



PUBLIC HEALTH AND MEDICAL PANDEMIC INFLUENZA PLAN SUMMARY

Introduction

Since September 11, 2001, North Dakota public health and medical communities have been preparing for large-scale emergencies and disasters from both intentional hazards and unintentional hazards, such as communicable disease outbreaks. This all-hazards approach has resulted in high levels of preparedness for a wide range of threats, including pandemic influenza.

The North Dakota Department of Health (NDDoH) has received federal funds for the enhancement of public health and medical emergency preparedness. As a result, the NDDoH created the Emergency Preparedness and Response Section that is responsible for building a coordinated health and medical capacity within the various divisions of the NDDoH, as well as with local public health, laboratories, hospitals, clinics and emergency medical services (EMS) providers.

This planning and resource building has involved a wide variety of stakeholders at local, state and federal levels. The strategy has been to develop public health and medical plans and processes that coordinate under the North Dakota State Emergency Operations Plans (SEOP) administered by the Division of Emergency Services (DES). The NDDoH is the functional coordinator for the health and medical portion of the SEOP and has worked closely with DES to ensure that public health and medical response is closely integrated into the overall North Dakota emergency response plan.

Planning and Preparation

The NDDoH has coordinated the development of three primary public health and medical preparedness plans at the state level that would be used in response to a pandemic influenza outbreak. Those plans include a state public health plan, a strategic national stockpile plan and a hospital and EMS surge-capacity plan. The hospital surge capacity plan was created under contract with the North Dakota Healthcare Association, and EMS surge capacity planning is occurring under contract with the North Dakota EMS Association. Additionally, the NDDoH has contracted with local public health units to develop regional and local public health plans.

While planning and preparation have occurred from an all-hazards approach, special attention has been paid to pandemic influenza preparedness. Pandemic influenza has been included as one of the specific diseases detailed in the public health plan. To test the plan, the NDDoH conducted regional pandemic influenza tabletop exercises throughout the state in the spring of 2005 involving local public health, hospitals and EMS agencies.

The following is a description of portions of the state public health, strategic national stockpile and hospital surge capacity plans that are relevant to a pandemic influenza outbreak:

I. Surveillance and Detection

The NDDoH Division of Disease Control annually conducts influenza surveillance and detection. Influenza viruses are constantly changing. Surveillance for pandemic influenza must include both virologic surveillance, in which influenza viruses are isolated for antigenic and genetic analysis, and disease surveillance, in which the epidemiologic features and clinical impact of new variants are assessed. The goals of influenza surveillance are to quickly detect outbreaks of influenza and identify the organisms involved in order to facilitate early public health intervention.

Role of the North Dakota Department of Health

Surveillance for pandemic influenza in North Dakota is primarily a function of the Division of Disease Control and is coordinated by an influenza surveillance coordinator. Assistance with surveillance activities is conducted by the field epidemiologists, who are Disease Control employees located at local public health units.

Pre-pandemic Influenza Surveillance Activities

1. The influenza surveillance coordinator conducts influenza surveillance with sentinel providers, schools, laboratories and others during the influenza season. Sentinel surveillance has been enhanced by utilizing emergency room-based syndromic surveillance for influenza-like illnesses in selected North Dakota medical centers. These surveillance activities identify increased influenza activity in the state, which prompts collection of samples for laboratory identification. Influenza surveillance activities include:
 - Passive Surveillance
 - The existing passive influenza surveillance system utilizes influenza information received from physicians, people in charge of medical care facilities and directors of laboratories who are required to report influenza cases to the NDDoH. Influenza cases are reported throughout the year.
 - During the regular influenza season (October through May), state and territorial epidemiologists report the level of influenza activity in their states to the U.S. Centers for Disease Control and Prevention (CDC) weekly as “widespread,” “regional,” “local,” “sporadic,” or “no activity.”
 - About 75 World Health Organization collaborating laboratories and 50 National Respiratory and Enteric Virus Surveillance System laboratories (including one in North Dakota) report the number and type of influenza viruses isolated each week. These participating laboratories send representative and/or unusual specimens to CDC for comparative antigenic and genetic analysis.
 - The Disease Control staff investigates reported clusters of influenza-like illnesses at long-term care facilities and other institutions and coordinates with these facilities to obtain specimens that are sent to the Division of Microbiology for viral isolation.

school reports the number of students absent each day due to illness, along with the total number of students enrolled.

