

Salem Health Hospitals & Clinics

Emergency Operations Plan (EOP)

AFTER ACTION REPORT

PURPOSE AND REPORTING CRITERIA: A post incident review and after action report is required for an emergency EOP activation or a planned EOP exercise, but optional for planned non-emergency events, such as maintenance projects.

EMERGENCY EOP ACTIVATION EOP EXERCISE NON-EMERGENCY EVENT

Day/Date/Time: Monday, 12/11/17, 1500

EOP Activation: Earthquake Tabletop Exercise—Escalating Event without Community Support.

Affected area (i.e. Salem campus, building, unit, clinic, etc.): Pacific Northwest

Name of key staff involved: Note attendees below under staff roles/responsibilities

POST INCIDENT REVIEW

Date: 12/11/2017

Review participants: Note attendees below under staff roles/responsibilities

After Action Report completed by: Wayne McFarlin

POST INCIDENT REVIEW OBSERVATIONS

DESCRIBE WHAT HAPPENED: The exercise scenario is a major earthquake that seriously impacts the hospital campus completely disabling Building B requiring the immediate evacuation of patients to less damaged Buildings A and D. However, it is the loss of the City of Salem water supply that will take months to repair that forces the need for a total hospital evacuation. Without water the hospital can't warm (or cool) buildings. No local hospitals are capable of receiving these patients due to the regional devastation. A heavily damaged bridge and road system prevent land transportation. In spite of the intolerable conditions, the ability to evacuate patients won't come for 1-2 weeks when federal resources are expected to begin rendering assistance to the region.

All leaders should contemplate 1) how we would manage under such circumstances and 2) identify what we can do now to prevent this predicted scenario from creating the need for a total hospital evacuation (e.g. creating a dual well emergency water supply as recommended by the hospital's Emergency Water Supply Planning team).

This escalating event without community support scenario is detailed in the attachment.

DESCRIBE IMPACT ON OPERATIONS (Mark N/A if no impact)

- **Patient care:**
 - Patient care and safety are immediately impacted with no viable means of evacuating patients from the hospital.
 - Due to the overwhelming number of injuries, altered standards of care must be used. However the hospital has not yet adopted the Oregon Crisis Care Guidelines so the organization has no predetermined plan by which all physicians and clinical staff can consistently make patient care decisions.
- **Communications:**
 - Nearly all telecommunications (hardline phones, cell phones, internet, etc.) are disabled for days to a week or more.
 - UHF radios continue to work, but their reach is only campus-wide.
 - Satellite phones (Salem Hospital as 2, West Valley Hospital has 1) work, but are difficult and time consuming to use.
 - Ham radio provides the most practical means of communicating with community, state, and federal partners.
- **Staff roles/responsibilities:**
 - **INCIDENT COMMAND TEAM**
 - Incident Commander: vacant (played by exercise facilitator)
 - Public Information Officer: Kyla Postrel, Michael Gay, Mark Glyzewski, Shannon Priem, & Aaron Reber
 - Liaison Officer: David Barlow, Walt Myers, Pam Cortez, Jaime Nichols

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- Safety Officer: Jake Waggoner, Bruce McLean
- Operations Section Chief: Lisa Ketchum, Dana Hawkes, Zennia Ceniza,
- Planning Section Chief: Mary Ransome, Joe Schnabel, Barbara Merrifield
- Logistics Section Chief: Colleen Kerrigan, Debra Harris, Sharon Heuer
- Finance Section Chief: Quenton Ihne, Jeremiah Dodrill, & Reid Sund
- **Safety/security:**
 - BUILDING SAFETY: It was difficult to confirm the safety of the buildings as the handful of trained inspectors from Security and Engineering Operations were diverted for rescues and other critical emergencies in the hours following the initial quake. After shocks repeated this cycle (search and rescue first, then inspecting buildings to confirm that they're safe to inhabit).
- **Resource mobilization:**
 - STAFFING: Staff that have prepared their families for a disaster are more likely to be here; those that haven't, won't. Those that don't live close to the hospital won't be able to travel due to transportation system damage.
 - FOOD: 4-7 day supply on hand. Resupplies delayed 1-2 weeks due to transportation system damage.
 - MEDICINES: 2 ½ day supply on hand. Resupplies delayed 1-2 weeks due to transportation system damage.
 - MEDICAL SUPPLIES: 2-4 day supply on hand. Resupplies delayed 1-2 weeks due to transportation system damage.
- **Utility systems:**
 - WATER: No City water. Emergency water supply now consists of 6 pallets of bottled water and 2 water purification systems that produce about 130 gallons/hour each. This means:
 - No heating/no cooling as water is needed for the HVAC system.
 - No surgical instrument sanitation
 - ELECTRICITY: No normal electrical power. Three emergency power generators produce about 8 megawatts of power fueled by a 67,000 gallons of diesel that will keep us in emergency power for 96 hours.
 - NATURAL GAS: No natural gas (piped).
 - SANITARY SEWER: Not functioning.
 - MEDICAL GASES: If hospital medical gases system is undamaged we have a maximum 4 day supply with additional portable oxygen tanks. Emergency resupply is doubtful due to damaged roads and bridges.
 - TELECOMMUNICATIONS: Severely disrupted 1-7 days followed by weeks to months of diminished service level.

