

OFFICE OF EMERGENCY SERVICES

LAKE COUNTY SHERIFF'S OFFICE

2017

LAKE OPERATIONAL AREA

Public Health and Medical Services

Annex

Developed by:

Karen Tait, M.D., Health Officer

County of Lake Health Services Department

for

Lake County Office of Emergency Services

1220 Martin Street

Lakeport, CA 95453

Phone: (707) 263-3450

Fax: (707) 263-3453

I. OVERVIEW

The focus of Public Health Emergency Response planning is on identification of hazards that impact the health of the community and/or impact the healthcare delivery system itself. Prioritized hazards are selected on this basis. Consideration is given to the frequency with which certain hazards present themselves in combination with the potential magnitude of impact of each hazard. Because of the rationale behind the selection process, certain well-known hazards, such as earthquakes, are not specifically named. However, these commonly-recognized hazards may impact the community and healthcare system in ways that are addressed in the prioritized hazards describe below.

Responsibilities for disaster response planning are outlined in California Health and Safety Code §1797.153. The responsibility for development of a Medical and Health Disaster Plan is assigned to the Medical Health Operational Area Coordinator (MHOAC), which is a role for which the Local Health Officer and Emergency Medical Services Agency Director are jointly responsible. According to the California Emergency Medical Services Authority, responsibility for the required functions is as follows:

1. Local Emergency Medical Services Agency (LEMSA) Responsibilities:

- a) Assessment of immediate medical needs;
- b) Coordination of patient distribution and medical evaluations;
- c) Coordination with inpatient and emergency care providers;
- d) Coordination of out-of-hospital medical care providers;
- e) Coordination and integration with fire agencies personnel, resources, and emergency fire prehospital medical services;
- f) Coordination of providers of non-fire based prehospital emergency medical services;
- g) Coordination of the establishment of temporary field treatment Sites; and
- h) Provision or coordination of mental health services.

2. Public Health Responsibilities:

- a) Coordination of disaster medical and health resources;
- b) Health surveillance and epidemiological analyses of community health status;
- c) Assurance of food safety;
- d) Management of exposure to hazardous agents;
- e) Provision of medical and health public information protective action recommendations;
- f) Provision or coordination of vector control services;
- g) Assurance of drinking water safety;
- h) Assurance of the safe management of liquid, solid, and hazardous wastes; and
- i) Investigation and control of communicable disease.

These functions serve as the basis for Public Health Emergency Preparedness planning. The prioritized hazards listed below are based upon collaborative discussions with healthcare stakeholders and lessons learned from actual events and structured training exercises.

II. CLIMATE CHANGE

Climate change contributes to a variety of conditions that impact the health of the community and the functioning of the healthcare delivery system. Hazards that are exacerbated by climate change include:

- a) Drought
 - b) Floods
 - c) Wildfire
 - d) Vector borne diseases
 - e) Harmful cyanobacterial blooms
 - f) Drinking water shortages
- 1. Notification & communications:** Lake County Health Services Department routinely notifies senior leadership of the county, Sheriff's Office of Emergency Services, Region II Disaster Medical Health Coordinator/Specialist, and California Department of Public Health. Communications are established with healthcare facilities in Lake County, the Lake County Area Coordinator for Fire and others (e.g., Lake County Vector Control District, Lake County Air Quality District, Water Resources Department, State Water Board, etc.) as appropriate.
- 2. Potential impacts:**
- a) Drinking water shortages
 - b) Severe wildfire conditions resulting in evacuations and structure damage (including healthcare facilities, dialysis)
 - c) Disruption of access to healthcare services
 - d) Sewage/Septic system failures
 - e) Illness secondary to environmental exposures (sewage, cyan toxins, degraded air quality, etc.)
 - f) Illness secondary to proliferation of disease vectors (e.g., West Nile Virus)
- 3. Response priorities:**
- a) Continuity of essential healthcare services
 - b) Access to clean air environments in shelters and healthcare facilities
 - c) Identification of environmental hazards due to contamination or toxins
 - d) Public education (safe drinking water, environmental health hazards)
 - e) Inspection of impacted retail food establishments
 - f) Assurance that safe water sources are in place for critical healthcare functions (e.g., dialysis, acute care hospitals)

- g) Detection of indicators of contamination or vector borne transmission; initiation of protective measures as available

