

## Chapter 2 - Health Care (HEAL)

COMMITMENT: Bay Area facilities, networks, and systems providing care of sick and those with special needs need to be resilient after disasters for these systems will need to care for additional injured at the same time as those currently cared for are stressed.

### The Problem Is...

In one scenario, if the 1868 Hayward earthquake (which occurs about once every 140 years on the southern Hayward fault) were to happen today, it could result in thousands of serious injuries. This example is not the worst case, but since it has been 141 years since this earthquake, this is a likely scenario.



Damage to hospital in  
1971 San Fernando Earthquake

At the same time, our health care delivery system is undergoing major changes that make many of our hospitals outdated. Finally, more procedures are occurring in out-patient clinics and in medical offices.

Hospitals no longer have medical supplies for weeks stored on site. As with manufacturing facilities, these facilities are working under “just-in-time” supply strategies. Supplies are delivered from outside of the Bay Area and are pre-ordered for normal operation, not for disaster situations.

***While the Bay Area may pride itself in being more prepared for a disaster than Louisiana or Mississippi in Hurricane Katrina, we are unprepared to manage long-term recovery of health care delivery, due, in part, to an emphasis on hospitals rather than a comprehensive view of all services. We also need to ensure the delivery of adequate mental health services following disasters.***

### Background and History

- In 1973, as a direct result of the devastation caused by the 1971 Sylmar quake (65 deaths and a hospital collapse), the Legislature passed the Alfred E. Alquist Hospital Seismic Safety Act. The act requires that acute care hospitals be designed and constructed to withstand a major earthquake and **remain operational** immediately after the quake. Further modifications of the Act occurred following the Northridge earthquake, with the passage of SB 1953 in 1994.
- SB 1953 requires that all hospitals use standards developed by the California Office of Statewide Health Planning and Development (OSHPD) to measure the ability of these buildings to withstand a major earthquake. In 2001, plans submitted by the hospital owners determined that 37% of California’s hospitals are subject to collapse. OSHPD is focusing on monitoring the billions of dollars needed to retrofit or replace the region’s hospitals.
- OSHPD noted that, in 2008, the average age of the dangerous hospital buildings was from 45-49 years – and that the average useful life of a hospital is typically only 40-50 years. Thus, some of the billions of dollars being attributed to seismic safety upgrades are actually being driven by the upgrading of outdated buildings.
- Additional planning is needed at the city and county levels to identify and work with the ancillary health facilities in the region, including pharmacies, doctor and dentist offices, offices that sell hearing aids and eye glasses, dialysis centers, and emergency clinics. Currently there is NO state law that states that the buildings these facilities are located in must be structurally sound or that they have business continuity plans.
- While hospitals are licensed by the State, ancillary facilities obtain their building permits and business licenses from cities and counties, ensuring that this effort remains local. There is a critical need for coordination of business recovery planning between local governments, facility operators and owners.

## Local Government Actions to Mitigate Natural Hazards

The following recommendations for action, if adopted by cities, counties, county health departments, and hospital agencies, will help to ensure a more rapid recovery of the delivery of health care following a disaster.

The exposure of Bay Area critical health care facilities to earthquake shaking is the greatest hazard, with **98.1%** exposed to high shaking levels peak accelerations of greater than 40% of gravity [g] with a 10% chance of being exceeded in the next 50 years) as compared to **93%** of housing), and **75.1%** being exposed to extremely high shaking levels (60% g) as compared to **53%** of housing). Thus, most of the hazard mitigation strategies that follow deal with this hazard.

Wildland-urban-interface fire threat (WUI) exposure is much less. While **38.3%** of critical health care facilities are located in WUI areas (as compared to **58%** of housing), only **4.5%** of all WUI areas have burned in the past 130 years. Even though global warming may result in more fires in the next 50 years, the exposure is still less than that of earthquake shaking. In addition, **0.1%** critical health care facilities are located in areas of extreme or very high wildfire threat (versus **9%** of housing).

The exposure to storm-related hazards is even smaller. Only **1.7%** of critical health care facilities are located in 100-year flood areas (as compared to **4%** of housing), and only **0.8%** of critical health care facilities are located in areas of significant past landslides (versus **10%** of housing).

## ACTIONS RELATED TO HOSPITALS AND OTHER CRITICAL HEALTH CARE FACILITIES (INCLUDING THOSE FACILITIES LICENSED BY OSHPD)

The following strategies focus on ensuring that efforts led by the State of California to strengthen hospitals and other state-licensed facilities are coordinated with cities and counties. While work on these actions is largely on-going, the efforts are often underfunded, particularly in the economic climate of a recession.

<i>Strategy</i>	<i>Regional Priority</i>	<i>Responsible Agency</i>
<b>1–(Strategy HEAL a-1):</b> Work to ensure that cities, counties, county health departments, and hospital operators coordinate with each other (and that hospitals cooperate with the California Office of Statewide Health Planning and Development - OSHPD) to comply with current state law that mandates that critical facilities are structurally sound and have nonstructural systems designed to remain functional following disasters by 2013. In particular, this coordination should include understanding any problems with obtaining needed funding.	Existing program, underfunded	Cities, counties, county health departments, and hospitals
<b>2–(a-2):</b> Encourage hospitals in your community to work with OSHPD to formalize arrangements with structural engineers to report to the hospital, assess damage, and determine if the buildings can be reoccupied. The program should be similar to San Francisco’s Building Occupancy Resumption Program (BORP) that permits owners of buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as inspectors for these buildings in the event of an earthquake or other disaster. OSHPD, rather than city/county building departments, has the authority and responsibility for the structural integrity of hospital structures.	Existing program, underfunded	Cities, counties, county health departments, and hospitals
<b>3–(a-3):</b> Ensure health care facilities are adequately prepared to care for victims with respiratory problems related to smoke and/or particulate matter inhalation.	Existing program	Cities, counties, county health departments, and hospitals

