

Technical Section D: Infection Control

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Executive Summary

Infection control strategies are aimed at reducing influenza transmission. They include:

- Vaccination (if available),
- Early detection and isolation of cases,
- Antiviral treatment and prophylaxis (if available), and
- The use of infection control precautions (including personal protective equipment) to limit influenza transmission in healthcare facilities and the community.

Infection control guidance is based on current knowledge of the epidemiology of seasonal influenza and on currently available information about the epidemiology of avian influenza (AI) A/H5N1. Infection control guidance will be revised, as necessary, as additional information about the epidemiology of AI A/H5N1 becomes known.

The MDH Clinical Infection Control Team (C-ICT) is responsible for developing, disseminating, and revising infection control guidance for patients, healthcare workers, other caregivers, volunteers, and the public. Infection control guidance is an essential component of isolation and thus is included in the monitoring and essential services aspects of isolation and quarantine in coordination with the Isolation and Quarantine Subgroup of the MDH Clinical Team (see **Technical Section C**). Additionally, the C-ICT, in coordination with MDH communications staff (see **Technical Section A**), will develop and disseminate key infection prevention and control messages for the public and partners.

Infection control guidance will include, but is not limited to, recommendations for:

- Appropriate types of infection control precautions (standard, contact, droplet, and airborne) to be used,
- Personal protective equipment (PPE), (e.g., gowns, gloves, respirators, surgical and procedure masks, eye protection, etc.) to be used,
- Airborne infection isolation room requirements (e.g., air filtration, room air changes, pressure differential),
- Cleaning and disinfection for equipment, linen, and the patient care environment; and
- Waste disposal.

Health and Human Services (HHS) Recommendations

Overview

Infection control measures are principal mechanisms to prevent disease transmission in healthcare facilities, in the community, and in the home. The HHS Pandemic Influenza Plan (Supplement 4 – Infection Control) addresses infection control guidance for healthcare workers, persons known or suspected to be infected with pandemic influenza, and the community.

Infection control guidance is based on:

- Current knowledge about routes of influenza transmission,
- Pathogenesis of influenza, and
- Past experience with infection control precautions during previous seasonal influenza epidemics and pandemics.

Current guidance may be revised as the epidemiology of pandemic influenza becomes known.

The HHS Plan recommends that healthcare workers use droplet precautions (surgical or procedure mask when within 3 feet of the patient, in addition to standard precautions. However, airborne and contact precautions, plus eye protection are recommended:

- For aerosol-generating procedures;
- For pandemic influenza exhibiting increased transmissibility;
- For the initial stages of an outbreak of an emerging or novel strain of influenza; and
- As determined by other factors such as vaccination/immune status of personnel and availability of antivirals.

The HHS plan also discusses the use of “work quarantine” for healthcare workers, which was implemented in Toronto during the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003.

Planning Activities

Rationale

Infection control precautions are measures that are used to reduce the transmission and acquisition of infectious agents, such as influenza virus. Infection control precautions are typically practiced by healthcare personnel in healthcare facilities and include:

- Proper hand hygiene;
- Scrupulous work practices; and
- Use of PPE, e.g., masks or respirators, gloves, gowns, and eye protection.

Infection control measures are based on how an infectious agent is transmitted and include the following precautions:

- Standard
- Contact
- Droplet
- Airborne

Based upon a review of the scientific literature, the MDH recommends full barrier infection control precautions (contact, and airborne precautions, plus eye protection) in addition to standard precautions for healthcare workers providing care for known or suspected avian or pandemic influenza-infected patients (see **Attachment N**).

Although developed for use in healthcare facilities, infection control precautions can be modified for use in other settings such as workplaces, schools, day care centers, homes, shelters, etc. Infection control precautions will be critical in minimizing transmission of pandemic influenza.

Triggers

Interpandemic/pandemic alert period

During the interpandemic/pandemic alert period (phases 1-5), the following events or developments may serve as infection control triggers:

- Evidence of animal-to-human transmission.
- Evidence of limited human-to-human transmission.
- Evidence of increased human-to-human transmission.
- Evidence of significant human-to-human transmission.

Pandemic period

In addition to the infection control trigger points noted for the interpandemic/pandemic alert period, the following trigger points may come into play during the pandemic period (phase 6):

- Efficient and sustained human-to-human transmission.

