



## Annex F

# Infection Control and Occupational Health Guidelines During Pandemic Influenza in Traditional and Non- Traditional Health Care Settings

Date of Latest Version: *June 2006*

Summary of Significant Changes:

- ▶ Updated to include recommendations (and related references) regarding ventilation standards for health care facilities, and information regarding the spatial separation of patients in different settings;
- ▶ Uses new Pandemic Phase terminology;
- ▶ Recommendations regarding monitoring vaccinated visitors for ILI have been clarified;
- ▶ Section on Public Health Measures has been deleted from Annex F as there is now a separate Annex on this topic.

**Note:** Section on the mode of transmission of influenza and required control measures will be updated. Further review of existing literature is ongoing, and a consensus conference of experts in influenza transmission and control and respiratory protection is planned to assist in resolution of these two controversial issues.





## **Infection Control and Occupational Health Guidelines During Pandemic Influenza In Traditional and Non-Traditional Health Care Settings**

### **Notification**

**Canadian Pandemic Plan  
October 5<sup>th</sup>, 2006**

*T*he February 2004 Infection Control and Occupational Health Guidelines During Pandemic Influenza in Traditional and Non-Traditional Health Care Settings, Annex F of the Canadian Pandemic Plan is under revision.

Stakeholders should be advised that the document has been updated to include recommendations (and related references) regarding ventilation standards for health care facilities and information has been provided regarding the spatial separation of patients in different settings. In addition, terminology and statements regarding antiviral availability have been revised to be consistent with other sections of the Plan. Some terms in the glossary have been clarified and the phases were updated according to the revised World Health Organization phases. Recommendations regarding monitoring vaccinated visitors for ILI (as opposed to not monitoring staff or visitors who have recovered from pandemic influenza) have been clarified. The Section on Public Health Measures has been deleted from Annex F as there is now a separate Annex on this topic.

The section on the mode of transmission of influenza and required control measures has not been finalized. Annex F states that the primary modes of transmission of influenza virus are large respiratory droplets and contact, direct and indirect. The contribution of airborne transmission to the spread of influenza virus is controversial. The Infection Control Guidelines Steering Committee of the Public Health Agency of Canada therefore recommends that, in addition to hand hygiene, the appropriate personal protective equipment to be worn while caring for patients with influenza is a mask (good quality surgical type), eye protection, gloves and gown. The requirement for N95 respirators during aerosol generating procedures on patients with influenza is controversial. Further review of existing literature is ongoing, and a consensus conference of experts in influenza transmission and control and respiratory protection is planned to assist in resolution of these two controversial issues.

The new version of Annex F is expected to be completed following the Influenza Infection Prevention and Control Consensus meeting to be held on October 26<sup>th</sup> and 27<sup>th</sup> 2006.



## **Executive Summary**

*T*he Infection Control and Occupational Health Guidelines During Pandemic Influenza in Traditional and Non-Traditional Health Care Settings have been prepared by Health Canada's Nosocomial and Occupational Infections Section from the Centre for Infectious Disease Prevention and Control. These guidelines are one of the annexes of the Canadian Pandemic Influenza Plan

These guidelines are designed to assist those responsible for managing pandemic influenza in traditional and non-traditional health care settings. Traditional health care settings include acute, long term, ambulatory and community care. Non-traditional health care settings are those settings that are designated for operation prior to an influenza pandemic and become operational only when an influenza pandemic is declared by the World Health Organization (WHO). Non-traditional settings include triage settings, self care settings and temporary influenza hospitals. Organizations that assume responsibility for non-traditional settings are referred to as “parent organizations” in this document. If there is no “parent” organization to plan or operate the non-traditional setting, it is expected another organization would assume this role. Public Health may be in the best position to plan or operate such facilities, although this would need to be negotiated and corroborated.

This document presents an overview of infection prevention and control policies and procedures that will be critical to minimize the transmission of pandemic influenza, with or without the availability of immunization or chemoprophylaxis, and for preventing other infectious diseases. Therefore, the *Infection Control and Occupational Health Guidelines During Pandemic Influenza in Traditional and Non - Traditional Health Care Settings* are based on previously published Health Canada infection control guidelines. It is recognized that certain recommendations may be feasible only in the early phases of the pandemic as they may not be achievable as the pandemic spreads and resources become scarce.

**Part A** describes a foundation to develop an infection control/occupational health (IC/OH) plan for the management of pandemic influenza with particular focus on influenza transmission, routine practices, pandemic influenza education and public health restrictions. Major attention is given to the management of health care workers during an influenza pandemic. Recommendations for the use of influenza vaccine and antivirals for health care workers (HCWs) and patients are not included in these guidelines because they are fully outlined in the vaccine and antiviral annexes (Annexes D and E) of the Canadian Pandemic Influenza Plan.

Part A also explains the lack of evidence to support the use of masks to prevent transmission of influenza during previous pandemics. The evidence shows that, in the early phase of an influenza pandemic, it may be prudent for HCWs to wear masks when interacting in close face-to-face contact with coughing individuals to minimize influenza transmission. This use of masks is advised when immunization and antivirals are not yet available but is not practical or

helpful when transmission has entered the community. Masks may be worn by HCWs to prevent transmission of other organisms from patients with an undiagnosed cough. For the purpose of this document, the term mask refers to surgical masks, not to special masks such as high efficiency dust/mist masks or respirators.

Hand Hygiene is emphasized throughout the guidelines because strict adherence to handwashing/hand antisepsis recommendations is the cornerstone of infection prevention. Proper hand hygiene may be the only preventative measure available during a pandemic.

**Part B** describes the Management of Pandemic Influenza in traditional settings. Acute care, long term care, ambulatory care and individual community settings are stand-alone sections and are designed to be used in conjunction with Part A to develop an IC/OH plan for the management of pandemic influenza. References to published guidelines are frequent because it is expected that personnel in traditional health care settings are well acquainted with the series of infection control guidelines published by Health Canada.

**Part C** outlines the Management of Pandemic Influenza in non-traditional settings. Triage, self care setting and temporary influenza hospitals are stand alone sections and are designed to be used in conjunction with Part A to develop an IC/OH plan for the management of pandemic influenza. Detailed recommendations, adapted from published infection control guidelines, are provided for non-traditional settings as the planning and operation of such settings will be a novel situation.

**Appendix I.** The “Guideline Rating System” describes the system of ranking the strength of the evidence used to support the recommendations made in these guidelines.

**Appendix II.** The “World Health Organization Pandemic Influenza Phases” is the outline of the staged plan for responding to a pandemic threat and is based on the WHO influenza surveillance program.

**Appendix III.** The “Hand Hygiene Procedures”, A. How to Wash Hands and B. Decontaminating Hands with an Alcohol-based Hand Rub provide specific details related to hand hygiene.

**Appendix IV.** An “Influenza-Like-Illness (ILI) Assessment Tool” is provided to assist with immediate triage of patients or staff and accommodation/cohort of patients, prior to further OH or clinical management. This ILI triage tool should not be used for clinical management. Clinical management is specified in the “Clinical Care Guideline and Tools” annex of the Canadian Pandemic Influenza Plan.

**Appendix V.** Table A, “Cleaning Procedures for Common Items” provides examples of how common items are cleaned. Table B, “Directions for Preparing and Using Chlorine Bleach” describes recommendations for dilutions of specific products and their intended use.

These guidelines **do not** discuss **interpandemic** influenza. Infection control and occupational health recommendations for interpandemic influenza are addressed in other Health Canada guidelines, specifically in the *Infection Control Guidelines for the Prevention of Health Care-Associated Pneumonia.*, currently being developed.

