Mass Fatality Plan

North Dakota Department of Health

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Mass Fatality Response Plan
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PART 1: BACKGROUND

Scope: This document describes mass fatality management for state and local public health. For the purposes of this document, mass fatality is defined as an event in which the number of deaths during the event exceeds the ability of usual local response systems to manage them. The number of deaths which will exceed local capacity depends on the size of the local jurisdiction as well as the presence of complicating factors (e.g., conditions at the death scene, presence of contamination, forensic complications, federal involvement). Although details related to fatality management are provided, this document is not intended to replace technical documents.

Content: The document describes the normal systems for processing human remains and approach to management of mass fatalities for both small and large events (i.e., less than or greater than 50 bodies). The document separately discusses mass fatality management for the following types of events:

1. Closed event, no contamination, intentional or unintentional
    a. Mass trauma (e.g., explosion, motor vehicle crash, commercial airplane crash, catastrophic building fire)
    b. Chemical or radiological events without contamination (e.g., carbon dioxide release, exposure to radiological emitter)
    c. Localized biological event without contagion (e.g., botulism, tularemia)
    d. Displacement of interred remains from cemeteries by flood waters
2. Closed event with contamination, intentional or unintentional
    a. Chemical release (e.g., commercial chemical accident, chemical terrorist attack);
    b. Radiological substance release (e.g., transportation accident, nuclear explosion (terrorist), radiological dispersion device)
3. Biological event with contamination (e.g., anthrax spore dispersal, smallpox)
4. Open biological event with contagion (e.g., pandemic influenza, SARS), intentional or unintentional

Local and State Roles

Public Health Roles

Mass fatality management is inherently a local function; however, the role of local public health in mass fatality response varies by local jurisdiction. In some counties, the local emergency manager has delegated mass fatality response to local public health. In other jurisdictions, the lead role for mass fatality has been retained by emergency management or delegated to an agency other than local public health. At a regional public health level, mass fatality response is part of disaster response preparedness; however, the level of mass fatality preparedness varies by region.

The Department of Emergency Services (NDDES) has assigned to NDDoH the lead role in mass fatality response for the state. NDDoH will work in partnership with the entities assigned mass fatality response within each local jurisdiction. In all closed events (narrow in geography and time), the State Forensic Examiner will assume the lead role for management of mass fatality using local and state resources. In open events secondary to contagious biological agents, the geographic scope of the deaths will require

mass fatality management to be managed locally with such supportive assistance as the state can provide to communities.

Health Care System Fatality Management

Mass fatality events which lead to large numbers of deaths within health care facilities can impact the ability of the institution to meet the needs of living patients. Although removal of remains from hospitals has the highest priority of all sites where persons may die, hospitals need to be prepared to manage a number of remains that exceeds the capacity of their institutional morgue. NDDoH provides planning support for this and considers resources which may be needed by hospitals for mass fatality management as reasonable expenses when opportunities are offered for hospitals to use preparedness funds to improve institutional preparedness. Because this is dealt with elsewhere, this plan will not deal further with mass fatality management within a health care facility.

NOTE: The State Forensic Examine (SFE) may need to be make early contact with the hospital in an incident in which scene survivors go to the hospital. Persons subsequently dying in the hospital related to the disaster event may be coroner cases and come under the jurisdiction of the SFE.

State Laws and Regulations

Although state laws and regulations governing the management of the deceased could theoretically pose a barrier to mass fatality management; in practice, it is not anticipated that existing laws (see below) would pose a barrier to management of mass fatality by the State Forensic Examiner. In the event that a law became a barrier, in the vast majority of mass fatality events a disaster declaration would be in place. In that instance, based on recommendations of the SFE, the Department Operations Center (DOC) could develop executive orders for the Governor's signature which will waive legal requirements for the duration of the disaster.

- Burial or cremation within eight days of death
- Embalming or cremation within 48 hours of death
- Obtaining signed documents which are required before cremation
- Refrigeration up to 72 hours prior to embalming
- Limitations on the number of minutes that a crematory can show visible smoke during a cremation
- Coroner reporting of cases to the SFE
- Time required for generation of death certificate.

PART 2: SYSTEM FOR MANAGEMENT OF DEATHS IN NON-DISASTER SETTINGS

Local and State Infrastructure

Coroner System

The Century Code provides for an appointed county coroner in each county. The coroner may be a physician, nurse, physician assistant or any other person determined by the State Forensic Examiner to be qualified to serve. In the event a coroner is not available, the duties of the coroner will be performed by law enforcement. Communications with coroners will generally be delegated by the DOC to the Office of the State Forensic Examiner. Should the DOC need to contact a coroner, contact information will be available through the Office of the State Forensic Examiner or through regional emergency preparedness staff.

Office of the State Forensic Examiner

The Office of the State Forensic Examiner (SFE) is part of NDDoH. Under non-disaster conditions, the SFE assumes authority over a coroner's case when a coroner refers the case to the SFE; however, the SFE also has authority to exercise all the authority of a coroner and assume jurisdiction over human remains. The SFE will assume authority over a mass fatality event (i.e., an event which exceeds the capacity of the local jurisdiction). This authority may be directly administered locally or indirectly through the management of forensic resources, including teams mobilized from out-of-state

During non-disaster periods, remains which are being referred to the SFE are required to be placed in a body bag at the scene (usually by law enforcement) and transported to the Office of the State Forensic Examiner (usually by funeral home personnel); however, substantial variation in local recovery and transport procedures exist. Although in many states EMS is prohibited from transporting bodies, in North Dakota, EMS vehicles can and sometimes do transport bodies. During a localized mass fatality event, the SFE will directly manage the recovery, transport and processing of remains. During an open mass fatality event (e.g. pandemic), the SFE will provide guidance for local management of remains and referral services for a sample of typical disaster-related cases as well as unusual cases. Some aspects of disposition of remains may not be complete at the time of interment in an open event. The SFE will provide guidance on securing adequate history, specimens and pictures to ensure adequate follow-up (e.g., complete death scene investigation, identification of remains).

State Forensic Examiner Capacity

Permanent staffing of the SFE Office includes a forensic pathologist and two full time professional staff (autopsy technicians and death scene investigators). Additional part-time autopsy assistants are used as needed to supplement full time staff. During periods of surge or disaster, additional professionals may be used temporarily to assist with fatality management including a forensic pathologist at UND in Grand Forks, other private pathologists in the state with forensic experience, and a retired forensic dentist in Jamestown. Contacts for supplemental assistance are maintained by the SFE.

The SFE Office has capacity to store approximately 7 bodies, although up to 10 could be stored with some difficulty. The morgue does not have respiratory isolation facilities, but workers routinely use level C biological protection. The state morgue and personnel are not prepared to deal with highly contagious organism; this would require outside resources being brought into the state. The morgue is not prepared to receive remains with chemical or radiological contamination; however, ability of the morgue to deal with bodies decontaminated after a chemical or radiological incident would have to be evaluated on a case by case basis. The facility has limited x-ray capacity (analog only) to assist with identification. Approximately 200 body bags are kept at the SFE office and a large cache of body bags is maintained in the NDDoH warehouse in Bismarck (see footnote 17).

PART 3: COMMON ELEMENTS OF MASS FATALITY MANAGEMENT

Management of small events, large events and complicated events

Given that by definition mass fatality events are events which generate more deaths than local capacity can manage, during any mass fatality event, regardless of size or complicating factors, the SFE will take the lead role for mass fatality management (although he would manage deaths from outside the death scene for chemical or radiological contamination). Depending on the nature of the disaster, the SFE may a) function as incident commander, or b) under NDDoH incident command, or c) as part of a team managed by law enforcement (e.g., FBI). During an uncomplicated, localized mass fatality event of small scale (e.g., less than 20 bodies), the SFE will manage field operations in cooperation with local team members (e.g., law enforcement, coroner) including recovery of remains and transport. For more

complicated events (body fragmentation, search and rescue) the SFE may require the death scene assistance of additional local or in-state personnel to assist with the recovery of remains in a timely manner. The SFE would need persons who could work in field recovery of remains and well as a few people who could assist but who would not be exposed to the death scene (e.g., clerical staff)[1]. Once the remains have been recovered and contained in refrigerated storage, the SFE will have sufficient time to complete the investigation using resources of the SFE Office and forensic professionals recruited in the state to assist.

In events exceeding 50-100 bodies, the SFE may request NDDoH to bring in out-of-state resources to assist with the investigation, but the SFE will remain in charge of the investigation[2]. Federal practitioners will be able to assist North Dakota without licensure waiver. If out-of-state resources are brought in by EMAC, they are covered by an interstate licensure agreement. Out-of-state practitioners not brought in by EMAC would require a disaster declaration and executive order permitting practitioners not licensed in the state to practice, or emergency licensure[3].

If the event is known or suspected to be terrorism, the FBI will assume control of the event. Assignment of the lead forensic role for death management will be delegated by the FBI, but it is usual for the SFE to continue in the lead role for fatality management as part of the federally managed team. If an event occurs on federal property, the state lacks legal jurisdiction (e.g., federal building or Indian reservation) and an investigation may be conducted by a federal agency. In practice, the relationship of NDDoH to Indian tribes results in NDDoH assistance being requested when tribal resources are exceeded. Regardless of who is in the lead role, the SFE would be part of the response, representing NDDoH.

For events in which the scene contains living injured in addition to dead, the work of the SFE would be delayed until those needing medical attention are removed from the area. This may unavoidably disturb the death scene, but some documentation may have occurred prior to the arrival on of the SFE on the scene.