<b>4-(a-4):</b> Ensure these health care facilities have the capacity to shut off outside air and be self-contained.	Existing program	Cities, counties, county health departments, and hospitals
<b>5-(a-5):</b> Ensure that hospitals and other major health care facilities have auxiliary water and power sources.	Existing program, underfunded	Cities, counties, county health departments, water suppliers, and hospitals
<b>6-(a-6):</b> Work to ensure that county health departments work with health care facilities to institute isolation capacity should a need for them arise following a communicable disease epidemic. Isolation capacity varies from a section of the hospital for most communicable diseases to the entire hospital for a major pandemic flu.	Existing program, underfunded	Cities, counties, county health departments, and hospitals
<b>7-(a-7):</b> Develop printed materials, utilize existing materials (such as developed by FEMA, the American Red Cross, and others, including non-profit organizations), conduct workshops, and/or provide outreach encouraging employees of these critical health care facilities to have family disaster plans and conduct mitigation activities in their own homes.	Existing program	Cities, counties, county health departments, and hospitals

## ACTIONS RELATED TO ANCILLARY HEALTH-RELATED FACILITIES

The following strategies focus on planning by cities and counties, **coordinated regionally**, focusing on the ancillary health facilities in the region, including pharmacies, doctor and dentist offices, offices that sell hearing aids and eye glasses, dialysis centers, and emergency clinics. As stated in the introduction to this chapter, there is currently NO state law that states that the buildings these facilities are located in must be structurally sound or that they have business continuity plans. This effort will require new funding.

<i>Strategy</i>	<i>Regional Priority</i>	<i>Responsible Agency</i>
<b>1-(b-1):</b> Identify these ancillary facilities in your community. These facilities are not regulated by OSHPD in the same way as hospitals.	High - actively looking for funding	Cities, counties, and county health departments
<b>2-(b-2):</b> Encourage these facility operators to develop disaster mitigation plans.	High - actively looking for funding	Cities, counties, and county health departments
<b>3-(b-3):</b> Encourage these facility operators to create, maintain, and/or continue partnerships with local governments to develop response and business continuity plans for recovery.	High - actively looking for funding	Cities, counties, and county health departments

## ACTIONS RELATED TO COORDINATION INITIATIVES

Most of the following strategies have the principal focus of responding to pandemic flu or terrorism, but they also have the added function of assisting with response to natural disasters, particularly those involving mass casualties or contamination of food. While these strategies' principal function is related to disaster response, not mitigation or recovery, the coordination activities needed to develop these programs are useful in identifying actions that can increase mitigation and speed recovery. The final strategy deals with mental health issues that became particularly apparent following Hurricane Katrina.



Hospital parking structure collapse crushes ambulance

<i>Strategy</i>	<i>Regional Priority</i>	<i>Responsible Agency</i>
<b>1-(c-1):</b> Designate locations for the distribution of antibiotics to large numbers of people should the need arise, as required to be included in each county's Strategic National Stockpile Plan.	Existing program	County health departments
<b>2-(c-2):</b> Ensure that you know the Metropolitan Medical Response System (MMRS) cities in your area. Fremont, Oakland, San Francisco, and San Jose (plus Sacramento and Stockton) are the MMRS cities in or near the Bay Area. MMRS cities are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel to respond to a mass casualty event. (The coordination among public health, medical, emergency management, coroner, EMS, fire, and law enforcement is a model for all cities and counties.)	Existing program	Cities, counties, county health departments, and hospitals
<b>3-(c-3):</b> Know that National Disaster Medical System (NDMS) uniformed or non-uniformed personnel are within one-to-four hours of your community. These federal resources include veterinary, mortuary, and medical personnel. Teams in or near the Bay Area are headquartered in the cities of Santa Clara and Sacramento.	Existing program	Cities, counties, county health departments, and hospitals
<b>4-(c-4):</b> Plan for hazmat related-issues due to a natural or technological disaster. Hazmat teams should utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agents and Lawrence Livermore National Laboratory or Sandia (both in Livermore) for confirmation of radiological agents.	Existing program	Cities, counties, county health departments, and hospitals
<b>5-(c-5):</b> Create discussion forums for food and health personnel (including, for example, medical professionals, veterinarians, and plant pathologists) to develop safety, security, and response strategies for food supply contamination (at the source, in processing facilities, in distribution centers, and in grocery stores).	Existing program	County environmental health departments
<b>6-(c-6):</b> Ensure mental health continuity of operations and disaster planning is coordinated among county departments, (including Public Health and Emergency Services), private sector mental health organizations, professional associations, and national and community-based non-profit agencies involved in supporting community mental health programs. First, such planning should ensure that the capability exists to provide both immediate on-site mental health support at facilities such as evacuation centers, emergency shelters, and local assistance centers, as well as to coordinate on-going mental health support during the long-term recovery process. Second, this planning should ensure that mental health providers, in collaboration with the county agencies responsible for providing public information, are prepared to provide consistent post-disaster stress and other mental health guidance to the public impacted by the disaster.	Existing program	County health and emergency services departments