- Syndromic Surveillance
 - ◆ Syndromic surveillance utilizing a commercial over-the-counter software program, RedBat™, is currently being utilized in emergency departments in Bismarck, Fargo, Minot and Grand Forks. In addition, agreements to employ RedBat™ in Dickinson, Jamestown and Williston have been reached. This system utilizes existing electronic databases to query 11 specific syndromes calculated from chief complaints entered into the hospital database upon check-in. The syndromic surveillance coordinator developed specific search criteria for syndromes consistent with influenza-like illness. Utilizing historical data from these facilities, thresholds have been developed for recognition of potential influenza-like illness clusters.
 - Division of Microbiology Virologic Surveillance: The Division of Microbiology identifies influenza viruses present in North Dakota. This allows Disease Control to compare between the influenza types circulating in the community and those present in the vaccine. Information about influenza types present in the state will be used to determine recommendations for antiviral therapy.
 - ◆ Private clinical laboratories voluntarily submit specimens to the Division of Microbiology for viral sub-typing. The division provides specimen collection and transport supplies and instructions for free testing and specimen transport.
 - ◆ The Division of Microbiology sends selected influenza isolates to CDC for antigenic analysis.
 - ◆ The Division of Microbiology has cross-trained staff to ensure adequate personnel for influenza viral testing.
 - The influenza surveillance coordinator distributes influenza surveillance data to laboratories, local public health units, health-care providers, sentinel providers, infection-control practitioners and several other groups involved in influenza surveillance.
2. The Division of Disease Control maintains a list of influenza coordinators and immunization program coordinators for the surrounding states (Montana, South Dakota, Minnesota, and Wisconsin) and updates this list annually.
 3. Disease Control monitors bulletins from CDC regarding virologic, epidemiologic and clinical findings associated with new variants of influenza isolated within or outside the United States.
 4. Disease Control has enhanced electronic and telecommunications capability with local communities, neighboring states and CDC through the North Dakota Health Alert Network.
 5. Disease Control also maintains a communications network with epidemiologists and public health laboratories to share information regarding the detection and circulation of novel influenza viruses through Epi-X and other communications modalities.

Pandemic Influenza Surveillance Activities

1. Enhanced surveillance measures, as outlined below, will be used to detect pandemic influenza activity levels across the state and to facilitate public health investigation and control interventions. When necessary, the Division of Disease Control may implement additional surveillance measures in order to identify and control the spread of influenza.
 - **Passive Surveillance**
 - During a pandemic, routine surveillance, along with other activities, will be implemented to assess and control the scope of the disease across the state. Key surveillance activities, such as those mentioned previously, will begin during the pre-pandemic phase and continue through the end of the second wave of the pandemic.
 - **Active Surveillance**
 - Disease Control will continue influenza activities as described in the pre-pandemic Stage.
 - ◆ Sentinel physicians
 - ◆ Sentinel laboratories
 - ◆ School absenteeism
 - ◆ Syndromic surveillance
 - ◆ Division of Microbiology virologic surveillance
 - Enhance the sentinel provider networks for reporting and specimen submission.
 - ◆ Improve geographic distribution statewide.
 - Recruit two to three sentinel providers from each region, each from a different county.
 - Recruit a minimum of three schools from each region to report absenteeism data on a weekly basis.
 - At least one school, but not all schools, should be located in the eight larger cities.
 - Work with the Department of Public Instruction to coordinate all schools reporting absenteeism.
 - Send out collection kits to all long-term care facilities.
 - ◆ Increase diversity of sites statewide.
 - Select one to two smaller clinics in each region to act as sentinel sites.
 - Select at least one clinic in a county outside of Burleigh, Cass, Grand Forks, Ramsey, Stark, Stutsman, Ward and Williams.
 - Set up sentinel sites with assisted-living facilities in the eight regions.
 - Work with businesses statewide to obtain employee absenteeism data.
 - Work with daycare providers around the state to report influenza-like illnesses in their daycares.
 - ◆ Ensure consistent and timely reporting of influenza-like illnesses and specimen submission.
 - Follow-up calls to sentinel providers who have not reported by required time each week.
 - Follow-up with sentinel providers, laboratories and assisted-living facilities who have not submitted specimens within previous week.
 - Monitor Red Bat data daily to determine increases and decreases in influenza-like illnesses.

