Objective:
Bring mortuary affairs and other subject matter experts together to discuss and identify major issues, examine and select potential solution sets and move to provide actionable recommendations to leaders within our sphere of influence as they relate to a pandemic influenza (PI) mass fatality event.

White Paper

Scene Operations, to include identification and medico legal investigation protocols and Command and Control of Mass Fatalities resulting from a Pandemic Influenza (PI) in the United States

I Executive Summary

- Purpose – To identify the appropriate scene response resources and protocols for deaths due to a pandemic influenza (PI) event.
- Overview - A PI event will result in an increased number of deaths both in and out of medical treatment facilities. Existing fatality management systems in all communities will require an increased surge capacity and capability to manage the event.
- ID major conclusion to establish a separate Emergency Support Function (ESF).

II. Key Assumptions

- PI event will result in a surge of deaths above which is normally managed by a community' "normal" medico legal systems.
- Medico legal systems will continue to experience a "normal" case load for their jurisdiction with the possibility of an increase in accidental deaths, (due to therapeutic complications as well as those resulting from the increased use and operation of motor vehicles/heavy equipment), homicidal (due to civil unrest) and/or suicide cases.
- Some ME/C jurisdictions are required to investigate/autopsy and certify deaths of persons dying "in custody" regardless of the circumstances, thus further overwhelming these systems in a PI event.
- All Human Remains (HR) will require proper identification for the issuance of a death certificate.
- Deaths will require an adequate investigation to determine the cause and manner of death.
- Many people will seek medical attention during the event and will have primary care physicians and/or medical treatment facilities, which will have documented and confirmed laboratory results indicating PI disease.
- In all U.S. Jurisdictions, a treating or primary care physician s authorized to sign a death certificate provided the patient dies from natural causes.
- A pandemic influenza death is a natural manner of death.
- Some jurisdictions may have a Medical Examiner/Coroner (ME/C) system, which is capable of managing a surge in the number of unattended deaths resulting from of a PI event in addition to its "normal" caseload.

- Many ME/C systems will not be able to manage a PI event due to limitations of personnel, resources, funding and lack of planning.
- Some deceased will not have primary care physicians to sign death certificates, requiring ME/C to assume jurisdiction over the deaths.
- There will be a general lack of available physicians due to illness.
- There may be a lack of available personal protective equipment (PPE) and chemoprophylaxis to support the mortuary community.
- Location of bodies will not be restricted to a geographical or jurisdictional area with a percentage (50% to 75%) of the deaths occurring outside of a hospital or medical treatment facility; this will place additional stress on all community responders in the field.
- Most HR will be intact and will allow for traditional identification means (visualization by witnesses and/or fingerprinting). Some HR will be found in a decomposed state will require further investigation by ME/C possibly utilizing more scientific methods such as dental, radiological, anthropological, or DNA to confirm identification.
- Existing laws authorizing the pronouncement of death (jurisdictional dependent) may need to be amended in order to increase the personnel strength to manage the surge in PI deaths.
- Existing laws on the certification of death (jurisdictional dependent) may need to be amended in order to increase the personnel strength to manage the surge in PI deaths.
- Federal or military assistance in fatality management may not be available to the local jurisdictions.
- HR may be positively identified, by a certifying physician or ME/C with a known cause and manner of death but next-of-kin (NOK) may not be available or known or may refuse to claim HR for final disposition through a funeral home.
- There is no need for extreme urgency in managing the HR processing, as the HR from the event should not pose additional health risks to the community.
- Those who physically handle remains may be at risk of blood borne or body fluid exposure requiring universal precautions and proper training for handling the dead.
- Behavioral health professionals, social service organizations and religious leaders will have to be educated in the HR process at all levels to ensure the process is understood and can be properly communicated to the general population in their response activities.
- It is more important to ensure accurate and complete death investigations and identification of the dead than it is to quickly end the response.
- The time to complete fatality management of a PI event may exceed six months to a year.

