

Overview

Community paramedicine (CP) seeks to improve the effectiveness and efficiency of health care delivery by partnering specially trained paramedics with other health care providers to meet local health care needs. Community paramedics receive additional training beyond what is required for paramedic licensure and provide care outside of their traditional role, which in California is restricted to responding to 911 calls and transporting patients to an acute care hospital emergency department (ED) or performing interfacility transfers.

A major goal of community paramedicine is to address an overloaded system of emergency care by capitalizing on the unique abilities of paramedics and EMS systems to provide alternatives to ambulance transports and ED visits. Community paramedicine, which is being implemented or tested in many states in the US, also aligns with the health care sector's triple aim: to improve patient experience, improve community health status, and decrease the cost of care.

In 1972, California established the Health Workforce Pilot Project (HWPP) program (California Health and Safety Code §§ 128125-128195), a visionary program administered by the California Office of Statewide Health Planning and Development (OSHPD) that waives scope of practice laws to test and evaluate new and innovative models of care. On November 14, 2014, OSHPD approved HWPP #173, a project sponsored by the California Emergency Medical Services Agency (EMSA), which encompasses 13 projects that are testing six community paramedicine concepts.

- 1. Post-discharge.** Provide short-term, home-based follow-up to care for persons recently discharged from a hospital due to a serious health condition to decrease hospital readmissions within 30 days.
- 2. Frequent EMS users.** Provide case management services to persons who are frequent 911 callers or frequent visitors to EDs to reduce their use of the EMS system by connecting them with primary care, behavioral health, housing, and social services.
- 3. Directly observed therapy for tuberculosis.** Collaborate with local public health to provide directly observed therapy to persons with tuberculosis (i.e., dispense medications and observe patients taking them to assure effective treatment) to prevent its spread.
- 4. Hospice.** In response to 911 calls, collaborate with hospice agency nurses, patients, and family members to treat patients in their homes, according to their wishes, instead of transporting patients to an ED.
- 5. Alternate destination – behavioral health.** In response to 911 calls, offer patients who have behavioral health needs but no emergent medical needs transport to a mental health crisis center instead of an ED.
- 6. Alternate destination – medical care.** In response to 911 calls, offer patients with low-acuity medical conditions transport to an urgent care center instead of an ED.

(A seventh concept, alternate destination – sobriety center, has been approved for inclusion in the project.

This new pilot site will begin operation in San Francisco in 2017.)

The HWPP regulations require organizations that sponsor pilot projects to retain an independent evaluator. A team of evaluators at the University of California, San Francisco, serves this role for HWPP #173. The projects began enrolling patients in June to October of 2015. The UCSF evaluation covers pilot site operations through September 2016 (healthforce.ucsf.edu/communityparamedicine).

Summary of the Evaluation Results

The community paramedicine pilot projects have demonstrated that specially trained paramedics can provide services beyond their traditional and current statutory scope of practice in California. These projects are improving patients' well-being, improving the integration and efficiency of health services in the community, and decreasing health care costs by reducing ambulance transports, ED visits, and hospital readmissions.

The majority of savings achieved by these pilots accrue to Medicare and to hospitals serving Medicare patients because Medicare beneficiaries accounted for the largest share of pilot project enrollees (43%). Savings also accrue to the Medi-Cal program and to providers serving Medi-Cal beneficiaries because Medi-Cal beneficiaries constituted 28% of enrollees. The pilot projects also provide new options to 911 callers, allowing these patients to obtain the care they need more efficiently and in the settings they prefer.

Californians benefit from these innovative models of health care that leverage an existing workforce and that operate at all times under medical control, either directly or by protocols developed by physicians experienced in EMS and emergency care.

