SELF-STUDY SERIES
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Internal/external disasters in sterile processing: Are you prepared?

by Mark Duro CRCST, FCS

Sterile Processing staff and leadership show up to their healthcare facilities on a daily basis usually knowing what to expect when they arrive at work. OR schedules, staffing, sterile equipment availability and department expectations are usually known and reviewed in advance. However, it is possible that adverse events, known as disasters, can have a drastic outcome on all the planning that has done for a “routine” day in Sterile Processing. This self-study article will discuss specific adverse events and how to manage, recover from and plan for the unexpected.

Disasters that can affect healthcare
A disaster is defined as “a calamitous event, especially one occurring suddenly and causing great loss of life, damage, or hardship, as a flood, airplane crash, or business failure.” In healthcare facilities we prepare for the unexpected by having a Disaster Preparedness or Emergency Operations Plan. The Joint Commission states, “All organizations must have an emergency management program, Emergency Management Plan, or Emergency Operations Plan depending on the size of the program or facility, so that an individual’s care can be continued effectively in the event that adverse events, known as disasters, can have a direct impact on the Sterile Processing Department.

Facility preparation
In general most healthcare facilities have an Emergency Operations Plan in place. These plans will have policies that focus on dealing with internal and external disasters. Key points that are in a healthcare facility’s Emergency Operations Plan will be procedures for:

- Prevention - Those activities that a hospital undertakes in advance to prevent the occurrence of a potential disaster.
- Mitigation - Those activities that a hospital undertakes in advance to lessen the severity and impact of a potential disaster.
- Preparedness - Those activities that a hospital undertakes to build capacity and identify resources that may be used should an emergency or disaster occur.
- Response - Those activities a hospital undertakes immediately before, during and after an emergency or unexpected disaster occurs.
- Recovery - Those activities that a hospital undertakes after a disaster occurs to restore services and move towards long-term restoration.

Most plans will have detailed information on how the facility will cope with issues internally or externally and will provide detailed criteria that will define how a plan is initiated or “called out.” The Joint Commission states in EM.02.01.01 EP6 that “The Emergency Operations Plan identifies the individual(s) who has the authority to activate the response and recovery phases of the emergency response.”

Dealing with disasters is a task that cannot be managed by only a few. It is common that a...
command center be established and participants from across all disciplines in the healthcare facility assist. Participants involved in the command center are generally management from departments that could include Nursing, Operating Room, Infection Prevention, Sterile Processing, Security, Materials Management, Human Resources, Public Relations and others, to name a few.

In the command center it is common to have one lead coordinator known as the Incident Commander. Below the command center there may be direct reports of a liaison officer, a safety officer, and a public information officer. Within a command center there will be other teams, which would each be headed up by a designated leader. These teams could be the operations section, planning section, logistics section and financial section. Each section would have department leadership assigned. For example, Sterile Processing may fall under the operations section, and Materials Management may fall under the logistics section.

A command center is designated for the emergency response team to meet after a disaster occurs. Based on the disaster the above criteria will be discussed and even before events occur the team will meet on a routine basis to review policies and to plan for preparedness drills.

**Risk assessment, preparation for Sterile Processing**

When evaluating disasters, Sterile Processing needs to identify how internal and external disasters could affect the function of the department. Conducting a risk assessment will prove valuable in ensuring the department will be ready for such events. A risk assessment is the process of identifying variables or events that have the potential to negatively impact a healthcare facility’s ability to function. In the world of sterile processing anything can happen and, as the heart of the hospital, it needs to be ready for anything. Certain disasters will have variable effects for different departments in the facility.

Natural disasters can have a major impact on sterile processing. It is common in many facilities that the Sterile Processing Department is located on the ground level of the facility. This makes the area an easy target for flooding caused by storms or hurricanes. Flooding can also occur if there is an internal disaster, such as a pipe bursting within the facility. An assessment should occur to plan for this potential event.

