ARIZONA DEPARTMENT OF HEALTH SERVICES DISASTER EPIDEMIOLOGICAL RESPONSE GUIDANCE

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INTRODUCTION

Disaster epidemiology is the study of the effects disasters and disaster related environments have on human health. Disaster-related health outcomes may include injuries, death, disease exposure, and exacerbation of chronic health issues, among a range of other illnesses and health risks. Epidemiologists combine their understanding of disease risk and distribution with a mastery of health data collection, management and analysis. Applied in response to a disaster, epidemiology informs assessments of the immediate and long-term health needs of the affected population, mitigation and recovery. Accurate evaluations of health and environmental conditions in disaster, post-disaster, and response environments support successful emergency mitigation, preparedness, response and recovery.

Disasters occur at the local level; therefore, disaster response begins at the local level. Arizona Department of Health Services (ADHS) Bureau of Epidemiology and Disease Control (EDC) responds to requests for technical assistance from localities and provides guidance and resources to promote optimal functionality and consistency state-wide, in accordance with community needs and national standards. The ADHS Disaster Epidemiology Plan is intended to provide a framework for conducting epidemiology in a disaster setting, facilitating evidence-based decision-making during all phases of an emergency. This document is intended to assist the public health system of Arizona to better prepare for public health emergencies by presenting a standardized approach to disaster epidemiology surveillance and is part of the united effort to continually work to promote, protect, and improve the health and wellness of individuals and communities in Arizona.[1].

PURPOSE

The Arizona Department of Health Services *Disaster Epidemiological Response Guidance document* provides an overview of surveillance activities, standardized forms/data collection templates and checklists which can be used during a disaster or public health incident. This document is intended to serve as a guide for local jurisdictions to assist with implementing specific surveillance activities and using the standardized data collection templates in a disaster situation.

SCOPE

This document is applicable to all Arizona Department of Health Services (ADHS) personnel and Arizona health organizations at the State and Local level. This plan is not intended to replace specific standard operating guides (SOGs) and/or procedures produced at the local level.

[1] NC Disaster Epidemiology Website

BACKGROUND

In a disaster, it is necessary to gather a variety of information to assess the health status of residents. In most circumstances, at least three distinct types of data are desired: rapid needs, epidemiological, and registry (for a more detailed explanation, see Concept of Operations). Other data collection activities may be needed according to an event, and jurisdictions should assess their plans to determine that data needs are carefully considered and integrated with plans and procedures. In order to implement any of the data collection methodologies, jurisdictions must have strong working relationships with partners and plans in place prior to an event that will facilitate collection of essential information. Standardized forms are encouraged for efficient and accurate information and resource sharing between jurisdictions.

ORGANIZATION OF DOCUMENT

The ADHS Disaster Epidemiological Response Guidance consists of the following components:

- **Concept of Operations,** outlines the general approach to epidemiological response and key data collection methods for public health surveillance and needs assessment.
- **Appendix A: Checklists and Line lists,** checklists and line lists applicable to an epidemiological response[2]. (these can be found in the ADHS OIDS Infectious Disease Investigation Manual)
- **Appendix B: Data Collection Forms,** contains standardized forms for collecting data during an epidemiological response.
- **Appendix C: Community Assessment for Public Health Emergency Response (CASPER),** provides methodology and templates for conducting a CASPER assessment.
- **Appendix D: Acronym List,** provides comprehensive list of all acronyms within this document.

[2] ADHS Investigation Manual

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CONCEPT OF OPERATIONS

GENERAL

Disaster epidemiology is the study of the effects disasters and disaster-related environments have on the public's health.[3] Disasters can potentially create numerous public health challenges, both immediate and delayed. These include unexpected deaths, injuries and illnesses that exceed available health resources, environmental hazards (e.g., debris, stray animals, heat exposure, insects), displaced populations and crowded shelters, and an overwhelmed or disrupted public health infrastructure. Though disasters are chaotic events, collection of disaster epidemiological data can be beneficial in order to:

- Provide situational awareness
- Prevent deaths, illnesses, and injuries caused by disasters
- Identify risk factors
- Detect disease outbreaks
- Track disease trends
- Determine action items such as resource allocation
- Target interventions
- Inform disaster planning
- Improve prevention and mitigation strategies for future disasters

Public health surveillance should be conducted in emergency departments, acute care facilities, shelters, evacuation centers, field hospitals, and households in affected communities[4]as appropriate for the specific disaster.

RESPONSE STRUCTURE

The response structure should be flexible and correlate with the scope and scale of the disaster. Public health organizations are likely to face two significant challenges – lack of staff, including epidemiology staff and lack of resources both which can negatively impact response structure. Regarding a shortage of staff members, public health organizations are encouraged to recruit volunteers, students or staff from other jurisdictions, or areas within the health department (i.e., Immunizations; Women, Infants, and Children [WIC]; Chronic Disease); establish Memorandums of Understanding (MOUs); and develop an algorithm for staffing during a disaster.

[3] NC Disaster Epidemiology Website
[4] US National Library of Medicine, National Institute of Health https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202981/

During a disaster response, the National Incident Management System (NIMS) should be implemented[5]; it will provide the framework to enhance the ability of responders, to include the private sector and NGO to work together more effectively. Local health departments should be prepared to activate their Emergency Operations Centers to ensure there is a common operating picture during the response, along with interoperability functions with the ADHS Health Emergency Operation Center.

Surge Capacity

Surge capacity is defined as a measurable representation of the ability to manage a sudden influx of patients, shelter residents, or others requiring resources (both personnel and materiel). Surge capacity is critical since staff shortages are likely during many disaster scenarios. Additional staff may be needed in the initial stages of the emergency, or in subsequent operational periods[6]. Counties should consider establishing MOUs with neighboring counties and working through regional coalitions to establish plans for surge capacity, establishing agreements with other jurisdictional entities or departments with the public health agency to provide support (WIC, DMV, Pharmacies, Volunteer Organizations, NGOs, etc.).

For many disaster scenarios, additional personnel will be needed to to collect data from affected areas. Data needs are somewhat event-specific, but could include count and trend data (such as the number of people presenting at hospital emergency departments or shelters, the number of people admitted as inpatient, the number of people decontaminated, etc.). It could include data to monitor trends in person, place or time, or to collect registry data to facilitate long term follow-up of individuals. . Plans and procedures for data collection, and epidemiologic assessment and monitoring of the health status of the affected population should be included in disaster planning. . Personnel should be trained in data collection requirements prior to an event[7]. Volunteer management and coordination will be a critical pre-event task that needs to be planned for; it encompasses the recruitment, identification and training of volunteers who can support the public health department's response to an incident. The Arizona Emergency System for the Advance Registration of Volunteer Health Professionals (AZ-ESAR-VHP) is a secure, web-based system used to register, qualify and credential Arizona healthcare professionals before a major public health or medical emergency. The ESAR-VHP program also has the ability to capture information on non-credentialed professions such as epidemiological staff who would be key to assisting with data collection during a response.

[5]NIMS Website
[6] ACEP Website
[7] Enabling Rapid and Sustainable Public Health Research During Disasters: Summary of a Joint Workshop by the Institute of Medicine and the U.S. Department of Health and Human Services.

Three major types of data collection:

Rapid Needs Assessment

Data collection in shelters or other response settings (i.e. emergency rooms, communal housing for response workers) shortly after an incident, is beneficial to assess the immediate needs of those involved and determine health status of people in the community. Rapid needs assessments are vital in assessing immediate resource needs, such as food, water, shelter, and durable medical goods and medications. Since rapid needs assessments are used to guide response activities and resource allocations, data collection and analysis should occur quickly. Use of a standardized form would enable succinct and accurate communication amongst partners and ensure a more seamless data collection. These data can be collected as individual level data (e.g. individual interviews to determine the number of diabetics), but are generally aggregated to provide estimates of needed supplies and equipment.

Epidemiologic Data

At the outset and throughout an incident, data is collected that can provide situational awareness to responders. Examples of this kind of data include number of people presenting at hospitals or shelters, number of people hospitalized, number of people decontaminated (or treated for smoke inhalation depending on the event). While jurisdictions may not need a standardized form and could just use a rough tally system to capture this information, standardized, pre-existing forms will facilitate rapid and consistent data collection across jurisdictions.

Registry

Long term follow-up of individuals to track chronic physical and mental health conditions in those exposed to an event is considered a registry. In order to be included in a registry, individuals should be documented as being exposed to or involved in an incident. Careful consideration should be made to identify the cohort of exposed persons, not just the more easily-identified segments, such as first responders and shelter residents. Initial collection of contact information should occur as soon as possible after the exposed cohort has been defined. Additional exposed persons may be identified retrospectively from other records (such as shelter registration, hospital admission, staff logs for first responders, etc. Collection of accurate contact information will facilitate the collection of more detailed data during the long term follow-up period. This long term follow-up should also be implemented using standardized forms.

Roles and Responsibilities

During the response and recovery phase of a disaster, the roles and responsibilities for state public health personnel and local public health personnel will differ in regards to surveillance and data collection. As with all incidents, the State will be responsible for fulfilling their statutory requirements, but will act in support of the agency commanding the response; this includes supporting local public health agencies as needed. Some example roles and responsibilities are included, but this list is not exhaustive, nor are all examples applicable to every emergency.

State

- Receive reports, and gather epidemiological data
- Conduct disease and condition surveillance at the State level
- Analyze data to describe the affected population, determine the extent of exposure, identify/quantify risk and confounding factors, and quantify/characterize the outcomes/cases of interest
- Assist with surveillance of affected areas, shelters, and community centers
- Monitor databases/public health tools used at the local level
- Coordinate with the CDC and other federal regulatory agencies when necessary
- Coordinate and collect data from other states when necessary
- Coordinate with the American Red Cross to discuss any shelter-based operations
- Produce/provide applicable reports in a timely manner
- Assist with messaging (environmental and public health) including guidance to the medical community and risk communication for the public
- If applicable, update messages as necessary for the ADHS 24-hour recorded information line
- Determine appropriate outbreak/incident response and activate disease/exposure control interventions
- If necessary, assist with staffing shortfalls for Community Assessment for Public Health Emergency Response (CASPER) team and/or other public health staffing needs (see Appendix C)
- Assist with coordinating volunteers for staffing shortfalls
- Maintain statewide registry database
- Track epidemiological data
- If necessary, provide technical advice on safe food and water supply and use issues
- Support of local health departments for resources and staff time

Local

- Receive reports and gather epidemiological data
- Conduct disease and condition surveillance at the local level.
- Determine cohort of exposed/likely exposed persons for follow-up.
- Coordinate with the American Red Cross to facilitate shelter assessment and surveillance
- Analyze data to describe the affected population, determine the extent of exposure, identify/quantify risk and confounding factors, and quantify/characterize the outcomes/cases of interest.
- Collect mortality and morbidity data from Medical Examiner's office, hospitals, nursing homes, funeral homes, Disaster Mortuary Operational Response Team (DMORT), clinics, shelters, service delivery sites, and/or other sites as applicable.
- Conduct shelter assessments and surveillance Conduct CASPER survey if necessary
  - Identify personnel for CASPER team
- Work with partners to coordinate volunteers to fulfill surveillance, interview, point of distribution (POD), dispensing, and/or other epidemiology response needs
- Enter data into applicable databases/tracking tools, e.g.:
  - Line list of cases/affected persons
  - Registry database
  - CASPER
- Provide report(s) to state Health Emergency Operations Center (HEOC) (or applicable person/organization) in a timely manner

COMMUNICATIONS

Communication between personnel, agencies/organizations, local jurisdictions, counties, and the state is a critical factor contributing to successful surveillance, data collection, and reporting during the response and recovery phases of an incident. Some jurisdictions may not have necessary resources available as readily as others; therefore clearly communicating needs for disaster response activities will assist local jurisdictions and the state in fulfilling resource needs for the affected area.

In addition to communicating resource needs for those involved in disaster response activities, it is important for jurisdictions to share information and data with unaffected jurisdictions to help those unaffected allocate resources (material and personnel) and/or prepare to respond. An accurate assessment of health and environmental conditions in disaster zones and shelters before a disaster can help significantly with emergency planning, prevention and response. Public health surveillance is often used to assess health and environmental conditions, and can

be conducted in hospital emergency departments, evacuation centers, special needs shelters, field hospitals and sometimes from surveys of households in at-risk communities.

Public health organizations can gather baseline mortality and morbidity data from multiple sources, including Medical Examiner/Coroner's office, hospitals, nursing homes, funeral homes, DMORT (Disaster Mortuary Operational Response Team), clinics, shelters, and service delivery sites. During a disaster, public health organizations can collect surveillance data and create reports to communicate epidemiological information to the emergency operations center(s)/incident management system. Standardized forms and methods for data collection should be used for baseline data collection and during disasters to assist with rapid, consistent, and easy-to-use data across the local jurisdictions and the state.

Some jurisdictions may need translators to assist with their data collection and interviews, pre-identifying translation resources and services would save time in an emergency. Other counties and the state should also be prepared to assist the affected counties.

Communications Systems

Medical Electronic Disease Surveillance Intelligence System (MEDSIS)

The Medical Electronic Disease Surveillance Intelligence System (MEDSIS) is a secure web-based, centralized, person-based disease surveillance system for Arizona. MEDSIS is a statewide system hosted and supported by the Arizona Department of Health Services (ADHS) for use by state, county and tribal health departments for disease surveillance, and for individuals and institutions responsible for reporting communicable diseases. It is a secure system that is designed to ensure that patient information is kept confidential. MEDSIS is also used for communicating case information with health officials in Sonora, Mexico, regarding cases of bi-national interest.[8]

The information gathered in MEDSIS enables public health agencies to prevent spread of disease by:

- Finding and treating people in contact with an ill person
- Finding and controlling disease outbreaks
- Tracking changes in disease trends

Public health agencies also use this information to inform health care providers of changing trends and outbreaks, target prevention, make policy, and allot resources.