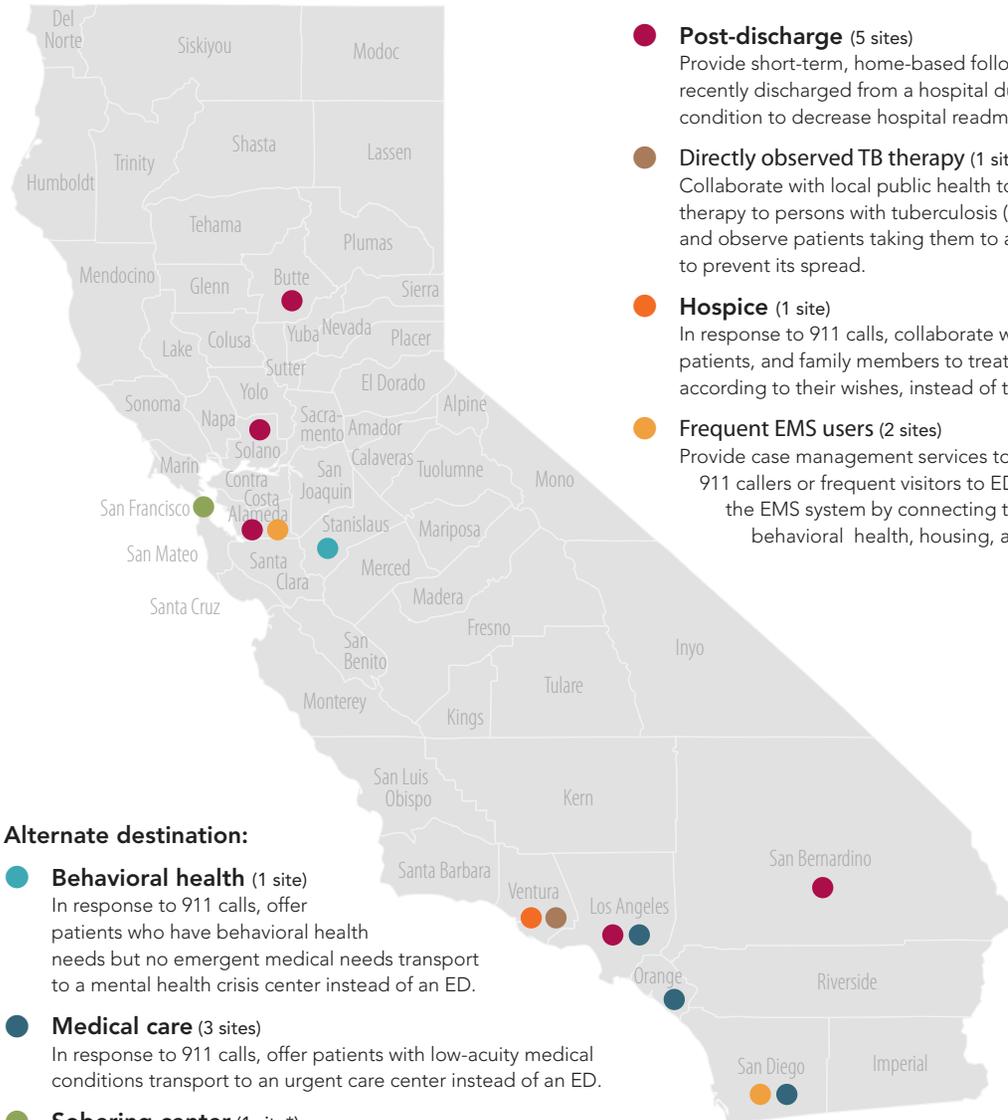
No adverse outcomes were found to be attributable to any of these pilot projects.

No health professionals were displaced; in fact, these pilot projects demonstrated that community paramedicine programs can help physicians, nurses, behavioral health professionals, and social workers to fill care gaps in the health and social services safety net. These projects were designed to integrate with existing health care resources and use the unique skills of paramedics and their round-the-clock availability.

At least 33 states are operating community paramedicine programs, and research conducted to date indicates that these programs are improving the efficiency and effectiveness of the health care system. Research findings suggest that the benefits of CP programs grow as they mature, solidify partnerships, and find their optimal structure and niche within a community. They have improved patients' well-being and, in most cases, have yielded savings for payers and other parts of the health care system.

If community paramedicine is implemented on a broader scale, the current EMS system design is well-suited to incorporate the results of these pilot programs to optimize the design and implementation of proposed programs and assure patient safety. The two-tiered system of local control with state oversight and regulation enables cities and counties to tailor community paramedicine programs to meet local needs while ensuring patient safety.

Community Paramedicine Pilot Sites Testing 7 Concepts



- **Post-discharge** (5 sites)
 Provide short-term, home-based follow-up care for persons recently discharged from a hospital due to a serious health condition to decrease hospital readmissions within 30 days.
- **Directly observed TB therapy** (1 site)
 Collaborate with local public health to provide directly observed therapy to persons with tuberculosis (i.e., dispense medications and observe patients taking them to assure effective treatment) to prevent its spread.
- **Hospice** (1 site)
 In response to 911 calls, collaborate with hospice agency nurses, patients, and family members to treat patients in their homes, according to their wishes, instead of transporting them.
- **Frequent EMS users** (2 sites)
 Provide case management services to persons who are frequent 911 callers or frequent visitors to EDs to reduce their use of the EMS system by connecting them with primary care, behavioral health, housing, and social services.

