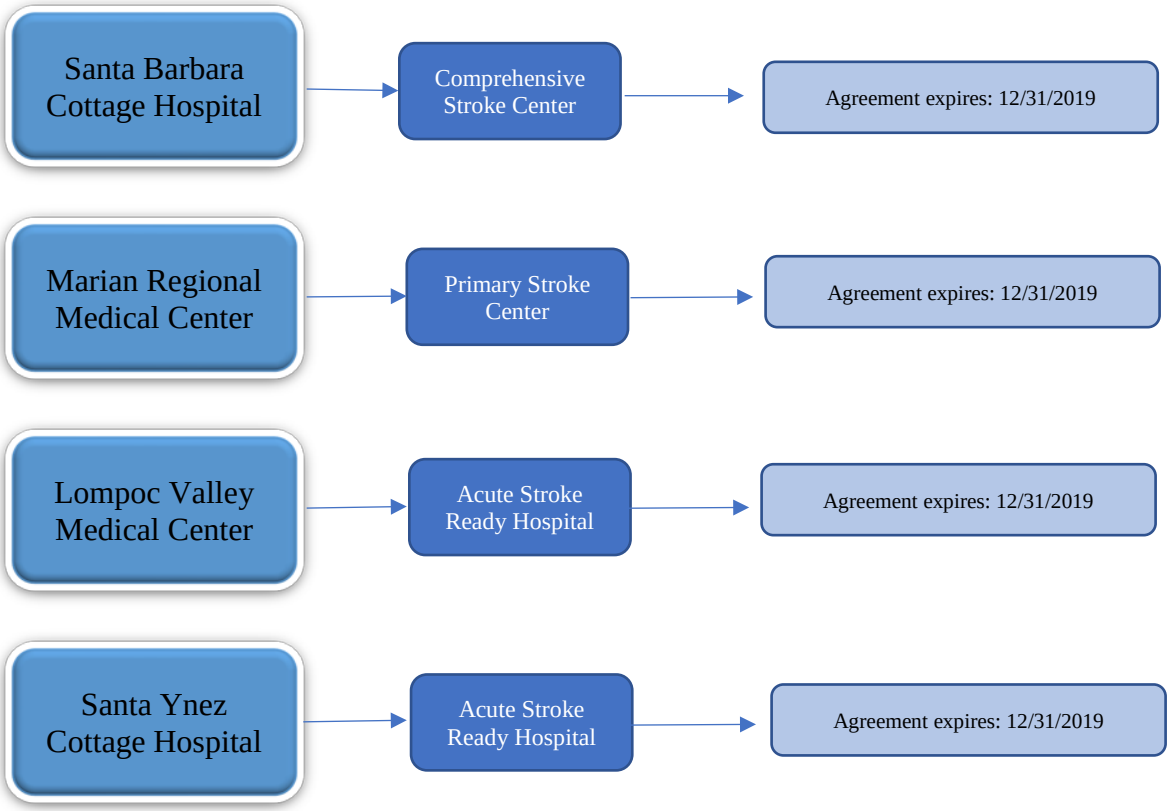
Santa Barbara County Stroke Centers

Santa Barbara County has five (5) prehospital receiving centers (Policy 600). Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC). Two Base Hospitals are certified as Acute Stroke Ready Hospitals, one as a Primary Stroke Center, one as a Comprehensive Stroke Center and one hospital remains only as a Base Hospital with no Stroke certification or designation.

The California State Regulations define a Primary Stroke Center as a hospital that "…stabilizes and treats acute stroke patients, providing initial acute care, and may transfer to one or more higher level of care centers when clinically warranted".

The California State Regulations define a Comprehensive Stroke Center as a hospital that "…diagnose and treat all stroke cases and provide the highest level of care for stroke patients".

The California State Regulations define an Acute Stroke Ready Hospital as a hospital that "…able to provide the minimum level of critical care services for stroke patients in the emergency department, and are paired with one or more hospitals with a higher level of stroke services".



Santa Barbara County Emergency Medical Services Agency has written agreements with hospitals that are designated stroke receiving hospitals. To be considered for stroke receiving center designation, hospitals must

hold current certification with The Joint Commission, American Heart Association or the Center for Improvement in Healthcare Quality.

Stroke Centers must also maintain compliance with SBCEMSAs designation criteria outlined in *Policy 651 Stroke Center Standards.*

Santa Barbara County Prehospital Providers

The County of Santa Barbara is comprised of a mix of public and private EMS Advanced Life Support (ALS) providers as well as a number of Basic Life Support (BLS) First Responders. A combination of ground, air and specialty CCT transport are all offered within the county. The community can access emergency transport services via public providers through the 9-1-1 system. All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

Once on scene, the first responder and ambulance transport crews coordinate their efforts to rapidly identify, treat, and transport stroke patients to the most appropriate Stroke Receiving Center. When needed, prehospital providers can contact base hospital personnel for medical direction. Field crews notify the Stroke Receiving Center of the incoming patient with a *"Stroke Alert"* radio report in order to allow hospital staff to prepare for expeditious triage and treatment upon patient arrival.

Prehospital providers work closely with the hospital staff to ensure that all pertinent information is relayed for a seamless transition within the continuum of care. The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

The Stroke Patient

SBCEMSA believes that early identification of stroke symptoms by emergency medical personnel is a valuable part of optimal care for the victims of stroke. EMS professionals should attempt to determine the time the patient was last known to be neurological symptom free. It is imperative that both field and hospital clinicians are well trained and educated on stroke assessments including the utilization of the Cincinnati Stroke Scale.

SBCEMSA has a policy in place to assist field providers in the rapid identification of a patient who may be suffering a stroke. *Policy 533:22 Stroke;* gives direction for treatment therapies when the patient meets acute Stroke Alert criteria.

Destination

In stroke systems of care, stroke patients should be transported to the most appropriate facility staffed and equipped to manage an acute stroke patient. This determination will include assessments of local resources and transport times. [4] For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors. Ground transport times for the majority of the county is less than 20 minutes. In areas with

[4] Recommendations for The Establishment of an Optimal System of Acute Stroke Care for Adults pp 26

prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Santa Barbara County Fire Department ALS Air Rescue can be utilized for STEMI scene transports.

Communication

Emergency Medical Service personnel should provide pre-hospital notification to the stroke-receiving center that a suspected stroke patient is enroute via Base Hospital radio report via 10 Channel UHF mobile radio, so that the appropriate hospital resources may be mobilized before patient arrival.[5]

Santa Barbara County Emergency Medical Services Agency has a policy in place to give direction on administering a notification report to receiving hospitals. *Policy 305; EMS Radio Report Format*; addresses the minimum acceptable information to be communicated and provides a standardized and consistent approach to prehospital notifications.

Inter-Facility Transfers

Four out of five of Santa Barbara County's receiving hospitals are currently certified as one of three levels of stroke centers. Patients, who require treatment not available at the receiving hospital, are transferred expeditiously to the appropriate facility. This may include out-of-county facilities. Each receiving hospital has:

Pre-arranged agreements with stroke receiving hospitals (primary or comprehensive) for transfer of patients
Pre-arranged agreements with EMS providers for rapid transport of patients who are eligible for time-sensitive treatments
Emergency departments maintain a standardized procedure for the treatment of stroke patients and will track and monitor the treatment and transfer of stroke patients for potential improvement initiatives
Inter-facility transfers may apply to patients who would benefit from being transferred emergently from a non-stroke-receiving hospital to a stroke-receiving hospital, or patients who might benefit from being transferred from a stroke-receiving hospital with primary stroke center capabilities to a comprehensive stroke center or equivalent.[6] In either case, emergency transfer protocols are pre-arranged, and it is understood that transport should be provided with the urgency of a 911 response.

Santa Barbara County Emergency Medical Services Agency has a policy in place to provide guidelines for ambulance transport of patients between acute care hospitals. *Policy XXX; Stroke Transfer Guidelines*; outlines transfer procedures, automatic acceptance and medical control to ensure that patient needs are being met while providing quality rapid transport to definitive treatment.

[5] 2018 Guidelines for Management of Acute Ischemic Stroke pp 7
[6] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/CDPH-Stroke-Document-2010-Published.pdf

Data Collection

The primary aim of Santa Barbara County's Stroke Critical Care System is to develop a comprehensive system that provides timely access to proven treatments necessary to reduce morbidity and mortality. It is through continuous quality improvement efforts that stroke patients receive care based on best practices. Implementation of quality improvement programs and clinical best practices reduces morbidity and mortality, hence improves patient outcomes.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the pre-hospital stroke case reviews and the submitted hospital stroke data. Retrospective data collection and analysis lie at the heart of quality improvement. Data aids in understanding how well the systems work, identifying potential areas and trends for improvement and education, setting measurable goals, and monitoring the effectiveness of change. The goal is to connect data from across the continuum of care from pre-hospital to in-hospital to post-hospital disposition in order to optimally evaluate patient outcomes.[7]

Currently, SBCEMSA collects stroke pre-hospital care data elements through Patient Care Record (PCR) extraction. Data elements that are specific to Stroke centers are extracted through a common software registry platform shared with the hospitals called *Get with the Guidelines: Stroke.*

Stroke Quality Improvement

Reaching for excellence in any system requires a functional decision making process among the team of workers and users within that system. Inherent to this process is the need to know how the system is functioning and what to do to fix or improve it. The concept of continuous quality improvement (CQI) particularly in the field of health care relies mainly upon the following fundamental components:

The availability of reliable and trusted information
The ability to effectively communicate that information in easy to understand ways
A standardized approach to reaching decisions and acting on those decisions
Quality Improvement stresses understanding complex processes, measuring performance using reliable statistical methods, and using that information to build quality into the process.[8] The performance evaluation reviews system design, appropriateness of pre hospital care, and meeting and exceeding national standard goals and guidelines.

Stroke Care Committee

As the delivery of stroke care evolves to become more interconnected, coordinating care between prehospital providers, nurses, physicians, and other disciplines has become increasingly important. In its simplest form, interprofessional collaboration is the practice of approaching patient care from a team-based perspective.

[7] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/Core-Measure-Report-for-2016-Data.pdf
[8] Stroup, Craig, *Fundamentals of Emergency Medical Services System Evaluation and Quality Improvement* (Pinecrest Publishing House, 2015), 5.

When implementing interprofessional collaboration, learning to work together, and respecting one another's perspectives in healthcare, multiple disciplines can work more effectively as a team to help improve patient outcomes. In addition, it improves the coordination and communication between healthcare professionals and thus in turn, improves the quality and safety of patient care.

SBCEMSA has a Stroke Care Committee that has representation from each of the Stroke Centers as well as members that represent the prehospital providers in our area. The Stroke Care Committee meets regularly and is tasked at reviewing performance data, identifying areas in need of improvement, carrying out, and monitoring improvement efforts. For these activities, the committee uses a variety of QI approaches and tools, including Plan, Do, Study, Act (PDSA) cycles, assessments, audits and feedback, benchmarking, case review and best practices research. The Stroke Care Committee provides expertise to address potential quality improvement initiatives within the stroke system, which contributes, to the development or revision of stroke related policies, procedures and treatment protocols.

Education and Outreach

Enhancing interdisciplinary collaboration and coordination in healthcare is imperative. Collaboration between professions starts with interdisciplinary education. To break down those walls, health professionals must begin working together. Interdisciplinary education will lead to more effective communication across disciplines and, ultimately, safer, more affordable, and higher quality care. [9]

There is also a vital component of public education and outreach that contributes to the health and wellness of a community. One of the goals identified in Healthy People 2020 is to increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and injury, improve health, and enhance quality of life. Educational and community-based programs play a key role in:

Preventing disease and injury
Improving health
Enhancing quality of life

Public education and outreach will continue to contribute to the improvement of health outcomes in the United States and is a major component of the Santa Barbara County Stroke Critical Care System. Understanding the critical role that cardiovascular disease prevention education and outreach has in healthcare, SBCEMSA encourages collaboration of providers to identify and coordinate education and outreach efforts within the community.

Emergency Medical Services Education, is education that is designed specifically for the EMS providers. This may include live lecture, online PowerPoint lectures with pre and post quizzes to evaluate learning. In addition, it may include run reviews or protocol updates.

Public Education and Outreach is specific to bringing stroke education to the community members. This area of education provides the greatest opportunity for the EMS Agency to partner with both prehospital providers and the stroke centers to deliver a comprehensive message of heart and vascular health to the members of the community.

[9] https://www.rwjf.org/en/library/articles-and-news/2010/11/interdisciplinary-collaboration-improves-safety-quality-of-care-.html

Neighboring EMS Agencies

Due to the complex nature of an EMS System that has multiple agencies that provide local operational oversight, it is imperative to have processes in place in which patients' care is uninterrupted despite crossing county line. SBCEMSA has established Stroke Critical Care System agreements with each of the Local EMS Agencies who have a bordering county to Santa Barbara County.

Appendices:

Appendix A
SBCEMSA Policy 600: Receiving Hospital Standards
Appendix B
SBCEMSA Policy 650: Stroke General Guidelines
Appendix C
SBCEMSA Policy 651: Stroke Center Standards
Appendix D
SBCEMSA Policy 652: Stroke Transfer Guidelines
Appendix E
SBCEMSA Policy 653: Stroke Performance Improvement Process

Appendix A
SBCEMSA Policy 600: Receiving Hospital Standards

Santa Barbara County PUBLIC Health DEPARTMENT

EMERGENCY MEDICAL SERVICES

POLICY NO:	600
DATE ISSUED:	06/2002
DATE REVIEWED/REVISED:	9/2015
DATE TO BE REVIEWED:	9/2017

RECEIVING HOSPITAL STANDARDS

Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

Policy: A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

Procedure:

A. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:

1. Be licensed by the State Department of Health Services as a general acute care hospital.
2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
4. Operate an Intensive Care Unit.
5. Have operating room services available within 30 minutes.
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:

Cardiology	Orthopedic Surgery	Thoracic Surgery
Anesthesiology	General Surgery	Pediatrics
Neurosurgery	General Medicine	Obstetrics

APPROVED:

John H. Eagleham, EMS Director

Angelo Salvucci, MD, EMS Medical Director

7. Have the following services available within 20 minutes:
   X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:

    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.

11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.

    a. All Receiving Hospital physicians shall:
       1. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       2. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       3. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.

    b. All Receiving Hospital Registered Nurses shall:
       1. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       2. Maintain current Advanced Cardiac Life Support certification.

    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

12. Actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance.

13. Agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication

form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

B. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.

C. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.

D. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

Appendix B
SBCEMSA Policy 650: Stroke General Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*650*
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE CARE SYSTEM GENERAL GUIDELINES

I. Purpose: To provide standards and guidelines for the Stroke Care System which serves the County of Santa Barbara. To provide all presumed Acute Stroke patients the accessibility to an organized, multi-disciplinary and inclusive system of Stroke care. To ensure that all presumed Acute Stroke patients are taken to the closest most appropriate medical facility that meets the needs of the patient and applies the standards established for this Stroke Care System.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Section 100270.220 and 100270.221.

III. Definitions: None

IV. Policy:

A. There shall be a written agreement between all hospitals within Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. The Santa Barbara County EMS Agency (SBCEMSA) and all system participants will be involved in an organized Stroke Care System, the guidelines of which are outlined here:

1. Multi-disciplinary nature of the Stroke Care System
   a. SBCEMSA recognizes the multi-disciplinary nature of a systemized approach to stroke care.
   b. SBCEMSA has adopted policies, guidelines and triage criteria that provide for the coordination of all resources and ensure the accessibility to the closest, most appropriate medical facility for all stroke patients, regardless of their ability to pay for such services.
   c. SBCEMSA has established a Stroke Care System Performance Improvement Process, and the Stroke Care System Quality Improvement Committee. These processes and committees represent all involved disciplines to ensure a broad-based quality review of all Stroke Care System activities.
2. Public Information and Education about the Stroke Care System
   a. SBCEMSA is committed to the establishment of Stroke Care System support and the promotion of awareness and prevention education.
   b. SBCEMSA facilitates speakers to address public groups, and serves as a resource for stroke information, education, and prevention.
   c. SBCEMSA assists community and professional groups in the development and dissemination of education to the public.

V. Procedure:

A. Stroke Care System – GENERAL GUIDELINES

1. Marketing and Advertising

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

a. All marketing and promotional plans, with respect to Stroke center designation shall be submitted to SBCEMSA for review and approval, prior to implementation. Such plans will be reviewed by SBCEMSA based on the following guidelines:
   i. Shall provide accurate information;
   ii. Shall not provide false claims;
   iii. Shall not be critical of other providers; and
   iv. Shall not use financial rewards to any provider to increase its census.

2. EMS Dispatching
   a. The SBCEMSA has approved dispatching policies and procedures for the County. The dispatch of prehospital care providers will continue, as per the operational procedure for the County.
3. Training of Prehospital EMS Personnel
   a. SBCEMSA will facilitate training for all prehospital providers on any policy and/or operational change associated with Stroke Care System implementation.
   b. All level of designated stroke facilities will provide training to hospital staff on Stroke Care System policies and procedures.
4. Medical Control and Accountability, including Triage and Treatment Protocols
   a. Each designated Acute Stroke Center center shall:
      i. Provide base hospital medical control for field prehospital care providers.
      ii. Participate in the SBCEMSA data collection system.
      iii. Participate in the SBCEMSA continuous quality improvement program.

VI. References:

A. SBCEMSA Stroke Care System Plan

VII. Attachments: None

Appendix C
SBCEMSA Policy 651: Stroke Center Standards

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*651*
Original Issue Date:	*January 01, 2016*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

ACUTE STROKE CENTER (ASC) STANDARDS

Purpose: To define the criteria for designation as an Acute Stroke Center (ASC) in Santa Barbara County.

I. **Authority:** California Health and Safety Code, Sections 1797.114, 1797.220, 1798, 1798.2, and California Code of Regulations, Title 22, Sections 100270.223, 100270.224, 100270.225 and 100270.226.

Definitions:

A. *Primary Stroke Center (PSC):* A hospital certified by an accrediting healthcare organization.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Acute Stroke Center (ASC):* Thrombectomy-capable, Comprehensive, Primary or Acute Stroke Ready Hospitals that meet the requirements of, and are designated by, the Santa Barbara County EMS Agency.
D. Thrombectomy-Capable Stroke Center (TCSC): Provides endovascular procedures and post-procedural care.
E. Comprehensive Stroke Center (CSC): Highest level of stroke certification available. Provides advanced neuro interventional procedures for the most complex stroke cases.

Policy:

F. There shall be a written agreement between all Acute Stroke Centers in Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Trauma System participation as specified by State regulations and SBCEMSA policies and procedures.
G. An Acute Stroke Center (ASC), approved and designated by SBCEMSA shall meet the following requirements:
   1. All the requirements of a Receiving Hospital as listed in SBCEMSA Policy 600.
   2. Certification as a Comprehensive Stroke Center (CSC), Thrombectomy-Capable Stroke Center (TSC), Primary Stroke Center (PSC) or an Acute Stroke Ready Hospital (ASRH) by either The Joint Commission (TJC), the Center for Improvement in Healthcare Quality (CIHQ) or the American Heart Association (AHA).
   3. Actively participate in SBCEMSA's Stroke Quality Improvement Program including:
      a. Participate in the creation of a standardized data registry under the direction of SBCEMSA
      b. Submit data into the registry 60 days after the end of the month in which the patient's hospital admission took place
   4. Acute Stroke Centers (ASC) must have policies and procedures that allow the automatic acceptance of any acute stroke patient requiring immediate intervention (fibrinolytic or endovascular procedure) from a hospital within Santa Barbara County that is not designated as an ASC, upon notification by the transferring physician.
H. Data Entry

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

ACUTE STROKE CENTER STANDARDS

1. The SBCEMSA shall implement a standardized data collection and reporting process for the Stroke Care System.The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated Stroke centers are required to submit Stroke care data into the SBCEMSA's designated Stroke registry.
   a. The Stroke Nurse Coordinator from each designated facility will submit Stroke data to SBCEMSA on a monthly basis through registry entry
      i. Data will be entered into an SBCEMSA-approved registry and submitted monthly, no later than 60 days after the Stroke admit date
      ii. Data registry costs shall be incurred by the designated Stroke Centers

Procedure:

I. Designation Process
   1. Application:
      a. An ASC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
         i. Eligible hospitals will submit a written request for ASC designation to the EMS Agency no later than 60 days prior to the desired date of designation, documenting the compliance of the hospital with Santa Barbara County ASC standards.
   2. Approval:
      a. Upon receiving a written request for ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with state requirements.
      b. ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after the receipt of the request for approval and all required documentation and completion of the SBCEMSA site survey.
         i. ASC designation approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
   3. The SBCEMSA may deny, suspend, or revoke the designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
      a. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.
   4. ASCs shall be reviewed on a biannual basis.
      a. ASCs shall receive notification of evaluation from the EMS Agency.
      b. ASCs shall respond in writing regarding program compliance.
      c. On-site ASC visits for evaluative purposes may occur.
      d. ASCs shall notify the SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance performance.
   5. Revocation.
      a. ASC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSApolicies, procedures or regulations. This includes but is not limited to:
         i. Failure to provide required data
         ii. Failure to participate in Stroke system QI activities
         iii. Other criteria as defined and reviewed by the Stroke QI Committee

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

ACUTE STROKE CENTER STANDARDS

J. Provisional Designation Process
   1. The SBCEMSA may grant provisional designation as an ASC to a requesting hospital that has satisfied the requirements of an ASC as outlined in Section B of this policy, but has yet to receive certification as a CSC, TSC, PSC or ASRH. Only when the following requirements are satisfied, will the SBCEMSA grant a provisional designation.
      a. Application:
         i. Eligible hospitals shall submit a written request for provisional ASC designation to the SBCEMSA no later than 60 days prior to the desired date of the provisional designation, documenting the compliance of the hospital with Santa Barbara County ASC Standards.
      b. Provisional approval:
         i. Upon receiving a written request for provisional ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with stated requirements.
         ii. Provisional ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within two weeks after receipt of the request for approval and all required documentation, as well as the completion of the SBCEMSA on-site survey. ASC provisional approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
         iii. To receive Provisional Designation, the facility must have satisfied all requirements of The Joint Commission (TJC) or Center for Improvement of HealthCare Quality (CIHQ) for CSC, TSC, PSC or ASRH, and have only a pending site survey and certification from TJC or CIHQ.
         iv. Certification as aCSC, TSC, PSC, or ASRH shall occur no later than six (6) months following provisional designation as an ASC by the EMS Agency.
      c. The SBCEMSA may deny, suspend, or revoke the provisional designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
         i. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the provisional ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.

II. References:

A. Policy 600 Receiving Hospital Standards

III. Attachments: None

Appendix D
SBCEMSA Policy 652: Stroke Transfer Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	652
Original Issue Date:	March, 2010
Last Reviewed/Revised:	November 12, 2019
Effective Date:	December 01, 2019
Next Review:	November, 2021

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE TRANSFER GUIDELINES

I. Purpose: To define the "Code Stroke" process by which patients with an acute stroke are transferred from a Acute Stroke Center or non-stroke hospital to a higher level of Stroke Center such as Primary Stroke Center (PSC), Thrombectomy Capable Stroke Center(TCSC) or Comprehensive Stroke Center(CSC) for emergency intervention.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.220 and 100270.222.

III. Definitions:

A. *Acute Stroke Center (ASC):* Primary Stroke Centers or Acute Stroke Ready Hospitals who have met the requirements of, and are designated by, the Santa Barbara County EMS Agency.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Primary Stroke Center (PSC):* A hospital that is certified by an accrediting healthcare organization diagnostic, pharmacological and acute stroke care, not requiring endovascular intervention.
D. *Thrombectomy-Capable Stroke Center (TCSC)*: Provides endovascular procedures and post-procedural care
E. *Comprehensive Stroke Center (CSC):* Highest level of stroke certification available. Provides advanced neuroendovascular interventional procedures for the most complex stroke cases.

IV. Policy:

A. All Hospitals within the Santa Barbara County Stroke Care System shall have written transfer agreements with the higher level designated Stroke Center Facilities within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. Patient transfer from: Acute Stroke Centers (ASC) to a higher level of care Stroke Center (ASRH to PSC; ASRH to TCSC/CSC; PSC to TCSC/CSC):
   1. After Stroke evaluation, arrange immediate transport for patients requiring a higher level of care than can be given at the current ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize Door to CT performance and interpretation times, door to tPA times, Door In/Door out time and other time intervals set forth by the Stroke Care Quality Improvement System Committee.
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
   4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the ASC, as appropriate.
   5. Upon identification of the patient needing transport, have procedures in place to call dispatch for a Level one transport for Stroke Alert.
   6. Maintain transfer agreements with surrounding ASCs.
   7. Establish policies and procedures for notifying the receiving ASC of the impending arrival of Acute Stroke patient

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

8. Pt records or test results shall not delay transport to an ASC

C. Non-Stroke Hospital
   1. Immediate transfer of patients with suspected Acute Stroke system to the nearest ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize "Door In/Door out time".
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the Acute Stroke Center as appropriate.

D. Ambulance or helicopter transporting agencies will:
   1. Respond immediately upon request for Level 1 Stroke Alert transfer.

E. Acute Stroke Centers will:
   1. Maintain accurate status information on ReddiNet regarding the availability of a CT Scanner, per SBCEMSAPolicy 307 ReddiNet Communications
   2. Immediately upon initial notification by a transferring physician, automatically accept in all transfer patients who have been diagnosed with an Acute Stroke and who, in the judgment of the transferring physician, require urgent higher level of care.
   3. Authorize the emergency physician to automatically accept transfer of any patient with an Acute Stroke.
   4. Establish an internal communications plan that assures the immediate notification of all necessary individualsof the transfer.

V. Procedure:

A. Upon diagnosis of Acute stroke and the need for transfer to a higher level of care, and after discussion with the patient, the ASC will:
   1. Determine availability of the receiving ASC by checking ReddiNet.
   2. Immediately call the County Dispatch Center to request an air or ground ambulance (ALS or CCT).
   3. Advise that they have a Code Stroke transfer.
   4. After calling for ambulance, the transferring physician will notify the receiving ASC emergency physician of the transfer.
   5. Perform, as time allows, indicated diagnostic tests and treatments.
   6. Complete transfer consent, Stroke transfer data forms and, as time allows, a treatment summary.
      a. If this cannot be done prior to transfer, fax immediately to the accepting ASC and SBCEMSA Specialty Care Programs Coordinator.
   7. Include copies of the ED face sheet and demographic information.
   8. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to therecieving ASC.
   9. Contact ASC for nurse report at the time, or immediately after, the ambulance departs with the patient.

B. Upon request for Level 1 Code Stroke transfer, the dispatch center will dispatch the closest available ambulance or CCT unit, per hospital direction.

C. The patient shall be urgently transferred without delay. Every effort will be made to minimize on-scene time.
   1. All forms should be completed prior to ambulance arrival.
   2. Any diagnostic test results may be relayed to the receiving ASC after patient departure.
   3. Intravenous drips may be discontinued or remain on the ED pump if appropriate for level of service.

D. Upon notification, the receiving ASC will notify the Stroke team staff, who will respond immediately

E. All ASCs shall review all Stroke transfers within 72 hours for appropriate and timely care and to identify opportunities for improvement. The Stroke Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hoursResults may be reviewed and discussed at the SBCEMSA Stroke System Committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 STEMI Receiving Center Standards
C. Policy 511 EMS Transport Zones
D. Policy 307 Reddinet Communications

VII. Attachments

A. Stroke Transfer Form

Appendix E
SBCEMSA Policy 653: Stroke Performance Improvement Process

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	653
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE PERFORMANCE IMPROVEMENT PROCESS

I. Purpose: Santa Barbara County Emergency Medical Services Agency (SBCEMSA) will ensure quality within the Stroke Care System through a Performance Improvement Process. This includes monitoring of structural, process and outcome standards.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Sections 100270.228 and 100270.229.

III. Definitions: None

IV. Policy:

A. The SBCEMSA Medical Director shall establish a Stroke Care System Quality Improvement (QI) Commitee

B. The Stroke Care System QI Committee is an advisory committee to the SBCEMSA on issues related to Stroke patient care and the Stroke system.
   1. The Stroke care administered to patients of the Santa Barbara County Stroke Care System will be reviewed for appropriateness of care and patient outcome.

C. Committee membership is assigned by the SBCEMSA and includes:
   1. SBCEMSA Specialty Care Systems Coordinator (Co-Chair)
   2. SBCEMSA Medical Director (Chair)
   3. Stroke Center Medical Directors & Stroke Nurse Coordinators
   4. ALS transport provider representative(s), as needed

D. Stroke Care System QI Committee meetings will be held on a regular basis and limited to committee members and invited guests, approved by Committee Chair

V. Procedure:

A. Scope of Process and Outcome Standards Review:
   1. Preliminary Review: Occurs at the Stroke Center, Medical Director and Stroke Nurse Coordinator level. This internal review takes place monthly.
      a. All deaths, questionable cases and negative outcomes may be referred to the Stroke Care System QI Commitee
      b. These charts will be brought to the Stroke Care System QI Commitee by each facility's Stroke Nurse Coordinator.
      c. This committee will meet three (3) times per year, unless additional meetings are necessary.
      d. Any Stroke Program Medical Director has the right to bring up any case he/she feels should be reviewed even if it does not meet the physician Stroke audit criteria.
   2. The SBCEMSA Specialty Care Systems Coordinator will review all cases entered into the Stroke Registry database on a monthly basis for compliance with the following:
      a. Policies, procedures and protocols,
      b. Prehospital treatment of Stroke patients to include appropriateness of response, evaluation, treatment, and transport by prehospital personnel.
      c. Appropriate use of prehospital Stroke Alert and Hospital Code Stroke Triage Criteria

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, SBEMSA Director

SIGNATURE ON FILE
Angelo Salvucci, MD, SBEMSA Medical Director

d. Complications will be referred to SBCEMSA Medical Director for review
e. All helicopter transports of Stroke patients

3. The Stroke Nurse Coordinator from each designated facility will work with the SBCEMSA Specialty Care Systems Coordinator to obtain the necessary chart materials for the medical review process and the Committee meetings.
4. Physician Stroke Audit Criteria (any of the below, but not limited to):
   a. All Stroke Deaths
   b. Door to reperfusion times
   c. Major complications
   d. Stroke transfers from another hospital

B. Attendance:

1. Attendance for all committee members is mandatory.
   a. The Stroke Medical Directors and Stroke Nurse Coordinators must attend 75% of the scheduled meetings annually.
   b. Committee members shall notify the Committee Chair (or designee) at least three (3) business days in advance of the meeting if they are unable to attend.
      i. Alternate committee members must be approved at least three (3) business days in advance by the Committee Chair (or designee)
2. The Committee Chair (or designee) shall approve all requests for guests to attend the meeting.
   a. Requests for guests must be made at least three (3) business days in advance.
   b. The Committee Chair reserves the right to approve or deny requests

C. Meeting Documentation:

1. The agenda, minutes, monthly EMS reports and chart materials will be distributed to members in advance of the meeting.
2. Members are expected to review meeting materials prior to attendance.

D. Confidentiality:

All proceedings, documents, and discussions of the Stroke Care System QI Committee are confidential and are covered under Sections 1040 and 1157.7 of the Evidence Code: "The prohibition relating to discovery of testimony provided to the Committee will be applicable to all proceedings and records of this Committee, which is one established by a local government agency as qualified to render specialty health care services".

1. All members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through medical review committee membership. These are updated on an annual basis.
   a. Prior to the guest(s) participating in the meeting, the Committee Chair (or designee) is responsible for explaining, and obtaining, a signed confidentiality agreement from invited guests.
   b. Guests may or may not be invited to the entire meeting at the discretion of the Committee Chair.
2. No copies of records are to leave the room in which Stroke Care System QI Commitee meetings are held; all copies will be shredded at the SBCEMSA Office.

