



Minnesota Pandemic Influenza Control and Prevention Guidelines

Division of Disease Prevention and Control
Minnesota Department of Health

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Care Providers of Minnesota
Central Minnesota Group Health
Countryside Public Health Department
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Hennepin County Community Health Department
Hennepin County Emergency Preparedness
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Local Epidemiology Network of Minnesota
Metropolitan Airport Commission
Metropolitan Visiting Nurses Association
Minneapolis Children's Hospital
Minnesota Academy of Physician Assistants
Minnesota Attorney General's Office
Minnesota Board of Animal Health
Minnesota Board of Nursing
Minnesota Department of Human Services
Minnesota Department of Health
Minnesota Department of Military Affairs
Minnesota Department of Public Safety
Minnesota Department of Public Services
Minnesota Department of Transportation
Minnesota Healthcare and Hospital Partnership
Minnesota Medical Association
Minnesota Pharmacists Association
Minnesota State Colleges and Universities
Minnesota Thoracic Society
North Memorial Medical Transportation Service
Northern States Power Company
Region's Hospital
Rice County Community Health Service
St. Louis County Public Health Department
St. Mary's Hospital - Duluth Clinic
St. Paul Fire and Marine Insurance Company
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I. Introduction

Influenza viruses are unique in their ability to cause sudden infection in all age groups on a global scale. The importance of influenza viruses as biological threats is due to a number of factors, including the high degree of transmissibility, the presence of a vast reservoir of novel variants (primarily aquatic birds), and the unusual properties of the viral genome. The infamous “Spanish flu” of 1918-19 was responsible for more than 20 million deaths worldwide, primarily among young adults. Mortality rates associated with the more recent pandemics of 1957 (A/Asia [H2N2]) and 1968 (A/Hong Kong [H3N2]) were reduced, in part, by antibiotic therapy for secondary bacterial infections and more aggressive supportive care. However, both of these later pandemics were associated with high rates of morbidity and social disruption.

To prepare for the next pandemic, an event considered by many experts to be inevitable, the Minnesota Department of Health (MDH) in cooperation with various state and local organizations has developed the Minnesota Pandemic Influenza Control and Prevention Guidelines to outline strategies by which pandemic influenza-related morbidity, mortality, and social disruption may be reduced.

II. Background

1. Influenza

Influenza is caused by viruses that infect the respiratory tract. Influenza symptoms include rapid onset of fever, chills, sore throat, runny nose, headache, non-productive cough, and body aches. Influenza is a highly contagious illness and can be spread easily from one person to another. It is spread through contact with droplets from the nose and throat of an infected person during coughing and sneezing. The time period between exposure and the onset of illness is usually one to five days.

There are two types of influenza viruses which cause disease in humans - type A and type B. Influenza A viruses are composed of two major antigenic structures essential to vaccines and immunity: hemagglutinin (H) and neuraminidase (N). The structure of these two components defines the virus sub-type. *Antigenic drift is a minor change caused by mutation that results in the emergence of a new strain within a sub-type.* Drifts can occur in both type A and B influenza viruses. *Antigenic shift is a major change caused by genetic recombination that results in the emergence of a novel sub-type (i.e., never before occurred in humans) associated with influenza pandemics.* This shift occurs with influenza type A viruses. Influenza A viruses are unique because they can infect both humans and animals and cause more severe illness. Antigenic shifts in influenza A viruses have been the cause of at least three pandemics in the 20th century.

2. Pandemic influenza

Pandemic Influenza is a unique public health emergency or community disaster. Pandemic influenza is considered to be a relatively high probability event, even inevitable by many experts, yet no one knows when the next pandemic will occur; there may be very little warning. Most experts believe that we will have between

one to six months between the identification of a novel influenza virus and the time that widespread outbreaks begin to occur in the U.S. Outbreaks are expected to occur simultaneously throughout much of the U.S., preventing relocation of human and material resources. The effect of influenza on individual communities will be relatively prolonged – six to eight weeks – when compared to the minutes-to-hours observed in most other natural disasters. Due to the prolonged nature of a pandemic influenza event, the CDC has defined phases to a pandemic in order to facilitate coordinated plans:

Phase 0

Level 1: Inter- or Pre-pandemic

Characteristics:

No indications of any new virus type reported.

Level 2: Novel virus identified in a single human case

Characteristics:

Novel virus detected in one or more humans.

Little or no immunity in the general population.

Potential, but not inevitable precursor to a pandemic.

Level 3: Human-to-human transmission confirmed

Characteristics:

Novel virus demonstrates sustained person-to person transmission with at least one outbreak over at least a two week period in one country or identification of the new virus in several countries.

Phases 1, 2, 3: Confirmation of onset of pandemic, region and multiregional epidemics, end of 1st wave

Characteristics:

Novel virus causes unusually high rates of morbidity and/or mortality in multiple, widespread geographic areas.

Formal declaration made.

End of 1st wave when influenza activity has stopped or reversed in initially affected areas.

Phase 4: Second wave or later waves

Characteristics:

Resurgence of epidemic activity within three to nine months following the initial wave of infection.

May affect different segments of the population.

Phase 5: Post-pandemic

Characteristics:

Cessation of pandemic “waves.”

Return (in U.S.A.) of the more typical wintertime “epidemic” cycle.

May take up to two to three years to be declared.

The impact of the next pandemic could have a devastating effect on the health and

well-being of the American public. The Centers for Disease Control and Prevention (CDC) estimates that, in the United States alone, up to 200 million people will be infected, 50 million people will require outpatient care, two million people will be hospitalized, and between 100,000 and 500,000 persons will die. Effective preventive and therapeutic measures – including vaccines and antiviral agents – will likely be in short supply, as may some antibiotics to treat secondary infections. Health-care workers and other first responders will likely be at even higher risk of exposure and illness than the general population, further impeding the care of victims. Widespread illness in the community will also increase the likelihood of sudden and potentially significant shortages of personnel who provide other essential community services.

III. Assumptions

1. The Federal government has assumed primary responsibility for a number of key elements of the national plan, including:
 1. Vaccine research and development.
 2. Coordinating national and international surveillance.
 3. Assessing and potentially enhancing vaccine and antiviral *storage and supply* and coordinating public-sector procurement.
 4. Devising a suitable liability program for vaccine manufacturers and persons administering the vaccine.
 5. Developing a national “clearinghouse” for vaccine availability information, vaccine distribution and redistribution.
 6. Developing a national adverse events surveillance system.
 7. Developing a national information database/exchange/clearinghouse on the Internet.
 8. Developing “generic” guidelines and/or “information templates” that can be modified and/or adapted as needed at the State and local levels, including:
 - a. Fact sheets on influenza, the influenza vaccine, and antiviral agents.
 - b. Strategies and guidelines for interacting with the media and communicating effectively with public health, medical communities and the general public.
 - c. Guidelines for triage and treatment of influenza patients in outpatient, inpatient and non-traditional medical care settings.
 4. Guidelines for setting up and operating mass vaccination programs.
 - e. Guidelines for distribution and use of antiviral agents.
2. The Federal government is currently pursuing mechanisms by which influenza vaccine can be made available more rapidly and in much larger quantities prior to and during the next pandemic.
- C. Liability protection for vaccine manufacturers and persons who administer influenza vaccine will likely be made available through Congressional legislation.
- D. Although antiviral agents are available that can theoretically be used for both treatment and prophylaxis during the next pandemic, these agents will likely be available only for limited distribution.
- E. Resources can be expected to be made available from the national level for plan implementation.