Alternate destination:

- **Behavioral health** (1 site)
 In response to 911 calls, offer patients who have behavioral health needs but no emergent medical needs transport to a mental health crisis center instead of an ED.
- **Medical care** (3 sites)
 In response to 911 calls, offer patients with low-acuity medical conditions transport to an urgent care center instead of an ED.
- **Sobering center** (1 site*)
 Screen and transport directly to sobering center instead of an ED.
 *This site is approved for inclusion in the project and will begin operation in 2017.



The California Health Care Foundation provided support for state-level project management and independent evaluation.

For more information on community paramedicine programs operating today in California, visit www.emsa.ca.gov/community_paramedicine.

Post-Discharge Follow-Up to Avoid Excessive Readmissions

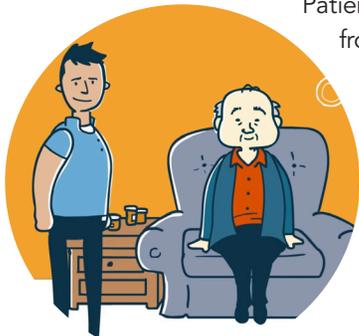


Illustration by Ruben DeLuna

Patients recently discharged from a hospital due to a serious health condition, such as heart failure, are visited at home by a community paramedic. The goal of these short-term follow-up visits is to decrease the number of patients who are readmitted to the hospital within 30 days of discharge.

How It Works

Local paramedic service providers and hospitals are collaborating to reduce the number of avoidable readmissions. These pilot projects are improving patient health outcomes and care experience while reducing hospital readmissions and unnecessary medical costs. Community paramedics provide patients who have been recently discharged from hospitals with timely follow-up visits, calls, or both. The pilot projects also coordinate activities with visiting nurses and home health care provider agencies.

Patients with the designated diagnoses are contacted by a community paramedic within 72 hours of their discharge. In a number of the pilot sites, the community paramedics visited patients in the hospital to establish a rapport prior to discharge. The community paramedics ensure that the patients understand their discharge instructions, new prescriptions, and when their next physician follow-up visit is scheduled.

The community paramedics also use their assessment skills to identify changes in health status that need to be relayed to the patient's care team before the next appointment, determine whether an additional in-person visit by a community paramedic is needed, and ensure that the patient's home environment is safe.

Results (as of September 30, 2016)

- ▶ Hospital readmissions within 30 days of discharge decreased for all sites and diagnoses except one pilot site for heart failure patients that provided less intensive services than other post-discharge pilot sites.
- ▶ Four of the five pilot sites saw significant cost savings for payers, primarily Medicare and Medi-Cal, due to reductions in inpatient readmissions. The fifth pilot site reduced 30-day readmissions, but the reduction was too small to offset the cost of operating the project.
- ▶ Community paramedics helped patients avoid adverse health effects due to misunderstanding medication instructions or having duplicate medications. Community paramedics worked with patients to understand their medications and assisted patients in obtaining refills, if needed.

Partners

LOCAL EMS AGENCY	LEAD AGENCY	HEALTH CARE SYSTEM PARTNERS	EMS PROVIDER PARTNERS	LOCATIONS
Alameda County	Alameda County EMS Agency	Alameda City Hospital	Alameda City Fire Department	City of Alameda
Los Angeles	UCLA Center for Prehospital Care	Glendale Adventist Hospital	Glendale Fire Department	City of Glendale
San Bernardino County	San Bernardino County Fire Department	Arrowhead Regional Medical Center	San Bernardino County and Rialto Fire Departments	San Bernardino County (5 cities)
Sierra Sacramento Valley	Butte County EMS	Enloe Hospital	Butte County EMS	Butte County
Solano County	Medic Ambulance	North Bay Medical Center	Medic Ambulance	Solano County



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Frequent EMS Users



Illustration by Ruben DeLuna

Frequent 911 callers or frequent visitors to emergency departments (EDs) are provided with case management services to connect them with primary care, behavioral health, housing, and social services.