- What would the Sterile Processing Department do in the event of a flood?
- How would the negative outcomes of a flood affecting the Sterile Processing Department affect the hospital?
- In the event of a flood, is there a plan ready to implement when flooding is noticed?
- What can be done to prevent the facility from flooding?

Flooding could occur on any level of a facility. However, if Sterile Processing is located adjacent to the Operating Room, instead of the ground level, the risk of department flooding may be reduced, thus minimizing the risk of compromising the level of service to the Operating Room.

One of the more common disasters to affect Sterile Processing is loss of environmental controls. Loss of environmental controls can cause a high spike in the recommended temperature and humidity in Sterile Storage, resulting in the contamination of sterile surgical instrumentation. In the event of temperature and humidity failure facilities should evaluate the situation carefully. Evaluation should be based on the event. If a storage area goes out of range for a few minutes there may be no need to re-pack the area. However if within that few minutes the area turns visibly wet, then the sterile items stored in that area should be re-packaged. AAMI ST79 recommends, “Relative humidity should be controlled between 30 percent and 60 percent in all work areas except the sterile storage area, where the relative humidity should not exceed 70 percent.”

A 2015 IAHCSMM conference presentation mentioned a facility that had an issue of high humidity. The area was above recommended levels for temperature and humidity for approximately 20 minutes. Visible moisture was noticed on all stainless steel surfaces. The department humidity level in storage spiked to over 85 percent, and the temperature was at 91°F rather than the set temperature of 70°F. All items were systematically opened and re-packaged. Sterile Processing Departments may want to have a contingency plan in the event the surgical inventory is compromised.

Surgical inventory storage can also be affected by fire or smoke so it is prudent to be prepared for such an event. Considerations for recovering from such an event would include the availability of extra staffing to coordinate the reprocessing efforts, communication with the Operating Room and infection control, as well as materials management support to ensure replacement materials can be arranged for immediate shipment. Having a list of supplies that would be needed after an event can be included in the plan. Items such as packaging materials, tape, indicators, pouches, filters etc., should be considered with quantities sufficient to ensure the area can be reprocessed. In the event that the entire storage area of sterile instruments needs to be reprocessed, Sterile Processing Departments will now test the full capacity of their sterilizers and there will be a sudden rush to fully utilize their sterilization equipment.

It is important that the facility’s steam supply is ready for a sudden spike in processing, especially if the steam supply is shared by other departments such as dietary or linen.

Unexpected surgical volume is another area of concern. In the event of a disaster, Sterile Processing Departments should also have a plan coordinated with the hospital’s emergency management team if a situation occurs where surplus surgical instrumentation is needed. Transportation

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**Examples of disasters affecting Sterile Processing**

Below are some examples of disasters and their potential adverse effect on the Sterile Processing Department.

<table>
<thead>
<tr>
<th>Internal Disaster</th>
<th>Potential adverse effect</th>
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</thead>
<tbody>
<tr>
<td>Loss of airflow/temperature and humidity</td>
<td>Department contamination</td>
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<tr>
<td>Flooding</td>
<td>Department contamination</td>
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<tr>
<td>Loss of steam</td>
<td>Failure to process/shutdown</td>
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<tr>
<td>Loss of water</td>
<td>Failure to process/shutdown</td>
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<tr>
<td>Loss of electricity</td>
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<tr>
<td>Fire</td>
<td>Department contamination</td>
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<tr>
<td>Smoke</td>
<td>Department contamination</td>
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<tr>
<td>Structural integrity</td>
<td>Failure to process/shutdown</td>
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<td>Hazardous material leak</td>
<td>Failure to process/shutdown</td>
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<table>
<thead>
<tr>
<th>External Disaster</th>
<th>Potential adverse effect</th>
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<tr>
<td>Hurricane</td>
<td>Flooding, loss of power, inability for staff/materials and supplies to arrive to facility.</td>
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<tr>
<td>Storm/Thunderstorm</td>
<td>Flooding, loss of power, inability for staff to report to work.</td>
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<tr>
<td>Earthquakes, land instability</td>
<td>Building evacuation.</td>
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<tr>
<td>Blizzard/ snow storm / ice storm</td>
<td>Inability for staff/materials and supplies to arrive to facility. Potential for power loss.</td>
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<tr>
<td>Terrorist activity*</td>
<td>Influx of surgical procedures, facility structural damage.</td>
</tr>
<tr>
<td>Tornado</td>
<td>Power loss, structural damage, influx of surgical procedures.</td>
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<tr>
<td>Pandemic</td>
<td>Inability for staff/materials and supplies to arrive to facility.</td>
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*Could also be an internal event.
Planning for the future

