The Water Will Rise Again!

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Health Care System Overview

Providence St. Joseph Health

Swedish Health System
Swedish is comprised of five hospital campuses (First Hill, Cherry Hill, Ballard, Edmonds and Issaquah); ambulatory care centers in Redmond and Mill Creek; and Swedish Medical Group, a network of more than 180 primary specialty care locations throughout the Puget Sound area.

- 1,512 licensed beds
- 13,029 employees
- 4,289 physicians and allied health professionals
- 11,889 babies born
- 217,957 emergency room visits
- 68,926 inpatient admissions
- 49,112 surgeries performed
- 2,480,938 general outpatient visits
- 183 primary and specialty care locations
Health Care System Overview (cont.)

Swedish Cherry Hill
The Swedish Cherry Hill campus is located in Seattle’s historic Central District. The building now known as James Tower was home to the first hospital in Seattle, established in 1877 by the Sisters of Providence, a Catholic charity. In July 2000, Providence Seattle Medical Center, as it was then known, became part of Swedish.

- 385 licensed beds
- 1,300 employees
- Level 1 Cardiac & Comprehensive Stroke Center
- 25,000 emergency room visits
- 55,000 inpatient admissions
- 5,000 surgeries performed
- Case Mix Index (CMI) of 2.8 (national avg is 1.37)

Objectives

- Describe the planning for a short notice major water shutdown in high acuity patient care environment
- Identify the various stakeholders and their roles in the shutdown planning and response process
- Detail the specific actions taken during the shutdown
- Provide and describe the tools developed for and used to facilitate management of the event
- Review the performance improvement items
Background

The East Tower building is over 30 years old and the original mechanical design is not adequate for current clinical needs. So...

• A project to remodel and build out a new ICU would require moving several domestic hot water, hot water return, and cold water risers
• Investigation found that these risers fed room stacks up all 6 floors of the entire tower with no local area shut off valves
• Multiple shut off valves for the risers were severely degraded and would not close
• Able to identify over 100 other valves serving the tower that were also not working

Essentially the domestic water delivery system was unmanageable without an entire building water shutdown to replace the non-functioning valves

Issues and Risks

• Concerned that we would not be able to manage make up water demand for cooling towers if the weather was warm — in July
• Existing copper domestic water system was ageing with a history of random leaks occurring on seemingly good sections of pipe during repressurization after other similar work
• We would be unable to completely test new work before repressurizing to restore service
• Unknown if post work repressurization would lead to extended shutdown for additional repair or even flooding due to unanticipated leaks
Planning — Moving Fast!

To meet ICU remodel project timelines and budget, the valve replacement work had to be completed quickly — within 3 weeks start to finish. Clinical leaders preferred it all be done with a single shutdown.

Planning — Moving Fast! (cont.)

Initial steps:
- Identify all the critical systems affected by the domestic water shutdown — drinking water, hand washing, ice makers, water for chillers and industrial systems, and cooking
- Identify critical clinical impacts — dialysis, emergency eyewash, toileting and hygiene, environmental services/cleaning, etc.
- Communicate with all stakeholders for high transparency in planning and through the duration of the work
- Create an Action Items list and assign responsibility and deadlines
Final Plan — Ready and Set ...

• Work set to occur over the weekend, starting on Friday at 7:00 pm with expected completion time and full restoration by Sunday at 12:00 pm
• The Hospital Command Center will be open and staffed for the duration
• Retail café with limited services on Saturday, but patient kitchen remains operational
• Signage posted around the facility and written communication out to patients and families
• All dialysis, contact enteric isolation, and critical care patients moved out of the tower to other rooms

Final Plan — Ready and Set ... (cont.)

• All tasks broken out and listed in chronological order, posted on 2’x3’ whiteboards, and displayed in Command for tracking each completed step; each Team Leader and co-leader to double check each others work to confirm completion before reporting to Command
• 30 contracted EVS staff prepared to work shifts and assist with toilet flushing, pre-positioned portable hand washing stations, distribution of bottled water, and management of ice
Final Plan — Ready and Set … (cont.)