VI. References: None

VII. Attachments: None

Santa Barbara County EMS Agency

Stroke Critical Care System Plan

2019

Santa Barbara County Emergency Medical Services Agency
Public Health Department

Nicholas Clay
EMS Director

Angelo Salvucci, M.D.
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Table of Contents

Executive Summary

California statute mandates the Emergency Medical Services Authority (EMSA) to adopt necessary regulations to carry out the coordination and integration of all state activities concerning Emergency Medical Services (EMS) (Health and Safety Code §1797.107). In addition, State statute allows the EMS Authority to establish guidelines for hospital facilities, in cooperation with affected medical organizations, according to critical care capabilities (Health and Safety Code §1798.150). As a result of these statutes, the EMS Authority established a multidisciplinary stroke taskforce for the development of Stroke System of Care Regulations for California.[1] California's Statewide Stroke Critical Care System is described in the California Code of Regulations; Title 22, Division 9, Chapter 7.2. These regulations outline the requirements of all components of the Stroke Critical Care System including the Local Emergency Medical Services Agency (LEMSA), prehospital providers, and hospitals.

Because data management, quality improvement and the evaluation process all have a vital role in providing high quality care to the stroke patient; these items have also been identified in the regulations. The overall goal of the regulations is to reduce morbidity and mortality from acute stroke disease by improving the delivery of emergency medical care within the communities of California.

Santa Barbara County Emergency Medical Services Agency (SBCEMSA) already has many of the regulations in place, including prehospital care policies to identify stroke patients, identify designated stroke receiving hospitals, and stroke destination policies. As a requirement of the California Regulations, this document is to serve as a formal written plan for the SBCEMSA Stroke Critical Care System. SBCEMSAs Stroke Critical Care System Plan has been written in accordance with Title 22, Division 9, Chapter 7.2 of the California Code of Regulations.

Stroke Critical Care System

Every year approximately 795,000 adult Americans suffer a stroke. A stroke death occurs every four minutes. Stroke is the most common cause of adult long-term disability in the United States. It is a life-changing event that places heavy burden on patients, families, and caregivers. When a patient is suffering an ischemic stroke, timely intervention is critical to reverse the damage, reduce mortality, morbidity, and disability in addition to improving survivor quality of life.

Hospitals have traditionally been designated as a stroke receiving hospital by their Local EMS Agency because of differing standards from one geographic area to the next. Public safety is best served when patients receive a standard of care based on national standards and best practices. This implementation of standardized statewide requirements for stroke care will provide consistent care across the state.[2] Santa Barbara County's Stroke Critical Care System is a subspecialty care component of the EMS system that was developed by the

[1] https://emsa.ca.gov/about-stroke/
[2] https://emsa.ca.gov/wp-content/uploads/sites/47/2018/04/Stroke-ISOR.pdf

SBCEMSA. This critical care system links prehospital and in-hospital care to deliver treatment to stroke patients who potentially require immediate medical or surgical intervention.

Stroke Continuum of Care

The Stroke Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a coordinate, comprehensive stroke program for the county that addresses the needs of the patient suffering from an acute stroke. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality stroke services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality stroke system. It is only through this partnership and adherence to quality stroke care standards that the goals of this plan will be achieved.

This Stroke Critical Care System Plan designs a countywide stroke system in order to:

1. Rapidly identify stroke patients through assessment;
2. Assure timely transport to the closest, most appropriate Acute Stroke Center destination for definitive care;
3. Identify, monitor and measure preventable death and disability from stroke and other cardiovascular events;
4. Monitor and assure timely, optimal stroke services in a cost-efficient manner through close coordination of prehospital and hospital services; and
5. Monitor outcomes and participate in continuous quality improvement efforts

Stroke systems of care improve care and support for stroke patients throughout their health care journey. We know that what matters to a patient's outcome is reducing the time from the first symptoms of stroke through the transition from EMS to hospital intervention. Together, EMS agencies, hospitals, and health care facilities collect and analyze data about stroke patients and care. When best practices and data are shared, the different disciplines can work together to improve patient care.[3]

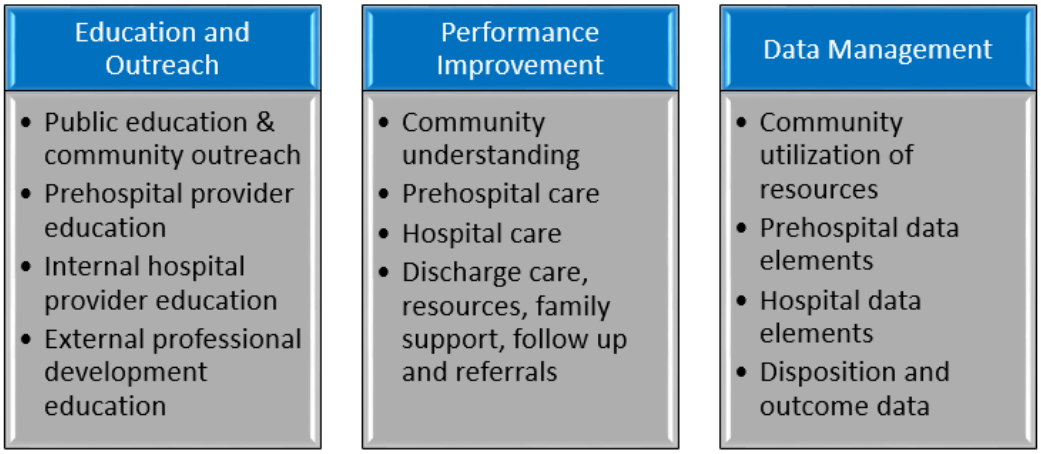
The continuum of care is important to caregivers and patients alike. It leads to an improvement of patient satisfaction levels, reduces costs, and improves health. Keeping up the continuum of care is especially significant for specific patient populations such as those patients who are more dependent on the health services, elderly patients, patients suffering from complex medical conditions, mentally vulnerable patients and patients with chronic diseases. Due to the aforementioned examples, the continuum of care is particularly beneficial to the stroke patient population. Stroke systems of care depend on robust collaboration to ensure that the continuum of care is optimally exercised.

[3] https://www.cdc.gov/dhdsp/programs/about_pcnasp.htm

Three Areas of Collaboration: A Team Approach

Recognizing that patient outcomes are greatly dependent on the rapid and quality of care within each level of care on the continuum, it is critical for Santa Barbara County providers to work in collaboration with a team approach wherever possible. Common themes span across the Prehospital, In-Hospital and Post-Hospital levels that identify opportunities to maximize SBCEMSA's team approach to care of the stroke patient.

- Education of the community, EMS and other healthcare professionals promote and support an integrated system of care. Interprofessional and interdisciplinary education systems prepare care providers to work collaboratively together as a team. When combined with community education and outreach efforts, the patients and their families have an active role in their personal health and well-being.
- Performance Improvement invariably involves work across multiple systems and disciplines within a practice. Within the healthcare practice continuum, this is particularly applicable as patients have various formal and informal care providers throughout their course of illness and into their discharge disposition.
- Good data can help identify, verify and proactively address issues, measure progress and capitalize on opportunities. When data is gathered, tracked, and analyzed in a credible way over time, it becomes possible to measure progress and success. Policies, procedures, services, and interventions can then be evaluated, modified, and improved.



A team approach from a truly integrated healthcare system will go beyond education, outreach, performance improvement and data management /sharing. SBCEMSAs aim is to create a seamless system, which requires EMS professionals and community partners to commit to the same-shared objectives and find ways to achieve them together. This team approach from a people-centered EMS system takes advantages of the strengths and resources brought by each organization and provider to protect the health and wellness of individuals and communities.

Stakeholders

Santa Barbara County EMS Agency

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities intensify this problem by limiting accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county together with humid conditions create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility and result in a high-crash rate for the area and also hinders the accessibility to healthcare services, especially for rural residents.

Santa Barbara Cottage Hospital on the South Coast and Marian Regional Medical Center in North County each have a helipad.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is also available via Amtrak, which has a scheduled stop at Santa Barbara.
In 2018, the population was 446,527. Although Santa Barbara is known as a highly desirable place to live for its physical beauty, the median household income is $68,023. The demographics of the County indicate that there are many concentrated low-income areas. Census reports show that 14.2% of the County residents live at or below the poverty level (compared with 13.2% of the State population).

In 2018, the population over 65 years of age in Santa Barbara County was 15.3%. As the population of Santa Barbara County continues to age, there will be an increased demand for EMS services in the over 65 age group.

Epidemiology

Data from the Vital Records Department of Public Health show that the 5th cause of death in Santa Barbara County are Cerebrovascular Disease (Stroke), which is consistent with the trend throughout California and the United States. The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2017.

1. Heart Disease
2. Cancer

3. Alzheimer's Disease
4. Chronic Respiratory Disease
5. Cerebrovascular Disease (Stroke)

Vision, Mission Statement and Values

SBCEMSAs specialty care programs are further refined by the agency's commitment to excellence as defined in the Vision, Mission, Values, and Principles:

Vision

To provide leadership and planning that is pro-active, continuously seeking ways to improve and optimize emergency medical services

Mission Statement

To protect and improve health and safety of the people in Santa Barbara County through the provision of high quality emergency and disaster medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.

Values

- We value the patient as the focus of all we do.
- We value our system participants
- We value honesty and integrity
- We value respect, fairness and trust
- We value teamwork, cooperation and creative problem solving

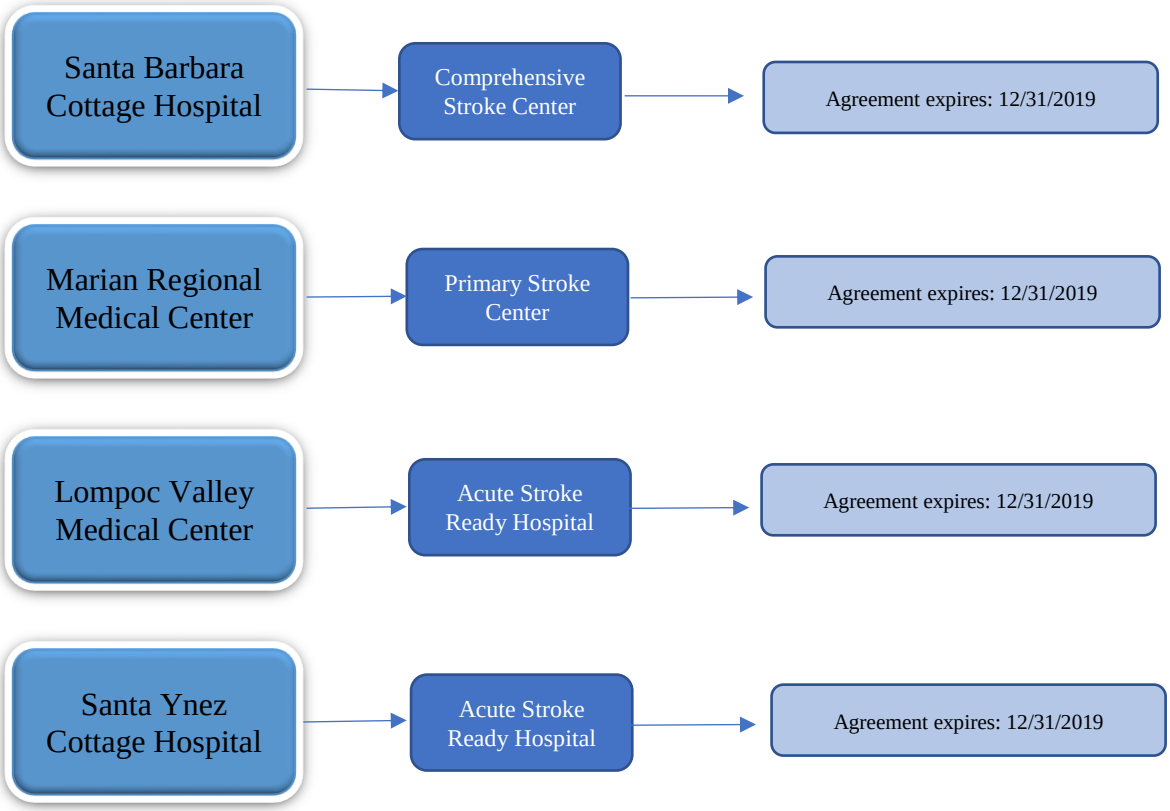
Santa Barbara County Stroke Centers

Santa Barbara County has five (5) prehospital receiving centers (Policy 600). Each of the acute care facilities in the county acts as a Base Hospital (BH) for the prehospital providers. Base Station services are provided via a contract between the facility and SBCEMSA. Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC). Two Base Hospitals are certified as Acute Stroke Ready Hospitals, one as a Primary Stroke Center, one as a Comprehensive Stroke Center and one hospital remains only as a Base Hospital with no Stroke certification or designation.

The California State Regulations define a Primary Stroke Center as a hospital that "…stabilizes and treats acute stroke patients, providing initial acute care, and may transfer to one or more higher level of care centers when clinically warranted".

The California State Regulations define a Comprehensive Stroke Center as a hospital that "…diagnose and treat all stroke cases and provide the highest level of care for stroke patients".

The California State Regulations define an Acute Stroke Ready Hospital as a hospital that "…able to provide the minimum level of critical care services for stroke patients in the emergency department, and are paired with one or more hospitals with a higher level of stroke services".



Santa Barbara County Emergency Medical Services Agency has written agreements with hospitals that are designated stroke receiving hospitals. To be considered for stroke receiving center designation, hospitals must hold current certification with The Joint Commission, American Heart Association or the Center for Improvement in Healthcare Quality.

Stroke Centers must also maintain compliance with SBCEMSAs designation criteria outlined in *Policy 650; Stroke Receiving Center.*

Santa Barbara County Prehospital Providers

The County of Santa Barbara is comprised of a mix of public and private EMS Advanced Life Support (ALS) providers as well as a number of Basic Life Support (BLS) First Responders. A combination of ground, air and specialty CCT transport are all offered within the county. The community can access emergency transport services via public providers through the 9-1-1 system. All ALS vehicles used to transport patients within the County are required to have two-way radios. All acute care facilities within the County are Base Hospitals and have the capability of communicating with the prehospital providers in their area.

Once on scene, the first responder and ambulance transport crews coordinate their efforts to rapidly identify, treat, and transport stroke patients to the most appropriate Stroke Receiving Center. When needed, prehospital providers can contact base hospital personnel for medical direction. Field crews notify the Stroke Receiving Center of the incoming patient with a *"Stroke Alert"* radio report in order to allow hospital staff to prepare for expeditious triage and treatment upon patient arrival.

Prehospital providers work closely with the hospital staff to ensure that all pertinent information is relayed for a seamless transition within the continuum of care. The EMS Agency has implemented a prehospital data collection system. All prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently the EMS Agency is collecting data electronically with all ALS and BLS providers.

The Stroke Patient

SBCEMSA believes that early identification of stroke symptoms by emergency medical personnel is a valuable part of optimal care for the victims of stroke. EMS professionals should attempt to determine the time the patient was last known to be neurological symptom free. It is imperative that both field and hospital clinicians are well trained and educated on stroke assessments including the utilization of the Cincinnati Stroke Scale.

SBCEMSA has a policy in place to assist field providers in the rapid identification of a patient who may be suffering a stroke. *Policy 533:22 Stroke;* gives direction for treatment therapies when the patient meets acute Stroke Alert criteria.

Destination

In stroke systems of care, stroke patients should be transported to the most appropriate facility staffed and equipped to manage an acute stroke patient. This determination will include assessments of local resources and transport times. [4] For patients who meet STEMI triage criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors. Ground transport times for the majority of the county is less than 20 minutes. In areas with prolonged transport times, such as the far northern County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Santa Barbara County Fire Department ALS Air Rescue can be utilized for STEMI scene transports.

Communication

Emergency Medical Service personnel should provide pre-hospital notification to the stroke-receiving center that a suspected stroke patient is enroute via Base Hospital radio report via 10 Channel UHF mobile radio, so that the appropriate hospital resources may be mobilized before patient arrival.[5]

[4] Recommendations for The Establishment of an Optimal System of Acute Stroke Care for Adults pp 26
[5] 2018 Guidelines for Management of Acute Ischemic Stroke pp 7

Santa Barbara County Emergency Medical Services Agency has a policy in place to give direction on administering a notification report to receiving hospitals. *Policy 305; EMS Radio Report Format*; addresses the minimum acceptable information to be communicated and provides a standardized and consistent approach to prehospital notifications.

Inter-Facility Transfers

Four out of five of Santa Barbara County's receiving hospitals are currently certified as one of three levels of stroke centers. Patients, who require treatment not available at the receiving hospital, are transferred expeditiously to the appropriate facility. This may include out-of-county facilities. Each receiving hospital has:

- Pre-arranged agreements with stroke receiving hospitals (primary or comprehensive) for transfer of patients
- Pre-arranged agreements with EMS providers for rapid transport of patients who are eligible for time-sensitive treatments
- Emergency departments maintain a standardized procedure for the treatment of stroke patients and will track and monitor the treatment and transfer of stroke patients for potential improvement initiatives

Inter-facility transfers may apply to patients who would benefit from being transferred emergently from a non-stroke-receiving hospital to a stroke-receiving hospital, or patients who might benefit from being transferred from a stroke-receiving hospital with primary stroke center capabilities to a comprehensive stroke center or equivalent.[6] In either case, emergency transfer protocols are pre-arranged, and it is understood that transport should be provided with the urgency of a 911 response.

Santa Barbara County Emergency Medical Services Agency has a policy in place to provide guidelines for ambulance transport of patients between acute care hospitals. *Policy XXX; Stroke Transfer Guidelines*; outlines transfer procedures, automatic acceptance and medical control to ensure that patient needs are being met while providing quality rapid transport to definitive treatment.

[6] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/CDPH-Stroke-Document-2010-Published.pdf

Data Collection

The primary aim of Santa Barbara County's Stroke Critical Care System is to develop a comprehensive system that provides timely access to proven treatments necessary to reduce morbidity and mortality. It is through continuous quality improvement efforts that stroke patients receive care based on best practices. Implementation of quality improvement programs and clinical best practices reduces morbidity and mortality, hence improves patient outcomes.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the pre-hospital stroke case reviews and the submitted hospital stroke data. Retrospective data collection and analysis lie at the heart of quality improvement. Data aids in understanding how well the systems work, identifying potential areas and trends for improvement and education, setting measurable goals, and monitoring the effectiveness of change. The goal is to connect data from across the continuum of care from pre-hospital to in-hospital to post-hospital disposition in order to optimally evaluate patient outcomes.[7]

Currently, SBCEMSA collects stroke pre-hospital care data elements through Patient Care Record (PCR) extraction. Data elements that are specific to Stroke centers are extracted through a common software registry platform shared with the hospitals called *Get with the Guidelines: Stroke.*

[7] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/Core-Measure-Report-for-2016-Data.pdf

Stroke Quality Improvement

Reaching for excellence in any system requires a functional decision making process among the team of workers and users within that system. Inherent to this process is the need to know how the system is functioning and what to do to fix or improve it. The concept of continuous quality improvement (CQI) particularly in the field of health care relies mainly upon the following fundamental components:

- The availability of reliable and trusted information
- The ability to effectively communicate that information in easy to understand ways
- A standardized approach to reaching decisions and acting on those decisions

Quality Improvement stresses understanding complex processes, measuring performance using reliable statistical methods, and using that information to build quality into the process.[8] The performance evaluation reviews system design, appropriateness of pre hospital care, and meeting and exceeding national standard goals and guidelines.

Stroke Care Committee

As the delivery of stroke care evolves to become more interconnected, coordinating care between prehospital providers, nurses, physicians, and other disciplines has become increasingly important. In its simplest form, interprofessional collaboration is the practice of approaching patient care from a team-based perspective.

When implementing interprofessional collaboration, learning to work together, and respecting one another's perspectives in healthcare, multiple disciplines can work more effectively as a team to help improve patient outcomes. In addition, it improves the coordination and communication between healthcare professionals and thus in turn, improves the quality and safety of patient care.

SBCEMSA has a Stroke Care Committee that has representation from each of the Stroke Centers as well as members that represent the prehospital providers in our area. The Stroke Care Committee meets regularly and is tasked at reviewing performance data, identifying areas in need of improvement, carrying out, and monitoring improvement efforts. For these activities, the committee uses a variety of QI approaches and tools, including Plan, Do, Study, Act (PDSA) cycles, assessments, audits and feedback, benchmarking, case review and best practices research. The Stroke Care Committee provides expertise to address potential quality improvement initiatives within the stroke system, which contributes, to the development or revision of stroke related policies, procedures and treatment protocols.

[8] Stroup, Craig, *Fundamentals of Emergency Medical Services System Evaluation and Quality Improvement* (Pinecrest Publishing House, 2015), 5.

Education and Outreach

Enhancing interdisciplinary collaboration and coordination in healthcare is imperative. Collaboration between professions starts with interdisciplinary education. To break down those walls, health professionals must begin working together. Interdisciplinary education will lead to more effective communication across disciplines and, ultimately, safer, more affordable, and higher quality care. [9]

There is also a vital component of public education and outreach that contributes to the health and wellness of a community. One of the goals identified in Healthy People 2020 is to increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and injury, improve health, and enhance quality of life. Educational and community-based programs play a key role in:

- Preventing disease and injury
- Improving health
- Enhancing quality of life

Public education and outreach will continue to contribute to the improvement of health outcomes in the United States and is a major component of the Santa Barbara County Stroke Critical Care System. Understanding the critical role that cardiovascular disease prevention education and outreach has in healthcare, SBCEMSA encourages collaboration of providers to identify and coordinate education and outreach efforts within the community.

Emergency Medical Services Education, is education that is designed specifically for the EMS providers. This may include live lecture, online PowerPoint lectures with pre and post quizzes to evaluate learning. In addition, it may include run reviews or protocol updates.

Public Education and Outreach is specific to bringing stroke education to the community members. This area of education provides the greatest opportunity for the EMS Agency to partner with both prehospital providers and the stroke centers to deliver a comprehensive message of heart and vascular health to the members of the community.

Neighboring EMS Agencies

Due to the complex nature of an EMS System that has multiple agencies that provide local operational oversight, it is imperative to have processes in place in which patients' care is uninterrupted despite crossing county line. SBCEMSA has established Stroke Critical Care System agreements with each of the Local EMS Agencies who have a bordering county to Santa Barbara County.

[9] https://www.rwjf.org/en/library/articles-and-news/2010/11/interdisciplinary-collaboration-improves-safety-quality-of-care-.html

Santa Barbara County EMS Agency

Stroke Critical Care System

2020

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Santa Barbara County PUBLIC Health DEPARTMENT

EXECUTIVE SUMMARY

California statute mandates the Emergency Medical Services Authority (EMSA) to adopt necessary regulations to carry out the coordination and integration of all state activities concerning Emergency Medical Services (EMS) (Health and Safety Code §1797.107). In addition, State statute allows the EMS Authority to establish guidelines for hospital facilities, in cooperation with affected medical organizations, according to critical care capabilities (Health and Safety Code §1798.150). As a result of these statutes, the EMS Authority established a multidisciplinary stroke taskforce for the development of Stroke System of Care Regulations for California.[1]

California's Statewide Stroke Critical Care System is described in the California Code of Regulations; Title 22, Division 9, Chapter 7.2. These regulations outline the requirements of all components of the Stroke Critical Care System including the Local Emergency Medical Services Agency (LEMSA), prehospital providers, and hospitals.

The regulations emphasize the significance of data management, ongoing quality improvement and importance of establishing a consistent evaluation process to further promote high-quality care to the stroke patient. The overall goal of the regulations is to reduce morbidity and mortality from acute stroke disease by improving the delivery of emergency medical care within the communities of California.

Santa Barbara County Emergency Medical Services Agency (SBCEMSA) already has many of the regulations in place, including prehospital care policies to identify stroke patients, identify designated stroke receiving hospitals, and stroke destination policies. As a requirement of the California Regulations, this document is to serve as a formal written plan for the SBCEMSA Stroke Critical Care System. SBCEMSA's Stroke Critical Care System Plan has been written in accordance with Title 22, Division 9, Chapter 7.2 of the California Code of Regulations.

[1] https://emsa.ca.gov/about-stroke/

STROKE CRITICAL CARE SYSTEM

Approximately 795,000 Americans suffer a stroke every year, with a significant mortality of 1 stroke-related death every four minutes. Stroke is the most common cause of adult long-term disability in the United States. It is a life-changing event that places a heavy burden on patients, families, and caregivers. When a patient is suffering an ischemic stroke, timely intervention is critical, not only to improve survivor quality of life, but to also reverse the damage and reduce mortality, morbidity, and disability.

Hospitals have traditionally been designated as a stroke receiving hospital by their Local EMS Agency because of differing standards from one geographic area to the next. Public safety is best served when patients receive a regulated form of care based on national standards and best practices. This implementation of standardized statewide requirements for stroke care will provide consistent treatment across the state.[2] Santa Barbara County's Stroke Critical Care System is a subspecialty care component of the EMS system that was developed by the SBCEMSA. This critical care system links prehospital and in-hospital care to deliver treatment to stroke patients who potentially require immediate medical, or surgical, intervention.

STROKE CONTINUUM OF CARE

The Stroke Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a coordinated, comprehensive stroke program for the county that addresses the needs of the patient suffering from an acute stroke. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality stroke services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality stroke system. It is only through this partnership and adherence to quality stroke care standards that the goals of this plan will be achieved.

This Stroke Critical Care System Plan designs a countywide stroke system in order to:

- Rapidly identify stroke patients through assessment;
- Assure timely transport to the closest, most appropriate Acute Stroke Center destination for definitive care;
- Identify, monitor and measure preventable death and disability from stroke and other cardiovascular events;
- Monitor and assure timely, optimal stroke services in a cost-efficient manner through close coordination of prehospital and hospital services; and
- Monitor outcomes and participate in continuous quality improvement efforts.

Stroke systems of care improve care and support for stroke patients throughout their health care journey. We know that what matters to a patient's outcome is reducing the time between the initial onset of stroke symptoms and the transition from EMS to hospital intervention. Together, EMS agencies, hospitals, and health care facilities collect and analyze data about stroke patients and care. When best practices and data are shared, the different disciplines can work together to improve patient care.[3]

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[2] https://emsa.ca.gov/wp-content/uploads/sites/47/2018/04/Stroke-ISOR.pdf

[3] https://www.cdc.gov/dhdsp/programs/about_pcnasp.htm

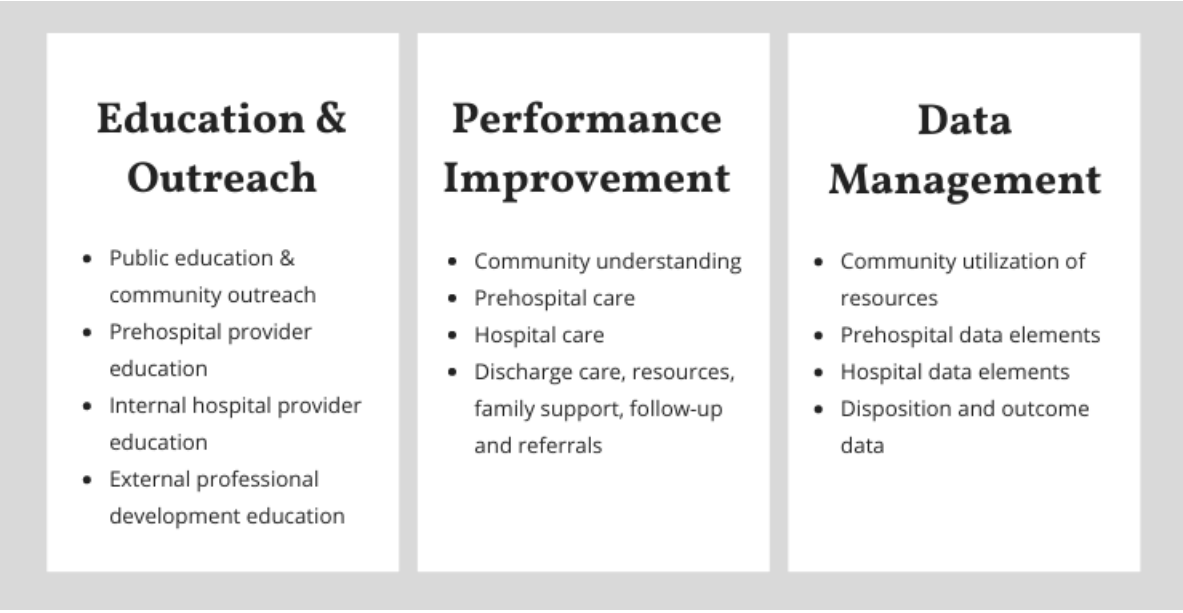
The continuum of care is important to caregivers and patients alike. It leads to an improvement of patient satisfaction levels, reduces costs, and improves health. Keeping up the continuum of care is especially significant for specific patient populations such as those who are more dependent on the health services, the elderly, those suffering from complex medical conditions, the mentally vulnerable and those with chronic diseases. Due to the aforementioned examples, the continuum of care is particularly beneficial to the stroke patient population. Stroke systems of care depend on robust collaboration to ensure that the continuum of care is optimally exercised.

THREE AREAS OF COLLABORATION: A TEAM APPROACH

Recognizing that patient outcomes are greatly dependent on the rapidity and quality of treatment within each level of care on the continuum, it is critical for Santa Barbara County providers to work in collaboration with a team approach wherever possible. Common themes span across the Prehospital, In-Hospital and Post-Hospital levels that identify opportunities to maximize SBCEMSA's team approach to reach the optimum level of care for stroke patients.

Community education, EMS and other healthcare professionals all promote and support an integrated system of care. Inter-professional and interdisciplinary education systems prepare care providers to work collaboratively together as a team. When combined with community education and outreach efforts, the patients and their families have an active role in their personal health and well-being.

Performance Improvement invariably involves work across multiple systems and disciplines within a practice. Within the healthcare practice continuum, this is particularly applicable as patients have various formal and informal care providers throughout their course of illness and into their discharge disposition. Good data can help identify, verify and proactively address issues, measure progress and capitalize on opportunities. When data is gathered, tracked, and analyzed in a credible way over time, it becomes possible to measure progress and success. Policies, procedures, services, and interventions can then be evaluated and transformed as necessary.



A team approach from a truly integrated healthcare system will go beyond education, outreach, performance improvement and data management/sharing. SBCEMSA's aim is to create a seamless system, which requires EMS professionals and community partners to commit to the same-shared objectives and find ways to achieve them together. This team approach from a patient-centered EMS system takes advantages of the strengths and resources brought by each organization and provider to protect the health and wellness of individuals and communities.

STAKEHOLDERS

SANTA BARBARA COUNTY

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities limit accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county, together with humid conditions, create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility which greatly contributes to high-crash rates in rural areas of Santa Barbara County. Residents in rural areas of the county often times require the transport/transfer of critical patients by means of air ambulance. Dense fog hinders accessibility to healthcare services for these patients as air ambulance transport may not be an option during times of poor visibility.

Santa Barbara County can be divided by two geographic planes: North County and South County. Both North and South County regions are equipped with two major hospitals capable of caring for specialty care patients. In the North County, residents have access to Marian Regional Medical Center (MRMC), and in the South County, residents have access to Santa Barbara Cottage Hospital (SBCH). Both hospitals have a helipad for transport/transfer of critical patients by means of air ambulance.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is available via Amtrak, which has a scheduled stop in the City of Santa Barbara.

Santa Barbara is known as a highly desirable place to live for its exceptional climate and small-town ambiance and beauty. In 2020, the population was 447,218, with 19% of the population over 65 years of age. It has an average household income of $74,798 with a poverty rate of 14.8%. The demographics of the County indicate that there are many concentrated low-income areas (compared with 19% of the State population). As the population of Santa Barbara County continues to age, so does the demand for EMS services in the over 65 age group.

EPIDEMIOLOGY

Data from the Vital Records Department of Public Health show that the 5th cause of death in Santa Barbara County are Cerebrovascular Disease (Stroke), which is consistent with the trend throughout California and the United States.

The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2020:

1. All cancers
2. Coronary Heart Disease
3. Alzheimer's Disease
4. Accidents
5. Cerebrovascular Disease (Stroke)

VISION, MISSION STATEMENT AND VALUES

SBCEMSA's specialty care programs are further refined by the agency's commitment to excellence as defined in the Vision, Mission, Values, and Principles:

- **VISION**
  - To provide leadership and planning that is proactive, continuously seeking ways to improve and optimize emergency medical services.
- **MISSION STATEMENT**
  - To protect and improve health and safety of the people in Santa Barbara County through the provision of high-quality emergency and disaster medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.
- **VALUES**
  - We value the patient as the focus of all we do.
  - We value our system participants.
  - We value honesty and integrity.
  - We value respect, fairness and trust.
  - We value teamwork, cooperation and creative problem solving.