4. Resources & shortfalls:

- a) Public Health and Environmental staff are both assets and in limited supply
- b) Portable HEPA filtration units for deployment (limited number)
- c) Caches of N-95 respirators (limited quantities)
- d) Technical expertise and access to support from local and state agencies

5. Summary of proposed operations:

- a) Maintain two way-communications with healthcare facilities to assess impacts on operations and resource needs
- b) Develop regular medical/health situation reports for distribution to local, regional and state entities
- c) Develop and submit medical/health resource requests
- d) Deploy HEPA filtration units and N-95 respirators to shelters and healthcare facilities as needed to maintain indoor air quality, based on degree of impact and health risks of patients
- e) Arrange medical support for shelters as needed
- f) Evaluate and isolate environmental health hazards; recommend corrective/mitigating measures
- g) Institute vaccination measures as applicable, focusing on populations at greatest risk (including responders)
- h) Coordinate with local and state agencies as necessary for assistance with mitigation measures and technical support
- i) Develop public information messages to safeguard health and to direct appropriate use of available healthcare services

III. TRANSPORTATION FAILURE

While not a frequent hazard by itself, transportation failures occur to varying degrees in many types of disasters and have an impact on healthcare services in Lake County. Transportation failure takes several forms, including road closures due to natural disasters, weather conditions that prevent aircraft from flying, and mechanical failure or insufficient availability of transportation vehicles themselves. These can result from wildfires, floods, ice/snow or potentially from a volcanic eruption. Lake County is particularly susceptible to road closures because of the limited available routes and the large number of narrow and unpaved roads. A shortage of specialized transportation resources, such as wheelchair and gurney vans and bariatric units, constitutes a form of transportation failure that leaves a vulnerable segment of the population at risk during disasters. Due to the limited capacity and basic nature of local

healthcare services, Lake County relies heavily on its ability to regularly move patients to out-of-county destinations for definitive care.

1. **Notification & communications:** Lake County Health Services Department routinely notifies senior leadership of the county, Sheriff's Office of Emergency Services, Region II Disaster Medical Health Coordinator/Specialist, California Department of Public Health. Communications are established with healthcare facilities in Lake County, the Lake County Area Coordinator for Fire and others as appropriate.
2. **Potential impacts:**
 - a) Inability to transport patients by ground or air ambulance to out-of-county hospitals for specialized medical services or to support a local health facility evacuation or surge in medical patients.
 - b) Disruption of essential supply chains to support healthcare facilities.
 - c) Inability of non-ambulatory populations to evacuate or access essential healthcare services
 - d) Inability of evacuated people to reach a safe destination
 - e) Inability of healthcare personnel to report to work (including home health care personnel and caretakers)
 - f) Inability of emergency medical services to respond to emergency calls or to transport patients to emergency departments
3. **Response priorities:**
 - a) Situational awareness regarding road closures, weather conditions, location of evacuated populations and any limitations on access to and from healthcare facilities
 - b) Identification of high priority medical needs for which transportation barriers are impeding access to urgent/emergent treatment or services necessary to prevent serious deterioration of health
 - c) Identification of alternate means of stabilizing/treating patients in local facilities when transfer to a higher level of care is not possible
 - d) Identification of critical medical supply chain issues resulting from transportation barriers
 - e) Optimized use of available healthcare staff who are prevented by transportation barriers from reporting to their normal place of work
 - f) Access of healthcare workers and caretakers to patients in home environments from which they were unable to evacuate due to road closures or lack of appropriate transportation resources.
4. **Resources & shortfalls:**
 - a) Healthcare facilities have demonstrated a willingness to share staff during disasters when access to report to the normal place of work is blocked

- b) *People Services* offers a robust specialized transportation resource and other transportation options exist in Lake County
- c) A real-time system to identify and widely share information about local road closures during a disaster is needed
- d) An inventory of local transportation resources, including specialized transportation resources (four-wheel drive vehicles, bariatric vehicles, wheelchair and litter vans, etc.) is needed