Contaminated Death Scenes (See Sections below relevant to events with contamination.)
The SFE would be able to work within most biologically contaminated scenes (e.g., anthrax spore contamination). However, at scenes in which chemical contamination is present, the SFE would manage the scene entirely from an area outside the hot zone and warm zone, using hazardous material trained personnel to conduct all operations inside the area of contamination. If a chemically contaminated scene is also a potential crime scene, death scene management may be delayed until death investigators or medical examiners trained to work in PPE suitable for chemical protection (e.g., WMD DMORT) can be brought in.[4] The approach to management of radiologically contaminated scenes (from inside or

[1] Identifying additional persons to assist with death management would be the task of the DOC. It is possible that NDDoH personnel could be used (especially health care workers) although other options maybe more practicable, especially for body recovery, such as recruitment of EMS personnel from other jurisdictions (especially professional EMS personnel).
[2] An event with up to 50 bodies could be managed with in-state resources if all bodies required autopsy. More likely in a large mass fatality event all bodies would not require autopsy, in which case events up to 100 bodies could be managed with in-state resources.
[3] During the 2009 flood, physicians from out-of-state were required to request emergency licensure which could be obtained the same day as the request.
[4] Even when specialized teams are brought in for mass fatality assistance, it is expected that the SFE remains in overall management of the mass fatality response with teams working under his or her direction.

outside the hot zone) would depend on the type and intensity of contamination. An event involving dispersion of radiological material of low level intensity where deaths are caused by explosion may be suitable for the SFE to manage directly. Nuclear events would experience radioactive decay sufficient for persons to enter the scene with acceptable exposure within 24 to 48 hours. The determination of the limits of exposure and need for specialized teams from out-of-state will be determined by the SFE on a case-by-case basis.

Incident Command

For some types of localized mass fatality events, the SFE response may be the only activated function of NDDoH (e.g., bus crash). More likely, resource needs of the SFE would make partial activation of the DOC likely. In larger events requiring the recruitment of additional department responders or resources, incident command would be activated and the Department Operations Center Incident Commander would assume overall direction of the broader event for NDDoH. In this circumstance, the SFE team would become an operational branch of the Department Operations Center responsible for directing mass fatality response.

When incident command has been activated, the SFE will reach back into the Department Operations Center for mobilization of resources (e.g., refrigerator trucks, body bags, transportation, contract services, NDDoH personnel, access to subject matter experts, interstate or federal assistance). The SFE would also reach back to the DOC for logistical, administrative or public information support except for that which was locally needed to manage documentation or resources mobilized to the site. The SFE may need to establish divisions (geographic) or groups (functional) using SFE Office personnel, state expert assistance, NDDoH personnel or personnel mobilized from out-of-state. In some events, the SFE operational section may work in parallel with other sections of a larger NDDoH response which may be supporting health care, public health response (e.g., mass prophylaxis), environment remediation, or EMS transport managed by the DOC.

Disaster Notification

Notification of a potential mass fatality event may come directly to the SFE (e.g., from the local coroner) or through the NDDoH case manager on duty. If through the case manager, the case manager would alert the SFE if a known, suspected or possible mass fatality event was identified, and would provide as much information as was available (including the location of the local incident command post to which the SFE would report to assume control of the mass fatality response). In some events, particularly a biological event, the SFE may be the first to determine that an event involving a "weapon of mass destruction" (WMD) is ongoing and that mass fatality is a likely consequence. Upon identification of a potential WMD event, the SFE will notify the case manager who will coordinate further notification and stand up emergency operations.

Response Management

During a mass fatality disaster response, SFE would have oversight responsibility for each of the following[5]:

- Death scene – including scene documentation, recovery of remains, recovery of personal effects, preliminary examination of bodies, preliminary identification, and selection of remains for autopsy;

[5] The management of a local response by an NDDoH representative creates an unusual situation for the agency; it is not usual for NDDoH to assume command of a local event.

- Temporary morgue – including transportation (from death scene to temporary morgue and temporary morgue to incident morgue), personal effects management; decontamination processes, generation of transportation forms and death certificates;
- Incident morgue – including ongoing daily case load as well as disaster operations (including possibly two or more sites), additional decontamination if needed, autopsies, final identification, release of remains to families, release of personal effects to families, and in some scenarios, embalming and final disposition.

Family assistance would operate in close cooperation the SFE but actual management would be under an alternate entity. Close cooperation with the SFE would be need to ensure transfer of information occurred in both directions including victim tracking, history collection, DNA specimen acquisition, family communication with families (regarding family member identification, cause of death, any delays in release of remains or personal effects and deviations from usual procedures for family closure arising from safety issues). Additional services would be provided in cooperation with partners managing the site.

During initial mobilization for mass fatality disaster response, the SFE would relocate to a site near the disaster scene (using an on-scene field office such as a tent or NDDoH communications trailer, or office in a local community). When the disaster scene response is completed, the SFE would relocate to the incident morgue location (which may or may not be the state morgue in Bismarck). Management of routine cases may draw the SFE back to Bismarck's permanent morgue or require assignment of an alternate forensic pathologist to cover routine cases. In large events, it may not be possible to keep routine and disaster-related cases separate without using a separate incident morgue site for each.

Typical Response Sequence

1) Receipt of notification
2) Informational and material coordination with Case Manager or Department Operations Center;
    a. Situational briefing
        i. Cause of event;
        ii. Evolution of event;
        iii. Nature of scene (known risks and PPE requirements, contamination, terrain, local conditions, buildings)
        iv. Number of suspected dead;
        v. Parallel scene activity (injured at scene, search and rescue, weather impacts on response);
        vi. Responders on scene and local authorities;
        vii. Local contact information, especially for local response coordinators;
    b. Preliminary assessment of communication needs for field work support (e.g., specific community equipment needs, communications kits, communications trailer) and equipment to take on-scene.
    c. Acquisition of additional death management materials and equipment (possibly including hand held scanners for use of patient tracking system);
3) Arrival on scene
    a. Report to local officials in charge of the scene obtaining briefing information and access to the response area;
    b. Establish communication link with NDDoH (Department Operations Center or Case Manager);

4) Situation briefing from local coroner and law enforcement and assessment of field response resources required;
5) Identification of partners
    a. Local (coroner, law enforcement, fire/rescue, EMS, local incident command, hospitals)
    b. State (sister agencies and incident command structures, law enforcement, American Red Cross)
    c. Federal and international (FBI, Bureau of Indian Affairs, State Department)
6) Staffing
    a. Detailed identification of staffing needs beyond that available in the field
    b. Staff acquisition
    c. Command structure determination
    d. Team assignment and staff schedule (battle rhythm)
    e. Setting of daily operational periods (usually 8-12 hours)
    f. Setting objectives
7) Initial assessment of scene;
    a. Scene access and security;
    b. Risk assessment and safety (chemical, radiological, biological, site stability) and nature of scene (natural, man-made, intentional);
    c. Number, condition and accessibility of dead;
8) Resource need assessment;
    a. Additional involvement and jurisdictional control (e.g., FBI, search and rescue);
    b. Material and personnel resource needs
        i. Storage for remains at temporary and incident morgue sites;
        ii. Refrigerated room or body cooling systems;
        iii. Additional quantities of body bags, tags
        iv. PPE, office equipment, additional communications equipment, stretchers, vehicles
        v. Resource material storage and security;
    c. Assess need for incident morgue distinct from state morgue;
    d. Training needs for mobilized personnel;
    e. Adequate hydration for staff;
    f. Mental health resource need for personnel;
9) Early establishment of family assistance center and delegation of task;
10) Scene coordination;
    a. Task identification and assignments;
    b. Timeline assessment;
    c. Evidence collection procedures;
    d. Records management system;
    e. Office site setup/IT;
11) Assessment of longer term storage needs;
    a. Bodies;
    b. Personal effects;
    c. Documentation;
12) Setup of temporary morgue location
    a. Site identification;
    b. Assignment of personnel;
    c. Loading-unloading area;
    d. Check-in and documentation area;

e. Body storage;
f. Personal effects storage;
g. Setup and use of cooling system if indicated;
h. Security;

13) Death scene task completion;
    a. Initial death scene investigation and documentation, including scene layout;
    b. Coordination of remains recovery (documentation, evidence preservation)
    c. Preliminary examination of the remains and collection of forensic evidence (labeling body with date, time, location, identifiers, means of identification, investigator, presence of known contamination)
    d. Identification tagging of remains including fragments
    e. Placement of remains in body bags and labeling of body bags;
    f. Bagging and labeling of personal effects unassociated with a body;
    g. Transport of remains to temporary morgue;
14) Establish or modify incident morgue procedures
    a. Separate process for completion of routine cases
    b. Routine procedures (small number of remains) versus multi-station setup (large number of remains)
    c. Mass fatality processing
        i. Triage
        ii. Personal effects
        iii. Identification and forensic evidence collection (photography, xray, fingerprint, odontology, autopsy/pathology)
        iv. Embalming
        v. Documentation
15) Interaction with families
16) Disposition of remains

Patient Tracking System

The patient tracking system is based on HC Standard software which is server based. Patient identification uses the barcode found on the triage tags. Hand-held, untethered scanners can be used in the field to scan the barcodes on the triage tags attached to the bodies in the field[6]. Additional descriptive information can be added in the field or into the client software via a computer. Data will be held in the scanner until it has access to a wireless network to upload the data to the server client. Tethered scanners (USB port) can be used to scan the barcode in at the morgue site to update data fields (e.g., change in body disposition). The system is accessible over the Internet (find link at http://www.ndhealth.gov/EPR/DOCLinks.asp); however, greater capability is available through the client software installed on individual computer work stations. Video training for HC Standard Patient Tracking System can be found at mms://video.ndhealth.gov/health/20110216HCPatientTracking.wmv.

Death Scene Management

The SFE would be responsible for management of the death scene unless the event is a WMD event and FBI, as mission commander, has assigned that role to some other individual. Detailed death scene management is beyond the scope of this document, but primary tasks for management of the death scene are:

[6] Barcodes can also be entered by key punch.

- Team assignment
- Security control of the scene including scene privacy;
- Scene layout for referencing
- Scene documentation and evidence handling (photographs of remains in situ, GPS coordinate collection, external examination of remains)
- Labeling of remains with assignment of a tracking number to all remains (a separate case number may be assigned later at the point of processing)
- Placement of bodies in to body bags including scattered parts (no assumption is made in the morgue that unattached parts in the same body bag are from the same individual)
- Labeling and recovery of personal effects (may be assigned to a separate individual or team)
- Selecting remains to undergo autopsy
- Transportation to temporary morgue site

Transportation

To secure transportation needed for moving remains to the temporary morgue, the SFE will look to local partners first. If the event is large and local partners cannot provide the transportation, the SFE will refer to the DOC to obtain transportation. Transportation assets needed to move bodies to the incident morgue site would depend on distance, weather conditions and number of remains. If the number of remains is large, the distances great or the weather likely to cause deterioration of the bodies, one or more refrigerated semi-trailers would be used. A smaller number of remains may be transported with the assistance of local morticians, ambulances or other vehicles. Alternately, the use of refrigerator trucks might be dictated by the need to use the resource at the incident morgue to store remains in excess of the morgue capacity.