III. Managing the Scene Investigations During a Natural Disease Mass Fatality Event

- **Notification and Tracking of Deaths to the Appropriate Authorities**
  - **Discussion -** Medico-legal death investigation systems are not designed to be the "first responders" in death reporting by private citizens and/or medical institutions. Emergency dispatch systems managed by local law enforcement/fire/EMS will receive the calls from citizens (via the 911 system) and will dispatch resources to respond to death scenes. Depending upon the jurisdictional code, ME/C staff, will be notified by the "first responders" at the scene. The dispatching of resources to the initial death scenes by traditional first responders will be stretched due to the first priority calls – those pertaining to life safety missions.
  - **Actionable recommendation to senior leaders –**
    - Separate call in dispatch systems may be required for death reporting by private citizens to ensure life safety calls are dispatched by the most expeditious system in existence.
    - Establishing "Family Assistance/Patient Tracking Centers" to manage death calls and patient tracking information from medical treatment facilities and community care centers would establish a centralized data collection and dispatch point.
    - Request that all medical treatment facilities and private care physicians report their PI patient contacts to the central facility to allow for a complete and accessible patient tracking information for ME/C, law enforcement and other death investigation responders.
    - Amending HIPAA regulations to accommodate additional investigative medico-legal authorities (LE, EMS, CERT, etc. as dictated by communities) during a confirmed PI event for the purposes of collecting the required medical data on PI patients for the determination of cause and manner of death and victim identity.
  - **Results -**
    - A central data base for confirmed patient and primary care physicians/treatment facilities would allow for the investigating and certifying authorities to quickly coordinate the required response by the scene investigators.
    - Identified HRs could be immediately transported and released to the funeral home (or appropriate holding facility) of the NOKs choice for final disposition processing and the death certificate requirements would be immediately established and acted upon by the certifying officials.

- **PI in-patient Medical Treatment Facility Deaths are considered naturally occurring deaths under the care of a physician. Physicians can certify the cause and manner of death for all patients.**
    - **Discussion**
        - In- patient hospital deaths, when the identity of the deceased is usually known, can be processed by hospital staff and immediately released to the appropriate holding facility for transfer to the family's or NOK's funeral home (or holding facility) of choice.
        - Full time hospital staff physicians will be over whelmed with patient treatment and may not be available to complete death certificates.
    - **Actionable recommendation to senior leaders –**
        - Hospitals should plan to augment existing refrigerated morgue spaces to manage an increase number of human remains.
        - Secure refrigerated trailers or conex boxes with diesel or electrical power should be brought to medical facilities to increase HR storage.
        - Secure spaces on medical facility property, which have the capability to decrease room temperatures, may be required to store HR for medical facilities without the ability to locate or obtain refrigerated trailers.
        - Licensed physicians who are not hospital staff could/ can augment the medical treatment facilities by reviewing medical records to complete and certify death certificates.
        - Depending upon the capabilities of the jurisdiction, ME/C and their trained staff could also assist in the certification of death for medical treatment facilities.

- **Response of Appropriate Medico-legal Death Authorities to Unattended Deaths**
    - **Discussion-**
        - In some jurisdictions, ME/C rely upon police, fire, EMS, and trained lay investigators (funeral directors) to "initially screen" deaths.
        - ME/C, police, fire and EMS resources will require a surge capacity to respond to the increased number of out of medical treatment facility or "unattended" deaths.
        - "Responders" will need the knowledge and capability to identify PI event related deaths verses non PI event related deaths to ensure proper actions are taken at the scene.

- **Actionable recommendation to senior leaders-**
  - ME/C, police and public health should develop specific investigative checklists, which clarifies the concepts of medico-legal determination of cause and manner of death, victim identification procedures, scene documentation, overall investigative requirements, as well as required PPE and personal decontamination, for all call centers and responders to unattended deaths during a PI event.
  - Communities could reach out to retired or non-practicing ME/C, law enforcement and EMS providers to augment the community death investigation response.
  - ME/C systems should train all other "first responders" in the field about the symptoms of PI deaths and the actions to take when a suspected PI event related death is found verses non PI event deaths are found.
  - The centralized patient tracking system with the patient/doctor data base should be made available to all identified responders in the field to allow for the most expeditious means of case management from the field into the system. (I.e. Can HR be released to the funeral home with a primary care physician signing the death certificate or will HR require processing by the ME/C at another location?)
  - Establish a process to provide an adequate training program managed by the ME/C and LE to increase the lay investigator staff to support LE and ME/C operations in the field before an event occurs.

- **Results-**
  - Accurate death reporting and investigation.
  - Assurances to the public that deaths have been accurately investigated and certified by the proper authorities: pubic confidence.

