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**King County Healthcare Coalition
SoundShake
After Action Report and Improvement Plan**

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Executive Summary

SoundShake was held March 5, 2008. It was a functional, Urban Area Security Initiative (UASI) exercise designed to address the potential impacts of a catastrophic earthquake in the Puget Sound area. The exercise was based on the Seattle Fault Scenario. "The Seattle Fault Earthquake Scenario project was a result of the vision and effort of professionals from various disciplines and organizations in the Puget Sound Region who work daily to improve the earthquake safety of the region's communities and people." The projected events outlined in the Seattle Fault Scenario represent anticipated events that would really occur should we experience a catastrophic earthquake on the Seattle fault line. Information about the Seattle Fault Scenario Project can be found at <http://seattlescenario.eeri.org/>.

The Seattle Fault Scenario projects extensive infrastructure failure, significant surge on the healthcare system, debilitation of many lifelines/roadways and local supplies if a catastrophic earthquake were to occur on the Seattle Fault. Projected impacts that were considered for this exercise include: loss of water throughout the County; loss of power; loss of telephone services and internet; damage to roads and some primary lifelines, including SR 520 and Hwy 167; multiple fires; collapsed buildings; isolation of certain areas of the County due to bridge failures; liquefaction or damaged roads. The scenario also projected 24,000 injuries, 6,000 of which required hospitalization, as well as nearly 1600 deaths. Impacts to the healthcare system would be significant due to reduced lifelines for delivery of essential supplies, potential for isolation, influx of patients and loss of water and power.

Throughout the exercise, all healthcare providers were challenged with many issues that forced a reduction of services and a focus on essential functions. SoundShake was a "cold-call" exercise. This means no one was staged in their Emergency Operations Center in anticipation of the start of the exercise. Participants were encouraged to test their call-back procedures and disaster codes at the on-set of the exercise. All were asked to simulate operating on generators which resulted in a continuation of operations in a reduced fashion. Damage to roads and lifelines impacted mobile operations, such as Home Health, blood supply deliveries and transport of patients. The exercise scripted that SR520 (the floating bridge) was damaged beyond repair, as was Hwy 167 due to liquefaction. These issues impacted the ability of pharmaceutical, medical and food vendors to deliver supplies to all customers as well as the ability of staff to report to work.

Steam services in the City of Seattle were significantly impacted. A few hospitals chose to evacuate particular patient populations or damaged wings. The exercise provided many valuable opportunities for collaboration, practicing of communication and resource requesting, and testing the limits of our services if faced with a catastrophic event in the future.

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The partnerships and collaborative efforts of the healthcare community during times of preparedness have proven, even through exercising, these relationships are invaluable. Planning for catastrophic events and exercising together to overcome potentially severe impacts, such as those presented through this scenario, better enables our community to work collaboratively during an event and foreshadow potential needs and interdependencies.

Timeline and Major Events

- 7:54am – 6.7 magnitude earthquake on Seattle fault
- 7:55am – power out regionally
- 7:55am – phones out regionally
- 7:55am – Harborview conducts all call on 800 mhz radio
- 8:00am – ESF-8 opens EOC
- 8:00am – Hospitals and healthcare providers open internal EOCs
- 8:00am – 520 bridge reported damaged beyond use
- 8:00am – Alaska Way viaduct reported collapsed
- 8:15am – Natural gas out in King County, including Seattle and Bellevue
- 8:15am – Water out in King County, including Seattle and Bellevue
- 8:45am – Hwy 167 reported damaged due to liquefaction
- 8:50am – 4.3 aftershock
- 9:30am – Steam capabilities to Seattle hospitals interrupted
- 10:30am – Phone service re-established
- 10:48am – 4.7 aftershock
- 11:30am – hospitals reporting influx of people sheltering in hallways and lobby areas
- 12:00pm – End exercise

Event Overview and Lessons Learned

Participants

Auburn Regional Medical Center	Kindred Hospital Seattle
Children's Hospital	Northwest Hospital
Enumclaw Regional Hospital	Overlake Hospital Medical Center
Evergreen Healthcare	Regional Hospital
Fairfax Hospital	St. Francis Hospital
Group Health Central	Swedish Ballard
Group Health East	Swedish Cherry Hill
Harborview Medical Center	Swedish First Hill
Highline Medical Center	UW Medical Center

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Valley Medical Center	Northwest Kidney Center
VA Hospital	SeaMar Community Care Center
Virginia Mason Medical Center	Providence Mount Saint Vincent
West Seattle Psychiatric Hospital (NAVOS)	Life Care Center
Washington Poison Center	New Care Concepts
Puget Sound Blood Center	Crisis Clinic
Amateur Radio Medical Services Team	Recovery Center
Seattle Cancer Care Alliance	SeaMar Community Health Centers

Objectives

- Practice drop, cover and hold
- Test staff alerting system and phone trees
- Determine alternate communication sustainability
- Test ability to make contact with local EOC and RMRC
- Determine availability of situation status information
- Test cross-county coordination from hospital control to hospital control

Lessons Learned

Health and Medical Area Command

- More position specific training needed
- Need binders with healthcare sector specific information to better support response
- Better tracking system for resource requests needed
- New resource request form needed
- Better coordination between PH logistics and RMRC logistics
- Need updated distribution list for situation status updates
- Need role clarification for EOC liaisons

Hospitals

- Relocated EOC in the middle of the drill. Challenges experienced in the alternate EOC include: need specific disaster telephone lines, need TV, no HAM reception, and hand held radios weren't working. 800 MHz radios need to be tested in alternate EOC as well. Cell phones were the only way to communicate from the alternate location
- More incident command training needed
- Surge capacity was extremely limited because of power failure
- CT scanner still needs to be put on emergency generator
- Checklist needed for what to include when relocating Departments
- Should include items such as: phone lines; paging systems; etc.