Prior to transport, forms for transportation of remains would be completed and death certificates would be initiated and left with the local jurisdiction.

Temporary Morgue Management

The fundamental requirements of locating a temporary morgue are as follows:

- Large building with concrete (impermeable) floor and drains
- Running water including toilet facility
- Reasonable temperature (does not have to be refrigerated)
- Hospital gurney or equivalent
- Hoyer lift
- Potentially equipment for handling morbidly obese
- Access to electricity or generator system if none in building
- Potentially accessory electrical lighting

The SFE will designate the temporary morgue site based on the situation[7]. Requirements will depend on the number of remains, time required for recovery of all remains and local weather. Preventing rapid decay in hot weather or freezing of remains in very cold weather will be necessary. If rapid recovery of a small number of remains in moderate weather is possible, the site may be any designated collection point out of public view which is reasonably proximal to the death scene. Depending on the speed of

[7] For events in which living individuals have been removed or are being removed prior to the death scene being released to the SFE, local responders may have already designated a temporary morgue location.

recovery and the weather, the temporary morgue may not have to be refrigerated. One or more transport vehicles (e.g., refrigerator trucks) located near the command post may serve as a temporary morgue or a fixed structure may be used. Although all remains brought to the temporary morgue site will be in body bags, a fixed structure should have an impermeable floor. The temporary morgue will remain in use until death scene investigation and recovery is complete, then all remains will be relocated to the incident morgue.

In association with the temporary morgue for relocation of bodies, the SFE will establish a temporary personal effects depot where all personal effects recovered from the site can be logged and retained for shipment to the incident morgue site.

Incident Morgue Management

In most events, bodies would be managed by the SFE at the morgue in Bismarck. If the event is sufficiently large to make processing of bodies too slow for the single site, a second morgue can be activated for the disaster at UND to avoid the necessity of setting up an alternative morgue site (which would be needed for very large events).

Since more than 10 bodies could not be stored on-site within the State Morgue in Bismarck, refrigerator trucks (semi-trailers) would be used on the lot near the building to store the remaining bodies. NDDoH has some refrigerator truck to which racking systems can be added. For large events, additional trucks may be needed. Used reefer trucks can be obtained at a manageable cost if the number of units needed is few. In very large mass fatality events, it is unlikely that a sufficient number of reefer trucks could be obtained quickly enough or at a cost affordable enough to make reefer trucks the sole storage option. In this event, a fixed site for refrigeration of the bodies would be used, and trucks would be used to transport bodies from the fixed site to storage at the incident morgue[8]. Bodies would be released to the family when the investigation was completed for each of the remains, or if they could not be immediately released, they would be returned to the storage site after processing until they could be released. Regional forestry sites where seedlings are stored are the leading candidates for storage of remains, but refrigeration units capable of cooling a moderate size room in a public building could also be used.

Storage of bodies outside the State Morgue would require 24 hour per day security to protect the bodies from tampering or removal. Security on state property at the state morgue (e.g., reefer trucks) would be under the jurisdiction of the State Highway Patrol. Protection of the bodies at a fixed site away from state property would require either the posting of local law enforcement or temporary contracting with security personnel to protect the site.

<u>Alternative Incident Morgue Site</u>

If the number of dead exceeded 50, an alternative incident morgue site may be needed with sufficient space for management of multiple stations to complete the investigation and make use of expert personnel brought in from out-of-state to assist the investigation. The National Foundation for Mortuary Care maintains a setup for an incident morgue intended for use during mass fatality events. Technical documents detailing the setup and operation of a large mass fatality morgue can be found at:

[8] To obtain tractors or other vehicles to move bodies to the incident morgue, the SFE will reach back into the Department Operations Center. The DOC will work with the Department of Transportation to obtain the vehicles and, if semi-tractors are needed, the drivers for those vehicles.

- National Association of Medical Examiners Mass Fatality Plan http://thename.org/index.php?option=com_docman&task=doc_download&gid=24&Itemid=26
- Mass fatality management for incidents involving weapons of mass destruction http://www.ecbc.army.mil/hld/dl/MFM_Capstone_August_2005.pdf

The SFE would act as Site Commander over the morgue unit and assign addition staff to command positions as needed (e.g., local site logistics). Responsibility of the SFE, directly or indirectly, would include:

- Lead command role
- Communication with incident command
- Interaction with external partners
- Selection of site
- Resource acquisition
- Setup
- Assignment of personnel
- Media communication
- Security
- Safety
- Policy and procedures including hours of operation
- Meeting with team and reviewing progress (e.g., proposed identifications, autopsy completion)

A suitable alternative incident morgue would be a fixed structure (e.g., hanger, warehouse) with impermeable (e.g., concrete) floor. Office space will be needed in close proximity to the morgue processing area with telephone landlines and internet accessibility. (Communications accessibility can be provided by a communication trailer or communication kit if needed.) Toileting, water (hot and cold), liquid waste disposal (sewer drains) and electricity will also be needed. (Electricity could be provided by generator if necessary).

Remains Disposition

Once remains have been processed by the morgue the remains will be released to the custody of a mortuary which will ensure final disposition per its usual procedures. Determining which mortuary to which to release remains would be part of information collected by the Family Assistance Center (see below). In events with contamination, if the body is to be embalmed (e.g., for distance transport), the body may have to be embalmed by the incident morgue. Hazards associated with certain types of disposal may make it necessary for the SFE to designate the manner of disposal (e.g., cremation for some types of chemical or biological events). NDDoH has the authority to dictate disposition if a public health hazard exists, but the agency would not choose to use it unless public health protection makes it absolutely necessary. Issues related to disposition of contaminated remains are discussed under sections relevant to biological, chemical or radiological contamination.

In certain disaster situations, the SFE may be required to issue death certificates for persons for whom no remains exists. Criteria for determining death may be based on legal elapsed time requirements for missing persons and knowledge of the person's presence at the scene.

Family Assistance Center

In many mass fatality events, a Family Assistance Center will be needed. The DOC will need to ensure that an FAC is setup. The operational setup, management and staffing would be delegated to the North Dakota Funeral Directors Association.

A FAC team would be designated to communicate with the family information related to:

- Investigation process and what to expect,
- Remains recovery;
- Need to collect history and DNA samples;
- Family member identification process and notification of occurrence;
- Personal effects (when and how they will receive them and reasons for any delay);
- When the remains will be released to family;
- Assistance available to family (services, compensation);
- Counseling and grief support;
- Access to the disaster site;
- Condition of the remains;
- Whether and when an autopsy was performed;
- Reviewing the case and findings including pictures if available;
- Procedures for dealing with unidentified common tissue.

The following principles have been suggested as appropriate for dealing with family members in this setting:

- The Family Assistance Center needs to open as soon as possible after the incident (same day) and remain open at least a week (or potentially much longer);
- Make sure family members have accurate information as soon as it can be released. NDDoH will need to operate its hotline including scripting relating to key information. The contact phone number can be broadcast over the media for family members to call seeking information.
- Family members should have access to the SFE through appointments made in the Family Assistance Center;
- Family needs to know what is going on and when they might get closure, including the release of the remains and personal possessions. Reasons for delay will need to be explained;
- Reassurance of the dignity with which the remains are treated is needed;
- Notification of body identification should be made in person, preferably in the family's home by a team;
    - Team should include coroner or SFE office representative, clergy, mental health professional (may be available through VOCA or ARC), possibly a medical professional.
    - Team is briefed on information to be provided.
    - Team is prepared to answer questions and assist families with needs.
    - Relevant information handout (contact info, FAQ) would be provided when questions indicate that it would be helpful.
    - Arrange with local law enforcement for in-person death notification for next of kin distant from the FAC location.
    - Content of Information to be released to the press - after family is given sufficient time to notify family members.
- Understand the family's wishes about notification of additional identification of body fragments;
- Information will be held confidentially;

- No information is released until families have been notified of the information;
- Families check-in and out of the FAC;
- Provide patient advocates/designated staff member to families if possible;
- All staff at the FAC act as representatives of NDDoH and not representatives of their personal institution (e.g., funeral home).
- FAC will have on-site security with badging system to identify family and staff (e.g., ARC badge system). Only family and staff are allowed into the FAC.
- Information provided to the families must be consistent with evidence provided to the prosecution if a crime was committed.
- Press access to families is controlled and determined by family willingness to speak to the press.

The following are the steps for setup and operation of a family assistance center:

- SFE notifies North Dakota Funeral Directors Association that a family assistance center is needed;
- NDFDA identifies a site commander and at least one alternate;
- Site Commander communicates with key partners who would assist with FAC. Red Cross should be first contact and can provide expert assistance;
- Identify site and ensure wrap around services (e.g., cleaning). Site would be a non-religious site such as school or hotel in a location offering convenience for family and access by the SFE. Site should be securable, including the parking lot;
- Determine hours of operation and phone coverage after hours;
- Determine fiscally responsible agent (e.g., FEMA, transportation company) and whether a federal agency will be the lead for access to federal victim services (e.g., NTSB for transportation accidents).
- Identify personnel and setup a staffing roster;
    - Administrative staff
    - General staff (greeting, assistance provision, interviewing, appointment setup)
    - Clergy
    - Mental health/grief counselors (ARC is tasked under ESF8 with providing supportive counseling for family members of the dead).
- Identify key areas of the building and use signs to identify them:
    - Chapel (non-sectarian)
    - Counseling rooms (three or more depending on event size - there should not be a bed present in the room)
    - Waiting areas (private and communal)
    - Kitchen/break area
    - Restrooms
    - Assistance area
    - Operations Center
    - Secure office area for records management and communications (contains confidential records)
    - Staff meeting area
    - Staff entrance
    - Briefing room (for family and press briefings)
    - Clinic medical support area
- Establish a schedule
    - Communications with SFE (e.g., once or twice daily update briefing) and ability to contact;
    - Family briefings (twice a day is usual)

    - Media briefings
    - SFE availability to talk to individual families
- Ensure availability of key services for families through partner network
    - Food
    - Shelter (may need to be overnight accommodations)
    - Transportation
    - Telephones
    - Medical services
    - Financial assistance (if available)
    - Translation services
    - Family member reconnection service (missing persons clearinghouse). This would include need to access patient tracking system for hospitalized patients)
- Establish a volunteer management process
- Train staff in procedures and services available to families
    - Data collection (DMORT questionnaire and additional content needed by state death certificate)
    - Services available
    - Confidentiality
    - Grief management
- Conduct interviews, obtain contact information and blood samples (if needed). Information should ensure accurate spelling and pronunciation of names.
- Plan for memorial service(s) (usually ARC task)
- Ensure mental health support for staff

Media Management

The SFE would communicate with the NDDoH Public Relations Officer, but in nearly all situations, the PIO from the local emergency operations center would take the lead (if no federal involvement). The PIO with the local EOC would call upon the SFE when he or she is needed to be part of the media communications.

