Oregon Hospitals: Road to Resilience

National Earthquake Conference
March 2-6, 2020

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Multnomah County²
Oregon Health Authority³,⁴,⁵
Oregon’s Biggest Risk: Cascadia Earthquake

- More than 40 prehistoric megaquakes in geologic record
- Magnitude 9 shaking for 5 min.
- Tsunami hits coast in 10-15 min.
Widespread Long Term Impacts

Coastal Communities

➢ Strongest shaking
➢ Tsunami casualties
➢ Geographic isolated (inoperable highways)
➢ Longest response times

• Healthcare down >36 months
• Water systems down >36 months
• Electricity down 3 to 6 months

Source: OSSPAC 2013 Oregon Resilience Plan
Credit: DHS FEMA 2011
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11 Coastal Hospitals

1. Columbia Memorial, Astoria (Tsunami XL)*
2. Providence Seaside, Seaside (Tsunami M)*
3. Tillamook Regional, Tillamook (Tsunami L)*
4. Samaritan North Lincoln, Lincoln City
5. Samaritan Pacific Communities, Newport
6. PeaceHealth Peace Harbor, Florence
7. Lower Umpqua Hospital, Reedsport
8. Bay Area Hospital, Coos Bay
9. Coquille Valley, Coquille
10. Southern Coos Hospital and Health Center, Bandon
11. Curry General, Gold Beach (Tsunami L)*

*TSUNAMI EVACUATION ZONE:
 evacuation of all hospital patients in 15 minutes is difficult to manage

Tsunami Maps at: www.oregongeology.org/tsuclearinghouse/pubs-evacbro.htm

Source: DOGAMI
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Coastal Hospital Leadership Event (2018)

State officials encouraged hospitals leaders
• Prepare hospitals for Cascadia resilience
• Lead their communities on disaster resilience

1934 Yaquina Bridge

Mike Harryman
State Resilience Officer

Hypothetical Post-Cascadia Earthquake "Islands"

- Coastal Hospital
- Island Border and Number
- ODOT Maintenance Yard
- Mountains
- Major Coastal Bridge
- Movable
- Historic Register
- Historic / Movable

Island borders are at major bridges.

Major bridges exceed 700 ft in length and were built before 1995.

East-West mountain roads will be impassable due to landslides.

In addition to these major islands, many smaller islands will also be formed at impacted locations of landslides, tsunamis, bridges and elsewhere.

Over 2.5 yrs to reopen bridges (much longer to repair)

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Building Resilience at Your Hospital

7 Key Messages to Coastal Hospitals

1. Identify Alternate Care Site
2. Plan to be locally self sufficient for 3 weeks
3. Evaluate Seismic Vulnerabilities (*guidance docs*)
   - Structural & Non-Structural Building
   - Emergency Power & Water
4. Develop hospital resilience action plan
5. Engage in Coastal Hospital Resilience Network
   - Oregon Association of Hospitals and Health Systems (OAHHS)
6. Partner with community (*Co. EM, water, power, etc*)
7. Be a community resilience champion

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1. Identify Alternate Care Site

Tillamook Hospital

Tillamook School District

Source: https://www.tillamookcountypioneer.net/tillamook-high-school-charity-drive-distributes-funds-to-local-groups/
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Hovercraft in Warrenton OR

US Navy exercise on June 3, 2019

Photo by Chief Petty Officer Alan Gragg  Source: https://www.dvidshub.net/image/5434117/lcac-lands-oregon-dsca-exercise.
Public domain video: https://www.dvidshub.net/video/687333/lcac-landing-oregon

LCAC= Landing craft air cushion

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3. Evaluate Seismic Vulnerabilities

Dr. Lesley Ogden, CEO, Samaritan North Lincoln Hospital giving tour of new resilient hospital. Opened Feb 2020!
Questions?

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Oregon Health Authority webpage and DOGAMI reports:

www.oregon.gov/oha/PH/Preparedness/Prepare/Pages/PrepareForEarthquake.aspx
www.oregongeology.org/pubs/ofr/p-O-19-02.htm
www.oregongeology.org/pubs/ofr/p-O-19-01.htm
www.oregongeology.org/pubs/ofr/O-17-01.pdf