For purposes of consistency and coordination of the national, State and local response, identification and declaration of the following “phases” will be done at the national level:

Table 1. Pandemic Stage Definitions and Actions

Pandemic Phase	National Definition	National Decision-Maker	State Decision-Maker	State Spokes-person	MDH Actions	DEM Actions
Phase 0, / 1: Inter- or pandemic	no indications of any new virus type have been reported					
Phase 0, / 2: Novel identified in a human case	- novel virus detected in one or more humans - little or no immunity in the general population - potential, but not inevitable precursor to a pandemic	CDC and other relevant PHS Agencies	State Epidemiologist, MDH	State Epidemiologist, MDH	- internal planning - notification - enhance surveillance (if identified in N. America)	- advise key personnel - notification (if identified in N. America)
Phase 0, / 3: Human-to-human transmission confirmed	novel virus demonstrates sustained person-to-person transmission with at least one outbreak over at least a 2 week period in one country or identification of the new virus in several countries	Secretary, HHS	State Epidemiologist, MDH	State Epidemiologist, MDH	- internal planning - notification - coordination - enhance surveillance - EOC activation planning - vaccine delivery and administration	- notification - EOC activation planning
Phase 1: Confirmation of pandemic, Phase 2: National and multinational epidemics, Phase 3: End of 1 st wave	- novel virus causes unusually high rates of morbidity and/or mortality in multiple, widespread geographic areas - formal declaration made - end of first wave when influenza activity has stopped or reversed in initially affected areas	President	Governor	Commissioner of Health, MDH	- internal planning - notification - coordination - enhance surveillance - vaccine delivery and administration - develop disease control and prevention recommendations	- notification - activate State EOC, as required - coordinate state agency response - respond to needs of local emergency management - establish information hotline
Phase 4: Second wave or waves	resurgence of epidemic activity within 3-9 months following the initial wave of infection; may affect different segments of the population	CDC	State Epidemiologist, MDH	State Epidemiologist, MDH	- internal planning - notification - coordination - surveillance - planning and assessment - vaccine delivery and administration	- notification - activate State EOC, as required - respond to needs of local emergency management - continue information hotline
Phase 5: End of pandemic	cessation of successive pandemic “waves,” accompanied by the return (in the U.S.) of the more typical wintertime “epidemic” cycle; may take up to 2-3 years to be	CDC	State Epidemiologist, MDH	State Epidemiologist, MDH	- internal planning - notification - retrospective studies - evaluate response - summarize	- notification - deactivate state EOC as required - evaluate response

	declared					
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IV. Command and Control Procedures

A. Command and Control

Pandemic planning requires special emphasis on certain functions which are not specifically addressed in the MDH Emergency Operations Plan (EOP). Therefore, sections of the MDH EOP have been modified and incorporated into the pandemic prevention and control guidelines.

4. Inter- or Pre-pandemic
 - a. The Governor of Minnesota designates the Commissioner of Health as the leader and decision maker of the state's public health and health care-related response to pandemic influenza.
 1. The Commissioner of Health designates the State Epidemiologist (and IDP&C Division Director) as the leader and decision maker of the state's public health and health care-related response to pandemic influenza. The Health and Medical Management Team will advise the State Epidemiologist (see section VIII.2, pg. 22).
 3. The Commissioner of Health designates the State Epidemiologist as the leader and decision maker of the MDH response to pandemic influenza.
 4. The State Epidemiologist will designate the decision maker for the state's pandemic response and the MDH response in his/her absence.
 5. The Public Health Laboratory (PHL) will provide testing and technical support to the MDH pandemic response.
 6. The MDH Core Team (see pg. iv) will review Minnesota Guidelines for Prevention and Control of Pandemic Influenza on an annual basis and update the plan as needed (specific responsibility given to the Influenza Surveillance Coordinator).
 7. Each Division has the following personnel and other resources to assist in the pandemic response:
Disease Prevention and Control: epidemiologists, physicians, veterinarians, infection control practitioners, Advanced Practice Registered Nurses (APRNs), and experienced disease investigators.
Environmental Health: sanitarians, industrial hygienists, toxicologists, health physicists, engineers, hydrologists, and other environmental technicians.
Public Health Laboratory: microbiologists, laboratory technicians, and other laboratory staff, together with laboratory testing facilities for infectious agents, are available to provide assessment data as part of a response to a novel influenza virus.
Facilities and Provider Compliance: physicians, APRNs, sanitarians, engineers, and dieticians.
 8. Resource lists maintained by divisions are as follows:
Disease Prevention and Control: physicians by medical

specialties, infection control practitioners, and community health service personnel responsible for DP&C activities.

Environmental Health: state and local environmental health contacts and public water supply contacts.

Public Health Laboratory: clinical and environmental laboratories, laboratory directors/managers, and key laboratory staff.

Facility and Provider Compliance: Licensed and certified health care facilities and services.

Community Health Services: CHS Agency administrators, CHS Agency public health nursing directors, CHS Agency medical consultants, and chairs of the Community Health Services Boards.

Health Policy and Systems Compliance: morticians, crematories, medical examiners/coroners, casket manufacturers, embalming supply companies, and stress counselors.

2. Novel virus identified in a single human case
 1. The State Epidemiologist will convene a core team of MDH staff to coordinate and implement the MDH pandemic response activities. The core team may include staff from other affected divisions, as appropriate.
 2. The State Epidemiologist will assign an administrative coordinator to the core team to track assigned responsibilities, perform follow-up, and provide administrative support.
 3. The MDH Core Team will include: the State Epidemiologist; the IDEPC Assistant Division Director; Assistant State Epidemiologist; PHL Director; Clinical Laboratory Section Manager; Virology/Immunology Unit Supervisor; Epidemiology Field Services Manager; Acute Disease Investigation and Control Section Manager; CHS Division Director; Immunization, Tuberculosis, and International Health Section Manager; the Influenza Surveillance Coordinator; and the Public Information Officer. The MDH core team will consult with the State Public Health Veterinarian and the Bioterrorism Surveillance Coordinator as appropriate.
 4. The State Epidemiologist, ADIC Section Manager, ITIH Section Manager, and the Influenza Surveillance Coordinator (or their designee) are members of the Health and Medical Management Team at the Emergency Operations Center (EOC) (see section VIII.,A.,2, pg. 22).
3. Human-to-human transmission confirmed
 1. The MDH Core Team will convene to discuss the MDH pandemic response.
 2. If the State Epidemiologist and PHL Division Director determine the pandemic response requires more assistance than the assigned

staff, the State Epidemiologist will ask unaffected divisions for assistance. Other division directors will determine what division priority activities must be continued and will re-assign staff to assist in the pandemic response. The State Epidemiologist and PHL Division Director and the MDH Core Team will be responsible for directing the work of re-assigned MDH employees.

4. Confirmation of onset of pandemic, regional and multi-regional epidemics, end of 1st wave
 1. The MDH Core Team will convene to plan for the MDH pandemic response.
 2. The State Epidemiologist and PHL Division Directors will monitor staffing needs and reassign staff or request additional assistance as necessary.
 3. The State Epidemiologist will be responsible for regular communication with other division directors regarding the status of the pandemic and MDH's response.
 4. All other divisions will assume a supportive role, working with the affected division in ways appropriate to their program authority and responsibilities.
5. Second or later waves
 1. The MDH Core Team will convene to discuss and plan for the MDH pandemic response.
 2. The State Epidemiologist and PHL Division Director will monitor staffing needs and reassign staff or request additional assistance as necessary.
 5. The State Epidemiologist will be responsible for regular communication with other division directors regarding the status of the pandemic and MDH's response.
 6. All other divisions will assume a supportive role, working with the affected division in ways appropriate to their program authority and responsibilities.
6. Post-pandemic
 1. The MDH Core Team will convene to discuss and plan for the MDH post-pandemic response.
 2. The State Epidemiologist and PHL Division Director (or their designee) will monitor staffing needs and reassign staff or request additional assistance as necessary.
 7. The State Epidemiologist (or designee) will be responsible for regular communication with other division directors regarding the post-pandemic status.
 8. All other divisions will assume a supportive role, working with the affected division in ways appropriate to their program authority

and responsibilities.

2. Coordination and Continuity

The State Epidemiologist will ensure that the MDH response activities are coordinated. This includes assigning responsibilities to appropriate divisions and coordinating their pandemic response activities. This function may be delegated to a core team member.

1. Inter- or Pre-pandemic

1. The State Epidemiologist will be responsible for coordinating MDH pandemic response activities with other state and federal agencies, as appropriate. State agencies may include the Minnesota Department of Agriculture (MDA), Minnesota Department of Children, Families and Learning, Minnesota Department of Administration, Minnesota Department of Human Services, and the Minnesota Department of Public Safety (MDPS) including the Division of Emergency Management. Federal agencies may include the Federal Emergency Management Agency (FEMA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDC), and other state health departments.
2. The MDH pandemic influenza control activities will be coordinated with the local CHS Agencies. CHS Agencies in consultation with local emergency managers should develop local Emergency Operations Plans including plans for pandemic influenza to assist in coordination of these activities. CHS Agencies may also refer to CHS templates developed for disaster planning.
- c. The Health Alert Network (HAN) will be used for communication between CHS Agencies and MDH and will assist in coordination of MDH and CHS Agency activities.

2. Novel virus identified in a single human case

The State Epidemiologist will be responsible for coordinating MDH (response activities with other state and federal agencies, as appropriate. State and federal agencies may include those listed above in section V.B.1.a.

3. Human-to-human transmission confirmed

The State Epidemiologist will be responsible for coordinating MDH response activities with other state and federal agencies, as appropriate. State and federal agencies may include those listed in section 1a.