5. Summary of proposed operations:

- a) Maintain situational awareness regarding local road closures or other transportation limitations during a disaster, particularly as access to local healthcare facilities or travel out of county are impacted.
- b) Coordinate with the emergency operations center (EOC) to assist in identification of safe and suitable evacuation centers within the constraints of road closures or limited transportation options.
- c) Identify critical priorities for opening road access to essential healthcare services, starting with emergency medical services
- d) Maintain situational awareness with healthcare facilities regarding the number and types of patients in need of urgent/emergent transport for medical services that is impeded by transportation failure/road closures. Work through the EOC to seek solutions.
- e) Coordinate “like” healthcare facilities to assist them in meeting staffing obligations through sharing of personnel based on their ability to access the facilities.
- f) Public messaging to inform the public about open routes and functioning healthcare facilities.
- g) Coordinate with healthcare facilities to identify ways to stabilize/maintain/treat patients locally pending resolution of the transportation failure.
- h) Coordinate with local agencies serving individuals with limited mobility as necessary to support access to necessary healthcare services.
- i) Coordinate with healthcare facilities to identify critical supply shortages and assist by seeking options to overcome transportation barriers in order to address the shortages.

IV. VOLCANO

Although there has not been a volcanic eruption in Lake County for more than 10,000 years, the Clear Lake Volcanic field remains active and the USGS Volcano Hazards Program considers the Clear Lake Volcanic Field as having “High” threat potential. From a public health standpoint, a volcanic eruption represents a low-incidence, high impact hazard. The size of an eruption would dictate the nature of response needed. Based on experience in Hawaii and elsewhere, the public health focus centers on the health impacts of volcanic air pollution as well as the effects of volcanic ash, which contribute to various forms of injury, traffic accidents and even mechanical failure of vehicles and other equipment. Impacts

on utilities could cripple operations. Intrusion of geothermal gases into buildings or other confined spaces occurs occasionally under normal conditions and could occur more frequently after an eruption.

1. **Notification & communications:** Lake County Health Services Department routinely notifies senior leadership of the county, Sheriff's Office of Emergency Services, Region II Disaster Medical Health Coordinator/Specialist, California Department of Public Health. Communications are established with healthcare facilities in Lake County, the Lake County Area Coordinator for Fire and others (e.g., Lake County Air Quality Management District, USGS, etc.) as appropriate.

2. **Potential impacts:**
 - a) Physical injuries
 - b) Exacerbation of respiratory and cardiovascular conditions
 - c) Unsafe road conditions leading to traffic accidents
 - d) Mechanical failure of vehicles and other equipment, including emergency response vehicles
 - e) Interruption of air travel, including air ambulances
 - f) Toxic effects of geothermal gases and/or asphyxiation due to intrusion of gases into confined spaces
 - g) Medical surge
 - h) Broad regional impacts, including healthcare facilities
 - i) Structural damage to healthcare facilities and other buildings
 - j) Interruption of utilities

3. **Response priorities:**
 - a) Timely evacuations, particularly those at highest risk due to location and/or underlying health conditions
 - b) Minimize intrusion of volcanic air pollution into healthcare facilities
 - c) Access to treatment for acute injuries and exacerbation of health conditions
 - d) Prevention of new injuries
 - e) Identify the regional impact of the incident and the closest non-impacted healthcare facilities.
 - f) Access of patients in local facilities to out-of-county medical care as needed

4. **Resources & shortfalls:**
 - a) HEPA filters, N-95 respirators and portable anterooms provided through public health grant-funded programs are in selected healthcare facilities and/or can be deployed. These are limited in quantity, so use would be triaged.
 - b) Limited personnel resources
 - c) Few local medical specialty services
 - d) Geographic isolation

5. Summary of proposed operations:

- a) Identify locations and type/extent of impacts of the event and projections of future volcanic and seismic activity.
- b) Determine the need for evacuation of healthcare facilities versus shelter in place.
- c) Identify closest regional health facilities that are not significantly impacted.
- d) For facilities sheltering in place, recommend measures to prevent intrusion of volcanic air pollution. Deploy HEPA filters and recommend use of portable anterooms as available.
- e) Public information regarding signs/symptoms of geothermal gas intrusion, hazards associated with ash, and unsafe driving conditions.
- f) Implement operational steps as listed under "Transportation Failure."

V. SUPPLY SHORTAGE

Medical supply shortages, particularly pharmaceuticals, are a current and ongoing hazard experienced by healthcare systems. The U.S. Food and Drug Administration maintains a system to provide updated information about such drug shortages (<https://www.fda.gov/Drugs/DrugSafety/DrugShortages/default.htm>). These shortages impact local Emergency Medical Services on a regular basis and could potentially have increased consequences under conditions of medical surge. Further, shortages are regularly experienced in treating certain infectious diseases of public health significance, such as syphilis and drug-resistant tuberculosis. Shortages of a drug, such as atropine, would limit the ability to treat exposures to certain pesticides or nerve agents.