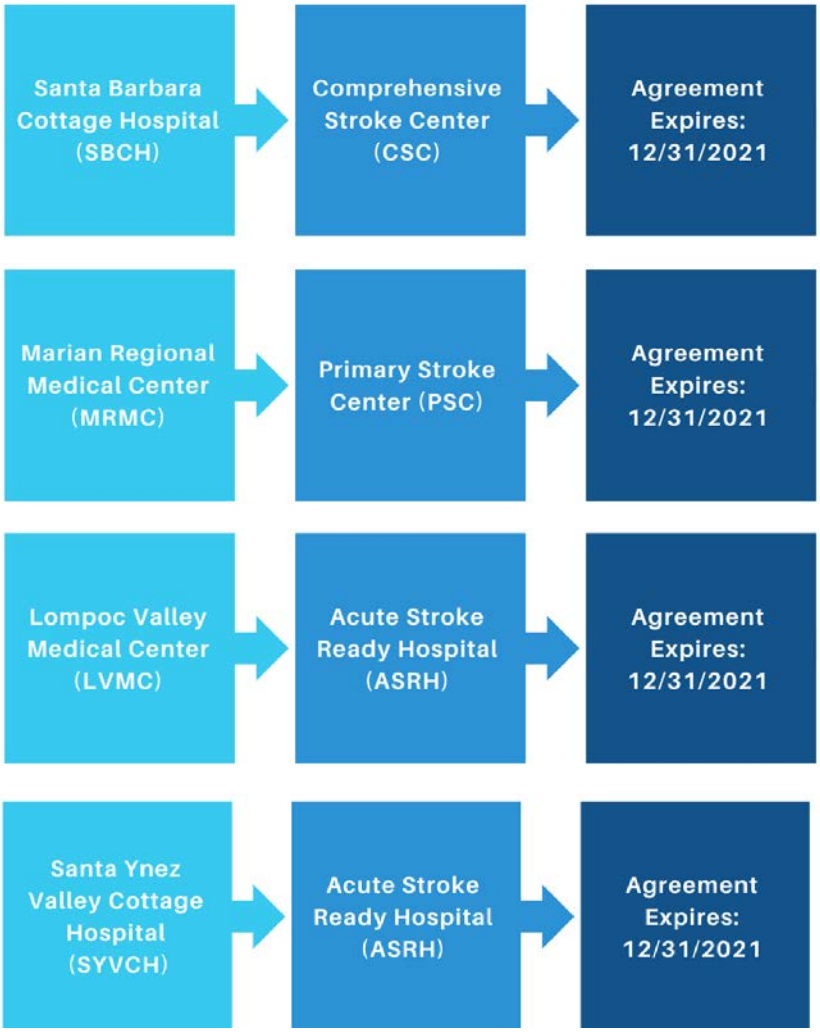
SANTA BARBARA COUNTY STROKE CENTERS

Santa Barbara County has five acute care facilities, each of which are prehospital receiving centers and act as Base Hospitals (BH). Base Station services are provided via a contract between the facility and SBCEMSA, and reviewed within a 5-year period (Policy 610). Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC). There are two Base Hospitals certified as Acute Stroke Ready Hospitals (ASRH); one is a Primary Stroke Center (PSC) and the other is a Comprehensive Stroke Center (CSC). Conversely, one hospital remains a Base Hospital only with no Stroke certification or designation.

The California State Regulations define these three types of Stroke Centers by the following criteria:

- *Comprehensive Stroke Center* – A hospital that "…diagnose and treat all stroke cases and provide the highest level of care for stroke patients."

- *Primary Stroke Center* – A hospital that "…stabilizes and treats acute stroke patients, providing initial acute care, and may transfer to one or more higher level of care centers when clinically warranted."
- *Acute Stroke Ready Hospital* – A hospital that is "…able to provide the minimum level of critical care services for stroke patients in the emergency department, and are paired with one or more hospitals with a higher level of stroke services."



Santa Barbara County Emergency Medical Services Agency has written agreements with hospitals that are designated stroke receiving hospitals. To be considered for stroke receiving center designation, hospitals must hold current certification with The Joint Commission, American Heart Association or the Center for Improvement in Healthcare Quality. Stroke Centers must also maintain compliance with SBCEMSA's designation criteria outlined in *Policy 651 – Acute Stroke Center (ACS) Standards.*

SANTA BARBARA COUNTY PREHOSPITAL PROVIDERS

The County of Santa Barbara is comprised of a mix of public and private EMS Advanced Life Support (ALS) providers as well as a number of Basic Life Support (BLS) First Responders. A combination of ground, air and specialty critical care transport (CCT) are all offered within the county. The community can access emergency transport services via public ambulance providers through the 9-1-1 system. All ALS vehicles used to transport patients within the County are required to have two-way radios. All Base Hospitals have the capability of communicating with the prehospital providers in their area by means of radios and/or phones.

Once on scene, the first responder and ambulance transport crews coordinate their efforts to rapidly identify, treat, and transport stroke patients to the most appropriate Stroke Receiving Center. When needed, prehospital providers can contact base hospital personnel for medical direction. Field crews notify the Stroke Receiving Center of the incoming patient with a *"Stroke Alert"* radio report in order to allow hospital staff to prepare for expeditious triage and treatment upon patient arrival.

Prehospital providers work closely with the hospital staff to ensure that all pertinent information is relayed for a seamless transition within the continuum of care. To facilitate this continuum of care, SBCEMSA has implemented a prehospital data collection system where all prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently, the EMS Agency is collecting data electronically with all ALS and BLS providers.

THE STROKE PATIENT

SBCEMSA believes that early identification of stroke symptoms by emergency medical personnel is a valuable part of optimal care for the victims of stroke. EMS professionals should attempt to determine the time the patient was last known to be neurological symptom free. It is imperative that both field and hospital clinicians are well trained and educated on stroke assessments, including the utilization of the Cincinnati Stroke Scale.

SBCEMSA has a policy in place to assist field providers in the rapid identification of a patient who may be suffering a stroke. *Policy 533-22 Stroke* provides an algorithm for assessment and treatment therapies to determine if a patient meets acute "*Stroke Alert*" criteria and guidance for BH communication.

DESTINATION

In stroke systems of care, stroke patients should be transported to the most appropriate facility staffed and equipped to manage an acute stroke patient. This determination will include assessments of local resources and transport times. [4] For patients who meet "*Stroke Alert*" criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors. Ground transport times for the majority of the county are less than 20 minutes. In areas with

[4] Recommendations for The Establishment of an Optimal System of Acute Stroke Care for Adults pp 26

prolonged transport times, such as most northern parts of the County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Mercy Air (located in San Luis Obispo) and Santa Barbara County Fire Department ALS Air Rescue can be utilized for Stroke scene transports.

COMMUNICATION

If a suspected stroke patient is en route to the Base Hospital, the Emergency Medical Service personnel should provide pre-hospital notification to the stroke-receiving center via Base Hospital radio report on 10 Channel UHF mobile radio. Doing so will ensure that the appropriate hospital resources are mobilized before patient arrival.[5]

SBCEMSA has a policy in place to give direction on administering a notification report to receiving hospitals. *Policy 305 – Reporting Format* addresses the minimum acceptable information to be communicated and provides a standardized and consistent approach to prehospital notifications.

INTERFACILITY TRANSFERS (IFT)

Four out of five of Santa Barbara County's receiving hospitals are currently certified as one of three levels of stroke centers. Patients who require treatment not available at the receiving hospital are transferred expeditiously to the appropriate facility (which may also include out-of-county facilities). Each stroke receiving hospital has:

- Prearranged agreements with stroke receiving hospitals (primary or comprehensive) for transfer of patients
- Prearranged agreements with EMS providers for rapid transport of patients who are eligible for time-sensitive treatments

Emergency departments maintain a standardized procedure for the treatment of stroke patients. Additionally, Emergency departments will continuously monitor and track the ongoing care of stroke patients and determine if there are any potential improvement initiatives.

Interfacility transfers (IFTs) may apply to patients who would benefit from being transferred emergently from a non-stroke receiving hospital to a stroke receiving hospital, or those that might benefit from being transferred from a stroke receiving hospital with primary stroke center capabilities to a comprehensive stroke center or equivalent.[6] In either case, emergency transfer protocols are pre-arranged, and it is understood that transport should be provided with the urgency of a 9-1-1 response.

[5] 2018 Guidelines for Management of Acute Ischemic Stroke pp 7

[6] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/CDPH-Stroke-Document-2010-Published.pdf

SBCEMSA has a policy in place to provide guidelines for ambulance transport of patients between acute care hospitals. *Policy 405—Interfacility Transfer* outlines transfer procedures, automatic acceptance and medical control to ensure that patient needs are being met while providing quality rapid transport to definitive treatment.

DATA COLLECTION

The primary aim of Santa Barbara County's Stroke Critical Care System is to develop a comprehensive system that provides timely access to proven treatments necessary to reduce morbidity and mortality. It is through continuous quality improvement efforts that stroke patients receive care based on best practices. Implementation of quality improvement programs and clinical best practices reduces morbidity and mortality, hence improves patient outcomes.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the prehospital stroke case reviews and the submitted hospital stroke data. Retrospective data collection and analysis lie at the heart of quality improvement. Data aids in understanding how well the systems work, identifying potential areas and trends for improvement and education, setting measurable goals, and monitoring the effectiveness of change. The goal is to connect data from across the continuum of care from prehospital to in-hospital to post-hospital disposition in order to optimally evaluate patient outcomes.[7]

Currently, SBCEMSA collects stroke prehospital care data elements through electronic Patient Care Record (ePCR) extraction. Data elements that are specific to Stroke centers are extracted through a common software registry platform shared with the hospitals called *Get With The Guidelines-Stroke (GWTG-Stroke).*

STROKE QUALITY IMPROVEMENT

Reaching for excellence in any system requires a functional decision making process among the team of workers and users within that system. Inherent to this process is the need to know how the system is functioning, identifying any known or potential problems, and determining the best method of approaching and implementing change within the system to improve patient care.

The concept of continuous quality improvement (CQI), particularly in the field of health care, relies mainly upon the following fundamental components:

- The availability of reliable and trusted information;
- The ability to effectively communicate that information in comprehensible ways;
- A standardized approach to reaching decisions and acting on those decisions; and

[7] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/Core-Measure-Report-for-2016-Data.pdf

- The ability to measure performance using reliable statistical methods, and using that information to build quality into the process.[8]

In addition to establishing CQI, it is equally as important to establish a mechanism for evaluating the changes/outcomes to benefit the stroke system of care. The goal of performance evaluation is to review the system design, determine the appropriateness of prehospital care, and whether or not the system is meeting and/or exceeding national standard goals and guidelines.

STROKE CARE COMMITTEE

As the delivery of stroke care evolves to become more interconnected, coordinating care between prehospital providers, nurses, physicians, and other disciplines has become increasingly important. In its simplest form, interprofessional collaboration is the practice of approaching patient care from a team-based perspective.

When implementing interprofessional collaboration, learning to work together, and respecting one another's perspectives in healthcare, multiple disciplines can work more effectively as a team to help improve patient outcomes. In addition, it improves the coordination and communication between healthcare professionals and in turn, improves the quality and safety of patient care.

SBCEMSA has a Stroke Care Committee that has representation from each of the Stroke Centers as well as members that represent the prehospital providers in our area. The Stroke Care Committee meets regularly and is tasked at reviewing performance data, identifying areas in need of improvement, carrying out, and monitoring improvement efforts. For

these activities, the committee uses a variety of QI approaches and tools, including Plan, Do, Study, Act (PDSA) cycles, assessments, audits and feedback, benchmarking, case review and best practices research.

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[8] Stroup, Craig, *Fundamentals of Emergency Medical Services System Evaluation and Quality Improvement* (Pinecrest Publishing House, 2015), 5.

[9] https://www.rwjf.org/en/library/articles-and-news/2010/11/interdisciplinary-collaboration-improves-safety-quality-of-care-.html

effectiveness of educational and community-based programs designed to prevent disease and injury, improve health, and enhance quality of life. Educational and community-based programs play a key role in:

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NEIGHBORING EMS AGENCIES

Due to the complex nature of an EMS System that has multiple agencies that provide local operational oversight, it is imperative to have processes in place in which patients' care is uninterrupted despite crossing county line. SBCEMSA has established Stroke Critical Care System agreements with each of the Local EMS Agencies who have a bordering county to Santa Barbara County.

APPENDICES:

Appendix A

SBCEMSA Policy 600: Receiving Hospital Standards

Appendix B

SBCEMSA Policy 650: Stroke General Guidelines

Appendix C

SBCEMSA Policy 651: Stroke Center Standards

Appendix D

SBCEMSA Policy 652: Stroke Transfer Guidelines

Appendix E

SBCEMSA Policy 653: Stroke Performance Improvement Process

APPENDIX A
SBCEMSA POLICY 600:
RECEIVING HOSPITAL STANDARDS

Policy Number:	*600*
Original Issue Date:	*June, 2002*
Last Reviewed/Revised:	*February 19, 2020*
Effective Date:	*March 01, 2020*
Next Review:	*February, 2022*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

RECEIVING HOSPITAL STANDARDS

I. Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100170.

III. Definitions: None

IV. Policy:

A. A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

V. Procedure:

A. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.
   1. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.
   2. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

B. The Receiving Hospital shall agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

C. The Receiving Hospital shall actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance

D. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:
   1. Be licensed by the State Department of Health Services as a general acute care hospital.
   2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
   3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
   4. Operate an Intensive Care Unit.
   5. Have operating room services available within 30 minutes.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Daniel Shepherd, MD, EMS Agency Medical Director

6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:
   a. Cardiology
   b. Orthopedic Surgery
   c. Thoracic Surgery
   d. Anesthesiology
   e. General Surgery
   f. Pediatrics
   g. Neurosurgery
   h. General Medicine
   i. Obstetrics
7. Have the following services available within 20 minutes:
   a. X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:
    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.
11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.
    a. All Receiving Hospital physicians shall:
       i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.
    b. All Receiving Hospital Registered Nurses shall:
       i. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       ii. Maintain current Advanced Cardiac Life Support certification.
    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

VI. References: None

VII. Attachments: None

APPENDIX B
SBCEMSA POLICY 650:
STROKE GENERAL GUIDELINES

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*650*
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE CARE SYSTEM GENERAL GUIDELINES

I. Purpose: To provide standards and guidelines for the Stroke Care System which serves the County of Santa Barbara. To provide all presumed Acute Stroke patients the accessibility to an organized, multi-disciplinary and inclusive system of Stroke care. To ensure that all presumed Acute Stroke patients are taken to the closest most appropriate medical facility that meets the needs of the patient and applies the standards established for this Stroke Care System.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Section 100270.220 and 100270.221.

III. Definitions: None

IV. Policy:

A. There shall be a written agreement between all hospitals within Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. The Santa Barbara County EMS Agency (SBCEMSA) and all system participants will be involved in an organized Stroke Care System, the guidelines of which are outlined here:

1. Multi-disciplinary nature of the Stroke Care System
   a. SBCEMSA recognizes the multi-disciplinary nature of a systemized approach to stroke care.
   b. SBCEMSA has adopted policies, guidelines and triage criteria that provide for the coordination of all resources and ensure the accessibility to the closest, most appropriate medical facility for all stroke patients, regardless of their ability to pay for such services.
   c. SBCEMSA has established a Stroke Care System Performance Improvement Process, and the Stroke Care System Quality Improvement Committee. These processes and committees represent all involved disciplines to ensure a broad-based quality review of all Stroke Care System activities.
2. Public Information and Education about the Stroke Care System
   a. SBCEMSA is committed to the establishment of Stroke Care System support and the promotion of awareness and prevention education.
   b. SBCEMSA facilitates speakers to address public groups, and serves as a resource for stroke information, education, and prevention.
   c. SBCEMSA assists community and professional groups in the development and dissemination of education to the public.

V. Procedure:

A. Stroke Care System – GENERAL GUIDELINES
   1. Marketing and Advertising

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

a. All marketing and promotional plans, with respect to Stroke center designation shall be submitted to SBCEMSA for review and approval, prior to implementation. Such plans will be reviewed by SBCEMSA based on the following guidelines:
   i. Shall provide accurate information;
   ii. Shall not provide false claims;
   iii. Shall not be critical of other providers; and
   iv. Shall not use financial rewards to any provider to increase its census.

2. EMS Dispatching
   a. The SBCEMSA has approved dispatching policies and procedures for the County. The dispatch of prehospital care providers will continue, as per the operational procedure for the County.
3. Training of Prehospital EMS Personnel
   a. SBCEMSA will facilitate training for all prehospital providers on any policy and/or operational change associated with Stroke Care System implementation.
   b. All level of designated stroke facilities will provide training to hospital staff on Stroke Care System policies and procedures.
4. Medical Control and Accountability, including Triage and Treatment Protocols
   a. Each designated Acute Stroke Center center shall:
      i. Provide base hospital medical control for field prehospital care providers.
      ii. Participate in the SBCEMSA data collection system.
      iii. Participate in the SBCEMSA continuous quality improvement program.

VI. References:

A. SBCEMSA Stroke Care System Plan

VII. Attachments: None

APPENDIX C
SBCEMSA POLICY 651:
STROKE CENTER STANDARDS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*651*
Original Issue Date:	*January 01, 2016*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

ACUTE STROKE CENTER (ASC) STANDARDS

Purpose: To define the criteria for designation as an Acute Stroke Center (ASC) in Santa Barbara County.

I. **Authority:** California Health and Safety Code, Sections 1797.114, 1797.220, 1798, 1798.2, and California Code of Regulations, Title 22, Sections 100270.223, 100270.224, 100270.225 and 100270.226.

Definitions:

A. *Primary Stroke Center (PSC):* A hospital certified by an accrediting healthcare organization.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Acute Stroke Center (ASC):* Thrombectomy-capable, Comprehensive, Primary or Acute Stroke Ready Hospitals that meet the requirements of, and are designated by, the Santa Barbara County EMS Agency.
D. Thrombectomy-Capable Stroke Center (TCSC): Provides endovascular procedures and post-procedural care.
E. Comprehensive Stroke Center (CSC): Highest level of stroke certification available. Provides advanced neuro interventional procedures for the most complex stroke cases.

Policy:

F. There shall be a written agreement between all Acute Stroke Centers in Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Trauma System participation as specified by State regulations and SBCEMSA policies and procedures.
G. An Acute Stroke Center (ASC), approved and designated by SBCEMSA shall meet the following requirements:
   1. All the requirements of a Receiving Hospital as listed in SBCEMSA Policy 600.
   2. Certification as a Comprehensive Stroke Center (CSC), Thrombectomy-Capable Stroke Center (TSC), Primary Stroke Center (PSC) or an Acute Stroke Ready Hospital (ASRH) by either The Joint Commission (TJC), the Center for Improvement in Healthcare Quality (CIHQ) or the American Heart Association (AHA).
   3. Actively participate in SBCEMSA's Stroke Quality Improvement Program including:
      a. Participate in the creation of a standardized data registry under the direction of SBCEMSA
      b. Submit data into the registry 60 days after the end of the month in which the patient's hospital admission took place
   4. Acute Stroke Centers (ASC) must have policies and procedures that allow the automatic acceptance of any acute stroke patient requiring immediate intervention (fibrinolytic or endovascular procedure) from a hospital within Santa Barbara County that is not designated as an ASC, upon notification by the transferring physician.
H. Data Entry

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

ACUTE STROKE CENTER STANDARDS

1. The SBCEMSA shall implement a standardized data collection and reporting process for the Stroke Care System.The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated Stroke centers are required to submit Stroke care data into the SBCEMSA's designated Stroke registry.
   a. The Stroke Nurse Coordinator from each designated facility will submit Stroke data to SBCEMSA on a monthly basis through registry entry
      i. Data will be entered into an SBCEMSA-approved registry and submitted monthly, no later than 60 days after the Stroke admit date
      ii. Data registry costs shall be incurred by the designated Stroke Centers

Procedure:

I. Designation Process
   1. Application:
      a. An ASC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
         i. Eligible hospitals will submit a written request for ASC designation to the EMS Agency no later than 60 days prior to the desired date of designation, documenting the compliance of the hospital with Santa Barbara County ASC standards.
   2. Approval:
      a. Upon receiving a written request for ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with state requirements.
      b. ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after the receipt of the request for approval and all required documentation and completion of the SBCEMSA site survey.
         i. ASC designation approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
   3. The SBCEMSA may deny, suspend, or revoke the designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
      a. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.
   4. ASCs shall be reviewed on a biannual basis.
      a. ASCs shall receive notification of evaluation from the EMS Agency.
      b. ASCs shall respond in writing regarding program compliance.
      c. On-site ASC visits for evaluative purposes may occur.
      d. ASCs shall notify the SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance performance.
   5. Revocation.
      a. ASC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSApolicies, procedures or regulations. This includes but is not limited to:
         i. Failure to provide required data
         ii. Failure to participate in Stroke system QI activities
         iii. Other criteria as defined and reviewed by the Stroke QI Committee

J. Provisional Designation Process
   1. The SBCEMSA may grant provisional designation as an ASC to a requesting hospital that has satisfied the requirements of an ASC as outlined in Section B of this policy, but has yet to receive certification as a CSC, TSC, PSC or ASRH. Only when the following requirements are satisfied, will the SBCEMSA grant a provisional designation.
      a. Application:
         i. Eligible hospitals shall submit a written request for provisional ASC designation to the SBCEMSA no later than 60 days prior to the desired date of the provisional designation, documenting the compliance of the hospital with Santa Barbara County ASC Standards.
      b. Provisional approval:
         i. Upon receiving a written request for provisional ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with stated requirements.
         ii. Provisional ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within two weeks after receipt of the request for approval and all required documentation, as well as the completion of the SBCEMSA on-site survey. ASC provisional approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
         iii. To receive Provisional Designation, the facility must have satisfied all requirements of The Joint Commission (TJC) or Center for Improvement of HealthCare Quality (CIHQ) for CSC, TSC, PSC or ASRH, and have only a pending site survey and certification from TJC or CIHQ.
         iv. Certification as aCSC, TSC, PSC, or ASRH shall occur no later than six (6) months following provisional designation as an ASC by the EMS Agency.
      c. The SBCEMSA may deny, suspend, or revoke the provisional designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
         i. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the provisional ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.

II. References:

A. Policy 600 Receiving Hospital Standards

III. Attachments: None

APPENDIX D
SBCEMSA Policy 652:
Stroke Transfer Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*652*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE TRANSFER GUIDELINES

I. Purpose: To define the "Code Stroke" process by which patients with an acute stroke are transferred from a Acute Stroke Center or non-stroke hospital to a higher level of Stroke Center such as Primary Stroke Center (PSC), Thrombectomy Capable Stroke Center(TCSC) or Comprehensive Stroke Center(CSC) for emergency intervention.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.220 and 100270.222.

III. Definitions:

A. *Acute Stroke Center (ASC):* Primary Stroke Centers or Acute Stroke Ready Hospitals who have met the requirements of, and are designated by, the Santa Barbara County EMS Agency.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Primary Stroke Center (PSC):* A hospital that is certified by an accrediting healthcare organization diagnostic, pharmacological and acute stroke care, not requiring endovascular intervention.
D. *Thrombectomy-Capable Stroke Center (TCSC)*: Provides endovascular procedures and post-procedural care
E. *Comprehensive Stroke Center (CSC):* Highest level of stroke certification available. Provides advanced neuroendovascular interventional procedures for the most complex stroke cases.

IV. Policy:

A. All Hospitals within the Santa Barbara County Stroke Care System shall have written transfer agreements with the higher level designated Stroke Center Facilities within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. Patient transfer from: Acute Stroke Centers (ASC) to a higher level of care Stroke Center (ASRH to PSC; ASRH to TCSC/CSC; PSC to TCSC/CSC):
   1. After Stroke evaluation, arrange immediate transport for patients requiring a higher level of care than can be given at the current ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize Door to CT performance and interpretation times, door to tPA times, Door In/Door out time and other time intervals set forth by the Stroke Care Quality Improvement System Committee.
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
   4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the ASC, as appropriate.
   5. Upon identification of the patient needing transport, have procedures in place to call dispatch for a Level one transport for Stroke Alert.
   6. Maintain transfer agreements with surrounding ASCs.
   7. Establish policies and procedures for notifying the receiving ASC of the impending arrival of Acute Stroke patient

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

8. Pt records or test results shall not delay transport to an ASC

C. Non-Stroke Hospital
   1. Immediate transfer of patients with suspected Acute Stroke system to the nearest ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize "Door In/Door out time".
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the Acute Stroke Center as appropriate.

D. Ambulance or helicopter transporting agencies will:
   1. Respond immediately upon request for Level 1 Stroke Alert transfer.

E. Acute Stroke Centers will:
   1. Maintain accurate status information on ReddiNet regarding the availability of a CT Scanner, per SBCEMSAPolicy 307 ReddiNet Communications
   2. Immediately upon initial notification by a transferring physician, automatically accept in all transfer patients who have been diagnosed with an Acute Stroke and who, in the judgment of the transferring physician, require urgent higher level of care.
   3. Authorize the emergency physician to automatically accept transfer of any patient with an Acute Stroke.
   4. Establish an internal communications plan that assures the immediate notification of all necessary individualsof the transfer.

V. Procedure:

A. Upon diagnosis of Acute stroke and the need for transfer to a higher level of care, and after discussion with the patient, the ASC will:
   1. Determine availability of the receiving ASC by checking ReddiNet.
   2. Immediately call the County Dispatch Center to request an air or ground ambulance (ALS or CCT).
   3. Advise that they have a Code Stroke transfer.
   4. After calling for ambulance, the transferring physician will notify the receiving ASC emergency physician of the transfer.
   5. Perform, as time allows, indicated diagnostic tests and treatments.
   6. Complete transfer consent, Stroke transfer data forms and, as time allows, a treatment summary.
      a. If this cannot be done prior to transfer, fax immediately to the accepting ASC and SBCEMSA Specialty Care Programs Coordinator.
   7. Include copies of the ED face sheet and demographic information.
   8. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to therecieving ASC.
   9. Contact ASC for nurse report at the time, or immediately after, the ambulance departs with the patient.

B. Upon request for Level 1 Code Stroke transfer, the dispatch center will dispatch the closest available ambulance or CCT unit, per hospital direction.

C. The patient shall be urgently transferred without delay. Every effort will be made to minimize on-scene time.
   1. All forms should be completed prior to ambulance arrival.
   2. Any diagnostic test results may be relayed to the receiving ASC after patient departure.
   3. Intravenous drips may be discontinued or remain on the ED pump if appropriate for level of service.

D. Upon notification, the receiving ASC will notify the Stroke team staff, who will respond immediately

E. All ASCs shall review all Stroke transfers within 72 hours for appropriate and timely care and to identify opportunities for improvement. The Stroke Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hoursResults may be reviewed and discussed at the SBCEMSA Stroke System Committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 STEMI Receiving Center Standards
C. Policy 511 EMS Transport Zones
D. Policy 307 Reddinet Communications

VII. Attachments

A. Stroke Transfer Form

Appendix E

SBCEMSA POLICY 653:

STROKE PERFORMANCE IMPROVEMENT PROCESS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	653
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE PERFORMANCE IMPROVEMENT PROCESS

I. Purpose: Santa Barbara County Emergency Medical Services Agency (SBCEMSA) will ensure quality within the Stroke Care System through a Performance Improvement Process. This includes monitoring of structural, process and outcome standards.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Sections 100270.228 and 100270.229.

III. Definitions: None

IV. Policy:

A. The SBCEMSA Medical Director shall establish a Stroke Care System Quality Improvement (QI) Commitee

B. The Stroke Care System QI Committee is an advisory committee to the SBCEMSA on issues related to Stroke patient care and the Stroke system.

1. The Stroke care administered to patients of the Santa Barbara County Stroke Care System will be reviewed for appropriateness of care and patient outcome.

C. Committee membership is assigned by the SBCEMSA and includes:

1. SBCEMSA Specialty Care Systems Coordinator (Co-Chair)
2. SBCEMSA Medical Director (Chair)
3. Stroke Center Medical Directors & Stroke Nurse Coordinators
4. ALS transport provider representative(s), as needed

D. Stroke Care System QI Committee meetings will be held on a regular basis and limited to committee members and invited guests, approved by Committee Chair

V. Procedure:

A. Scope of Process and Outcome Standards Review:

1. Preliminary Review: Occurs at the Stroke Center, Medical Director and Stroke Nurse Coordinator level. This internal review takes place monthly.
   a. All deaths, questionable cases and negative outcomes may be referred to the Stroke Care System QI Commitee
   b. These charts will be brought to the Stroke Care System QI Commitee by each facility's Stroke Nurse Coordinator.
   c. This committee will meet three (3) times per year, unless additional meetings are necessary.
   d. Any Stroke Program Medical Director has the right to bring up any case he/she feels should be reviewed even if it does not meet the physician Stroke audit criteria.
2. The SBCEMSA Specialty Care Systems Coordinator will review all cases entered into the Stroke Registry database on a monthly basis for compliance with the following:
   a. Policies, procedures and protocols,
   b. Prehospital treatment of Stroke patients to include appropriateness of response, evaluation, treatment, and transport by prehospital personnel.
   c. Appropriate use of prehospital Stroke Alert and Hospital Code Stroke Triage Criteria

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, SBEMSA Director

SIGNATURE ON FILE
Angelo Salvucci, MD, SBEMSA Medical Director

   d. Complications will be referred to SBCEMSA Medical Director for review
   e. All helicopter transports of Stroke patients
3. The Stroke Nurse Coordinator from each designated facility will work with the SBCEMSA Specialty Care Systems Coordinator to obtain the necessary chart materials for the medical review process and the Committee meetings.
4. Physician Stroke Audit Criteria (any of the below, but not limited to):
   a. All Stroke Deaths
   b. Door to reperfusion times
   c. Major complications
   d. Stroke transfers from another hospital

B. Attendance:
1. Attendance for all committee members is mandatory.
   a. The Stroke Medical Directors and Stroke Nurse Coordinators must attend 75% of the scheduled meetings annually.
   b. Committee members shall notify the Committee Chair (or designee) at least three (3) business days in advance of the meeting if they are unable to attend.
      i. Alternate committee members must be approved at least three (3) business days in advance by the Committee Chair (or designee)
2. The Committee Chair (or designee) shall approve all requests for guests to attend the meeting.
   a. Requests for guests must be made at least three (3) business days in advance.
   b. The Committee Chair reserves the right to approve or deny requests

C. Meeting Documentation:
1. The agenda, minutes, monthly EMS reports and chart materials will be distributed to members in advance of the meeting.
2. Members are expected to review meeting materials prior to attendance.

D. Confidentiality:

All proceedings, documents, and discussions of the Stroke Care System QI Committee are confidential and are covered under Sections 1040 and 1157.7 of the Evidence Code: "The prohibition relating to discovery of testimony provided to the Committee will be applicable to all proceedings and records of this Committee, which is one established by a local government agency as qualified to render specialty health care services".

1. All members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through medical review committee membership. These are updated on an annual basis.
   a. Prior to the guest(s) participating in the meeting, the Committee Chair (or designee) is responsible for explaining, and obtaining, a signed confidentiality agreement from invited guests.
   b. Guests may or may not be invited to the entire meeting at the discretion of the Committee Chair.
2. No copies of records are to leave the room in which Stroke Care System QI Commitee meetings are held; all copies will be shredded at the SBCEMSA Office.

VI. References: None

VII. Attachments: None

Santa Barbara County EMS Agency

Stroke Critical System of Care

UPDATE 2021

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SANTA BARBARA COUNTY EMS AGENCY
ORGANIZATION

Van Do-Reynoso, MPH, PhD

Director of Public Health

Henning Ansorg, M.D.

Health Officer

Nick Clay

EMS Agency Director

Daniel Shepherd, M.D.