Mental Health Preparedness and Response

For most mass fatality events, it will be possible to rely for staffing entirely on persons experienced with managing human remains – coroners and other death investigators, law enforcement, fire/rescue, EMS, mortuary workers. However, even those experienced with dealing with death may be traumatized by some mass fatality events. Mass fatality experience is generally unknown to those who deal with death as part of their job. The most likely circumstance in which inexperienced persons may be needed to help handle remains is an open biological event such as pandemic influenza where deaths are not geographically localized to a disaster scene[9].

The SFE may arrive on the scene after a large number of local workers have already been exposed to the scene (e.g., rescue of the living) and preventive mental health measures may or may not be in place.

[9] North Dakota is not at risk for generalized disasters covering large geographic areas which are likely to cause mass fatality over large areas (hurricane, earthquake, tsunami). North Dakota could be the target of weapons of mass destruction, most of which are localized in scope. North Dakota could experience a large scale open biological event.

The SFE will be responsible for the death scene, so he or should adopt procedures which minimize emotional risk. The SFE will begin by providing a briefing to prepare workers with information that may be needed. This might include:

- What they will experience. Photographs and information from previous disasters of the same type are helpful.
- The goals of the work are honorable and necessary (recovery of remains to return to family, treating remains with dignity, collection of evidence to prosecute human agents of the disaster)
- The ethics of working in a mass death scene – dignity to deceased, confidentiality, no souvenirs, protection of evidence, privacy from public view.
- Permission and boundaries
    - Some stress is expected
    - De-personalization of remains is expected and encouraged
    - Personal possessions are handled as objects belonging to the family and not stories of a life
    - Humor is acceptable within the limits of dignity to the remains
    - Personal prayers and private religious rites may be helpful.
    - Unpleasant memories are expected but sustained emotional or physiological impact is a sign that assistance is needed
- Wear protective clothing when handling remains
- Do not view remains more than job requires (e.g., take breaks out of view). Each person needs to feel that they can escape from the presence of the remains.
- Take breaks and ensure physical self-care
- Openly communicate with others about feelings and have a low threshold for seeking a counselor

The SFE should ensure the availability of counselors for workers. Assistance with finding counselors can be obtained through the DOC or through local agents. (If contacted to assist, the DOC will communicate with the State EOC, ARC, and Department of Human Services to secure needed personnel, and through the local EOC, the department may gain access to local counselors or pastors in the community.) Additional actions which may be helpful:

- Team lead and safety officer should be extra aware of personnel under stress for other reasons. They may be poor candidates for this work or need early removal from the team.
- Encourage each person to communicate with their family but preserve confidentiality.
- Observe workers for stress and remove them from the work if over stressed.
- Organize work as teams. Workers should not work alone.
- Make participation in debriefings mandatory.
- Arrange for after work activities to distract workers from their job.
- Arranged for recognition of workers by the community.

PART 4: CLOSED EVENT WITH CHEMICAL CONTAMINATION

Reference

http://www.ecbc.army.mil/hld/dl/MFM_Capstone_August_2005.pdf

http://www.ecbc.army.mil/downloads/cwirp/ECBC_guidelines_mass_fatality_mgmt.pdf

Overview

The most likely source event for chemically contaminated bodies in North Dakota is a transportation accident, but accidental release from a chemical production or storage facility, or intentional release of a chemical are also possible scenarios. Because of the difficulty associated with managing chemically contaminated remains, even a single body which is chemically contaminated may meet the definition of mass fatality (i.e., cannot be managed by local responders). The SFE will have to determine the level of response required and resources needed based on an assessment of the best available evidence of the nature and extent of the event (e.g.,. even a single contaminated body at a crime scene will require special procedures and may require special assistance from out-of-state).

Incident Management

General procedures noted above for non-contamination events largely apply to contamination events. Differences in management are detailed below.

When chemical contamination is present, work within the area of contamination (hot zone), including the death scene, is restricted to those trained and experienced in chemical response. The North Dakota SFE is not expected to be trained in use of PPE sufficient to allow him or her to enter the hot zone. Even if trained, use of this level of personal protective equipment would be too infrequent to ensure proficiency. The SFE may be able to direct information collection and recovery from outside the contaminated area using hazmat responders or may request through the DOC an out-of-state team trained in processing contaminated bodies. In either case the SFE will remain in overall control of the operation. Personnel management, resource management, site identification and setup, communication with partners and with the DOC, family assistance, participation in media briefings are all examples of event management that the SFE would oversee even if not working in the hot zone.

Body Recovery and Storage

Principles of management of death investigation for chemical events should consider the following:

- An aerial photograph may be helpful for planning the death scene management in a situation in which the SFE cannot enter the area.
- The identification of the chemical will determine the level of PPE required. Additional quantities of the specific type of PPE may have to be secured after the agent is identified. The SFE will reach back to the Department Operations Center for assistance with this.
- Hazmat trained individuals can assist with many of the death scene functions under the direction of an experienced hazmat mortuary response team member. If insufficient workers are immediately available trained to work in hazmat to complete body recovery in a timely manner, the SFE will notify local authorities re: the number of people that he needs and the level of skill. If local resources are inadequate, the SFE will reach back into the Department Operations Center to secure additional assistance.
- Hazmat activity only allows for 20 to 30 minutes of air supply from a SCBA; consequently, three teams are preferable - one in the hot zone, one just out of the hot zone, and one prepared to go in. The size of the teams would need to be determined by the extent of the disaster and the number of

expected hours of work in PPE required. NOTE: Workers in level A or B PPE fatigue with repeated use of PPE over the course of the day requiring increasing duration of rest with resulting loss of efficiency.

- It may not be possible to decontaminate all equipment carried into the hot zone such as electronics (e.g., camera equipment, barcode scanners). Use of equipment which can be disposed of is necessary.
- Certain data collection will need to occur before any decontamination (preliminary identification check, external examination, removal of clothing, evidence collection (e.g., external swabs, blood and tissues samples, clothing samples), securing personal effects, body labeling, photography).
- Due to the slow pace of recovery at a chemically contaminated site, cold storage for remains will more often be needed than for non-contaminated events.
- Tags used for labeling must be waterproof and use waterproof markers for writing.
- All items brought out of the hot zone will have to be decontaminated, including evidence containers.
- Personal effects will be contaminated. The SFE will have to make a determination which personal effects can be decontaminated and eventually returned to family.
- Some chemical agents can pass through some plastics. Use of glass or metal containers (drums, paint cans) is suitable for collecting contaminated items (e.g., clothing, personal effects).
- Body bags containing vinyl are subject to degradation by some chemicals. Type II and IIa body bags are suitable for chemical events.
- Duct tape can be used to seal the zipper area after the outside of a body bag is decontaminated. All remains are double bagged.
- Containing off-gassing is improved by delaying decomposition.
- A holding area in the warm zone (outside and upwind from the hot zone) needs to be established to hold contaminated remains until decontamination can occur.
- Any transportation of remains from a chemical event will require proper labeling of transport vehicles (e.g., all WMD chemicals are category 6.1 Poison) and decontamination of the vehicle.
- Contaminated animal remains may be part of the crime scene and have to documented and safely disposed up. The SFE may be consulted on this issue.
- The locations used to store contaminated remains will need to be decontaminated and monitored for residual contamination.

Decontamination and Monitoring

- Unless there is immediate threat to life and health, runoff from decontamination must be contained with reasonable diligence.
- Decontamination will usually be slower than recovery; consequently, short term storage of contaminated remains will be required.
- The decontamination area is located in the warm zone but separated from the storage area for remains that are pending decontamination.
- At a minimum, gross decontamination will be needed near the death scene, but complete decontamination is preferable in order to avoid having any decontamination setup near the incident morgue and to contain the chemicals in the area already contaminated.
- Complete decontamination requires scrubbing, for most chemicals, with soap and water and possibly a neutralizing chemical (e.g., bleach solution), to all body surfaces and body orifices. A 2% to 3% bleach (sodium hypochlorite) solution left on for five minutes has no deleterious effects on

the body; a 1% solution is more than adequate for neutralizing chemicals. (Living persons are washed with no more than 0.05% solution.) Household bleach is 5% sodium hypochlorite.

- Neutralizing chemical and sunlight can inactivate bleach. Solutions need to maintain adequate bleach content.
- Some plastic is damaged by bleach (e.g., nylon).
- Adequate supplies and equipment will be needed by decontamination teams including
    - Fresh water
    - Ventilation fans
    - Neutralizing chemicals (e.g., bleach)
    - Chlorine monitor
    - Water run off containment
    - Roller tables
    - Backboards
    - Soft sponges and brushes (not nylon)
    - Pumps for pumping bleach solution and pumping runoff;
    - Drums to hold bleach solution and runoff;
    - Tanks for submersion of remains (if used)
    - Wire mesh cage if needed for submersion of decomposing bodies
    - Body bags (two clean bags for each body) – Type II and IIA made to contain chemicals
    - Sealable containers for personal effects, clothing
    - Decontamination showers for personnel
    - Receptacles for hazardous waste (e.g., contaminated body bags, used PPE, used cleaning utensils)
    - Chemical detection equipment
    - Decontamination area for vehicles
- Pacemakers should be removed at the time of decontamination to prevent later donning of PPE to remove the pacemaker prior to cremation.

Incomplete body decontamination is common after a first attempt at final decontamination. Monitoring equipment is needed to determine clean. The National Guard Civil Support Team for North Dakota can assist with this.