- **Pronouncement of Unattended Deaths**
  - **Discussion-**
    - Local/state laws dictate who may or may not pronounce deaths in each jurisdiction
    - Some jurisdictions do not have pronouncement laws
    - In areas with pronouncement laws, there may not be enough personnel resources

- **Actionable recommendation to senior leaders -**
  - Legal requirements for pronouncement may require amendment during a pandemic event to allow for additional personnel to complete the task.
  - Areas with pronouncement laws may have to bring additional personnel under their control and supervision to act in their behalf during a PI event as well as amending their pronouncement laws/statutes.

- **Results-**
  - Increase number of trained personnel to augment the ME/C during a PI event. Increased response resources, better public relations and public confidence,

- **Medico-legal Determination of the Cause and Manner of Deaths for Unattended Deaths**

  - **Discussion-**
    - Medico-legal death investigations demand trained responders with appropriate backgrounds.
    - Many ME/C systems rely upon police investigations and/or lay deputy coroners (trained funeral directors) to conduct an initial investigation and then to notify the ME/C of the death for response.
    - Police and ME/C systems will be overwhelmed during a PI event requiring additional trained staff
    - Some families/friends may deliver the deceased directly to funeral homes, medical facilities (including urgent care centers) police and fire stations and ME/C offices which will impact the "scene" investigations since the remains have been moved from the place of death. Appropriate and timely interviews are required for these circumstances.
    - Attending physicians who hold the records for their patients may not have the ability to respond to telephone calls from the scene responders".

- **Actionable recommendation to senior leaders-**
  - Identify additional personnel to train (based upon the medico-legal checklist procedures previously mentioned) and assist the ME/C and police operations in death investigations (i.e. other sworn officers such as correctional officers, school truancy officers, etc.).
  - If not already in use, recruit former ME/C, police, fire, EMS, funeral directors, personnel and train to assist in the scene determination investigations.
  - Establish a call in line for ME/C consultations and physician-patient data to assist in the determination of the cause of death.
  - Training funds should be made available to communities for medico legal death instruction to those groups identified who will augment existing systems.

- **Results-**
  - Responders have ready access to medico-legal resources to assist in the investigations.
  - Physicians have access to resources to assist in the determination of the cause and manner of death.
  - Individual "at-home" cases can be tracked in a centralized database.

- **Ensuring Proper Identification of Human Remains during the PI Event**
  - **Discussion-**
    - Victim identification responsibilities vary by local jurisdiction. Each jurisdiction defines by code which agency (ies) are ultimately responsible for victims identification under various circumstances.
    - Visual identification by witnesses/government issued identification cards is commonly utilized; however, this form of identification is not a forensically acceptable method of positive identification. Numerous mis-identifications have occurred in the past utilizing visual identification practices.
    - Forensic practices put into place during a PI event, which will allow for follow up forensic identification studies if a victim's identity comes into question later.
    - Some remains will be found in a decomposed state and will not be able to be identified without scientific testing.

- **Actionable recommendation to senior leaders-**
  - Each decedent will have at least the right thumb (if present) or possibly all ten fingerprints taken which will become part of the individual case record. (Right thumbs are typically taken for drivers licenses in states which require prints.)
  - Each decedent will have appropriate DNA exemplar (this is dependent upon the condition of the remains) taken which will become part of the individual case record.
  - Each decedent will have a facial photograph (and scene photos if found out of a hospital) and such photographs will become part of the case record.
  - Local authorities will require assistance from the ME/C in the identification of decomposed human remains. Local authorities will have to provide all investigative and medical records to the ME/C.
  - ME/C will require additional resources (DNA, fingerprint technicians, anthropologist, dentists, etc.) to assist in the positive identification of decomposed remains.

- **Results-**
  - In the event, the identity of a decedent, who was certified as deceased, is questioned; the authorities could submit the DNA, fingerprints and photographs for further evaluation and analysis.
  - Millions of dollars in insurance fraud and wrongful death cases could be avoided by ensuring proper identification of the dead.

- **Securing Proper Authorities to Certify the Cause and Manner of Death for PI cases.**
  - **Discussion-**
    - Non-ME/C licensed physicians (as well as some other specific health care providers, as defined by local code) are authorized to certify the cause of death in natural manner of death cases.
    - There will be a shortage of primary care physicians to complete the task of certifying deaths.
    - Specialized physicians can augment primary care physicians (e.g. podiatrists, plastic surgeons, etc.) in the completion of death certificates.
    - Amendment to existing codes may be required to permit other medical specialties to complete death certificates.
    - Code requirements usually exist dictating the time requirements for the ME/C and physician's certification of death as well as the time for funeral homes to file completed death certificates with the vital records divisions.