EMS Agency Medical Director

Gabriela Modglin, BS, Paramedic

EMS Agency Specialty Care Systems Coordinator

Santa Barbara County PUBLIC Health DEPARTMENT

EXECUTIVE SUMMARY

California statute mandates the Emergency Medical Services Authority (EMSA) to adopt necessary regulations to carry out the coordination and integration of all state activities concerning Emergency Medical Services (EMS) (Health and Safety Code §1797.107). In addition, State statute allows the EMS Authority to establish guidelines for hospital facilities, in cooperation with affected medical organizations, according to critical care capabilities (Health and Safety Code §1798.150). As a result of these statutes, the EMS Authority established a multidisciplinary stroke taskforce for the development of Stroke System of Care Regulations for California.[1]

California's Statewide Stroke Critical Care System is described in the California Code of Regulations; Title 22, Division 9, Chapter 7.2. These regulations outline the requirements of all components of the Stroke Critical Care System including the Local Emergency Medical Services Agency (LEMSA), prehospital providers, and hospitals.

The regulations emphasize the significance of data management, ongoing quality improvement and importance of establishing a consistent evaluation process to further promote high-quality care to the stroke patient. The overall goal of the regulations is to reduce morbidity and mortality from acute stroke disease by improving the delivery of emergency medical care within the communities of California.

Santa Barbara County Emergency Medical Services Agency (SBCEMSA) already has many of the regulations in place, including prehospital care policies to identify stroke patients, identify designated stroke receiving hospitals, and stroke destination policies. As a requirement of the California Regulations, this document is to serve as a formal written plan for the SBCEMSA Stroke Critical Care System. SBCEMSA's Stroke Critical Care System Plan has been written in accordance with Title 22, Division 9, Chapter 7.2 of the California Code of Regulations.

[1] https://emsa.ca.gov/about-stroke/

STROKE CRITICAL CARE SYSTEM

Approximately 795,000 Americans suffer a stroke every year, with a significant mortality of 1 stroke-related death every four minutes. Stroke is the most common cause of adult long-term disability in the United States. It is a life-changing event that places a heavy burden on patients, families, and caregivers. When a patient is suffering an ischemic stroke, timely intervention is critical, not only to improve survivor quality of life, but to also reverse the damage and reduce mortality, morbidity, and disability.

Hospitals have traditionally been designated as a stroke receiving hospital by their Local EMS Agency because of differing standards from one geographic area to the next. Public safety is best served when patients receive a regulated form of care based on national standards and best practices. This implementation of standardized statewide requirements for stroke care will provide consistent treatment across the state.[2] Santa Barbara County's Stroke Critical Care System is a subspecialty care component of the EMS system that was developed by the SBCEMSA. This critical care system links prehospital and in-hospital care to deliver treatment to stroke patients who potentially require immediate medical, or surgical, intervention.

STROKE CONTINUUM OF CARE

The Stroke Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a coordinated, comprehensive stroke program for the county that addresses the needs of the patient suffering from an acute stroke. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality stroke services while remaining sensitive to the intrinsic resource and financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality stroke system. It is only through this partnership and adherence to quality stroke care standards that the goals of this plan will be achieved.

This Stroke Critical Care System Plan designs a countywide stroke system in order to:

- Rapidly identify stroke patients through assessment;
- Assure timely transport to the closest, most appropriate Acute Stroke Center destination for definitive care;
- Identify, monitor and measure preventable death and disability from stroke and other cardiovascular events;
- Monitor and assure timely, optimal stroke services in a cost-efficient manner through close coordination of prehospital and hospital services; and
- Monitor outcomes and participate in continuous quality improvement efforts.

Stroke systems of care improve care and support for stroke patients throughout their health care journey. We know that what matters to a patient's outcome is reducing the time between the initial onset of stroke symptoms and the transition from EMS to hospital intervention. Together, EMS agencies, hospitals, and health care facilities collect and analyze data about stroke patients and care. When best practices and data are shared, the different disciplines can work together to improve patient care.[3]

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[2] https://emsa.ca.gov/wp-content/uploads/sites/47/2018/04/Stroke-ISOR.pdf

[3] https://www.cdc.gov/dhdsp/programs/about_pcnasp.htm

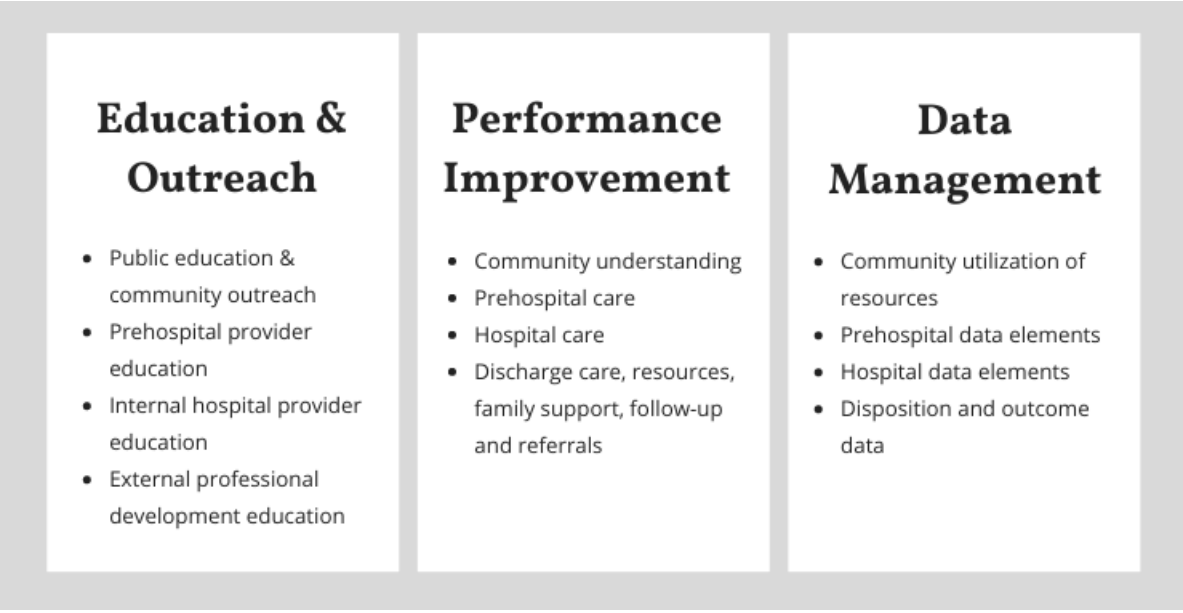
The continuum of care is important to caregivers and patients alike. It leads to an improvement of patient satisfaction levels, reduces costs, and improves health. Keeping up the continuum of care is especially significant for specific patient populations such as those who are more dependent on the health services, the elderly, those suffering from complex medical conditions, the mentally vulnerable and those with chronic diseases. Due to the aforementioned examples, the continuum of care is particularly beneficial to the stroke patient population. Stroke systems of care depend on robust collaboration to ensure that the continuum of care is optimally exercised.

THREE AREAS OF COLLABORATION: A TEAM APPROACH

Recognizing that patient outcomes are greatly dependent on the rapidity and quality of treatment within each level of care on the continuum, it is critical for Santa Barbara County providers to work in collaboration with a team approach wherever possible. Common themes span across the Prehospital, In-Hospital and Post-Hospital levels that identify opportunities to maximize SBCEMSA's team approach to reach the optimum level of care for stroke patients.

Community education, EMS and other healthcare professionals all promote and support an integrated system of care. Inter-professional and interdisciplinary education systems prepare care providers to work collaboratively together as a team. When combined with community education and outreach efforts, the patients and their families have an active role in their personal health and well-being.

Performance Improvement invariably involves work across multiple systems and disciplines within a practice. Within the healthcare practice continuum, this is particularly applicable as patients have various formal and informal care providers throughout their course of illness and into their discharge disposition. Good data can help identify, verify and proactively address issues, measure progress and capitalize on opportunities. When data is gathered, tracked, and analyzed in a credible way over time, it becomes possible to measure progress and success. Policies, procedures, services, and interventions can then be evaluated and transformed as necessary.



A team approach from a truly integrated healthcare system will go beyond education, outreach, performance improvement and data management/sharing. SBCEMSA's aim is to create a seamless system, which requires EMS professionals and community partners to commit to the same-shared objectives and find ways to achieve them together. This team approach from a patient-centered EMS system takes advantages of the strengths and resources brought by each organization and provider to protect the health and wellness of individuals and communities.

STAKEHOLDERS

SANTA BARBARA COUNTY

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities limit accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county, together with humid conditions, create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility which greatly contributes to high-crash rates in rural areas of Santa Barbara County. Residents in rural areas of the county often times require the transport/transfer of critical patients by means of air ambulance. Dense fog hinders accessibility to healthcare services for these patients as air ambulance transport may not be an option during times of poor visibility.

Santa Barbara County can be divided by two geographic planes: North County and South County. Both North and South County regions are equipped with two major hospitals capable of caring for specialty care patients. In the North County, residents have access to Marian Regional Medical Center (MRMC), and in the South County, residents have access to Santa Barbara Cottage Hospital (SBCH). Both hospitals have a helipad for transport/transfer of critical patients by means of air ambulance.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is available via Amtrak, which has a scheduled stop in the City of Santa Barbara.

Santa Barbara is known as a highly desirable place to live for its exceptional climate and small-town ambiance and beauty. In 2019, the population was 446,499, with 15.7% of the population over 65 years of age. It has an average household income of $89,241 with a poverty rate of 13.22%. The demographics of the County indicate that there are many concentrated low-income areas (compared with 19% of the State population). As the

population of Santa Barbara County continues to age, so does the demand for EMS services in the over 65 age group.[4]

EPIDEMIOLOGY

Data from the Vital Records Department of Public Health show that the 5th cause of death in Santa Barbara County are Cerebrovascular Disease (Stroke), which is consistent with the trend throughout California and the United States.

The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2019:

1. All cancers
2. Coronary Heart Disease
3. Alzheimer's Disease
4. Accidents
5. Cerebrovascular Disease (Stroke)

VISION, MISSION STATEMENT AND VALUES

SBCEMSA's specialty care programs are further refined by the agency's commitment to excellence as defined in the Vision, Mission, Values, and Principles:

- **VISION**
  - To provide leadership and planning that is proactive, continuously seeking ways to improve and optimize emergency medical services.
- **MISSION STATEMENT**
  - To protect and improve health and safety of the people in Santa Barbara County through the provision of high-quality emergency and disaster medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.
- **VALUES**
  - We value the patient as the focus of all we do.
  - We value our system participants.
  - We value honesty and integrity.
  - We value respect, fairness and trust.
  - We value teamwork, cooperation and creative problem solving.

SANTA BARBARA COUNTY STROKE CENTERS

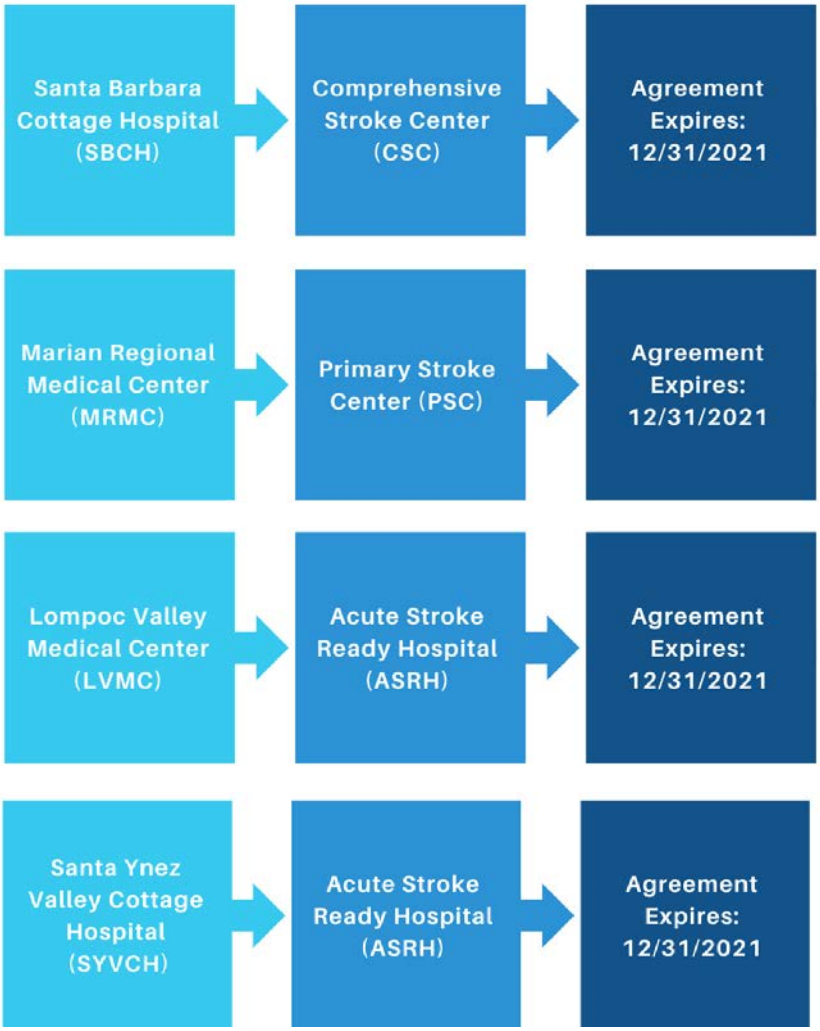
Santa Barbara County has five acute care facilities, each of which are prehospital receiving centers and act as Base Hospitals (BH). Base Station services are provided via a contract between the facility and SBCEMSA, and reviewed within a 5-year period (Policy 610). Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC). There are two Base Hospitals certified as Acute Stroke Ready Hospitals (ASRH); one is a Primary Stroke Center (PSC) and the other is a Comprehensive Stroke

[4] https://www.census.gov/quickfacts/fact/table/santabarbaracountycalifornia/MAN450212

Center (CSC). Conversely, one hospital remains a Base Hospital only with no Stroke certification or designation.

The California State Regulations define these three types of Stroke Centers by the following criteria:

- *Comprehensive Stroke Center* – A hospital that "…diagnose and treat all stroke cases and provide the highest level of care for stroke patients."
- *Primary Stroke Center* – A hospital that "…stabilizes and treats acute stroke patients, providing initial acute care, and may transfer to one or more higher level of care centers when clinically warranted."
- *Acute Stroke Ready Hospital* – A hospital that is "…able to provide the minimum level of critical care services for stroke patients in the emergency department, and are paired with one or more hospitals with a higher level of stroke services."



Santa Barbara County Emergency Medical Services Agency has written agreements with hospitals that are designated stroke receiving hospitals. To be considered for stroke receiving center designation, hospitals must

hold current certification with The Joint Commission, American Heart Association or the Center for Improvement in Healthcare Quality. Stroke Centers must also maintain compliance with SBCEMSA's designation criteria outlined in *Policy 651 – Acute Stroke Center (ACS) Standards.*

SANTA BARBARA COUNTY PREHOSPITAL PROVIDERS

The County of Santa Barbara is comprised of a mix of public and private EMS Advanced Life Support (ALS) providers as well as a number of Basic Life Support (BLS) First Responders. A combination of ground, air and specialty critical care transport (CCT) are all offered within the county. The community can access emergency transport services via public ambulance providers through the 9-1-1 system. All ALS vehicles used to transport patients within the County are required to have two-way radios. All Base Hospitals have the capability of communicating with the prehospital providers in their area by means of radios and/or phones.

Once on scene, the first responder and ambulance transport crews coordinate their efforts to rapidly identify, treat, and transport stroke patients to the most appropriate Stroke Receiving Center. When needed, prehospital providers can contact base hospital personnel for medical direction. Field crews notify the Stroke Receiving Center of the incoming patient with a *"Stroke Alert"* radio report in order to allow hospital staff to prepare for expeditious triage and treatment upon patient arrival.

Prehospital providers work closely with the hospital staff to ensure that all pertinent information is relayed for a seamless transition within the continuum of care. To facilitate this continuum of care, SBCEMSA has implemented a prehospital data collection system where all prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently, the EMS Agency is collecting data electronically with all ALS and BLS providers.

THE STROKE PATIENT

SBCEMSA believes that early identification of stroke symptoms by emergency medical personnel is a valuable part of optimal care for the victims of stroke. EMS professionals should attempt to determine the time the patient was last known to be neurological symptom free. It is imperative that both field and hospital clinicians are well trained and educated on stroke assessments, including the utilization of the Cincinnati Stroke Scale.

SBCEMSA has a policy in place to assist field providers in the rapid identification of a patient who may be suffering a stroke. *Policy 533-22 Stroke* provides an algorithm for assessment and treatment therapies to determine if a patient meets acute "*Stroke Alert*" criteria and guidance for BH communication.

DESTINATION

In stroke systems of care, stroke patients should be transported to the most appropriate facility staffed and equipped to manage an acute stroke patient. This determination will include assessments of local resources and transport times. [5] For patients who meet "*Stroke Alert*" criteria, the prehospital care team will determine

[5] Recommendations for The Establishment of an Optimal System of Acute Stroke Care for Adults pp 26

appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors. Ground transport times for the majority of the county are less than 20 minutes. In areas with prolonged transport times, such as most northern parts of the County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Mercy Air (located in San Luis Obispo) and Santa Barbara County Fire Department ALS Air Rescue can be utilized for Stroke scene transports.

COMMUNICATION

If a suspected stroke patient is en route to the Base Hospital, the Emergency Medical Service personnel should provide pre-hospital notification to the stroke-receiving center via Base Hospital radio report on 10 Channel UHF mobile radio. Doing so will ensure that the appropriate hospital resources are mobilized before patient arrival.[6]

SBCEMSA has a policy in place to give direction on administering a notification report to receiving hospitals. *Policy 305 – Reporting Format* addresses the minimum acceptable information to be communicated and provides a standardized and consistent approach to prehospital notifications.

INTERFACILITY TRANSFERS (IFT)

Four out of five of Santa Barbara County's receiving hospitals are currently certified as one of three levels of stroke centers. Patients who require treatment not available at the receiving hospital are transferred expeditiously to the appropriate facility (which may also include out-of-county facilities). Each stroke receiving hospital has:

- Prearranged agreements with stroke receiving hospitals (primary or comprehensive) for transfer of patients
- Prearranged agreements with EMS providers for rapid transport of patients who are eligible for time-sensitive treatments

Emergency departments maintain a standardized procedure for the treatment of stroke patients. Additionally, Emergency departments will continuously monitor and track the ongoing care of stroke patients and determine if there are any potential improvement initiatives.

Interfacility transfers (IFTs) may apply to patients who would benefit from being transferred emergently from a non-stroke receiving hospital to a stroke receiving hospital, or those that might benefit from being transferred from a stroke receiving hospital with primary stroke center capabilities to a comprehensive stroke center or

[6] 2018 Guidelines for Management of Acute Ischemic Stroke pp 7

equivalent.[7] In either case, emergency transfer protocols are pre-arranged, and it is understood that transport should be provided with the urgency of a 9-1-1 response.

SBCEMSA has a policy in place to provide guidelines for ambulance transport of patients between acute care hospitals. *Policy 405—Interfacility Transfer* outlines transfer procedures, automatic acceptance and medical control to ensure that patient needs are being met while providing quality rapid transport to definitive treatment.

DATA COLLECTION

The primary aim of Santa Barbara County's Stroke Critical Care System is to develop a comprehensive system that provides timely access to proven treatments necessary to reduce morbidity and mortality. It is through continuous quality improvement efforts that stroke patients receive care based on best practices. Implementation of quality improvement programs and clinical best practices reduces morbidity and mortality, hence improves patient outcomes.

SBCEMSA is accountable for regular ongoing analysis and interpretation of the prehospital stroke case reviews and the submitted hospital stroke data. Retrospective data collection and analysis lie at the heart of quality improvement. Data aids in understanding how well the systems work, identifying potential areas and trends for improvement and education, setting measurable goals, and monitoring the effectiveness of change. The goal is to connect data from across the continuum of care from prehospital to in-hospital to post-hospital disposition in order to optimally evaluate patient outcomes.[8]

Currently, SBCEMSA collects stroke prehospital care data elements through electronic Patient Care Record (ePCR) extraction. Data elements that are specific to Stroke centers are extracted through a common software registry platform shared with the hospitals called *Get With The Guidelines-Stroke (GWTG-Stroke).*

STROKE QUALITY IMPROVEMENT

Reaching for excellence in any system requires a functional decision-making process among the team of workers and users within that system. Inherent to this process is the need to know how the system is functioning, identifying any known or potential problems, and determining the best method of approaching and implementing change within the system to improve patient care.

The concept of continuous quality improvement (CQI), particularly in the field of health care, relies mainly upon the following fundamental components:

- The availability of reliable and trusted information;
- The ability to effectively communicate that information in comprehensible ways;
- A standardized approach to reaching decisions and acting on those decisions; and

[7] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/CDPH-Stroke-Document-2010-Published.pdf

[8] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/Core-Measure-Report-for-2016-Data.pdf

- The ability to measure performance using reliable statistical methods, and using that information to build quality into the process.[9]

In addition to establishing CQI, it is equally as important to establish a mechanism for evaluating the changes/outcomes to benefit the stroke system of care. The goal of performance evaluation is to review the system design, determine the appropriateness of prehospital care, and whether or not the system is meeting and/or exceeding national standard goals and guidelines.

STROKE CARE COMMITTEE

As the delivery of stroke care evolves to become more interconnected, coordinating care between prehospital providers, nurses, physicians, and other disciplines has become increasingly important. In its simplest form, interprofessional collaboration is the practice of approaching patient care from a team-based perspective.

When implementing interprofessional collaboration, learning to work together, and respecting one another's perspectives in healthcare, multiple disciplines can work more effectively as a team to help improve patient outcomes. In addition, it improves the coordination and communication between healthcare professionals and in turn, improves the quality and safety of patient care.

SBCEMSA has a Stroke Care Committee that has representation from each of the Stroke Centers as well as members that represent the prehospital providers in our area. The Stroke Care Committee meets regularly and is tasked at reviewing performance data, identifying areas in need of improvement, carrying out, and monitoring improvement efforts. For

these activities, the committee uses a variety of QI approaches and tools, including Plan, Do, Study, Act (PDSA) cycles, assessments, audits and feedback, benchmarking, case review and best practices research.

The Stroke Care Committee provides expertise to address potential quality improvement initiatives within the stroke system, which contributes to the development or revision of stroke related policies, procedures and treatment protocols.

EDUCATION AND OUTREACH

Enhancing interdisciplinary collaboration and coordination in healthcare is imperative. Collaboration between professions starts with interdisciplinary education. To break down those walls, health professionals must begin working together. Interdisciplinary education will lead to more effective communication across disciplines and, ultimately, safer, more affordable, and higher quality care. [10]

There is also a vital component of public education and outreach that contributes to the health and wellness of a community. One of the goals identified in Healthy People 2020 is to increase the quality, availability, and

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[9] Stroup, Craig, *Fundamentals of Emergency Medical Services System Evaluation and Quality Improvement* (Pinecrest Publishing House, 2015), 5.

[10] https://www.rwjf.org/en/library/articles-and-news/2010/11/interdisciplinary-collaboration-improves-safety-quality-of-care-.html

effectiveness of educational and community-based programs designed to prevent disease and injury, improve health, and enhance quality of life. Educational and community-based programs play a key role in:

- Preventing disease and injury
- Improving health
- Enhancing quality of life

Public education and outreach will continue to contribute to the improvement of health outcomes in the United States and is a major component of the Santa Barbara County Stroke Critical Care System. Understanding the critical role that cerebrovascular disease prevention education and outreach has in healthcare, SBCEMSA encourages collaboration of providers to identify and coordinate education and outreach efforts within the community.

Emergency Medical Services Education is education that is designed specifically for the EMS providers. This may include live lecture, online PowerPoint lectures with pre- and post-quizzes to evaluate learning. In addition, it may include prehospital call reviews or protocol updates.

Public Education and Outreach is specific to bringing stroke education to the community members. This area of education provides the greatest opportunity for the EMS Agency to partner with both prehospital providers and the stroke centers to deliver a comprehensive message of heart and vascular health to the members of the community.

NEIGHBORING EMS AGENCIES

Due to the complex nature of an EMS System that has multiple agencies that provide local operational oversight, it is imperative to have processes in place in which patients' care is uninterrupted despite crossing county line. SBCEMSA has established Stroke Critical Care System agreements with each of the Local EMS Agencies who have a bordering county to Santa Barbara County.

APPENDICES:

Appendix A

SBCEMSA Policy 600: Receiving Hospital Standards

Appendix B

SBCEMSA Policy 650: Stroke General Guidelines

Appendix C

SBCEMSA Policy 651: Stroke Center Standards

Appendix D

SBCEMSA Policy 652: Stroke Transfer Guidelines

Appendix E

SBCEMSA Policy 653: Stroke Performance Improvement Process

APPENDIX A
SBCEMSA POLICY 600:
RECEIVING HOSPITAL STANDARDS

Policy Number:	*600*
Original Issue Date:	*June, 2002*
Last Reviewed/Revised:	*February 19, 2020*
Effective Date:	*March 01, 2020*
Next Review:	*February, 2022*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

RECEIVING HOSPITAL STANDARDS

I. Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101, 1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100170.

III. Definitions: None

IV. Policy:

A. A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

V. Procedure:

A. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.
   1. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five years.
   2. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

B. The Receiving Hospital shall agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

C. The Receiving Hospital shall actively participate on various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director. Assist the EMS Medical Director in the collection of statistics and review of necessary records for program evaluation and compliance

D. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:
   1. Be licensed by the State Department of Health Services as a general acute care hospital.
   2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657.
   3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency.
   4. Operate an Intensive Care Unit.
   5. Have operating room services available within 30 minutes.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Daniel Shepherd, MD, EMS Agency Medical Director

6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:
   a. Cardiology
   b. Orthopedic Surgery
   c. Thoracic Surgery
   d. Anesthesiology
   e. General Surgery
   f. Pediatrics
   g. Neurosurgery
   h. General Medicine
   i. Obstetrics
7. Have the following services available within 20 minutes:
   a. X-Ray - Laboratory - Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy.
9. Have the capability at all times to communicate with the ambulances and the Base Hospital.
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care. The Medical Director shall:
    a. Be regularly assigned to the Emergency Department.
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures.
    c. Coordinate Receiving Hospital activities with the Base Hospital.
    d. Attend the Emergency Medical Advisory Committee (EMAC).
    e. Provide Emergency Department staff education.
11. Agree to provide, at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse. A physician who is certified by the American Board of Emergency Medicine or fulfills the following criteria shall be considered a specialist in Emergency Medicine.
    a. All Receiving Hospital physicians shall:
       i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times.
       ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification.
       iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine.
    b. All Receiving Hospital Registered Nurses shall:
       i. Be regular hospital staff assigned solely to the Emergency Department for that shift.
       ii. Maintain current Advanced Cardiac Life Support certification.
    c. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Cardiac Support certification.

VI. References: None

VII. Attachments: None

APPENDIX B
SBCEMSA POLICY 650:
STROKE GENERAL GUIDELINES

Policy Number:	*650*
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE CARE SYSTEM GENERAL GUIDELINES

I. Purpose: To provide standards and guidelines for the Stroke Care System which serves the County of Santa Barbara. To provide all presumed Acute Stroke patients the accessibility to an organized, multi-disciplinary and inclusive system of Stroke care. To ensure that all presumed Acute Stroke patients are taken to the closest most appropriate medical facility that meets the needs of the patient and applies the standards established for this Stroke Care System.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Section 100270.220 and 100270.221.

III. Definitions: None

IV. Policy:

A. There shall be a written agreement between all hospitals within Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. The Santa Barbara County EMS Agency (SBCEMSA) and all system participants will be involved in an organized Stroke Care System, the guidelines of which are outlined here:

1. Multi-disciplinary nature of the Stroke Care System
   a. SBCEMSA recognizes the multi-disciplinary nature of a systemized approach to stroke care.
   b. SBCEMSA has adopted policies, guidelines and triage criteria that provide for the coordination of all resources and ensure the accessibility to the closest, most appropriate medical facility for all stroke patients, regardless of their ability to pay for such services.
   c. SBCEMSA has established a Stroke Care System Performance Improvement Process, and the Stroke Care System Quality Improvement Committee. These processes and committees represent all involved disciplines to ensure a broad-based quality review of all Stroke Care System activities.
2. Public Information and Education about the Stroke Care System
   a. SBCEMSA is committed to the establishment of Stroke Care System support and the promotion of awareness and prevention education.
   b. SBCEMSA facilitates speakers to address public groups, and serves as a resource for stroke information, education, and prevention.
   c. SBCEMSA assists community and professional groups in the development and dissemination of education to the public.

V. Procedure:

A. Stroke Care System – GENERAL GUIDELINES
   1. Marketing and Advertising

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

a. All marketing and promotional plans, with respect to Stroke center designation shall be submitted to SBCEMSA for review and approval, prior to implementation. Such plans will be reviewed by SBCEMSA based on the following guidelines:
   i. Shall provide accurate information;
   ii. Shall not provide false claims;
   iii. Shall not be critical of other providers; and
   iv. Shall not use financial rewards to any provider to increase its census.

2. EMS Dispatching
   a. The SBCEMSA has approved dispatching policies and procedures for the County. The dispatch of prehospital care providers will continue, as per the operational procedure for the County.
3. Training of Prehospital EMS Personnel
   a. SBCEMSA will facilitate training for all prehospital providers on any policy and/or operational change associated with Stroke Care System implementation.
   b. All level of designated stroke facilities will provide training to hospital staff on Stroke Care System policies and procedures.
4. Medical Control and Accountability, including Triage and Treatment Protocols
   a. Each designated Acute Stroke Center center shall:
      i. Provide base hospital medical control for field prehospital care providers.
      ii. Participate in the SBCEMSA data collection system.
      iii. Participate in the SBCEMSA continuous quality improvement program.

VI. References:

A. SBCEMSA Stroke Care System Plan

VII. Attachments: None

APPENDIX C
SBCEMSA POLICY 651:
STROKE CENTER STANDARDS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	*651*
Original Issue Date:	*January 01, 2016*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

ACUTE STROKE CENTER (ASC) STANDARDS

Purpose: To define the criteria for designation as an Acute Stroke Center (ASC) in Santa Barbara County.

I. **Authority:** California Health and Safety Code, Sections 1797.114, 1797.220, 1798, 1798.2, and California Code of Regulations, Title 22, Sections 100270.223, 100270.224, 100270.225 and 100270.226.

Definitions:

A. *Primary Stroke Center (PSC):* A hospital certified by an accrediting healthcare organization.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Acute Stroke Center (ASC):* Thrombectomy-capable, Comprehensive, Primary or Acute Stroke Ready Hospitals that meet the requirements of, and are designated by, the Santa Barbara County EMS Agency.
D. Thrombectomy-Capable Stroke Center (TCSC): Provides endovascular procedures and post-procedural care.
E. Comprehensive Stroke Center (CSC): Highest level of stroke certification available. Provides advanced neuro interventional procedures for the most complex stroke cases.