## Glossary of Terms

<b>Antiseptic hand rub</b>	A waterless, antiseptic hand rub product that is applied to all surfaces of the hands to reduce the number of microorganisms present <sup>1</sup> .
<b>Biomedical waste</b>	Defined by the Canadian Standards Association <sup>2</sup> as waste that is generated by human or animal health care facilities, medical or veterinary settings, health care teaching establishments, laboratories, and facilities involved in the production of vaccines <sup>3</sup> .
<b>Cleaning</b>	The physical removal of foreign material, e.g., dust, soil, organic material such as blood, secretions, excretions and microorganisms. Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents and mechanical action. In certain settings, (e.g., central service or dietetics), the terms decontamination and sanitation may be used for this process. Cleaning reduces or eliminates the reservoirs of potential pathogenic organisms. Cleaning agents are the most common chemicals used in housekeeping activity <sup>3</sup> .
<b>Cohort</b>	Two or more patients exposed to, or infected with, the same organism who are separated physically (e.g., in a separate room or ward) from other patients who have not been exposed to, or infected with, that organism <sup>4</sup> .
<b>Cohort staffing</b>	The practice of assigning specific personnel to care only for patients/residents known be exposed to, or infected with, the same organism. Such personnel would not participate in the care of patients/residents who have not been exposed to, or infected with, that organism <sup>4</sup> .
<b>Contact transmission</b>	Includes direct contact, indirect contact and droplet transmission as described below <sup>5</sup> : <ul style="list-style-type: none"> <li>▶ <b>Direct contact</b> occurs when the transfer of microorganisms results from direct physical contact between an infected or colonized individual and a susceptible host (body surface to body surface).</li> <li>▶ <b>Indirect contact</b> involves the passive transfer of microorganisms to a susceptible host via an intermediate object such as contaminated hands that are not washed between patients, contaminated instruments or other inanimate objects in the patient's immediate environment.</li> </ul>
<b>Critical items</b>	Instruments and devices that enter sterile tissues, including the vascular system. Critical items present a high risk of infection if the item is contaminated with any microorganism, including bacterial spores. Reprocessing critical items, such as surgical equipment or intravascular devices, involves meticulous cleaning followed by sterilization <sup>3</sup> .
<b>Droplet</b>	Refers to large droplets, greater than or equal to 5 µm in diameter, generated from the respiratory tract of the source patient during coughing or sneezing, or during procedures such as suctioning or bronchoscopy. These droplets are propelled a short distance, less than 1 meter, through the air and deposited on the nasal or oral mucosa of the new host.

<b>Decontaminate hands</b>	The reduction of bacterial counts on hands is accomplished by performing an antiseptic hand rub or antiseptic hand wash <sup>1</sup> .
<b>Decontamination</b>	The removal of disease-producing microorganisms to leave an item safe for further handling <sup>3</sup> .
<b>Disinfection</b>	The inactivation of disease-producing microorganisms. Disinfectants are used on inanimate objects; antiseptics are used on living tissue. Disinfection does not destroy bacterial spores. Disinfection usually involves chemicals, heat or ultraviolet light. Levels of chemical disinfection vary with the type of product used <sup>3</sup> .
<b>Exposure</b>	The condition of being subjected to a microorganism or an infectious disease in a manner that enables transmission to occur <sup>6</sup> .
<b>Fit for Work</b>	<p>Terminology used in occupational health to communicate a worker's ability to remain at or return to work. This ability includes three categories: fit for work, unfit for work, fit with restrictions. This categorization allows the occupational health nurse to maintain confidentiality about a worker's diagnosis, symptoms, immune status, etc.<sup>6</sup></p> <ul style="list-style-type: none"> <li>▶ <b>Fit for Work</b> - Fit to work with no restrictions</li> <li>▶ <b>Unfit for Work</b> – Defined as a restriction from patient care tasks, co-worker contact and restriction from the workplace.</li> <li>▶ <b>Fit for work with restrictions</b> - Allows for the re-assignment of duties or re-integration into the workplace in a manner that will not pose an infection risk to the HCW or to the patients and or other individuals in the workplace.</li> </ul>
<b>Hand antisepsis</b>	This term refers to either antiseptic handwash or antiseptic handrub <sup>1</sup> . A process for the removal or reduction of resident and transient microorganisms <sup>3</sup> .
<b>Hand hygiene</b>	A general term that applies either to handwashing, an antiseptic handwash, an antiseptic hand rub, or a surgical hand antisepsis <sup>1</sup> .
<b>Handwashing</b>	Washing hands with plain (i.e., non-antimicrobial) soap and water <sup>1</sup> . A process for the removal of soil and transient microorganisms from the hands <sup>3</sup> .
<b>Health Care Worker (HCW)</b>	HCWs are professionals, including trainees, and retirees, nonprofessionals and volunteers, involved in direct patient care; and/or those working/volunteering in designated health care facilities or services. For the purposes of this definition, HCWs are those whose functions are essential to the provision of patient care, and who may have the potential for acquiring or transmitting infectious agents during the course of their work.
<b>High level disinfection</b>	<p>This term refers to the level of disinfection required when processing semicritical items.</p> <p>High level disinfection processes destroy vegetative bacteria, mycobacteria, fungi and enveloped (lipid) and non-enveloped (non-lipid) viruses, but not necessarily bacterial spores. High level disinfectant chemicals (also called chemisterilants) must be capable of sterilization when contact time is extended. Items must be thoroughly cleaned prior to high level disinfection<sup>3</sup>.</p>

<b>Infectious waste</b>	The portion of biomedical waste that is capable of producing infectious disease.
<b>Influenza</b>	<p><b>Clinical Case Definition of Influenza</b></p> <p>When influenza is circulating in the community, the presence of fever and cough of acute onset are good predictors of influenza. The positive predictive value increases when fever is higher than 38°C and when the time of onset of the clinical illness is acute (less than 48 hours after the prodromes). Other symptoms, such as sore throat, rhinorrhea, malaise, rigors or chills, myalgia and headache, although unspecific, may also be present<sup>1</sup>.</p> <p><b>Confirmed Case of Influenza</b></p> <p>Confirmed cases of influenza are those with laboratory confirmation (i.e., virus isolation from respiratory tract secretions, identification of viral antigens or nucleic acid in the respiratory tract, or a significant rise in serum antibodies) or clinical cases with an epidemiological link to a laboratory-confirmed case<sup>7</sup>.</p> <p><b>Influenza-Like-Illness (ILI)</b></p> <p>For surveillance purposes, the ILI definition currently used in Canada says:</p> <ul style="list-style-type: none"> <li>▶ Acute onset of respiratory illness with fever (&gt;38°C) and cough and with one or more of the following: sore throat, arthralgia, myalgia or prostration, which could be due to influenza virus as used by the National Influenza Surveillance Program (FluWatch) for the 2002-2003 season<sup>8</sup>.</li> </ul>
<b>Intermediate level disinfection</b>	The level of disinfection required for some semicritical items. Intermediate level disinfectants kill vegetative bacteria, most viruses and most fungi but not resistant bacterial spores <sup>3</sup> .
<b>Low level disinfection</b>	The level of disinfection required when processing noncritical items or some environmental surfaces. Low level disinfectants kill most vegetative bacteria and some fungi as well as enveloped (lipid) viruses (e.g., hepatitis B, C, Hantavirus, and HIV). Low level disinfectants do not kill mycobacteria or bacterial spores. Low level disinfectants-detergents are used to clean environmental surfaces <sup>3</sup> .
<b>Mask</b>	A barrier covering the nose and mouth to protect the mucous membranes from microorganisms contained in large droplet particles (> 5 µm in size) generated from a source person during coughing, sneezing, or talking and during the performance of certain procedures that generate droplets (e.g., suctioning) or are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions. Masks may also be used to contain large droplet particles generated by coughing or sneezing persons. The term mask in this document refers to surgical masks, not to special masks, such as high efficiency dust/mist masks or respirators.
<b>Noncritical items</b>	Items that either touch only intact skin but not mucous membranes or do not directly touch the patient/resident/client. Reprocessing of noncritical items involves cleaning and or low level disinfection <sup>3</sup> .