- Every valve, fitting, and piece of pipe ordered, received, cataloged, cut to length, and organized by number and over 130 different locations
- Every tie in or valve replacement location located, identified with an associated number, flagged at the ceiling, work detailed and assigned to a designated team
- Work scheduled on an hour-by-hour basis, sourced manpower (over 40 contract plumbers), assigned individuals to color coded teams (red, blue, green, yellow, pink) with task specific timelines
- Make-up water for chillers set to be redirected from adjacent MOBs

Planning Guides

**LVIS Support Maneuver Projections:**
- **Friday (7/11):**
  - **7AM – 9PM**
    - Fill hot and cold water at L2 – L6, 2 total people
  - **9PM – 7AM**
    - Lead/classified person at L2 – L6, 5 total people
      - Fill empty buckets at L2 – L6, 2 total people
      - Make sure temp hand wash stations, 2 total people
      - Clean-up after work taking place in kitchen, 3 total people
    - **12 total people needed**
- **Saturday (7/12):**
  - **7AM – 7PM**
    - Lead/classified person at L2 – L6, 5 total people
      - Fill empty buckets at L2 – L6, 2 total people
      - Make sure temp hand wash stations, 2 total people
      - Clean-up after work taking place in kitchen, 3 total people
    - **12 total people needed**
  - **7PM – 7AM**
    - Lead/classified person at L2 – L6, 5 total people
      - Fill empty buckets at L2 – L6, 2 total people
      - Make sure temp hand wash stations, 2 total people
      - Clean-up after work taking place in kitchen, 3 total people
    - **12 total people needed**
- **Sunday (7/13):**
  - **7AM – 7PM**
    - Lead/classified person at L2 – L6, 5 total people
      - Fill empty buckets at L2 – L6, 2 total people
      - Make sure temp hand wash stations, 2 total people
      - Clean-up after work taking place in kitchen, 3 total people
    - **12 total people needed**

**Water Disruption Unit Readiness Checklist**

**Cherry Hill East Tower**

- **July 13-17, 2016 (Friday 7am - Sunday 12pm)**

  - Obtain water in patient rooms
  - 7MO and 2 Super Wipes & 20 Buckets in patient rooms

  - Portable hand washing stations in place
  - Oregon 8 gallon bucket filled with water and ice pack materials
  - Portable sink with faucet located by ice pack in water that is food-grade (definitive care in Emergency Department after exposure)

  - Maintain water disruption alerts distributed to all patients and visitors

  - Water disruption cap displayed at core entrance

  - Printing water autonomy protocol and bring to patient rooms

  - Ensure all patients needing dialysis are on unit (contact Nursing Supervisor x5555)

  - All patients in water prevention program are on unit (contact Nursing Supervisor x2333 for location)

  - “Do Not Use” signage on staff and public restrooms

  - Ensure public restrooms doors locked (exact location, call security x5555 to secure and lock)

  - When released to floor, ensure ice chest is closed and sweep is present (Kilroy armament personnel instruction on proper usage of ice chest)

**Command Center:**

- In Legacy Room to coordinate with Charge RN buddies for ease of communication

**Command Center Phone:**

- 267

- Jon Lyne phone x.1953, x.3328

- Conference ID: 172460794
Signs & Job Aids

RESTROOM CLOSED!
Do not use.
BAÑO CERRADO.
No use este baño.

- Do not use the toilet.
- Do not run water from the faucet.
- No use el escurridor.
- No uses este fregadero.

We apologize for any inconvenience. Thank you for your understanding and cooperation as we make necessary building improvements.

Not interrupted and available momentarily. Please do not attempt to use.

Swedish Facility Management

T Minus Zero — Go!

Command Center set and ready
T Minus Zero — Go! (cont.)

- Every unit contacted for OK to proceed
- Main valves shut off, every fixture in tower opened and run until dry, system drained
- Signage placed at every fixture
- Contract EVS staff in place deployed to all units
- Patient food trays delivered with bottled water
- Dietary needs very closely monitored to assess needs for thickened liquids
- Pre-work may allow for early water restoration in parts of the tower

Local Shut Off Valves Will Help!

Damage within walls due to leakage disintegrating aluminum framing
Patched copper piping
Local Shut Off Valves Will Help!

Service Restoration

- Successful restoration of service to a number of rooms on Saturday morning
- Toilet flushometers and angle stops were also replaced during the shutdown
- Water intrusion/flood control carts were pre-positioned throughout the tower
- Only issue during restoration was localized splashing at sinks as air was purging from lines — but it was a lot of splashing
Lessons Learned/Action Items

1. Really good, thorough planning does make a difference!
2. It takes a village
3. When restoring water flow, the amount of air released from taps exceeded expectations and caused a lot of forceful splashing; this was very impactful to teams that were very tired and at capacity
4. Be aware of community events that can demand resources you need; this shutdown coincided with a major bike race that had reserved most mobile hand washing stations
5. Family member of one of the contractors was an inpatient during the shutdown and later mentioned that it was handled so smoothly that they never even noticed that there was a disruption

Questions?

Don’t forget to complete your evaluation!

If you do not have access to the app, please see CHA staff for a printed evaluation.

CE certificates will be emailed within two weeks of the conference.
Thank you!

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