Policy:

F. There shall be a written agreement between all Acute Stroke Centers in Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Trauma System participation as specified by State regulations and SBCEMSA policies and procedures.
G. An Acute Stroke Center (ASC), approved and designated by SBCEMSA shall meet the following requirements:
   1. All the requirements of a Receiving Hospital as listed in SBCEMSA Policy 600.
   2. Certification as a Comprehensive Stroke Center (CSC), Thrombectomy-Capable Stroke Center (TSC), Primary Stroke Center (PSC) or an Acute Stroke Ready Hospital (ASRH) by either The Joint Commission (TJC), the Center for Improvement in Healthcare Quality (CIHQ) or the American Heart Association (AHA).
   3. Actively participate in SBCEMSA's Stroke Quality Improvement Program including:
      a. Participate in the creation of a standardized data registry under the direction of SBCEMSA
      b. Submit data into the registry 60 days after the end of the month in which the patient's hospital admission took place
   4. Acute Stroke Centers (ASC) must have policies and procedures that allow the automatic acceptance of any acute stroke patient requiring immediate intervention (fibrinolytic or endovascular procedure) from a hospital within Santa Barbara County that is not designated as an ASC, upon notification by the transferring physician.
H. Data Entry

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

ACUTE STROKE CENTER STANDARDS

1. The SBCEMSA shall implement a standardized data collection and reporting process for the Stroke Care System.The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated Stroke centers are required to submit Stroke care data into the SBCEMSA's designated Stroke registry.
   a. The Stroke Nurse Coordinator from each designated facility will submit Stroke data to SBCEMSA on a monthly basis through registry entry
      i. Data will be entered into an SBCEMSA-approved registry and submitted monthly, no later than 60 days after the Stroke admit date
      ii. Data registry costs shall be incurred by the designated Stroke Centers

Procedure:

I. Designation Process
   1. Application:
      a. An ASC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
         i. Eligible hospitals will submit a written request for ASC designation to the EMS Agency no later than 60 days prior to the desired date of designation, documenting the compliance of the hospital with Santa Barbara County ASC standards.
   2. Approval:
      a. Upon receiving a written request for ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with state requirements.
      b. ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within 30 days after the receipt of the request for approval and all required documentation and completion of the SBCEMSA site survey.
         i. ASC designation approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
   3. The SBCEMSA may deny, suspend, or revoke the designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
      a. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.
   4. ASCs shall be reviewed on a biannual basis.
      a. ASCs shall receive notification of evaluation from the EMS Agency.
      b. ASCs shall respond in writing regarding program compliance.
      c. On-site ASC visits for evaluative purposes may occur.
      d. ASCs shall notify the SBCEMSA by telephone, followed by a letter or email within 48 hours, of changes in program compliance performance.
   5. Revocation.
      a. ASC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSApolicies, procedures or regulations. This includes but is not limited to:
         i. Failure to provide required data
         ii. Failure to participate in Stroke system QI activities
         iii. Other criteria as defined and reviewed by the Stroke QI Committee

J. Provisional Designation Process
   1. The SBCEMSA may grant provisional designation as an ASC to a requesting hospital that has satisfied the requirements of an ASC as outlined in Section B of this policy, but has yet to receive certification as a CSC, TSC, PSC or ASRH. Only when the following requirements are satisfied, will the SBCEMSA grant a provisional designation.
      a. Application:
         i. Eligible hospitals shall submit a written request for provisional ASC designation to the SBCEMSA no later than 60 days prior to the desired date of the provisional designation, documenting the compliance of the hospital with Santa Barbara County ASC Standards.
      b. Provisional approval:
         i. Upon receiving a written request for provisional ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with stated requirements.
         ii. Provisional ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within two weeks after receipt of the request for approval and all required documentation, as well as the completion of the SBCEMSA on-site survey. ASC provisional approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
         iii. To receive Provisional Designation, the facility must have satisfied all requirements of The Joint Commission (TJC) or Center for Improvement of HealthCare Quality (CIHQ) for CSC, TSC, PSC or ASRH, and have only a pending site survey and certification from TJC or CIHQ.
         iv. Certification as aCSC, TSC, PSC, or ASRH shall occur no later than six (6) months following provisional designation as an ASC by the EMS Agency.
      c. The SBCEMSA may deny, suspend, or revoke the provisional designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
         i. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the provisional ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.

II. References:

A. Policy 600 Receiving Hospital Standards

III. Attachments: None

APPENDIX D
SBCEMSA Policy 652:
Stroke Transfer Guidelines

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	652
Original Issue Date:	March, 2010
Last Reviewed/Revised:	November 12, 2019
Effective Date:	December 01, 2019
Next Review:	November, 2021

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE TRANSFER GUIDELINES

I. **Purpose:** To define the "Code Stroke" process by which patients with an acute stroke are transferred from a Acute Stroke Center or non-stroke hospital to a higher level of Stroke Center such as Primary Stroke Center (PSC), Thrombectomy Capable Stroke Center(TCSC) or Comprehensive Stroke Center(CSC) for emergency intervention.

II. **Authority:** Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.220 and 100270.222.

III. **Definitions:**

A. *Acute Stroke Center (ASC):* Primary Stroke Centers or Acute Stroke Ready Hospitals who have met the requirements of, and are designated by, the Santa Barbara County EMS Agency.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Primary Stroke Center (PSC):* A hospital that is certified by an accrediting healthcare organization diagnostic, pharmacological and acute stroke care, not requiring endovascular intervention.
D. *Thrombectomy-Capable Stroke Center (TCSC)*: Provides endovascular procedures and post-procedural care
E. *Comprehensive Stroke Center (CSC):* Highest level of stroke certification available. Provides advanced neuroendovascular interventional procedures for the most complex stroke cases.

IV. **Policy:**

A. All Hospitals within the Santa Barbara County Stroke Care System shall have written transfer agreements with the higher level designated Stroke Center Facilities within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. Patient transfer from: Acute Stroke Centers (ASC) to a higher level of care Stroke Center (ASRH to PSC; ASRH to TCSC/CSC; PSC to TCSC/CSC):
   1. After Stroke evaluation, arrange immediate transport for patients requiring a higher level of care than can be given at the current ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize Door to CT performance and interpretation times, door to tPA times, Door In/Door out time and other time intervals set forth by the Stroke Care Quality Improvement System Committee.
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient.
   4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the ASC, as appropriate.
   5. Upon identification of the patient needing transport, have procedures in place to call dispatch for a Level one transport for Stroke Alert.
   6. Maintain transfer agreements with surrounding ASCs.
   7. Establish policies and procedures for notifying the receiving ASC of the impending arrival of Acute Stroke patient

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

8. Pt records or test results shall not delay transport to an ASC

C. Non-Stroke Hospital
   1. Immediate transfer of patients with suspected Acute Stroke system to the nearest ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize "Door In/Door out time".
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient.

Establish policies and procedures to make personnel available to accompany the patient during the transfer to the Acute Stroke Center as appropriate.

D. Ambulance or helicopter transporting agencies will:
   1. Respond immediately upon request for Level 1 Stroke Alert transfer.

E. Acute Stroke Centers will:
   1. Maintain accurate status information on ReddiNet regarding the availability of a CT Scanner, per SBCEMSAPolicy 307 ReddiNet Communications
   2. Immediately upon initial notification by a transferring physician, automatically accept in all transfer patients who have been diagnosed with an Acute Stroke and who, in the judgment of the transferring physician, require urgent higher level of care.
   3. Authorize the emergency physician to automatically accept transfer of any patient with an Acute Stroke.
   4. Establish an internal communications plan that assures the immediate notification of all necessary individualsof the transfer.

V. Procedure:

A. Upon diagnosis of Acute stroke and the need for transfer to a higher level of care, and after discussion with the patient, the ASC will:
   1. Determine availability of the receiving ASC by checking ReddiNet.
   2. Immediately call the County Dispatch Center to request an air or ground ambulance (ALS or CCT).
   3. Advise that they have a Code Stroke transfer.
   4. After calling for ambulance, the transferring physician will notify the receiving ASC emergency physician of the transfer.
   5. Perform, as time allows, indicated diagnostic tests and treatments.
   6. Complete transfer consent, Stroke transfer data forms and, as time allows, a treatment summary.
      a. If this cannot be done prior to transfer, fax immediately to the accepting ASC and SBCEMSA Specialty Care Programs Coordinator.
   7. Include copies of the ED face sheet and demographic information.
   8. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to therecieving ASC.
   9. Contact ASC for nurse report at the time, or immediately after, the ambulance departs with the patient.

B. Upon request for Level 1 Code Stroke transfer, the dispatch center will dispatch the closest available ambulance or CCT unit, per hospital direction.

C. The patient shall be urgently transferred without delay. Every effort will be made to minimize on-scene time.
   1. All forms should be completed prior to ambulance arrival.
   2. Any diagnostic test results may be relayed to the receiving ASC after patient departure.
   3. Intravenous drips may be discontinued or remain on the ED pump if appropriate for level of service.

D. Upon notification, the receiving ASC will notify the Stroke team staff, who will respond immediately

E. All ASCs shall review all Stroke transfers within 72 hours for appropriate and timely care and to identify opportunities for improvement. The Stroke Transfer Form will be utilized and sent to the SBCEMSA Specialty Care System Coordinator within 72 hoursResults may be reviewed and discussed at the SBCEMSA Stroke System Committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 STEMI Receiving Center Standards
C. Policy 511 EMS Transport Zones
D. Policy 307 Reddinet Communications

VII. Attachments

A. Stroke Transfer Form

Appendix E

SBCEMSA POLICY 653:

STROKE PERFORMANCE IMPROVEMENT PROCESS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	653
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE PERFORMANCE IMPROVEMENT PROCESS

I. Purpose: Santa Barbara County Emergency Medical Services Agency (SBCEMSA) will ensure quality within the Stroke Care System through a Performance Improvement Process. This includes monitoring of structural, process and outcome standards.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Sections 100270.228 and 100270.229.

III. Definitions: None

IV. Policy:

A. The SBCEMSA Medical Director shall establish a Stroke Care System Quality Improvement (QI) Commitee

B. The Stroke Care System QI Committee is an advisory committee to the SBCEMSA on issues related to Stroke patient care and the Stroke system.

1. The Stroke care administered to patients of the Santa Barbara County Stroke Care System will be reviewed for appropriateness of care and patient outcome.

C. Committee membership is assigned by the SBCEMSA and includes:

1. SBCEMSA Specialty Care Systems Coordinator (Co-Chair)
2. SBCEMSA Medical Director (Chair)
3. Stroke Center Medical Directors & Stroke Nurse Coordinators
4. ALS transport provider representative(s), as needed

D. Stroke Care System QI Committee meetings will be held on a regular basis and limited to committee members and invited guests, approved by Committee Chair

V. Procedure:

A. Scope of Process and Outcome Standards Review:

1. Preliminary Review: Occurs at the Stroke Center, Medical Director and Stroke Nurse Coordinator level. This internal review takes place monthly.
   a. All deaths, questionable cases and negative outcomes may be referred to the Stroke Care System QI Commitee
   b. These charts will be brought to the Stroke Care System QI Commitee by each facility's Stroke Nurse Coordinator.
   c. This committee will meet three (3) times per year, unless additional meetings are necessary.
   d. Any Stroke Program Medical Director has the right to bring up any case he/she feels should be reviewed even if it does not meet the physician Stroke audit criteria.
2. The SBCEMSA Specialty Care Systems Coordinator will review all cases entered into the Stroke Registry database on a monthly basis for compliance with the following:
   a. Policies, procedures and protocols,
   b. Prehospital treatment of Stroke patients to include appropriateness of response, evaluation, treatment, and transport by prehospital personnel.
   c. Appropriate use of prehospital Stroke Alert and Hospital Code Stroke Triage Criteria

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, SBEMSA Director

SIGNATURE ON FILE
Angelo Salvucci, MD, SBEMSA Medical Director

d. Complications will be referred to SBCEMSA Medical Director for review
e. All helicopter transports of Stroke patients

3. The Stroke Nurse Coordinator from each designated facility will work with the SBCEMSA Specialty Care Systems Coordinator to obtain the necessary chart materials for the medical review process and the Committee meetings.
4. Physician Stroke Audit Criteria (any of the below, but not limited to):
   a. All Stroke Deaths
   b. Door to reperfusion times
   c. Major complications
   d. Stroke transfers from another hospital

B. Attendance:

1. Attendance for all committee members is mandatory.
   a. The Stroke Medical Directors and Stroke Nurse Coordinators must attend 75% of the scheduled meetings annually.
   b. Committee members shall notify the Committee Chair (or designee) at least three (3) business days in advance of the meeting if they are unable to attend.
      i. Alternate committee members must be approved at least three (3) business days in advance by the Committee Chair (or designee)
2. The Committee Chair (or designee) shall approve all requests for guests to attend the meeting.
   a. Requests for guests must be made at least three (3) business days in advance.
   b. The Committee Chair reserves the right to approve or deny requests

C. Meeting Documentation:

1. The agenda, minutes, monthly EMS reports and chart materials will be distributed to members in advance of the meeting.
2. Members are expected to review meeting materials prior to attendance.

D. Confidentiality:

All proceedings, documents, and discussions of the Stroke Care System QI Committee are confidential and are covered under Sections 1040 and 1157.7 of the Evidence Code: "The prohibition relating to discovery of testimony provided to the Committee will be applicable to all proceedings and records of this Committee, which is one established by a local government agency as qualified to render specialty health care services".

1. All members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through medical review committee membership. These are updated on an annual basis.
   a. Prior to the guest(s) participating in the meeting, the Committee Chair (or designee) is responsible for explaining, and obtaining, a signed confidentiality agreement from invited guests.
   b. Guests may or may not be invited to the entire meeting at the discretion of the Committee Chair.
2. No copies of records are to leave the room in which Stroke Care System QI Commitee meetings are held; all copies will be shredded at the SBCEMSA Office.

VI. References: None

VII. Attachments: None

Santa Barbara County EMS Agency

Stroke Critical System of Care

UPDATE 2022

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SANTA BARBARA COUNTY EMS AGENCY ORGANIZATION

Mouhanad Hammami, MD, MHSA

Director of Public Health

Henning Ansorg, M.D.

Health Officer

Nick Clay

EMS Agency Director

Daniel Shepherd, M.D.

EMS Agency Medical Director

Gabriela Modglin, BS, Paramedic

EMS Agency Specialty Care Systems Coordinator

Santa Barbara County PUBLIC Health DEPARTMENT

EXECUTIVE SUMMARY

California statute mandates the Emergency Medical Services Authority (EMSA) to adopt necessary regulations to carry out the coordination and integration of all state activities concerning Emergency Medical Services (EMS) (Health and Safety Code §1797.107). In addition, State statute allows the EMS Authority to establish guidelines for hospital facilities, in cooperation with affected medical organizations, according to critical care capabilities (Health and Safety Code §1798.150). As a result of these statutes, the EMS Authority established a multidisciplinary stroke taskforce for the development of Stroke System of Care Regulations for California.[1]

California's Statewide Stroke Critical Care System is described in the California Code of Regulations; Title 22, Division 9, Chapter 7.2. These regulations outline the requirements of all components of the Stroke Critical Care System including the Local Emergency Medical Services Agency (LEMSA), prehospital providers, and hospitals.

The regulations emphasize the significance of data management, ongoing quality improvement and importance of establishing a consistent evaluation process to further promote high-quality care to the stroke patient. The overall goal of the regulations is to reduce morbidity and mortality from acute stroke disease by improving the delivery of emergency medical care within the communities of California.

Santa Barbara County Emergency Medical Services Agency (SBCEMSA) already has many of the regulations in place, including prehospital care policies to identify stroke patients, identify designated stroke receiving hospitals, and stroke destination policies. As a requirement of the California Regulations, this document is to serve as a formal written plan for the SBCEMSA Stroke Critical Care System. SBCEMSA's Stroke Critical Care System Plan has been written in accordance with Title 22, Division 9, Chapter 7.2 of the California Code of Regulations.

[1] https://emsa.ca.gov/about-stroke/

STROKE CRITICAL CARE SYSTEM

Approximately 795,000 Americans suffer a stroke every year, with a significant mortality of one stroke-related death every four minutes. Stroke is the most common cause of adult long-term disability in the United States. It is a life-changing event that places a heavy burden on patients, families, and caregivers. When a patient is suffering an ischemic stroke, timely intervention is critical, not only to improve survivor quality of life, but to also reverse the damage and reduce mortality, morbidity, and disability.

Hospitals have traditionally been designated as a stroke receiving hospital by their Local EMS Agency because of differing standards from one geographic area to the next. Public safety is best served when patients receive a regulated form of care based on national standards and best practices. This implementation of standardized statewide requirements for stroke care will provide consistent treatment across the state.[2] Santa Barbara County's Stroke Critical Care System is a subspecialty care component of the EMS system that was developed by the SBCEMSA. This critical care system links prehospital and in-hospital care to deliver treatment to stroke patients who potentially require immediate medical, or surgical, intervention.

VISION, MISSION STATEMENT AND VALUES

SBCEMSA's specialty care programs are further refined by the agency's commitment to excellence as defined in the Vision, Mission, Values, and Principles:

- **VISION**
  - To provide leadership and planning that is proactive, continuously seeking ways to improve and optimize emergency medical services.
- **MISSION STATEMENT**
  - To protect and improve health and safety of the people in Santa Barbara County through the provision of high-quality emergency and disaster medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.
- **VALUES**
  - We value the patient as the focus of all we do.
  - We value our system participants.
  - We value honesty and integrity.
  - We value respect, fairness and trust.
  - We value teamwork, cooperation and creative problem solving.

STROKE CONTINUUM OF CARE

The Stroke Critical Care System Plan for Santa Barbara County is, first and foremost, a patient advocacy document. Its purpose is to provide a framework for the establishment of a coordinated, comprehensive stroke program for the county that addresses the needs of the patient suffering from an acute stroke. The plan acknowledges the inherent challenges of the urban, semi-rural, and rural healthcare environment and provides an organized process to ensure quality stroke services while remaining sensitive to the intrinsic resource and

[2] https://emsa.ca.gov/wp-content/uploads/sites/47/2018/04/Stroke-ISOR.pdf

financial constraints of the system participants. This plan recognizes that a partnership of organizations, institutions and individuals form the quality stroke system. It is only through this partnership and adherence to quality stroke care standards that the goals of this plan will be achieved.

This Stroke Critical Care System Plan designs a countywide stroke system in order to:

- Rapidly identify stroke patients through assessment;
- Assure timely transport to the closest, most appropriate Acute Stroke Center destination for definitive care;
- Identify, monitor and measure preventable death and disability from stroke and other cardiovascular events;
- Monitor and assure timely, optimal stroke services in a cost-efficient manner through close coordination of prehospital and hospital services; and
- Monitor outcomes and participate in continuous quality improvement efforts.

Stroke systems of care improve care and support for stroke patients throughout their health care journey. We know that what matters to a patient's outcome is reducing the time between the initial onset of stroke symptoms and the transition from EMS to hospital intervention. Together, EMS agencies, hospitals, and health care facilities collect and analyze data about stroke patients and care. When best practices and data are shared, the different disciplines can work together to improve patient care.[3]

The continuum of care is important to caregivers and patients alike. It leads to an improvement of patient satisfaction levels, reduces costs, and improves health. Keeping up the continuum of care is especially significant for specific patient populations such as those who are more dependent on the health services, the elderly, those suffering from complex medical conditions, the mentally vulnerable and those with chronic diseases. Due to the aforementioned examples, the continuum of care is particularly beneficial to the stroke patient population. Stroke systems of care depend on robust collaboration to ensure that the continuum of care is optimally exercised.

THREE AREAS OF COLLABORATION: A TEAM APPROACH

Recognizing that patient outcomes are greatly dependent on the rapidity and quality of treatment within each level of care on the continuum, it is critical for Santa Barbara County providers to work in collaboration with a team approach wherever possible. Common themes span across the Prehospital, In-Hospital and Post-Hospital levels that identify opportunities to maximize SBCEMSA's team approach to reach the optimum level of care for stroke patients.

Community education, EMS and other healthcare professionals all promote and support an integrated system of care. Inter-professional and interdisciplinary education systems prepare care providers to work collaboratively together as a team. When combined with community education and outreach efforts, the patients and their families have an active role in their personal health and well-being.

Performance Improvement invariably involves work across multiple systems and disciplines within a practice. Within the healthcare practice continuum, this is particularly applicable as patients have various formal and informal care providers throughout their course of illness and into their discharge disposition. Good data can help identify, verify and proactively address issues, measure progress and capitalize on opportunities. When

[3] https://www.cdc.gov/dhdsp/programs/about_pcnasp.htm

data is gathered, tracked, and analyzed in a credible way over time, it becomes possible to measure progress and success. Policies, procedures, services, and interventions can then be evaluated and transformed as necessary.

A team approach from a truly integrated healthcare system will go beyond education, outreach, performance improvement and data management/sharing. SBCEMSA's aim is to create a seamless system, which requires EMS professionals and community partners to commit to the same-shared objectives and find ways to achieve them together. This team approach from a patient-centered EMS system takes advantages of the strengths and resources brought by each organization and provider to protect the health and wellness of individuals and communities.

STAKEHOLDERS

SANTA BARBARA COUNTY

The County of Santa Barbara is located in Southern California and encompasses an area of 2,735 square land miles. The boundary of the county extends from the Sierra Madre and San Rafael mountain ranges and a small portion of Kern County on the Northeast, from San Luis Obispo County on the Northwest, Ventura County on the Southeast and the Pacific Ocean on the Southwest. Mountainous terrain, expanses of agricultural lands, and widely dispersed rural communities limit accessibility to health care.

Water plays a vital role in the growth and development of this area. Acquisition, quality, and conservation of water are paramount to the area's development. Local water supplies come from runoff stored in reservoirs or from ground water, and a new desalination plant was constructed in 1992. This plant is not in operation at this time, but is available in the event it becomes necessary. Water is the main recreational feature in Santa Barbara County attracting tourists and the fishing industry.

The mountains, which border the eastern section of the county, together with humid conditions, create dense fog during the summer months at the higher elevations. This dense fog can produce zero visibility which greatly contributes to high-crash rates in rural areas of Santa Barbara County. Residents in rural areas of the county often times require the transport/transfer of critical patients by means of air ambulance. Dense fog hinders accessibility to healthcare services for these patients as air ambulance transport may not be an option during times of poor visibility.

Santa Barbara County can be divided by two geographic planes: North County and South County. Both North and South County regions are equipped with two major hospitals capable of caring for specialty care patients. In the North County, residents have access to Marian Regional Medical Center (MRMC), and in the South County, residents have access to Santa Barbara Cottage Hospital (SBCH). Both hospitals have a helipad for transport/transfer of critical patients by means of air ambulance.

Scheduled commercial and private air travel is provided at the Santa Barbara and Santa Maria Airports. There are also scheduled charter services from Lompoc Airport and private services available at the Santa Ynez Airport. Passenger rail service is available via Amtrak, which has a scheduled stop in the City of Santa Barbara.

Santa Barbara is known as a highly desirable place to live for its exceptional climate and small-town ambiance and beauty. In 2021, the population was 446,475, with 16.0% of the population over 65 years of age. It has an average household income of $84,356 with a poverty rate of 15.2%. The demographics of the County indicate that there are many concentrated low-income areas (compared with 19% of the State population). As the population of Santa Barbara County continues to age, so does the demand for EMS services in the over 65 age group.[4]

SANTA BARBARA COUNTY STROKE CENTERS

Santa Barbara County has five acute care facilities, each of which are prehospital receiving centers and act as Base Hospitals (BH). Base Station services are provided via a contract between the facility and SBCEMSA, and reviewed within a 5-year period (Policy 610). Each Base Hospital (BH) is required to have a Medical Director and a Prehospital Care Coordinator (PCC). There are two Base Hospitals certified as Acute Stroke Ready Hospitals (ASRH); one is a Primary Stroke Center (PSC) and the other is a Comprehensive Stroke Center (CSC). Conversely, one hospital remains a Base Hospital with no stroke certification or designation.

The California State Regulations define these three types of Stroke Centers by the following criteria:

- *Comprehensive Stroke Center* – A hospital that "…diagnose and treat all stroke cases and provide the highest level of care for stroke patients."
- *Primary Stroke Center* – A hospital that "…stabilizes and treats acute stroke patients, providing initial acute care, and may transfer to one or more higher level of care centers when clinically warranted."
- *Acute Stroke Ready Hospital* – A hospital that is "…able to provide the minimum level of critical care services for stroke patients in the emergency department, and are paired with one or more hospitals with a higher level of stroke services."

[4] https://www.census.gov/quickfacts/fact/table/santabarbaracountycalifornia/MAN450212

Santa Barbara County Emergency Medical Services Agency has written agreements with hospitals that are designated stroke receiving hospitals. To be considered for stroke receiving center designation, hospitals must hold current certification with The Joint Commission, American Heart Association or the Center for Improvement in Healthcare Quality. Stroke Centers must also maintain compliance with SBCEMSA's designation criteria outlined in *Policy 651 – Acute Stroke Center (ACS) Standards.*

SANTA BARBARA COUNTY PREHOSPITAL PROVIDERS

The County of Santa Barbara is comprised of a mix of public and private EMS Advanced Life Support (ALS) providers as well as a number of Basic Life Support (BLS) First Responders. A combination of ground, air and specialty critical care transport (CCT) are all offered within the county. The community can access emergency transport services via public ambulance providers through the 9-1-1 system. All ALS vehicles used to transport patients within the County are required to have two-way radios. All Base Hospitals have the capability of communicating with the prehospital providers in their area by means of radios and/or phones.

Once on scene, the first responder and ambulance transport crews coordinate their efforts to rapidly identify, treat, and transport stroke patients to the most appropriate Stroke Receiving Center. When needed, prehospital providers can contact base hospital personnel for medical direction. Field crews notify the Stroke Receiving Center of the incoming patient with a *"Stroke Alert"* radio report in order to allow hospital staff to prepare for expeditious triage and treatment upon patient arrival.

Prehospital providers work closely with the hospital staff to ensure that all pertinent information is relayed for a seamless transition within the continuum of care. To facilitate this continuum of care, SBCEMSA has implemented a prehospital data collection system where all prehospital ALS providers utilize a standardized patient care report platform. This platform contains all the information that is entered into the County data collection system. Currently, the EMS Agency is collecting data electronically with all ALS and BLS providers.

NEIGHBORING EMS AGENCIES

Due to the complex nature of an EMS System that has multiple agencies that provide local operational oversight, it is imperative to have processes in place in which patients' care is uninterrupted despite crossing county line. SBCEMSA has established Stroke Critical Care System agreements with each of the Local EMS Agencies who have a bordering county to Santa Barbara County.

THE STROKE PATIENT

SBCEMSA believes that early identification of stroke symptoms by emergency medical personnel is a valuable part of optimal care for the victims of stroke. EMS professionals should attempt to determine the time the patient was last known to be neurological symptom free. It is imperative that both field and hospital clinicians are well trained and educated on stroke assessments, including the utilization of the Cincinnati Stroke Scale. For over a year, SBCEMSA worked closely with the various stroke center representatives, prehospital providers, and vascular interventionalists to develop a stroke triage algorithm that includes assessment and destination guidelines for prehospital strokes that meet criteria for Large Vessel Occlusions (LVO). This was a

significant transition from the former (and only) stroke screening utilized in the prehospital setting, the Cincinnati Stroke Scale (CSS). After much deliberation, the Stroke Committee agreed on implementing VAN as the LVO screening tool in the field setting. The aforementioned stroke triage guidelines resulted in significant modifications to the corresponding stroke policies (*Policy 533-21 – Stroke* and *Policy 550 – Stroke Triage and Destination).* Both policies were finalized in December of 2022, and respective training was distributed January 1, 2022 as part of the Quarter 1 2023 training. The anticipated go-live date for stroke triage (including VAN screen and destination decision guidelines) is April 1, 2023.

Destination

In stroke systems of care, stroke patients should be transported to the most appropriate staffed and equipped facility to manage an acute stroke patient. This determination will include assessments of local resources and transport times. [5] For patients who meet "*Stroke Alert*" criteria, the prehospital care team will determine appropriate destination and whether ground or air transport is used. This will require consideration of ground transport time, air transport time (including response time if the helicopter is not on-scene), weather, traffic and other factors. Ground transport times for the majority of the county are less than 20 minutes. In areas with prolonged transport times, such as most northern parts of the County and portions of the Santa Clara River Valley, air resources are utilized as appropriate.

CalStar is the air ambulance provider for the county. CalStar 7 is located in Santa Maria and is staffed 24/7/365. If CalStar is unavailable, Mercy Air (located in San Luis Obispo) and Santa Barbara County Fire Department ALS Air Rescue can be utilized for Stroke scene transports.

Communication

If a suspected stroke patient is en route to the Base Hospital, the Emergency Medical Service personnel should provide pre-hospital notification to the stroke-receiving center via Base Hospital radio report on 10 Channel UHF mobile radio. Doing so will ensure that the appropriate hospital resources are mobilized before patient arrival.[6]

SBCEMSA has a policy in place to give direction on administering a notification report to receiving hospitals. *Policy 305 – Reporting Format* addresses the minimum acceptable information to be communicated and provides a standardized and consistent approach to prehospital notifications.

Interfacility Transfers (IFTs)

Four out of five of Santa Barbara County's receiving hospitals are currently certified as one of three levels of stroke centers. Patients who require treatment not available at the receiving hospital are transferred expeditiously to the appropriate facility (which may also include out-of-county facilities). Each stroke receiving hospital has:

- Prearranged agreements with stroke receiving hospitals (primary or comprehensive) for transfer of patients
- Prearranged agreements with EMS providers for rapid transport of patients who are eligible for time-sensitive treatments

[5] Recommendations for The Establishment of an Optimal System of Acute Stroke Care for Adults pp 26

[6] 2018 Guidelines for Management of Acute Ischemic Stroke pp 7

Emergency departments maintain a standardized procedure for the treatment of stroke patients. Additionally, Emergency departments will continuously monitor and track the ongoing care of stroke patients and determine if there are any potential improvement initiatives.

Interfacility transfers (IFTs) may apply to patients who would benefit from being transferred emergently from a non-stroke receiving hospital to a stroke receiving hospital, or those that might benefit from being transferred from a stroke receiving hospital with primary stroke center capabilities to a comprehensive stroke center or equivalent.[7] In either case, emergency transfer protocols are pre-arranged, and it is understood that transport should be provided with the urgency of a 9-1-1 response.

SBCEMSA has a policy in place to provide guidelines for ambulance transport of patients between acute care hospitals. *Policy 405—Interfacility Transfer* outlines transfer procedures, automatic acceptance and medical control to ensure that patient needs are being met while providing quality rapid transport to definitive treatment.

STROKE QUALITY IMPROVEMENT

Reaching for excellence in any system requires a functional decision-making process among the team of workers and users within that system. Inherent to this process is the need to know how the system is functioning, identifying any known or potential problems, and determining the best method of approaching and implementing change within the system to improve patient care.

The concept of continuous quality improvement (CQI), particularly in the field of health care, relies mainly upon the following fundamental components:

- The availability of reliable and trusted information;
- The ability to effectively communicate that information in comprehensible ways;
- A standardized approach to reaching decisions and acting on those decisions; and
- The ability to measure performance using reliable statistical methods, and using that information to build quality into the process.[8]

In addition to establishing CQI, it is equally as important to establish a mechanism for evaluating the changes/outcomes to benefit the stroke system of care. The goal of performance evaluation is to review the system design, determine the appropriateness of prehospital care, and whether or not the system is meeting and/or exceeding national standard goals and guidelines.

STROKE CARE COMMITTEE

As the delivery of stroke care evolves to become more interconnected, coordinating care between prehospital providers, nurses, physicians, and other disciplines has become increasingly important. In its simplest form, interprofessional collaboration is the practice of approaching patient care from a team-based perspective.

When implementing interprofessional collaboration, learning to work together, and respecting one another's perspectives in healthcare, multiple disciplines can work more effectively as a team to help improve patient

[7] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/CDPH-Stroke-Document-2010-Published.pdf

[8] Stroup, Craig, *Fundamentals of Emergency Medical Services System Evaluation and Quality Improvement* (Pinecrest Publishing House, 2015), 5.

outcomes. In addition, it improves the coordination and communication between healthcare professionals and in turn, improves the quality and safety of patient care.

SBCEMSA has a Stroke Care Committee that has representation from each of the Stroke Centers as well as members that represent the prehospital providers in our area. The Stroke Care Committee elected to adjust its meeting cadence to review data twice a year (every March and August) and administrative and policy-related topics also twice a year (every June and December) respectively. As a result of this cadence, data is available in the GWTG-Stroke registry in 6-month interval periods. The most current data available within the registry is for January through June 2022, which is reflected in this stroke plan. The decision to transition to this reporting cadence was a direct result of stability within the Stroke System of Care, including meeting and/or exceeding prehospital and hospital benchmarks, good patient outcomes, and diminished documentation errors with the prehospital patient care reports.

We continue to review performance data, identifying areas that need of improvement, developing education and training, and monitoring and tracking improvement efforts. For these activities, the committee uses a variety of QI approaches and tools, including Plan, Do, Study, Act (PDSA) cycles, assessments, audits and feedback, benchmarking, case review and best practices research.

The Stroke Care Committee provides expertise to address potential quality improvement initiatives within the stroke system, which contributes to the development or revision of stroke related policies, procedures and treatment protocols.

DATA COLLECTION

The primary aim of Santa Barbara County's Stroke Critical Care System is to develop a comprehensive system that provides timely access to proven treatments necessary to reduce morbidity and mortality. It is through continuous quality improvement efforts that stroke patients receive care based on best practices. Implementation of quality improvement programs and clinical best practices reduces morbidity and mortality, hence improves patient outcomes.