4. Confirmation of onset of pandemic, regional and multi-regional epidemics, end of 1st wave

The State Epidemiologist will be responsible for coordinating MDH response activities with other state and federal agencies, as appropriate. State and federal agencies may include those listed in section 1a.

5. Second or later waves

The State Epidemiologist will be responsible for coordinating MDH response activities with other state and federal agencies, as appropriate. State and federal agencies may include those listed in section 1a.

6. Post-pandemic

The State Epidemiologist will be responsible for coordinating MDH post-pandemic activities with other state and federal agencies, as appropriate. State and federal agencies may include those listed in section 1a.

C. Facilities

1. Inter- or Pre-pandemic

Three types of facilities have been identified to support the pandemic response:

1. Onsite or local facilities made available by hospitals and local agencies in greater Minnesota;
2. The MDH field offices in Bemidji, Duluth, Fergus Falls, Mankato, Marshall, Rochester, and St. Cloud; and
3. Facilities prewired for use as Emergency Operations Centers (EOC) or telephone banks:
 1. MDH Room LL53 (computer training lab), Metro Square, St. Paul.
 - ii MDH Room 250 (conference room), 717 SE Delaware Building, Minneapolis.
 - iii. State of Minnesota EOC, Town Square, St. Paul.
 - iv. Local EOCs.

2. Novel virus identified in a single human case

The State Epidemiologist will designate a member(s) of the MDH core team to confirm the availability of facilities which can be used to support the pandemic response.

3. Human-to-human transmission confirmed

1. The State Epidemiologist (or designated core team member) will designate each telephone bank to answer questions regarding a specific aspect of the pandemic (e.g., surveillance, vaccine distribution, medical response, or general public concerns), as needed.
2. The State Epidemiologist (or designated core team member) will arrange CHS Agency's facilities to use for the pandemic response as needed. DEM will coordinate with local emergency managers for use of other facilities.
3. The State Epidemiologist (or designated core team member) will request telephone banks from the designated director of Finance and Administration or the manager of the Information Resource Management Office (IRMO).

4. Confirmation of onset of pandemic, regional and multi-regional epidemics, end of 1st wave

1. The seven MDH district offices will be activated to respond to

1. Pandemic influenza. Depending on requests from CHS Agencies, the offices can provide facilities, support staff, supplies, telecommunications, and other MDH network connections.
 2. Pandemic response support from the district offices may be requested by the director of Finance and Administration or the manager of Facilities Management and Support.
 3. In consultation with DEM, the State Epidemiologist will determine if partial or full activation of the state EOC is appropriate.
5. Second or later waves
 2. The seven MDH district offices will respond and support response activities to the second wave. Depending on requests from CHS Agencies, the offices can provide facilities, support staff, supplies, telecommunications, and other MDH network connections.
 3. Pandemic response support from the district offices may be requested by the director of Finance and Administration or the manager of Facilities Management and Support.
 4. In consultation with DEM, the State Epidemiologist will determine if partial or full activation of the state EOC is appropriate.
6. Post-pandemic
 5. The seven MDH district offices will respond and support post-pandemic activities of pandemic influenza recovery. Depending on requests from CHS Agencies, the offices can provide facilities, support staff, supplies, telecommunications, and other MDH network connections.
 6. Post-pandemic response support from the district offices may be requested by the director of Finance and Administration or the manager of Facilities Management and Support.
 7. In consultation with DEM, the State Epidemiologist will determine when closure of the state EOC is appropriate.

V. Surveillance

Because influenza viruses have constantly changing antigenic properties, 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, should be viewed as equally critical for pandemic preparedness.

A. Inter- or Pre-pandemic

1. National and International Surveillance

In the United States, international influenza surveillance activities are coordinated by the World Health Organization (WHO) Collaborating Center for Influenza Reference and Research at the CDC. National surveillance is coordinated by CDC, with state and local health departments assuming primary responsibility for carrying out virologic, morbidity, and mortality surveillance components. Current U.S. surveillance activities include:

- a. Approximately 120 laboratories which report the number and type of influenza viruses isolated each week, and send representative and unusual viral specimens to CDC for comparative antigenic and genetic analysis. This information is updated weekly and is available online.
1. State and territorial epidemiologists report the level of influenza activity in their State each week as “widespread,” “regional,” “sporadic” or “no activity.” This information is updated weekly and is available online.
2. A voluntary, national network of approximately 1,400 sentinel physicians report the number of patients presenting with influenza-like illness (ILI) and the total number of patient visits by age group each week. This information is updated weekly and is available online.
3. Vital Statistics Offices of 122 U.S. cities report, on a weekly basis, the percentage of total deaths caused by influenza and pneumonia.
4. A variety of other sources which spontaneously report influenza outbreaks or other influenza-associated events.
2. Minnesota Influenza Surveillance
 - a. Current influenza surveillance in Minnesota includes:
 - i. voluntary submission of influenza isolates to the MDH PHL for confirmed strain sub-typing.
 - ii. voluntary reporting of ILI outbreaks in long-term care facilities.
 - iii. voluntary reporting of ILI outbreaks in schools.
 - iv. a voluntary, state network of sentinel physicians report the number of patients presenting with ILI and the total number of patient visits by age group each week. Currently, there are 19 participating sentinel physicians with at least one site in each region of Minnesota.
 - v. investigations of *unexplained* deaths in Minnesota.
 - vi. reporting of laboratory-confirmed influenza according to Minnesota Statutes, Chapter 4605.7040.
 2. Proposed improvements to routine influenza surveillance in Minnesota include:
 - i. Expanding the sentinel physician network to one physician for every 250,000 population (18-20 sentinel sites in Minnesota).
 - ii. Expanding the sentinel physician network to include:
 - aa. Year-round reporting of ILI
 - bb. Reporting severity of illness
 - iii. Evaluation of laboratories for capacity related to influenza testing. Based on findings, solicit additional laboratories to broaden the base of laboratories submitting isolates and to

- assure that isolates submitted are representative of the state's population.
 - iv. Develop a laboratory-based sentinel surveillance system for respiratory viruses other than influenza.
 - 3. Develop a hospital-based surveillance system for ILI.
 - vi. Develop a communication system to provide information on influenza to health care providers in Minnesota (e.g., website).
 - vii. Develop communication links for exchange of information between MDH and the Minnesota Board of Animal Health regarding animal and human influenza surveillance.
- B. Novel virus identified in a single human case
 - 1. International Identification
 - Continue influenza surveillance as during the Prepandemic Stage.
 - 2. North American Identification
 - 1. Notify laboratory directors, ICPs, physicians, emergency rooms, and urgent care centers and request that patients presenting with ILI, especially those with a recent travel history to region where the pandemic strain of influenza is circulating or persons with unusual severe symptoms submit a specimen for viral culture.
Once developed laboratories will be notified through the Bioterrorism Laboratory Notification System. Laboratories will also be able to refer to the Guide to Services for directions on submitting a specimen to the MDH PHL for influenza testing.
 - 2. A split specimen should be obtained. One specimen should be submitted to the usual laboratory provider for testing (i.e., identifying influenza A or B) and one specimen should be submitted directly to the MDH PHL for novel virus testing. Specimens will be tested by the MDH PHL for the following reasons: MDH PHL is currently the only Minnesota laboratory capable of subtyping influenza isolates, providing faster turn-around time for subtyping; antigens used in testing for the novel virus will likely only be available at state public health laboratories; specimens may require testing at CDC; fertilized eggs may be required to grow the virus; and rapid molecular subtyping methods may be available.
 - 3. DEM will coordinate assistance for specimen transport, as appropriate.
- C. Human-to-human transmission confirmed
 - 1. International Circulation
 - Once pandemic influenza has been identified circulating internationally, the goal of human-to-human transmission confirmed phase surveillance is to identify the novel influenza virus circulating in Minnesota. The MDH Immunization, Tuberculosis, and International Health Section will initiate

enhanced surveillance including:

1. Notify laboratory directors, ICPs, physicians, emergency rooms, and urgent care centers and request that patients presenting with ILI, especially those with a recent travel history to region where the pandemic strain of influenza is circulating or persons with unusual severe symptoms submit a specimen for viral culture.

Once developed laboratories will be notified through the Bioterrorism Laboratory Notification System. Laboratories will also be able to refer to the Guide to Services for directions on submitting a specimen to the MDH PHL for influenza testing.

