

Incident Planning Guide: Utility Failure

Definition

This Incident Planning Guide is intended to address issues associated with a utility failure in hospital systems such as power, water, heating, ventilation, air conditioning, medical air, vacuum, or medical gases. Hospitals may customize this Incident Planning Guide for their specific requirements.

Scenario

Your hospital has an active construction project that requires a scheduled temporary power outage to tie new services into an existing utility circuit. Staff in the affected areas are notified and written procedures are developed and distributed. The outage is scheduled on a weekday third shift to minimize disruption in the operating room. The Incident Commander has decided to activate the Hospital Command Center during the tie-in outage period. At 12:30 AM on the day of the scheduled outage the construction manager notifies the Hospital Command Center and begins the shutdown. Within minutes, the Hospital Command Center receives calls from several inpatient care areas and support departments including the laboratory, pharmacy, and operating rooms reporting unanticipated power outages and associated patient care impact. Patient census is at 85%. The construction manager reports that some unexpected damage occurred during disconnection and it is too late to reverse the process and discontinue the tie-in at this point. Within 30 minutes, the construction team was able to determine the hospital's master drawings were incorrect and the power shutdown affected areas that had not been expected to lose power. Emergency clinical interventions and call in of critical managers and staff are underway. After one hour the construction team determines that to fully repair the affected circuits the hospital requires significant resources not on hand. The needed resources are on order but will not arrive for an estimated 48 hours. Once onsite, vendors and engineering staff will require at least six hours for the parts to be installed and to return to normal electrical services throughout the entire hospital. Surgeries and elective procedures are canceled. Clinical assessments have been initiated to facilitate the transfer or discharge of patients from areas without power, and the Hospital Command Center is beginning to work on contracting out required ancillary services. The hospital is receiving considerable media interest as well as calls from patients' families, staff, and regulatory agencies.

Does your Emergency Management Program address the following issues?

Mitigation

1.	Does your hospital address the threat and impact of a utility failure in the annual Hazard Vulnerability Analysis, including the identification of mitigation strategies and tactics?
2.	Does your hospital participate in pre-incident local response planning with public safety officials (e.g., emergency medical services, fire, and law enforcement), local emergency management officials, other area hospitals, regional healthcare coalition coordinators, and other appropriate public and private organizations, including meetings and conference calls to plan and share status?
3.	Does your hospital have a plan and systems to connect to alternate water sources to support fire suppression, wastewater, and cooling systems?
4.	Does your hospital have a procedure for rationing utilities, if necessary?
5.	Does your hospital have a process to conduct utility inspections, testing, and maintenance for: <ul style="list-style-type: none"> <input type="checkbox"/> Generator (fixed, emergency, and deployable)? <input type="checkbox"/> Power system? <input type="checkbox"/> Water? <input type="checkbox"/> Sewage? <input type="checkbox"/> Natural gas? <input type="checkbox"/> Medical gas?
6.	Does your hospital regularly evaluate the utility systems during high use and high demand periods to ensure continued service and to prevent failure?
7.	Does your hospital have utility contractors or service vendors for emergency repairs and immediate response?
8.	Does your hospital have agreements or contracts for provision of potable water, generator fuel, repairs, etc.?
9.	Does your hospital have multiple inlets for utility suppliers?
10.	Does your hospital have procedures to rapidly replace utility system components such as air filters (e.g., High-efficiency particulate absorption [HEPA]) within the heating, ventilation, and air conditioning systems?
11.	Does your hospital have a plan to initiate pre-incident hospital hardening actions (e.g., test backup generators, protect high risk areas, top off fuel tanks, etc.)?
12.	Does your hospital clearly identify valve controls to main and area supply valves and area shutoff valves for piped utilities such as medical gases and vacuum systems accessible?
13.	Does your hospital maintain a list of areas on emergency power and is this list available to the Hospital Command Center?
14.	Does your hospital maintain a cache of spare phones and a communication directory? Is the plan updated annually?

15.	Does your hospital have pre-incident standardized messages for communicating risks and recommendations to the public and media?
Preparedness	
1.	<p>Does your hospital have a Utility Failure Plan that includes:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Defined criteria and procedures to evacuate all or sections of the hospital based on damage assessments or utility failure? <input type="checkbox"/> A process to assess damage to the structure and infrastructure, including damaged water and sewer lines, electrical and information systems, fuel sources, communications, medical gases, alarm systems, waste and hazardous materials? <input type="checkbox"/> Addressing the loss of heating, ventilation, or air conditioning systems and also include measures to temporarily heat and cool the hospital to protect patients, staff, and visitors? <input type="checkbox"/> Addressing alternative sources and systems if any utility fails? <input type="checkbox"/> Communicating utility conservation measures to patients and staff?
2.	Does your hospital exercise the Utility Failure Plan annually and revise it as needed?
3.	Does your hospital's Emergency Operations Plan include triggers or criteria for activation of the Emergency Operations Plan and the Hospital Command Center?
4.	Does your hospital have a plan to participate in the Joint Information Center in cooperation with local, regional, and state emergency management partners?
5.	Does your hospital have a process for determining the impacts of the loss of utility on clinical operations (e.g., surgery schedule, outpatient services) and infrastructure systems?
6.	Does your hospital have a process to assess the impact of a utility failure on hospital operations?
7.	Does your hospital have a protocol to immediately assess patient conditions and prioritize those most at risk for heat and cold related emergencies?
8.	Does your hospital have procedures to maintain sanitation systems throughout the hospital, including providing personal hygiene and sanitation supplies (e.g., hand wipes, portable toilets, potable water)?
9.	Does your hospital have procedures to evaluate the need for and to obtain additional staff?
10.	<p>Does your hospital have a Communications Plan that includes:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A protocol to notify local emergency management, the public health department, emergency medical services, ambulance providers, and other area hospitals of the situation and possible need to evacuate? <input type="checkbox"/> Procedures for establishing a media staging area and for providing regular media briefings regarding hospital status? <input type="checkbox"/> Procedures to communicate situations and safety information to patients, staff, and families?