<b>Non traditional health care settings</b>	Non-traditional health care settings are those settings that are predetermined for operation prior to an influenza pandemic and operational only when an influenza pandemic is declared by the World Health Organization (WHO).
<b>Plain soap</b>	Products that do not contain antimicrobial agents, or contain very low concentrations of antimicrobial agents that are effective solely as preservatives <sup>1</sup> .
<b>Parent organization</b>	The organization responsible for the planning of a non-traditional setting operational only in the event of the declaration of an influenza pandemic. When there is no specific organization, another organization must be identified to assume the role of the parent organization.
<b>Personal protective equipment</b>	Attire used by the worker to protect against airborne or droplet exposure and exposure to blood and bloody body fluids, i.e., masks, eye goggles, face shields, gloves and gowns <sup>5</sup> .
<b>Precautions</b>	Interventions implemented to reduce the risk of transmission of microorganisms from patient to patient, patient to health care worker, and health care worker to patient <sup>5</sup> .
<b>Semicritical items</b>	Devices that come in contact with nonintact skin or mucous membranes but ordinarily do not penetrate them. Reprocessing semicritical items involves meticulous cleaning followed preferably by high-level disinfection <sup>3</sup> .
<b>Sterilization</b>	The destruction of all forms of microbial life including bacteria, viruses, spores and fungi. Items must be cleaned thoroughly before effective sterilization can take place <sup>3</sup> .
<b>Traditional health care settings</b>	Traditional settings include acute, long term, ambulatory and community care.

## **Table of Contents**

---

Notification. . . . .	i
Executive Summary . . . . .	ii
Glossary of Terms . . . . .	iv

### **Part A: Overview of Pandemic Influenza**

---

1. Background Information . . . . .	1
1.1 World Health Organization Phases for Pandemic Influenza . . . . .	2
2. Principles of Influenza Transmission. . . . .	2
2.1 Contact transmission. . . . .	2
2.2 Droplet transmission . . . . .	2
2.3 Airborne transmission . . . . .	3
2.4 Evidence for the mode of influenza transmission . . . . .	3
2.5 Routine practices and additional precautions to prevent the transmission of influenza . . . . .	3
2.6 Use of masks during a pandemic. . . . .	4
2.7 Infectivity of the influenza virus . . . . .	5
3. Occupational Health and Infection Control Management of Pandemic Influenza in Traditional and Non-Traditional Health Care Settings . . . . .	6
3.1 Occupational health and infection control pandemic influenza planning . . . . .	6
3.2 Definitions for infection control/occupational health management of patients/staff with influenza-like illness (ILI) . . . . .	8
3.3 Use of influenza immunization during an influenza pandemic. . . . .	9
3.4 Use of antivirals during an influenza pandemic . . . . .	9
3.5 Occupational health management of health care workers during an influenza pandemic . . . . .	9
4. Pandemic Influenza Education . . . . .	11
4.1 Pandemic influenza education of health care workers . . . . .	11
4.2 Pandemic influenza education for the public . . . . .	12
5. Public Health Restrictions on Public Gatherings. . . . .	14
5.1 Recommendations . . . . .	15

## Part B: Pandemic Influenza in Traditional Settings

---

1.	Management of Pandemic Influenza in Acute Care Settings . . . . .	16
1.1	Prevention of pandemic influenza. . . . .	16
1.2	Control of pandemic Influenza . . . . .	16
2.	Management of Pandemic Influenza in Long Term Care Settings . . . .	21
2.1	Prevention of pandemic influenza. . . . .	21
2.2	Control of pandemic influenza . . . . .	21
3.	Management of Pandemic Influenza in Ambulatory Care Settings . . . .	26
3.1	Prevention of pandemic influenza. . . . .	26
3.2	Control of pandemic influenza . . . . .	26
4.	Management of Pandemic Influenza in Home Care Settings (care provided by regulated and unregulated health care workers) . . . .	29
4.1	Prevention of pandemic influenza. . . . .	29
4.2	Control of pandemic influenza . . . . .	29
5.	Management of Pandemic Influenza in Community Settings . . . . .	32
5.1	Management of pandemic influenza in emergency responder settings . . . . .	32
5.2	Management of pandemic influenza in mortuary care settings . . . .	36
5.3	Management of pandemic influenza in child care settings . . . . .	37
5.4	Management of pandemic influenza in schools and student residences . . . . .	39
5.5	Management of pandemic influenza in workplaces . . . . .	41
5.6	Management of pandemic influenza in shelters. . . . .	42
5.7	Management of pandemic influenza in correctional facilities . . . . .	43

## Part C: Pandemic Influenza in Non-Traditional Settings

---

1.	Infection Control and Occupational Health in Triage Settings . . . . .	46
1.1	Prevention of pandemic influenza. . . . .	46
1.2	Control of pandemic influenza . . . . .	46
2.	Infection Prevention and Control in Self Care Settings (care provided by self, family, friends or volunteers) . . . . .	53
2.1	Prevention of pandemic influenza. . . . .	53
2.2	Control of pandemic influenza . . . . .	53
3.	Infection Control and Occupational Health in Temporary Influenza Hospitals . . . . .	57
3.1	Prevention of pandemic influenza. . . . .	57
3.2	Control of pandemic influenza . . . . .	58

## Appendices

---

Appendix I.	Guideline Rating System. . . . .	72
Appendix II.	World Health Organization (WHO) Definition of Preparedness Levels . . . . .	73
Appendix III.	Hand Hygiene Procedures. . . . .	75
	A. How to Wash Hands . . . . .	75
	B. Decontaminating Hands with an Alcohol-Based Hand Rub . . . . .	76
Appendix IV.	An Influenza-like Illness (ILI) Assessment Tool . . . . .	77
Appendix V.	Tables . . . . .	78
	A. Cleaning Procedures for Common Items . . . . .	78
	B. Directions for Preparing and Using Chlorine-based Disinfectants . . . . .	79
Reference List	. . . . .	80

## **Part A. Overview of Pandemic Influenza**

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### **1.0 Background Information**

The following document provides infection prevention and control guidance for the management of **pandemic influenza** in traditional and non-traditional health care settings. Non-traditional health care settings are those that are pre determined for operation prior to an influenza pandemic and operational only when an influenza pandemic is declared by the World Health Organization (WHO).

Infection prevention and control guidelines for **interpandemic influenza** in traditional health care settings, (i.e., acute care, long-term care, ambulatory care and community care), will be addressed in other Health Canada infection control guidelines, specifically the Guideline for the Prevention of Health Care-Associated Pneumonia.

Infection prevention and control guidelines for the management of pandemic influenza in traditional and non-traditional health care settings are based on previously published Health Canada Infection Control Guidelines<sup>3,5,6,9</sup>. Although recommendations to prevent the transmission of infection during the delivery of health care, including during a pandemic are important, it is recognized that certain recommendations may be feasible only in the early phases of the pandemic as they may not be achievable when the pandemic spreads and resources become scarce. For the purpose of this document the term mask refers to surgical masks, not to procedure masks, special masks or respirators.

Throughout this document, the term “parent organization” refers to the organization that assumes responsibility for non - traditional settings. Where there is no “parent” organization to plan or operate the non - traditional settings, it is expected that another organization would assume this role. Public Health may be in the best position to plan or operate such facilities although this would need to be negotiated and corroborated.

In this document, individuals who have recovered from or have been vaccinated against the pandemic strain of influenza are considered immune with one important caveat regarding the immune status of the vaccinated individual. Because influenza vaccines are not 100% efficacious, if vaccinated individuals come in contact with influenza patients, the vaccinated individual should be monitored for ILI using the ILI Assessment Tool found in Appendix IV. Health Canada will coordinate studies on vaccine effectiveness (see the vaccine annex [Annex D] in the Canadian Pandemic Influenza Plan for further details).

During a pandemic, it may be necessary to recruit trainees and volunteers to take on specific responsibilities, for example, basic patient care, that is usually reserved for health care workers. The implication is that these workers will need to be considered, for infection control purposes, as being equivalent to health care workers (see glossary) in terms of risk of exposure and ability to transmit disease.