Results (as of September 30, 2016)

- ▶ Community paramedics helped patients obtain housing and other nonemergency services that met the physical, psychological, and social needs that led to their frequent EMS use.
- ▶ The number of 911 calls, ambulance transports, and ED visits among enrolled patients was significantly reduced.
- ▶ Payers, ambulance providers, and hospitals saw cost savings. Since 35% of patients enrolled were uninsured, reducing their frequency of ED visits also decreased the amount of uncompensated care provided by partner hospitals.

How It Works

The frequent EMS user pilot sites enroll people who are frequent 911 callers, ED visitors, or both. Community paramedics identify the reasons for the frequent 911 calls and ED visits and link patients to appropriate nonemergency service providers that can reduce the patients' dependence on EMS agencies and EDs for care.

Community paramedics first assess the patient's physical, psychological, and social needs. For patients with a stable home, a home safety assessment is also conducted. Medication reconciliation is provided for patients who take any prescription medications. These assessments are performed at an initial in-person meeting and as-needed for the duration of the patient's tenure with the project. Patients remain enrolled in the projects until a community paramedic determines

that the patient no longer needs the project's services. Criteria for graduation from the project include reaching important individual milestones, such as obtaining housing or maintaining sobriety.

The two pilot sites enroll different populations of frequent EMS users. The City of San Diego's project primarily enrolls people with 20 or more ED visits per year. The City of Alameda's project, which serves a population much smaller than San Diego's (79,227 vs. 1,391,676), is open to anyone identified by the EMS agency or the partner hospital as frequent 911 or ED users. San Diego's community paramedics provide frequent EMS user services exclusively, and Alameda's community paramedics alternate between working full-time as community paramedics and full-time as traditional firefighter paramedics.

Partners

LOCAL EMS AGENCY	LEAD AGENCY	HEALTH CARE SYSTEM PARTNERS	EMS PROVIDER PARTNERS	LOCATIONS
Alameda County	Alameda County EMS Agency	Alameda Hospital	Alameda City Fire Department	City of Alameda
San Diego	City of San Diego	UC San Diego	Rural Metro / AMR San Diego City Fire Department	City of San Diego



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Directly Observed Therapy for Tuberculosis



Illustration by Ruben DeLuna

Community paramedics collaborate with local public health officials to provide directly observed therapy (DOT) to patients with tuberculosis (TB). The community paramedics dispense medications and observe patients taking them to ensure that treatment protocols are followed, thus preventing the spread of this highly contagious disease.

Results (as of September 30, 2016)

- ▶ Community paramedics dispensed appropriate doses of TB medications and monitored side effects and symptoms that would require a change in treatment regimen.
- ▶ Patients with TB who received DOT from community paramedics were more likely to receive all doses of TB medication prescribed by the TB clinic physician than patients who received DOT from the TB clinic's community health workers. Properly completing dose regimens increases the likelihood that a patient will be cured and not spread infection to others or develop a drug-resistant strain of TB that would be more difficult to treat and to control in the community.

How It Works

Tuberculosis is a highly contagious disease that is treated with special antibiotic medications. The number of medications and frequency of dosing are determined by a physician with expertise in TB treatment. Patients with TB must take their medication as directed, because stopping treatment too soon or missing doses of medication could lead to development of a drug-resistant strain of TB, which poses a public health risk to a community. To ensure that patients with TB take their medication as directed, TB treatment clinics often provide DOT, under which a health care worker gives a patient the medication, observes the patient taking the medication, and monitors the patient for side effects.

In Ventura County, public health officials asked EMS provider partners to provide DOT because the TB clinic does not have sufficient staff to serve all TB patients in the county. The TB clinic's community health workers (CHWs) administer DOT, but they only work on weekdays and thus do not provide DOT on weekends. In addition, the CHWs are based in Oxnard, where the TB clinic is located, and drive as long as 60 minutes to reach some patients because Ventura County covers a large geographic area. In contrast, the community paramedics are stationed throughout the county and can reach patients within 15 minutes.

Partners

LOCAL EMS AGENCY	LEAD AGENCY	HEALTH CARE SYSTEM PARTNER	EMS PROVIDER PARTNER	LOCATION
Ventura	Ventura County EMS Agency	Ventura County Public Health Department	AMR Ventura	Ventura County



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911 Hospice Calls

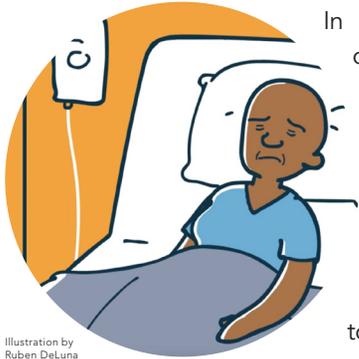


Illustration by Ruben DeLuna

In response to 911 calls, community paramedics collaborate with hospice agency nurses, patients, and family members to treat patients in their homes, according to their wishes, instead of transporting the patient to an emergency department (ED).