Arizona Health Alert Network

[8] ADHS MEDSIS Website

The Arizona Department of Health Services utilizes the Arizona Health Alert Network (AzHAN) to distribute clinical and public health information across the state during both routine operations and public health emergencies with its stakeholders. This system has been in place since 2001 and has gone through many changes and updates over the years. The Public Health Information Network (PHIN) compliant system was created to address the communications needs associated with both public health response and daily operational sharing of information for planning and disease surveillance. The AzHAN was designed around 6 major objectives.[9]

- Redundant Communications
    - Developing systems that add redundancy as well as daily use, without duplication of existing response systems
- Integrated Development
    - No stand-alone systems; all development is integrated within public health and with other response partners
- Secure Communications
    - Recognizing the need for secure communications within the public health community
- Outreach
    - Recognizing and aiding communications with public audiences for response efforts and risk communication
- Collaboration
    - Facilitating statewide collaboration for public health preparedness in areas of planning and information sharing
- Response Needs
    - Prepare for varied levels of scaled public health response with the development of tracking systems and alternative communication mechanisms

The system is used to customize messages and disseminate information in a timely manner depending on the severity of the situation. Stakeholders include, but are not limited to, law enforcement, emergency medical services, health care providers, hospitals, medical associations, laboratories, medical examiners, Indian Health Services, local health and tribal health agencies, infection preventionists, immunization coordinators, animal control officers, environmental health officials, and other community partners. Multiple methods for the receipt of the information are available such as email, fax, or phone. Information of a sensitive nature would be shared utilizing the Health Services Portal (HSP).[10]

[9] ADHS HEOC SOP
[10] ADHS HEOC SOP

Health Services Portal

The Arizona Department of Health Services has developed the Health Services Portal (HSP), an Internet-based portal application designed to provide secured document sharing and management, redundant email communications, and a system for sharing response and planning information. The HSP system was developed as a partnership with local and tribal health departments to address public health preparedness needs. The system is built upon an infrastructure that can support other public health preparedness needs, including electronic disease reporting and electronic lab reporting.[11]

HSP System Features:

- Secure document sharing and management
- Redundant secure email
- Information sharing

The system can be accessed only by partners with properly authenticated credentials and requires a secure user password. The HSP system infrastructure hosts Medical Electronic Disease Surveillance Intelligence System (MEDSIS) and also represents a single access point for state-wide public health disease surveillance, response, alerting information and communications.[12]

WebEOC

WebEOC is a statewide interoperable communication tool set forth by the Arizona Department of Emergency and Military Affairs to develop and maintain the common operating picture and increase information sharing and situational awareness between the SEOC, the HEOC and local jurisdictions; this electronic system reduces reliance on email and other forms of communication and helps reduce redundant information. WebEOC will be used as the primary collaboration and communication platform for all HEOC activities regardless of size and/or activation status (virtual vs. physical).[13]

Public Information

A critical factor in successfully responding to an emergency is informing the public on the actions and activities that occur both during a disaster and recovery. The public will need to be notified where surveillance data will be collected (homes, hospitals, clinics, shelters, evacuation centers, etc.), why it is being collected, how the information will be used, and who is collecting the information. In addition, the public will need to be informed on how to identify public

[11] ADHS Health Emergency Operations SOP
[12] ADHS Health Emergency Operations SOP
[13] ADHS Health Emergency Operations SOP

health professionals and volunteers. Following a disaster, citizens may be very reluctant to let people into their homes and/or answer personal questions regarding their health. Public information tools will vary depending on the incident. Public health organizations should be prepared to use social media like Facebook and Twitter, websites, TV, radio, fliers/handouts, speakers at shelters and evacuation centers, and if need be, cars with loudspeakers driving through neighborhoods.

Public information should be consistent throughout the different tools/systems used as well as across jurisdictions, necessitating sharing of information and communication in accordance with applicable laws. Information should be coordinated using a Joint Information Center/System (JIC/S) and include the ADHS Health Emergency Operations Center (HEOC) Public Information Officer (PIO) or designee, as applicable. Agency PIOs should collaborate on the timing and content of information released.

Public information will likely also need to be translated into Spanish (and other applicable languages). Local jurisdictions, counties, and the state should have translation resources and services identified prior to an incident.

Epidemiological Response

Disaster epidemiology guides emergency response efforts by providing situational awareness, an evidence-base for planning, and accurate/timely medical and health information-sharing. It encompasses a variety of outcomes including injury; communicable, acute and chronic disease; and environmental, mental and behavioral health. The primary objectives of disaster epidemiology are to:

- Reduce morbidity, mortality, and injury from disasters
- Provide timely and accurate information to decision-makers
- Prevent and predict future disasters
- Expand response capacity and mitigate health impacts for future disasters[14]

Public Health Surveillance During A Disaster

In a disaster situation, public health surveillance is the systematic collection, analysis and interpretation of specific data to track the health impacts of a disaster. A vital strategic component of any response, public health surveillance informs response priorities by identifying and quantifying adverse health effects and risks. Equally valuable to emergency

[14] CDC Disaster Epidemiology FAQs, https://www.cdc.gov/nceh/hsb/disaster/faqs.htm

planning, public health surveillance helps communities prepare for and prevent future disasters.

Broadly, public health surveillance tracks deaths, injuries and illness in the affected population. These adverse effects may be direct results of the disaster, such as injury during an earthquake. Alternatively, adverse health effects may be secondary to the disaster, such as a waterborne disease outbreak following an earthquake due to diminished water and sanitation infrastructure. Public health surveillance is vital not only to track trends in disease, injury and resource availability, but also achieve early detection of disease outbreaks. In both ways, health surveillance can instruct appropriate interventions to mitigate harm in a disaster environment.

Each disaster varies, but compounding surveillance data from previous disasters makes public health better equipped to plan, prepare, and respond to future disasters. [15]

Types of information or data that can be collected during a disaster response include numbers of individuals impacted by the disaster; demographic information (e.g. age, gender) from individuals and households; medical conditions and injuries related to or exacerbated by the disaster; medical and public health facilities impacted by the disaster, etc.

ADHS has developed specific data-collection forms and would utilize various methods to collect mortality, morbidity and general surveillance as a whole. These can be used to supplement any existing surveillance systems or augment surveillance systems that have been reduced in functionality to a disaster[16].

Federal Disaster Epidemiology Resources

Community Assessment for Public Health Emergency Response (CASPER)

During a disaster, public health and emergency management professionals must be prepared to respond to and meet the needs of the affected public in a timely manner. The Division of Environmental Hazards and Health Effects, Health Studies Branch (DEHHE/HSB) at the Centers for Disease Control and Prevention (CDC) has developed a rapid needs assessment toolkit, the Community Assessment for Public Health Emergency Response (CASPER), which can be used by public health practitioners and emergency management officials to determine the health status and basic needs of the affected community in a quick and low-cost manner. Gathering health and basic needs information using valid statistical methods allows public health and emergency managers to prioritize their responses and to make informed decisions regarding the distribution of resources. These same surveillance and community health assessment methods can be used in non-emergencies to create a baseline understanding of a community's health

[15] CDC Disaster Epi Surveillance Website https://www.cdc.gov/nceh/hsb/disaster/casper/default.htm
[16] Link to ADHS Disaster Epi Website (To be developed)

status, including vulnerable populations, and assist with response planning and strategy development[17].

The CASPER toolkit is a combination of standardized paper forms and state-of-the-art technologies used to collect data in the field and to share information quickly with a range of public health partners. These methods can also be used for routine community health assessments and during research studies. The CASPER toolkit is designed to assist personnel from any local, state, regional, or federal public health department in conducting a CASPER study during a disaster. One of the main toolkit objectives is to standardize the assessment procedures focusing on United States disaster response and provide guidelines on data collection tool development, methodology, sample selection, training, data collection, analysis, and report writing.[18]

For further guidance on conducting a CASPER assessment see **Appendix C.**

Emergency Responder Health Monitoring and Surveillance Program (ERHMS)

One of the federal systems that can be implemented during all phases of a response, including pre-deployment, deployment and post-deployment, is the Emergency Responder Health Monitoring and Surveillance (ERHMS) system, the intent of this framework is to monitor the health and well-being of emergency response workers with the ultimate goal of preventing short-and long-term illness and injury in emergency responders. The National Institute for Occupational Safety and Health (NIOSH) published a set of guidelines, recommendations and tools for all phases to address all aspects of protecting emergency responders and should be applicable over the full range of emergency types and settings.

Some of the advantages to implementing ERHMS include the following:

- Identify exposures and/or signs and symptoms early in the course of an emergency response;
- Prevent or mitigate adverse physical and psychological outcomes;
- Ensure workers maintain their ability to respond;
- Evaluate protective measures;
- Identify responders for medical referral and possible enrollment in a long-term health surveillance program

[17] CDC CASPER https://www.cdc.gov/nceh/hsb/disaster/casper/default.htm
[18] CDC Natural Disasters and Severe Weather https://www.cdc.gov/disasters/surveillance/index.html

For additional information, please refer to the CDC ERHMS webpage located here[19]: https://www.cdc.gov/niosh/topics/erhms/

Assessment of Chemical Exposures (ACE) Program

Another federal program that currently exists is the Assessment of Chemical Exposures (ACE) Program which provides resources to help gather epidemiologic information after acute toxic substances releases. The ACE Toolkit is a helpful resource to assist local authorities in responding to or preparing for a chemical release. The toolkit contains materials that can quickly be modified to meet the needs of a local team performing an epidemiologic assessment, including:

- Surveys
- Consent forms
- Medical chart abstraction form
- Interviewer training manual

For additional information on the ACE Program, please refer to the Agency for Toxic Substances and Disease Registry ACE webpage located here[20]: https://www.atsdr.cdc.gov/ntsip/ace.html

INCIDENT COMMAND SYSTEM

Public health is essential to the emergency response capability of any community, and must have the ability to cooperate and collaborate with other responding agencies during an emergency.[21] If an event rises to the level of an "emergency", ADHS will will likely activate its Health Emergency Operations Center (HEOC). ADHS follows the Federal Emergency Management Agency (FEMA) Incident Command System (ICS) that is a standardized, all-hazards incident management approach. Primary functions of the HEOC are:[22]

- To coordinate a public health response with federal, state, and local agencies
- To support resource and personnel allocation requests for response activities as necessary
- To provide epidemiologic data or other health-related information to stakeholders for decision making and public information dissemination
- To ensure communication protocols and procedures are followed to guarantee clear and concise health-related messaging

[19] CDC ERHMS https://www.cdc.gov/niosh/topics/erhms/
[20] CDC ATSDR https://www.atsdr.cdc.gov/ntsip/ace.html
[21] Public Health Incident Command System, Vol 1: Guide, Columbia School of Nursing; University at Albany, School of Public Health, October 2006
[22] ADHS HEOC Standard Operation Procedures

- Assist locally-led recovery efforts in the restoration of public health, health care and social service networks

The HEOC structure usually consists of five (5) sections: Command, Operations, Planning, Logistics and Finance. Epidemiology positions will fall within the Operations section, along with all environmental health responsibilities.
The overall focus of the operations section will likely be the following:

- Rapid needs assessment
- Public health surveillance and Information collection
- Tracking and registries
- Epidemiological investigations
- Environmental health issues
- improve prevention and mitigation strategies for future disasters by collecting information for future response preparation

INCIDENT-SPECIFIC GUIDANCE

BIOTERRORISM

APPLICABLE CHECKLISTS AND FORMS (SEE APPENDIX A AND B):

- Arizona Department of Health Epidemiological Response Checklist
- Outbreak Management Key Personnel Assignments
- Resource Tracking Line List
- Activity Flow List during an Outbreak Response
- Time Tracking Template during an Outbreak Response
- All Hazards Response Form (when applicable)
- Arizona Public Health Interview Cover Page (for use with the Arizona Disaster Morbidity Surveillance Form and the Arizona Exposure Registry Form)
- Arizona Disaster Mortality Surveillance Form
- Arizona Disaster Mortality Surveillance Form (Aggregate)
- Arizona Exposure Registry Form
- Arizona Shelter Assessment Form

GENERAL INFORMATION:

Response to bioterrorism is largely dependent on the agent that is used. Lists, such as CDC's Bioterrorism Agents A to Z include most of the agents thought to represent a potential bioterrorism threat. The Select Agent list includes those biological agents and toxins that have been determined to have the potential to pose a severe threat to both human and animal health, to plant health, or to animal and plant products. These include: Anthrax, Botulism,

Brucellosis, Plague, Smallpox, Tularemia and Viral Hemorrhagic Fevers. CDC has created fact sheets for each of these, located here: General Fact Sheets - Bioterrorism Agents[23] .

For additional Bioterrorism information, to include Case Definitions, Training, Lab Information and Surveillance, see the CDC Bioterrorism home page: CDC - Bioterrorism[24] In the event of an emergency involving a BT agent, CDC will likely issue updated guidance, including fact sheets, training, Lab information, case definitions, etc., so receiving and implementing updates would be an important component of situational awareness and emergency response.

State, local and Tribal health departments play a crucial role in preparing for, responding to, and recovering from emergencies and disasters of all kinds. Below is a link to the Public Health Emergency Response Guide for local-level planning. CDC PH Emergency Response Guide [25]

Epidemiologic clues that may signal a covert bioterrorism attack

- Large number of ill persons with similar disease or syndrome
- Large number of unexplained disease, syndrome or deaths
- Unusual illness in a population
- Higher morbidity and mortality than expected with a common disease or syndrome
- Failure of a common disease to respond to usual therapy
- Single case of disease caused by an uncommon agent
- Multiple unusual or unexplained disease entities coexisting in the same patient without other explanation
- Disease with an unusual geographic or seasonal distribution
- Multiple atypical presentations of disease agents
- Similar genetic type among agents isolated from temporally or spatially distinct sources
- Unusual, atypical, genetically engineered, or antiquated strain of agent
- Endemic disease with unexplained increase in incidence
- Simultaneous clusters of similar illness in non-contiguous areas, domestic or foreign
- Atypical aerosol, food, or water transmission
- Ill people presenting near the same time
- Deaths or illness among animals that precedes or accompanies illness or death in humans
- No illness in people not exposed to common ventilation systems, but illness among those people in proximity to the systems

The steps of an epidemiologic response to a suspected bioterrorist event could occur much faster than other communicable disease events. Many steps will be conducted

[23] CDC Specific Bioterrorism Agents https://emergency.cdc.gov/bioterrorism/factsheets.asp
[24] CDC Bioterrorism https://emergency.cdc.gov/bioterrorism/
[25] CDC PH Emergency Response Guide https://emergency.cdc.gov/planning/responseguide.asp

simultaneously, and the importance of a particular step may vary depending on the circumstances of the outbreak.[26]

1. Confirmation

The first step in the epidemiologic response to a potential bioterrorism event is to reach a consensus that bioterrorism is moderately or strongly suspected. This is applicable for a single case or for a cluster of cases. Local, state, and federal disease experts will assist each other in determining whether the clinical and/or laboratory findings are consistent with a bioterrorist threat agent and/or whether the epidemiologic evidence supports the suspicion of bioterrorism.

2. Notification

Local, state, and federal bioterrorism response partners will be immediately notified when it is agreed that the disease scenario meets the event definition for bioterrorism.

3. Coordination

The epidemiologic investigation will be coordinated with the criminal investigation conducted by the Federal Bureau of Investigation (FBI), the lead agency in the crisis management of a bioterrorist event. Local, state, and federal public health agencies will participate in the epidemiologic investigation. In the event of a bioterrorist outbreak involving a single health jurisdiction, ADHS personnel will be available to support the local response if requested. Several types of personnel may be required for the epidemiologic investigation (interviewers, environmental health inspectors, disease control investigators, epidemiologists, data entry staff, and data managers). Personnel will likely be requested from affected and unaffected areas. Federal epidemiologic assistance can be requested from the Centers for Disease Control and Prevention (CDC).

4. Communication

Information from the outbreak investigation will be communicated to other bioterrorism response partners to help guide planning for distribution of medical resources, and to the FBI. Information should be communicated through "approved" means in order to prevent a leak and cause unnecessary public panic.

[26] California Hospital Bioterrorism Response Planning Guide http://www.emsa.ca.gov/media/default/pdf/ca_hosp_guide.pdf

In the event of an outbreak involving multiple health jurisdictions, release of public information regarding the epidemiologic investigation and response will be coordinated by the local health department public health information officer(s) in coordination with other epidemiological response partners' public information officers, likely in a Joint Information Center/System (JIC/S). Messages may include:

a) Information about the disease and its prevention; treatment and control; and the progress of the outbreak investigation
b) Requests for locating contacts for disease that are transmissible from person-to-person
c) Recommendations for treatment of cases and contacts
d) Treatment and prophylaxis guidelines, infection control guidelines, and disease fact sheets

5. Epidemiologic investigation

In a multi-jurisdictional bioterrorist event, local, state, and federal public health leaders will participate in the epidemiologic investigation under a joint command structure. In the event of a bioterrorist outbreak involving a single health jurisdiction, ADHS will be available to support local public health.[27]

a) Hypothesis-generating interviews
b) Case Definition
c) Case Finding
d) Case Interviews
e) Data Analysis

6. Contact tracing

If the disease is transmissible from person-to-person, those responsible for contact management should attempt to interview possible contacts identified by cases and through other means (e.g., hotline) to confirm their contact status. Clinical and epidemiologic information will be entered into a database for analysis.