## 1.1 World Health Organization Phases for Pandemic Influenza

The World Health Organization has developed a staged plan, based on its surveillance program, for responding to a pandemic threat. Recognition of a novel influenza strain in humans triggers a series of responses, identified as phases and levels within phases that can ultimately lead to the declaration of a pandemic. Interpandemic activities are designated as Phase 0. Isolation of a novel virus subtype from a single human case, without evidence of spread, will result in WHO declaring pandemic influenza Phase 0: Preparedness Level 1. Phase 1 is the confirmation of a pandemic, Phase 3 is the end of the first pandemic wave and Phase 4 is the second or subsequent waves of the pandemic<sup>10</sup>.

More than one wave of infection can occur in a pandemic<sup>11</sup> possibly due to seasonal influences and the existence of a large pool of susceptible individuals in the population<sup>12</sup>.

Key stages of the WHO response are outlined in Appendix II.

## 2.0 Principles of Influenza Transmission

The following section has been adapted from the Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*, 1999<sup>5</sup>.

Modes or routes of transmission of infectious agents have been classified as contact, droplet, airborne, common vehicle and vectorborne. Routes pertinent to influenza are contact, droplet and airborne.

### 2.1 Contact Transmission

Includes direct contact, indirect contact and droplet (large droplet transmission). Routine practices should prevent most transmissions by the contact route. Although droplet transmission is a type of contact transmission, it is considered separately as it requires additional precautions.

- ▶ **Direct Contact Transmission** occurs when the transfer of microorganisms results from direct physical contact between an infected or colonized individual and a susceptible host.
- ▶ **Indirect Contact** involves the passive transfer of microorganisms to a susceptible host via an intermediate object such as contaminated hands that are not washed between patients or contaminated instruments or other inanimate objects in the patient's immediate environment.

### 2.2 Droplet Transmission

Refers to large droplets, greater than or equal to 5 µm in diameter, generated from the respiratory tract of the source (infected individual) during coughing or sneezing, or during procedures such as suctioning or bronchoscopy. These droplets are propelled a distance of less than one meter through the air and are deposited on the nasal or oral mucosa of the new host (newly infected individual) or in the immediate environment. These large droplets do not remain suspended in the air, therefore, special ventilation is not required since true aerosolization (see below) does not occur.

## 2.3 Airborne Transmission

Refers to the dissemination of microorganisms by aerosolization. Organisms are contained in droplet nuclei, airborne particles less than 5 µm that result from the evaporation of large droplets, or in dust particles containing skin squames and other debris that remain suspended in the air for long periods of time<sup>13</sup>. Such microorganisms are widely dispersed by air currents and inhaled by susceptible hosts who may be some distance away from the source patients or individuals, even in different rooms or hospital wards. Control of airborne transmission is the most difficult as it requires control of air flow through special ventilation systems.

## 2.4 Evidence for the Mode of Influenza Transmission

The following section has been adapted from the Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*, 1999<sup>5</sup>.

Organisms, especially respiratory viruses expelled in large droplets, remain viable in droplets that settle on objects in the immediate environment of the patient. Both influenza A and B viruses have been shown to survive on hard, non-porous surfaces for 24-48 hours, on cloth paper and tissue for 8-12 hours and on hands for 5 minutes<sup>14</sup>. The virus survives better at the low relative humidity encountered during winter in temperate zones.

Contact with respiratory secretions and large droplets, appears to account for most transmissions of influenza. In a report of an outbreak in a nursing home, the pattern of spread was suggestive of contact rather than airborne transmission because patients who were tube fed or required frequent suctioning had higher infection rates than those who did not require such care<sup>15</sup>.

Whether or not influenza is naturally transmitted by the airborne route is controversial<sup>16,17</sup>. An outbreak of influenza on an airliner has been attributed to airborne spread; however, large droplet spread could have been responsible because the passengers were crowded together and moved about for several hours in a small, grounded airplane<sup>18</sup>. Although experimental airborne transmission of influenza A virus to mice has been reported, there is no evidence of such transmission in humans<sup>19</sup>.

### 2.4.1 Mode of Influenza Transmission

Influenza is directly transmitted primarily by droplet contact of the oral, nasal, or possibly conjunctival mucous membranes with the oropharyngeal secretions of an infected individual. Influenza is indirectly transmitted from hands and objects freshly soiled with discharges of the nose and throat of an acutely ill and coughing individual<sup>6</sup>.

## 2.5 Routine Practices and Additional Precautions to Prevent the Transmission of Influenza

The following section has been adapted from the Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*, 1999<sup>5</sup>.

Routine practices outline the importance of handwashing before and after caring for patients; the need to use gloves, masks/eye protection/face shields, and gowns when splashes or sprays of blood, body fluids, secretions or excretions are possible; the cleaning of patient-care equipment, the patient's physical environment and soiled linen; the precautions to reduce the possibility of HCW exposure to bloodborne pathogens and patient placement. Routine

practices are the infection prevention and control practices for use in the routine care of all patients at all times in all health care settings.

Additional precautions are required when routine practices are not sufficient to prevent transmission. In interpandemic years, the Health Canada guidelines recommend that in addition to routine practices, which should be taken for the care of all patients, additional precautions (droplet and contact precautions) should be taken for pediatric<sup>5</sup> and adult patients with influenza (personal communication, Consensus Meeting for infection control measures with patients presenting with acute, respiratory illness, Gatineau, Quebec, November 24, 2003). This recommendation represents a change because, in the past, it was unclear as to whether or not additional precautions were indicated for adults with influenza.

Children and adults who have the physical and cognitive abilities, should be encouraged to practice good hygiene: i.e., use disposable, one-use tissues for wiping noses; cover nose and mouth when sneezing and coughing; hand washing/hand antisepsis after coughing, sneezing or using tissues; and, keep hands away from the mucous membranes of the eyes and nose. Therefore, preventing the transmission of influenza is best achieved through strict compliance with routine practices, (i.e., good hygiene) and the use of additional precautions<sup>5</sup>.

Routine practices and additional precautions to prevent the transmission of infection during the delivery of health care in all health care settings during a pandemic are important. Certain routine practice and additional precaution recommendations may be feasible only in the early phases of the pandemic as they may not be achievable as the pandemic spreads and resources (equipment, supplies and workers) become scarce. Because the complexity of managing high risk patients will be greatest in acute care hospitals, it seems reasonable that the highest priority for infection control resources should be given to the acute care settings.

**Strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventive measure available during a pandemic.** Hand hygiene procedures should be reinforced according to Appendix III.

## 2.6 Use of Masks During a Pandemic

Although there is a lack of evidence that the use of masks prevented transmission of influenza during previous pandemics; in the early phase of an influenza pandemic, it may be prudent for HCWs to wear masks when interacting in close face-to-face contact with coughing individuals to minimize influenza transmission. This use of masks is advised when immunization and antivirals are not yet available but is not practical or helpful when pandemic influenza has entered the community. There is no evidence that the use of masks in general public settings will be protective when the virus is circulating widely in the community.

Masks may be worn by HCWs to prevent transmission of other organisms from patients with undiagnosed cough. For the purpose of this document the term mask refers to surgical masks, not to special masks or respirators. Special masks, i.e., high-efficiency dust/mist masks are required for patients with infectious tuberculosis and for non-immune HCWs entering the room of a patient with measles or disseminated varicella.

When using surgical masks<sup>5</sup>:

- ▶ They should be used only once and changed if wet (because masks become ineffective when wet).
- ▶ They should cover both the nose and the mouth.
- ▶ Avoid touching it while it is being worn



- ▶ Discard them into an appropriate receptacle.
- ▶ They must not be allowed to dangle around the neck.

## 2.7 Infectivity of the Influenza Virus

The **incubation period** for influenza is from 1-3 days. The **period of communicability** (duration of viral shedding) continues for up to 7 days after the onset of illness<sup>5</sup>, probably from 3-5 days from clinical onset in adults and up to 7 days in children<sup>20</sup>.