How It Works

The goal of hospice care is to provide medical, psychological, and spiritual support to those dying from a terminal illness. Care is provided by a multidisciplinary team of health professionals and volunteers in a patient's place of residence. Hospice staff members tell hospice patients, their family members, and other caregivers to contact the hospice instead of 911 if they believe there is a medical need or if they become concerned about the patient's comfort.

Despite this instruction, some hospice patients and their family members call 911 instead of the hospice, because they are anxious about a patient's condition, they disagree with the patient's decision to obtain hospice care, or the patient decides to stop receiving hospice care. In other cases, patients or families may call 911 if they do not receive a prompt response from the hospice agency.

The standard response to a 911 call made on behalf of a hospice patient is to transport the patient to an ED. Being transported to an ED may be upsetting and uncomfortable for hospice patients, and ED clinicians may perform unwanted medical interventions, including

admission for inpatient care. Another negative outcome is that insurers may revoke hospice benefits if a patient receives treatment or hospitalization that is incompatible with the hospice approach of comfort care. In these cases, the patient must apply for reinstatement of their hospice benefits.

Ventura County's hospice project seeks to prevent unnecessary transport to an ED. The community paramedics are supervisors who can respond to hospice calls while other paramedics respond to other 911 calls. If a 911 dispatcher or a first responder on scene determines that a person is under the care of a hospice agency, a community paramedic is dispatched to the patient's place of residence. The community paramedic assesses the patient, talks with family members and caregivers, and contacts a registered nurse employed by the hospice agency. The hospice nurse determines with the community paramedic what care to provide. The hospice nurse may ask the community paramedic to wait with the patient until the nurse arrives. The hospice nurse may also direct the community paramedic to administer pain medications to the patient that the hospice has provided in a "comfort care" pack.

Results (as of September 30, 2016)

- ▶ Reduced rates of ambulance transports to an ED from 80% to 36%, preventing the loss of patients' hospice benefits and better meeting patients' wishes to receive care at home.
- ▶ Community paramedics mainly provided hospice patients and their families with psychosocial support and administered medications from the hospice patients' "comfort care" packs when necessary, in consultation with a hospice nurse.
- ▶ Saved money for Medicare and other payers.

Partners

LOCAL EMS AGENCY	LEAD AGENCY	HEALTH CARE SYSTEM PARTNERS	EMS PROVIDER PARTNERS	LOCATION
Ventura	Ventura County EMS Agency	Assisted Home Care Services Hospice Buena Vista Hospice Care Livingston Memorial Visiting Nurse Association Roze Room Hospice TLC Home Hospice	AMR Ventura Gold Coast Ambulance LifeLine Ambulance	Ventura County



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Alternate Destination – Behavioral Health



Illustration by Ruben DeLuna

In response to a 911 call, community paramedics transport patients with behavioral health needs, but no emergent medical needs, to a mental health crisis center instead of to an emergency department (ED).

Results (as of September 30, 2016)

- ▶ 98% of patients were evaluated at the behavioral health crisis center without the long delay of a preliminary ED visit.
- ▶ Less than 3% of patients required subsequent transfer to the ED, and there were no adverse outcomes. After refining the field medical evaluation protocols, the rate of transfer to an ED fell to zero.
- ▶ The project yielded savings for payers, primarily Medi-Cal, because screening behavioral health patients in the field for medical needs and transporting them directly to the mental health crisis center obviated the need for an ED visit with subsequent transfer from an ED to a behavioral health facility.
- ▶ For uninsured patients, the amount of uncompensated care provided by ambulance providers and hospitals also decreased.

How It Works

Many California EDs are overcrowded. Some of the patients served in an ED could be treated safely and effectively in other settings, including some who arrive via ambulance.

Behavioral health patients are often transported to an ED for medical clearance or when there is no capacity to evaluate them at a crisis center. These patients can spend hours in an ED waiting for medical clearance, and in some cases they can spend days in the ED waiting for a bed at an inpatient behavioral health center, without getting definitive behavioral health care during their ED stay.