Actions

Pandemic alert period

The following infection control actions are planned, anticipated, already underway, or completed for the pandemic alert periods (phases 3-5).

Phase 3 and 4
1. Formulate infection control guidance for avian and pandemic influenza based upon a review of the scientific literature.
2. Provide education for the MDH Clinical Team members and other MDH staff on infection control recommendations for avian and pandemic influenza.
3. Disseminate avian and pandemic influenza infection control guidance to clinicians, infection control practitioners (ICPs), occupational health personnel, mortuary science personnel, LPH staff, and other partners statewide.
4. Advance national discussions about pandemic influenza infection control precautions and respiratory protection.
5. Develop guidance internally for the purchase of PPE.
6. Collaborate with the Minnesota chapter of the Association for Professionals in Infection Control (APIC-MN) Emerging Pathogens Committee to identify gaps in avian and pandemic influenza infection control information and tools and develop materials to address these gaps.
7. Work with LPH and other partners to identify ambulatory care clinics in the state and develop methods for communicating with these clinics (e.g., email, fax, etc.) that will complement the existing HAN system.
8. Assist healthcare facilities in planning efforts for avian and pandemic influenza in collaboration with the Bioterrorism Hospital Preparedness Program (BHPP).

9. Develop infection control training materials for healthcare workers.
10. Inform clinicians and ICPs about current suspect and confirmed AI case definitions and provide guidance for patient triage to ensure prompt identification and isolation of suspect AI patients.
11. Inform clinicians, ICPs, and others about AI infection control recommendations for hospitals, emergency departments, urgent care, other ambulatory care settings, long-term care facilities, and off-site care facilities for evaluation and care of possible cases.
12. Develop infection control materials for persons in isolation and quarantine.
13. Assist in the development of recommendations related to disease containment, e.g., social distancing.
14. Collaborate with the Minneapolis-St. Paul International Airport and the Metropolitan Airport Commission to provide infection control recommendations for aircraft passengers.
15. Develop infection control guidance for mass dispensing locations, the care of suspect AI patients in the home setting, and the general public.
16. Assist LPH in identifying appropriate isolation and quarantine facilities for persons who cannot be isolated or quarantined at home.
17. Provide guidance for LPH and public safety personnel regarding infection control for AI and PPE purchases.
18. Develop infection control training materials for public safety personnel.
19. Work with the University of Minnesota Emergency Readiness Education and Training (MERET) grant program staff and advisory committee to develop training materials for healthcare workers and the general public.
20. Maintain and develop systems to communicate with partners (e.g., email, mail, fax, HAN).

Phase 5
1. Update and redistribute MDH clinical and infection control recommendations for healthcare facilities as necessary.
2. Inform ICPs and clinicians about any changes in suspect and confirmed AI case definitions and guidance for patient triage.
3. Inform ICPs and clinicians about any changes in the epidemiology of AI that may affect infection control recommendations.
4. Identify supplies of PPE and thermometers for LPH for people in isolation and quarantine in their jurisdiction.

5. Assist in the development of recommendations related to disease containment, e.g., social distancing.
6. Assist with the training of additional persons to provide care for influenza patients, as needed.
7. Assist healthcare facilities with issues related to monitoring and antiviral prophylaxis of exposed healthcare workers.

Pandemic period

Many of the anticipated infection control activities for the pandemic period (phase 6) will involve:

- Continuation of activities initiated during the interpandemic/pandemic alert period; or
- Application/activation/use of procedures and resources developed during the interpandemic/pandemic alert period.

1. Update and redistribute MDH clinical and infection control recommendations for healthcare facilities as necessary.
2. Develop additional infection control guidance for off-site care facilities and other group settings, as needed.
3. Provide infection control consultation to clinicians, ICPs, LPH, caregivers, and the general public.
4. Maintain communication with clinicians, ICPs, LPH, and others to stay abreast of any infection control issues that arise in healthcare settings or the community.
5. Develop and revise educational and informational tools as necessary to provide consistent and current infection control guidance.
6. Assist in the development of recommendations related to disease containment, e.g., social distancing.
7. Coordinate with MDH website staff to assure that posted infection control guidance is current.
8. Based on the epidemiology of pandemic influenza, develop and distribute infection control information for: <ul style="list-style-type: none"> ▪ Clinicians ▪ ICPs ▪ Healthcare workers (including EMS) ▪ LPH ▪ Public safety personnel and first responders ▪ Essential personnel (state and local government) ▪ Influenza patients and contacts ▪ Caregivers (including voluntary organizations) ▪ General public (including schools, businesses)

9. Continue to assist with the training of additional persons to provide care for influenza patients, as needed.
10. Ensure that hotline/warmline staffs are informed of current infection control recommendations.
11. Update clinicians, ICPs, and others of any changes in infection control guidance regarding the evaluation or care of exposed or ill people.