2. A split specimen should be obtained. One specimen should be submitted to the usual laboratory provider for testing (i.e., influenza A or B) and one specimen should be submitted directly to the MDH PHL for novel virus testing. Specimens will be tested by the MDH PHL for the following reasons: MDH PHL is currently the only Minnesota laboratory capable of subtyping influenza isolates, providing faster turn-around time for subtyping; antigens used in testing for the novel virus will likely only be available at state public health laboratories; specimens may require testing at CDC; fertilized eggs may be required to grow the virus; and rapid molecular subtyping methods may be available.
3. DEM will coordinate assistance for specimen transport, as appropriate.

2. North America Circulation

1. Notify laboratory directors, ICPs, physicians, emergency rooms, and urgent care centers and request that patients presenting with ILI, especially those with a recent travel history to region where the pandemic strain of influenza is circulating or persons with unusual severe symptoms submit a specimen for viral culture.

Once developed laboratories will be notified through the Bioterrorism Laboratory Notification System. Laboratories will also be able to refer to the Guide to Services for directions on submitting a specimen to the MDH PHL for influenza testing.

2. A split specimen should be obtained. One specimen should be submitted to the usual laboratory provider for testing (i.e., influenza A or B) and one specimen should be submitted directly to the MDH PHL for novel virus testing. Specimens will be tested by the MDH PHL for the following reasons: MDH PHL is currently the only Minnesota laboratory capable of strain typing influenza isolates, providing faster turn-around time for strain typing; antigens used in testing for the novel virus will likely only be available at state public health laboratories; specimens may require testing at CDC; and fertilized eggs may be required to grow the virus.

3. DEM will coordinate assistance for specimen transport, as appropriate.
4. Confirmation of onset of pandemic, regional and multi-regional epidemics, end of 1st wave
 1. International Circulation
 1. Notify ICPs, physicians, emergency rooms, and urgent care centers and request that patients presenting with ILI, especially those with a recent travel history to region where the pandemic strain of influenza is circulating or persons with unusual severe symptoms submit a specimen for viral culture.
Once developed laboratories will be notified through the Bioterrorism Laboratory Notification System. Laboratories will also be able to refer to the Guide to Services for directions on submitting a specimen to the MDH PHL for influenza testing.
 2. A split specimen should be obtained. One specimen should be submitted to the usual laboratory provider for testing (i.e., influenza A or B) and one specimen should be submitted directly to the MDH PHL for novel virus testing. Specimens will be tested by the MDH PHL for the following reasons: MDH PHL is currently the only Minnesota laboratory capable of subtyping influenza isolates, providing faster turn-around time for subtyping; antigens used in testing for the novel virus will likely only be available at state public health laboratories; specimens may require testing at CDC; fertilized eggs may be required to grow the virus and rapid molecular subtyping methods may be available.
 3. DEM will coordinate assistance for specimen transport, as appropriate.
 2. North America Circulation
 1. Minnesota surveillance of pandemic influenza will rely primarily on sentinel physician sites. The number of sentinel sites may be increased to better describe pandemic influenza activity. Sentinel sites will be distributed throughout the state to represent the population distribution of Minnesota. MDH will request that providers obtain and submit a specimen for viral culture and a Pandemic Influenza-like Illness Enhanced Disease Report Card and Laboratory Submission Form from a proportion of patients (i.e., 1 in 10) presenting with ILI.
 2. The Pandemic Influenza-like Illness Enhanced Disease Report Card and Laboratory Submission Form will collect the following information: (draft form Appendix A)
 - i. Demographics
 - ii. Date of birth
 - iii. Symptoms
 - iv. Symptom onset date

- v. Specimen collection
 - vi. Vaccination history
 - vii. Severity of illness
- E. Second or later waves
 - 1. Minnesota surveillance of pandemic influenza will rely primarily on sentinel physician sites. Sentinel sites will be distributed throughout the state to represent the population distribution of Minnesota. MDH will request that providers obtain and submit a specimen for viral culture and a Pandemic Influenza-like Illness Enhanced Disease Report Card and Laboratory Submission Form from a proportion of patients (i.e., 1:10) presenting with ILI.
 - 2. The Pandemic Influenza-like Illness Enhanced Disease Report Card and Laboratory Submission Form will collect the following information: (draft form Appendix A)
 - 1. Demographics
 - 2. Date of birth
 - 3. Symptoms
 - 4. Symptom onset date
 - 5. Specimen collection
 - 6. Vaccination history
 - 7. Severity of illness
- 6. Post-pandemic

The goals post-pandemic surveillance are to provide a detailed retrospective characterization of the pandemic and to evaluate the efficacy of protective action recommendations and emergency management strategies. These surveillance activities may include:

 - 1. Review death certificates statewide for influenza-related pneumonia and influenza deaths.
 - 2. Review hospital admissions for ILI.
 - 3. Conduct retrospective studies of vaccine efficacy.
 - 4. Conduct validation studies of influenza illness reporting.
 - 5. Conduct retrospective studies of protective action recommendations.

VI. Vaccine

Following its development more than 50 years ago, inactivated influenza vaccine has long been considered the cornerstone of influenza prevention and control.

During the past 20 years, annual delivery of influenza vaccine to the American public has increasingly become an institutionalized event. The WHO Collaborating Influenza Centers, of which CDC is the North American representative, detect and monitor new variants of influenza virus throughout the year for potential inclusion in the next year's vaccine; vaccine strains are ultimately chosen by spring; the four licensed U.S. manufacturers make 70-80 million doses each year; and the vaccine is administered, primarily to high risk patients (as defined by the ACIP), from approximately September through January.

Minnesota maintains a relatively high level of influenza vaccination among persons age $\geq$ 65 years old (64% in 1998; MDH, unpublished data). However, vaccination programs for pandemic influenza present unique challenges. Methods of vaccine delivery, administration, and tracking depend on the vaccine supply and the epidemiology of the illness. Because the current system for routine influenza vaccination relies on private sector distribution and administration, and during pandemic influenza, the vaccine will be distributed through the public sector, the current system will not be used for pandemic influenza vaccine delivery.

A. Influenza Vaccine

1. Assumptions
 1. It will take six to eight months after the novel virus is identified before the vaccine is available for distribution, unless a DNA vaccine is developed and deemed safe and necessary.
 2. Once a pandemic imminent stage has been declared CHS Agencies will have one to six months to plan for vaccine delivery and administration.
 3. Two doses (administered 4 weeks apart) will be required to develop immunity to the novel virus.
 4. The vaccine produced during the first month (approximately 20 percent of the total need) will be purchased by the federal government and distributed to state agencies. This vaccine supply will be used to vaccinate priority groups as defined by the pandemic influenza control and prevention guidelines (see page 19).
 5. Once vaccine is available, it will take five months to produce an adequate supply of vaccine for the US population (approximately 20 percent of the vaccine will be produced per month).
 6. The MDH will seek special legislation to purchase the remaining 80 percent of the needed vaccine. As necessary, MDH will seek special legislation to restrict the sale of any portion of the needed

- CDC will develop a standard vaccine information statement (VIS) that details the risks and benefits of the disease and the vaccine.

MDH pre-pandemic activities are designed to support local delivery of influenza vaccine during the intra-pandemic period and prepare for a pandemic. They include:

- a. Translation of the most current VIS developed by the CDC into various languages for non-English speaking populations; including Vietnamese, Hmong, Cambodian, Lao, Spanish, Russian, and Somali.
- b. Development and distribution of a packet of written materials to health care providers that includes a summary of the most current influenza vaccine recommendations issued by the ACIP, a tip-sheet with suggestions on strategies that have been successful in reaching at-risk populations and others, camera-ready copies of the VIS, listings of other resources to help promote and deliver adult vaccines.
- c. Providing information to CHS Agencies regarding the mechanism for ordering flu vaccine from state contracts.
- d. Providing information to consumers who call the Minnesota Immunization Hotline as to the location of the nearest community flu vaccine clinic.
5. MDH will coordinate with DEM to develop a prototype packet of information for CHS Agencies and local emergency managers regarding vaccine distribution, administration, documentation, and security.
6. MDH will develop prototype materials to distribute to CHS Agencies to aid in the delivery of vaccines in community clinics. This will include prototype standing orders, suggested staffing needs and duties, protocols for proper storage of vaccine, a suggested list of supplies needed for clinic operations, a suggested clinic flow chart, vaccine tally sheets, and other printed materials as deemed appropriate and necessary.
7. MDH will identify sources of supplies needed for administering vaccine.
8. MDH will explore the feasibility of administering the vaccine with needle-free injection systems (e.g., multidose jet injection apparatus).

MDH will develop a voucher system that will allow CHS Agencies to

conduct pre-screening of potential vaccinees and distribute a voucher to enable the vaccinee to be vaccinated quickly during a designated period of time. (Note: if this voucher system is adopted, it will be mandatory statewide.)