Individuals infected with influenza tend to shed more virus in their respiratory secretions in the early stages of the illness<sup>21,22</sup> and patients are most infectious during the 24 hours before the onset of symptoms and during the most symptomatic period<sup>23</sup>. Viral shedding may be longer in infants<sup>5</sup>, and prolonged in young children and immunodeficient patients<sup>20</sup>. It has not been well established whether elderly long term care residents shed viruses longer than other adult populations<sup>24</sup>.

There is no information to determine if the period of communicability will be different with pandemic influenza. The duration of shedding of a novel virus (pandemic strain) is unknown. It is possible that prolonged shedding could occur with pandemic influenza because the immune system would not have had prior experience with related strains<sup>25</sup>.

Hands can be contaminated with influenza virus by contact with inanimate surfaces or objects in the immediate environment of a patient with influenza infection. Influenza A and B viruses have been shown to survive for 24-48 hours on hard, nonporous surfaces; for up to 8 to 12 hours on cloth, paper and tissues; and on hands for up to 5 minutes after transfer from environmental surfaces<sup>14</sup>.

**“The influenza virus is readily inactivated by hospital germicides, household cleaning products, soap, hand wash or hand hygiene products.”** Therefore, neither antiseptic hand wash products in health care settings nor antibacterial hand wash products in home setting are required because routine products, along with proper hand washing procedures, will inactivate the influenza virus.

### Infectivity of the Influenza Virus

1. Incubation period:	1-3 days.
2. Period of communicability:	Infectious 1 day before onset of symptoms and may be longer than 7 days after the onset of symptoms.

### 3.0 Occupational Health and Infection Control Management of Pandemic Influenza in Traditional and Non-traditional Health Care Settings

#### 3.1 Occupational Health and Infection Control Pandemic Influenza Planning

A broad consensus has emerged regarding plans for pandemic influenza: the plans should be aimed at reducing influenza-related morbidity, mortality and social disruption. It is widely recognized that preparation for the next pandemic requires that an infrastructure be in place during the interpandemic period for the following reasons:

- (a) the rapid detection of novel variants and disease caused by them,
- (b) the production and delivery of influenza vaccines and antiviral agents to high priority target groups,
- (c) the rapid dissemination and exchange of information; and
- (d) emergency preparedness.

Pandemic plans should outline the responsibilities of the institutions that will be involved in the pandemic response. The plan should be divided into phases that describe, in detail, a step-wise response to the identification and subsequent spread of a novel virus, as well as the ability to cut back the response if a novel virus fails to spread as occurred in 1976 and 1977<sup>10</sup>.

Planning for and the management of pandemic influenza is directly related to the strength of the strategy in place for the management of interpandemic influenza; a strong interpandemic plan will affect the outcome of the pandemic plan<sup>12</sup>.

“The trends of modern society, including the increasing availability of rapid human transportation and the urbanization of the rapidly expanding human population, tend to facilitate the spread of influenza and increase morbidity. Modern medicine can reduce the mortality that resulted from complications of infection with influenza virus during earlier epidemics, but the cost of medical interventions has increased to the point that effective methods of epidemic control should be considered. **This challenge provides an opportunity to develop, test, and have in place a strategy for control of interpandemic influenza before the next pandemic**”<sup>12</sup>.

During an influenza pandemic, adherence to infection prevention and control policies and procedures is critical to minimize the transmission of influenza and other infectious diseases. It is anticipated that neither influenza immunization nor chemoprophylaxis will be available in the early stages of a pandemic and perhaps not even available in later stages, necessitating an emphasis on infection prevention and control practices.

### 3.1.1 Recommendations

1. All organizations responsible for traditional health care settings (i.e., acute, long term, ambulatory, home and community care) and organizations (i.e., parent organizations) responsible for the planning of non-traditional settings (i.e., triage settings, self care settings and temporary influenza hospitals) operational only during an influenza pandemic, should develop an Infection Control and Occupational Health (IC/OH) plan for the management of pandemic influenza. The plan should be developed according to previously published Health Canada Infection Control Guidelines<sup>3,5,6,9</sup> and federal/provincial/territorial/municipal/regional contingency plans with a multi-disciplinary group that includes, but is not limited to:
    - (a) representatives from traditional and non traditional organizations including:
      - ▶ medical administration
      - ▶ nursing administration
      - ▶ physicians
      - ▶ nursing services
      - ▶ physical plant and housekeeping
      - ▶ occupational health
      - ▶ infection prevention and control
      - ▶ pharmacy services
      - ▶ emergency services
      - ▶ respiratory services
      - ▶ public affairs
      - ▶ educational services
      - ▶ laboratory services;
    - (b) public health personnel;
    - (c) community care providers;
    - (d) local pandemic planners;
    - (e) funeral service workers;
    - (f) local disaster planners.
- ↑AIII**
2. Non traditional settings that are not associated with a “parent” organization must develop their IC/OH plan for the management of pandemic influenza with an organization that would assume this role of “parent” organization. Public Health may be in the best position to plan or operate such facilities although this would need to be negotiated and corroborated.
- ↑AIII**
3. The IC/OH plan for the management of pandemic influenza for traditional and non-traditional settings should be reviewed every 3 years and updated according to current legislation and relevant publications.
- ↑AIII**
4. The IC/OH plan for the management of pandemic influenza for traditional and non-traditional settings should include the preparation of educational information for

health care workers (see glossary for HCW definition, see section 4.1 for HCW education and see section 3.5 for management of HCWs during a pandemic).

↑**AIII**

5. The IC/OH plan for the management of pandemic influenza should include recommendations for the use of influenza vaccine and chemoprophylaxis for health care workers according to the vaccine (Annex D) of the Canadian Pandemic Influenza Plan.

↑**AIII**

6. Pandemic influenza planning should include support for programs to meet Canadian target coverage rates for pneumococcal immunization<sup>26-28</sup>.

↑**AIII**

7. **Strict adherence to hand washing/hand antisepsis recommendations (see Appendix III) is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.**

Planning should include ensuring that adequate supplies of hand hygiene products are a priority for all health care settings as there may be an interruption to the supply or shortages of hand antisepsis products, soap and hand towels

↑**AII**

8. Planning should include the priority of maintaining adequate resources for infection control in acute care hospitals (soap, antiseptic products, masks/eye protection/face shields, gloves, gowns) due to the increased complexity and management issues of hospitalized patients.

↑**AII**

9. Planning should include ensuring all HCWs (see glossary for HCW definition) are offered hepatitis B immunization<sup>6,9</sup>. As resources permit, HCWs should also receive TB skin testing, should have proof of measles, mumps, rubella (MMR) immunity and receive a tetanus booster if appropriate<sup>6</sup>.

↑**AII**

### **3.2 Definitions for Infection Control/Occupational Health Management of Patients/Staff with Influenza-Like Illness (ILI)**

#### **3.2.1 Influenza-Like-Illness**

See glossary term “influenza”.

Refer to Appendix IV for an ILI Assessment Tool. An ILI Assessment Tool is to be used for immediate triage of patients or staff and accommodation/cohort of patients, prior to further OH or clinical management.

#### **3.2.2 Clinical Case Definition**

See glossary term “influenza”.

#### **3.2.3 Confirmed Case of Influenza**

See glossary term “influenza”.

### **3.2.4 Immunity to Influenza**

During a pandemic, it is likely that most cases of influenza will be caused by the pandemic strain. Data from the 1957 and 1968 pandemics show that the previously circulating influenza strain disappeared from human circulation when the pandemic strain of influenza virus emerged<sup>25</sup>. Therefore, HCWs who have recovered from an ILI during an earlier pandemic phase, may be assumed to be immune to the pandemic influenza strain.

Individuals who have been immunized against the pandemic strain of influenza will also be considered immune, recognizing that the influenza vaccine may not be fully protective. Therefore, unlike individuals who have recovered from pandemic influenza or ILI, vaccinated individuals should be monitored for ILI using the ILI Assessment Tool found in Appendix IV.

### **3.3 Use of Influenza Immunization During an Influenza Pandemic**

See the vaccine annex (Annex D) of the Canadian Pandemic Influenza Plan. Influenza vaccine availability in the early phase(s) of the pandemic is uncertain. When available, vaccine will be provided according to priority groups set by recommendations from the Vaccine Working Group. Health Care Workers and those trainees, volunteers, etc. who are recruited to perform the duties of a HCW are considered to be a high priority.