Persons identified as contacts should be referred for vaccination, prophylaxis, isolation and/or quarantine as appropriate and should be kept under active surveillance, if symptoms progress, contacts will be advised to obtain medical attention immediately.

[27] California Hospital Bioterrorism Response Planning Guide http://www.emsa.ca.gov/media/default/pdf/ca_hosp_guide.pdf

7. Laboratories

Epidemiologic response personnel will refer questions regarding specimen collection, packaging, storage, and shipment to the appropriate point of contact

8. Expanded surveillance for non-human populations

If the disease outbreak is thought to involve animals, the ADHS Vector-Borne Zoonotic Disease Section (VBZD), along with public health officials from state and federal animal health agencies (AZ Dept of Agriculture, AZ Game and Fish, US Department of Agriculture) will coordinate enhanced vector and veterinary surveillance as necessary. Domestic and wildlife animal populations may experience morbidity and mortality due to bioterrorist agents. If animals are affected in a bioterrorist attack, ADHS will coordinate with Arizona Department of Food and Agriculture, the Arizona Department of Fish and Game, and veterinary practitioners to monitor susceptible animal populations and to implement appropriate control measures (e.g., quarantine, treatment, and vaccination) to prevent spread of the disease within animal populations.

9. Recommendations for public health action

In addition to the consensus treatment guidelines, results from analyses of outbreak-specific epidemiologic data will be used to identify the exposed population(s), priority groups for prophylaxis, and the appropriate strategies for quarantine and isolation. This information will be provided to those responsible for coordinating the medical response.

10. Overt or announced bioterrorist threat

The epidemiologic response to an overt or announced bioterrorism event should be informed by FBI and other law enforcement threat assessments. If the FBI believes the threat to be credible and has obtained information about the time, place, mode, and/or contents of the release, this information should be made available to public health personnel as soon as possible so that public health can:

a) define the population at risk for exposure; locate the persons at risk for exposure to assess them for exposure risk, illness symptoms and provide appropriate prophylaxis, treatment, isolation, or quarantine.
b) monitor the persons who are at risk for developing the disease for symptoms and signs of the disease.
c) implement enhanced surveillance for the suspected disease at health care

facilities, laboratories, and emergency medical services. Active surveillance for diseases caused by other potential bioterrorist threat agents should also be conducted, as multiple biological agents may have been released at the same time or serially.

If cases of illness are found that do not fit epidemiologically with the alleged time, place, or mode of exposure, a full epidemiologic investigation should be conducted to determine the actual time and conditions of exposure, just as if the event had been covert.

RADIOLOGICAL

APPLICABLE CHECKLISTS AND FORMS (SEE APPENDIX A AND B):

- Arizona Department of Health Epidemiological Response Checklist
- Resource Tracking Line List
- Arizona Public Health Interview Cover Page (for use with the Arizona Disaster Morbidity Surveillance Form and the Arizona Exposure Registry Form)
- Arizona Disaster Mortality Surveillance Form
- Arizona Disaster Mortality Surveillance Form (Aggregate)
- Arizona Exposure Registry Form
- Arizona Shelter Assessment Form
- Radiation Medical Information Form
- Victim Radiation Contamination Control Record (On-Scene Assessment) Form

Radiation Medical Information Form

The *Radiation Medical Information Form* should be completed by hospital emergency department staff responding to a radiological emergency. This form tracks not only individual patient information but information pertaining to the exposure, dosimeter levels, symptoms, and treatment. One form is completed per individual.

Victim Radiation Contamination Control Record (On-Scene Assessment) Form

The Victim Radiation Contamination Control Record (On-Scene Assessment) Form is used as an on-scene assessment tool and should be filled out by a radiological assessor. This form collects individual patient information and basic contamination survey information. One form is completed per individual.

General Information:

Nuclear incidents involve detonation of a nuclear device, whereas radiological incidents produce radiation without detonation of a nuclear device. Victims of a radiological incident can have contamination and/or exposure, examples include Radiological Dispersal Devices (RDDs)[28] (explosive/non-explosive) or Radiological Exposure Devices (REDs)[29] which can be a hidden radioactive source.

Public health professionals will play an important role in any radiation emergency. Key responsibilities (in addition to traditional public health functions) will include:

- Making shelter-in-place or evacuation recommendations
- Identifying people contaminated with radioactive material or exposed to radiation (population monitoring)[30] *CDC - Population Monitoring*
- Conducting or assisting with decontamination
- Developing criteria for entry and operations within the incident site

The above information, plus additional planning, guidelines and recommendations for Public Health Professionals can be found here: *CDC Radiation Emergency - Public Health Information*[31]

Situation and Assumptions

- In the event of a radiological incident, the Arizona Radiation Regulatory Agency (ARRA) and the Arizona Division of Emergency Management are the primary state coordinating agencies. ADHS will serve as a supporting agency.
- Currently, the ADHS State Laboratory does not accept radiological samples. All radiological samples will be tested by the ARRA Laboratory or an appropriate Federal agency. For example, Environmental Samples (EPA), Animals (USDA), Food and Animal Feed (DHHS)
- Other sources of radiological screening include the 91st Civil support Team (CST) and other local and state hazardous materials (HazMat) teams.

Internal Organizational Roles and Responsibilities

The Arizona Department of Health Services (ADHS) will:

[28] REMM – Radiation Emergency Medical Management Website
[29] REMM – Radiation Emergency Medical Management Website
[30] CDC Population Monitoring & Community Reception Center Resources
https://emergency.cdc.gov/radiation/populationmonitoring.asp
[31] CDC Radiation Emergencies – Information for Public Health Professionals
https://emergency.cdc.gov/radiation/publichealth.asp

- Support the local health departments and broker resources as much as possible including hospital space and emergency medical services
- Provide a Public Information Officer to craft (in conjunction with the local health departments) various health messages for the State Emergency Operations Center's Joint Information Center (JIC)
- Provide guidance for the distribution of decorporation drugs such as potassium iodide (KI) from the local health department
- Coordinate with the Centers for Disease Control and Prevention and the Federal Advisory Team
- Order the Strategic National Stockpile if needed (See ADHS SNS Plan)
- Work with the CDC, ATSDR and local health departments to put together a registry
    - A registry is comprised of the contact information of persons potentially exposed to radiation/explosion and will be assembled with the collaboration of CDC, ATSDR, ADHS and the local health department.
    - The purpose of the registry is for subsequent dose assessments; possibly providing the registrants educational material regarding their exposures, possible medical follow-up should that become necessary and for addressing possible long-term health effects.
    - The registry is comprised of a one-page survey instrument. CDC/ASTDR will provide the survey instrument and the personnel to assist ADHS and the local health department in this endeavor.

Office of Environmental Health will:

- Provide public health information related to food safety and environmental sanitation during public health issues such as sheltering-in-place, decontamination of foodstuffs
- Give guidance and recommendations on food storage and food safety to the State Prison kitchens as well as Assisted Living, Residential Facilities and Group Homes
- Provide support for food safety and or sanitation inspections at various shelters and designated food establishments
- Support (if needed) the local health departments and the Arizona Department of Agriculture in utilizing the embargo authority, conducting inspections and gathering samples
- Provide support to the Arizona Department of Environmental Quality and the local health departments to advise on safe drinking water and community water systems
- Responsibility for the radiation testing of all exposed food lies with the Arizona Radiation Regulatory Agency (ARRA) or their Federal designee and that for general food safety is delegated through agreements to the local Environmental Services Departments by the Arizona Department of Health Services. In addition to radiological contamination there

may be more traditional food safety circumstances to contend with such as proper refrigeration of foods in the event of a power outage.

The responsibility of the local County Environmental Services Department for safe foodstuffs includes produce warehouses, food processing, outdoor settings, (special events) school cafeterias and retail food establishments (grocery stores, convenience stores). The responsibility for the safety of eggs, dairy, raw meats, grains, fresh fruits, plants and produce (in the field or on the farm) is overseen by the Arizona Department of Agriculture.

External Organizational Roles and Responsibilities

Local Health Department

- With consultation from ARRA and ADHS is responsible for the distribution of appropriate treatment to the public
- Responsible for the safety of foods from the produce warehousing stage to the retail stage

Arizona Radiological Regulatory Agency (ARRA)

- Provides subject matter expertise, as appropriate
- Oversees trained volunteers to conduct field sampling and radiological screening of persons
- Performs radiological analysis of water, soil, vegetation, milk and limited clinical samples either in their mobile laboratory or at their permanent facility
- Provides a liaison at the State Emergency Operations Center
- Provides a contact for the Joint Information Center (JIC)

Arizona Department of Agriculture (AZDA)

- Responsible for the integrity/safety of milk, eggs, meat, grain and fresh fruits and vegetables in the affected area.
- Responsible for establishing check points to ensure food that is being transported meets food safety standards
- The Emergency Assistant State Veterinarian would communicate with other partners and stakeholders if a radiological event were to occur, and the U.S. Department of Agriculture would be involved if the event involved more than one state.

Arizona Game and Fish Department (AZGFD)

- Conduct surveys to determine impact to wildlife populations in the affected area especially for species of greater conservation concern.
- Determine if event will affect food safety of harvested wildlife and implement changes to scheduled hunts on an emergency basis if needed.
- Determine if animals welfare concerns necessitate euthanasia of affected animals or implementation of support measures.
- Support the efforts of Departments of Health and Agriculture to protect food supply and public health

U.S. Department of Agriculture

- Maintain current lists of dairies, feedlots, crops in harvest, food processor, and food distributers.
- Determine and implement milk, agriculture, and livestock controls and embargos to prevent the ingestion of contaminated products.
- Issue Public Advisories to the general public and to agricultural dairy, food processors, and food distributers concerning product safety.

DOCUMENTATION

A means of documenting the individual and property surveys and results will need to be implemented. When surveying large numbers of people, vehicles, pets and or personnel property the task of documenting survey results will undoubtedly become burdensome. Preplanning needs to occur to determine how surveyed individuals will be tracked. One suggestion would be to use driver's license numbers, student ID numbers, or in the case of children, a number associated with the parent or guardian for each child. For individuals without readily available identifiers, other means of tracking the people will have to be implemented. In these cases, taking the individual's name, date of birth, place of birth, address, and phone number should be adequate for uniquely identifying that individual. This will be necessary if follow-up or verification needs to be performed. Surveys of persons, pets, vehicles and personal property, whether contamination is found or not, will need to be documented, this will help to provide information after the event is completed if litigation is encountered. If significant contamination is present, a dose assessment will be needed to determine the dose to the individual.

Individual survey records should indicate:

- The name of the individual surveyed (including date of birth, place of birth, address, and phone number should be adequate for uniquely identifying that individual.)
- The locations and levels of any contamination detected (including units – cpm, mR/hr)
- The type of instrument used for the survey
- The nature of any instructions given to the contaminated individual concerning decontamination procedures (if the individual is to decontaminate himself) or any descriptions of decontamination procedures performed by the survey personnel
- Name of person performing the survey

In addition to the information indicated on the form, there is also space for the name of the surveyor who detected the contamination, the time of the survey, the serial number of the instrument, and whether or not bioassay samples were collected. The information about the instrument and surveyor would be used if there were questions later about the exact location of the contamination or about the accuracy of the measurement. To indicate the location of the contamination on the person, draw a numeral "1" for the first location on the diagram of the body (front or back side). Then write the instrument reading (e.g., "1,250 cpm" not just "1,250") next to the "1" in the measurements box. Use the numeral "2" for the second contamination location, etc.

Survey records for pets, vehicles, and personnel property should indicate:

- The name of the owner of the item being surveyed
- Description of the Item (including License Number, Serial Numbers)
- The locations and levels of any contamination detected (including units –cpm, mR/hr)
- The type of instrument used for the survey
- The name of the person performing the survey
- The nature of any instructions given to the owner of item concerning decontamination procedures (if the individual is to decontaminate himself) or any descriptions of decontamination procedures performed by the survey personnel

PANDEMIC INFLUENZA

APPLICABLE CHECKLISTS AND FORMS (SEE APPENDIX A AND B):

- Arizona Department of Health Epidemiological Response Checklist
- Outbreak Management Key Personnel Assignments
- Resource Tracking Line List
- Activity Flow List during an Outbreak Response
- Time Tracking Template during an Outbreak Response
- All Hazards Response Form

- Arizona Public Health Interview Cover Page (for use with the Arizona Disaster Morbidity Surveillance Form and the Arizona Exposure Registry Form)
- Arizona Disaster Morbidity Surveillance Form
- Arizona Disaster Morbidity Surveillance Form (Aggregate)
- Arizona Disaster Mortality Surveillance Form
- Arizona Disaster Mortality Surveillance Form (Aggregate)
- Arizona Exposure Registry Form
- Arizona Shelter Assessment Form

GENERAL INFORMATION:[32]

Prior to a pandemic influenza outbreak, public health agencies should be conducting active surveillance of the general population. However, given that the signs and symptoms of influenza are similar to those caused by other respiratory pathogens, diagnosis may be a challenge since laboratory testing must be conducted to definitively diagnose influenza. Information on all influenza cases, hospitalizations, and deaths will be incomplete because laboratory testing is not conducted on most patients with influenza-like-illness (ILI) even during interpandemic periods and ILI is a nonspecific clinical presentation that may be due to a number of different respiratory viruses.

Rapid identification of the initial cases of a novel influenza virus and timely tracking of viral activity throughout the pandemic are critical; however, laboratory capacity may be limited due to insufficient supplies or capacity for rapid testing. In addition, currently available diagnostic assays may have poor sensitivity for the novel or pandemic strain.

Public health personnel should be alert and responsive throughout all World Health Organization (WHO) phases.

- The global phases – interpandemic, alert, pandemic and transition – describe the spread of the new influenza subtype, taking account of the disease it causes, around the world.
  - *Interpandemic phase*: this is the period between influenza pandemics.
  - *Alert phase*: This is the phase when influenza caused by a new subtype has been identified in humans.5 Increased vigilance and careful risk assessment, at local, national and global levels, are characteristic of this phase. If the risk assessments indicate that the new virus is not

[32] Information and descriptions of the WHO public health phases are taken directly from the Pandemic Influenza Risk Management WHO Interim Guidance, 2013.

developing into a pandemic strain, a de-escalation of activities towards those in the interpandemic phase may occur.

- *Pandemic phase*: This is the period of global spread of human influenza caused by a new subtype. Movement between the interpandemic, alert and pandemic phases may occur quickly or gradually as indicated by the global risk assessment, principally based on virological, epidemiological and clinical data.
- *Transition phase*: As the assessed global risk reduces, de-escalation of global actions may occur, and reduction in response activities or movement towards recovery actions by countries may be appropriate, according to their own risk assessments.

- Surveillance and data collection should occur during all phases.
- Once a novel or virulent strain is confirmed, information should be communicated to other public health partners. Public health personnel should follow the steps list in the response to a bioterrorism event, though it is unnecessary to involve the FBI, unless it is suspected that a novel strain of the virus has been intentionally introduced.

Below are the steps of an epidemiologic response to a potential pandemic influenza, most likely, a pandemic event will occur much faster than other communicable disease events. Many steps will be conducted simultaneously, and the importance of a particular step may vary depending on the circumstances of the outbreak

1. Confirmation

The first step in the epidemiologic response to a potential pandemic influenza is to confirm suspicions, this is applicable for a single case or for a cluster of cases. Specimens should be sent to the Arizona State Public Health Laboratory for confirmation and further testing.