EPIDEMIOLOGY

Data from the Vital Records Department of Public Health show that the 5th cause of death in Santa Barbara County are Cerebrovascular Disease (Stroke), which is consistent with the trend throughout California and the United States.

The following is a summary from the Automatic Vital Statistics System for Santa Barbara County of the top five causes of death for 2018-2020* (the report reflecting current year data will be published summer of 2023):

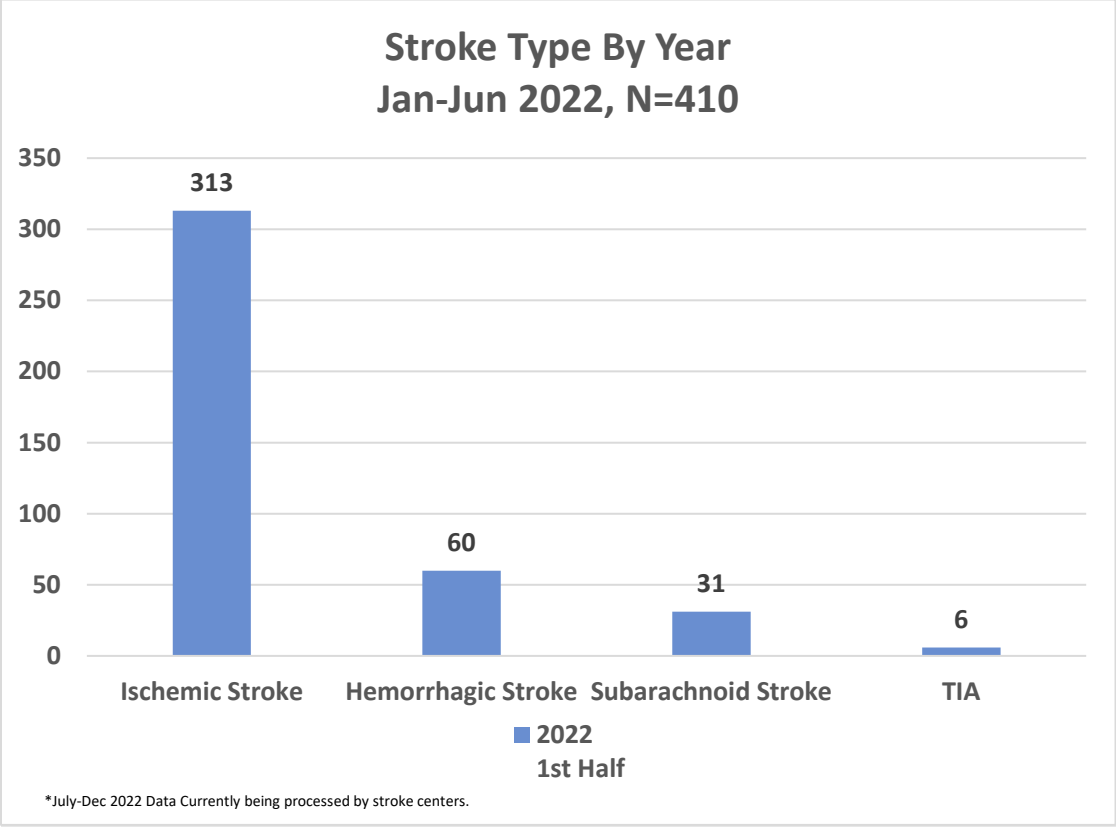
1. All cancers
2. Coronary Heart Disease
3. Alzheimer's Disease
4. Accidents
5. Cerebrovascular Disease (Stroke)

SBCEMSA STROKE PERFORMANCE MONITORING

SBCEMSA is accountable for regular ongoing analysis and interpretation of the prehospital stroke case reviews and the submitted hospital stroke data. Retrospective data collection and analysis lie at the heart of quality improvement. Data aids in understanding how well the systems work, identifying potential areas and trends for improvement and education, setting measurable goals, and monitoring the effectiveness of change. The goal is to connect data from across the continuum of care from prehospital to in-hospital to post-hospital disposition in order to optimally evaluate patient outcomes.[9]

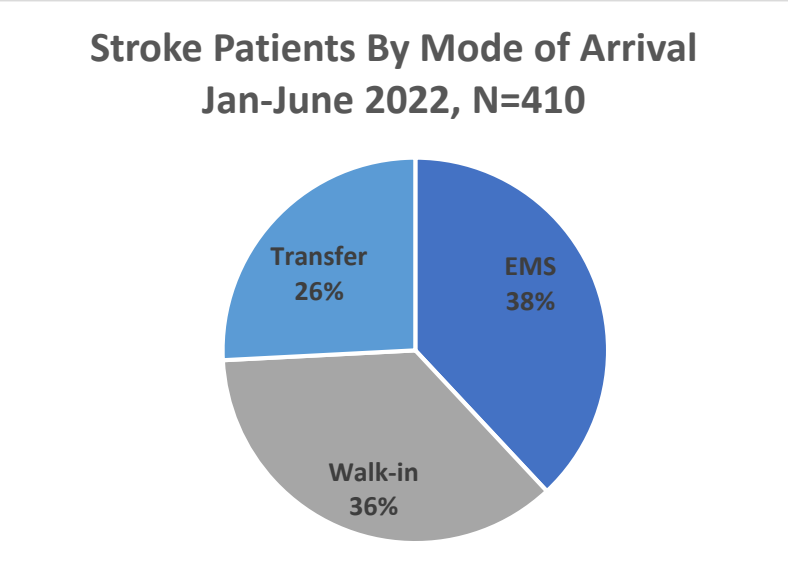
Currently, SBCEMSA collects stroke prehospital care data elements through electronic Patient Care Record (ePCR) extraction. Data elements that are specific to Stroke centers are extracted through a common software registry platform shared with the hospitals called *Get With The Guidelines-Stroke (GWTG-Stroke).*

- The graph below demonstrates the GWTG-Stroke registry data available for the timeframe of January through June 2022 (per Stroke Committee reporting cadence). We continue to see an increased number of Ischemic Strokes evaluated in our centers through the various modes of arrival. During the first half of 2022, we saw approximately 313 ischemic strokes (31% of which were determined to be LVO's upon final clinical diagnosis). *Source: GWTG-Stroke Data Set.*

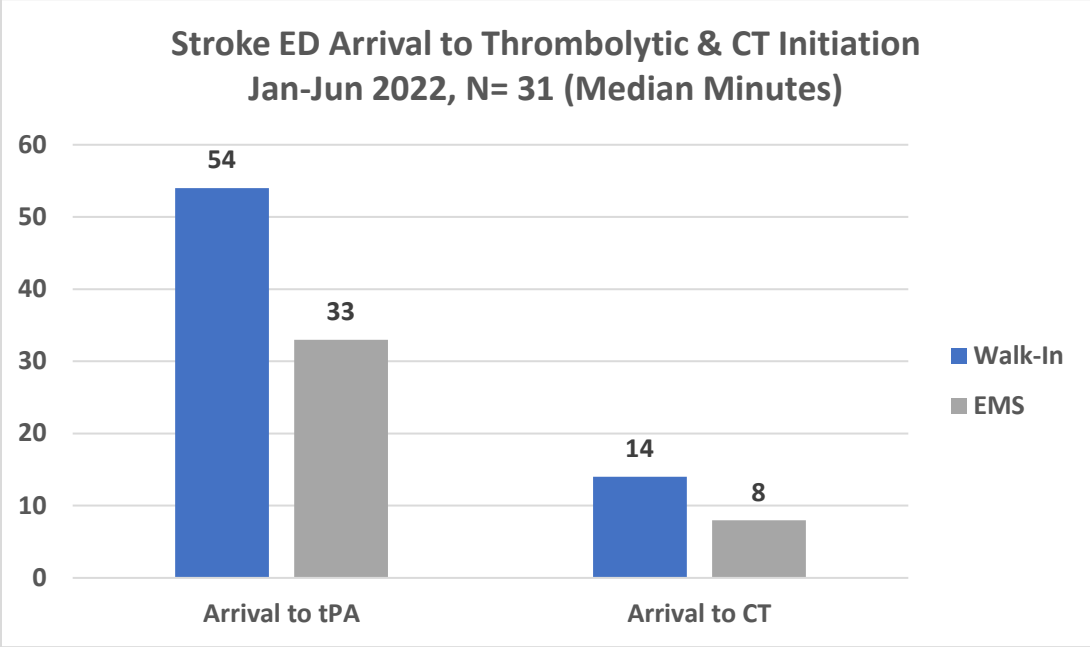


[9] https://emsa.ca.gov/wp-content/uploads/sites/47/2017/12/Core-Measure-Report-for-2016-Data.pdf

- The following pie chart delineates the stroke patients by their mode of arrival. Either they arrived via EMS (ambulance), walk-in (or private auto), or were transferred from another hospital (most commonly from an Acute Stroke Ready Hospital). *Source: GWTG-Stroke Data Set.*



- The following chart outlines performance metrics for stroke patients who arrived at a stroke center by walk-in and EMS modes of arrival, and their corresponding time intervals for thrombolytic administration and CT initiation. *Source: GWTG-Stroke Data Set.*



EDUCATION AND OUTREACH

Enhancing interdisciplinary collaboration and coordination in healthcare is imperative. Collaboration between professions starts with interdisciplinary education. To break down those walls, health professionals must begin working together. Interdisciplinary education will lead to more effective communication across disciplines and, ultimately, safer, more affordable, and higher quality care. [10]

There is also a vital component of public education and outreach that contributes to the health and wellness of a community. One of the goals identified in Healthy People 2020 is to increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and injury, improve health, and enhance quality of life. Educational and community-based programs play a key role in:

- Preventing disease and injury
- Improving health
- Enhancing quality of life

Public education and outreach will continue to contribute to the improvement of health outcomes in the United States and is a major component of the Santa Barbara County Stroke Critical Care System. Understanding the critical role that cerebrovascular disease prevention education and outreach has in healthcare, SBCEMSA encourages collaboration of providers to identify and coordinate education and outreach efforts within the community.

Emergency Medical Services Education is education that is designed specifically for the EMS providers. This may include live lecture and online PowerPoint lectures with pre- and post-quizzes to evaluate learning. In addition, it may include prehospital call reviews or protocol updates.

Public Education and Outreach is specific to bringing stroke education to the community members. This area of education provides the greatest opportunity for the EMS Agency to partner with both prehospital providers and the stroke centers to deliver a comprehensive message of heart and vascular health to the members of the community.

[10] https://www.rwjf.org/en/library/articles-and-news/2010/11/interdisciplinary-collaboration-improves-safety-quality-of-care-.html

APPENDICES:

Appendix A

SBCEMSA Policy 550: Stroke System Triage and Destination

Appendix B

SBCEMSA Policy 600: Receiving Hospital Standards

Appendix C

SBCEMSA Policy 650: Stroke General Guidelines

Appendix D

SBCEMSA Policy 651: Stroke Center Standards

Appendix E

SBCEMSA Policy 652: Stroke Transfer Guidelines

Appendix F

SBCEMSA Policy 653: Stroke Performance Improvement Process

APPENDIX A

SBCEMSA POLICY 550: STROKE SYSTEM TRIAGE AND DESTINATION

Policy Number:	550
Original Issue Date:	January, 2016
Last Reviewed/Revised:	October 27, 2022
Effective Date:	April 1, 2023
Next Review:	October, 2025

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE SYSTEM TRIAGE AND DESTINATION

I. Purpose: To outline the process of pre-hospital triage and transport of suspected acute stroke patients to facilities designated as an Acute Stroke Center (ASC).

II. Authority: California Health and Safety Code, Sections 1797.220 & 1798. California Code of Regulations, Title 22, Sections 100147, 100148, 100270.220 and 100270.222.

III. Definitions:

A. *Acute Stroke Center (ASC):* Hospitals are designated as an Acute Stroke Center (ASC), as defined in Policy 650 – Stroke Care System General Guidelines.
B. *Stroke Alert:* An early notification by EMS Personnel to the ASC that a patient is suffering a possible acute stroke.
C. *Large Vessel Occlusion (LVO):* The obstruction of a large cerebral artery that typically produces severe stroke symptoms.
D. *Large Vessel Occlusion (LVO) Alert:* An early notification by EMS Personnel to the ASC that a patient is possibly suffering from a severe form of a stroke.
E. *Stroke System Criteria:* A patient that meets "Stroke Alert" or "LVO Alert" criteria per SBCEMSA Policy 533-21 – Stroke.
F. *Subacute Stroke:* A patient with **new** stroke symptoms, but with a TLKW > 24 hours.
G. *Time Last Known Well (TLKW):* The date/time at which the patient was last known to be without signs and symptoms of the current suspected stroke.

IV. Policy:

A. *STROKE SYSTEM TRIAGE:*
1. A patient meeting criteria in each of the following sections (a and b) shall be triaged into the Santa Barbara County Stroke System and transported to the appropriate facility per the procedure outlined below.
   a. Blood glucose level (BGL) is greater than sixty (60) OR patient continues to exhibit signs and symptoms of an acute stroke after prehospital treatment of abnormal blood glucose levels.
   b. Identification of *any* abnormal finding of the Cincinnati Stroke Scale (CSS):
      i. Facial Droop
         1) Normal: Both sides of face move equally
         2) Abnormal: One side of face does not move normally
      ii. Arm Drift
         1) Normal: Both arms move equally or not at all
         2) Abnormal: One arm drifts down compared to the other
      iii. Speech
         1) Normal: Patient uses correct words with no slurring
         2) Abnormal: Slurred or inappropriate words or mute
2. First Responders will adhere to Policy 508 – Do Not Resuscitate/POLST Form Orders to establish information regarding Advanced Directives.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Daniel Shepherd, MD, EMS Agency Medical Director

V. Procedure:

A. *Assessment:*
1. In patients with suspected stroke:
   a. Perform Cincinnati Stroke Scale (CSS);
   b. If patient has arm drift on CSS, immediately perform VAN assessment

B. *Stroke Alert*
1. If Cincinnati Scale is positive, but VAN is negative, and TLKW is < 24 hours, then patient is a STROKE ALERT

C. *LVO Alert*
1. If the patient has a positive VAN assessment (arm drift on CSS and a positive VAN screen), and TLKW is < 24 hours, then patient is a LVO alert

D. *Cincinnati Positive and TLKW >24*
1. Subacute stroke, not an Alert, but shall be transported to the closest ASC.

E. *Transportation Considerations*
1. All stroke alerts and LVO alerts in the north zone will be transported to the closest ASC
2. All stroke alerts in the south zone will be transported to the closest ASC, unless patient takes an anticoagulant and TLKW is < 4.5 hours (see below & flow chart on Attachment A).
3. Anticoagulant Use
   a. North Zone: All Stroke and LVO Alerts will be transported to the closest ASC regardless of anticoagulant use.
   b. South Zone:
      i. TLKW < 4.5 Hours:
         1) Transport to SBCH if patient takes an anticoagulant
      ii. TLKW 4.5 - 24 Hours:
         1) Transport Stroke Alert to closest ASC, LVO Alert to SBCH
      iii. TLKW > 24 Hours:
         1) Not an Alert, but transport to closest ASC

F. *Identification of a STROKE or LVO ALERT:*
1. Upon identification of a patient meeting Stroke System Criteria, Base Hospital Contact will be established with the appropriate ASC and the appropriate alert will be activated.
   a. Patients may be taken directly to the CT scanner or the IR suite.
      i. Paramedic will give report to the nurse, transfer patient directly from gurney to the CT scanner platform or IR table and return to service.
      ii. If there is any delay, such as CT scanner not being readily available, the paramedic will not be expected to wait. The patient will be taken to a monitored bed and report given to a receiving nurse or physician as is customary.

G. *Destination Decision:*
1. Patients meeting Stroke System Criteria shall be transported to the appropriate ASC as outlined in Section E of this policy, and in Stroke Triage algorithm referenced below.

H. *Destination Exceptions:*
1. Patients meeting Stroke System Criteria shall be transported to the appropriate ASC, as outlined above, except in the following cases:
   a. Stroke patients that become a cardiac arrest with ROSC shall be treated and transported to the nearest STEMI Receiving Center per SBCEMSA policy;
   b. The nearest ASC is incapable of accepting a Stroke Alert patient due to CT or Internal Disaster diversion, transport to the next closest ASC.
   c. The patient requests transport to an alternate ASC, not extending the transport by more than twenty (20) minutes.

i. The receiving ASC hospital will be notified of location AND patient request. Update original ASC to change in destination, *only* if prior contact was made.

I. *Documentation:*

1. Care and findings related to an acute stroke patient shall be documented in the electronic patient care reporting (ePCR) system in accordance with SBCEMSA policy, including the 3 specific Stroke Criteria met, and Destination Decision for Stroke Triage.
2. Name and contact phone number of the person confirming TLKW (Time Last Known Well) will be noted in the ePCR and will be communicated in report to hospital personnel at transfer of care (if not available, will be documented as "Not Available").

VI. References:

A. Policy 508 Do Not Resuscitate - DNR
B. Policy 533 (applicable section(s)) BLS, EMT-OS, and ALS Treatment Protocols
C. Policy 540 Physician Orders for Life Sustaining Treatment (POLST) Form
D. Policy 622 Hospital Service Area
E. Policy 640 Cardiac and STEMI Care System General Guidelines
F. Policy 641 Stemi Center Standards
G. Policy 650 Stroke Care System General Guidelines
H. Policy 700 Electronic Patient Care Report Documentation - EPCR

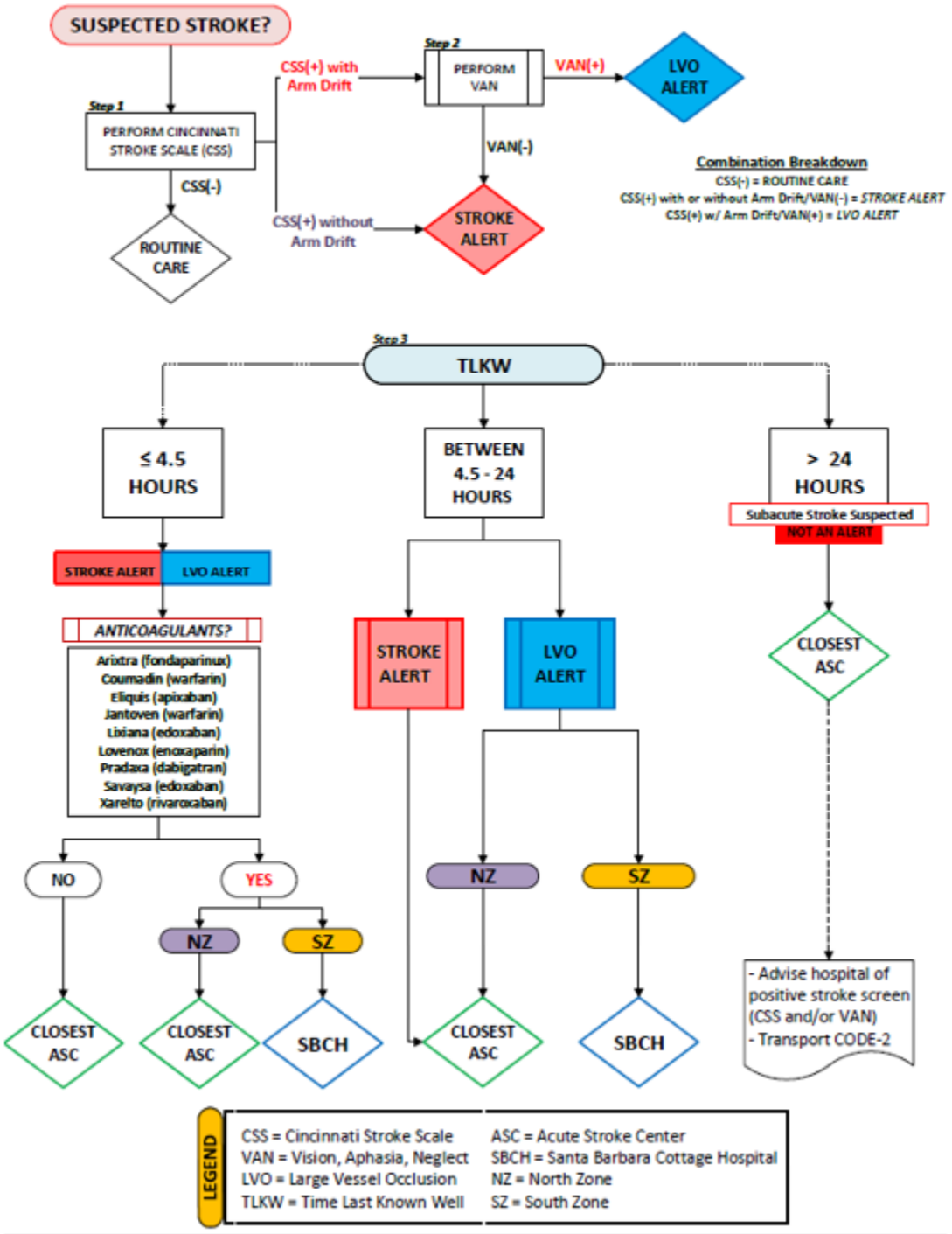
VII. Attachments:

A. Attachment A – Stroke Triage Algorithm

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

STROKE SYSTEM TRIAGE AND DESTINATION

Attachment A



APPENDIX B

SBCEMSA POLICY 600: RECEIVING HOSPITAL STANDARDS

Policy Number:	600
Original Issue Date:	June 2002
Last Reviewed/Revised:	October 1, 2022
Effective Date:	December 1, 2022
Next Review:	October 2024

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

RECEIVING HOSPITAL STANDARDS

I. Purpose: To define the criteria which shall be met by an acute care hospital for Receiving Hospital designation in Santa Barbara County.

II. Authority: Health and Safety Code, Division 2.5, Sections 1798, 1798.101,1798.105 and 1798.2. California Code of Regulations, Title 22, Section 100175.

III. Definitions:

A. *Receiving Hospital:* A licensed acute care hospital, or a hospital otherwise recognized and approved by SBCEMSA, that provides basic or comprehensive emergency patient care and is actively utilized within the EMS system.

IV. Policy:

A. A hospital wishing to become an Advanced Life Support Receiving Hospital in Santa Barbara County must be compliant with the criteria stated in this policy.

V. Procedure:

A. There shall be a written agreement between the Receiving Hospital and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for program participation as specified by State regulations and Santa Barbara County EMS Agency policies and procedures.
   1. The Santa Barbara County EMS Agency shall review its contract with each Receiving Hospital at least every five (5) years.
   2. The Santa Barbara County EMS Agency may deny, suspend, or revoke the approval of a Receiving Hospital for failure to comply with any applicable policies, procedures, or regulations.

B. The Receiving Hospital shall agree to maintain all prehospital data in a manner consistent with hospital data requirements and provide that the data be integrated with the patient's chart. Prehospital data shall include the prehospital field report, Base Hospital communication form (from the Base Hospital), and documentation of a Base Hospital telephone communication with the Receiving Hospital.

C. The Receiving Hospital shall actively participate in various EMS Committees related to prehospital care, as deemed necessary by the EMS Medical Director or designee.

D. The Receiving Hospital shall assist the EMS Medical Director or designee, in the collection of statistics and review of necessary records for program evaluation and compliance.

E. An Advanced Life Support (ALS) Receiving Hospital (RH), approved and designated by the Santa Barbara County EMS Agency, will:
   1. Be licensed by the State Department of Health Services as a general acute care hospital
   2. Have a special permit for Basic or Comprehensive Emergency Medical Service issued by the State of California Department of Health Services, or provide a stand-by emergency medical service that meets the requirements of California Code of Regulations, Title 22, Sections 70649, 70651, 70653, 70655, and 70657

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Daniel Shepherd, MD, EMS Agency Medical Director

3. Be accredited by the Joint Commission on Accreditation of Hospitals or comparable accrediting agency
4. Operate an Intensive Care Unit
5. Have operating room services available within 30 minutes
6. Have the following specialty services available at the Receiving Hospital or appropriate referral hospital service within 30 minutes:
   a. Cardiology
   b. Orthopedic Surgery
   c. Thoracic Surgery
   d. Anesthesiology
   e. General Surgery
   f. Pediatrics
   g. Neurosurgery
   h. General Medicine
   i. Obstetrics
7. Have the following services available within 20 minutes:
   a. X-Ray
   b. Laboratory
   c. Respiratory Therapy
8. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy
9. Have the capability at all times to communicate with the ambulances and the Base Hospital
10. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care
11. The RH Medical Director shall:
    a. Be regularly assigned to the Emergency Department
    b. Have knowledge of local EMS Agency Advanced Life Support policies and procedures
    c. Coordinate Receiving Hospital activities with the Base Hospital
    d. Attend the Emergency Medical Advisory Committee (EMAC)
    e. Provide Emergency Department staff education
12. Agree to provide at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse.
    a. Criteria for RH ED Physicians
       i. Must be certified by the American Board of Emergency Medicine; OR
       ii. Fulfill the following criteria to be considered a specialist in Emergency Medicine:
           i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times
           ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification
           iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine
    b. Criteria for RH ED Registered Nurses
       i. Be regular hospital staff assigned solely to the Emergency Department for that shift
       ii. Maintain current Advanced Cardiac Life Support certification
    c. Other Emergency Department Personnel
       i. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Life Support certification

F. Other SBCEMSA-Approved Receiving Hospitals

SANTA BARBARA COUNTY EMERGENCY MEDICAL SERVICES AGENCY

RECEIVING HOSPITAL STANDARDS

1. A hospital that does not meet all of the criteria as an acute care hospital, but is utilized within the EMS system as a receiving hospital to provide basic or advanced emergency care, may be approved and designated as a "Receiving Hospital" by SBCEMSA.
2. The SBCEMSA-Approved Receiving Hospital Must:
   a. Evaluate all patients promptly, by qualified medical personnel designated by hospital policy
   b. Have the capability at all times to communicate with the ambulances and the Base Hospital
   c. Designate a Receiving Hospital Emergency Department Medical Director who shall be a physician on the hospital staff, and have experience in emergency medical care
   d. The RH Medical Director shall:
      i. Be regularly assigned to the Emergency Department
      ii. Have knowledge of local EMS Agency Advanced Life Support policies and procedures
      iii. Coordinate Receiving Hospital activities with the Base Hospital
      iv. Attend the Emergency Medical Advisory Committee (EMAC)
      v. Provide Emergency Department staff education
3. Agree to provide at a minimum, in-house and immediately available, on a 24-hour basis, a physician specializing in Emergency Medicine and a Registered Nurse
   a. Criteria for RH ED Physicians
      i. Must be certified by the American Board of Emergency Medicine; OR
      ii. Fulfill the following criteria to be considered a specialist in Emergency Medicine:
         i. Be in-house and immediately available to the Receiving Hospital Emergency Department at all times
         ii. If not Board certified in Emergency Medicine, then have and maintain current Advanced Cardiac Life Support and Advanced Trauma Life Support certification
         iii. Complete at least 25 Category 1 CME hours per year with content applicable to Emergency Medicine
   b. Criteria for RH ED Registered Nurses
      i. Be regular hospital staff assigned solely to the Emergency Department for that shift
      ii. Maintain current Advanced Cardiac Life Support certification
   c. Other Emergency Department Personnel
      i. All other nursing and clerical personnel for the Emergency Department shall maintain current Basic Life Support certification

V. References: None

VI. Attachments: None

APPENDIX C

SBCEMSA POLICY 650: STROKE GENERAL GUIDELINES

Policy Number:	*650*
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE CARE SYSTEM GENERAL GUIDELINES

I. Purpose: To provide standards and guidelines for the Stroke Care System which serves the County of Santa Barbara. To provide all presumed Acute Stroke patients the accessibility to an organized, multidisciplinary and inclusive system of Stroke Care. To ensure that all presumed Acute Stroke patients are taken to the closest most appropriate medical facility that meets the needs of the patient and applies the standards established for this Stroke Care System.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220,1798, & 1798.2. California Code of Regulations, Title 22, Section 100270.220 and 100270.221.

III. Definitions: None

IV. Policy:

A. There shall be a written agreement between all hospitals within Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.

B. The Santa Barbara County EMS Agency (SBCEMSA) and all system participants will be involved in an organized Stroke Care System, the guidelines of which are outlined here:

1. Multidisciplinary nature of the Stroke Care System
   a. SBCEMSA recognizes the multidisciplinary nature of a systemized approach to stroke care.
   b. SBCEMSA has adopted policies, guidelines and triage criteria that provide for the coordination of all resources and ensure the accessibility to the closest, most appropriate medical facility for all stroke patients, regardless of their ability to pay for such services.
   c. SBCEMSA has established a Stroke Care System Performance Improvement Process, and the Stroke Care System Quality Improvement Committee. These processes and committees represent all involved disciplines to ensure a broad-based quality review of all Stroke Care System activities.
2. Public Information and Education about the Stroke Care System
   a. SBCEMSA is committed to the establishment of Stroke Care System support and the promotion of awareness and prevention education.
   b. SBCEMSA facilitates speakers to address public groups, and serves as a resource for stroke information, education, and prevention.
   c. SBCEMSA assists community and professional groups in the development and dissemination of education to the public.

V. Procedure:

A. Stroke Care System – GENERAL GUIDELINES
   1. Marketing and Advertising

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

a. All marketing and promotional plans (and/or materials), with respect to Stroke Center designation should be submitted to SBCEMSA for review and approval, prior to implementation. Marketing plans (and/or materials):
   i. Shall provide accurate information;
   ii. Shall not provide false claims;
   iii. Shall not be critical of other providers; and
   iv. Shall not use financial rewards to any provider to increase its census.

2. EMS Dispatching
   a. The SBCEMSA has approved dispatching policies and procedures for the County. The dispatch of prehospital care providers will continue, as per the operational procedure for the County.
3. Training of Prehospital EMS Personnel
   a. SBCEMSA will facilitate training for all prehospital providers on any policy and/or operational change associated with Stroke Care System implementation.
   b. All level of designated stroke facilities will provide training to hospital staff on Stroke Care System policies and procedures.
4. Medical Control and Accountability, including triage and treatment protocols
   a. Each designated Acute Stroke Center shall:
      i. Provide base hospital medical control for field prehospital care providers.
      ii. Participate in the SBCEMSA data collection system.
      iii. Participate in the SBCEMSA continuous quality improvement program.

VI. References: None

VII. Attachments: None

APPENDIX D

SBCEMSA POLICY 651: STROKE CENTER STANDARDS

Policy Number:	*651*
Original Issue Date:	*January 01, 2016*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

ACUTE STROKE CENTER (ASC) STANDARDS

I. Purpose: To define the criteria for designation as an Acute Stroke Center (ASC) in Santa Barbara County.

II. Authority: California Health and Safety Code, Sections 1797.114, 1797.220, 1798, 1798.2, and California Code of Regulations, Title 22, Sections 100270.223, 100270.224, 100270.225 and 100270.226.

III. Definitions:

A. *Primary Stroke Center (PSC):* A hospital certified by an accrediting healthcare organization.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Acute Stroke Center (ASC):* Thrombectomy-capable, Comprehensive, Primary or Acute Stroke Ready Hospitals that meet the requirements of, and are designated by, the Santa Barbara County EMS Agency.
D. *Thrombectomy-Capable Stroke Center (TCSC)*: Provides endovascular procedures and post-procedural care.
E. *Comprehensive Stroke Center (CSC)*: Highest level of stroke certification available. Provides advanced neuro interventional procedures for the most complex stroke cases.