Role of the Division of Microbiology

Disease Control will coordinate with the Division of Microbiology to ensure the proper collection, transport and testing of influenza specimens throughout all stages of pandemic influenza. Nasopharyngeal washes, nasopharyngeal swabs, throat swabs and blood specimens may be collected for laboratory testing.

II. Disease Investigation

Pre-pandemic Influenza Testing Capabilities

1. The Division of Microbiology currently offers three tests for confirmation of influenza:
 - **Culture:** The best specimens to collect for influenza virus isolation are nasopharyngeal washings or swabs. The preferred method is generally a nasopharyngeal swab.
 - Positive results may be available within a few days, but in some instances, it may take several weeks for viral growth to be detected.
 - **Direct Fluorescent Antibody (DFA):** A separate specimen for slide preparation is required for DFA. The best specimen to collect for DFA is either a nasopharyngeal, nasal or throat swab, although the preferred method is nasopharyngeal.
 - DFA results generally are available within 24 hours of receipt of the specimen.
 - **Serology:** Acute and convalescent sera collected two to three weeks apart may be used to confirm influenza.
 - Results of serologic testing generally are available about one week after receipt of the convalescent specimen.
 - Serology testing for influenza generally is not ordered on a routine basis.
2. Isolation kits for nasopharyngeal swabs are available from the Division of Microbiology. **All influenza specimens should be collected within 72 hours of illness onset**, and samples must be delivered to the Division of Microbiology as soon as possible following collection. The Division of Microbiology will send representative and unusual virus isolates to CDC for appropriate testing, including antiviral resistance studies.

Pandemic Influenza Testing Capabilities

1. During the pandemic stage, Disease Control will work with the Division of Microbiology to establish a sampling schema for influenza laboratory testing across the eight regions, based on the projected burden of the pandemic and the resources available for laboratory testing.
2. Once pandemic influenza has been established in a region, laboratory testing for that region may be scaled down, depending on the public health need for additional testing. Sampling schema may be altered once progression to the next pandemic influenza phase has been declared on the national level.

The Role of the Board of Animal Health

1. The interaction between the influenza virus and animals, especially poultry and swine, has created considerable concern about the development of a novel influenza strain that could result in an influenza pandemic.
2. Coordination of surveillance and control of poultry or other animals that might be related to the pandemic will be the responsibility of the North Dakota State Veterinarian and the North Dakota Department of Agriculture. Collaboration also will be conducted with veterinarians and other staff of the U.S. Department of Agriculture.

3. Laboratory support for zoonoses-related influenza will be provided by the North Dakota State University Veterinary Diagnostic Laboratory.

III. Other NDDoH Response

If the NDDoH detects or is notified by federal health officials that a pandemic influenza outbreak is occurring, activation of the NDDoH emergency operations center would occur and the state emergency operations center would be notified.

Direction and Control

The NDDoH has established an incident command system for use in the NDDoH emergency operations center. The incident command system consists of five stations: incident command, planning, operations, logistics and finance administration.

- The incident command station establishes command, controls resources and maintains accountability. Three additional sub-stations exist as part of the Incident Command station: safety (anticipates, detects and corrects unsafe situations), liaison (establishes contacts with other assisting agencies) and public information (develops a consistent message, liaison to media).
- The planning station prepares incident action plans.
- The operations station directs tactical operations.
- The logistics station is responsible for acquisition of resources.
- The fiscal station maintains financial records and monitors costs.