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- The hospital was full in real life and it was hard to get participation from the nurses. Did just in time training for ED operations/triage with nurses from other parts of the hospitals
- Needed to take an inventory of bilingual staff.

Communications

- HAM radio was overwhelmed.
- Had problems calling the Seattle EOC on the 800 MHz.
- Some hospitals needed a HAM operator on site or deployed from MST.
- Need to inventory staff to find out if there are any HAM radio operators on campus.
- Needed long distance capability to utilize GETS cards
- Difficultly communicating between HAM and internal EOC.
- Need improved system for tracking information coming across the radios in the PHEOC
- Re-evaluate runner vs. radio locations. Need to add more runners.
- Need a HAM radio channel designated to blood
- Need to better utilize ICS forms
- Improve utilization of HAM station in the Seattle EOC
- Need more training on activation and subnet use
- Improve training and exercise schedule for HAM operators
- Need to accelerate the implementation of packet radios so that you can “email” information over the radio. Need a computer in the hospitals to run the equipment.
- Some satellite phones have international numbers. Need to consider this when trying to call a satellite number from a regular phone.

Special Services

- Disaster blood ordering via email worked best.
- Transfusionists weren't familiar with 800 MHz radio.
- Text pagers worked well.
- Cold call drill took about an hour to get everyone on site.
- Developed a JAS and template for ordering to assist the hospitals.
Resource to put in EOC.

Ambulatory Care

- Need first aid kits.
- Need better equipment for evacuating patients from an outpatient facility. Gurneys or wheelchairs were not available to assist with evacuation
- Need to outline for staff the location of disaster supplies and determine a maintenance schedule for rotating supplies
- Need consistency throughout the clinic sites with forms and communications.
- Need more tabletop exercises and regional exercises

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Long Term Care/Home Health

- Need more work on community surge capacity; outline surge options for LTC and Home Health agencies
- Need site security plan
- Need to develop strategy for keeping 2-way radios charged
- Need to develop MOUs by geographic location for evacuation or sharing of resources
- Identify easily accessible location for storage of disaster supplies
- Need to work with clients and nurses on personal preparedness plans
- Need to exercise more, and include home health clients in exercise when possible to help them personally prepare
- Develop a client specific emergency plan that will go in medical record and in the office.
- Need better coordination with hospitals to place vented patients during an emergency.

Conclusion

The challenges presented in SoundShake provided many opportunities for further collaboration and coordination among healthcare partners. Sharing of information via KCHealthTrac, tracking facility status and providing a platform for healthcare sectors to connect will prove invaluable through this system. Other lessons, such as what to look for when relocating a department or an emergency operations center were important insights for furthering preparedness efforts. Testing alternate communication methods is always essential so the system is maintained and we are comfortable using it, if ever needed.

The accelerated timeline of the exercise presented some unrealistic expectations around collection and delivery of information. However, the connection between Health and Medical Area Command and healthcare providers creates the platform from which to gather a regional view of the impacts, of any event, to the healthcare system as a whole. The network of healthcare providers throughout King County is increasing daily. These collaborative relationships will better serve our community in times of preparedness or during emergency events of any size.

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Improvement Plan

	Actions to be Taken	Responsible Parties	Estimated Completion Date	Status
1	Provide more position specific training to PHEOC and ESF-8 responders	Danica Mann PHSKC Preparedness Section & KCHCC Training and Exercise Coordinator	October 2008	In progress
2	Create checklist for critical items that need to be in place for alternate EOC locations for hospitals	Danica Mann Luis Gonzalez Region 6 Hospital Committee	January 2009	Checklist to be shared with Region 6 Hospital Committee as template
3	Develop checklist for critical items that need to be available in an alternate location should any critical department need to be relocated	Danica Mann Cassie Gleckler Region 6 Hospital Committee	November 2008	Checklist for labs to be shared with Region 6 Hospital Committee as template
4	Provide HAM Class so healthcare providers can have train staff and not rely on volunteers in every activation	Danica Mann KCHCC Training and Exercise Coordinator	August 2008	In Progress
5	Develop protocol for how HAM operator located in the Seattle EOC can best be utilized by ESF-8	Allison Schletzbaum Marina Zuetell Regional Medical Resource Center	October 2008	
6	Accelerate the implementation of Packet Radio in each hospital	Marina Zuetell DOH Communications Specialist	December 31, 2008	
7	Create tool/cheat sheet for use of 800 MHz for those who are not familiar with the equipment	Cassie Gleckler Allison Schletzbaum	Complete	Post in Knowledgebase
8	Provide more training and exercise opportunities for HAM operators - coordinate monthly exercise of equipment at each hospital	Marina Zuetell DOH Communications Specialist/ MST	December 31, 2008	Create schedule and implement
9	Develop JAS, SOP and template for blood orders to assist the hospitals with ordering	Cassie Gleckler Puget Sound Blood Center	October 2008	In Progress - Need to distribute to hospitals for review
10	Offer more TTX for Ambulatory Care and LTC/Home Health	Sarah Wagner Carlos Dominguez Danica Mann Ambulatory Care Planner/LTC Planner	January 2009	On-Going
11	Create mitigation plan for ventilator dependent home health patients during a power outage	Carlos Dominguez Home Health/Home Care	October 2008	Determine number of home health/care patients currently vented