IV. Policy:

A. There shall be a written agreement between all Acute Stroke Centers in Santa Barbara County and the Santa Barbara County EMS Agency (SBCEMSA) indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Trauma System participation as specified by State regulations and SBCEMSA policies and procedures.
B. An Acute Stroke Center (ASC), approved and designated by SBCEMSA shall meet the following requirements:
   1. All the requirements of a Receiving Hospital as listed in SBCEMSA Policy 600.
   2. Certification as a Comprehensive Stroke Center (CSC), Thrombectomy-Capable Stroke Center (TSC), Primary Stroke Center (PSC) or an Acute Stroke Ready Hospital (ASRH) by either The Joint Commission (TJC), the Center for Improvement in Healthcare Quality (CIHQ) or the American Heart Association (AHA).
   3. Actively participate in SBCEMSA's Stroke Quality Improvement Program including:
      a. Participate in the creation of a standardized data registry under the direction of SBCEMSA.
      b. Submit data into the registry sixty (60) days after the end of the month in which the patient's hospital admission took place.
   4. Acute Stroke Centers (ASC) must have policies and procedures that allow the automatic acceptance of any acute stroke patient requiring immediate intervention (fibrinolytic or endovascular procedure) from a hospital within Santa Barbara County that is not designated as an ASC, upon notification by the transferring physician.
C. Data Entry

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

1. The SBCEMSA shall implement a standardized data collection and reporting process for the Stroke Care System.The system shall include the collection of both prehospital and hospital patient care data, as determined by SBCEMSA.
2. All designated Stroke centers are required to submit Stroke Care Data into the SBCEMSA's designated Stroke registry.
   a. The Stroke Nurse Coordinator from each designated facility will submit Stroke data to SBCEMSA on a monthly basis through registry entry.
      i. Data will be entered into an SBCEMSA approved registry and submitted monthly, no later than sixty (60) days after the Stroke admit date.
      ii. Data registry costs shall be incurred by the designated Stroke Centers.

V. Procedure:

A. Designation Process

1. Application:
   a. An ASC may be designated following satisfactory review of written documentation and a site survey when deemed necessary, by the Santa Barbara County EMS Agency.
      i. Eligible hospitals will submit a written request for ASC designation to the SBCEMS Agency no later than sixty (60) days prior to the desired date of designation, documenting the compliance of the hospital with Santa Barbara County ASC standards.
2. Approval:
   a. Upon receiving a written request for ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with state requirements.
   b. ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within thirty (30) days after the receipt of the request for approval and all required documentation and completion of the SBCEMSA site survey.
      i. ASC designation approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
3. The SBCEMSA may deny, suspend, or revoke the designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
   a. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.
4. ASCs shall be reviewed on a biannual basis.
   a. ASCs shall receive notification of evaluation from the SBCEMS Agency.
   b. ASCs shall respond in writing regarding program compliance.
   c. On-site ASC visits for evaluative purposes may occur.
   d. ASCs shall notify the SBCEMSA by telephone, followed by a letter or email within forty-eight (48) hours of changes in program compliance performance.
5. Revocation.
   a. ASC designation may be denied, suspended or revoked by the SBCEMSA Medical Director for failure to comply with state and SBCEMSA policies, procedures or regulations. This includes but is not limited to:
      i. Failure to provide required data
      ii. Failure to participate in Stroke system QI activities

iii. Other criteria as defined and reviewed by the Stroke QI Committee

B. Provisional Designation Process

1. The SBCEMSA may grant provisional designation as an ASC to a requesting hospital that has satisfied the requirements of an ASC as outlined in Section B of this policy, but has yet to receive certification as a CSC, TSC, PSC or ASRH. Only when the following requirements are satisfied, will the SBCEMSA grant a provisional designation.
   a. Application:
      i. Eligible hospitals shall submit a written request for provisional ASC designation to the SBCEMSA no later than sixty (60) days prior to the desired date of the provisional designation, documenting the compliance of the hospital with Santa Barbara County ASC Standards.
   b. Provisional approval:
      i. Upon receiving a written request for provisional ASC designation, the SBCEMSA will arrange an on-site survey of the requesting hospital to assure compliance with stated requirements.
      ii. Provisional ASC approval or denial shall be made in writing by the SBCEMSA to the requesting hospital within two weeks after receipt of the request for approval and all required documentation, as well as the completion of the SBCEMSA on-site survey.
         (a) ASC provisional approval shall be dependent on the creation of a written agreement between the newly designated Acute Stroke Center and the Santa Barbara County EMS Agency indicating the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
      iii. To receive Provisional Designation, the facility must have satisfied all requirements of The Joint Commission (TJC) or Center for Improvement of HealthCare Quality (CIHQ) for CSC, TSC, PSC or ASRH, and have only a pending site survey and certification from TJC or CIHQ.
      iv. Certification as aCSC, TSC, PSC, or ASRH shall occur no later than six (6) months following provisional designation as an ASC by the SBCEMS Agency.
   c. The SBCEMSA may deny, suspend, or revoke the provisional designation of an ASC for failure to comply with any applicable policies, procedures or regulations.
      i. The SBCEMSA Medical Director may grant an exception to a portion of this policy upon substantiation of need by the provisional ASC that compliance with the regulation would not be in the best interest of the persons served within the affected area.

VI. References:

A. Policy 600 Receiving Hospital Standards

VII. Attachments: None

APPENDIX E

SBCEMSA POLICY 652: STROKE TRANSFER GUIDELINES

Policy Number:	*652*
Original Issue Date:	*March, 2010*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE TRANSFER GUIDELINES

I. Purpose: To define the "Code Stroke" process by which patients with an acute stroke are transferred from a Acute Stroke Center or non-stroke hospital to a higher level of Stroke Center such as Primary Stroke Center (PSC), Thrombectomy Capable Stroke Center (TCSC) or Comprehensive Stroke Center (CSC) for emergency intervention.

II. Authority: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100270.220 and 100270.222.

III. Definitions:

A. *Acute Stroke Center (ASC):* Primary Stroke Centers or Acute Stroke Ready Hospitals who have met the requirements of, and are designated by, the Santa Barbara County EMS Agency.
B. *Acute Stroke Ready Hospital (ASRH):* Certified hospitals that provide diagnostic and pharmacological stroke care in anticipation of transferring to a Primary Stroke Center.
C. *Primary Stroke Center (PSC):* A hospital that is certified by an accrediting healthcare organization diagnostic, pharmacological and acute stroke care, not requiring endovascular intervention.
D. *Thrombectomy-Capable Stroke Center (TCSC)*: Provides endovascular procedures and post-procedural care.
E. *Comprehensive Stroke Center (CSC):* Highest level of stroke certification available. Provides advanced neuroendovascular interventional procedures for the most complex stroke cases.

IV. Policy:

A. All Hospitals within the Santa Barbara County Stroke Care System shall have written transfer agreements with the higher level designated Stroke Center Facilities within the System. These shall indicate the commitment of hospital administration, medical staff, and emergency department staff to meet requirements for Stroke Care System participation as specified by State regulations and SBCEMSA policies and procedures.
B. Patient transfer from: Acute Stroke Centers (ASC) to a higher level of care Stroke Center (ASRH to PSC; ASRH to TCSC/CSC; PSC to TCSC/CSC):
   1. After Stroke evaluation, arrange immediate transport for patients requiring a higher level of care than can be given at the current ASC.
   2. Have policies, procedures, and a quality improvement system in place to minimize Door to CT performance and interpretation times, door to tPA times, Door In/Door out time and other time intervals set forth by the Stroke Care Quality Improvement System Committee.
   3. Establish policies that will include patient criteria for requiring an RN to accompany patient during transfer.
   4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the ASC, as appropriate.
   5. Upon identification of the patient needing transport, have procedures in place to call dispatch for a Level One transport for Stroke Alert.
   6. Maintain transfer agreements with surrounding ASCs.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

SIGNATURE ON FILE
Angelo Salvucci, MD, EMS Agency Medical Director

7. Establish policies and procedures for notifying the receiving ASC of the impending arrival of Acute Stroke patient.
8. Pt records or test results shall not delay transport to an ASC.

C. Non-Stroke Hospital
1. Immediate transfer of patients with suspected Acute Stroke system to the nearest ASC.
2. Have policies, procedures, and a quality improvement system in place to minimize "Door In/Door out time".
3. Establish policies that will include patient criteria for requiring an RN to accompany patient during transfer.
4. Establish policies and procedures to make personnel available to accompany the patient during the transfer to the Acute Stroke Center as appropriate.

D. Ambulance or helicopter transporting agencies will:
1. Respond immediately upon request for Level One Stroke Alert transfer.

E. Acute Stroke Centers will:
1. Maintain accurate status information on ReddiNet regarding the availability of a CT Scanner, per SBCEMSA Policy 307 ReddiNet Communications.
2. Immediately, upon initial notification by a transferring physician, automatically accept in all transfer patients who have been diagnosed with an Acute Stroke and who, in the judgment of the transferring physician, require urgent higher level of care.
3. Authorize the emergency physician to automatically accept transfer of any patient with an Acute Stroke.
4. Establish an internal communications plan that assures the immediate notification of all necessary individuals of the transfer.

V. Procedure:

A. Upon diagnosis of Acute Stroke and the need for transfer to a higher level of care, and after discussion with the patient, the ASC will:
1. Determine availability of the receiving ASC by checking ReddiNet.
2. Immediately call the County Dispatch Center to request an air or ground ambulance (ALS or CCT).
3. Advise that they have a Code Stroke Transfer.
4. After calling for ambulance, the transferring physician will notify the receiving ASC emergency physician of the transfer.
5. Perform, as time allows, indicated diagnostic tests and treatments.
6. Complete transfer consent, Stroke Transfer data forms and, as time allows, a treatment summary.
   a. If this cannot be done prior to transfer, fax immediately to the accepting ASC and SBCEMSA Specialty Care Systems Coordinator.
7. Include copies of the ED face sheet and demographic information.
8. Healthcare staff may, as determined by the clinical status of the patient, accompany the patient to the receiving ASC.
9. Contact ASC for nurse report at the time, or immediately after, the ambulance departs with the patient.

B. Upon request for Level One Code Stroke Transfer, the dispatch center will dispatch the closest available ambulance or CCT unit, per hospital direction.

C. The patient shall be urgently transferred without delay. Every effort will be made to minimize on-scene time.
1. All forms should be completed prior to ambulance arrival.
2. Any diagnostic test results may be relayed to the receiving ASC after patient departure.

3. Intravenous drips may be discontinued or remain on the ED pump if appropriate for level of service.

D. Upon notification, the receiving ASC will notify the Stroke team staff, who will respond immediately

E. All ASCs shall review all Stroke Transfers within seventy-two (72) hours for appropriate and timely care and to identify opportunities for improvement. The Stroke Transfer Form will be utilized and sent to the SBCEMSA Specialty Care Systems Coordinator within seventy-two (72) hours. Results may be reviewed and discussed at the SBCEMSA Stroke System Committee meeting.

VI. References:

A. Policy 600 Receiving Hospital Standards
B. Policy 640 Cardiac and STEMI Care System General Guidelines
C. Policy 511 EMS Transport Zones
D. Policy 307 Reddinet Communications

VII. Attachments

A. Stroke Transfer Form

STROKE TRANSFER FORM

Door In/Door Out Goal – 60 min

Sending Hospital Name: _____

DATE	PT ID#	TIME OF PATIENT ARRIVAL AT ED	MODE OF ARRIVAL (EMS OR POV)	CHIEF COMPLAINT	TLKW (TIME LAST KNOWN WELL)	FIRST CONTACT BY ED PHYSICIAN	TIME OF CT	TIME OF CT RESULT	TIME OF CTA	TIME OF CTA RESULT	TIME OF CALL TO AMBULANCE FOR TRANSPORT	TIME OF CALL TO STROKE CENTER	TIME OF AMBULANCE ARRIVAL	TIME OF AMBULANCE DEPARTURE	ADDITIONAL NOTES DI/DO TIME

Stroke patient transferred to _____(Receiving Hospital Name) via_____ (Type of transport).

y what type of transport your physician has requested: closest available paramedic unit, critical care ground team or critical care air team. Note the time of your call.

- **Santa Barbara County Dispatch: 805 – 683 - 2724**
- **Santa Barbara Cottage Hospital Transfer Center Phone Number: 1 – 877 – 247 – 2707**
- **Marian Regional Medical Center Transfer Center: 1-855-294-2337**
- **Marian Regional Medical Center ED: 805-332-8100**

Complete all data fields on this form and **fax to SBCEMS Agency 805-681-5142**

**Reference your institutional HIPAA/CMIA policies for electronic transmission of PHI.*

THIS IS NOT A PART OF THE PERMANENT MEDICAL RECORD

F:\Group\Committee\EMS\EMS Group\STEMI\2014\SRH-Specific\SRH Data Form v6.2014.doc revised 01/1/15

APPENDIX F

SBCEMSA POLICY 653: STROKE PERFORMANCE IMPROVEMENT PROCESS

Santa Barbara County PUBLIC Health DEPARTMENT

Policy Number:	653
Original Issue Date:	*January, 2002*
Last Reviewed/Revised:	*November 12, 2019*
Effective Date:	*December 01, 2019*
Next Review:	*November, 2021*

EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

STROKE PERFORMANCE IMPROVEMENT PROCESS

I. Purpose: Santa Barbara County Emergency Medical Services Agency (SBCEMSA) will ensure quality within the Stroke Care System through a Performance Improvement Process. This includes monitoring of structural, process and outcome standards.

II. Authority: Health and Safety Code, Division 2.5, Sections 1797.114, 1797.220.1798, & 1798.2. California Code of Regulations, Title 22, Sections 100270.228 and 100270.229.

III. Definitions: None

IV. Policy:

A. The SBCEMSA Medical Director shall establish a Stroke Care System Quality Improvement (QI) Committee.

B. The Stroke Care System QI Committee is an advisory committee to the SBCEMSA on issues related to Stroke patient care and the Stroke System.

1. The Stroke care administered to patients of the Santa Barbara County Stroke Care System will be reviewed for appropriateness of care and patient outcome.

C. Committee membership is assigned by the SBCEMSA and includes:

1. SBCEMSA Specialty Care Systems Coordinator (Co-Chair)
2. SBCEMSA Medical Director (Chair)
3. Stroke Center Medical Directors & Stroke Nurse Coordinators
4. ALS transport provider representative(s), as needed

D. Stroke Care System QI Committee meetings will be held on a regular basis and limited to committee members and invited guests, approved by Committee Chair.

V. Procedure:

A. Scope of Process and Outcome Standards Review:

1. Preliminary Review:
   a. Occurs at the Stroke Center, Medical Director and Stroke Nurse Coordinator level. This internal review takes place monthly.
      i. All deaths, questionable cases and negative outcomes may be referred to the Stroke
         (a) Each facility's Stroke Nurse Coordinator will bring these charts to the Stroke Care System QI Committee.
         (a) Any Stroke Program Medical Director has the right to bring up any case he/she feels requires review, even if it does not meet the physician Stroke audit criteria.
2. This committee will meet three (3) times per year, unless additional meetings are necessary.
3. The SBCEMSA Specialty Care Systems Coordinator will review all cases entered into the Stroke Registry database on a monthly basis for compliance with the following:
   a. Policies, procedures and protocols.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, SBCEMSA Director

SIGNATURE ON FILE
Angelo Salvucci, MD, SBCEMSA Medical Director

b. Prehospital personnel treatment, appropriateness of response, evaluation and transport of Stroke patients.
c. Appropriate use of prehospital Stroke Alert and Hospital Code Stroke Triage Criteria.
d. Complications will be referred to SBCEMSA Medical Director for review.
e. All helicopter transports of Stroke patients.

4. The Stroke Nurse Coordinator from each designated facility will work with the SBCEMSA Specialty Care Systems Coordinator to obtain the necessary chart materials for the medical review process and the Committee meetings.
5. Physician Stroke Audit Criteria (any of the below, but not limited to):
   a. All Stroke Deaths
   b. Door to reperfusion times
   c. Major complications
   d. Stroke transfers from another hospital

B. Stroke Care System QI Attendance:
1. Attendance for all committee members is mandatory.
   a. The Stroke Medical Directors and Stroke Nurse Coordinators must attend 75% of the scheduled meetings annually.
   b. Committee members shall notify the Committee Chair (or designee) at least three (3) business days in advance of the meeting if they are unable to attend.
      i. Alternate committee members must be approved at least three (3) business days in advance by the Committee Chair (or designee).
2. The Committee Chair (or designee) shall approve all requests for guests to attend the meeting.
   a. Requests for guests must be made at least three (3) business days in advance.
   b. The Committee Chair reserves the right to approve or deny requests.

C. Meeting Documentation:
1. The agenda, minutes, monthly SBCEMS reports and chart materials will be distributed to members in advance of the meeting.
2. Members are expected to review meeting materials prior to attendance.

D. Confidentiality:

All proceedings, documents, and discussions of the Stroke Care System QI Committee are confidential and are covered under Sections 1040 and 1157.7 of the Evidence Code: "The prohibition relating to discovery of testimony provided to the Committee will be applicable to all proceedings and records of this Committee, which is one established by a local government agency as qualified to render specialty health care services".

1. All members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through medical review committee membership. These are updated on an annual basis.
   a. Prior to the guest(s) participating in the meeting, the Committee Chair (or designee) is responsible for explaining, and obtaining, a signed confidentiality agreement from invited guests.
   b. Guests may or may not be invited to the entire meeting at the discretion of the Committee Chair.
2. No copies of records are to leave the room in which Stroke Care System QI Committee meetings are held; all copies will be shredded at the SBCEMSA Office.

VI. References: None

VII. Attachments: None

Santa Barbara County
Emergency Medical Services

Quality Improvement Plan
2017

The Santa Barbara County Emergency Medical Services Agency, as a part of the Public Health Department has the mission to improve the health of our communities by preventing disease, promoting wellness, and ensuring access to needed healthcare. Within this Mission, the Emergency Medical Services Agency strives to protect and improve the health and safety of the people in Santa Barbara County through the provision of high quality emergency medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.

The American Medical Association has defined quality of care as the degree to which care influences the probability of optimal patient outcomes. The National Roundtable on Healthcare Quality also includes in their definition of quality of care that health services are consistent with current professional knowledge. Continuous Quality Improvement (CQI) is a process derived from a philosophy that focuses on processes rather than on individuals, and which contends that improvements can be made in most areas. The scientific method is at the core of CQI, requiring objective data to analyze and improve processes to meet the needs of those we serve and to improve the services we offer. Through the use of CQI we can offer our patients evidence-based best practices which are continually evolving to provide the highest quality, standardized care throughout Santa Barbara County.

Quality Improvement requires commitment, dedication and purpose. CQI can only function well in an environment that fosters input from all levels of personnel in the system, and that provides consistent standardized feedback to the system participants. To be successful, a program must work from an integrated approach, with the intent to motivate its' participants to do their best and utilize the tools of education to support this. Trust is imperative amongst the participants for the process to succeed.

With these guidelines in focus, the Santa Barbara County EMS Agency continues to develop a Quality Improvement program that will truly be of benefit to the individuals within our communities that access our emergency medical services.

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Structure and Organizational Description

The Santa Barbara County Emergency Medical Services Agency is the coordinating body for a county of 2,735 square miles with a 2017 population estimate of 444,998. The county's emergency medical response is provided by multiple response agencies. These agencies include two BLS Fire Departments; Santa Barbara City Fire in the south county and Santa Maria City Fire in the north county. There are also two BLS Optional Skill provider agencies; Lompoc City Fire Department in the west, and Guadalupe Volunteer Fire Department in the Northwest. ALS coverage includes four agencies; Carpinteria-Summerland Fire Department in the far south, Montecito Fire Department southeast of Santa Barbara, Santa Barbara County Fire Department who respond to all unincorporated areas of our county, and American Medical Response as the single private ambulance company throughout the county. Additionally, CALSTAR and American Medical Response provide air and ground critical care transport services within the region.

Santa Barbara County contains five hospitals spread out over the geography. At the north end of the county is Marian Regional Medical Center, licensed for 435 beds. This facility is a designated Level III Trauma Center with a helipad, a designated STEMI Receiving Center, and JCAHO Certified Primary Stroke Center. At the South end of the County lies Santa Barbara Cottage Hospital, a designated Level II Adult and Pediatric Trauma Center with a helipad, a designated STEMI Receiving Center, and a JCAHO Certified Primary Stroke Center, with 412 licensed beds. On the western side of the county is Lompoc Valley Medical Center, with 60 licensed beds. In the center of the county, Santa Ynez Valley Cottage Hospital is a designated Critical Access and Rural Hospital with 11 licensed beds. Goleta Valley Cottage Hospital to the south has 122 licensed beds. Each of these hospitals has an Emergency Department that receives patients from the EMS system, and all are involved in the quality improvement activities of the system.

The Santa Barbara County EMS Agency sits within the County Public Health Department and is formed under the leadership of a part-time Medical Director and a full time Administrative Director. The agency encompasses five additional full time positions which are currently organized as follows; Clinical Performance Improvement and Trauma System Manager RN, Cardiac Programs Coordinator RN, Contracts and Compliance Performance Improvement Coordinator, Disaster Services Program Manager, and an Administrative Assistant. In addition there are several part-time positions which include EMD QI RN, MRC Coordinator, IT Specialist and Epidemiologist.

The EMS Medical Director provides medical oversight to the system, which includes quality improvement and educational activities. The Clinical Performance Improvement Coordinator RN facilitates the Continuous Quality Improvement activities of the agency under the guidance of the Medical Director with the involvement of other agency personnel as appropriate.

The Santa Barbara County CQI plan is an inclusive, multidisciplinary process that focuses on identification of system-wide opportunities for improvement. CQI refers to methods of data evaluation that consider factors such as structure, process, and outcome. Improvement efforts focus on identification of the root causes of problems, interventions to reduce or eliminate these causes, and the development of steps to correct inadequate or faulty processes. The focus of the CQI Program is not disciplinary in nature, but rather to use the analysis of high quality data for ongoing educational efforts.

The County has recommended to all EMS partners, both first-responder BLS and ALS providers, as well as Base Hospital providers, that they institute CQI programs within their organizations. These programs are submitted to the County EMS Agency and are monitored by the County Medical Director and CQI Coordinator. Each ALS and BLS Provider and Hospital provides qualified personnel to coordinate their internal CQI program. This person is responsible for developing and maintaining their agencies internal CQI Program including CQI processes related to personnel, equipment and supplies, safety, skills maintenance, and competency. This individual is responsible for representing their agency at the County CQI functions, specifically the CQI Committee groups.

Outline of Provider Agency Responsibilities related to CQI:
1. Designate personnel who manage the internal quality improvement process for that agency. The pre-hospital agency representative is responsible for internal CQI processes related to personnel, equipment and supplies, safety, skills maintenance, and competency.
2. In cooperation with the SB County EMS Agency, implement an internal CQI Plan and provide education to all personnel within the agency regarding CQI responsibilities.
3. Assist in the identification of indicators needed and ensure compliance with the county CQI plan.
4. Share results of internal CQI activities with the CQI committee, as well as disseminate appropriate information forwarded from the CQI committee to all EMS personnel within the agency.
5. Maintain records of CQI activities for review and action regarding exemplary practice, unanticipated events, and utilization management.
6. Review internal CQI efforts regularly for effectiveness in identifying and resolving provider related CQI issues, and revise as needed.

The provider agencies, through their internal CQI process and in conjunction with the CQI committee, are responsible for creating and monitoring programs for ongoing medical training & issue resolution, including individual performance improvement plans. Each provider agency will submit reports of clinical indicators based on the care that their personnel render to the patient. Using an Excel spreadsheet as exemplified later in this document, each provider agency submits the required information for the clinical indicator currently in use to the CQI Committee on a regular basis. The CQI Committee will review and validate the data and look for trends. Trends derived from the clinical indicators will be discussed at the CQI Committee meetings and also passed on to the biannual Medical Directors meetings.

The CQI Committee provides leadership for the clinical oversight and quality management of pre-hospital patient care in the county. The purpose of the Committee is to advise and assist the Santa Barbara County EMS Medical Director to monitor and trend quality issues that are reported by the EMS system participants. The committee also is the venue to discuss current trends and research in EMS care that has an impact on pre-hospital care as well as to review information developed through the use of clinical indicators. Continuous quality improvement is achieved through assessment of clinical care, research, evidence–based implementation of initiatives, monitoring the outcomes of the changes implemented, and the ongoing study of EMS practice for continued progress. The committee strives to use a multidisciplinary approach for issue resolution and to promote county-wide standardization of the quality improvement process with an emphasis on education.

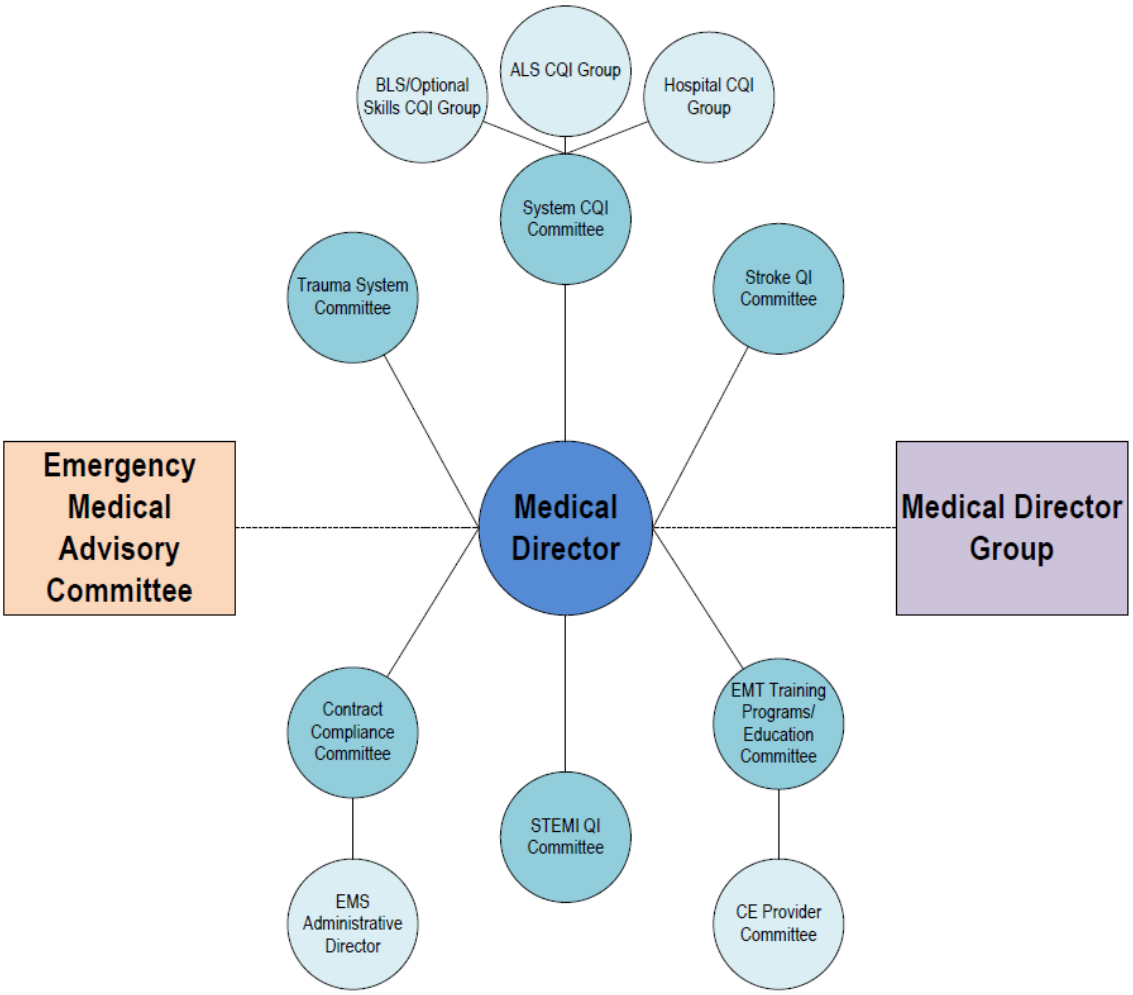
Members of all CQI Committees are required to sign a confidentiality agreement, stating a pledge to not divulge or discuss any information that would have been obtained solely through the CQI Committee membership. It is agreed that no information will be disclosed to parties outside of these committees except as agreed to by attendees for the purposes of follow-up or resolution of system design change.

Indicators which are likely to result in the review of high risk/ low frequency or otherwise significant events are used to measure outcomes. The clinical indicator information is presented at each CQI Committee meeting to generate discussion, evaluation, and responses to any trends that are recognized. The committee is expected to provide leadership on systemic issues and/or trends to develop a system-wide approach to quality improvement, and to develop information that will be disseminated to all personnel in the system based on identified issues.

Annual updates to the patient treatment protocols are constructed by the CQI Committee and reviewed for appropriateness by Medical Directors Committee before being sent to the EMS Medical Director for final approval. All updates and changes are formulated into a standardized teaching plan prior to implementation. All training materials are made available to each agency. In addition, a mandatory online

education center is maintained for dispersal of educational materials, and testing of knowledge retention, which can be tracked at both the EMS Agency and individual agency level.

Specific specialties within the Santa Barbara County EMS System have their own focused QI Committees to address Quality Improvement activities that are unique to their functions. These committees include the STEMI QI Committee, the Trauma System Committee and the newly created Stroke System Committee. Each of these committees is comprised of stakeholders with responsibility for and expertise in the specialty area. In addition, prehospital members of the system-wide CQI Committee attend these specialty care committee meetings to provide continuity and consistency.

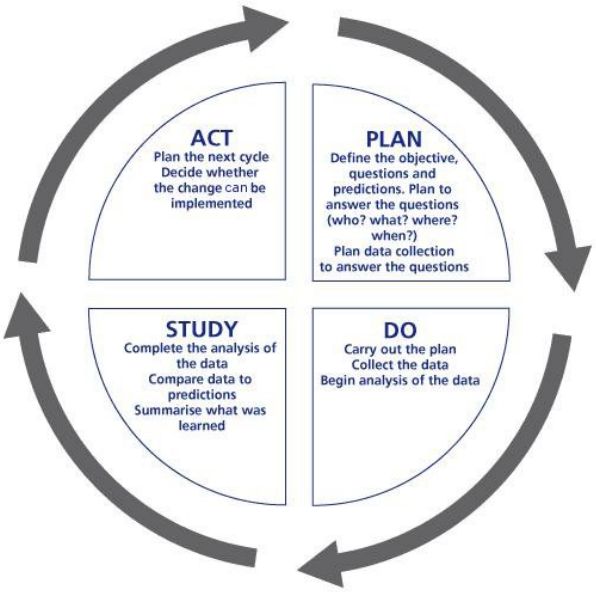


Data Collection and Reporting

The Santa Barbara County EMS System is currently evolving to a single Electronic Patient Care Record (EPCR) system that all providers, both BLS and ALS, will utilize to document their medical responses. This will provide consistency of the data which feeds the CQI process. Indicators and audits are built around the single EPCR system capabilities, and the EPCR system is designed to support data relevant for CQI purposes. In addition, data is collected through CAD reports and several registries including CARES and the National Trauma Data Base. The EMS Epidemiologist works with the different CQI groups to develop reports and present statistically relevant data from the various data collection tools.

There are many methodologies that can be utilized in the implementation of CQI. The method most often utilized in the Santa Barbara County CQI process where data collection and reporting is highly relevant is the PDSA Cycle:

Plan – the change to be tested or implemented
Do – carry out the test or change
Study – data before and after the change and reflect on what was learned
Act – plan the next change cycle or full implementation



Each CQI Committee, BLS Agency, ALS Agency, and Hospital receives regular reports based upon indicators developed by the group. Data points relevant to the specific activity are included in the report and these reports are reviewed and modified as needed until the CQI Committee by consensus agrees that the report includes the correct data for the information being solicited. These reports are auto-generated to the respective QI participants on predetermined schedules, which can be daily, weekly, monthly, quarterly or annually. The CQI representative then utilizes an audit tool, developed by the group, to monitor for fall outs from the chosen indicators. Fall outs are internally reviewed by the provider agency, and then a summary is brought to the CQI committee. The group shares their reports and monitors for relevancy and trending. Audits are completed for a prescribed amount of time (usually a minimum of 6 months) at which point the committee revisits the relevancy of the report and audit. The decision is then made to maintain the schedule as is, increase the frequency of the audits, decrease the frequency of the audits, or remove the audit altogether.

Current reports are focused on several areas;

1) Cardiac care (including cardiac arrest management, STEMI recognition and care and acute coronary syndrome management and care, and appropriate destination utilization.)
2) Trauma care (including scene time, critical interventions, pain care, utilization of air transport and appropriate destination selection.)
3) Pediatric care (including utilization of Broslow tape, appropriate medication dosage, and identification and utilization of parent or adult caregiver.)
4) Medication administration
5) AMA process
6) Determination of death process
7) Skill utilization and competency
8) Base hospital interface (including radio report and turnover of care report.)