4. Human-to-human transmission confirmed/Confirmation of the pandemic, regional and multi-regional epidemics, end of 1st wave (stages when vaccine is likely to be available)

1. Planning

- i. MDH will arrange for translation of the CDC-developed VIS into languages appropriate for non-English speaking populations in Minnesota.
- ii. MDH will distribute camera-ready copies of English and translated versions of the VIS to CHS Agencies.
- iii. MDH will conduct training sessions for CHS Agency staff to acquaint them with issues related to the delivery of vaccines; most likely these trainings will be by teleconference.
- iv. MDH will begin stockpiling vaccine supplies (e.g., syringe, emergency kits to manage anaphylaxis, alcohol wipes, etc.)
- v. CHS Agencies will be responsible for the following:
 - aa. Printing the VISs into quantities sufficient to meet the needs of public clinics.
 - bb. Distribution of camera-ready VISs.
 - cc. Securing clinic sites that are accessible to the community.

2. Delivery (vaccine delivery is less dependent on pandemic stage and will be based on vaccine availability and CDC recommendations)

1. Vaccine will be distributed through a centralized distribution system to CHS Agencies through National Guard Armories throughout Minnesota. CHS Agencies can also request the use of armories for immunization clinic sites. Use of National Guard Armories will be coordinated by MDH, DEM, and the Minnesota Department of Military Affairs.
2. MDH is responsible for distributing the specified number of doses CHS Agencies through armory distribution centers based on population distribution and distribution of essential service personnel.
- iii. CHS Agencies will obtain vaccine from the armory distribution centers and are responsible for vaccine distribution within their jurisdiction. CHS Agencies may enlist the assistance of private health care providers, as appropriate.

- vi. DEM will coordinate assistance in the transportation of vaccine supplies and vaccine storage and security, as appropriate.
- v. Supplies (e.g., needles and syringes) necessary for influenza vaccine administration will be provided by MDH. These supplies will be delivered with the vaccine.

c. Administering Vaccine

Minnesota state law governs who may administer a vaccine. The “Pharmacy Practice Act”, Minnesota Statutes § 151.01 and 151.37, states that only a licensed practitioner “may prescribe, administer, and dispense a legend drug.” A licensed practitioner is defined as a licensed doctor of medicine, licensed doctor of osteopathy, licensed podiatrist, licensed doctor of veterinary medicine, physician assistant, or advanced practice registered nurse (as authorized under Minnesota Statute § 148.235). If, however, the practitioner is operating under a particular practice guideline or protocol (e.g., as would be the case if a mass vaccination clinic was established), the licensed practitioner could delegate the authority to screen/assess the patient need for vaccination to a registered nurse, physician assistant, medical student or resident.

- 1. CHS Agencies will be responsible for planning and overseeing the administration of vaccine to persons in their respective communities. For vaccination of priority groups it may be most efficient if the vaccination is given at the work site (e.g, hospital, fire station, police station).
- 2. For vaccine administration CHS Agencies may develop agency specific standing orders. These standing orders must include: dosage, site of administration, contraindication to vaccination, precautions to vaccination, and response to anaphylaxis and must be signed by the agency medical director.
- iii. DEM will coordinate assistance for transportation and security for vaccine supplies and security at public immunization clinics as appropriate.

Appendix B; Attachment 1: prototype standing orders for vaccine administration which should be modified to the situation

Appendix B; Attachment 2: prototype flow charts for large-scale vaccination clinics

Appendix B; Attachment 3: prototype VIS

4. Priority Groups

With the assumption that only 20 percent of total vaccine need will be initially available to begin vaccination, an attempt will be made to prioritize those groups to whom vaccine will be directed to maintain health and critical services in Minnesota. When a Pandemic Imminent stage has been declared the Health and

Medical Management Team will determine specific recommendations for vaccination prioritization using CDC guidelines and after consultation with experts, including a Bioethicist, and the following prioritization scheme:

1. Persons necessary to provide legal authority to initiate activities not governed by current state laws: governor, attorney general, state supreme court.
2. Persons necessary to maintain basic community infrastructure: currently licensed health care workers (physicians, APRNs, physician's assistants, licensed nurses), public health officials, first responders, laboratorians, DEM/emergency managers, National Guard (who serve in a priority area), utility (gas, electric, water, sewer, etc) field workers, communications personnel, fuel suppliers, food suppliers. No more than 25 percent of persons targeted may be in administrative positions.
3. Persons providing essential community services: public transportation drivers, air travel personnel (pilots, air traffic controllers, etc.), morticians, pharmacists, Red Cross field workers, corrections staff, long-term care facility staff, US postal service workers.
4. Immediate family members to those in groups i and ii above. *Family members are included as a priority group due to the assumption that individuals might hesitate to report to work in the event that family members were sick or dying at home.*
5. Persons providing necessary community services: day care providers, teachers, clergy, mental health professionals.
6. Persons determined to be at highest risk of developing complications from influenza.
7. Persons providing care to those in group vi.
- e. Local public health agencies will be required to tabulate the number of individuals in each priority group. The total number of doses needed for each group will be faxed to MDH, using as specific a number as possible. MDH will be responsible for the distribution of only the number of doses needed to vaccinate priority groups through the vaccine delivery system described above (delivery maybe a proportion of vaccine need as available). Unique population characteristics will be considered during vaccine distribution.
5. Tracking and Monitoring for Adverse Vaccine Reactions
 1. MDH will establish a database to track vaccine distribution and administration. This database will include summary information required for vaccine tracking (i.e., lot number, clinic dates, etc.). Appendix B; Attachment 4: prototype recording form
 2. The Vaccine Adverse Event Reporting System (VAERS) will be

used to track adverse vaccine reactions.

Appendix B: Attachment 5: VAERS Form

3. CHS Agencies will hold the primary responsibility for data entry. Data will then be transferred to the MDH central office. However, if the CHS Agency lacks the resources (personnel and technical equipment) for data entry, services will be provided by MDH field or central offices.
4. If an electronic system for vaccine tracking is not feasible for the CHS Agency, a back-up paper system will be used. The paper system will provide documentation on the same variables as the electronic system.

B. Pneumococcal Vaccine

1. Assumptions
 1. The United States will have up to six months from the time the novel virus is identified to the arrival of pandemic influenza.
 2. Pneumococcal vaccine will assist in the prevention of secondary bacterial infections
2. Inter- or Pre-pandemic
 1. MDH is currently participating in a pneumococcal demonstration project, a three-year CDC funded project to improve pneumococcal vaccine coverage levels in Minnesota.
 2. MDH participates in the Adult Immunization Coalition of Minnesota. The goal of the Coalition is to increase vaccination rates for adult vaccine-preventable diseases.
3. Human-to-human transmission confirmed
 3. MDH will notify all health care providers of the need to vaccinate persons age ≥ 65 and persons recommended by ACIP (MMWR 1997; v46:No.RR-8) with pneumococcal vaccine as a method of decreasing morbidity and mortality associated with pandemic influenza.
 4. MDH will notify the media to inform the general public of the need for persons ≥ 65 and other persons high risk persons to receive pneumococcal vaccine as defined by ACIP.
 3. Pneumococcal vaccine will be distributed and administered by private health care providers (as is currently done in Minnesota).
4. Confirmation of onset of pandemic, regional and multi-regional epidemics, end of 1st wave
MDH will continue efforts to notify providers and persons recommended by ACIP to receive pneumococcal vaccine as described above.
5. Second or later waves
MDH will continue efforts to notify providers and persons recommended by ACIP to receive pneumococcal vaccine as described above.
6. Post-pandemic

MDH will continue efforts to notify providers and persons recommended by ACIP to receive pneumococcal vaccine.

VII. Antivirals

Antiviral drugs for influenza are an important adjunct to influenza vaccine for the control and prevention of influenza. However, they are not a substitute for vaccination. Four currently approved agents are available in the United States: amantadine, rimantadine, zanamivir, and oseltamivir. Amantadine and rimantadine are chemically related antiviral drugs with activity against influenza A viruses but not influenza B viruses. Zanamivir and oseltamivir are neuraminidase inhibitors with activity against both influenza A and B viruses. Both zanamivir and oseltamivir were approved in 1999 for the treatment of uncomplicated influenza infections. Expanded availability of the neuraminidase inhibitors will spur reevaluation of the relative benefits of all these drugs, and their optimal use for influenza control in both treatment and prophylaxis.