In Stanislaus County, community paramedics are dispatched in response to 911 calls that a dispatcher determines to be a behavioral health emergency or when another paramedic or a law enforcement officer identifies a patient with behavioral health needs. Community paramedics are also dispatched to the

mental health crisis center to assess patients who arrive on their own and who need to be medically cleared before being admitted to the county's inpatient psychiatric facility. The community paramedics provide these services as needed in addition to responding to traditional 911 calls.

Once on scene, a community paramedic assesses the patient for medical needs or intoxication due to alcohol or drug consumption. If the patient has no emergent medical needs, is not intoxicated, and is not violent, the community paramedic contacts the mental health crisis center to determine bed availability at the county inpatient psychiatric facility. Upon a patient's arrival, mental health professionals on the crisis center staff evaluate the patient to determine the most appropriate level of care for their condition. Eligibility is limited to nonelderly adults who are uninsured or enrolled in Medi-Cal because the county inpatient psychiatric facility does not accept patients with other health insurance.

Partners

LOCAL EMS AGENCY	LEAD AGENCY	HEALTH CARE SYSTEM PARTNER	EMS PROVIDER PARTNER	LOCATION
Stanislaus County	Mountain Valley EMS	Stanislaus County Behavioral Health and Recovery Services	AMR Stanislaus County	Stanislaus County



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Alternate Destination – Medical Care



Illustration by Ruben DeLuna

In response to a 911 call, community paramedics offer patients with low-acuity medical conditions transport to an urgent care center instead of to an emergency department (ED).

- ▶ The projects yielded modest savings; savings were realized because insurers pay less for treatment provided in urgent care centers than in EDs for the same illnesses and injuries.
- ▶ To operate safely and efficiently, these projects need to closely match field screening protocols with the capabilities of urgent care centers.

How It Works

Three pilot sites offer patients with minor injuries or medical conditions transport to an urgent care center instead of an ED. Urgent care centers are walk-in clinics that serve patients with illnesses or injuries that need timely evaluation and treatment but do not require the level of services of an ED. Urgent care centers are typically staffed by physicians and other health professionals, such as physician assistants, nurse practitioners, and registered nurses. Some urgent care centers are independent, and others are operated by or affiliated with hospital systems or medical groups. California does not license these centers as a distinct category of

health care provider; they operate under the licenses of hospitals or of the physicians who operate them. This means that there are no requirements for operating hours, equipment, or types of urgent care service.

All three pilot projects enroll patients with any of the following conditions: isolated closed extremity injury, laceration with controlled bleeding, soft tissue injury, isolated fever or cough, and other minor injury. One site, Carlsbad, also enrolls patients who have generalized weakness. Patients are assessed by 911 response crew paramedics who were trained to use a screening protocol that was developed by EMS. If the paramedic concludes that a patient could be treated safely at an urgent care center, the paramedic offers transport to an urgent care center approved by the jurisdiction's local emergency medical services agency (LEMSA). Patients who decline are transported to an ED.

All urgent care centers involved in the pilot projects were approved by LEMSAs following site visits to determine whether they provided the following basic services: respiratory therapy treatments, x-rays, point-of-care laboratory testing for blood and urine, and an automated external defibrillator. In addition, paramedics must call the urgent care center, give a brief report on a patient's condition, and receive confirmation that the urgent care center is willing to accept the patient before transporting the patient to that facility.

Results (as of September 30, 2016)

- ▶ More data are needed to make firm conclusions about this model due to the limited number of patients enrolled.
- ▶ Of the patients deemed eligible for transport to an urgent care center, less than 20% were enrolled in one of the pilot programs. Barriers to enrollment included identification of patients at times when urgent care facilities were not open, insufficient numbers of paramedics trained for the program, and restrictive protocols and a lengthy consent process.

Partners

LOCAL EMS AGENCY	LEAD AGENCY	HEALTH CARE SYSTEM PARTNERS	EMS PROVIDER PARTNERS	LOCATIONS
Los Angeles	UCLA Center for Prehospital Care	Glendale Adventist Urgent Care Centers	Glendale and Santa Monica Fire Departments	City of Glendale
Orange County	Orange County Fire Chiefs Association	Coastal Family Medicine Covenant Health Network Hoag Hospitals in Irvine and Newport Beach Memorial Care Health Systems	Fountain Valley, Huntington Beach, and Newport Beach Fire Departments	Orange County cities of Fountain Valley, Huntington Beach, Newport Beach, and Santa Monica
San Diego	Carlsbad Fire Department	Kaiser Permanente	Carlsbad Fire Department	City of Carlsbad



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