1. **Notification & communications:** If conditions increase drug shortages to a critical level, Lake County Health Services Department would notify senior leadership of the county, Sheriff's Office of Emergency Services, Region II Disaster Medical Health Coordinator/Specialist, and California Department of Public Health. Communications would be established with healthcare facilities in Lake County, the Lake County Area Coordinator for Fire.
2. **Potential impacts:**
 - a) Inability to fully provide emergency medical services to meet expected standards of care (pain relief, resuscitation from hypoglycemia, treatment of cardiac conditions, etc.)
 - b) Inability to effectively treat certain communicable diseases of public health significance
 - c) Inability to respond medically to a nerve agent attack or organophosphate pesticide exposure
3. **Response priorities:**
 - a) Assessment of the nature and magnitude of the supply/pharmaceutical shortage

- b) Identification of a source for the necessary supply(ies) or an alternative treatment option
- c) Isolation of patients with communicable diseases

4. Resources & shortfalls:

- a) California Department of Public Health provides assistance with locating antibiotics necessary to address communicable diseases of public health significance
- b) The Food and Drug Administration maintains a website for updated information about shortages
- c) Lake County Public Health has been unable to obtain county counsel approval of template isolation and quarantine orders
- d) Local procedures are needed to clarify how isolation/quarantine orders are served and enforced

5. Summary of proposed operations:

- a) Local EMS agency develops protocols for alternate treatment approaches, as feasible.
- b) Depending on the nature of the need, Lake County Public Health would submit a resource request through OES Region II (for urgent and/or large incidents) or through California Department of Public Health (isolated incidents).
- c) Lake County Public Health would issue an isolation order for infected individuals whose communicable disease poses a threat to the general public. Quarantine orders would be issued to exposed persons for the duration of the incubation period.

VI. EMERGING INFECTION & DISEASE OUTBREAKS

A core function of Public Health is communicable disease control. This provides the basis for the emergency public health response to emerging infectious disease threats (e.g., Zika virus), intentional spread of disease (bioterrorism) and large outbreaks (e.g., influenza pandemics).

1. **Notification & communications:** Lake County Health Services Department routinely notifies senior leadership of the county, Sheriff's Office of Emergency Services, Region II Disaster Medical Health Coordinator/Specialist, California Department of Public Health. Communications are established with healthcare facilities in Lake County, the Lake County Area Coordinator for Fire and others (e.g., Lake County Vector Control District) as appropriate. In the case of suspected bioterrorism, the Federal Bureau of Investigations would also be notified.
2. **Potential impacts:**
 - a) Widespread illness, resulting in medical surge
 - b) Mass fatalities
 - c) Long term consequences of infection (e.g., birth defects due to Zika virus infection)
 - d) Shortages of first responders and healthcare workers due to illness or fear of illness

3. Response priorities:

- a) Infection control measures
- b) Medical countermeasures (antibiotics, vaccination, etc., if available)
- c) Responder safety
- d) Medical surge
- e) Education of the public and of healthcare providers

4. Resources & shortfalls:

- a) Public health has a well-developed relationship with healthcare facilities on communicable disease issues
- b) California Department of Public Health (CDPH) and the federal Centers for Disease Control (CDC) are experienced at rapidly issuing guidance and protocols for handling emerging infections
- c) EMS providers are not equipped to safely handle highly communicable patients with serious emerging infections
- d) Local healthcare resources are limited in capacity and ability to handle highly communicable patients with serious emerging infections
- e) Lake County Public Health does not have an epidemiologist and has very limited staff capability to conduct disease investigations

5. Summary of proposed operations:

- a) Assure that local disease surveillance is in place for the disease in question
- b) Obtain CDPH/CDC guidance for evaluation and management of the disease, including recommended infection control measures
- c) Distribute guidance to emergency medical service providers and healthcare facilities
- d) Facilitate public health laboratory testing
- e) Provide education to the public
- f) Monitor status of healthcare facilities; advise readiness to implement medical surge plans
- g) Maintain ongoing disease surveillance in coordination with CDPH
- h) Participate in CDPH update calls and update healthcare facilities and the public as needed
- i) Institute medical countermeasure administration as available and recommended