2. Notification

Applicable public health agencies at the local, state, and federal levels should be notified.

3. Coordination

As additional assistance is needed, local, state, and federal public health leaders will participate in the epidemiologic response in a coordinated effort. Several types of personnel may be required for the epidemiologic investigation (interviewers, environmental health inspectors, disease control investigators, epidemiologists, data

entry staff, and data managers). Personnel will likely be requested from affected and unaffected areas. Federal epidemiologic assistance can be requested from the Centers for Disease Control and Prevention (CDC).

4. Communication

Information from the outbreak investigation will be communicated to other response partners to help guide planning for distribution of medical and other resources.

In the event of an outbreak involving multiple health jurisdictions, release of public information regarding the epidemiologic investigation and response will be coordinated by the local health department public health information officer(s) in coordination with other epidemiological response partners' public information officers. Messages may include:

a) Information about prevention; treatment and control methods
b) Requests for locating contacts

5. Epidemiologic investigation

Local, state, and federal public health leaders will participate in the epidemiologic investigation under a joint command structure.

a) Hypothesis-generating interviews
b) Case Definition
c) Case Finding
d) Case Interviews
e) Data Analysis
f) Implementation of control measures
g) Evaluation of control measures

6. Contact tracing

Those responsible for contact management should attempt to interview possible contacts identified by cases and through other means (e.g., hotline) to confirm their contact status. All clinical and epidemiologic information will be entered into a database for analysis.

All persons identified as contacts should be referred for vaccination, prophylaxis, isolation and/or quarantine as appropriate and should be kept under active surveillance (temperature checks twice a day). If symptoms progress, contacts will be advised to obtain medical attention immediately.

7. Laboratories

Epidemiologic response personnel will refer questions regarding specimen collection, packaging, storage, and shipment to the appropriate point of contact at the ASPHL.

8. Expanded surveillance for non-human populations

If the disease outbreak is thought to involve animals, public health officials from the Vector-Borne and Zoonotic Diseases Program (VBZD) at ADHS will coordinate enhanced animal and veterinary surveillance as necessary.

Domestic and wildlife populations may experience morbidity and mortality due to bioterrorist agents. If animals are affected in a bioterrorist attack, VPHS will coordinate with Arizona Department of Food and Agriculture, the Arizona Department of Fish and Game, and veterinary practitioners to monitor susceptible animal populations and to implement appropriate control measures (e.g., quarantine, treatment, and vaccination) to prevent spread of the disease within animal populations.

9. Recommendations for public health action

In addition to the consensus treatment guidelines, results from analyses of outbreak-specific epidemiologic data will be used to identify the exposed population(s), priority groups for prophylaxis, and the appropriate strategies for quarantine and isolation. This information will be provided to those responsible for coordinating the medical response.

Epidemiological Surveillance Forms Overview

While there are many different types of forms used for collecting epidemiological data, it is important to have the correct personnel collecting the information. Personnel that work at or normally deploy to known shelter locations should be identified and trained to conduct interviews, how to use the forms, and how to input information prior to a disaster. (See Appendix B: Data Collection Forms.)

All Hazards Report Form

The *All Hazards Report Form* is used in generic outbreaks, environmental events, or disease of unusual occurrence. This form can be used to report on an incident concerning a single patient or multiple patients.

Arizona Disaster Mortality Surveillance Forms

The *Arizona Disaster Mortality Surveillance Form* is used to identify the number of deaths related to the disaster/event and provide basic mortality information. This form should be filled out by medical examiners, coroners, Disaster Mortuary Operational Response Teams (DMORT), hospital, nursing home, or funeral home staff during a disaster. One form should be completed for each decedent attributed to the disaster. It is important to note this form does not replace the death certificate.

The *Arizona Disaster Mortality Surveillance Form (Aggregate)* can be used to collect aggregate mortality data when detailed individual-level information is not necessary or is too cumbersome to collect. This form serves as a summary of key disaster death-related outcomes observed and reports the total number of decedents per reporting period. This form should be filled out by medical examiners, coroners, Disaster Mortuary Operational Response Teams (DMORT), hospital, nursing home, or funeral home staff during a disaster based on individual forms or data from an existing surveillance or reporting system, or by reviewing logs.

Arizona Disaster Morbidity Surveillance Forms

The *Arizona Disaster Morbidity Surveillance Form* is used to capture individual-level active surveillance of medical conditions and other disaster-related outcomes when timely, detailed patient-level information is needed for response efforts. This form should be filled out by public health staff or medical personnel in acute care facilities (e.g., shelters with medical staff, special needs shelters, field hospitals or Disaster Medical Assistance Teams (DMAT)). One form should be filled out per patient capturing information about the chief complaints and specific infectious syndromes, behavioral health conditions, injuries, and chronic diseases that best

describe the reason the patient is currently seeking care. This form may also be filled out by abstracting information from patient records.

The *Arizona Disaster Morbidity Surveillance Form (Aggregate)* can be used to collect aggregate morbidity data when detailed individual-level patient information is not necessary or is too cumbersome to collect. This form serves as a summary of key disaster-related outcomes observed in a facility during a reporting period and can be used for monitoring population level trends. The form should be filled out by public health staff or medical personnel in acute care facilities (e.g., shelters with medical staff, special needs shelters, field hospitals or Disaster Medical Assistance Teams (DMAT)) based on individual forms or data from an existing surveillance or reporting system, or by reviewing patient logs and triage records.

The *Arizona Public Health Interview Cover Page* should be used in conjunction with *the Arizona Disaster Morbidity Surveillance Form* and the *Arizona Exposure Registry Form*. The purpose of the cover page is to gather information that can be used to contact individuals for follow-up monitoring at a later time.

EXPOSURE REGISTRY FORM

A registry of the affected and possibly affected populations should be started as soon as possible. Initially, the most basic and critical information should be collected from each person (name, address, telephone number, and other contact information). If possible, other incident applicable information such as the person's location at time of the incident and radiation readings, contacts, places traveled, potential contamination sources should be entered into the registry. However, this detailed information should not compromise the speed and efficiency of initial information entry into the registry[33].

The *Arizona Exposure Registry Form* can be used to register responders and other persons exposed to chemical, biological, or nuclear agents from a disaster to obtain more detailed exposure history. It can be implemented quickly to collect information in order to identify and locate victims and people displaced or affected by a disaster and can be filled out by public health staff or medical personnel in shelters, hospitals or acute care facilities (e.g., shelters with medical staff, special needs shelters, field hospitals, Disaster Medical Assistance Teams (DMAT)). The PHEP Epidemiology Program Manager will be the point of contact (POC) for the registry database. Information from the registry survey instrument can be used to:

- Support real-time needs assessment during an emergency affecting public health

[33] https://emergency.cdc.gov/radiation/pdf/population-monitoring-guide.pdf

- Assess future needs for medical assistance, health interventions, and health education for public health planning purposes
- Contact enrolled individuals with information regarding potential exposures and adverse health impacts, health updates, available educational materials, and follow-up services

The *Arizona Public Health Interview Cover Page* should be used in conjunction with *the Arizona Exposure Registry Form* and the *Arizona Disaster Morbidity Surveillance Form*. The purpose of the cover page is to gather information that can be used to contact individuals for follow-up monitoring at a later time.

Arizona Public Health Interview Cover Page

The *Arizona Public Health Interview Cover Page* should be used in conjunction with *the Arizona Exposure Registry Form* and the *Arizona Disaster Morbidity Surveillance Form*. The purpose of the cover page is to gather information that can be used to contact individuals for follow-up monitoring at a later time.

Shelter Needs Assessment Form

Shelter needs assessments are conducted to help environmental health practitioners in conducting a rapid assessment of shelter conditions during emergencies and disasters. Shelter needs assessments are necessary not only to provide safe environments for citizens displaced during a disaster, but also help emergency planners project future needs and resource requirements.[34]

The *Arizona Shelter Assessment Form* can be used to standardize and record environmental assessments of shelters and evacuation centers. This form can serve as a basis for sharing timely environmental health information related to shelters and evacuation centers with local and state health officials.

Maintenance of Document

The Disaster Epidemiology Guidance Document will be reviewed on an annual basis. The Office of Infectious Disease Services, Public Health Emergency Preparedness Epidemiology (PHEPE) Program is the lead entity. At least once every three (3) years, a small work group consisting of ADHS and local health department personnel will be organized to do a more in-depth review of the document.

[34] https://www.cdc.gov/nceh/ehs/etp/shelter.htm

APPENDIX A: CHECKLISTS AND LINE LISTS

Additional resources are available to help aid in a disaster outbreak response. *These resources can be found within the ADHS, Office of Infectious Disease Services Infectious Disease Investigation Manual.*

- Arizona Department of Health Services Epidemiological Response Checklist
- Safety Guidelines
- Outbreak Management- Key Personnel Assignments
- Resource Tracking Line List
- Request for Additional ADHS Personnel
- Sample Health Alert Network Methodology & Templates
- Time Tracking Template during an Outbreak Response
- Supply Checklist

APPENDIX B: DATA COLLECTION FORMS

Documents in this section include:

- All Hazards Response Form
- Arizona Public Health Interview Cover Page *(for use with the Arizona Disaster Morbidity Surveillance Form and the Arizona Exposure Registry Form)*
- Arizona Disaster Morbidity Surveillance Form
- Arizona Disaster Morbidity Surveillance Form (Aggregate)
- Arizona Disaster Mortality Surveillance Form
- Arizona Disaster Mortality Surveillance Form (Aggregate)
- Arizona Exposure Registry Form
- Arizona Shelter Assessment Form
- Radiation Medical Information Form
- Victim Radiation Contamination Control Record (On-Scene Assessment)

ALL HAZARDS REPORT FORM

Pathogen/Agent:	*Indicate whether the pathogen/agent is:* ☐ Confirmed-Lab ☐ Suspected ☐ Unknown
Exposure Category: ☐ Infectious Disease ☐ Environmental ☐ Other	*Exposure Vehicle/Source:*

REASON FOR INVESTIGATION:

HISTORY OF ILLNESS:
Brief description of clinical course and the characteristics of the outbreak/event or case.

Incubation period (range in hours or days): Min: _____ Max: _____	*Average duration of symptoms:*	*Outcome of case:* ☐ Recovered ☐ Fatal Date of Death: ___/___/___

DIAGNOSITC TESTS:

SPECIMENS		DATE COLLECTED	TYPE OF TEST	RESULTS		NAME AND ADDRESS OF LABORATORY
Type	# of Patients			# Positive	Etiology	

RESULTS OF INVESTIGATION AND REMARKS:

ALL HAZARDS REPORT FORM					
PATIENT'S NAME AND ADDRESS	**AGE**	**DATE OF EXPOSURE**	**DATE OF ONSET**	**SIGNS/SYMPTOMS**	**LAB FINDINGS**

INVESTIGATOR—Investigator's Name:	**Date:**	**Telephone Number:**
Investigator's agency name:		

Arizona Public Health Interview Cover Page

This form accompanies the Arizona Disaster Morbidity Surveillance Form and the Arizona Exposure Registry Form. The purpose of this form is to gather contact information that can be used for follow up at a later time.

Complete form for individual

Event Name _____	Incident Date (MM) / (DD) / (YYYY)	Interview Date (MM) / (DD) / (YYYY)	Initials _____

If accompanying the Arizona Exposure Registry Form, read the introduction on the back.

Location of Interview

(Name of Location) _____

(City) _____ (County) _____

Location Type (Select One)

☐ Hospital ☐ Shelter ☐ Residence ☐ Phone

☐ Other, *specify*: _____

Interviewee Information

Name (Last) _____ (First) _____

Current Mailing Address (Street) _____

(City) _____ (County) _____ (Zip Code) _____

☐ Non-US If non-US: (Country) _____

Current Physical Address (Street) _____

(City) _____ (County) _____ (Zip Code) _____

☐ Non-US If non-US: (Country) _____

How many people live at this address (including you)?

_____ ☐ Don't know ☐ Refuse to answer

Interviewee Contact

Email Address _____

Phone Number(s) ☐ Refuse to answer

Home (_____) _____-_____

Work (_____) _____-_____

Cell/Other (_____) _____-_____

What is the best way to contact you? ☐ Home Phone

☐ Work Phone ☐ Cell Phone ☐ Text ☐ Email

☐ Other, *specify*: _____

First Responder? ☐ Yes ☐ No If yes, where and when? _____

As a result of this event, (are you/is registrant) personally in need of any of the following? (check all that apply):

☐ Medications/supplies ☐ Medical care ☐ Water ☐ Food ☐ Shelter ☐ Utilities ☐ Other, *specify*: _____

Was anyone else with you when you were injured or exposed? ☐ Yes ☐ No/NA

If yes, list all and their relationship to you:

Name (Last) _____ (First) _____ Date of Birth (MM) / (DD) / (YYYY) Relation _____

Name (Last) _____ (First) _____ Date of Birth (MM) / (DD) / (YYYY) Relation _____

Name (Last) _____ (First) _____ Date of Birth (MM) / (DD) / (YYYY) Relation _____

Proxy or Close Friend/Relative Information

Is there someone who does not live with (you/registrant) who can always reach (you/registrant)? ☐ Yes ☐ No
☐ Don't know ☐ Refuse to answer

Name (Last) _____ (First) _____

Home Address (Street) _____ (City) _____ (County) _____ (Zip Code) _____

☐ Non-US If non-US: (Country) _____ ☐ Don't know ☐ Refuse to answer

Phone Number(s)

Home (_____) _____-_____ ☐ Same as registrant ☐ None ☐ Don't know ☐ Refuse to answer

Work (_____) _____-_____ ☐ Same as registrant ☐ None ☐ Don't know ☐ Refuse to answer

Cell/Other (_____) _____-_____ ☐ Same as registrant ☐ None ☐ Don't know ☐ Refuse to answer

Email Address _____ ☐ Don't know ☐ Refuse to answer

Introduction for Arizona Exposure Registry Form:

Hello, my name is _____. We are collecting emergency-related health information for the Arizona Department of Health Services, this information is important to us and affected people. May I read you a consent statement, and then ask you some health questions?

We are getting information from people exposed to [event] so they can receive information about exposures, health, or services. This is a voluntary interview. If you choose to participate, we will ask you questions that will take about 5-10 minutes. You can choose not to answer any question you wish. All the information will be kept confidential to the extent allowed by law.