Table 2. Antiviral Drugs Approved for Influenza by FDA

Antiviral drug	Year approved	Approved use	Influenza strains affected by drug	Approved population	# of manufacturers	Cost per daily dose ^a
Amantadine	1976	prophylaxis and treatment	All A strains	persons 1 year of age and older	9	\$0.10 ^b
Rimantadine	1993	prophylaxis and treatment	All A strains	adults and children ^c	1	\$1.07 ^d
Zanamivir	1999	treatment	All A and B strains	7 years and older	1	\$5.38
Oseltamivir	1999	prophylaxis and treatment	All A and B strains	adults and children ^e	1	\$6.49

^a Cost to federal government based on lowest prices in the federal supply schedule.

^b Cost varies from \$0.10 to \$0.27 for generic tablets and \$1.06 to \$1.10 for brand name tablets. Cost varies from \$0.52 to \$1.46 for generic syrups and is \$2.26 for brand name syrup.

^c Rimantadine is approved for prophylaxis in children (ages 1 and over); however CDC reports that many experts also consider rimantadine appropriate for treatment in children.

^d Cost is for rimantadine tablets. Cost for rimantadine syrup is \$1.37.

^e Oseltamivir is approved for treatment for persons 1 year of age and older; it is approved for prophylaxis for persons 13 years of age and older.

Source: GAO Report. Influenza Pandemic: Plan Needed for Federal and State Response. October, 2000.

Because of their generic usefulness against all known influenza A viruses, amantadine and rimantadine might be expected to play an important role in prevention and treatment of pandemic influenza, especially during a time when sufficient supplies of vaccine may not be available. However, there are a series of formidable problems and limitations associated with widespread use of these antiviral agents:

- A. Under present circumstances, the supply of these drugs would be well below the anticipated demand during an influenza pandemic. The current supply for the nation is estimated to provide the following:
 7. Treatment of 3 million person per month for influenza (an estimated 60,000 Minnesotans) OR

8. Prophylaxis of 500,000 persons per month for influenza (an estimated 10,000 Minnesotans).
2. Relative priorities regarding target groups and the use of limited supplies for chemoprophylaxis versus therapy have not yet been established
3. Widespread use of rimantadine and amantadine could lead to the widespread emergence of drug-resistant viral strains.
4. Adverse reactions.
5. Safety and legal liability.

Currently the federal government is assessing the best use of antiviral medication during a pandemic. Production estimates are not yet available for the neuraminidase inhibitors. The federal government is also considering the feasibility of stockpiling drugs and/or raw materials to make them. Until these assessments have been completed it should be assumed that antiviral drugs will play only a minimal role in reducing the impact of the pandemic, and should be reserved only for very high priority groups. The federal government will also be considering ways in which limited supplies may be distributed and used equitably, and to reduce the threat of black markets.

The purpose of antiviral pandemic influenza planning in the Minnesota Guidelines is to establish a contingency distribution system of antivirals for health care and other essential community service workers until the federal government completes their assessment.

- A. Inter- or pre-pandemic
 1. Inventory

MDH will inventory pharmaceutical distributors to determine what companies distribute antiviral drugs in Minnesota including estimated quantities and time-line of supply.
 2. MDH will determine the need of amantadine for patients taking the drug for other conditions, such as Parkinson's disease. MDH will also determine which medical practices obtain amantadine for treatment of conditions other than influenza so that these supplies can be maintained during a pandemic.
2. Novel virus identified in a single human case
 1. The Health and Medical Management Team will review CDC guidelines and the current antiviral supply estimates to determine the appropriate use of the limited antiviral supply.
 2. Pharmaceutical distributors will be asked to prepare for re-distribution of antivirals to sites as determined by the Health and Medical Management Team.
3. Human-to-human transmission confirmed
 1. Re-distribution of pharmaceutical antiviral supplies will be assessed by the Health and Medical Management. DEM will provide logistical and resource support as necessary.

2. If determined by the Health and Medical Management Team, antivirals will be distributed through the same system as influenza vaccine, using National Guard Armories to CHS Agencies for distribution.
4. Confirmation of onset of pandemic, regional or multi-regional epidemics, end of 1st wave
Distribution system for antivirals will be activated.
5. Second or later waves
Continue distribution and use of antiviral as indicated by the Health and Medical Management Team
6. Post-pandemic
Discontinue antiviral distribution system.

VIII. Emergency response: Health and Medical and Maintenance of Critical Services

All State and local governments are required to have an emergency management plan which address all hazards. However, pandemic influenza is likely to pose unique challenges that may not be addressed in current emergency management plans. For example, in most emergency situations notification and response is initiated at the local level, followed by state then federal notification and response. In the event of pandemic influenza, notification and response is most likely to be initiated at the national or international level, then state and finally local. Because of these unique challenges, emergency management plans should incorporate a pandemic influenza plan as an appendix to the existing plan.

- A. Inter- or Pre-pandemic
 1. Inventory
CHS Agencies in coordination with local emergency management will update and/or inventory medical supplies, facilities and services. From information provided by CHS Agency personnel, MDH will maintain a statewide inventory. The following services/items will be inventoried by CHS Agencies:
 1. Medical personnel, including but not limited to: currently licensed physicians, physician assistants, APRNs, registered nurses, licensed practical nurses, medical assistants, and other persons who may be trained in the event of an emergency (e.g., persons with previous patient care experience who currently work outside of patient care)
 2. Beds (hospital and long-term care)
 3. ICU Capacity
 4. Ventilators
 5. Pharmacies and pharmacists
 6. Personal protective equipment (e.g., masks, gloves)
 7. Specimen collection and transport materials
 8. Contingency medical facilities (within the jurisdiction)
 9. Mortuary/Funeral Services

10. Social Services/ Mental Health Services/ Faith Services
 11. Sources of medical supplies (e.g., syringes, gloves)
2. Health and Medical Management Team
 1. The State Epidemiologist will convene the Health and Medical Management Team. The Health and Medical Management Team is responsible for developing recommendations on health issues related to pandemic influenza. The State Epidemiologist (or designee) will have the final authority to implement the recommendations of the Health and Medical Management Team.
 2. The Health and Medical Management Team will staff the planning and assessment section of the EOC.
 3. The Health and Medical Management Team will be responsible for estimating the impact of pandemic influenza on health care services, high-risk groups, preventive action recommendations and health-related needs during the pandemic.

1. The Health and Medical Management Team will include representatives from the following organizations: MDH, DEM, Minnesota Hospital and Health Care Partnership, Minnesota Medical Association, Council of HMO's, Minnesota Association of Professionals in Infection Control, and the Association of Minnesota Pharmacists.
Appendix C; Attachment 1: List of Health and Medical Management Team Members
 2. The Health and Medical Management Team may request the assistance of technical advisors to assist in developing recommendations. Technical advisors may include: bioethicists, infectious disease physicians, primary care physicians, pulmonologists, emergency medical service representatives, and experts in other related fields.
Appendix C; Attachment 2: List of Possible Technical Advisors
 - f. Using estimates developed by the Health and Medical Management Team, the planning and assessment section will estimate the impact of pandemic influenza on essential services.
 7. The Health and Medical Management Team will convene annually to review the existing pandemic influenza plan. The MDH Influenza Surveillance Coordinator is responsible for maintaining, updating, and reviewing the plan annually to ensure workability.
- B. Novel virus identified in a single human case
1. International Identification Notification
 - a. MDH will notify members of the Health and Medical Management Team by phone of a novel virus identified in a single human case.
 2. MDH will notify DEM Duty Officer (by phone and fax), infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators and PHN Directors via HAN of a Novel virus identified in a single human case.
 2. North American Identification Notification
 - a. MDH will notify members of the Health and Medical Management Team by phone of a Novel virus identified in a single human case.
 1. MDH will notify DEM Duty Officer (by phone and fax), laboratory directors, infection control practitioners, and emergency rooms via fax/email and CHS Administrators and PHN Directors via HAN of a novel virus identified in a single human case.
Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.
 2. DEM will notify local emergency managers and other state agencies.
 3. CHS Agencies will be instructed to notify other agencies (via

- HAN) within the jurisdiction as appropriate.
 4. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.
 3. Human-to-human transmission confirmed
 1. International Circulation
 1. Notification
 - i. MDH will notify members of the Health and Medical Management Team by phone when human-to-human transmission confirmed.
 - ii. MDH will notify DEM Duty Officer (by phone and fax), infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators and PHN Directors via HAN when Human-to-human transmission confirmed.

Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.
 - iii. DEM will notify local emergency managers and other state agencies.
 - iv. CHS Agencies will be instructed to notify other agencies (via HAN) within the jurisdiction as appropriate.
 - v. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.
 - b. Planning
 - i. Members of the Health and Medical Management Team will convene and function as the planning and assessment section of the EOC. The team will review the pandemic plan and formulate scenarios and strategies to manage pandemic influenza in Minnesota. Additional technical advisors may be asked to participate on the Health and Medical Management Team as appropriate. The Health and Medical Management Team and the State Epidemiologist will be responsible for determining which technical advisors should be included on the team.
 - ii. Local emergency managers and CHS Agencies should consult and review local response plans and management.
 3. Inventory

Services/items cited to be inventoried and updated during the prepandemic period will be re-inventoried and assessed for readiness.
 2. North American Circulation
 1. Notification
 - i. MDH will notify members of the Health and Medical Management Team (at the EOC) by phone of a human-to-human transmission confirmed phase.

4. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.

3. Human-to-human transmission confirmed

1. International Circulation

1. Notification

- i. MDH will notify members of the Health and Medical Management Team by phone when human-to-human transmission confirmed.
- ii. MDH will notify DEM Duty Officer (by phone and fax), infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators and PHN Directors via HAN when Human-to-human transmission confirmed.

Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.

- iii. DEM will notify local emergency managers and other state agencies.
- iv. CHS Agencies will be instructed to notify other agencies (via HAN) within the jurisdiction as appropriate.
- v. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.

b. Planning

- i. Members of the Health and Medical Management Team will convene and function as the planning and assessment section of the EOC. The team will review the pandemic plan and formulate scenarios and strategies to manage pandemic influenza in Minnesota. Additional technical advisors may be asked to participate on the Health and Medical Management Team as appropriate. The Health and Medical Management Team and the State Epidemiologist will be responsible for determining which technical advisors should be included on the team.
- ii. Local emergency managers and CHS Agencies should consult and review local response plans and management.

3. Inventory

Services/items cited to be inventoried and updated during the pre-pandemic period will be re-inventoried and assessed for readiness.

2. North American Circulation

1. Notification

- i. MDH will notify members of the Health and Medical Management Team (at the EOC) by phone of a human-to-human transmission confirmed phase.

- ii. MDH will infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators, and PHN Directors via HAN of a human-to-human transmission confirmed phase.

Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.

- iii. DEM will notify local emergency managers and other state agencies.
- iv. CHS Agencies will be instructed to notify other agencies (via HAN) within the jurisdiction as appropriate.
- v. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.

b. Planning

- i. Members of the Health and Medical Management Team will meet as the planning and assessment section of the EOC. They will review the pandemic plan and formulate scenarios and strategies to manage pandemic influenza in Minnesota. Additional technical advisors may be asked to participate on the Health and Medical Management Team as determined by the team and the State Epidemiologist.
- ii. Based on CDC guidelines, the Health and Medical Management Team will develop Minnesota guidelines for triage and treatment of influenza patients in outpatient, inpatient, and non-traditional settings.
- ii. Based on the disease epidemiology, the Health and Medical Management Team will develop protective action recommendations to be implemented during the pandemic.
- iv. Operations, logistics, finance, and planning sections of the EOC will be activated, as appropriate.

D. Confirmation of onset of pandemic, regional and multi-regional epidemics, end of 1st wave

1. International Circulation

1. Notification

- i. MDH will notify members of the Health and Medical Management Team (at the EOC) by phone of a pandemic imminent alert.
- ii. MDH will notify infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators and PHN Directors via HAN of a pandemic imminent alert.

Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.

- iii. DEM will notify local emergency managers and other state agencies.

- iv. CHS Agencies will be instructed to notify other agencies (via HAN) within the jurisdiction as appropriate.
 - v. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.
 - b. Planning
 - i. Members of the Health and Medical Management Team will meet as the planning and assessment section of the EOC. They will review the pandemic plan and formulate scenarios and strategies to manage pandemic influenza in Minnesota. Additional technical advisors may be asked to participate on the Health and Medical Management Team as determined by the team and the State Epidemiologist.
 - ii. Based on CDC guidelines, the Health and Medical Management Team will develop Minnesota guidelines for triage and treatment of influenza patients in outpatient, inpatient, and non-traditional settings.
 - iii. Based on the disease epidemiology, the Health and Medical Management Team will develop protective action recommendations to be implemented during the pandemic.
 - iv. Operations, logistics, finance, and planning sections of the EOC will be activated, as appropriate.
- 2. North America Circulation
 - a. Notification
 - i. MDH will notify members of the Health and Medical Management Team (at the EOC) by phone of the declaration of a pandemic.
 - ii. MDH will notify infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators and PHN Directors via HAN of a pandemic.
Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.
 - iii. DEM will notify local emergency managers and other state agencies.
 - iv. CHS Agencies will be instructed to notify other agencies via HAN within the jurisdiction as appropriate.
 - 5. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.
 - b. Implementation
 - 1. In consultation with DEM, the EOC will be fully activated to manage needs of health, medical, and essential service agencies.
 - 2. Local government, health care, and essential service agencies will respond to the pandemic per current Emergency Operations Plan at the respective agency.

6. Second or later waves
 1. Notification
 - a. MDH will notify members of the Health and Medical Management Team (at the EOC) by phone of a second or later wave phase.
 - b. MDH will notify infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators, and PHN Directors via HAN of a second or later wave phase.
Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.
 - c. DEM will notify local emergency managers and other state agencies.
 - d. CHS Agencies will be instructed to notify other agencies via HAN within the jurisdiction as appropriate.
 - e. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.
 2. Implementation
 1. In consultation with DEM, the EOC will continue to be fully activated to manage needs of health, medical, and essential service agencies.
 2. Local government, health care, and essential service agencies will respond to the pandemic per current Emergency Operations Plan at the respective agency.
7. Post-pandemic
 1. Notification
 - a. MDH will notify members of the Health and Medical Management Team (at the EOC) by phone of post-pandemic phase.
 - b. MDH will notify DEM Duty Officer (by phone and fax), infection control practitioners, emergency rooms, and laboratory directors via fax/email and CHS Administrators and PHN Directors via HAN of post-pandemic phase.
Once developed, laboratories will be notified through the Bioterrorism Laboratory Notification System.
 - c. DEM will notify local emergency managers and other state agencies.
 - d. CHS Agencies will be instructed to notify other agencies via HAN within the jurisdiction as appropriate.
 - e. Local emergency managers will be instructed to notify other agencies within the jurisdiction as appropriate.
 3. Implementation
 1. Staffing of the EOC will be reduced to reflect the diminishing response requirements.
 2. Local government, health care, and essential service agencies will respond to the recovery per current EOP at the respective agency.
 4. Evaluation

1. MDH will assess the impact, response, and control of the pandemic.
2. MDH/DEM will summarize the pandemic response and record lessons learned for future pandemic situations.

IX. Communications: Hardware, Software, Procedures and Content

Communication response to pandemic influenza are adapted from the MDH EOP.

A. Identification and Notification of Key Individuals – Horizontal Communications

1. The State Epidemiologist and core team will identify and notify appropriate MDH staff (see division contact lists), the MDH district offices, and the MDH information desk.
2. The State Epidemiologist will identify a leader and team to develop and coordinate communication with health care professionals.
3. DEM and MDH core team will identify and notify appropriate state and local officials/contacts and local public health staff to coordinate general public messages and pandemic response.
4. DEM will identify and notify other federal and state agencies and other appropriate organizations and response team as designated in the pandemic influenza plan (e.g., Red Cross, CDC, FDA), as necessary.
5. The DP&C division director and MDH core team will provide information on the status of the response to local officials and notify local experts of recommendations to protect their client populations.

B. Inter- or Pre-pandemic

1. Public Information and Media Communications

- a. Issue Identification
Communications staff, in consultation with MDH division management or program staff will identify public health issues and concerns that will or may need to be addressed through public information messages regarding pandemic influenza.
- b. Targeting of Communications
Communications staff, in consultation with MDH division management or program staff will identify affected target audiences for messages dealing with issues and concerns regarding pandemic influenza.
- c. Message Development
Communications staff, in consultation with MDH division management or program staff will develop audience-appropriate messages addressing identified issues and concerns.
 - i. Messages will address -- but not be limited to -- vaccine supply, antiviral use, low-tech prevention methods and maintenance of essential services.
 - ii. A separate “package” of issues and messages will be

developed for each division, focusing on those types of emergencies and disasters for which a particular division will have lead responsibility.