- Monitoring equipment has limitations
- Monitoring equipment generally must be used above 60 degrees ambient temperature
- Evaluation for off gassing in a closed environment (e.g., inside a body bag or in a closed room) can detect volatile contaminants, but cannot determine presence of chemicals that may be a contact hazard but not off gassing.
- Detection can be gross (CAM or chemical agent monitoring) or low level (mass spectroscopy). Gross monitoring is much faster but cannot confirm absence of low levels of chemical. Low level can detect down to the acceptable EPA exposure limit.
- Monitoring can be of general or specific areas. That is, a room containing body bags may be monitored or the airspace inside each body bag can be monitored, depending on the level of clean required by the SFE.

There is no standard for “clean” for human remains. The accepted standard determined for the incident determines the degree of interaction tolerated without PPE (or necessity of maintaining the body only within protective packaging. (e.g., individual monitoring of each body with low level accuracy) and whether un-cremated remains can be returned to the family. The army

publishes the detection limit for some chemical terrorism agents (e.g., http://www.ecbc.army.mil/hld/dl/MFM_Capstone_August_2005.pdf, page 47)

Morgue Processing

- Processing of bodies even after decontamination should occur at an alternate site morgue away from the main state morgue. Additional PPE above usual use would be used by those processing remains even once decontaminated (usually level C chemical PPE). The alternate incident morgue site must be able to perform detailed decontamination (even if that has been completed at the temporary morgue), autopsy, identification and embalming.
- Ingested cyanide is the only WMD chemical not tightly bound to tissue that can off gas during autopsy. Undetected surface contamination is the primary risk for other agents.
- The safety of embalming of chemically contaminated remains is largely unknown. If done, it will have to be done by the morgue. Embalming fluid will react with bleach (and some other agents) used in decontamination creating a safety hazard so the two chemicals should be widely separated.
- It is possible that embalming may displace some of the chemical agent potentially bringing it to the skin surface. Monitoring for chemical agents will be necessary at the embalming site. Bodies should undergo a final rinse after embalming. Body fluids mixed with embalming fluid do not require any additional precautions.

Disposition of Remains

- Sealed caskets should not be considered fully sealed, so they may not be suitable as a container for releasing the body to the family, depending on the chemical agent and the certainly of decontamination.
- Constraints on burial may be needed and limited indemnity may be required by cemetery owners. Alternatively, a cemetery may refuse contaminated remains which would require a community to purchase land to be used for interment. If the State Health Officer determines that a public health hazard exists, he or she can order cremation. If mass spectroscopy of individual body airspace identifies no chemical above background levels, the body is likely safe to release to family (at least if the body is not touched) and safe to bury (see above note re: chemicals that do not off gas).
- All chemical compounds are destroyed in cremation (but cremation is not suitable for radiological contamination which is elemental rather than chemical compound).
- If lingering concerns about contamination exist, cremation should take place with the body in body bags, in sealed zinc coffin and in and outer wood coffin, which will all burn at cremation temperatures. NOTE: Some jurisdictions may prohibit the cremation of flammable metals under normal circumstances. Apparently zinc lined coffins are rarely used and largely unknown to mortuaries based on queries by the part of our environmental section that regulates cremation.
- Bioseal™ http://www.bioseal.com/ is reported to adequately contain all known chemical hazards. NOTE: Although NDDoH discussed it some years ago in reference to pandemic mass fatality planning, we never made a purchase of Bioseal. I believe it is clear plastic so might actually allow viewing of the body to some extent.

PART 5: CLOSED EVENT WITH RADIOLOGICAL CONTAMINATION

Reference

- **http://www.bt.cdc.gov/radiation/pdf/radiation-decedent-guidelines.pdf**
- **Meeting Report of the Roundtable on Guidelines for Handling Mass Fatalities with Radioactive Contamination, CDC, March, 2004.**

Overview

North Dakota has no nuclear power plant but transport of radioactive material through the state with accidental release due to transport accident is possible. A radioactive dispersion device or intentional nuclear explosion would also create a potential mass fatality event with radiological contamination. Radiological contamination events exclude events in which deaths are associated with proximity to a radioactive source but in which actual contamination did not occur (i.e., no radioactive atoms on or in the body – only exposed to the radiation released by unstable atoms). Because of the difficulty associated with managing radiologically contaminated remains, even a single body which is radiologically contaminated may meet the definition of mass fatality (i.e., cannot be managed by local responders).

Management of contaminated remains will require some persons to be exposed to some level of radiation. This is not a problem as long as the exposure is minimized and below a set maximum for each person. Special procedures do not exist to permit processing with no radiation exposure; however, proper procedures can minimize exposure. The level of PPE required for radiological processing is within reason for SFE Office staff, but the SFE will determine the need for outside resources for processing of bodies with radiological contamination.

The unique nature of radiological events means that federal mobilization would occur with any substantial radiological event. This may impact mass fatality management in a way similar to the impact from a terrorist attack. Federal agencies may determine who they want to manage the mass fatality aspects of the event.

Background

- Ingestion or inhalation of radioactive material will disperse the material throughout the body but not with even distribution. Specific organs may accumulate the material (e.g., radioactive iodine and thyroid gland).
- Imbedded radioactive shrapnel may have to be excised in order to complete decontamination. Imbedded shrapnel can also lead to some internal contamination depending on how long the person lived after the impact.
- A short delay (one to two days) in body recovery can markedly lower radioactivity at the death scene for a nuclear explosion but usually not for a dirty bomb or leak of radioactivity from a transportation accident.

Incident Management

General procedures noted above for non-contamination events largely apply to contamination events.

The SFE will need the assistance of NDDoH radiation experts to manage radiation exposure and work in the death scene including monitoring and PPE requirements. NDDoH radiation experts will help the SFE determine if assistance from outside the state is needed for monitoring worker exposure. The

management of some radiation contamination events may not be improved by bringing in a special team. The SFE will need to assess the situation in conjunction with state and local experts and determine the expertise level and personnel required. If body recovery to refrigeration can occur quickly and the contamination area is contained, time will be available to assess additional resource needs.

Regardless of whether an external team is brought in, the SFE will remain in overall control of the operation. An out-of-state team will not establish command and control over the operation. The exception is a federal team, especially if managing a terrorist incident.

Monitoring

- Equipment to monitor for radioactivity is best obtained through contacting the DOC. The NDDoH radiation control program can supply personnel with expertise and calibrated equipment.
- Detection equipment can be omni-directional (general area) or directional and comes in different types. Each type of detector has limitations and usage specifications (speed, path width, distance). A combination of equipment and knowledge of each piece of equipment is required for radiation surveillance, so these employees can provide the monitoring for the event. Additional personnel may be available from some hospitals.
- A trained operator and a recorder will need to test the general area for radiation dose rate before other workers enter the area. The operator will map the level of radiation in the death scene and the location of the bodies. If radiation experts are not prepared mentally to enter a death scene, they can instruct response workers in the use of each type of equipment or outside experts can be brought in.
- A safety perimeter needs to be established around the incident. This is likely to have occurred prior to the arrival of the medical examiner, assuming radiation is recognized as a contaminant. Even if unrecognized, routinely used PPE provides very substantial protection from radiological hazards (dependent on the radioactive element present).
- Each individual working in a contaminated area or near contaminated materials will need a self-reading dosimeter outside their PPE where they can read it, and a thermoluminescent dosimeter (TLD) under their PPE which is the legal record of exposure. Dosimeters can measure dose rate and cumulative dose.
- Any worker not actually engaged in a task at any particular time should move to a low dose area.
- If the outside of a body bag is not contaminated, placement of the body in the bag will contain (prevent spread of) radioactive material but will not contain some types of radiation released by radioactive material on or in the body.
- To test the outside of a body bag or other container which contains contaminated material (e.g., body or personal effects) for residual contamination, a swipe is taken of the outside of the container, then the swipe is moved away from the container and tested with a directional instrument. Attempting to measure the outside of the container directly may measure radiation coming from inside the container.

Death Scene

- A designated radiation safety officer will need to establish protocols to limit exposure, to monitor for radiation and personal dose and establish limits on worker exposure. The maximum annual exposure limit is 5 REM. The total dose limit allowed for the event will be substantially lower (e.g., 200 millirem).

- Properly worn PPE can protect workers from exposure to alpha and to some extent beta particles (beta producing particulates), but not gamma radiation. Level C PPE with HEPA filter respirator is adequate (tyvek suit, full face mask, gloves) for radiation response. Worker safety is based on cumulative exposure rather preventing any single exposure.
- Victim clothing and personal effects will be left on the body when moved to the temporary morgue. The body is placed into a body bag at the scene then carried to a low dose area and placed in a plastic remains contain for transport to the temporary morgue (in order to minimize contamination spread)
- Any material or equipment removed from the hot zone will have be surveyed for contamination and handled accordingly.
- After recovery of the bodies and movement to refrigeration, further processing may halt until a fuller characterization of the incident can occur, including the specific isotopes involved. A plan would be developed by experts to manage the specific agents found.

Temporary morgue (contaminated)

- The temporary morgue for contaminated bodies is located outside the high dose area (i.e., in the warm zone). Contaminated material (bodies, instruments, personal effects, clothing) will be the source of exposure in this site.
- Highly radioactive bodies are separated out and moved away from the work area at least 30 feet for later processing (e.g., >100 mrem/hour at 1 inch). Time may lower radiation decay and special work procedures may be needed to process these bodies.
- Contaminated and non-contaminated materials are kept separate, including uncontaminated bodies. Uncontaminated bodies can be examined in a separate clean field morgue.
- External examination, documentation, management of personal effects, initial identification and tissue sampling will occur in the temporary morgue.
- Removal of clothing from the bodies would be expected to remove most of the contamination (e.g., 90%).
- One person at the table at a time – all other should move away from the body.
- Remove radioactive shrapnel as early as possible, without touching it, and put it in a metal container to be carried at least 30 feet away. Radioactive shrapnel can be located using a directional radiation monitor. Shrapnel can be very small and still pose a radiation risk. Small pieces can be removed by punch biopsy.
- If shrapnel became imbedded substantially before the time of death, absorption of some of the radioactive material associated with the shrapnel may have caused internal contamination.
- Contaminated wound areas are swabbed out to debride the wound. If a wound is difficult to decontaminated, excision of the wound is then an option. It is also possible to remove body parts to make a body sufficiently decontaminated to permit release.
- After the above tasks (examination and initial identification procedures), the body can be decontaminated.