IDENTIFY WHAT WORKED WELL:

- Emergency electrical generation system will support electrical needs for about 4 days.
- Buildings built to current seismic standards will be structurally able to provide continuing patient care.
- UHF radios will provide the only internal communication option.
- Ham radios will provide the best external communication.

DESCRIBE DEFICIENCIES/OPPORTUNITIES FOR IMPROVEMENT:

- The hospital has no practical emergency water supply. A dual-well emergency water supply system (patterned after the emergency electrical generation system) can allow the hospital to continue patient care when evacuation is not possible.
- Telecommunications will be unusable for 1-7 days.
- Network, internet, and most I.S. systems will be unusable or significantly compromised for 1-7 days.

LIST ANY FOLLOW UP COMPLETED OR ASSIGNMENTS MADE: The worksheets provided by each leadership group (i.e. Planning Section Chiefs, Liaison Officers, etc.) will be incorporated into the training outline for each groups' first quarterly 2018 training.

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ATTACHMENT A:

EMERGENCY WATER SUPPLY PLANNING

Committee Recommendations

Approved by the Hospital Preparedness Council
April 27, 2017

SITUATION: Salem Health requires 160,000 gallons of water a day to maintain a suitable patient care environment. The hospital's water comes from the City of Salem's aging water system, which is highly vulnerable in a major earthquake. A catastrophic failure expected from such a quake would require many months to repair. The hospital does not have an emergency water supply that provides enough water to sustain hospital operations for a long term disruption of the city's water system.

BACKGROUND:

Water Use & Impacts

1. Salem Health estimates water is used as follows:
 - a. 42% Sanitary—Sterile Processing alone uses 20,000 gallons/day
 - b. 23% HVAC—without water there will be no heating or cooling
 - c. 14% Medical Processes
 - a dialysis treatment uses 50-100 gallons of water
 - MRIs will go down without water
 - Oncology radiation equipment will go down without water
 - d. 9% Cafeteria or Food Service
 - e. 5% Laundry
 - f. 7% Miscellaneous
2. The loss of water creates significant infection prevention concerns.
3. Although Salem Health has mitigation measures for short term disruptions (a few hours to about a day), there is no practical supply of emergency water for a long term disruption.
4. Salem Health's 96-Hour Assessment (2016 Emergency Preparedness annual report, attachment B) indicates a long term water disruption would require the immediate evacuation of patients.

Current Emergency Water Supply Sources

1. Trucking in water provides only a partial solution as Building A is the only Salem Health building plumbed to receive water deliveries.
2. Nutrition Services maintains six pallets of bottled water, about enough to provide drinking water for patients and staff for two days. Space restrictions prohibit the storage of more bottled water.
3. Nutrition Services maintains two water filtration systems capable of providing 130 gallons/hour of potable water from each system.

Long Term Emergency Water Supply Options

Reservoirs: Emergency water reservoirs plumbed into buildings require replenishment by trucked water deliveries. However, since the primary threat to the normal water supply is an earthquake, the earthquake damage is expected to make transportation difficult or impossible for days to weeks making replenishment unlikely to occur when it is needed most.

Wells: Multiple, redundant wells plumbed into buildings provide the greatest likelihood of available water following a major earthquake. Salem Health is well-positioned to take advantage of underground water sources. In spite of legal restrictions for drilling wells in the city, governmental community partners have encouraged Salem Health to explore this option as a means of remaining a viable community resource following a major earthquake.

ASSESSMENT: Salem Health would be unable to reprocess (clean, disinfect, and sterilize) instruments following surgery, resulting in the potential curtailment of surgical activity. To sustain the hospital immediately following disruption would require a large redundant water supply.

RECOMMENDATION: To implement a multiple, redundant well emergency water system for the Salem Health campus.

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ATTACHMENT B:

ESCALATING EVENT EXERCISE WITHOUT COMMUNITY SUPPORT

Major Earthquake **Tabletop Exercise Scenario**

December 11, 2017

PRE EXERCISE INSTRUCTIONS:

1. You are to treat this as a real event
2. Apply what you know about the organization and the scenario to estimate the issues and the reality you would face. Make this as likely an experience as possible. Document what resources you are making these judgments about so that they are explained in the report out.
3. If you are making inquiries of outside organizations direct them to the facilitator for a response.
4. You will be provided a copy of the introductory instructions and all the exercise injects that will come throughout this exercise.