- iii. Identification of Strategies for Message Delivery
Identify appropriate channels, vehicles and strategies for dissemination of messages including Internet postings.
Appendix D: MDH Protocol for Posting Emergency Information on Agency Website
 - iv. Identification of Media Spokespersons
Identify appropriate management and program staff, within each division and in the Executive Office, who will act as media spokespersons on specific technical and policy issues, based on the type and magnitude of the emergency.
 - v. Development of Informational Products
Insofar as possible, develop prepared media products -- including prescribed news releases, fact sheets, talking points, and other vehicles -- in advance of pandemic influenza. CDC will also be preparing materials.
 - aa. Materials will focus on previously identified issues and concerns, and incorporate messages that have been developed to address those concerns.
 - vi. Communications Resources
Finance & Administration Division, in consultation with communications staff will identify and prepare necessary logistical support on media relations and other emergency communications activities, including:
 - aa. venues for the holding of news conferences, media briefings and other communications-related activities.
 - bb. computers, phones, fax machines, Internet and modem connections, and other necessary hardware/software.
2. Communication with Health Care Professionals
- a. Issue Identification
Immunization, Tuberculosis, and International Health staff, in

consultation with MDH division management or program staff will identify health issues and concerns that will or may need to be addressed for health care professionals regarding pandemic influenza.

- b. Targeting of Communications
Immunization, Tuberculosis, and International Health staff, in consultation with MDH division management or program staff will identify affected target audiences and communication channels for messages regarding pandemic influenza.
 - c. Message Development
Immunization, Tuberculosis, and International Health staff, in consultation with MDH division management or program staff will develop appropriate messages addressing identified issues and concerns.
 - d. Web-based communications systems will be utilized to communicate with CHS Agencies and health care professionals. CHS Agencies and health care professionals will be informed on access to web-based communications via HAN.
- C. Novel virus identified in a single human case
Communication efforts will continue as described above in the Prepandemic Stage.
- D. Human-to-human transmission confirmed
Once the state EOC is activated, MDH communications staff, in consultation with Executive Office, division management, and communications staff at MDPS will coordinate MDH participation in the Joint Public Information Center (JPIC). MDH activities will proceed as outlined in the Minnesota Emergency Operations Plan Annex C: Public Information. In the absence of EOC and JPIC activation the following guidelines will direct MDH pandemic communications response.
- 1. Public Information and Media Communications in the Absence of JPIC Activation
 - a. Coordination of Informational Activities
Communications staff, in consultation with Executive Office and division management will coordinate release of information about the emergency, either through formal vehicles (news releases, fact sheets, briefing papers) or through informal contact with the media (*e.g., ad hoc* response to inquiries from the media).
 - i. Communications staff will coordinate overall response to the media, including scheduling of news conferences and media briefings, on a regular or as-needed basis.
 - ii. Only appropriately designated staff or management spokespersons will be responsible for communicating with and through the media.
 - iii. Communications staff will serve as media spokespersons when necessary or appropriate.

- b. **Control of Media Access**
Communications staff, in consultation with Executive Office and division management will regulate/coordinate media access to MDH staff, and to field activities relating to the disaster or emergency, in order to ensure consistency of messages and avoid disruption of response activities as appropriate. If necessary, media access will be restricted to regularly scheduled media briefings.
 - 3. **Issue Tracking/Coordination of Communications Response**
Communications and program staff will coordinate tracking of unanticipated issues and concerns that may arise during the course of an emergency, and coordinate the development and dissemination of targeted response messages. Issue tracking will include tracking of rumors and misinformation relating to the emergency, development of response messages, and selection of vehicles for delivering an appropriately targeted response.
 - d. **Briefing of Communications Staff**
Division management and division program staff will provide briefings and updates to communications staff, as necessary, so that current information about the emergency is available for dissemination to the media and the public.
 - 5. **Message Coordination**
Coordinate public information activities with other agencies and organizations involved in the emergency response, including but not limited to local public health.
 - i. Communications staff will ensure consistency of health-related messages disseminated by, and through, other agencies and organizations involved in the emergency response.
 - ii. Communications staff and Executive Office staff will ensure effective communication between and among agencies and organizations regarding the timing and content of information released to the media.
 - f. **Communications Resources**
Finance & Administration Division, in consultation with communications staff will ensure availability of appropriate resources for communications activities, including equipment, facilities and venues for media events, in the event of an influenza pandemic.
- 2. **Communication with Health Care Professionals**
Designated DP&C staff will be responsible to communicate pandemic response updates and recommendations of the Health and Medical Management Team to targeted health care professionals.
 - 5. **Confirmation of onset of pandemic, regional and multi-regional epidemics, end of**

1st wave

Communication efforts will continue as described above in the human-to-human transmission confirmed phase (section IX.,D.).

6. Second or later waves

Communication efforts will continue as described above in the human-to-human transmission confirmed phase(section IX.,D.).

7. Post-pandemic

Communication efforts will continue as described above in the human-to-human transmission confirmed phase (section IX.,D.).

X. Glossary

Advisory Committee on Immunization Practices (ACIP) - the panel of national experts appointed to make recommendations for the Centers for Disease Control and Prevention on the use of vaccines.

antigenic drift - a minor change in the structure of an influenza virus within the same virus subtype, associated with epidemic influenza.

antigenic shift - a major change in the structure of an influenza virus resulting in a new virus subtype, associated with pandemic influenza.

Disease Prevention and Control Division - the division of the Minnesota Department of Health which is responsible for monitoring the occurrence of disease in Minnesota, developing and implementing strategies for preventing and controlling disease.

Division of Emergency Management - a division of the Minnesota Department of Public Safety responsible for the coordination of the State response to any major disaster/emergency that is beyond the response capabilities of the affected local units of government.

Emergency Operations Center - a site from which State and local government officials coordinate, monitor, and direct emergency response activities during an emergency/disaster.

Emergency Operations Plan - a living document that provides the basis for a multi-state agency response to a major emergency/disaster. The plan includes the following items: who is responsible for carrying out specific actions and the personnel, equipment, facilities, supplies, and other resources available for use in the disaster.

epidemic influenza - typical annual cycles of influenza occurring in late fall through early spring in the Northern Hemisphere

Joint Public Information Center (JPIC) - a facility which serves as a media briefing area: the purpose is to centralize the release of all public information relating to the disaster and to provide a forum for news media representatives to collectively gather critical information concerning disaster operations.

novel virus - a new influenza virus subtype which is immunologically different from those of isolates previously circulating in a population (population has no immunity)

pandemic influenza - a new influenza virus subtype which is immunologically different from those isolates circulating previously in a population to which the population has a lack of antibody and has the ability of spread geographically and cause disease

Public Health Laboratory - a division of the Minnesota Department of Health responsible for conducting a broad range of state-of-the-art traditional and molecular biological and chemical tests to detect, identify, and characterize threats to the public's health caused by bacterial, viral, fungal, and parasitic infectious agents, as well as those caused by inherited inborn errors of metabolism and exposure to hazardous environmental substances. These analytical activities support public health-related programs within the Department of Health, and other governmental agencies, by providing the essential data needed to respond to local, state, and national emergencies involving biological and chemical agents.

surveillance - the systematic collection of data pertaining to the occurrence of specific diseases, the analysis and interpretation of these data, and the dissemination of consolidated and processed information

XI. List of Acronyms

ACIP - Advisory Committee on Immunization Practices
ADIC - Acute Disease Investigation and Control
APRN - Advanced Practice Registered Nurse
MDH - Minnesota Department of Health
CDC - Centers for Disease Control and Prevention
CHS - Community Health Services
DEM - Division of Emergency Management
DP&C Division - Disease Prevention and Control Division
EOC - Emergency Operations Center
EOP - Emergency Operations Plan
FDA - Food and Drug Administration
FEMA - Federal Emergency Management Agency
HAN - Health Alert Network
HHS - Health and Human Services
HMO - Health Management Organization
ICPs - Infection Control Professionals
ICU - Intensive Care
ILI - Influenza-like Illness
ITIH - Immunization, Tuberculosis, & International Health Section
IRMO - Information Resource Management Office
JPIC - Joint Public Information Center
MDA - Minnesota Department of Agriculture
MDH PHL - Minnesota Department of Health Public Health Laboratory
MDPS - Minnesota Department of Public Safety
PHN - Public Health Nurse
VAERS - Vaccine Adverse Event Reporting System
VIS - Vaccine information statement
VPD - Vaccine-Preventable Disease
WHO - World Health Organization

Appendix A

Pandemic Influenza-like Illness Enhanced Disease Report Card
and Laboratory Submission Form

Appendix B

Prototype Standing Orders for Administration of Influenza Vaccine

Prototype Clinic Flow Chart

Prototype VIS

Prototype Influenza Vaccine Clinic Summary Sheet

VAERS Form

Appendix C

List of Health and Medical Management Team Members
List of Possible Technical Advisors

Appendix D

MDH Protocol for Posting Emergency Information
on Agency Website