Arizona Disaster Morbidity Surveillance Form

For Active Surveillance in Facilities (e.g., Acute Care Facilities, Shelters) with Medical Staff

Complete one form for each individual interviewed

Event Name _____	**Location Name** _____	**Date of Visit** (MM) / (DD) / (YYYY)

Interviewee Information	**Medical Record Number/ID** _____	**Age** (Yrs) (Mos)	**Date of Birth** (MM) / (DD) / (YYYY)	**Gender** ☐ Male ☐ Female

Primary Reason(s) for Visit: ***Check all categories related to patient's current reason for seeking care***

TYPE OF INJURY

- ☐ Abrasion, laceration, cut
- ☐ Avulsion, amputation
- ☐ Concussion, head injury
- ☐ Fracture
- ☐ Sprain/strain

MECHANISM OF INJURY

- ☐ Bite/Sting
  - ☐ Animal
  - ☐ Insect
  - ☐ Snake
- ☐ Burn
  - ☐ Chemical
  - ☐ Fire, hot object or substance
  - ☐ Sun exposure
- ☐ Cold-related (e.g., hypothermia)
- ☐ Electrocution
- ☐ Fall
- ☐ Heat-related
- ☐ Hit by object
- ☐ Near drowning/Submersion
- ☐ Nerve Agent **specify:** _____
- ☐ Poisoning **specify:**
  - ☐ CO exposure
  - ☐ Inhalation of fumes, dust, or gas
  - ☐ Ingestion
- ☐ Radiological **specify:**
  - ☐ Cutaneous exposure
  - ☐ Inhalation
  - ☐ Ingestion
- ☐ Use of machinery, tools, or equipment
- ☐ Vehicle collision
- ☐ Violence / assault **specify:**
  - ☐ Sexual assault
  - ☐ Self-inflicted injury
  - ☐ Other assault
- ☐ Other, *specify*: _____

ACUTE ILLNESS/SYMPTOMS

- ☐ Cardiac emergency (e.g., pain, arrest)
- ☐ Conjunctivitis / eye irritation
- ☐ Dehydration
- ☐ Dermatologic **specify:**
  - ☐ Rash
  - ☐ Lesions
  - ☐ Infection
  - ☐ Infestation (e.g., lice, scabies)
  - ☐ Other, *specify*: _____
- ☐ Fever (i.e., >100.4°F or 36°C)
- ☐ Gastrointestinal **specify:**
  - ☐ Nausea / vomiting
  - ☐ Bloody diarrhea
  - ☐ Watery diarrhea
  - ☐ Jaundice
- ☐ Meningitis / encephalitis
- ☐ Neurological (e.g., altered mental status or confused / disoriented, syncope, stroke)
- ☐ Oral / dental pain
- ☐ Pain, **specify:**
  - ☐ Abdominal pain or stomachache
  - ☐ Chest pain, angina, cardiac arrest
  - ☐ Ear pain or earache
  - ☐ Headache or migraine
  - ☐ Muscle or joint pain (e.g., back, hip)
  - ☐ Oral/dental pain
- ☐ Respiratory **specify:**
  - ☐ Cough **specify:**
    - ☐ Dry
    - ☐ Productive
    - ☐ With blood
  - ☐ Wheezing in chest
  - ☐ Pneumonia, suspected
  - ☐ Shortness of breath, difficulty breathing
  - ☐ Sore throat
- ☐ Other, *specify*: _____

OTHER CONDITIONS

- ☐ Cancer
- ☐ Cardiovascular **specify:**
  - ☐ Hypertension
  - ☐ Congestive heart failure
- ☐ Diabetes
- ☐ Immune compromised
- ☐ Neurological **specify:**
  - ☐ Seizure
  - ☐ Stroke
- ☐ Obesity
- ☐ Respiratory **specify:**
  - ☐ Asthma
  - ☐ COPD
- ☐ Other, *specify*: _____

BEHAVIORAL HEALTH

- ☐ Agitated behavior (e.g., violent behavior/threatening violence)
- ☐ Alcohol and/or other drug intoxication or withdrawal
- ☐ Anxious or stressed
- ☐ Depressed
- ☐ Disoriented or confused
- ☐ Psychotic
- ☐ Suicidal thoughts or ideation

PREGNANCY RELATED

- ☐ Complication of pregnancy (e.g. premature bleeding, abdominal pain, fluid leakage)
- ☐ In labor with/without complication
- ☐ Routine pregnancy check-up

ROUTINE/WELLNESS VISIT

- ☐ Medication refill ☐ Vaccination

☐ **Influenza-like-illness (ILI)**

Fever (temperature of 100°F [37.8°C] or greater) AND a cough *or* a sore throat in the absence of a KNOWN cause other than influenza

Other comments or co-morbidities, **specify:**

Arizona Disaster Morbidity Surveillance Form

Purpose: To capture individual-level active surveillance of medical conditions and other disaster-related outcomes when timely, detailed, patient-level information is needed for response efforts.

Setting: Form should be filled out by public health staff or medical personnel in acute care facilities (e.g., shelters with medical staff, special needs shelters, field hospitals, Disaster Medical Assistance Teams (DMAT)).

How to use this form: Use the one-page form to record information about the chief complaints and specific infectious syndromes, behavioral health conditions, injuries, and chronic diseases that best describe the reason the patient is currently seeking care. One form should be filled out per patient. This form also may be filled out by abstracting information from patient records. Send completed forms to designated public health official.

Arizona Disaster Morbidity Surveillance Form (Aggregate)

For Active Surveillance in Facilities (e.g., Acute Care Facilities, Shelters) with Medical Staff

Complete one form for all patients seeking care per reporting period

ADHS

Event Name _____ | **Instructions:** *Tally total number of patients in each category* *Example:* 𝍸 | **Initials** _____

Facility Location & Date

(Name of Facility) _____

(City) _____ (State) __

Date of Visit (MM) / (DD) / (YYYY)

Select one: Mo Tu We Th Fr Sa Su

Reporting Period START ____:_____ AM PM

Reporting Period END ____:_____ AM PM

Please provide a census of ALL patients in the top row and the number of those patients who were responders in the bottom row.

	Tally (𝍸)	Total(#)
Total PATIENTS seeking care		
Total RESPONDERS seeking care		

Registrant or Patient Information

		Tally (𝍸)	Total(#)
Gender	Male		
	Female		
	Unknown		
Pregnant	Yes		
Age Category	< 1		
	1 to 17		
	18 to 64		
	65+		
	Unknown		

Reasons for Visits: *Place a mark next to all corresponding categories and tally total number of patients per category*

	Tally (𝍸)	Total(#)		Tally (𝍸)	Total(#)
UNINTENTIONAL INJURY (e.g., fall, cut, vehicle collision)			FEVER (i.e., >100.4° F or 38° C)		
ANY INJURY, *not specified*			MENINGITIS, *Suspected*		
POISONING			RADIOLOGICAL		
HEAT-RELATED ILLNESS (e.g., heat stroke, hypothermia)			BURN (e.g., chemical, fire, sun)		
GI ILLNESS (e.g., nausea, vomiting, diarrhea, jaundice)			ANY DERMATOLOGIC (e.g., rash, infection, infestation)		
INFLUENZA-LIKE ILLNESS*			ANY CARDIOVASCULAR (e.g., hypertension, MI)		
RESPIRATORY ILLNESS (e.g., cold, bronchitis)			ANY BEHAVIORAL (e.g., depression, anxiety, suicidal)		
PNEUMONIA, *Suspected*			OTHER, *not specified, or unknown*		
OTHER UNDERLYING (e.g., diabetes, cancer, obesity)			**Patient Tracking**		
MEDICATION REFILLS			Admitted to Hospital		
VACCINATIONS			Released		
Other events of concern, **specify:**			Unknown		

*Influenza-like Illness: Fever (temperature of 100°F [37.8°C] or greater) AND a cough or a sore throat in the absence of a KNOWN cause other than influenza

Arizona Disaster Morbidity Surveillance Form (Aggregate) Description

Purpose: To collect aggregate morbidity data when detailed individual-level patient information is not necessary or is too cumbersome to collect. This form serves as a summary of key disaster-related outcomes observed in a facility and can be used for monitoring population level trends.

Setting: Form should be filled out by public health staff or medical personnel in acute care facilities (e.g., shelters with medical staff, special needs shelters, field hospitals, Disaster Medical Assistance Teams (DMAT)).

How to use this form: Fill out the form based on individual forms or data from an existing surveillance or reporting system, or by reviewing patient logs and triage records. Send completed forms to designated public health official.

Arizona Disaster Mortality Surveillance Form

For Active Mortality Surveillance in Medical Examiner, Coroner, Hospital, Funeral Home, Nursing Home or DMORT

Complete form for each decedent

Event Name _____ **Case/Medical Record Number** _____ **Initials** _____

Contact Person (Informant) _____ (Last) _____ (First) **Date form completed** (MM) / (DD) / (YYYY)

Facility Information

_____ (Name of Facility)

_____ (City) _____ (County)

Facility type (Select One)

☐ ME/Coroner ☐ Hospital ☐ Funeral home ☐ DMORT

☐ Nursing home ☐ Other, *specify*: _____

Deceased Information

Body Identified? ☐ Yes ☐ No ☐ Unknown

Residential address: _____ (County) _____ (State) ☐ Unknown

Age: _____ (Yrs) _____ (Mos) ☐ Unknown

Gender: ☐ Male ☐ Female ☐ Unknown

Was the decedent a part of the emergency response?

☐ Yes ☐ No ☐ Unknown

Time, Date, & Location of Death

Date of Death: (MM) / (DD) / (YYYY)

Time of Death: _____:_____ ☐ AM ☐ PM

Location of Death/Recovery: ☐ Unknown

_____ (County/Tribe) _____ (State)

Time of Recovery:

_____:_____ ☐ AM ☐ PM ☐ Unknown

Cause and Circumstance of Death: *Check all reasons that best apply*

Mechanism/Cause: INJURY

- ☐ Burn
  - ☐ Chemical
  - ☐ Fire, hot object or substance
- ☐ Cold-related (e.g., hypothermia)
- ☐ Cut/penetration
  - ☐ Debris
  - ☐ Machinery (e.g., chainsaw)
- ☐ Drowning/Submersion
- ☐ Electrocution
- ☐ Fall
- ☐ Firearm/gunshot
- ☐ Heat-related
- ☐ Hit by object
- ☐ Lightning
- ☐ Nerve Agent
- ☐ Poisoning **specify:**
  - ☐ CO exposure
  - ☐ Inhalation (e.g., fumes, gas)
  - ☐ Ingestion
- ☐ Radiological **specify:**
  - ☐ Exposure
  - ☐ Inhalation
  - ☐ Ingestion
- ☐ Structural collapse
- ☐ Suffocation/asphyxia
- ☐ Suicide / self-inflicted injury
- ☐ Vehicle collision
- ☐ Violence (non-firearm)
- ☐ Other, *specify*: _____
  - ☐ Unknown

Mechanism/Cause: ILLNESS

- ☐ Acute Radiation Syndrome
- ☐ Allergic reaction
- ☐ Cardiovascular failure **specify:**
  - ☐ Arteriosclerotic CVD
  - ☐ Congestive heart failure
  - ☐ Other
- ☐ Dehydration
- ☐ Gastrointestinal/endocrine **specify:**
  - ☐ Bleeding
  - ☐ Hepatic failure
  - ☐ Pancreatitis
  - ☐ Diabetes complication
- ☐ Neurological disorders **specify:**
  - ☐ Meningitis/ Encephalitis
  - ☐ Seizure disorder
  - ☐ Stroke
- ☐ Respiratory failure **specify:**
  - ☐ COPD
  - ☐ Pneumonia
  - ☐ Asthma
  - ☐ Pulmonary embolism
  - ☐ Other
- ☐ Renal failure
- ☐ Sepsis
- ☐ Other, *specify*: _____
- ☐ Unknown

Additional Information

Cause of Death

☐ Confirmed
☐ Probable
☐ Pending
☐ Unknown

Relationship of cause to disaster

☐ Direct
☐ Indirect
☐ Undetermined

Manner/intent of death

☐ Natural ☐ Accident ☐ Suicide
☐ Homicide ☐ Pending
☐ Undetermined

Circumstance of death (free text)

Arizona Disaster Mortality Surveillance Form Description

Purpose: Identify the number of deaths related to the disaster/event and provide basic mortality information.

Setting: Form should be filled out by medical examiners, coroners, Disaster Mortuary Operational Response Teams (DMORT), hospital, nursing home, or funeral home staff during a disaster. This form does not replace the death certificate.

How to use this form: Use this form for all known deaths related to the disaster. Complete one form per decedent. Send completed forms to designated public health official.

Arizona Disaster Mortality Surveillance Form (Aggregate)

For Mortality Surveillance in Facilities (e.g., Acute Care Facilities, Shelters) with Medical Staff

Complete one form for all decedents per reporting period

ADHS

Event Name _____ | **Instructions:** *Tally total number of decedents in each category Example:* 𝍸 | **Initials** _____

Facility Location & Date

(Name of Facility) _____

(City) _____ (State) _____

Date of Report (MM) / (DD) / (YYYY)

Select one: Mo Tu We Th Fr Sa Su

Reporting Period START ____:_____ AM PM

Reporting Period END ____:_____ AM PM

Please provide a census of ALL fatalities in the top row and the number of those fatalities who were responders in the bottom row.

	Tally (𝍸)	Total(#)
Total DECEDENTS		
Total RESPONDER fatalities		

Decedent Information

		Tally (𝍸)	Total(#)
Gender	Male		
	Female		
	Unknown		
Pregnant	Yes		
Age Category	< 1		
	1 to 17		
	18 to 64		
	65+		
	Unknown		

Cause and Circumstance of Death: ***Place a mark next to all corresponding categories and tally total number of decedents per category***

	Tally (𝍸)	Total(#)		Tally (𝍸)	Total(#)
BURN			RADIOLOGICAL		
HEAT/COLD-RELATED (e.g., heat stroke, hypothermia)			ACUTE RADIATION SYNDROME		
UNINTENTIONAL INJURY (e.g., fall, cut, vehicle collision)			ALLERGIC REACTION		
DROWNING/ SUBMERSION			DEHYDRATION		
ELECTROCUTION			RESPIRATORY FAILURE		
LIGHTNING			CARDIOVASCULAR FAILURE		
POISONING			GI/ENDOCRINE (e.g., hepatic failure, diabetes complication)		
SUFFOCATION			RENAL FAILURE		
SUICIDE/SELF-INFLICTED			SEPSIS		
FIREARM/GUNSHOT			NEUROLOGICAL DISORDERS		
VIOLENCE (NON-FIREARM)			NERVE AGENT		
Other events of concern, **specify:**			OTHER, *not specified, or unknown*		

Arizona Disaster Mortality Surveillance Form (Aggregate) Description

Purpose: To collect aggregate mortality data when detailed individual-level information is not necessary or is too cumbersome to collect. This form serves as a summary of key disaster death-related outcomes observed.

Setting: Form should be filled out by medical examiners, coroners, Disaster Mortuary Operational Response Teams (DMORT), hospital, nursing home, or funeral home staff during a disaster. This form does not replace the death certificate.

How to use this form: Fill out the form based on individual forms or data from an existing surveillance or reporting system, or by reviewing logs. Send completed forms to designated public health official.

Arizona Exposure Registry Form

For Long-Term Tracking of Exposed Individuals

Complete one form for interviewee

Hello, my name is _____. We are collecting emergency-related health information for the Arizona Department of Health Services. This information is important to us and affected people. May I read you a consent statement, and then ask you some health questions?

We are getting information from people exposed to [event] so they can receive information about exposures, health, or services. This is a voluntary interview. If you choose to participate, we will ask you questions that will take about 5-10 minutes. You can choose not to answer any question you wish. All the information will be kept confidential to the extent allowed by law.