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Roles and Responsibilities

State and local roles and responsibilities are identified below. Regional roles are also identified when applicable. This is not an exhaustive list. Furthermore, although roles and responsibilities are listed, the MDH recognizes that the infrastructure to support these planning efforts is evolving and may not yet be in place.

State			
	Roles and responsibilities	Coordinating entity	Explanation
Recommendations	Develop appropriate infection control and PPE recommendations for LPH personnel.	Primary: MDH ADIC Contributors: MDH OEP PHPC	
Recommendations	Develop appropriate infection control and PPE recommendations for healthcare workers (including ICPs, occupational health, and ambulatory care clinicians).	Primary: MDH ADIC Contributors: APIC-MN MDH OEP RHRC MDH BHPP	

State			
	Roles and responsibilities	Coordinating entity	Explanation
Recommendations	Develop appropriate infection control and PPE recommendations for EMS personnel.	Primary: MDH ADIC, MDH BHPP EMS Planner Contributors: APIC-MN, MDH OEP, RHRC, Regional BHPP EMS Committee	
Recommendations	Develop appropriate infection control and PPE recommendations for public safety personnel.	Primary: MDH ADIC MDH EMS Planner Contributors: APIC-MN MDH OEP RHRCs Regional BHPP EMS Committee	
Recommendations	Provide appropriate infection control and PPE recommendations for voluntary organization personnel.	Primary: MDH ADIC Contributors: APIC-MN	

State			
	Roles and responsibilities	Coordinating entity	Explanation
Recommendations	Assist in the development of recommendations related to disease containment (e.g., social distancing).	Primary: MDH OEP MDH ADIC Hospitals and Clinics PHPCs Contributors: HSEM Community Partners APIC-MN MHA	
Recommendations	Develop infection control recommendations for persons in isolation and quarantine.	Primary: MDH ADIC Contributor: APIC-MN	
Information Sharing	Disseminate infection control materials to local public health personnel.	Primary: MDH ADIC Contributors: MDH OEP PHPC MDH BHPP	Materials may include: PPE posters, respiratory hygiene/cough etiquette posters, visitor signage, "Protect Yourself First" videos, etc.

State			
	Roles and responsibilities	Coordinating entity	Explanation
Information Sharing	Disseminate infection control materials to healthcare workers (including ICPs, occupational health, and ambulatory care clinicians).	Primary: MDH ADIC Contributors: APIC-MN MDH OEP PHPC MDH BHPP RHRC	Materials may include: PPE posters, respiratory hygiene/cough etiquette posters, visitor signage, "Protect Yourself First" videos, etc.
Information Sharing	Disseminate infection control materials for EMS personnel.	Primary: MDH ADIC, MDH BHPP EMS Planner Contributors: APIC-MN MDH OEP RHRCs Regional BHPP EMS Committee	Materials may include: PPE posters, respiratory hygiene/cough etiquette posters, visitor signage, "Protect Yourself First" videos, etc.
Information Sharing	Disseminate infection control materials for public safety personnel and first responders (e.g., Public Safety videos, influenza fact sheets).	Primary: MDH ADIC MDH BHPP EMS Planner Contributors: APIC-MN MDH OEP RHRCs Regional BHPP EMS Committee	Materials may include: PPE posters, respiratory hygiene/cough etiquette posters, visitor signage, "Protect Yourself First" videos, etc.