Examples of data collecting methods and tools utilized by the CQI groups are listed as follows:

Core Measure Reporting 2014 Example

The State of California Core Measures data is included in the CQI program. Indicators within these Core Measures are tracked and reported, quarterly to the local system and annually to the State System.

Measure ID	Denominator Value (Population)	Numerator Value (Count)	Reporting Value	NOTES
ACS-5 (Percentage) Advance hospital notification for suspected Acute Coronary Syndrome	96	96	100%	From full year of STEMI data
CAR-2 (Percentage) Number of patients experiencing cardiac origin cardiac arrest who have Return of Spontaneous Circulation (ROSC) at any time (Utstein) in a given period	221	39	18%	From full year of CARES data
CAR-3 (Percentage) Number of patients experiencing cardiac origin cardiac arrest after EMS arrival who survive to discharge from the ED divided by the total number of patients experiencing cardiac origin cardiac arrest in a given period	221	22	10%	From full year of CARES data
CAR-4 (Percentage) Number of patients experiencing cardiac origin cardiac arrest after EMS arrival who survive to discharge from the hospital divided by the total number of patients experiencing cardiac origin cardiac arrest	221	20	9%	From full year of CARES data
SKL-1 (Percentage) Successful intubation within two attempts.	69	51	74%	
SKL-2 (Percentage) End-tidal CO2 performed on any successful endotracheal intubation	51	50	98%	

ALS Pain Treatment Audit Form Example

Flagged as Fall Out	Incident Date	PCR #	Initial MS Dose 1mg/kg (Y or N)	Repeat Dose is 1/2 Initial Dose (Y or N)	Repeat Admin ≥ 5 mins Post Initial (Y or N)	Appropriate V/S (Q5 minutes)	Zofran Admin (Y or N)	Zofran Before or After MS (B or A)	Pain Level Documented Post MS Dose (Y or N)	CC or PI Support Pain Control (Y or N)	Comments
Ex	1/1/15	15001234	y	y	y	y	y	y	y	y	good docume

ALS Trauma Care Audit Tool Example

Incident Date	PCR #	Meds w/Appropriate Dose:Weight	Scene Time ≤ 10 minutes	Call Time ≤ 30 minutes	Appropriate V/S (Q5 minutes)	Pain Level Documented	Appropriate Destination	Appropriate Dest Decision	Documentation Supports Step	Comments
1/1/15	15001234	y	n	y	y	y	y	y	y	extrication

BLS Agency Determination of Death Audit Tool Example

Flagged as Fall Out	Incident Date	PCR #	"Disposition" Indicates DOD	Narrative specifically states that patient meets one of the following criteria:	Decapitation	Decomposition	Incineration	**OR** Narrative specifically states that patient demonstrates one of the following criteria:	Lividity	Rigor Mortis	Evisceration of Heart/Brain	**AND** the following are documented:	No respiration x 1 minute	No carotid pulse OR asystole on monitor x 1 minute	No pupillary response to light
Ex	1/1/15	15001234	y	NA or Y	x	or	blank	NA or Y	x	or	blank	blank	y or n	y or n	y or n

Hospital Against Medical Advice (AMA) Audit Tool Example

Flagged as Fall Out	Incident Date	PCR #	Chief Complaint Documented	Primary Impression Documented	Vital Signs Documented	GCS Documented	BH Contact Noted	BH Contact Time Prior to Inservice	MD Named in Narrative	Narrative Clear	Agency Contacted	
Ex:	1/1/15	15001234	y	y	y		y	y	y	y	y	1/2/1

Reports are also generated directly from the CAD systems to support the CQI process.

CAD Report Response Zone Example

Staffing

Guidelines are set in EMS Policy #'s 211, 223 and 233 and 240 for certification and accreditation. All agencies are also required to submit quarterly reports for their EMS licensed personnel. This report includes licensure expiration date, staff contact information, and identification of current license status as well as employment status. Field Training Officers are recognized by the EMS Agency in accordance with Policy # 234.

Equipment and Supplies

Santa Barbara County EMS Agency has developed minimum inventory and supply requirements for each different EMS response type deployed throughout the County's EMS System. These inventory lists are available in our policy manual (EMS Policy #404.) Each provider organization is required to be prepared for inspection annually as well as randomly to ensure compliance with the policy requirements.

In addition, due to the frequency and ever changing medication shortage issues, a process is in place to prevent unexpected shortages within the local system. Each provider agency that carries medications is required to submit a monthly report that indicates their current stock levels for identified medications, as well as their back stock and any notifications they have received from their suppliers. This is then compared to the current FDA shortage list as well as updates received from other suppliers and reported on to the CQI groups and the Medical Directors group.

Documentation

In 2014 the Santa Barbara County EMS System began the change to a single Electronic Patient Care Record (EPCR) system that all providers, both BLS and ALS, will utilize to document their medical responses. Currently ImageTrend is the selected tool for this function. This single documentation tool allows for unified patient care records that are accessible by both the providers and the receiving facilities. Hospitals now have the ability to access information on incoming patients prior to their arrival with the new documentation tool, allowing for earlier preparation.

Standardized documentation training has been developed to support this system, which includes both initial training and ongoing education. Training sessions are continuously developed to meet the needs of the system and its users as the tool is integrated. At the provider level, each agency is responsible for ensuring that all medical responses have an EPCR associated, utilizing a daily system report. Each provider is then responsible for

auditing their individual personnel for accuracy and completeness of documentation. This is done utilizing a standardized General EPCR Audit Tool as developed and maintained by the CQI Committee. Additionally, documentation is audited for specific indicators throughout the CQI process.

An EPCR Systems Administrator Committee works in conjunction with the CQI Committee to utilize provider level input and suggestions to make improvements to the EPCR program and recommend educational needs. The SA Committee is responsible for decision making regarding the technical aspects of the documentation system, and for implementing changes requested by the CQI Committee or other partners. This Committee also guides the validation requirements associated with the EPCR to ensure that the system is accurately and thoroughly capturing the desired data.

Clinical Care and Patient Outcomes

The Santa Barbara County EMS Treatment Protocols (EMS Policy # 533) guide the clinical care of prehospital patients. These protocols are formally updated every two years, with an annual review for any changes or additions needed. The CQI Committees are responsible for providing recommendations and guidance to the updates, done in the form of a subcommittee work group. These recommendations are developed utilizing direct provider recommendations and data analysis, as well as current professional research and literature. The recommendations of the CQI Committee are then provided to the EMS Medical Directors Committee. The MD Committee reviews the recommendations, and provides any additional changes or updates deemed necessary. All suggested updates and comments are responded to formally by the EMS Agency. The recommended Treatment Protocols are then provided to the EMS Medical Director for final approval. Online educational tools are developed for system participants and launched prior to enactment of the updated protocols. The final version of the protocols is then reviewed directly with system participants at the annual mandatory EMS Update, and the updated version of the Treatment Protocols is enacted and published by the EMS Agency.

The reports and audit tools utilized in the CQI and Specialty Care Committees. The CQI Committees utilize the process previously discussed. In addition, the CQI Committee reviews feedback from the Specialty Care QI Committees for educational activity implementation. The CQI Committee also regularly tracks the Cardiac Arrest Registry to Enhance Survival (CARES) data that Santa Barbara has been collecting since 2010. This data is used to review our Cardiac Arrest Management (CAM) Program and help develop improvements and changes to this program. Since the implementation of CAM, Santa Barbara County has improved the survival from cardiac arrest when the arrest is of cardiac etiology from 8% (below the national average) to 18% (above the national average.) The

survival from a cardiac arrest that is categorized as “witnessed and shockable” has improved form 25% (below the national average) to above the national average, at 62%.

The Trauma System Committee (TSC) is made up of Trauma Surgeons, Emergency physicians, Trauma Coordinators, prehospital provider representatives and EMS Agency staff. TSC meets three times per year and reviews specific trauma data trends and specific cases. Peer review takes place, cases are adjudicated (as defined by current ACS standards), and meeting reports are formed with recommendations for best practices and lessons learned. The TSC Committee also meets 3 times a year with a regional Trauma Audit Committee (TAC) to provide these QI activities at a tri-county level (Ventura, Santa Barbara and San Luis Obispo).

The STEMI QI Committee is made up of Cardiologists, Emergency physicians, STEMI Coordinators, prehospital provider representatives and EMS Agency staff. STEMI QI meets three times per year and reviews specific cardiac care data trends and specific cases. Peer review takes place, cases are adjudicated (as defined by current ACC/AHA standards,) and meeting reports are formed with recommendations for best practices and lessons learned. By utilizing this approach, the Santa Barbara County EMS Agency has received the American Heart Association’s Mission: Lifeline® EMS Silver Award in 2014 and Gold Award in 2015 and 2016.

The Stroke System QI Committee is made up of Neurologists, Emergency physicians, Stroke Program Coordinators, prehospital provider representatives and EMS Agency staff. The Stroke System Committee is currently in development and meets on a monthly basis. It is anticipated that the Stroke System will be implemented by early 2016, with 2-3 Primary Stroke Centers (utilizing the JHACO accreditation standards) and a single Neuro-Endovascular Center within the county. When the system is fully implemented a formal Stroke QI Committee will be created. This committee too will meet three times per year and reviews specific stroke care data trends and specific cases. Peer review will take place, cases adjudicated (as defined by current AHA standards) and meeting reports will be formed with recommendations for best practices and lessons learned.

Skills Maintenance and Competency

Skill Maintenance and Competency is handled at 2 levels in Santa Barbara County. Each prehospital agency is responsible for maintaining internal skill competency at licensure level. The plan to provide ensure this competency is included in their individual CQI Plan that is submitted to the EMS Agency. Agencies utilize a variety of methods to ensure this activity, including utilization of online education, quarterly hands-on classes, individual competency sessions with Field Training Officers (FTOs) and specialty training with their individual Medical Directors. Ina addition, a predetermined set of low-frequency high risk skills is monitored at the system level during the annual EMS Updates. The CQI and

Medical Director Committees are responsible for determining which skills will be reviewed at these sessions, based on both current local data and national trends. Local EMS physicians are then responsible for auditing individual providers for competency utilizing a standardized skill competency checklist. This method provides for exceptional individualized feedback and education as well as physician level knowledge of the capabilities of the providers within the system. The skills most frequently included in this set include airway management, critical medication calculation and administration, needle decompression, peripheral and IO access, emergency childbirth, and CAM (cardiac arrest management.) Additional skills may be included as the need is determined.

Public Education and Prevention

Public education and outreach is an important component of any EMS System. Santa Barbara County has multiple venues for this. One of the largest outreach programs that was initiated in 2012 continues to be the Hands Only CPR Outreach. All prehospital provider agencies are actively involved in providing hands only CPR education, utilizing a standardized approach, at events throughout the county. The system goal is to meet or exceed 10% of the entire county population in being Hands Only CPR trained. We are currently half way to this goal, and anticipate that as our survivor success becomes more publicized we will have the opportunity to provide an increased amount of teaching sessions.

Injury Prevention is another major area of public education pursued in Santa Barbara County. Both designated trauma centers provide targeted outreach programs, including child passenger safety, distracted driver education, elderly fall prevention, and drug and alcohol prevention and intervention outreach. Local fire departments are activity in carseat safety checks, with all agencies maintaining personnel who are certified car seat specialists. Local law and EMS agencies also coordinate the “Every 15 Minutes” program each year near high school graduation time to spread education about drunk driving for our local teens during this high risk time of year.

Risk Management

Risk management is addressed through the use of the Unusual Occurrence Report. These reports will be submitted by anyone with a concern regarding patient care, patient management, crew interaction, safety, public perception, or any other issue that is in question. The Unusual Occurrence Report form, with instructions for its completion, is available on the SBC EMS website. The completed form is submitted by the reporter to the agency for initial internal review. Typically, the form is supported by the Electronic Patient

Care Record (EPCR), computer-aided dispatch (CAD) record, audio recordings from dispatch, and when available, patient outcomes at the hospital. The CQI Coordinator compiles a data base of reported issues and is able to broadly trend the types of issues reported, agencies involved, and resolution of the issues. All of the reported information is maintained in a confidential manner and reports are available to the CQI representative of the involved agency.

Annual Update

All individual agency CQI Plans are updated annually by January 31. These updates include changes in processes, personnel, equipment, or structure. Many of these updates are captured in the CQI process throughout the year, but are formally reviewed at this time.

Following review of the partner CQI Plans, any updates needed to the System CQI Plan are discussed at the EMS Agency level and then reviewed by the Medical Director prior to implementation.

Santa Barbara County
Emergency Medical Services

Continuous Quality Improvement
Plan Update

2018

Santa Barbara County Emergency Medical Services Agency
Public Health Department

Nick Clay, Paramedic
EMS Director

Angelo Salvucci, M.D.
EMS Medical Director

Michele Combs, BSN
Specialty Care Systems Coordinator

Van Do-Reynoso, MPH, PhD
Director of Public Health

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Health Officer

CQI Plan Summary –

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Quality Improvement requires commitment, dedication and purpose. CQI can only function well in an environment that fosters input from all levels of personnel in the system, and that provides consistent standardized feedback to the system participants. To be successful, a program must work from an integrated approach, with the intent to motivate its' participants to do their best and utilize the tools of education to support this. Trust is imperative amongst the participants for the process to succeed.

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Update review of the CQI Plan –

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In addition to their internal CQI activities, the CQI committee is involved in a *comprehensive, multidisciplinary review* of some of the highest risk patient care cases in our system, from the patient's first call for help to their outcome. This evaluation assesses

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No issues identified in prior plan approval.

Other Issues —

None at this time.

Santa Barbara County
Emergency Medical Services

Continuous Quality Improvement
Plan Update

2019

Santa Barbara County Emergency Medical Services Agency
Public Health Department

Nicholas Clay
EMS Director

Angelo Salvucci, M.D.
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Other Issues —

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Santa Barbara County
Emergency Medical Services

Continuous Quality Improvement
Plan Update

2020

Santa Barbara County Emergency Medical Services Agency
Public Health Department

Nick Clay, Paramedic
EMS Director

Daniel Shepherd, M.D.
EMS Medical Director

Gabriela Modglin, BS, Paramedic
Specialty Care Systems Coordinator

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No issues identified in prior plan approval.

Other Issues —

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Santa Barbara County EMS Agency

Continuous Quality Improvement Plan

UPDATE 2021

TABLE OF CONTENTS

ORGANIZATION

Van Do-Reynoso, MPH, PhD

Director of Public Health

Henning Ansorg, M.D.

Health Officer

Daniel Shepherd, M.D.

EMS Agency Medical Director

Nick Clay

EMS Agency Director

Gabriela Modglin, BS, Paramedic

EMS Agency Specialty Care Systems Coordinator

Santa Barbara County PUBLIC Health DEPARTMENT

CQI PLAN SUMMARY

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UPDATE OF CQI PLAN

The Santa Barbara County CQI Plan has undergone significant changes during the prior years. Although there have been no changes to the response structure within Santa Barbara County, the Santa Barbara County CQI Plan is in the preliminary stages of establishing a patient-centric approach to quality improvement. SBCEMSA will be utilizing FirstWatch & FirstPass, clinical quality measurement and protocol monitoring tools designed to alert SBCEMSA to deviations in expected treatments to medical protocols, to

not only perform quality improvement practices more effectively within our system, but to improve the quality of patient care.

The county's emergency medical response is provided by multiple response agencies. These agencies include two Basic Life Support (BLS) Fire Departments: Santa Barbara City Fire in the South County and Santa Maria City Fire in the north county. There are also two agencies that participate in the local optional scope of practice (LOSOP) for BLS-Optional Skills: Lompoc City Fire Department in the West, and Guadalupe Fire Department in the Northwest. Advanced Life Support (ALS) coverage includes four agencies: Carpinteria-Summerland Fire Department in the far South, Montecito Fire Department Southeast of Santa Barbara, Santa Barbara County Fire Department (SBCFD) who respond to all unincorporated areas of our County, and American Medical Response (AMR), the contracted private ambulance provider in Santa Barbara County. SBCFD also provides limited ambulance transportation in three areas of the County. Santa Barbara County has a designated air ambulance provider, CALSTAR (based in Santa Maria) that responds to on scene 9-1-1 emergencies and transports critical care patients. Additional air ambulance transportation is provided by the jointly-run County Fire and Sheriff's Departments providing air rescue unit, and Mercy Air (helicopter based out of San Luis Obispo County) who offers air medical transport as needed for mutual aid.

Santa Barbara County contains five hospitals spread out over the geography. There are additions to hospital designations. At the North-end of the county is Marian Regional Medical Center. This facility is a designated Level III Trauma Center with a helipad, a designated STEMI/ROSC Receiving Center, and JCAHO Certified Primary Stroke Center. At the South-end of the County lies Santa Barbara Cottage Hospital, a designated Level I Adult and Level II Pediatric Trauma Center with a helipad, a designated STEMI/ROSC Receiving Center, and a JCAHO Certified Comprehensive Stroke Center. Additionally, the South-end also encompasses Goleta Valley Cottage Hospital. On the West-side of the county is Lompoc Valley Medical Center, a designated Acute Stroke Ready Hospital. In the center of the county, Santa Ynez Valley Cottage Hospital is a designated Critical Access and Rural Hospital and an Acute Stroke Ready Hospital. Each of these hospitals has an Emergency Department that receives patients from the EMS system, and all are involved in the quality improvement activities of the system.

The Santa Barbara County CQI plan is an inclusive, multidisciplinary process that focuses on identification of system-wide opportunities for improvement. CQI refers to methods of data evaluation that consider factors such as structure, process, and outcome. Improvement efforts focus on identification of the root causes of problems, interventions to reduce or eliminate these causes, and the development of steps to correct inadequate or faulty processes. The focus of the CQI Program is not disciplinary in nature, but rather to use the analysis of high-quality data for ongoing educational and improvement efforts.

SBCEMSA has recommended to all EMS partners, both first-responder BLS and ALS providers, as well as Base Hospital providers, that they institute CQI programs within their organizations. Each ALS and BLS Provider and Hospital provides qualified personnel to coordinate their internal CQI program. This person is responsible for developing and maintaining their agencies internal CQI Program including CQI processes related to personnel, equipment and supplies, safety, skills maintenance, and competency. This individual is

responsible for representing their agency at the County CQI functions, specifically the CQI Committee groups, and is to report trends, outliers and improvement activities within their organization. The purpose of the Committee is to advise and assist the Santa Barbara County EMS Medical Director to monitor and trend quality issues that are reported by the EMS system participants. The committee also is the venue to discuss current trends and research in EMS care that has an impact on prehospital care as well as to review information developed using clinical indicators. Continuous quality improvement is achieved through assessment of clinical care, research, evidence–based implementation of initiatives, monitoring the outcomes of the changes implemented, and the ongoing study of EMS practice for continued progress. The committee strives to use a multidisciplinary approach for issue resolution and to promote countywide standardization of the quality improvement process with an emphasis on education and improvement.

In addition to their internal CQI activities, the CQI committee is involved in a comprehensive, multidisciplinary review of high-risk patient care cases in our system, from the patient's first call for help to their outcome. This evaluation assesses all aspects of care, disciplines of care, policy and protocol adherence and addressing deviations from standards of care for education and process improvement.

Patient treatment protocols were updated in 2019 by the Protocol and CQI Committee and reviewed for appropriateness by Medical Director's Committee before being sent to the SBCEMSA Medical Director for final approval. All updates and changes are formulated into a standardized teaching plan prior to implementation. All training materials were made available to each agency.

PROGRESS ON ADDRESSING EMS AUTHORITY CQI PLAN COMMENTS

No issues identified in prior plan approval.

OTHER ISSUES

None at this time.

Santa Barbara County EMS Agency

Continuous Quality Improvement Plan

UPDATE 2022

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SANTA BARBARA COUNTY EMS AGENCY

ORGANIZATION

Mouhanad Hammami, MD, MHSA

Director of Public Health

Henning Ansorg, M.D.

Health Officer

Daniel Shepherd, M.D.

EMS Agency Medical Director

Nick Clay

EMS Agency Director

Gabriela Modglin, BS, Paramedic

EMS Agency Specialty Care Systems Coordinator

Santa Barbara County PUBLIC Health DEPARTMENT

CQI PLAN SUMMARY

The Santa Barbara County Emergency Medical Services Agency (SBCEMSA), a part of the Public Health Department, has the mission to improve the health of our communities by preventing disease, promoting wellness, and ensuring access to needed healthcare. Within this Mission, the Emergency Medical Services Agency strives to ensure *Community Access & Education, Provider Safety & Support,* as well as *Clinical Excellence* within Santa Barbara County. This is done through the provision of high-quality emergency medical services, through reasonable costs, community involvement, continuous evaluation, prevention programs and anticipatory planning.

Continuous Quality Improvement (CQI) is a process derived from a philosophy that focuses on processes rather than on individuals, and which contends that improvements can be made in most areas. The scientific method is at the core of CQI, requiring objective data to analyze and improve processes to meet the needs of those we serve and to improve the services we offer. Through the use of CQI we can offer our patients evidence-based best practices which are continually evolving to provide the highest quality, standardized care throughout Santa Barbara County.

Quality Improvement requires commitment, dedication and purpose. CQI can only function well in an environment that fosters input from all levels of personnel in the system, and that provides consistent standardized feedback to the system participants. To be successful, a program must work from an integrated and collaborative approach, with the intent to motivate its' participants to perform at their best, both clinically and professionally. We utilize education by means of case presentations, data review, and patient outcome feedback to support our patient-centered approach. Trust is imperative amongst the participants for the process to succeed.

With these guidelines in focus, SBCEMSA continues to develop a Quality Improvement program that will truly be of benefit to the individuals within our communities that access our emergency medical services. The EMS Medical Director provides medical oversight to the system, which includes quality improvement and educational activities. The Clinical Performance Improvement Coordinator facilitates the Continuous Quality Improvement activities of the agency under the guidance of the Medical Director with the involvement of other agency personnel as appropriate.

PURPOSE OF CQI COMMITTEE

The purpose of the Committee is to advise and assist the Santa Barbara County EMS Medical Director to monitor and trend quality issues that are reported by the EMS system participants. The committee also is the venue to discuss current trends and research in EMS care that has an impact on prehospital care as well as to review information developed using clinical indicators. Continuous quality improvement is achieved

through assessment of clinical care, research, evidence–based implementation of initiatives, monitoring the outcomes of the changes implemented, and the ongoing study of EMS practice for continued progress. The committee strives to use a multidisciplinary approach for issue resolution and to promote countywide standardization of the quality improvement process with an emphasis on education and improvement.

SANTA BARBARA COUNTY'S RESPONSE STRUCTURE

The county's emergency medical response is provided by multiple response agencies. These agencies include two Basic Life Support (BLS) Fire Departments: Santa Barbara City Fire in the South County and Santa Maria City Fire in the north county. There are also two BLS-Optional Skill provider agencies: Lompoc City Fire Department in the West, and Guadalupe Fire Department in the Northwest. Advanced Life Support (ALS) coverage includes four agencies: Carpinteria-Summerland Fire Department in the far South, Montecito Fire Department southeast of Santa Barbara, Santa Barbara County Fire Department who respond to all unincorporated areas of our County as well as the contract cities of Goleta, Solvang, and Buellton, and American Medical Response, the contracted ALS private ambulance provider serving the majority of Santa Barbara County. The County Fire Department also provides ALS ambulance services New Cuyama, Vandenberg Village and the University of California Santa Barbara campus. Santa Barbara County has a designated air ambulance provider, CALSTAR (based in Santa Maria) that responds to on scene 9-1-1 emergencies and transports critical care patients. Additional air rescue services are provided by the jointly-run County Fire and Sheriff's Departments providing an ALS air rescue unit.

As is required by the California Code of Regulations, all EMS partners (both first-responder BLS and ALS providers, as well as Base Hospital providers) must institute CQI programs within their organizations. Each ALS and BLS Provider and Hospital provides qualified personnel to coordinate their internal CQI program. This person is responsible for developing and maintaining their agencies internal CQI Program including CQI processes related to personnel, equipment and supplies, safety, skills maintenance, and competency. This individual is responsible for representing their agency at the County CQI functions, specifically the CQI Committee groups, and is to report trends, outliers and improvement activities within their organization.

SANTA BARBARA COUNTY'S HOSPITAL STRUCTURE

Santa Barbara County contains five hospitals spread out over the geography. There are additions to hospital designations. At the North-end of the county is Marian Regional Medical Center. This facility is a designated Level III Trauma Center with a helipad, a designated STEMI/ROSC Receiving Center, and JCAHO Certified Primary Stroke Center. At the South-end of the County lies Santa Barbara Cottage Hospital, a designated Level I Adult and Level II Pediatric Trauma Center with a helipad, a designated STEMI/ROSC Receiving Center, and a JCAHO Certified Comprehensive Stroke Center. Additionally, the South-end also encompasses Goleta Valley Cottage Hospital. On the West-side of the county is Lompoc Valley Medical Center, a designated Acute Stroke Ready Hospital. In the center of the county, Santa Ynez Valley Cottage Hospital is a designated Critical Access and Rural Hospital and an Acute Stroke Ready Hospital. Each of these hospitals has an Emergency Department that receives patients from the EMS system, and all are involved in the quality improvement activities of the system.

UPDATE OF CQI PLAN

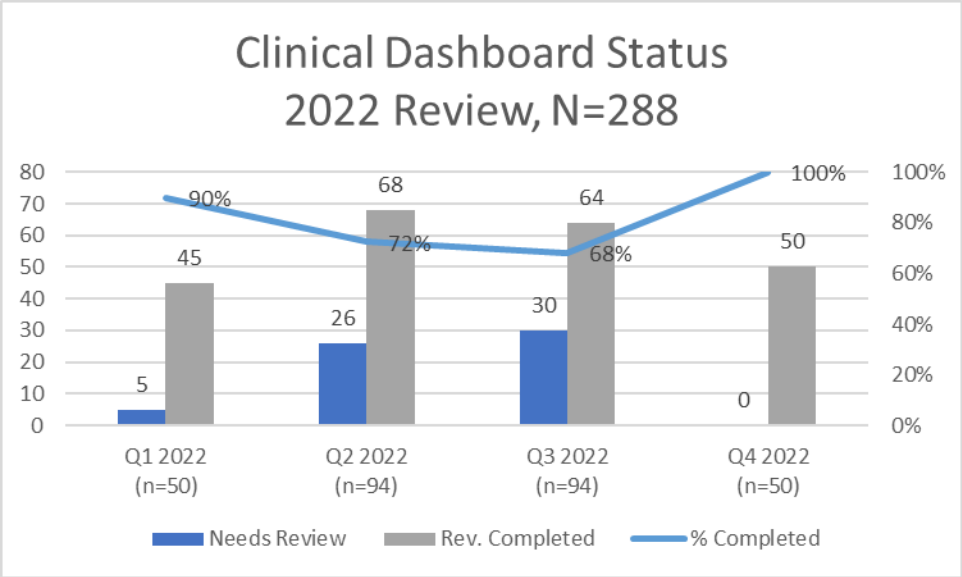
Although there have been no modifications to the current CQI Plan, there were significant EMS System changes that impacted the CQI activities within the Santa Barbara County EMS System. First, we implemented the Clinical Dashboard, an online data repository, review, and loop-closure system intended to streamline the communication from EMS to the provider agency for quality improvement purposes. This system is utilized to monitor, track, and correspond with respective EMS provider's regarding any fall-outs (deviations in protocol) that arise from primary impressions such as calls that meet specialty care criteria, pain management medications, and medications currently under LOSOP approval. Second, SBCEMSA implemented FirstWatch & FirstPass, a clinical quality measurement and protocol monitoring tools designed to alert SBCEMSA to deviations in expected treatments to medical protocols. This tool will not only perform quality improvement practices more effectively within our system, but to improve the quality of patient care. We are currently in the secondary phase of utilizing FirstWatch and FirstPass, of which its sole focus is to implement a unique, comprehensive, and cutting-edge approach to evaluating prehospital patient care using the patient-centric approach. Third, our EMS System underwent a revamping of ImageTrend Elite, it's electronic documentation platform, which resulted in increased documentation deviations for two quarters. The more significant systematic issues related to the documentation system have been resolved, however, the quality improvement of ImageTrend involves continuous, dedicated, and ongoing efforts from all stakeholders.

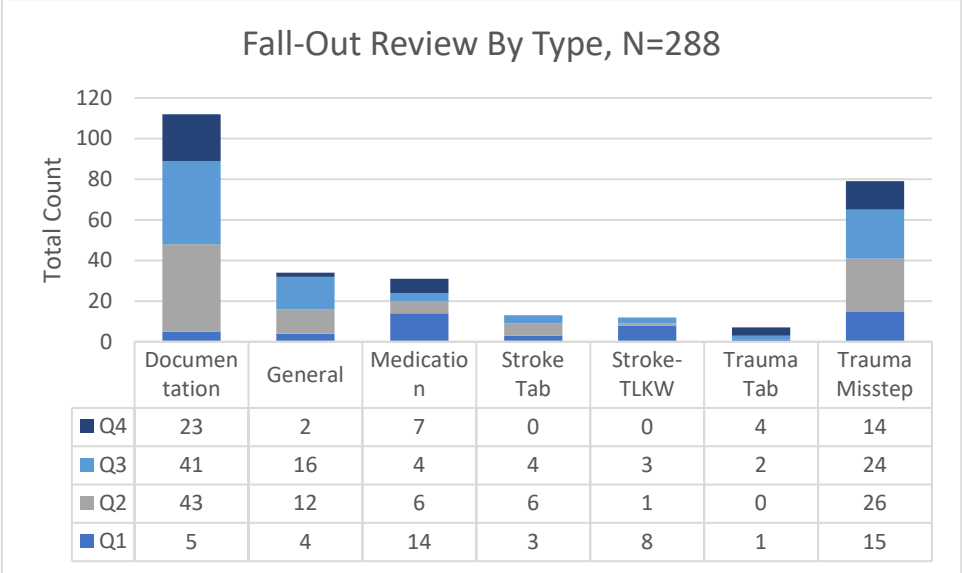
Lastly, patient treatment protocols were updated in 2022 by the Protocol Review Committee and CQI Committee, in addition to extensive review within the Medical Director's Committee, prior to SBCEMSA Medical Director final approval. All updates and changes are formulated into a standardized teaching plan and distributed at a regular cadence prior to implementation. Prehospital Field Treatment Protocols (Policy 533) undergo significant changes thanks to the input of these various committees. Changes are then finalized by December of each year, and training is developed using a multi-media platform designed to integrate information using various learning techniques and approaches. The "533's" are then assigned during the first quarter of the year (January), with substantial time for thorough evaluation, opportunities for clarification, and further dedicated time in March prior to the implementation timeline of April 1st.

DATA COLLECTION AND EVALUATION

The Santa Barbara County CQI plan is an inclusive, multidisciplinary process that focuses on identification of system-wide opportunities for improvement. CQI refers to methods of data evaluation that consider factors such as structure, process, and outcome. Improvement efforts focus on identification of the root causes of problems, interventions to reduce or eliminate these causes, and the development of steps to correct inadequate or faulty processes. The focus of the CQI Program is not disciplinary in nature, but rather to use the analysis of high-quality data for ongoing educational and improvement efforts.

In 2022, there were 34,171 transports within the Santa Barbara County. Transports that met criteria for critical care, such as Stroke, STEMI, Cardiac Arrest or Trauma, were audited and comprehensively reviewed. Of the prehospital calls that met specialty care criteria, 288 calls were identified as potential "fall-outs," or calls that deviated from protocol. As mentioned previously, there were significant systemic changes to the electronic patient care record, which resulted in an increased deviation in protocol, predominantly during Quarter 2 and Quarter 3 of 2022. Once those issues were rectified, the number of deviations in protocol decreased. We will continue monitoring trends, and monitor system changes moving forward.





	Documentation	General	Medication	Stroke Tab	Stroke-TLKW	Trauma Tab	Trauma Misstep
Q4	23	2	7	0	0	4	14
Q3	41	16	4	4	3	2	24
Q2	43	12	6	6	1	0	26
Q1	5	4	14	3	8	1	15

PROGRESS ON ADDRESSING EMS AUTHORITY CQI PLAN COMMENTS

No issues identified in prior plan approval.

ATTACHMENTS

Policy 533 – Prehospital Field Treatment Protocols