11.	<p>Does your hospital have procedures to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify that all emergency generators are assuming the hospital’s power load as designed? <input type="checkbox"/> Verify that the exhaust fans and air handlers supplied by emergency power are operating? <input type="checkbox"/> Evaluate, verify, and communicate to staff that only essential equipment is plugged into emergency power outlets throughout the hospital? <input type="checkbox"/> Contact the utility company’s operations center to ascertain scope and length of service interruption? <input type="checkbox"/> Evaluate critical areas to determine emergency power needs and supply; provide alternative light sources (e.g., battery powered lights, flashlights, etc.)? <input type="checkbox"/> Acquire generator fuel and needed repairs to maintain emergency power? <input type="checkbox"/> Prioritize emergency power allocation to critical infrastructure (e.g., heating, ventilation, and air conditioning units, morgue, elevators, patient monitors, laboratory, blood bank, ventilators, information technology, and other systems)? <input type="checkbox"/> Evaluate the power system for load shedding potential? <input type="checkbox"/> Identify equipment or areas in the hospital that do not have emergency power capability and will be unavailable for use?
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Immediate and Intermediate Response

1.	<p>Does your hospital have a mechanism for regularly evaluating performance of the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Electrical systems? <input type="checkbox"/> Phones? <input type="checkbox"/> Water? <input type="checkbox"/> Natural gas? <input type="checkbox"/> Medical gas?
2.	Does your hospital have a switching team protocol (sometimes called switching orders) that addresses transfer load?
3.	Does your hospital have a plan to conduct regular media briefings, in collaboration with the local emergency management agency, local Emergency Operations Center, and the Joint Information Center?
4.	Does your hospital have a plan to document actions, decisions, and activities and to track response expenses and lost revenues?
5.	<p>Does your hospital have a plan to provide staff with information on the situation and temporary measures to implement in order to protect patients and visitors including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Supplies and plans to address extreme heat including cooling measures (e.g., fans, ice, cold packs), cold water and fluids for hydration, medications for sunburn, heat exhaustion, heat stroke? <input type="checkbox"/> Supplies and plans to address extreme cold, including warm blankets, warm IV fluids, warm liquids for hydration, and medications for hypothermia and frostbite?
6.	Does your hospital have a plan to secure the hospital?
7.	Does your hospital have a process to assess patients for early discharge to decrease patient census?
8.	Does your hospital have a procedure to request diversion?

9.	Does your hospital have a process to determine the need for canceling elective procedures and surgeries and other nonessential hospital services?
10.	Does your hospital identify criteria and procedures to modify the patient visitation policy during an incident?
11.	Does your hospital have a process to evaluate the short term and long term impact of utility loss on the patients, staff, and hospital?
12.	Does your hospital have criteria and a process to determine the need for complete or partial evacuation of the hospital?
13.	Does your hospital have multiple methods and equipment for evacuating patients (e.g., chairs stretchers, backboards, sled type devices, blanket drag, single person carry, multiple person carry)?
14.	Does your hospital have evacuation equipment for bariatric and special needs patients?
15.	Does your hospital have a Communications Plan that includes: <input type="checkbox"/> Procedures for obtaining situation reports and utility status updates from the local emergency management agency and utility providers? <input type="checkbox"/> Procedures to notify patients' family members of the situation? <input type="checkbox"/> Procedures to provide accurate and timely briefings to staff, patients, families, and area hospitals during extended operations?
16.	Does your hospital have procedures to assess the extent and possible duration of loss of utility?
17.	Does your hospital have procedures to document patient, visitor, and staff injuries?
18.	Does your hospital have the capability to provide temporary negative pressure isolation (e.g., portable filtration)?
19.	Does your hospital have procedures for assessing and implementing Interim Life Safety Measures including pre identified notifications if they are implemented?
Extended Response and System Recovery	
1.	Does your hospital have a Business Continuity Plan that addresses the need for alternate service providers for critical functions (e.g., radiology, laboratory)?
2.	Does your hospital have position depth to support extended operations of the Hospital Incident Management Team?
3.	Does your hospital have procedures for repatriation of patients that were transferred or evacuated?
4.	Does your hospital have a procedure to inventory equipment, supplies, blood supply, and medications?
5.	Does your hospital have procedures to: <input type="checkbox"/> Monitor contractor services (work quality, costs, etc.)? <input type="checkbox"/> Monitor and revise the hospital repair plan, as appropriate?

6.	Does your hospital have procedures for restoring normal hospital visitation and nonessential service operations?
7.	Does your hospital have a plan to provide behavioral health support and stress management debriefings to patients, staff, and families, including obtaining services of local or regional resources?
8.	Does your hospital have procedures to debrief patients, staff, and community partners?
9.	Does your hospital have a Demobilization Plan that includes criteria for deactivation of positions, reactivation of services, and the return to normal operations?
10.	Does your hospital have a continuing process to capture all costs and expenditures related to operations? Does it include addressing insurance reporting requirements?
11.	Does your hospital have procedures to collect and collate incident documentation and formulate an After Action Report and Corrective Action and Improvement Plan?