The NDDoH emergency operations center has the capacity to be activated and functional 24 hours a day, seven days a week. An alternative department operations center has been configured and can be made operational if the primary department operations center is incapacitated.

When the Division of Emergency Services activates the state emergency operations center (SEOC), the NDDoH establishes representation to the SEOC and activates the NDDoH emergency operations center. Incident objectives are created at the SEOC and implemented at the NDDoH emergency operations center.

Communications

Public health and medical communications are carried out through the Health Alert Network (HAN). Two separate but compatible wide-area networks are utilized to communicate with public health units and hospitals. The wide-area networks provide communication through the exchange of data, video conferencing and limited voice applications. The wide-area networks are secure, redundant and do not rely on normal public communication systems such as telephones and Internet. All local public health units, hospitals, the NDDoH, the North Dakota Healthcare Association and the University of North Dakota School of Medicine are part of the HAN system. The network has the capacity to connect with any of the other sites located on the North Dakota Stagenet system (i.e., local government, K-12 education, higher education, and state government).

In addition to the wide-area networks, the HAN also distributes messages through email, faxes, video streaming on the Internet and telephone. The HAN soon will complete installation of an automated public health and medical personnel alerting system. This system allows personnel to enter contact information (i.e., work phone, cell phone, home phone, pager) into a website

profile. The automated system distributes email and fax messages, in addition to calling telephones and pagers.

Regional and Local Planning

Eight local public health unit regions have been established for emergency preparedness and response. Each of the regions has an emergency preparedness and response coordinator.

Regional and local public health plans describe local direction and control systems, identify the operational detail and locations of emergency vaccination clinics, and indicate how large numbers of deceased will be handled. Local public health units have planned for the staffing and operation of emergency vaccination clinics that would be opened if sufficient quantities of vaccine are available to warrant their use. Local public health units also have the authority to issue quarantine and isolation orders. Their plans include provisions for the care of quarantined and isolated patients.

Distribution of Pharmaceuticals

It is anticipated that the federal government would be the only source of vaccine developed in response to a pandemic influenza outbreak. The North Dakota public health system has developed a plan for the distribution of large-scale pharmaceuticals and vaccines in a short period of time. If sufficient quantities of vaccine exist, the emergency vaccination system would be deployed. The system consists of a receiving process from the federal government and distribution by the NDDoH to local public health emergency clinics called points of dispensing (PODs). Local public health units have planned for 75 PODs statewide. If insufficient vaccine exists to warrant opening PODs, local public health units will establish the location of alternative clinic sites.

Vendor-Managed Inventories of Pharmaceuticals and Medical Supplies

The NDDoH has arranged for the stockpiling of certain pharmaceuticals, such as antibiotics, and medical supplies, such as infection-control masks, for emergency use through a process known as vendor-managed inventory. The NDDoH has contracted with a vendor to maintain a predetermined quantity of pharmaceuticals for use by the state. The vendor holds the quantity in an undisclosed location for a period of time before releasing the drugs into the normal supply chain. The released drugs are then replaced with new drugs. This process allows drugs to be maintained in a state-controlled stockpile without having to incur the cost of wasting drugs due to expiration. The NDDoH is in the process of contracting with another vendor for additional medical supplies, such as cots and stethoscopes.

Pre-positioning of Certain Medical Equipment

The NDDoH provided funding to the North Dakota Healthcare Association for the purchase and placement of hospital equipment that would be useful during an influenza pandemic. The equipment includes patient ventilators that assist breathing and portable hepa filtration machines that allow a negative pressure room to be established for better infection control. Identical equipment was purchased for all hospitals to ensure that the equipment is interchangeable among hospitals and can be shifted when necessary.

Isolation and Quarantine

Local public health officers and the state health officer have the authority to quarantine and isolate people. If the quarantine or isolation is for a period exceeding 10 days, the health officer must obtain a court order to continue the segregation. Failure to comply with a quarantine or isolation order is a class B misdemeanor.