Event Name _____ **Location of Interview** _____

Interviewer Initials _____ **Date of Interview** (MM) / (DD) / (YYYY) **Time of Interview** _____:_____ ☐ AM ☐ PM

Registrant Information

1. **Do you speak English?** ☐Yes ☐No **IF NO**: What language do you prefer? _____
2. **Data obtained from**: ☐ Registrant ☐ Proxy ☐ Medical/Medical Examiner's/Other Record ☐ Don't know ☐ Refuse to answer ☐ Other, specify: _____
3. **What is (your/the registrant's) full name?** _____(Last) _____(First) ___(MI)
4. **How old (are you/is registrant)?** (Yrs) (Mos) ☐ Don't know ☐ Refuse to answer
5. **What is (your/the registrant's) date of birth?** (MM) / (DD) / (YYYY) ☐ Don't know ☐ Refuse to answer
6. **What is (your/the registrant's) sex?** ☐ Male ☐ Female ☐ Not determined ☐ Refuse to answer
7. **What is (your/the registrant's) ethnicity?** ☐ White ☐ Black or African American ☐ Hispanic or Latino ☐ Native American or American Indian ☐ Asian/Pacific Islander ☐ Other, *specify*: _____ ☐ Refuse to answer
8. **What is (your/registrant's) employment status?** ☐ Employed, specify employer's name: ☐ Not employed ☐ Self-employed ☐ Student ☐ Retired ☐ Other, *specify*: _____ ☐ Don't know ☐ Refuse to answer
   If employed, what is your work address?
   _____(Street) _____(City) _____(County) ___(State)
9. **Where are (you/registrant) staying right now?** ☐ Own home ☐ Friend/family's home ☐ Other private residence ☐ Hotel/motel ☐ Campground ☐ Evacuation center/shelter ☐Other, *specify*: _____ ☐ No place to stay (Skip to question 11) ☐ Don't Know ☐ Refuse to Answer
   A. **What is the name of where (you/registrant) are staying now?** _____
   B. **What is the address of where (you/registrant) are staying now?**
   _____(Street) _____(City) _____(County) ___(State)
   C. **What is the phone number where (you/registrant) are staying now?** (_____) _____-_____
   ☐ None ☐ Don't Know ☐ Refuse to Answer
   D. **How long have you been at your current location?** (Days) (Hours)

Exposure Information

Now I'm going to ask you just a few questions about (your/ registrant's) experience with this event.

10. **(Were you/was registrant) exposed to this event as (check all that apply) :** ☐ A resident ☐ A passerby ☐ An employee ☐ A responder or rescue worker ☐ A government official ☐ A clean-up worker ☐ An non-governmental organization/site volunteer ☐ Don't Know ☐ Refuse to Answer
11. **(Were you/was registrant) at the event site when the event started?** ☐ Yes ☐ No ☐ Don't Know ☐ Refuse to answer
12. **At the start of the event on** (Date) **at** (Time)**, at what address (were you/was registrant)?** ☐ Don't know ☐ Refuse to answer
    _____(Street) _____(City) _____(County)
13. **What was the name of nearest building to (you/registrant)?** ☐ Don't know ☐ Refuse to answer _____
14. **What was the nearest intersection?** ☐ Don't know ☐ Refuse to answer

_____

15. What was the nearest landmark? ☐ Don't know ☐ Refuse to answer

_____

16. At the start of the event, (were you/was registrant) (check all that apply): ☐ Inside a building or structure ☐ Inside a vehicle ☐ Outside ☐ Other, *specify*: _____ ☐ Don't know ☐ Refuse to answer

17. As a result of the event, did (you/registrant) get injured or ill? ☐ Yes, *describe*: _____ ☐ No ☐ Don't Know ☐ Refuse to Answer

18. As a result of the event, did you seek medical care? ☐ Yes ☐ No ☐ Don't Know ☐ Refuse to Answer

A. If yes, what was the name of the facility? _____

B. What was the address of the facility?

_____ (Street) _____ (City) _____ (County) _____ (State)

C. What date did you seek medical care? (MM) / (DD) / (YYYY) ☐ Don't Know ☐ Refuse to Answer

D. Were you hospitalized? ☐ Yes ☐ No ☐ Don't Know ☐ Refuse to Answer

19. Before the event, did (you/registrant) have any of the following conditions? (check all that apply)? ☐ Chronic illness ☐ Physical disability ☐ Behavioral health issue ☐ Other, *specify*:

Please describe your condition: _____

If ☐ None ☐ Don't Know ☐ Refuse to answer, then ► SKIP TO QUESTION 20

20. IF REGISTRANT IS MALE, SKIP TO QUESTION 21. OTHERWISE ASK: (Are you/is registrant) pregnant? ☐ Yes ☐ No ☐ Don't Know ☐ Refuse to Answer

21. Which best describes the level of health insurance (you have/ registrant has)? ☐ Full or comprehensive ☐ Partial or limited

If ☐ None ☐ Don't Know ☐ Refuse to answer ► SKIP TO QUESTION 23

22. Please give me the name of your health insurance plan: _____

Event Specific Questions

23. *[INSERT EVENT SPECIFIC QUESTIONS HERE]*

That completes our interview. Thank you very much for your time.

To Be Completed by the Interviewer

24. THE SEVERITY OF THE EFFECT ON REGISTRANT: ☐No Obvious Effect ☐Affected, Ambulatory ☐Unconscious, Non-Ambulatory, Or Badly Injured/Ill ☐Dead ☐Not Applicable ☐Don't Know

Other additional comments, **specify:**

Arizona Exposure Registry Form Description

Purpose: This tool can be used to register responders and other persons exposed to chemical, biological, or nuclear agents from a disaster to obtain more detailed exposure history. It can be implemented quickly to collect information in order to identify and locate victims and people displaced or affected by a disaster. Information from the registry survey instrument can be used to:

- Support real-time needs assessment during an emergency affecting public health
- Assess future needs for medical assistance, health interventions, and health education for public health planning purposes
- Contact enrolled individuals with information regarding potential exposures and adverse health impacts, health updates, available educational materials, and follow-up services

Setting: Form can be filled out by public health staff or medical personnel in shelters, hospitals or acute care facilities (e.g., shelters with medical staff, special needs shelters, field hospitals, Disaster Medical Assistance Teams (DMAT)).

How to use this form: Use the form to record basic information about the registrant such as demographic information and information about how to locate the individual for future follow-up as well as information of the registrant's exposure history. One form should be filled out per person.

Arizona Shelter Assessment Form

For Environmental Health Assessment in Shelters and Evacuation Centers

Complete one form for each facility

ADHS

Event Name _____	**Assessing Agency** _____	**Emergency Contact** (_____) _____-_____

Shelter Information

Current Census # _____ **Staff #** _____

(Location Name and Description OR Designated Name of Facility)

(Street) (City)

(County) (Zip Code)

Date Shelter Opened: (MM) / (DD) / (YYYY)

Shelter Type

☐ Community/Recovery ☐ Special Needs

☐ Other: _____

American Red Cross Facility?

☐ Yes ☐ No ☐ Unknown/NA

ARC Code: _____

Reason for Assessment:

☐ Preoperational ☐ Initial ☐ Routine ☐ Other _____

Time and Date of Assessment

Date Assessed: (MM) / (DD) / (YYYY)

Time: _____:_____ ☐ AM ☐ PM

I. FACILITY

1	Structural damage	Y	N	U
2	Security/law enforcement available	Y	N	U
3	Water system operational	Y	N	U
4	Hot water available	Y	N	U
5	HVAC system operational	Y	N	U
6	Adequate ventilation	Y	N	U
7	Adequate space per person	Y	N	U
8	Free of injury/ occupational hazards	Y	N	U
9	Free of pest or vector issues	Y	N	U
10	Acceptable level of cleanliness	Y	N	U
11	Electrical grid system operational	Y	N	U
12	Generator in use (type: _____)	Y	N	U
13	Indoor air temperature adequate	Y	N	U

II. SANITATION

14	Access to adequate laundry services	Y	N	U
15	Adequate number of toilets	Y	N	U
16	Adequate number of showers	Y	N	U
17	Adequate number of hand-washing stations	Y	N	U
18	Hand-washing supplies available	Y	N	U
19	Toilet supplies available	Y	N	U
20	Acceptable level of cleanliness	Y	N	U

21 Sewage system type:

III. HEALTH and MEDICAL

22	Reported outbreaks, unusual illness/injuries	Y	N	U
23	Medical care services on site	Y	N	U
24	Mental health care services on site	Y	N	U

IV. COMPANION ANIMALS

24	Companion animals present	Y	N	U
25	Animal care available	Y	N	U
26	Designated animal area	Y	N	U
27	Acceptable level of cleanliness	Y	N	U

V. FOOD and WATER

28	Preparation on site	Y	N	U
29	Served on site	Y	N	U
30	Safe food source	Y	N	U
31	Adequate supply	Y	N	U
32	Proper storage	Y	N	U
33	Appropriate food temperatures	Y	N	U
34	Hand-washing facilities available	Y	N	U
35	Safe food handling	Y	N	U
36	Dish washing facilities available	Y	N	U
37	Clean kitchen area	Y	N	U
38	Adequate water supply	Y	N	U
39	Adequate ice supply	Y	N	U
40	Safe water source	Y	N	U
41	Safe ice source	Y	N	U

VI. SOLID WASTE

42	Adequate number of collection receptacles	Y	N	U
43	Appropriate separation	Y	N	U
44	Appropriate disposal	Y	N	U
45	Appropriate storage	Y	N	U
46	Timely removal	Y	N	U
47	Hazardous waste generated	Y	N	U
48	Medical waste generated	Y	N	U

VII. SLEEPING and CHILDCARE

49	Adequate number of beds/cots/mats	Y	N	U
50	Adequate supply of bedding	Y	N	U
51	Bedding changed regularly	Y	N	U
52	Adequate spacing	Y	N	U
53	Clean diaper-changing facilities	Y	N	U
54	Adequate toy hygiene	Y	N	U
55	Safe toys	Y	N	U
56	Clean food and bottle preparation area	Y	N	U
57	Adequate child care supervision	Y	N	U
58	Acceptable level of cleanliness	Y	N	U

VIII. CRITICAL NEEDS or COMMENTS *(write on back if necessary)*

Arizona Shelter Assessment Form Instructions

Purpose: To standardize and record environmental assessments of shelters and evacuation centers. This form can serve as a basis for sharing timely environmental health information related to shelters and evacuation centers with local and state health officials.

Setting: Shelters and Evacuation Centers

How to use this form: Instructions are provided on the form for designated environmental health staff tasked with inspecting and assessing shelters and evacuation centers.

Shelter type: "Community/Recovery": general public. "Special Needs": population with specific medical requirements. "Other": relief workers base camp, etc.
Reason for Assessment: "Preoperational": before opening. "Initial": first assessment after opening. "Routine": assessments occurring on a regular basis (e.g., daily, weekly). "Other": occurrence such as an outbreak or a complaint.
Current Census: Estimated number of persons, including workers, in shelter at the time of inspection.
Number of Staff/Volunteers: Number of persons working in the facility at the time of assessment.

I. Facility

1 Structural damage: note damage to physical structure (e.g., roof, windows, walls, etc).
2 Security/law enforcement available: security guards or police officers available at facility site.
3 Water system operational: self-explanatory.
4 Hot water available: self-explanatory.
5 HVAC system operational: self-explanatory.
6 Adequate ventilation: facility well-ventilated and free of air hazards such as smoke, fumes, etc.
7 Adequate space per person in sleeping area:
   a. evacuation shelters, 20 ft^2 per person;
   b. general shelters, 40 ft^2 per person;
   c. special needs shelters, 60–100 ft^2 per person.
8 Free of injury/occupational hazards: With regard to general safety, some examples include:
   a. Is the facility free of frayed or exposed electrical wires, carbon monoxide hazards, hazardous materials, etc.?
   b. Are on-duty staff and members wearing PPE?
9 Free of pest/vector issues: note presence of mosquitoes, fleas, flies, roaches, rodents, etc.
10 Acceptable level of cleanliness: self-explanatory.
11 Electrical grid system operational: self-explanatory.
12 If generator in use: check for appropriate location, capacity, adequate fuel and ventilation.
   a. If yes, indicate fuel type: gas, diesel, solar, etc.
13 Indoor temperature (^{O}F): temperature measurement from random inside location (ASCE standard for temperatures in buildings).

II. Sanitation

14 Access to adequate laundry services: provided with separate areas for soiled and clean laundry.
15 Adequate # operational toilets: minimum 1 per 20 persons or as specified by sex.
16 Adequate # operational showers/bathing facilities: 1 per 15 persons.
17 Adequate # operational hand-washing stations: 1 per 15 persons.
18 Hand-washing supplies available: water, soap, and paper towels; if water is unavailable, hand sanitizers (at least 60% alcohol).
19 Toilet supplies available: toilet paper, feminine hygiene supplies, and diapers/pads for children and adults.
20 Acceptable level of cleanliness: self-explanatory.
21 Sewage system type: self-explanatory.

III. Health and Medical

22 Any illnesses or injuries reported by residents/staff.

23 Medical care services available: If yes, list type of care available in comments section.

24 Counseling services available: If yes, list type of mental/social services available in comments section.

IV. Companion Animals

25 Companion animals present: animals in facility.

26 Animal care available: animals have clean, fresh water and food.

27 Designated animal area: animals located away from people and separately housed.

28 Acceptable level of cleanliness: self-explanatory.

V. Food and Water

28 Preparation on site: self-explanatory.

29 Served on site: self-explanatory.

30 Safe food source: food source from licensed contractor or caterer.

31 Adequate supply: self-explanatory.

VI. Solid Waste

42 Adequate collection receptacles: minimum 1 (30-gal) container for every 10 persons.

43 Appropriate separation between medical/infectious waste and general refuse.

44 Appropriate disposal and labeling in approved containers.

45 Appropriate storage and separation from common areas.

46 Timely removal of waste – collected regularly.

47 Check all types of waste generated at facility (e.g., solid, hazardous, medical).

48 Check all types of waste generated at facility (e.g., solid, hazardous, medical).

VII. Sleeping and Child Care

49 Adequate cots/beds/mats for each resident/staff.

50 Adequate bedding for each cot, bed, or mat.

51 Clean bedding available: self-explanatory.

32 Appropriate storage: food stored according to safe storage practices to prevent contamination or spoilage – refer to local code or US Food Code.

33 Appropriate temperatures: hot food kept above 135 ^{O}F; cold food kept below 40 ^{O}F. Or refer to local code or US Food Code.

34 Hand-washing facilities available: fixed or portable, as long as they are operational.

35 Safe food handling: food preparers are using gloves, avoiding cross contamination, using appropriate utensils, etc. – refer to local code.

36 Dishwashing facilities available: place to wash, rinse and sanitize kitchen utensils and cooking equipment.

37 Clean kitchen area: self-explanatory.

38 Adequate water supply: drinking water in range of 1–2 gallons/per person/per day, for all uses 3-5 gallons/per person/per day.

39 Adequate ice supply: sufficient to maintain cold food temperatures.

40 Safe water from an approved source.

41 Safe ice from an approved source.

52 Adequate spacing: at least 3 ft between cots/beds/mats.

53 Clean diaper-changing facilities: self-explanatory.

54 Adequate toy hygiene: toys cleaned with a nontoxic, approved disinfectant. Refer to local code.

55 Safe toys: should adhere to applicable age group standards.

56 Clean food/bottle preparation area: self-explanatory.

57 Adequate child/caregiver supervision ratio: a. birth-12 mos (3:1); b 13-30 mos (4:1); c. 31-35 mos (5:1); d. 3 years (7:1); e. 4-5 years (8:1); 6-8 years (10:1); 9-12 years (12:1).

58 Acceptable level of cleanliness: self-explanatory

VIII. Critical Needs or Comments

List any critical needs requiring public health follow-up or comments.