### **3.4 Use of Antivirals During an Influenza Pandemic**

See the antivirals annex (Annex E) of the Canadian Pandemic Influenza Plan. Antiviral availability in the early phase(s) of the pandemic is uncertain. When available, antivirals will be provided according to priority groups set by recommendations from the Antiviral Working Group. Health care workers and those trainees, volunteers, etc. who are recruited to perform the duties of a HCW are considered to be a high priority.

### **3.5 Occupational Health Management of Health Care Workers During an Influenza Pandemic**

The phrases “fit for work”, “unfit for work”, and “fit to work with restrictions” are used by Occupational Health to communicate a worker’s ability to remain at or return to work depending upon their susceptibility to influenza, immunization status and agreement to use antivirals<sup>6</sup>. During the early phases of a pandemic, vaccine and antiviral availability will be limited and will be provided to priority groups. Health Care Workers, and those trainees, volunteers, etc. who are recruited to perform the duties of a HCW, are to be one of the priority groups. (See Annexes D and E of the Canadian Pandemic Influenza Plan.)

#### **3.5.1 Recommendations**

##### **1. Fit for Work**

- (a) Ideally, HCWs are fit to work when one of the following conditions apply:
  - (i) they have recovered from ILI (see glossary for definition and ILI Assessment Tool, Appendix IV) illness during earlier phases of the pandemic;

- (ii) they have been immunized against the pandemic strain of influenza as outlined in Annex D of the Canadian Pandemic Influenza Plan; or,
- (iii) they are on appropriate antivirals as outlined in Annex E of the Canadian Pandemic Influenza Plan.

Such HCWs may work with all patients and may be selected to work in units where there are patients who, if infected with influenza, would be at high risk for complications.

↑**AIII**

- (b) Whenever possible, well, unexposed HCWs should work in non-influenza areas.
- (c) Asymptomatic HCWs may work even if influenza vaccine and antivirals are unavailable. Meticulous attention should be paid to hand hygiene and HCWs should avoid touching mucous membranes of the eye and mouth to prevent exposure to the influenza virus and other infective organisms.

↑**AIII**

↑**AIII**

## **2. *Unfit for Work***

Ideally, staff with ILI should be considered “unfit for work” and should not work; nonetheless, due to limited resources, these HCWs may be asked to work if they are well enough to do so (see 3(b) below).

↑**AIII**

## **3. *Fit to Work with Restrictions***

- (a) Ideally, symptomatic staff who are considered “fit to work with restrictions” should only work with patients with ILI. Health Care Workers who must work with non-exposed patients (non-influenza areas) should be required to wear a mask if they are coughing and must pay meticulous attention to hand hygiene.
- (b) Symptomatic HCWs who are well enough to work should not be redeployed to intensive care areas, nurseries<sup>29-31</sup> or units with severely immunocompromised patients, i.e., transplant recipients<sup>32</sup>, hematology/oncology patients<sup>33-35</sup>, patients with chronic heart or lung disease, or patients with HIV/AIDS and dialysis patients.

↑**AIII**

↑**AII**

## 4.0 Pandemic Influenza Education

### 4.1 Pandemic Influenza Education for Health Care Workers (Including Emergency Medical Services, mortuary workers, and HCWs in correctional settings)

#### *Recommendations*

1. Educational information for workers should be provided as soon as WHO Pandemic Phase 0 Level 1 is declared (see Appendix II) and repeated at frequent intervals to all staff levels and during all shifts. ↑AIII
2. The pandemic influenza information should be appropriate to the audience and be provided using a variety of methods, e.g., postings in elevators, at facility entrances, brochures, newsletters and web sites. ↑AIII
3. The educational information prepared and provided for workers should include:
  - (a) an explanation that pandemic influenza is a novel strain of influenza and what a pandemic is;
  - (b) the facility-specific pandemic influenza plan;
  - (c) information regarding triage settings (see Section 7.1 ), self care (see Section 7.2) and temporary influenza hospitals ( see Section 7.3).
  - (d) the difference between an upper respiratory infection and influenza (see the introduction to the Preparedness Section of the Canadian Pandemic Influenza Plan);
  - (e) the mode of influenza transmission (see Section 2.4);
  - (f) the criteria for determining, influenza-like-illness (ILI) ( see glossary for definition and Appendix IV for an ILI Assessment Tool) and influenza (see glossary for definition);
  - (g) the risk of infection and subsequent complications in high-risk groups;
  - (h) the message that **strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during early phases of the pandemic** ( see Appendix III);
  - (i) information about the importance of hygienic measures (see Section 2.5) to minimize influenza transmission because influenza immunization and/or prophylaxis may not be available until later in the pandemic;
  - (j) information indicating that, during the early phase of an influenza pandemic, it may be feasible for HCWs to wear masks when face-to-face with coughing individuals to minimize influenza transmission (particularly when immunization and antivirals are not yet available) but not practical or helpful when transmission has entered the community (see Section 2.6). Masks may be worn by HCWs to prevent transmission of other organisms from patients with undiagnosed cough;
  - (k) who will be given the highest priority for immunization when vaccine is available,

- (l) the importance of being immunized and safety of immunization (see Annexes D and E of the Canadian Pandemic Influenza Plan);
- (m) who will be given what priority for prophylaxis when antivirals are available, the importance of prophylaxis and safety of prophylaxis (see Annexes D and E of the Canadian Pandemic Influenza Plan).

↑**BIII**

4. Information about the importance of routine practices and additional precautions to prevent the transmission of infection during the delivery of health care in all health care settings during a pandemic. This information should include the caveat that some routine practice and additional precaution recommendations may be achievable only in the early phases of the pandemic and other recommendations may not be achievable as the pandemic spreads and resources (equipment, supplies and workers) become scarce.  
↑**BIII**
5. Priority for infection control resources should be assigned to acute care settings because of the complexity of managing high risk patients in acute care settings.  
↑**BIII**
6. Education about routine practices for those expected to work in non-traditional settings, as outlined in this document, should be available. Refer to Section 7.1 for Triage Settings, Section 7.2 for Self Care Settings and Section 7.3 for Temporary Influenza Hospitals.  
↑**BIII**
7. Education about Routine Practices in traditional health care settings, as outlined in Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*, 1999, should be ongoing.  
↑**BIII**
8. HCWs should be provided with the recommendations for Occupational Health Management of workers during a pandemic (See Section 3.5).  
↑**BIII**

#### **4.2 Pandemic Influenza Education for the Public (including child care workers, teachers, shelter workers, correctional workers, etc.)**

##### ***Recommendations***

1. Provide education appropriate to the recipient, as soon as WHO Pandemic Phase 0 Level 1 is declared (see Appendix II). Include information about the epidemiology and mode of transmission of influenza using a variety of methods, e.g., postings at facility entrances, brochures, newsletters, web sites, television and radio stations.  
↑**AIII**
2. Educational information prepared and provided for the public should include:
  - (a) an explanation that pandemic influenza is a novel strain of influenza and what a pandemic is;



- (b) information regarding Self Care (see Section 7.2 and Annex G of the Canadian Pandemic Influenza Plan) and for the purpose of Triage Settings and Temporary Influenza Hospitals (see Annex G of the Canadian Pandemic Influenza Plan);
- (c) the difference between an upper respiratory infection and influenza (see the introduction to the Preparedness Section of the Canadian Pandemic Influenza Plan);
- (d) the mode of transmission of influenza (see Section 2.4);
- (e) the criteria for determining, influenza-like-illness (ILI) (see glossary for definition and Appendix IV for an ILI Assessment Tool) and influenza (see Glossary for definition);
- (f) the risk of infection and subsequent complications in high-risk groups;
- (g) the message that **strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during the pandemic;**
- (h) information about the importance of hygienic measures, i.e., using disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose to minimize potential influenza transmission because influenza immunization and/or prophylaxis may not be available until later in the pandemic;
- (i) information that the influenza virus is readily inactivated by plain soap and common household cleaning products;
- (j) information indicating that during the early phase of an influenza pandemic, it may be feasible for HCWs to wear masks when coming face-to-face with coughing individuals to minimize influenza transmission (particularly when immunization and antivirals are not yet available) but not practical or helpful when transmission has entered the community. In health care settings, HCWs should wear masks to prevent transmission of other organisms from patients with undiagnosed cough (see Section 2.6);
- (k) who will be given the highest priority for immunization when a vaccine is available, importance of being immunized and safety of immunization (See the Preparedness Section of the Canadian Pandemic Influenza Plan);
- (l) who will be given what priority for prophylaxis when antivirals are available, the importance of prophylaxis and safety of prophylaxis (see Annex E of the Canadian Pandemic Influenza Plan).

