



An advisory on safety & quality issues

## Protecting patients during utility system outages

### Issue:

A disruption to a utility system can affect a health care organization's ability to provide safe patient care and treatment. However, it is inevitable that a health care facility will experience a disruption to one or more of its utility systems at some time, so a process must be in place to manage and respond to the risks associated with utility systems, and to act accordingly to planned and unplanned events. This process is also called contingency planning.

Utility systems include electricity, water, fuel, medical gas and vacuum systems, data exchange systems, or other essential systems. Disruptions to these systems could occur at any time, whether from a naturally occurring event, such as a severe storm, or a man-made event, such as an act of terrorism or equipment failure, or a planned disruption to test or upgrade systems.

### Safety Actions to Consider:

Health care organizations need to ensure that there is a process in place to manage utility system disruptions for the various systems that exist in its facilities. The steps below can help organizations prepare for the disruptions while still providing for the safe delivery of care to patients.

**Know what is present:** Knowing and understanding what is present in a particular organization is paramount in the beginning stages for developing procedures to respond to a utility system disruption.

- Develop and maintain an accurate inventory of utility system components in order for staff to understand what is present in the facility. This information is important in order to develop effective planning activity.
- Label utility system controls in order to facilitate partial or complete shutdown. At a minimum, the main controls need to be identified. Identification of the controls should be made to the level that will provide for the ability to isolate the system in order to limit risks presented by planned and unplanned events.
- Map the distribution of the utility system, including accessibility. This is accomplished in tandem with the labeling expectations to allow for the designated person(s) to go directly to the location or system impacted by the disruption to allow for proper service or troubleshooting. This can be accomplished with basic easy-to-read diagrams or through charts that would describe the location of the control.

**Develop a plan:** A plan must be developed to provide guidance and procedures necessary to respond to a utility system disruption. The written procedures must identify reliable alternative measures to manage the disruption and to provide for the safe delivery of patient care. The procedures also should be readily available for staff to reference. Associated mitigating strategies should be developed to minimize the risks associated with a disruption, and to provide proper direction in order to reduce the likelihood of negative consequences. In addition to providing guidance for staff to understand the severity that a disruption could have, the plan should provide direction for staff to safely shut down a system, and to understand what clinical interventions are necessary, as well as the process(es) to be used to notify staff of the disruption and to communicate status updates.

- Identify who will have access to system controls, who has the authority to shut them off, and what circumstances they can be shut off.
- Ensure staff in affected areas understand additional measures that may be necessary in order to provide safe patient care. This involves key stakeholders understanding the implications of shutting down a utility system, including what to expect and the length that the disruption would last when known. The stakeholders may include the multidisciplinary team responsible for safety, departments

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The information in this publication is derived from actual events that occur in health care.

affected, administration or contractors. Additional training may be necessary and should be included in the plan based on the needs and functions of the stakeholders.

- Develop standard operating procedures (SOPs) that guide staff to safely shut down a system – partially or completely – in order to avoid a catastrophic failure. This may involve situations where redundant equipment may be used or distribution may be rerouted in order to provide continued service.
- Develop procedures that address emergency clinical interventions. This must be accomplished with the input of the caregivers in order for them to know and understand what to implement clinically when a utility system disruption occurs. This will involve a series of steps clinical staff can implement to ensure the quality of patient care is maintained despite the disruption. This will be unique to each department and could include non-clinical departments as well depending on the response procedures identified.
- Develop strategies needed to obtain repair services in order to bring an affected utility system back to full service. While the plan(s) will develop measures and criteria to use to maintain various levels of service(s) during a disruption, knowing how to obtain repair services is important. This may involve a memorandum of understanding (MOU). An MOU is a contractual arrangement made with an outside subcontractor that can be contacted in an emergency to supply or provide the repair services or resources as necessary.

**Test the plan:** Periodic testing of utility system disruption plans is key in order to know how effective the planning and training efforts are.

- Perform a periodic test of the contingency plan. This is used to evaluate the effectiveness of the plan, including staff training. This test may also be included in planned emergency operations exercises.
- Adjust the plan as necessary based on testing and evaluation outcomes. The plans developed for utility system disruptions are meant to be modified as necessary as needs within the organization change, whether the demographics of the patients change, needs or services change, or equipment serving the utility system change.

#### **Resources:**

1. Joint Commission Resources. Comprehensive Accreditation Manual for Hospitals. 2016 edition. Oakbrook Terrace, IL; 2016.
2. Department of Health and Human Services. [Practices Guide, Contingency Plan](#).
3. The Joint Commission. How to plan for emergency utility system disruptions. *The Joint Commission Perspectives*. August 2015;35(8):10-12.

*Note: This is not an all-inclusive list.*