State			
	Roles and responsibilities	Coordinating entity	Explanation
Information Sharing	Disseminate infection control materials for voluntary organization personnel (e.g., information on infection control related to the care of the ill, social distancing, hand hygiene, respiratory hygiene/cough etiquette, etc.).	Primary: MDH ADIC MN Responds Contributors: APIC-MN Other volunteer organizations MRC UMN PHPCs RHRCs BHPP Behavioral Health Planner	
Information Sharing	Disseminate infection control materials for the general public, including businesses, schools, etc. (e.g., information on social distancing, hand hygiene, respiratory hygiene/cough etiquette, and illness exclusion recommendations).	Primary: MDH OEP MDH ADIC Contributors: PHPC Hospitals Clinics HSEM Community Partners APIC-MN MHA	

State			
	Roles and responsibilities	Coordinating entity	Explanation
Information Sharing	Ensure that written materials are translated into the appropriate languages for the target audience.	Primary: MDH Communications Office MDH ITIH Contributors: Community Partners APIC-MN MHA	
Quarantine Station	Assist MSP quarantine station personnel in developing and implementing infection control protocols for isolated/quarantined passengers.	Primary: MDH ADIC Contributor: CDC Quarantine Division	
PPE Support	Help to ensure that healthcare workers have adequate PPE to protect them in providing direct care to patients by stockpiling or identifying caches. Identify other individuals or groups for which PPE is needed.	Primary: MDH IDEPC MDH OEP PHPC Contributors: LPH	

Local			
	Roles and responsibilities	Coordinating entity	Explanation
PPE Recommendations	Work with MDH to develop consensus about infection control and PPE recommendations for avian and pandemic influenza.	Primary: APIC-MN Contributors: MDH-ADIC	
PPE Recommendations	Become familiar with avian and pandemic influenza infection control and PPE recommendations.	Primary: LPH Contributors: MDH ADIC MDH OEP PHPC	
PPE Recommendations	Become familiar with avian and pandemic influenza infection control and PPE recommendations.	Primary: Clinicians Contributors: MDH ADIC North Central IDSA, MMA	

Local			
	Roles and responsibilities	Coordinating entity	Explanation
PPE Recommendations	Become familiar with avian and pandemic influenza infection control and PPE recommendations.	Primary: Occupational Health Contributors: MDH-ADIC	
PPE Recommendations	Become familiar with avian and pandemic influenza infection control and PPE recommendations.	Primary: EMS, MDH EMS Planner, Regional BHPP EMS Committee, EMSRB Contributors: MDH ADIC, MDH OEP	
PPE Recommendations	Become familiar with avian and pandemic influenza infection control and PPE recommendations.	Primary: Public Safety Contributors: MDH ADIC, MDH OEP	

Local			
	Roles and responsibilities	Coordinating entity	Explanation
PPE Recommendations Organizations	Become familiar with avian and pandemic influenza infection control recommendations.	Primary: Voluntary Organizations Contributors: MDH ADIC	
PPE Recommendations	Become familiar with avian and pandemic influenza infection control recommendations for individuals, schools, businesses, and other entities.	Primary: General Public Contributors: MDH ADIC, PIO	
Information Sharing	Assist in disseminating infection control materials to ambulatory care clinics, public safety, and first responders, as well as off-site care facilities and mass dispensing locations, if indicated.	Primary: LPH Contributors: MDH ADIC MDH OEP PHPC	

Local			
	Roles and responsibilities	Coordinating entity	Explanation
Information Sharing	Assist in disseminating infection control materials to healthcare facility personnel and in training personnel in infection control precautions.	Primary: ICP Contributors: MDH ADIC APIC-MN	
Patient Education	Assist in patient education regarding infection control precautions.	Primary: Clinicians Contributors: MDH ADIC North Central IDSA, MMA	
Respiratory Protection Program	Ensure that all elements of the respiratory protection program are in place.	Primary: Occupational Health Clinicians ICP Contributors: MDH-ADIC	
Monitoring and Screening	Monitor and screen healthcare workers with possible exposure to avian or pandemic influenza.	Primary: Occupational Health Clinicians ICP Contributors: MDH-ADIC	

Local			
	Roles and responsibilities	Coordinating entity	Explanation
PPE Support	Help to ensure that healthcare workers have adequate PPE to protect them in providing direct care to patients.	Primary: LPH Contributors: MDH ADIC MDH OEP PHPC	
PPE Support	Distribute PPE to MDH identified groups or individuals.	Primary: LPH Contributors: MDH ADIC MDH OEP PHPC	

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