Decontamination

- It is unlikely that a body would be so radioactive that decontamination could not occur.
- Don't use soap and water except as a last resort; it creates contaminated run off.
- A dry vacuum with a HEPA filter can be used if contaminants are not volatile, otherwise a water spray and wet wipes is effective.

- Confirm decontamination by monitoring; every inch of the body needs to be covered by a directional radiation monitor. If the body cannot be decontaminated after the second attempt (following shrapnel removal), it may be internally contaminated. Tag the body with dose rate, probe distance, date and time. Further evaluation of this body should be avoided. Release it for interment. Autopsy of an internally contaminated body can lead to high dosage to the medical examiner's hands and autopsy will increase the time required for embalming (if done).
- Personal effects which are easily decontaminated (watches, rings) can be returned to family.

Disposition

- The State Health Officer has authority to order management of remains to minimize a public health hazard.
- Immediate interment without embalming is recommended if contamination remains. Some morticians may refuse to take remains with residual contamination and they will require education regarding handling procedures if they do take them.
- If the body is very radioactive (e.g., 100 mrem/hour) and embalming must be done for shipment, waterless embalming can be used. The body will not be suitable for viewing[10] but should not be viewed in any case if that radioactive. However, it is very unlikely that after decontamination a body would be that radioactive.
- Constraints on burial may be needed and limited indemnity may be required by cemetery owners. Alternatively, a cemetery may refuse contaminated remains which would require a community to purchase land to be used for interment.
- If religious ceremony requires mortician to embalm, dosage exposure will have to be estimated. If embalming occurs, drain the blood and dispose of normally, but do not aspirate GI tract and lungs.
- All persons should limit their time near the body.
- Do not cremate if man-made radioactive elements are present. Point sources of radiation must be removed before any cremation (shrapnel, radium seeds). If cremation does occur, the ashes are likely to be radioactive unless the elements were volatile enough to be released into the air during cremation.
- Bury in Zeigler casket in a concrete vault which is plastic lined and tongue-in-groove sealed. First place the lid on the vault above ground to examine for seal, then lower into the grave. Either greater than 100 counts per minute above background or counts greater than two times background require a below ground burial.
- Conspicuously label the vault with radiation warning and information in case exhumation occurs at a later date.
- Transportation may occur after decontamination and removal of shrapnel. Internal contamination will not be a problem. Follow requirements for transport of uncontaminated remains.

[10] Viewing the remains after death is important to the grieving process. When normal viewing is not possible, viewing behind glass or videotaping of the remains by the funeral home prior to disposition may be alternatives.

PART 6: CLOSED EVENT WITH BIOLOGICAL CONTAMINATION
General procedures noted above for non-contamination events largely apply to contamination events.

Overview
Biological contamination refers to events during which an actual risk from the body exists after death due to persistence of infectivity and potential for exposure. A closed event assumes that the event is localized in time and place. The closed nature of the event means that the SFE can assume direct authority over the process of managing a mass fatality event if that is necessary. Issues related to open events where numbers of deaths may be very large and occur statewide are dealt within the next section. Open events may or may not be associated with a contagion risk from the remains.

Surveillance
The first involvement of the SFE in a closed biological may be in the recognition of the cause of death in an unusual cases or cluster of cases of undermined etiology. The SFE may be the source of first recognition of biological public health disaster and the nature of the threat.

Collection and Processing
If the number of deaths is large, teams may be needed to recover remains and take them to the points of storage until processing can be completed. Since the vast majority of biological deaths would occur in hospitals, death investigators or law enforcement would not likely need to be part of recovery teams. If the event is large enough, local health care will be overwhelmed and those who are ill will need to be transferred to other jurisdictions with the capacity to help provide care. This could result in a large number of deaths in cities distant from the origin of the outbreak. This would complicate aspects of forensic investigation and create an increased problem with repatriation of remains back to the community of origin.

Biologically contaminated remains should not pose an unusual burden on forensic processing of remains since there is a daily working assumption that all remains, disaster or otherwise, could contain organisms with persistent infectivity[11]. A long list of agents can be acquired during processing of remains including several Category A bioterrorism agents (smallpox, tularemia, hemorrhagic fever). A terrorism attack using anthrax could also result in the external contamination of a body with anthrax spores; however, the length of time between the exposure and death associated with biological events decreases this likelihood – showering and a change of clothes may have occurred between the time of exposure and onset of illness.

It can be assumed that the vast majority of deaths would occur in hospitals. If the event is a natural contagious event, the SFE would not need to see the cases, and unless the number of cases is quite large, the SFE would not be likely be involved except on a consultative basis. Due to the delayed nature of the deaths, patient tracking would be initiated in the hospitals and carry over into death management with an update of location in the tracking software as it moves from hospital to morgue to final disposition (e.g., Community A temporary morgue, reefer trailer 3, position 15).

If local resources are overwhelmed but the geographic extent is narrow, NDDoH would need to ensure resources are provided to help the local jurisdiction process bodies in a timely manner, whether by bringing mortuary teams from out-of-state, or, more likely, if the cases are not coroner cases (i.e.,

[11] For example, it is estimated that 50% of autopsied cases with tuberculosis are unrecognized at the time of death.

natural event), using mortuary personnel from other cities in the state to process the bodies at a temporary processing site. The SFE could activate mortuary personnel to assist by working through the DOC.

If the event is bioterrorism, the SFE would need to work with the FBI to identify the cases to be autopsied[12]. If the number of deaths is large, the SFE may need to provide guidelines to hospitals for determining whether the person died from the biological agent and guidelines for determining when biological specimens will be obtained. Out of hospital deaths or unusual deaths may require additional investigation by the coroner, law enforcement or the SFE Office, but procedures for evaluating these deaths should be standardized statewide by the SFE. The scene of the crime (the exposure) would not be a scene of death and, hence outside the jurisdiction of the SFE. Likewise much of the forensic evidence would be obtained from interviews of living individuals and from epidemiological work to link cases rather than from death investigation.

Safety

Part of the responsibility of NDDoH oversight would be to ensure the safety of those working with remains. If the number of deaths is large, all persons needed for handling the remains (e.g., body recovery) may not be fit tested use of a respirator. For those dealing exclusively with the deceased, sufficient time should be available to get these responders fit tested and trained. If remains are highly contagious and vaccine exists, workers handling the remains should be vaccinated. Part of the process for ensuring the safety of workers will be to have each worker check in for evaluation at the beginning and end of each work shift. Fever will be an early manifestation of illness for most agents. Persons not reporting for work should be contacted to ascertain if they have become ill.

The SFE will provide recommendations to funerals homes for the safe management of remains and provide recommendations to the State Health Officer regarding the safe final disposition for remains (e.g., how to ensure safe burial and when cremation is necessary) if threat to human health exists from improper disposal). In addition, NDDoH may place restrictions on funerals for purposes of social distancing to reduce contagion. In this case, remains would be interred without a funeral, but memorial services would occur after the threat of contagion was resolved. It is within the authority of the State Health Officer to require a moratorium on funerals during period of community contagion. Embalming should not be done without a compelling reason. Embalming increases the risk of disease transmission to response workers and does not provide sufficient value to make the risk worthwhile. Staff capable of embalming can also be used in other, more productive ways assisting with death management.

Decontamination may become an issue for some agents. In a bioterrorism event caused by anthrax, the potential may exist for the contamination of bodies and community sites with spores. In many cases the person would be decontaminated prior to death (e.g., prior to becoming ill or while in the hospital). Bodies which are contaminated with high risk organisms can be enclosed in two leak proof body bags with decontamination of the exterior of the bags (although monitoring to confirm decontamination would likely be impractical). Once there is no further need to examine the patient, there should be no need to open the bags prior to interment. This decreases the likelihood that a person handing the

[12] For infectious Category A agents, the recommendation is for autopsies to be done under BSL-4 laboratory conditions. This is not possible, but expert assistance can be obtained from CDC to ensure the safety of workers working in a lab equipped to BSL-3.

packaged remains will become infected. Handling the bags until they are interred should be done with full protection recommended for handling contaminated remains for the specific organism in question.

Environmental contamination won't be limited to sites used to process the deceased; it might include those sites, plus resources used for storing contaminated remains and vehicles used for transportation. Procedures for ensuring that physical sites are free from environmental anthrax spores are not well defined. NDDoH would need to establish working procedures for this with the assistance of national experts.

Transporting biologically contaminated remains will require labeling to comply with federal regulation. USDOT considers biologically contaminated shipments to be hazard class 6.2. Special packaging is required with an inner leak proof container and an outer container with sufficient absorbent to soak up all possible fluids if a leak occurs.

As with other kinds of contamination, cemeteries may balk at accepting biologically contaminated remains or require indemnification as part of their accepting them. Cremation is acceptable as long as the crematorium has a retort system for re-burning particles.

Family Assistance Center

NDDoH may need to set up a Family Assistance Center. The FAC would be a virtual center if there was ongoing risk of community contagion, but could be converted to a physical site once the risk of contagion was resolved. (See section above on Family Assistance Centers).

PART 7: OPEN BIOLOGICAL EVENT (PANDEMICS)

Overview

The main issue distinguishing an open event or pandemic of (moderate or greater severity) from a closed biological event is location and magnitude. A closed event is localized to a specific area which limits the number of people who can be affected and ensures that resources are available outside the affected area to take up the slack in health care and mortality processing. This section assumes that the pandemic is of sufficient magnitude to overwhelm local systems, and that all localities are affected. Actions taken in this type of event represent compromises based on the reality of grossly inadequate resources and personnel.

It will not be possible for the SFE to assume direct oversight of the mass fatality response in an open event. Rather he or she would work as part of the DOC to ensure that local mass fatality responders use practices that keep themselves safe, that forensic evidence is collected when needed, and that remains are managed in a way which mitigates their potential public health impact while preserving as much respect for the dead and wishes of the families as is possible under the circumstances. In a pandemic with a large mortality, the population is likely to be too concerned with the risk of becoming ill and care of the ill to be focused on the dead at that particular time. But that is expected to change once the event winds down in that community and grieving becomes necessary.

Estimates based on death in the 1918 pandemic, when extrapolated to the current North Dakota population, would predict about 5,100 additional deaths during the course of a pandemic of similar magnitude. By way of comparison, this is similar to the number of deaths that occur in North Dakota each year due to all causes (~5800). The time frame during which the mortality surge would occur depends on the epidemic curve which is subject to many factors, but is generally in the range of three to 10 weeks in a single community with up to three or four months possible statewide.