- **Actionable recommendation to senior leaders-**
  - Establish an over-sight committee of ME/C and trained Medical Doctors who will manage the field investigations to make final determinations of cause and manner of death with the lay investigative teams.
  - Review existing codes and amend as required to determine who may assist in the completion of death certificates.
  - Recruit additional medical doctors to assist medical treatment facilities in the completion of medical records and death certificates.
  - Determine the code on time requirements for completing and filing of death certificates by physicians/ME/C and funeral homes. Make appropriate amendments as required.

- **Results-**
  - Increase the capacity to complete required death certificates for the fatalities.
  - Allow for a more appropriate length of time to complete and file death certificates considering the PI event.
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- **Transportation of PI Human Remain to Appropriate Facilities**
  - **Discussion-**
    - Some ME/C, EMS and law enforcement systems have human remains transport capabilities built into their existing systems.
    - EMS will most likely require every available vehicle to transport the living to treatment facilities.
    - Some ME/C and police only utilize existing contractors (Funeral Directors and/or transport companies) who will be overwhelmed during a PI event.
    - Families and or friends may transport human remains to a facility in their private vehicles.
    - Non-traditional human remains transporters may be required to conduct movement from homes, scenes, hospitals, morgues, funeral homes, cemeteries, and crematories.
    - Human remains pouches, PPE, gurneys, and other basic morgue supplies will be in short supplies.

- **Actionable recommendation to senior leaders-**
  - Review existing codes on the requirements to transport human remains in your jurisdiction. Amend code, if necessary, to allow for surge capacity with non-traditional vehicles if required.
  - Solicit volunteers from other communities (churches, social services, salvation army, etc.) to assist in human remain transport, and provide training to ensure standard procedures are followed (including documentation, PPE usage and human and respectful treatment).
  - Obtain additional transport vehicles to augment the existing "fleet". (School buses with seats removed, rented cargo vans, vehicles from funeral homes, etc.)
  - HR supplies should be purchased by communities with the Pandemic Flu funding provided by the Federal Government.

- **Results-**
  - Increase capacity to transport the increased number of human remains to appropriate facilities and freeing up funeral homes to complete their HR preparations.
  - Allow for more timely response and less waiting times for families.

- **Temporary storage of PI Human Remains**
  - **Discussion**
    - Few communities have the capacity to hold large numbers of Human Remains.
    - Hospitals have very limited morgue capacity and many hospitals are attempting to build new facilities with no morgue space.
    - Additional HR storage will be required for a PI event.
    - Funeral homes also have very limited storage space for HR.
    - Storage capacity may be required for a long term of six months or more.
    - Most families will expect their loved ones to be maintained and processed in an area close to their residents.

  - **Actionable recommendation to senior leaders-**
    - Identify and contract with refrigerated truck companies to augment storage capacity at medical treatment facilities, existing morgues, funeral homes and other areas deemed appropriate by the local community. Identify existing facilities which can be utilized as a morgue for the community (avoid food establishments, schools, churches, etc. because of the economic and/or social impact).

        - Augment the cooling systems of existing facilities to maintain the temperature of the facility between 34-37 deg. F. (Air coolers).
        - Identify personnel who can maintain a HR inventory of all remains brought into and released by the morgue storage area.
        - Ensure appropriate on site office spaces are available for the staff at any facility/site utilized.
        - Train all personnel in blood borne pathogens, PPE and proper lifting techniques.
        - Maintain separate personal effects (PE) storage area for items left on remains which come into the morgue.
        - Establish policy for documenting and recording all PE on a chain of evidence document. Have all chain of evidence documents signed by the retrieving funeral homes contracted by the families when they pick up the remains and PE.
        - When appropriate and if possible (based on supplies, religious/personal considerations and staffing needs) embalming remains should be considered by localities because it allows for extended storage without the need for refrigeration.
    - **Results**
        - Ensures adequate storage space is available for all HR in a region.
        - Ensures standard protocols are followed and strict accountability of HR and PE are maintained.