↑**AIII**

3. Provide information to encourage those who are symptomatic with ILI (see Appendix IV for an ILI Assessment Tool) but do not require formal health care, to remain at home until their symptoms have resolved.

↑**BIII**

4. Provide information to encourage those with ILI (see Appendix IV for an ILI Assessment Tool) to avoid visiting those who are at high risk for complications if they developed influenza in institutional settings (acute care and long term care) until their symptoms have resolved.

↑**BIII**

5. Inform the public to avoid public gatherings, as discussed in the following section, to minimize exposure.

**↑BIII**

## 5.0 Public Health Restrictions on Public Gatherings

Medical Officers of Health, through their provincial/territorial Public Health Acts, have the authority to quarantine individuals or groups, as deemed necessary, to control infectious diseases. During the 1918 influenza pandemic in Alberta, drastic control measures were taken; masks were required when going out in public; all schools, churches and theatres were closed, public meetings banned and towns were quarantined (Alberta Pandemic Influenza Planning overhead presentation given by Dr. K Grismsrud at the Canadian Pandemic Planning, meeting held in Montreal, May, 2001).

In an historical review of the 1918 pandemic in the United States, Keen-Payne<sup>36</sup> noted that many other centres used similar measures to attempt to curb transmission. In Chicago, persons who sneezed openly or who spit were threatened with arrests and fines. Churches were not closed, but parishioners were requested to stay home if ill, and windows were opened for ventilation during services. By the third week in October 1918, (the peak of the second wave) closing had extended to theaters, banquets, lecture halls, restaurants and movie shows.

In Newark, the state simply banned all public gatherings on October 10. Confusion developed when liquor stores were allowed to remain open for sales but churches were not open for congregating. The churches protested and the ban was lifted on October 21. In San Diego, all public facilities were closed (libraries, pool halls, women's weekly club meeting halls) as were all outdoor meetings except those convened to sell liberty bonds. The ban was lifted and then imposed again as new cases of influenza increased. Citizens were never strongly supportive of these measures<sup>36</sup>.

The suggestion that the spread of influenza from US military camps in the summer of 1918 did not occur until school returned in the fall, has been noted<sup>37</sup>. In the United States, illness rates of nearly 40% were reported among schoolchildren during the autumn wave<sup>38</sup>.

Following the 1957 epidemic in Japan, the policy on influenza immunization was changed as it was determined that school attendance played an important part in spreading that epidemic. There were wide-spread school closures, with attack rates as high as 60% in some areas and approximately 8,000 deaths. The new policy stated that "because schoolchildren are the major disseminators of the disease, they should be immunized". In a study to review whether the policy of vaccination of school children in Japan (over a 25-year period) reduced the incidence and mortality attributed to influenza among older persons, the authors concluded that the vaccination of schoolchildren in Japan disrupted the spread of influenza to older persons<sup>39</sup>.

There is evidence that closing schools may change the course of transmission<sup>12,40,41</sup>. Studies conducted both during pandemic years and interpandemic years demonstrate that age-specific attack rates are highest among school children<sup>12</sup>. Additional studies noted that the age distribution of culture-positive patients changed during the course of epidemics. Initially, school children were culture positive, followed by a shift to preschool children and adults during the latter part of the epidemic<sup>42</sup>. The authors observed that school absenteeism was often followed by employee absenteeism during the influenza epidemics studied.

It is thought that management of exposure, as an approach to the prevention of a pandemic, is not possible because of the current high levels of international travel and the expansion of populations into many regions of the world. Options for slowing the spread of pandemic influenza have been suggested and include the use of antiviral prophylaxis, limiting congregations of people and, possibly, quarantine<sup>43</sup>.

In preparation of an influenza pandemic and in an attempt to curtail community transmission, there are neither data nor guidelines to determine which public gatherings to close and when to close them. What constitutes a public gathering and whether some gatherings may be defined as essential versus non-essential needs to be clarified. Examples of public gatherings from the above included: transportation (ground, rail and air), childcare, schools, retail settings, workplaces, places of worship, funerals and community events (cultural/sporting).

The principles to determine when, how, and which public gatherings will be restricted in order to curtail community transmission ought to be based on common sense strategies, and should be consistently applied within, and across, jurisdictions. The severity of the pandemic strain and the stage of the pandemic, as it unfolds globally, should be considered when making this determination. Refer to the Public Health Measures document of the Preparedness Section of the Canadian Pandemic Influenza Plan for more comprehensive public health recommendations than those listed below.

## 5.1 Recommendations

1. Medical Officers of Health should develop a predetermined strategy for closing public gatherings. If public gatherings are restricted they should be restricted early enough to affect transmission. The strategy should include but is not limited to:
  - (a) the definition of what constitutes a public gathering;
  - (b) specifying the time period within the pandemic phases to implement the strategy;
  - (c) applicability and consistency across jurisdictions;
  - (d) availability of and priority use of vaccine and antivirals as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan;
  - (e) consideration as to whether or not school age children are to be considered a high priority for immunization or antivirals in the early phase of the pandemic.

**↑BIII**

## **Part B. Management of Pandemic Influenza in Traditional Health Care Setting**

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### **1.0 Management of Pandemic Influenza in Acute Care Settings**

Acute care settings group patients together who have a high risk of developing serious, sometimes fatal, complications related to influenza. In addition, morbidity and mortality related to hospital-acquired (i.e., nosocomial) infections is much greater in acute care populations than in other populations.

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza and other infectious diseases in the acute care setting with or without availability of immunization or chemoprophylaxis.

### **Recommendations**

#### **1.1 Prevention of Pandemic Influenza**

##### ***A. Immunization and Antivirals***

Adherence to recommendations for vaccine and antivirals for patients and HCWs, as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan, is of paramount importance.

#### **1.2 Control of Pandemic Influenza**

##### ***A. Physical Setting***

1. When Pandemic Phase 2 is declared (see Appendix II), open Triage Settings in acute care hospitals as predetermined in the Preparedness Section of the Canadian Pandemic Influenza Plan. **↑AIII**
2. When Pandemic Phase 2 is declared (see Appendix II) open cohort areas/units<sup>4</sup> in the hospital (See Sections F. and G. below) as predetermined in the IC/OH Pandemic Plan. **↑AIII**

##### ***B. Management of Staff***

1. Provide education, as outlined in Section 4.1.
2. Adhere to Occupational Health Management, as outlined in Section 3.5.

## C. Infection Control Practices

### 1. Routine Practices

Using a program to prevent hospital-acquired (i.e., nosocomial) infections, acute care facilities should adhere to published guidelines including Health Canada Infection Control Guidelines. *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup>.

### 2. Additional Precautions

Although droplet and contact precautions are recommended in preventing the transmission of influenza during an interpandemic period, these precautions will not be achievable during a pandemic. In contrast, adherence to routine practices is achievable during a pandemic.

Routine Practices are summarized below:

#### (a) Hand Hygiene

Staff, patients and visitors should **recognize that strict adherence to hand washing/hand antiseptics recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.**

- i. Hand hygiene procedures should be reinforced according to Appendix III.