Radiation Medical Information Form

To Be Completed By Hospital Emergency Department Response Team

Complete one form per individual

ADHS

Event Name _____	**Incident Date** (MM) / (DD) / (YYYY)	**Incident Time** ____:____ AM PM	**Patient No.** _____
Surveyed By _____ (Last) _____ (First)	**Completed Date** (MM) / (DD) / (YYYY)	**Time** ____:____ AM PM	

Patient Information

Name _____ (Last) _____ (First)

Age ____ (Yrs) ____ (Mos) ☐ Unknown

Date of Birth (MM) / (DD) / (YYYY) ☐ Unknown

Gender ☐ Male ☐ Female ☐ Unknown

The Patient is a Member of:

☐ Public ☐ Hospital Personnel ☐ Emergency Workers

Patient Contact

Current Mailing Address _____ (Street)

_____ (City) _____ (County) _____ (Zip Code)

☐ Non-US If non-US: _____ (Country)

Current Physical Address _____ (Street)

_____ (City) _____ (County) _____ (Zip Code)

☐ Non-US If non-US: _____ (Country)

Exposure Conditions

Beginning of Exposure ____:____ AM PM

End of Exposure ____:____ AM PM

Duration of Exposure _____

Location of Exposure _____

Nature of Patient's Work? (Please Describe Below)

_____

Dosimeter Information

Patient had a Dosimeter? ☐ Yes ☐ No ☐ Unknown

Dosimeter No. _____ Dosimeter Readings _____

Body Location of Dosimeter(s) _____ ☐ Unknown

Respiratory Protection ☐ Yes ☐ No ☐ Unknown

Protective Clothing ☐ Yes ☐ No ☐ Unknown

Contamination of Clothes ☐ Yes ☐ No ☐ Not Checked ☐ Unknown

Patient Medical Findings

First Symptoms

Date of Examination (MM) / (DD) / (YYYY)

CLINICAL STATE

Nausea ☐ Yes ☐ No ☐ Unknown Time of Appearance ____:____ AM PM Number _____ Duration _____

Vomiting ☐ Yes ☐ No ☐ Unknown Time of Appearance ____:____ AM PM Number _____ Duration _____

Wound ☐ Yes ☐ No ☐ Unknown Trauma ☐ Yes ☐ No ☐ Unknown Burn ☐ Yes ☐ No ☐ Unknown

Weakness ☐ Yes ☐ No ☐ Unknown Headache ☐ Yes ☐ No ☐ Unknown

Diarrhea ☐ Yes ☐ No ☐ Unknown Time of Appearance ____:____ AM PM Frequency _____

VITAL SIGNS

Temperature _____ Pulse _____ Blood Pressure _____

Consciousness ☐ Alert ☐ Disoriented ☐ Agitation ☐ Delirium
☐ Sleepiness ☐ Coma ☐ Unconscious ☐ Deceased

Equilibrium Disturbance ☐ Yes ☐ No ☐ Unknown Coordination Disturbance ☐ Yes ☐ No ☐ Unknown

Skin and Mucosa Edema ☐ Yes ☐ No ☐ Unknown
Erythema ☐ Yes ☐ No ☐ Unknown

Other _____

Past History

Any known treatment with X-rays or isotopes ☐ Yes ☐ No ☐ Unknown
If 'Yes', reasons for treatment _____

Date of Treatment (MM) / (DD) / (YYYY)
Treatment Location _____

Treatment and Investigations

MEASURES TAKEN

Undressing ☐ Yes ☐ No ☐ Unknown

Decorporation ☐ Yes ☐ No ☐ Unknown

Decontamination ☐ Yes ☐ No ☐ Unknown
If 'Yes', provide details _____

Treatment and Investigations, cont.

Administration Pathway ☐ Aerosol ☐ Bathing ☐ Intravenous

Dose _____ Results (activity) _____

Stable Iodine Administration ☐ Yes ☐ No ☐ Unknown Dose _____ Duration _____

Date of Administration (MM) / (DD) / (YYYY) Time of Administration ____:_____ AM PM

LABORATORY TESTS

Blood Samples (Perform a complete and record a complete cell blood count (CBC) with full differential

First Sample ☐ Not Done ☐ Unknown
(If possible, before the 3rd hour)
Date (MM) / (DD) / (YYYY)
Time ____:_____ AM PM
Blood Lymphocyte Count _____

Second Sample ☐ Not Done ☐ Unknown
(If possible, 2 hours after the first sample)
Date (MM) / (DD) / (YYYY)
Time ____:_____ AM PM
Blood Lymphocyte Count _____

Cytogenic Sample (10ml) Taken ☐ Yes ☐ No HLA Typing ☐ Yes ☐ No

Sample for Radioactivity Measurement Taken ☐ Yes ☐ No

Third Sample ☐ Not Done ☐ Unknown
(If possible, 6 hours after the second sample)
Date (MM) / (DD) / (YYYY)
Time ____:_____ AM PM
Blood Lymphocyte Count _____

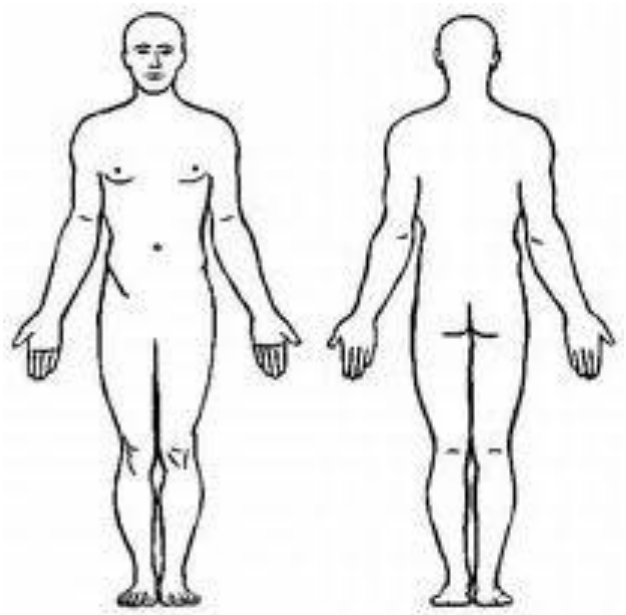
Fourth Sample ☐ Not Done ☐ Unknown
(If possible, 6 hours after the third sample)
Date (MM) / (DD) / (YYYY)
Time ____:_____ AM PM
Blood Lymphocyte Count _____

Urine Samples

If Applicable, for Radioactivity Measurement ☐ Yes ☐ No ☐ Not Done ☐ Unknown

It is the First Urination After the Emergency ☐ Yes ☐ No ☐ Not Done ☐ Unknown

Wound and Erythema Survey



Remarks: Indicate wound type and erythema in the lines provided in the diagram. Indicate location of the readings by arrows

Conclusion _____

Signature _____

Victim Radiation Contamination Control Record (On-Scene Assessment)

For On-Scene Assessment by a Radiological Assessor

Complete one form per individual

ADHS

Event Name _____	**Location** _____	**Incident Date** (MM) / (DD) / (YYYY)	**Patient No.** _____
Surveyed By _____ (Last) _____ (First)		**Completed Date** (MM) / (DD) / (YYYY)	**Time** ____:____ AM PM

Patient Information

Name _____ (Last) _____ (First)

Age _____ (Yrs) _____ (Mos) ☐ Unknown

Date of Birth (MM) / (DD) / (YYYY) ☐ Unknown

Gender ☐ Male ☐ Female ☐ Unknown

Patient Contact

Current Mailing Address _____ (Street)

_____ (City) _____ (County) _____ (Zip Code)

☐ Non-US If non-US: _____ (Country)

Current Physical Address _____ (Street)

_____ (City) _____ (County) _____ (Zip Code)

☐ Non-US If non-US: _____ (Country)

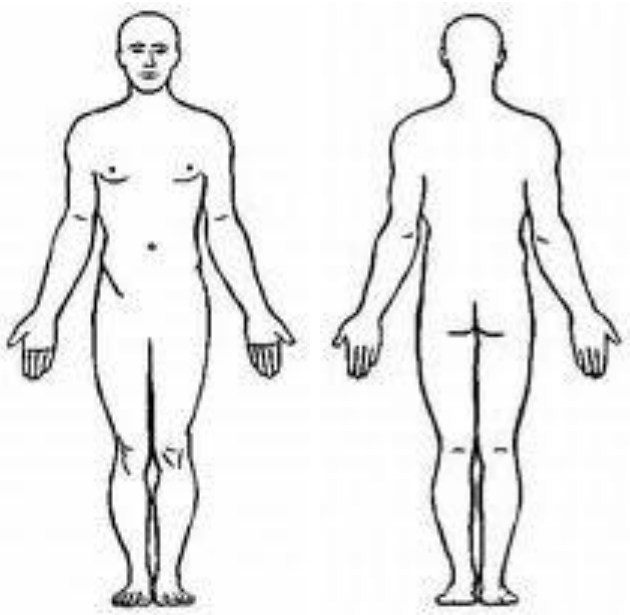
Survey Information

Date of Measurement (MM) / (DD) / (YYYY)

Time of Measurement ____:____ AM PM

Contamination Survey

Instrument Type _____	Model _____	Background Reading _____	Detector Active Surface _____ cm^2



Remarks: Indicate readings in the lines provided in the diagram. Indicate location of the readings by arrows. Only record readings greater than background.

Decontamination Procedures Performed? ☐ Yes ☐ No ☐ Unknown

Results of Thyroid Survey _____ (Count Rate from Neck) _____ (Unit) _____ (Count Rate from Thigh) _____ (Unit)

_____ (Background Count Rate) _____ (Unit) _____ (Net Count Rate) _____ (Unit)

Calibration Coefficient _____ Bq/Unit of count rate Activity _____ Bq

Further Evaluation at Medical Facility Necessary? ☐ Yes ☐ No

Other Comments/Concerns, **specify:**

Surveyor signature: _____

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APPENDIX C: COMMUNITY ASSESSMENT FOR PUBLIC HEALTH EMERGENCY RESPONSE

CASPER METHODOLOGY[35]

Community Assessment for Public Health Emergency Response (CASPER) is a validated sampling method using a specific set of tools in order to quickly and effectively collects information at the household-level regarding the health status and basic needs of a community affected by a disaster. These needs are collected during the response phase and monitored for changes during the recovery phase. The main goals of CASPER are to identify the critical needs of a community, assess the impact of a disaster, characterize affected populations, provide household-based information to decision-makers, and evaluate the effectiveness of relief efforts. CASPER can provide information about the public health needs of a community if they are not well-known, making it a valuable tool during disaster response.

Field interview teams and other personnel responsible for implementing CASPER need to be pre-identified and trained before an event occurs. CASPER should be regularly integrated into drills and training events throughout all public health organizations. A person(s) from an organization that will use CASPER should be identified as the lead point of contact (POC) for that CASPER group and responsible for maintaining the roster and implementing and monitoring training for the staff.

CASPER PREPARATION

Prior to conducting a CASPER, considerations must be made regarding the purpose of the assessment, the setting, and the availability of resources to conduct the assessment. With these considerations in mind, partners should decide if CASPER provides the appropriate sampling method. The preferred sampling method for CASPER is a two-stage cluster sampling method where 30 clusters are selected and then seven interviews completed in each cluster, with a total of 210 interviews in the assessment area.

The assessment area(s) must be identified during preparation to serve as the sampling frame for the assessment. The results of the assessment will be descriptive of this sampling frame. The sampling fame can be defined in a number of ways, whether political, geographic, or community-specific. The general guideline is for frames to be at least 800 housing units – a

[35] Information in this section was pulled directly from the Centers for Disease Control and Prevention National Center for Environmental Health Environmental Hazards and Health Effects Health Studies Branch, *"Community Assessment for Public Health Emergency Response (CASPER) Toolkit"*, Second Edition (http://www.cdc.gov/nceh/hsb/disaster/casper.htm).

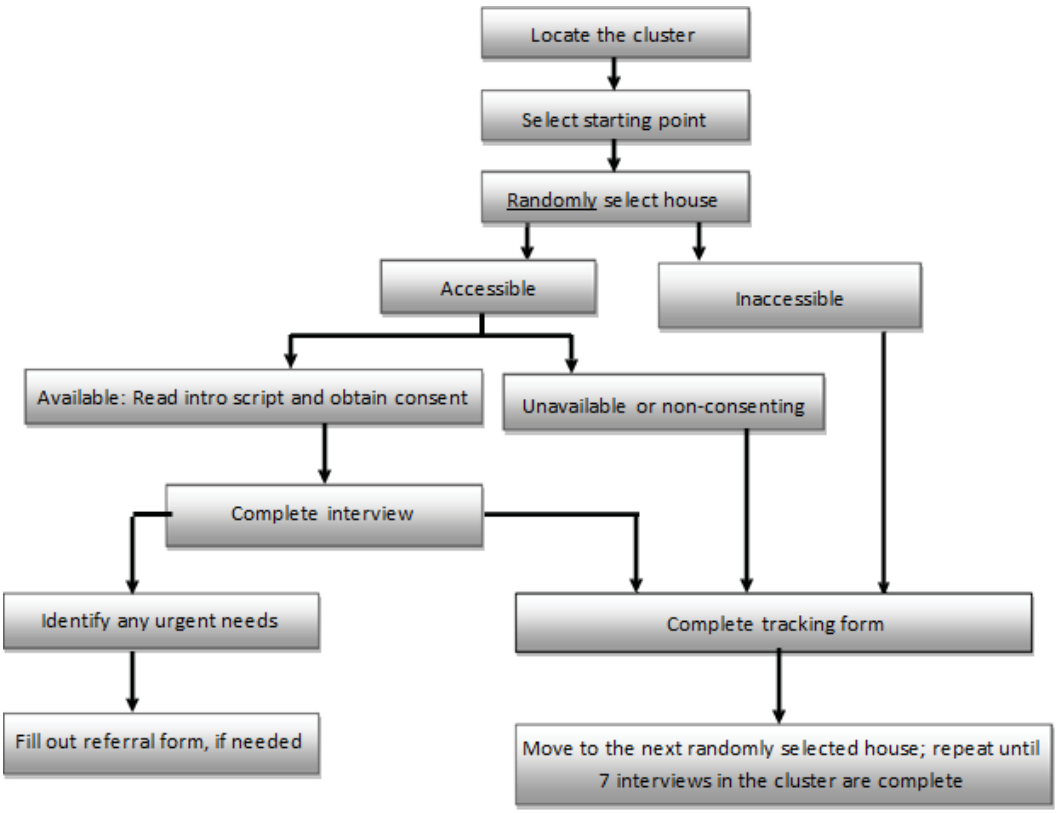
housing unit is defined as a house, apartment, mobile home, group of rooms, or single room that is intended to be occupied as a separate living quarters.

The sampling frame should be divided into non-overlapping sections, or cluster. US census blocks are pre-defined and non-overlapping, providing a common basis for conducting a CASPER.

CONDUCTING THE CASPER

The face-to-face interview is the only feasible method for conducting a CASPER. Advantages of this method include a high response rate and the ability to distribute health information or other materials (such as resource lists) to the community. When teams are conducting a CASPER, the face-to-face interviews have the additional benefits of direct visual inspection of the disaster-affected area and allow some degree of connection between the affected community and local and/or federal staff who can assist them.

Interview teams are required to follow several steps in the field. As a supplement to the just-in-time training, providing a written flowchart for teams to reference can prove helpful. The following flowchart shows the general steps in the field in conducting CASPER:



Team members should maintain an awareness of their environment and consideration for their safety when in the field. Teams should remain flexible as the situation changes during the response. To ensure data quality and representativeness, it is imperative to adhere to the CASPER method. Team members should remember to be respectful to the respondents and the community while in the field. Lastly, each field team member should understand and accept his/her own personal limitations, whether those limitations reside in one's comfort level of entering a household, the time limitations of being in the field, or physical condition.

CASPER Data Analysis and Reporting

Electronic data handling requires basic skills in data entry, cleaning, and processing. The CDC recommends using Epi Info™ software, which is user- friendly and available free of charge. For tutorials in creating the database, entering data, and running analyses, visit CDC's Epi Info™ Website at http://www.phconnect.org/group/epiinfo/forum/topics/epi-info-7-quick-start-guide and follow the "Epi Info™ 7 Quick Start Guide." However, any statistical software package that allows for statistically weighting data is acceptable.