INTRODUCTORY SCENARIO:

This exercise takes place with all circumstances that the hospital is experiencing today, Monday, December 11, 2017. The weather, hospital operations and activity, life in general is as it is right now.

Just a few minutes ago a 6.9 magnitude earthquake shook Salem for nearly 5 minutes. If you had been on the 7th floor of Building A it would have swayed 7-8' feet either way for a total swing of 14-16' for 5 minutes.

The time now is 1505. You are all here at the hospital command center and this command center is located elsewhere on campus and is intact.

Each incident command position will be provided with a worksheet for each phase of this tabletop exercise to assist them in making role decisions. Please list the name of everyone in your area of responsibility on this introductory work sheet.

Begin.

INJECT #1: 1510—Salem Hospital status known at this time:

- Building A: Much ceiling tile debris and overturned furniture. Many, as yet uncounted injuries that are mostly minor. You have heard of a nurse with a broken arm in ICU, but that hasn't been confirmed. No known deaths. The building is a mess, but will be suitable for continuing patient care once that it is cleaned up.
- Building D: Similar damage report as Building A. Injury reports so far indicate nothing serious.
- Building C: Part of the second floor has collapsed into the first floor. Two known dead, but there is great confusion and not much is now know about what business functions are affected.
- Building B: So far reports indicate that the building shell and floors are intact, but parts of the clinical areas have suffered significant damage such as ruptured water pipes and electrical infrastructure that no longer works. Injuries have occurred from equipment and other mechanicals falling from above the false ceilings. The newly renovated areas are less impacted, but regardless it is apparent that the building will need to be evacuated as soon as possible.
- Surprisingly, the ED hasn't seen much of an influx of casualties and only one ambulance has arrived with a patient since the earthquake.
- The parking structure has collapsed and billowing dust that had been seen by some of you on your way to the hospital command center has now turned to smoke and fire can be seen through the collapsed floors. No information on injuries or deaths.
- There has been no information yet from any other Salem campus sites.
- Power is out campus wide, but emergency power generation is working as designed in many locations.
- Attempts to contact West Valley Hospital have been unsuccessful.
- Communication:
 - Internal—wireless is down, phones are down, UHF radios are operational on two of their four channels.

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- External—2 satellite phones work, but we're having difficulty with connecting with other satellite phones. The ham radio system is operational and very busy. Although it works it's also difficult to reach other hospitals.
- You've learned that the onramp from 12th Street to the Mission Street overpass has collapsed.

INJECT #2: 1525—Information is coming in that the center of the earthquake was 28 miles off the Oregon Coast near Seaside and it was measured as a 9.1 magnitude quake. Reports indicate a tsunami has already hit Seaside and there is significant devastation. Information coming into the HCC indicates significant devastation in Portland with a number of major fires.

Salem Hospital status update

- Water has stopped flowing in the hospital as the City's water system is destroyed
 - Heating and cooling
- On-site fuel reserves appear intact
- Natural gas has stopped flowing
- Piped medical gases are at least partially inoperable in Buildings A and D.
- None of the elevators in Building B are functional at this time. It is unknown if any of them can be made operable and other demands prevent a more thorough inspection of them
- No other utility systems have been reported down, but survey crews are having difficulty checking them with the many distractions of staff seeking to redirect them to help with rescue or other emergencies.
- We've made initial contact with the City of Salem, but they are unable to help us due to the massive devastation. They report impassable roads and bridges exist in every part of the city.

--TIME BREAK--

Inject provided at 1540

INJECT #3: 2130—

- Eerily, relatively few ambulances have arrived with patients, yet there have been 485 walk-in casualties and a crowd of nearly 1,000 have arrived at the hospital. Many of these came with casualties, but most just showed up as if they have nowhere else to go. The numbers of both casualties and walk-ins has been growing all day and there is no sense about whether the numbers will begin to slow down now that night is falling.
- Although we have a 2 ½ day supply of bottled drinking water and 2 small water purification systems, our buildings are getting cold. **THE OUTSIDE TEMPERATURE NOW IS 32 DEGREES WITH AN OVERNIGHT LOW OF 29 PREDICTED.**
- Electrical generators are running without problems and Engineers have scaled back the electrical load it feeds to squeeze out as many hours of electricity as possible with our fuel reserves.
- The local road and highway system has suffered massive damage. It's hard to tell how back it is, but police and fire personnel that have stopped by briefly between others tasks have told us it will take weeks, perhaps months to get Salem roadways and basic business support functioning. The same appears true from what you can hear from Eugene to Portland. Most of Seaside has been leveled and northern Oregon Coast communities have been heavily damaged. Reports project deaths along the coast of at least two thousand and may go much higher.
- No word yet on when federal aid will be here, but it AT BEST will be at least 4 days, but it may be as long as 2 weeks.