Quarantine and isolation will be implemented in an effort to control the transmission of influenza in a community and will be conducted in the least restrictive manner.

Enforcement of quarantine will more likely occur when influenza cases are first reported in the area. After influenza is established in a community, enforcement will likely cease and voluntary isolation or quarantine will be implemented.

Public Information Communication Plan

A statewide public information communication plan was established. The plan provides for the identification and training of public health spokespersons, the development of websites and other information distribution methods, the creation of consistent messages and the translation of health fact sheets into seven foreign languages for North Dakota residents who do not speak or read English. A public health information hotline has been created that allows the public to call for information about public health emergencies. In addition, each of the eight regions has a public health public information officer who coordinates with the NDDoH Office of Public Information.

During an influenza pandemic, public messaging would occur describing the best ways to avoid becoming ill, the status of vaccine supply, the location of emergency vaccination clinics, information about how to care for people who are ill, as well as other relevant information.

Laboratory

Should it become necessary for the Division of Microbiology laboratory to handle a significantly increased number of specimens due to a pandemic outbreak, protocols immediately will be put in place to prioritize specimens and testing, depending on the severity of the situation. Specimens from those patients and areas of the state most severely affected will be given priority for available testing, and any unusual isolates would be immediately submitted to the CDC for characterization.

Once the pandemic influenza type has been identified as circulating in a given location, testing from that area will be reduced or eliminated. Cooperative agreements are in place with neighboring states to refer a portion of our testing burden to them in an outbreak situation. In the case of pandemic influenza, however, their capacities may also be maximized. Under these circumstances, additional personnel may be required to handle testing demands, and resources will be redirected from less critical areas of the laboratory. This may require that non-critical testing be placed on hold or temporarily suspended.

Hospital Surge Capacity

The NDDoH has been planning with the North Dakota hospital community for the creation of hospital surge capacity. Our goal has been to create surge capacity for at least 500 patients over and above normal hospitalization census. The planning process has been implemented through a contract with the North Dakota Healthcare Association. Four hospital regions have been defined in the state. Hospital representatives have identified areas to strengthen and prioritize needs.

The regional plans are designed to facilitate the coordination and communication among hospitals, public health, emergency management and other entities involved in emergency preparedness activities. The plans provide guidance and procedures that will be used to deploy additional patient beds should a disaster occur in North Dakota.

The plans identify the process used to activate public health and medical response. The plans consider the critical issues of hospital bed capacity, overcrowding and diversion at medical

facilities, flow of patients, transfer of equipment as needed, supply and re-supply of pharmaceuticals, hospital security and medical waste disposal. The plans identify that much of the need for additional hospital beds can be met by utilizing empty beds (based on average daily census figures) and by increasing bed strength of hospitals through use of overflow patient care areas, discharge of elective patients, and similar procedures. The plans also identify potential alternative care facilities that could be used as hospitals if the need arises.

Public Health and Medical Volunteers

During an influenza pandemic, it will be necessary to rely on public health and medical volunteers for some of the health-care delivery. Two main strategies have been implemented to meet this need:

- The NDDoH has contracted with lead regional local public health units for the recruitment of public health and medical volunteers. They have successfully recruited more than 2,000 volunteers.
- Additionally, the NDDoH has contracted with various health and medical licensure boards (i.e., Board of Nursing, Board of Medical Examiners) to provide contact information of licensed health-care professionals in the state. This information is transferred from the licensure board's information system into the Health Alert Network messaging system for automated alerting. Using this process, the NDDoH can quickly recruit health and medical personnel when they are needed during an influenza pandemic.

EMS Surge Capacity

The NDDoH contracted with the North Dakota Emergency Medical Services Association to conduct an EMS needs assessment and to develop EMS surge and transportation plans. EMS plans include personnel training, development of mutual aid agreements, identification of alternative transportation methods (i.e., school buses), creation of regional equipment caches and development of regional response teams.

For more information about the North Dakota Public Health and Medical Pandemic Influenza Plan, contact the North Dakota Department of Health's Emergency Preparedness and Response Section at 701.328.2270.