As an integral component of the surgical services team, Sterile Processing must always be ready for the unexpected. Hospital emergency management will routinely conduct drills with mock disasters. Sterile Processing management should conduct risk assessments to be prepared in case of a future adverse event. Risk assessments should be done for the basic failure elements such as loss of water, electrical, or steam and environmental failure. Although many of these types of events are usually not long-term it is best to be prepared. Communication is the most important part of planning. When conducting risk assessments include other members of the healthcare facility who may be able to provide valuable insight to resolving potential risks.

Conclusion

Sterile Processing is a major service provider to the healthcare facility. If the Department loses the ability to function or its inventory of sterile materials is compromised it could have devastating effects on the healthcare facility. With all disasters, it is difficult to predict when an adverse event could strike. It is best for the healthcare facility that the Sterile Processing Department has planned for and is ready to recover from events that could halt or compromise its function. Sterile Processing is the heart of the hospital and should always be prepared.

References

3. The Joint Commission. 2015 Hospital Accreditation Standards.

Mr. Duro is an Educational Consultant to 3M Health Care, Infection Prevention Division. Mark Duro, CRCST, FCS, is Director of Sterile Processing Operations at New England Baptist Hospital, a leader in orthopedics and official hospital of the Boston Celtics. Mark, current Vice President of the Massachusetts Chapter of Central Services Professionals and an IAHCSMM member since 1992, has 20 years experience in sterile processing management. He is also Chairperson for IAHCSMM’s orthopedic council and an IAHCSMM-approved instructor. In 2011, Mark was awarded fellowship status within IAHCSMM and Educator of the Year award in 2012. Mark is also a voting member of the AAMI ST79 working group and owner of Duro Surgical, a global supplier of CSSD goods and consulting services.
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Internal/external disasters in sterile processing: Are you prepared?

Circle the one correct answer:

1. Which of the following is not an example of an external disaster?
   A. Hurricane
   B. Thunderstorm
   C. Loss of steam

2. Which of the following is an example of an internal disaster?
   A. Blizzard
   B. Loss of environmental controls
   C. Tomato

3. An external disaster has no effect on Sterile Processing because it occurs outside the hospital.
   A. True
   B. False

4. In the event of severe smoke damage to the sterile processing instrument storage area, sterile goods would be safe as they are packaged or containerized and would not have to be reprocessed.
   A. True
   B. False

5. Which is the activity that a hospital undertakes after a disaster occurs to restore services and move towards long-term restoration?
   A. Mitigation
   B. Recovery
   C. Preparedness

6. In the event of a sudden influx of emergency surgeries what would be needed to support function to the OR?
   A. Staffing
   B. Sterile surgical equipment
   C. Processing capacity
   D. All of the above

7. After a disaster, the individual overseeing the command center is known as:
   A. The Hospital’s CEO
   B. The Incident Commander
   C. The Director of Maintenance

8. The activity that a hospital undertakes to build capacity and identify resources that may be used should an emergency or disaster occur is called:
   A. Mitigation
   B. Response
   C. Preparedness

9. A risk assessment is the process of identifying variables or events that have the potential to negatively impact a healthcare facility’s ability to function.
   A. True
   B. False

10. Which organization states healthcare facilities should have an Emergency Operations Plan?
    A. The FDA
    B. The Joint Commission
    C. The CIA

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