The selected software should be easily accessible, maintainable, as well as simple and familiar to the user. For ease of use, training should be provided for data entry staff to become familiar with the program and learn the proper techniques to promote quality and accuracy when entering data. If paper questionnaires are used for data collection, this information must be entered into an electronic dataset using the selected software. If electronic devices are used for data collection, merge all collected data from the electronic devices into a single file that can be analyzed by use of the selected statistical software.

Weighted Analyses

CASPER uses weighted frequencies to account for the two-stage cluster sampling method. Analyses without weighting will not represent the entire target population (i.e., sampling frame). Each household for whom an interview is completed is assigned a weight that is based on the household's probability of being selected. Weighting reduces biased estimates. Once all data are merged into a single electronic dataset, a weight variable must be added to each surveyed household.

The "number of clusters selected" will be 30, even if there are some clusters with zero interviews. The only exception is if the decision to oversample clusters was made a *priori*. Once weights are assigned, frequencies can be calculated for each of the interview questions. The 95% confidence intervals (CIs) should be provided with the weighted estimates. These confidence intervals indicate the reliability of the weighted estimate.

Calculating response rates helps determine the representativeness of the sample to the population within the sampling frame. All the information used to calculate response rates is collected by the field interview teams on the tracking form. Thus, teams should be well-trained in using the tracking form to track all housing units that were selected for interview, including those for which no interview was completed or no contact was made.

To compile the tracking form data, tally the responses to each row on the tracking form and reconcile any discrepancies, such as multiple selections for the same housing unit. These tallies may be tracked using a spreadsheet.

There are three separate response rates that are calculated for CASPER: the completion rate, the cooperation rate, and the contact rate.

Completion rate =	$\frac{\text{Number of interviews completed}}{\text{Number of goal interviews (usually 210)}}$
Cooperation rate =	$\frac{\text{Number of interviews completed}}{\text{All HUs where contact was made (including completed interviews, incomplete interviews, and refusals)}}$
Contact rate =	$\frac{\text{Number of interviews completed}}{\text{Number of HUs where contact was attempted (including completed interviews, incomplete interviews, refusals, and non-respondents)}}$

The completion rate represents how close interview teams came to collecting the goal number of interviews (typically n=210). Completion rates below 80% (typically n=168) result in an unacceptably low number to represent the sampling frame. When planning a CASPER, you should allot enough time for teams to complete the 210 interviews. It is recommended to have a few field interview teams available if they need to return to low-responding clusters the following day(s) to finish data collection.

The cooperation rate is the proportion of households at which contact was made and the household agreed to complete an interview. It represents both the eligibility and the willingness of the community to complete the CASPER interview. It is calculated by dividing the number of completed interviews by the total number of households at which contact was made (i.e., completed interviews, incomplete interviews, and refusals). The lower the number of contacts made, the more the sample becomes one of convenience.

The contact rate is the proportion of all households at which contact was attempted and the household successfully completed an interview. Higher contact rates indicate better representativeness of the sample to the population. Lower contact rates indicate that field interview teams had to attempt interviews at many households (i.e., knock on many doors) in

order to obtain the necessary number of interviews. The contact rate is calculated by dividing the number of completed interviews by the total number of households at which contact was attempted (i.e., non-response, completed interviews, incomplete interviews, and refusals). The lower the contact rate, the more the sample becomes one of convenience at the second stage.

CASPER Forms

- CASPER Preparedness Template
- CASPER Tracking Form
- CASPER Confidential Referral Form

CASPER Preparedness Template

To be completed by team BEFORE the interview

Q1. Date (MM/DD/YY):	Q3. Cluster Number:	Q5.Team Number:
Q2. County Name:	Q4. Survey Number:	Q6: Interview Initials:

First, we are going to ask about basic household information

Q7. Type of structure D Single family D Multiple unit
D Mobile home D Other _____

Q8. How many people live in your household? _____

Q9. Howmany people living in your household are (list number)
Less than 2 years old? _#_ 2-17 years old? _#_
18-64 years old? _#_ More than 65 years _#_
D DK D Refused

Q10. Are you Hispanic or Latino?
D Yes D No D DK D Refused

Q11. Which category best describes your race?
D American Indian/Alaska Native D Asian
D Black or African American D White D Mixed race
D Some other race _____ D Refused

Q12. Is there any adult in your household who does not speak English? D Yes D No D DK D Refused

Q13. What is your current marital status?
D Married/unmarried couple D Separated/Divorced
D Widowed D Never married D DK D Refused

Q14. How often in the past 12 months would you say you were worried or stressed about having enough money to pay your rent/mortgage? Would you say you were worried or stressed—
DAlways DUsually DSometimes DRarely DNever DDK DRef

Q15. How often in the past 12 months would you say you were worried or stressed about having enough to buy nutritious meals? Would you say you were worried or stressed—
DAlways DUsually DSometimes DRarely DNever DDK DRef

Q16. Have you or a member of your household ever been told by a healthcare professional that he/she has

Asthma/COPD/Emphysema	D Yes	D No	D DK
Diabetes	D Yes	D No	D DK
Developmental disability	D Yes	D No	D DK
Hypertension/heart disease	D Yes	D No	D DK
Immunosuppressed	D Yes	D No	D DK
Physical disability	D Yes	D No	D DK

Q17. Do you or does any member of your household need Daily medication (other than birth control or vitamins)

	D Yes	D No	D DK
Dialysis	D Yes	D No	D DK
Home health care	D Yes	D No	D DK
Oxygen supply	D Yes	D No	D DK
Wheelchair/cane/walker	D Yes	D No	D DK
Other type of special care	D Yes	D No	D DK

Q18. In the past 5 years, have you or anybody in your household

Now we would like to ask you about your households emergency and evacuation plans

Q19. Does your household have any of the following emergency plans?

Emergency communication plan such as a list of numbers and designated out-of-town contact	D Yes	D No	D DK
Designated meeting place immediately outside your home or close by in your neighborhood	D Yes	D No	D DK
Designated meeting place outside of your neighborhood in case you cannot return home	D Yes	D No	D DK
Copies of important documents in a safe location (e.g., water proof container)	D Yes	D No	D DK
Multiple routes away from your home in case evacuation is necessary	D Yes	D No	D DK

Q20. Has your household prepared an Emergency Supply Kit with supplies like water, food, flashlights, and extra batteries that is kept

Q21. Has your HH prepared a first aid kit with emergency supplies to take with you if you had to leave quickly? D Yes D No D DK

Q22. Does your household have adequate drinking water (besides tap) for the next 3 days? (1 gallon/person/day) D Yes D No D DK

Q23. Does your household have adequate non-perishable food (e.g., protein bars, nuts) for the next 3 days? D Yes D No D DK

Q24. Does your household currently have a 7-day supply of medication for each person who takes prescribed meds?
D Yes D No D DK D No prescriptions

Q25. If public authorities announced a mandatory evacuation from your community due to a large-scale disaster or emergency, would your household evacuate? D Yes D No D DK

Q26. What would be the main reason that might prevent you from evacuating if asked to do so? (choose one)
D Lack of transportation D Lack of trust in public officials
D Concern about leaving property D Nowhere to go
D Concern about personal safety D Concern about leaving pets
D Concern about traffic jams D Inconvenient/expensive
D Health problems (e.g., could not be moved)

Q27. If your household had to evacuate due to a large-scale disaster or emergency, where would you go?
D Friends/family/2nd home outside your area
D Hotel or motel
D American Red Cross, church or community shelter
D Would not evacuate
D Other _____
D DK D Refused

Q28. Do you have a pet(s)? D Yes D No

Q28b. If YES, in an emergency if your household was asked to evacuate, what would you do with your pet(s)?
D take it/them with you
D Find a safe place for it/them
D leave behind with food and water
D would not evacuate because of pets
D would not evacuate D DK D Refused

Continue on following page…

Finally, we would like to ask you about your household communication methods	
Q26. What is your households main source of information regarding disaster or emergency events? (check only one) D TV D Radio D Text message D Automated call (e.g., reverse 911) D Local newspaper D Neighbor/friend/family/word of mouth D Poster/flyer D Church or other groups D Internet D Other, _____ D DK D Refused	Q31. Are you aware of the following materials [show materials, mention website/campaign, etc] to better prepare you and your family for a natural disaster or other significant event? D Yes D No D DK Q31b. If YES, was the information received helpful? D Yes D No D DK Q31c. If YES, where did you learn about the information? D TV D Radio D Poster/flyer D Newspaper D Internet, _____ D Other, _____ D DK D Refused Thank you for your time!

Confidential Referral Form

Date: __/__/_____
Time: __:___

Cluster No.: _____Interviewer's Initials: _____

Name: _____

Address: _____

Contact Information:

Home telephone: _____ - _____ - _____

Cell phone: _____ - ____ - _____

E-mail: _____

Summary of Need:

_____
_____
_____
_____
_____
_____
_____

Referral Made: Yes ☐ No ☐

Referred to: _____

Example Questionnaire

Date:	**Cluster:**	**No of HUs in Cluster:**	**Survey No:**	**Interviewer initials:**

County:

1. Type of Structure: [ ] Single family house [ ] Multiple unit (e.g., duplex, apartment) [ ] Mobile home [ ] Other_____

2. How many people lived in your home before the storm? ____

3. How many people slept in your home last night? _____ a). How many 2 years of age or younger _____ b). How many 3-17 years of age? _____ c). How many 18-64 years of age? _____ d). How many are 65 years or older? _____

4. Since the storm, do you feel your house is safe to live in? Y N D/K If no, why not? _____

5. Since the storm, do you feel secure in your area? Y N D/ K If no, why not? _____

6. Was anyone in this house injured since the storm? Y (# of people: _____) N D/K If yes, what is the age of the injured person(s)? ____ ____ ____ *If yes, specify below:* a). Fall injury Y (# of people: _____) N D/K b). Strain/sprain Y (# of people: _____) N D/K c). Broken bone Y (# of people: _____) N D/K d). Head injury Y (# of people: _____) N D/K e). Cuts, abrasions, puncture wounds requiring medical attention Y (# of people: _____) N D/K f). Burns Y (# of people: _____) N D/K g). CO poisoning Y (# of people: _____) N D/K h). Hypothermia/extreme cold injury Y (# of people: _____) N D/K i). Other: _____

7. Has anyone in the house become ill since the storm? Y N D/K *If yes, specify below?* a). Nausea/stomach ache/diarrhea Y (# of people: _____) N D/K b). Cough with fever Y (# of people: _____) N D/K c). Severe headache w/dizziness Y (# of people: _____) N D/K d). Worsened chronic illness Y (# of people: _____) N D/K e). Other: _____ Y (# of people: _____) N D/K

8. Since the storm, is everybody in this house getting the prescription medications they need? Y N D/K N/H If no, why not? _____

9. Is there anyone in the home who needs: [ ] oxygen supply [ ] dialysis [ ] home health care [ ] other type of special care (specify: _____)

10. Since the storm, are emotional concerns, anxiety, sleep problems, or memory problems preventing you from taking care of yourself or people depending on you? Y N D/K

11. Do you have pets? Y N D/K If yes, did having a pet prevent you from seeking alternative shelter or tending to your own health needs? Y N D/K

Key: Y= Yes **D/K**= Don't Know **N**= No **N/H**= Never Had

12a. Do you have adequate drinking water for everyone in the house for the next 3 days? Y N D/K **12b.** What is your present source of drinking water? Source: [ ] Well [ ] Public/municipal (tap) [ ] Bottled [ ] No drinking water **12c.** If using well or municipal (tap) water are you treating the water? [ ] No [ ] Yes-Boiling [ ] Yes-chemical [ ] D/K

13. Do you have adequate food for everyone in the house for the next 3 days? Y N D/K N/H

14. What is your current source of electricity? [ ] no electricity [ ] gasoline generator [ ] power company [ ] N/H

15. What is your current source of heat? [ ] electricity [ ] propane/gas [ ] wood [ ] coal/charcoal [ ] Other _____

16. Since the storm, have you used a generator? Y N D/K If yes, where and how do you use it? [ ] Indoors [ ] In the garage [ ] Outside: _____ feet away from home If outside, near an open door/window? Y N D/K

17. Since the storm, have you cooked on a charcoal or gas grill/ camp stove? Y N D/K If yes, where and how do you use it? [ ] Indoors with door/window open [ ] Indoors with door/window closed [ ] Outside: _____ feet away from home If outside, near an open door/window? Y N D/K

18. Do you have a carbon monoxide detector? Y N D/K If yes, is it working? Y N D/K

19. Do you have transportation available if needed? Y N D/K N/H

20. Do you have a working toilet or enough water to flush your toilet? Y N D/K N/H

21. Do you have a working telephone? Y N D/K N/H

22. Did you get warning about the storm? Y N D/K If yes, what was the source? [ ] TV [ ] Neighbor, word of mouth [ ] Radio [ ] Internet [ ] Flyer/poster [ ] Newspaper [ ] Other: _____

23. Have you gotten health advice or information related to the storm? Y N D/K If yes, what was the source? [ ] TV [ ] Neighbor, word of mouth [ ] Radio [ ] Internet [ ] Flyer/poster [ ] Newspaper [ ] Other: _____

24. Have you seen or heard warnings about CO poisoning? Y N D/K

25. Does anyone in the home currently require urgent medical care? Y N D/K

26. What is your greatest need at this moment?

CASPER Response Tracking Form

County: .....Cluster # (i.e., 1-30): ..... # of Houses in the Cluster.....Interviewer: .....Date of Interview: ..... / ..... /....

Instructions: Use one tracking form per cluster. Check where appropriate, but try to choose only one best option for each of the five categories. Go as far down the list as possible for each site you visit. Use neighbors to find information if no resident is available.

Sampled Housing Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1) ACCESS																	
House is Accessible	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
House is Inaccessible	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2) TYPE OF DWELLING																	
No housing structure	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Mobile Home	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Single Family Home	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Apartment or Condo	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3) DAMAGE																	
None or Minimal	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Damaged	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Destroyed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4) ANSWER																	
Door was answered	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Appears as though someone is home but no answer	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Appears vacant	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Nobody home after… 1st visit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2nd visit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3rd visit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5) INTERVIEW																	
Language Barrier	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Refused to Participate	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Interview begun, not finished	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Interview Completed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Survey # (i.e., 1–7) from Completed Questionnaire:																	

Interview Teams Tracking Form

Team ID #	Names	Cell Phone #	Assigned Cluster(s) #	County/District	Dispatch Time to Cluster	Arrival Time to Cluster	Completion Time	Dispatch Time to Base	Arrival Time to Base

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APPENDIX D: ACRONYM LIST

ADHS	Arizona Department of Health Services
AZ-ESAR-VHP	Arizona Emergency System for the Advance Registration of Volunteer Health Professionals
AzHAN	Arizona Health Alert Network
CASPER	Community Assessment for Public Health Emergency Response
CDC	Center for Disease Control
DEHHE/HSB	Division of Environmental Hazards and Health Effects, Health Studies Branch
DMAT	Disaster Medical Assistance Team
DMORT	Disaster Mortuary Operational Response Team
EM	Emergency Management
EOC	Emergency Operations Center
GIS	Geographic Information System
HEOC	Health Emergency Operations Center
HSP	Health Services Portal
JIC	Joint Information Center
HPIN	Public Health Information Network
PIO	Public Information Officer
POC	Point of Contact
POD	Point of Distribution
MEDSIS	Medical Electronic Disease Surveillance Intelligence System
MOU	Memorandum of Understanding
SOG	Standard Operating Guide
SOP	Standard Operating Procedure
WIC	Women, Infants, and Children

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