The overwhelmingly likely cause of a pandemic will be influenza. The remains from an influenza death would not be considered to be contaminated and no risk should be expected from handling the body. The potential infectivity of remains from pandemics caused by other organisms (e.g., SARS) would be organism specific or unknown.

Collection of Remains and Forensic Evaluation

In a highly lethal pandemic, collecting the dead will be problematic. In a closed biological event, most persons die in a hospital. In a moderate or severe pandemic, health care will be overwhelmed without expectation of outside assistance. Deaths will occur in large numbers in health care institutions, in alternative health care sites (e.g., minimum care facilities[13]) and in private homes.

Identification of locations from which a body needs to be recovered is the first task. For deaths in the community, multiple telephone hotlines will have been set up, and people will call any and all of them. The information will need to be transferred to the local entity assigned responsibility for mass fatality. As noted above, this will often, but not always, be the local public health agency. Media briefings will attempt to communicate to the public the specific actions they should take if a family member dies. The action may depend on the weather and the degree to which the community is overwhelmed. It is

[13] A minimum care facility is an alternative, community-operated inpatient facility which provides supportive care only (hydration, nutrition and hygiene) to pandemic patients who cannot be admitted to a hospital. Most care is provided by volunteers.

possible that the remains may not be removed from the site of death for several days. Procedures for health care institutions may have to change as well since funeral homes may be unable to respond. A central tracking site for mortality notifications will be needed, possibly in the local EOC or local public health unit.

The priority for recovery of remains will be hospitals first, other health care sites (minimum care sites, long term care sites) second, then private residences. The highest priority will be on removing the dead from acute care sites so that care or presence of the deceased does not interfere with acute health care which is already overwhelmed.

Because high impact pandemics are complicated by loss of personnel due to illness and death without the possibility of outside replacement workers, the only alternative is likely to be recovery of bodies by community teams who have received some training[14] in death management for the purposes of pandemic response. Problems associated with this include:

- Competing needs for volunteers to perform other tasks required for care of the living (e.g., institutional and within family care of the sick, maintenance of utilities, food and medication access, vaccine administration);
- Selection of individuals who are psychologically capable of performing this task without psychic injury, and worker access to counseling services in an overwhelmed community;
- A curriculum and adequate training venue for body recovery teams to ensure:
    - Protection to ensure team members do not become ill;
    - Reliable identification, entry into the patient tacking system and initiating the death registration process when responding to a non-health care site;
    - Recognition of potential forensic cases requiring consultation with a coroner when responding to a non-health care site, and collection of forensic information;
    - Adequate equipment and sufficiently large teams to move bodies without injury;
    - Potential loss of backup personnel due to illness of the coroner, law enforcement, and state public health support staff.
- Procedure Manual including
    - Remains identification and response procedures
    - Communications
    - Death scene investigation
    - Remains identification
    - Personal Effects
    - Labeling
    - Documentation
    - Photography
    - Confidentiality
    - Decomposed remains
    - Disposition of bodies
    - PPE
    - Mental health of responders

[14] Some content that would be included: sensitivity, assessment for life signs, interviewing, death scene, referral to coroner, documentation, personal effects, unidentified remains, decaying remains, triage tagging, patient tracking, family notification, PPE, preparation for transport, carrying, transport, mental health and stress management

All recovery team members would wear gown and glove. Use of mask or respirator would depend on the organism causing the pandemic, but may be more indicated for protection from the living than the dead Each body would be placed in a body bag which would be label with decedent's name, date of birth, triage tag ID number, location of recovery, and method of identity verification.

Forms used by recovery teams would be standardized statewide (What forms?)

Temporary Community Morgues

Local mortuaries will not have storage space for more than two or three bodies. Hospital morgue space would be of similar size and reserved for those dying in facility. A temporary community morgue would need to be identified locally or regionally. If regional, then transport distances would complicate time required for body recovery, albeit bodies could be local to the morgue rather than from community of origin.

Achieving adequate morgue space would be more difficult in the summer; however, a room air conditioner may keep those bodies of uncomplicated cases which are awaiting rapid interment cool until a final disposition could be made. Remains which would be retained longer would need more effective cooling. In winter bodies would not be allowed to freeze unless all investigation was completed; however, windows could be used to regulate temperature in a closed room in a heated building to achieve refrigeration temperatures. Use of ice rinks is discouraged but could be used in the absence of another option. Large rubber mats would need to be laid over the ice at least between rows of bodies to permit access for arrival and removal of remains. Use of ice in an outer body bag would be difficult to maintain for many bodies or for very long but would suffice for a small community with few deceased without another option.

Records of time and place of family notification would need to be kept. Health care facilities with residents who died would continue to notify families per current practice. Those bodies recovered from the community but not living with family or not found by family would be notified by the temporary community morgue. Bodies would not be interred prior to family notification without permission of coroner or Sheriff.

All bodies in the temporary morgue would have their location added into the patient tracking system. If a body was not assigned a triage tag on recovery, it would be assign in the morgue and the location of the body would be recorded (aisle number and position).

Forms used by the storage sites would be standardized statewide. (What forms?)

All temporary morgue workers would wear PPE suitable to the organism causing the pandemic.

Disposition

Bodies would not be embalmed unless the likelihood of disinterment at a later date is a substantial likelihood. Solutions for embalming may be in short supply and are not stockpiled by the NDDoH warehouse.

Unless pending forensic investigation or identity investigation, bodies would be interred within a few days of recovery in serially opened and marked graves, preferably in the local cemetery. Sites would be marked with a temporary marker, and the grave location ID would be entered into the patient tracking

system. Not all local communities have heavy equipment to open frozen grave sites so bodies ready for interment may be allowed to freeze outside until interment is possible in the spring.

Bodies would be left in body bags to be buried and body bags would not be opened for viewing[15] since remains would not be embalmed. No vault would be used and the number of available coffins would be expected to be inadequate. Funeral services would either not be held or be limited to the immediate household of next of kin (already exposed to each other) or open air funerals depending on the stress on the mortuary and requirements of community transmission containment.

Memorial services would be planned for the time immediately after the lifting of community containment measures. Bodies under active investigation would remain in holding until released by the local coroner, Sheriff or SFE. Following the event, disinterment and re-location would have to be arranged by the family at family expense.

A large number of remains interred in a single location without vaults may pose a risk to ground water. NDDoH Division of Environment would determine the advisability of digging monitoring wells downgrade from the cemetery site to monitor for contamination.

Family Assistance Center
NDDoH would also need to set up a Family Assistance Center. The FAC would be a virtual center if there was ongoing risk of community contagion, but could be converted to a physical site once the risk of contagion was resolved. (See section above on Family Assistance Centers).

Cause of Death Determination
It is desirable to be able to identify which patients died due to the pandemic organism, which died from related complications (e.g., secondary bacterial infections), which died from other infectious diseases and which died from non-infectious causes. During the pandemic of 2009-2010, attempts were made nationwide to ensure that persons dying from influenza like illness were tested for evidence of infection with the pandemic organism. During a moderate or severe pandemic this may not consistently happen. Resources to do this may not be available during a pandemic of moderate or greater severity; however, during a mass fatality event due to an infectious agent, the vast majority of infectious disease deaths will be due to the pandemic agent or its complications. Consequently, death investigation will focus on identification of non-infectious disease causes.

Nasopharyngeal swabs taken at the time of body recovery would not likely be cultured due to the high risk to laboratory personnel. Serologic tests would be possible but may be dependent on the capacity of the state laboratory to accommodate these tests. The role of serologic testing for influenza in determining the cause of death would need to be determined by discussion with the State Epidemiologist. The SFE would need to provide to local coroners instructions re: whether to obtain serologic testing and whether to hold bodies until results are available[16].

[15] Time constraints may make use of alternative forms of view impossible; however, photographs could be taken of all remains prior to arrival in the morgue. This should be routine practice for remains retrieved from the community but could also be requires of health care institutions prior to body release given the limitations on viewing of remains during the course of the pandemic.
[16] The presence of positive influenza would not prove that a patient died due to influenza or exclude the possibility of an influenza death if the serology is negative. However, it may be a valuable piece of evidence.

Resources
Production and transportation of many items needed by all states would drop off due to the pandemic and existing inventories would not be sufficient to meet needs for high use items (e.g., coffins, vaults). The NDDoH warehouse has some resources such as has wheeled and un-wheeled stretchers and body bags of various sizes[17]. Handheld and tethered scanners to use for scanning triage tag barcodes for identification are available but not in sufficient quantities for all communities. (Triage tag numbers can be entered by hand without barcode scanning.)

PART 8: REFERENCE LIST
North Dakota Mass Fatality Response Plan (Original plan – see document library)

Providing Relief to Families after a Mass Fatality
http://www.ncjrs.gov/ovc_archives/bulletins/prfmf_11_2001/welcome.html

Dealing with the Stress of Recovering Human Dead Bodies
http://nvmassfatality.com/images/Dealing-with-the-stress-of-recovering-human-dead-bodies.pdf

National Association of Medical Examiners Mass Fatality Plan
http://thename.org/index2.php?option=com_docman&task=doc_view&gid=24&Itemid=31

The Medical Examiner/Coroner's Guide for Contaminated Deceased Body Management
http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBoQFjAA&url=http%3A%2F%2Fthename.org%2Findex.php%3Foption%3Dcom_docman%26task%3Ddoc_download%26gid%3D13%26Itemid%3D26&rct=j&q=The%20Medical%20Examiner%2FCoroner%E2%80%99s%20Guide%20for%20Contaminated%20Deceased%20Body%20Management&ei=g-q6TbS1IoG4sQP0g83EBQ&usg=AFQjCNGo5dfFfGkkKDy_oTfK038QMzSiRg

Guidelines for Mass Fatality Management During Terrorist Incidents Involving Chemical Agents
http://www.ecbc.army.mil/downloads/cwirp/ECBC_guidelines_mass_fatality_mgmt.pdf

Mass Fatality Management for Incidents Involving Weapons of Mass Destruction
http://www.ecbc.army.mil/hld/dl/MFM_Capstone_August_2005.pdf