IV Conclusion Matrix Summary

Due to the size and duration of a pandemic influenza (PI) event, the negative impact on existing systems to handle the large increase in deaths will be very significant. This will also likely be true for other mass-fatality events such as natural disasters or WMD-related terrorism incidents. The trained professionals, who are normally charged with carrying out unattended death scene investigations, will be over-extended, and will probably have to prioritize by limiting their response to deaths that appear to be accidents, suicides or homicides, are otherwise suspicious, or that do not fit the pattern for a PI-related death. People who do not normally perform certain duties at the unattended death scene (pronouncing, determining cause & manner of death, obtaining positive verification of ID, etc.) such as fire/EMS and law enforcement (LE) personnel, but who are often present at such incidents, may well have to assist the usual LE forensic and investigative staff and ME/C staff during the pandemic. Non-pathologist physicians and other medical professionals such as PAs, RNs, etc. who are highly trained, but not necessarily in procedures at death scenes, may also be asked to assist. As the crisis worsens (Tier I going to Tier IV on the attached chart), and personnel and resources run out, the question of *who should* perform certain tasks becomes more one of *who is still available* to perform tasks. This will also adversely affect material resources such as human remains pouches, PPE for scene personnel, and supplies and knowledge to perform appropriate

decontamination of both the scene and whatever is used to transport the body to the morgue.

With this in mind, the attached chart was developed to assist jurisdictions in making decisions about how they may want to adapt their own regulations and priorities to achieve acceptable handling of the death scene, from the moment a death is discovered/reported, until the body has been transported to whatever is functioning as a morgue. The columns represent the tasks that should be completed to ensure medico-legal concerns are met regarding documentation of the death scene and transport of the body to the morgue. The rows represent a qualitative division of who may have to perform said tasks, as the situation in a city / county / state deteriorates and resources are depleted. Different tasks may reach a crisis point (Tier III or IV) at different times within the same jurisdiction (i.e., death scene processing versus transport of the body), and the same tasks may reach a crisis at different times between different jurisdictions (i.e., different counties). It will be up to the local officials (e.g., the state governor) to make the decision about when which functions have reached which tier in a given city or county, for example. In this model, that would mean that someone such as the governor (or city/county officials, etc.) would decide if/when someone other than the normal LE investigative & ME/C staff should be involved in performing death scene tasks.

It is crucial to decide well ahead of time if and how a jurisdiction wants to vary from established SOPs and regulations, so that laws may be amended and new procedures agreed upon. This preserves the reality of due process and law, and allows a jurisdiction to identify who outside of the usual LE & ME/C community is to be given such new, additional duties. It also allows adequate time to train personnel new to such activities, and provides for the creation of guidelines/field checklists that will help ensure that all-important medico-legal issues are addressed at the death scene, no matter who is performing the tasks. Note that the chart is presented as a starting point for discussion rather than a finished model, so that each jurisdiction can use it to arrive at whatever compromise best suits their own situation and priorities. It is hoped that jurisdictions can reach a practical solution that reflects the realities of a PI event, while still accomplishing the important tasks that must be done at the scene so that the public’s faith in government is upheld, and their personal grief is lessened.

Level of Crisis	Positive or Presumptive Identification	Pronounce (Local Authority)	Collect Death Scene info PI / non-PI / Violent	Contain	• Analysis • Reporting	Track (COC) HR&PE	Transport
Tier I (Normal)	• LE • ME • Coroner • Hospital	• LE • ME • Coroner • Funeral Director	• LE • ME • Coroner • Physician	• Human Remains Pouch (HRP)	• Public Health	•Standard operating Proceedures (SOP)	• Morgue • Funeral Homes • EMS
Tier II (Surge)	Above + • Funeral Directors	Above + • Non-Physician Licensed Medical professionals	Above + • Non-Physician Licensed Medical professionals	• Human Remains Pouch (HRP)	• LE • Physicians	• Bar Code • RFID	• Refrig trucks • Temp Morgues • Private Contractor
Tier III (Crisis)	Above + • Family • Co-worker • Neighbor	Above + • Non-Physician Non-Licensed Medical professionals	Above + • Non-Physician Non-Licensed Medical professionals	• Field Exp	• Family	• Field Exp	• Gov Workers • National Guard • State Militia • DOD
Tier IV (Overwhelmed)	Above + • Witness	Above + • Deputized Volunteer	Above + • Deputized Volunteer	• Limited	• Limited	• Field Exp	• Non-Govt Workers • Family

V Working Group Team Members
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