Meeting Report of the Roundtable on Guidelines for Handling Mass Fatalities with Radioactive Contamination (Not available electronically), CDC, March, 2004

Guidelines for Handling Decedents Contaminated with Radioactive Material
http://www.bt.cdc.gov/radiation/pdf/radiation-decedent-guidelines.pdf

[17] NON70540W – Bag, Body, Adult – 8,100; NON70550w – Bag, Body, Child – 200; NON70560W – Bag, Body, Infant - 50; MC4050 – Bag, Body, Ready - 250

NCBFS & Pandemic Flu Response – Powerpoint slides not available online. (North Carolina State Board of Mortuary Science)

Infectious Disease Risk from Dead Bodies following Natural Disasters
http://publications.paho.org/pdf/dead_bodies.pdf

ATTACHMENT 1: MASS FATALITY KIT

Supplies

- Alcohol hand sanitizer
- Aprons (vinyl)
- Batteries
- Biohazard bags
- Bodybags – standard and bariatric
- Boots, steel toe (how this be provided?)
- Chairs, folding
- Cleaning supplies
- Clipboard – plastic washable
- Coats (How this be provided?)
- Coveralls (denim?)
- Forms (specify number of copies) (see http://thename.org/index.php?option=com_docman&task=doc_download&gid=24&Itemid=26
- Filing boxes (plastic)
- Flags – plastic on metal rods (colors, number?)
- Flashlights
- Garbage cans, plastic – 30 gallon
- Gridding, laser survey, GPS (specify specific equipment)
- Hanging file folders
- Hats, hard
- ID badges and holders
- Lights (specify: table, floor, headlamps?)
- Log books (specify)
- Manila folders
- Medical supplies (specify)
- Paint, spray (colors, quantity)
- Paper clips
- Pens (black)
- Permanent marker pens, Sharpie
- Photography equipment (specify number and type, extra memory cards?)
- PPE: N95 respirators (specify specific ones to which staff are fit tested), PAPRs, tyvek gowns, gloves (non-sterile latex and nitrile, sterile surgical – three sizes)
- Printer paper
- Rain gear (specify)
- Rubber bands
- Ruler (plastic or metal)
- Scanners, barcode (specify number)
- Scissors
- Sharps containers
- Shoe covers and headcovers

- Software (specify)
- Specimen containers
- Stakes (specify)
- Surgical autopsy equipment
- Surgical masks
- Triage body tags with barcode, vinyl
- Twine
- Ziplock bags (specify sizes)

Equipment

- Communications kit (computer, BGAN (satellite) unit, cell phones, P25 radio)
- Communications trailer
- Computers, laptop (specify number)
- Hoyer lift
- Laser survey equipment
- Memory card reader (USB)
- Printer/fax/scanner (all in one) with cables
- Reeves tent system with toileting and wash stations and heating/cooling
- Stretchers, mobile
- Stretcher racking for trucks
- Stretchers, wheeled
- Tables (specify)
- Triage tag scanners (handheld vs. tethered, specify)

ATTACHMENT 2: CONTACT LIST FOR PROFESSIONALS AND ORGANIZATIONS.

Mary Ann Sens, MD, PhD
Board Certified Forensic Pathologist
Professor and Chair, UND Pathology
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ATTACHMENT 3: CORONERS –

County	Name	Address	Phone No.
Adams	Brian Willoughby, M.D.	West River Health Center RR 2 Box 125 Hettinger ND 58639	(701) 567-4561
Barnes	James B. Buhr, M.D.	Meritcare Clinic 520 Chautauqua Boulevard Valley City, ND 58072	(701) 845-6000
Benson	Jacqueline Downs, M.D.	1031 7th Street NE Devils Lake, ND 58301	(701) 662-2131
Billings	Dennis E. Wolf, M.D.	Great Plains Clinic 33 9th Street W Dickinson, ND 58601	(701) 483-6017
Bottineau	William Straw, M.D.	St. Andrews Clinic 314 Ohmer Street Bottineau, ND 58318	(701) 228-2212
Bowman	Mr. Trevor Kulseth	P.O. Box 290 Bowman, ND 58623	(701) 523-3324
Burke	Barry Jager, Sheriff	P.O. Box 250 Bowbells, ND 58721-0250	(701) 377-2311
Burleigh	Boyd Addy, M.D.	2008 Twin City Drive Mandan, ND 58554	(701) 667-1000
Cass	John R. Baird, M.D.	401 3rd Avenue N Fargo, ND 58102-4839	(701) 241-1360
Cavalier	Ahsan Kahlid, M.D.	Langdon Clinic 903 2nd Street Langdon, ND 58249	(701) 256-6120
Dickey	Mr. Perry Hoven	PO Box 76 Ellendale ND 58436	(701) 349-3233
Divide	Lauren Throntveit, Sheriff	PO Box 275 Crosby ND 58730-0275	(701) 965-6461
Dunn	Mr. Kirk Roll	PO Box 36 Dunn Center, ND 58626-0036	(701) 764-5682
Eddy	Darrell Hager, Sheriff Kent Braunberger, dep. Coroner	524 Central Avenue New Rockford, ND 58356 108 8th St. N New Rockford, ND 58356	(701) 947-5515 (701) 947-2911
Emmons	Mr. Paul Sannes	P.O. Box 697 Linton, ND 58552	(701) 254-5350
Foster	Michael Page, M.D.	Carrington Health Center PO Box 79 Carrington ND 58421	(701) 652-2515

County	Name	Address	Phone No.
Golden Valley	Mr. John Foster	P.O. Box 488 Beach, ND 58621-0488	(701) 872-3232
Grand Forks	Mary Ann Sens, M.D., Ph.D.	Professor and Chair of Pathology University of North Dakota School of Medicine & Health Sciences 501 N. Columbia Road Grand Forks ND 58201	(701) 777-2561
Grant	Steve Bay, Sheriff	PO Box 259 Carson ND 58529-0259	(701) 522-3331
Griggs	Mr. Rick Cushman	P.O. Box 666 Cooperstown, ND 58425	(701) 797-2244
Hettinger	Matthew Evenson, Sheriff	P.O. Box 668 Mott, ND 58646-0668	(701) 824-2935
Kidder	Mr. David R. Feland	P.O. Box 491 Steele, ND 58482	(701) 475-2700
LaMoure	Robert Fernandes, Sheriff	PO Box 128 LaMoure ND 58458-0097	(701) 883-5301
Logan	Steve Engelhardt, Sheriff	PO Box 5 Napoleon ND 585612-0005	(701) 754-2495
McHenry	Philip Sedo, MD Charles Nyhus, MD	c/o Heart of America Med. Center 800 S Main, Rugby Heights Rugby ND 58368 922 Lincoln Ave Harvey ND 58341	(701) 776-5235 (701) 324-4856
McIntosh	Amy Smittle, MD	703 Beaver Ave., Apt 8 Wishek ND 58495	(701) 452-2326
McKenzie	Mr. Calvin Parrish	2492 Beaver Creek Rd. Watford City, ND 58854-9524	(701) 842-2641 (H) 572-1323(beeper) 770-4522 (cell phone)
McLean	Mr. Ben Gehring	PO Box 699 Garrison, ND 58540	(701) 463-2200
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Morton	Boyd Addy, M.D.	2008 Twin City Drive Mandan, ND 58554	(701) 667-1000
Mountrail	Kenneth Halvorson, Sheriff	PO Box 309 Stanley ND 58784-0309	(701) 628-0309

County	Name	Address	Phone No.
	Mr. Dan Kassian	PO Box 437 Lakota ND 58344	(701) 247-2509
Nelson	Kelly Janke, Sheriff	210 B Ave W, Ste 102 Lakota ND 58344-7410	(701) 247-2474
Oliver	Thomas Kaspari, MD	1312 Highway 94 N Beulah ND 58523	(701) 794-8798
Pembina	Susan Thompson, MD	Altru Clinic 201 E 3rd Ave S Cavalier ND 58220-4024	(701) 265-8338
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Ramsey	Jacqueline Downs, MD	1031 7th Street NE Devils Lake, ND 58301-2798	(701) 662-2157
Ransom	Mr. Charles E. Armstrong	P.O. Box 31 Lisbon, ND 58054-0031	(701) 683-4400
Renville	Walter Gokavi, M.D.	101 4th Avenue SE P.O. Box 397 Mohall, ND 58761-0397	(701) 756-6666 (W) (701) 756-6608 (H)
Richland	Larry Leshovsky, Sheriff	413 Third Ave N, Office 2 Washpeton ND 58075-4487	(701) 642-7711
Rolette	Melvin Frank, Chief Deputy	PO Box 447 Rolla ND 58367	(701) 477-0595
Sargent	Lorraine Jacobson, R.N.	14055 Highway 13 Milnor ND 58060-9700	(701) 427-5432
Sheridan	Trent Naser, Sheriff	P.O. Box 589 McClusky, ND 58463-0589	(701) 363-2200
Sioux	Frank Landeis, Sheriff	302 2nd Avenue P.O. Box L Fort Yates, ND 58538	(701) 854-3481
Slope	Mr. Pat Lorge	P.O. Box 485 Amidon, ND 58620	(701) 879-6271
Stark	Dennis E. Wolf, M.D.	Great Plains Clinic 33 9th Street W Dickinson, ND 58601	(701) 483-6017
Steele	Dep. Don Huso	P.O. Box 275 Finley ND 58230	(701) 524-2442
Stutsman	Larry Johnson, M.D.	Medcenter One Clinic 300 2nd Avenue NE Jamestown, ND 58401	(701) 251-6000
Towner	Brian J. Murchie, RN	209 14th Street Cando ND 58324	(701) 303-0397
Traill	Steve Hunt, Dep. Sheriff	Traill Co Sheriffs Office PO Box 279 Hillsboro ND 58045	(701) 636-4510

County	Name	Address	Phone No.
Walsh	Abdul Hafeez, M.D.	Unity Medical Center 164 West 13th St Grafton ND 58237	(701)352-2000
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Wells	Charles D. Nyhus, M.D.	Central Dakota Clinic 922 Lincoln Avenue Harvey, ND 58341	(701) 324-4856
Williams	Franklin McCoy, M.D., Jr.	Mercy Hospital 1301 15th Avenue W Williston, ND 58801	(701) 774-7400

ATTACHMENT 4: Triage Tags (Image)