↑**AII**

- ii. Hands should be washed or hand antiseptics performed after direct contact with patients/workers with ILI and after contact with their personal articles or their immediate environment.

↑**AII**

#### (b) Hygiene Measures to Minimize Influenza Transmission

- i. Patients, staff and visitors should be encouraged to minimize potential influenza transmission through good hygienic measures, e.g., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand antiseptics after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

↑**AIII**

#### (c) Personal Protective Equipment (PPE)

##### i. Masks

1. **Masks to minimize the transmission of influenza may be worn** when face-to-face with coughing individuals during the early phases of the pandemic but are not practical or helpful when influenza transmission has entered the community.

↑**BIII**

2. **Masks should be worn to prevent the transmission of other organisms** when HCWs are face-to-face with undiagnosed coughing patients.

↑**BIII**

3. Masks and eye protection, or face shields **should be worn** to prevent HCW exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose<sup>9,44,45</sup>.

↑**BIII**

4. HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.
5. Use masks, as outlined in Section 2.6

ii. Gloves

1. Gloves are not required for the routine care of patients suspected or confirmed to have influenza. Meticulous hand washing with soap and water or performing hand antisepsis will inactivate the virus.

↑**AIII**

2. Gloves **should be worn** to provide an additional protective barrier between the HCWs hands and blood, body fluids, secretions, excretions and mucous membranes to reduce the potential transfer of microorganisms from infected patients to HCWs and from patient-to-patient via HCWs' hands.

↑**AII**

3. Gloves **are necessary** for HCWs with open lesions on their hands when providing direct patient care.

↑**AII**

4. Gloves **should be** used as an additional measure, not as a substitute for hand hygiene<sup>46,47</sup>.

↑**BII**

5. Gloves should not be reused or washed<sup>47</sup>.

↑**AII**

iii. Gowns

1. Gowns are not required for the routine care of patients suspected or confirmed to have influenza.

↑**AI**

2. **Long sleeved gowns should only be used** to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup>.

↑**BIII**

3. HCWs should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible, thoroughly, but gently with soap and warm running water.

↑**BIII**

(d) Cleaning, Disinfection, and Sterilization of Patient Care Equipment

- i. Acute care settings should adhere to the recommendations for cleaning, disinfection and sterilization of patient care equipment, as outlined in the Health Canada Infection Control Guidelines *Handwashing, Cleaning Disinfection and*

*Sterilization in Health Care<sup>3</sup> and Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care<sup>5</sup>.*

↑**AIII**

(e) Environmental Control (Housekeeping, Laundry, Waste)

- i. Acute care settings should adhere to the recommendations for housekeeping, laundry and waste management as outlined in the Health Canada Infection Control Guidelines *Handwashing, Cleaning Disinfection and Sterilization in Health Care<sup>3</sup> and Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care<sup>5</sup>.*

↑**AIII**

- ii. Equipment and surfaces contaminated with secretions from patients suspected or confirmed to have influenza should be cleaned before use with another patient.

↑**BIII**

- iii. Special handling of linen or waste contaminated with secretions from patients suspected or confirmed to have influenza is not required.

↑**AII**

**D. Accommodation**

1. Single rooms in acute care settings<sup>5</sup> are limited and should be for those suspected of having or confirmed to have airborne infections, e.g., tuberculosis, measles, varicella and disseminated zoster and those who visibly soil the environment for whom appropriate hygiene cannot be maintained.

↑**AII**

2. Minimize crowding (i.e., maintain a one metre spatial separation) between patients, visitors and workers whenever possible.

↑**AIII**

**E. Patient Triage/Cohorting**

1. When Pandemic Phase 2 is declared (see Appendix II) open the following specified *cohort areas/units<sup>4</sup>* in the hospital, as predetermined in the IC/OH Pandemic Plan:

(a) **Influenza-Like-Illness (ILI), Assessment Area** (see Glossary for definition and Appendix IV for an ILI Assessment tool).

(b) **Non ILI Assessment Area** (patients require acute care assessment for other conditions).

(c) **Suspected/Exposed to ILI, In-patient Units.**

(d) **Confirmed Influenza** (see Glossary for definition), In-patient Units.

(e) **Not Exposed/Immune\* to Influenza, In-patient Units;**

(f) **Not Exposed to ILI but at very high risk of complications, In-patient Units** (e.g., intensive care areas; nurseries<sup>29-31</sup> or units with severely immunocompromised patients, e.g., transplant recipients<sup>32</sup> hematology/oncology patients<sup>33-35</sup>, patients with chronic heart or lung disease or patients with HIV/AIDS and dialysis patients).

↑**AIII**

Note: \*Immune are those recovered from the pandemic strain of influenza or those immunized against the pandemic strain of influenza (see Section 3.2.4). As noted, the influenza vaccine may not be 100% efficacious in providing immunity.

2. In acute care settings, (hospitals), triage ILI patients promptly to a separate designated influenza assessment area onsite, to minimize transmission to others in the waiting room.

↑**AIII**

3. In acute care settings,(hospitals), triage non ILI patients (but requiring acute care assessment) promptly to specific non ILI waiting and examining areas physically separate from the ILI assessment area to prevent their exposure to ILI.

↑**AIII**

#### ***F. Patient Admission***

1. When Pandemic Phase 2 is declared (see Appendix II), eliminate or curtail elective medical and surgical acute care (hospital) admissions and restrict cardiovascular and pulmonary surgery to emergency cases<sup>17</sup>.

↑**AIII**

2. Patients who have recovered from influenza can be moved into the “Non Influenza” cohort areas after the period of communicability of the pandemic strain has passed.

↑**AIII**

3. As the pandemic progresses, the “Suspect/Exposed” Cohort and the “Confirmed Influenza” cohort may be merged.

↑**AIII**

4. Maintain cohort principles until the pandemic wave has been declared over.

↑**AIII**

#### ***G. Patient Activity Restrictions***

1. Limit movement/activities of patients including transfers within the hospital, unless the patient has recovered from pandemic influenza.

↑**AIII**

2. Patients with ILI who are coughing should only leave their room for urgent/necessary procedures.

↑**AIII**

3. Patients with ILI who are coughing should wear a surgical mask whenever they need to be out of their room until the period of communicability of the pandemic strain has passed.

↑**AIII**

#### ***H. Visitor Restrictions***

1. There are no restrictions for asymptomatic visitors who have recovered from pandemic influenza or who have been immunized against the pandemic strain of influenza.

↑**AIII**

2. Visitors with ILI should not visit until they are asymptomatic. Close relatives of terminally ill patients can be exempt, but should put a mask on upon entry into the facility and their visit shall be restricted to that patient only.

↑**AIII**



3. Visitors should be informed when the acute care facility has influenza activity. Those who have not yet had the pandemic strain of influenza or who have not been immunized against the pandemic strain, should be discouraged from visiting. Close relatives of terminally ill patients can be exempt, but they should restrict their visit to that individual only and they should wash their hands on exit from the patient's room. Wearing a mask upon entry to the facility is only useful if there is no influenza in the community.

↑AIII

## 2.0 Management of Pandemic Influenza in Long Term Care Settings

Interpandemic influenza is a major cause of illness and death in residents of long term care facilities for the elderly, in part, because the resident's age and underlying illness increase the risk of serious complications and, in part, because institutional living increases the risk of influenza outbreaks<sup>24,48,49</sup>. It is reasonable to anticipate that pandemic influenza would have the same impact in long term care settings.

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza and other infectious diseases in the long term care setting with or without the availability of immunization or chemoprophylaxis.

### Recommendations

#### 2.1 Prevention of Pandemic Influenza

##### A. Immunization and Antivirals

Adherence to the recommendations for vaccine and antivirals for residents and HCWs, as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan, is necessary.

#### 2.2 Control of Pandemic Influenza

##### A. Physical Setting

When Pandemic Phase 2 is declared (see Appendix II), open the area for the care of residents who will require "acute influenza care" as predetermined in the Infection Control/Occupational Health (IC/OH) Pandemic Plan to minimize transfer to acute care hospitals (also See Section F below and the Preparedness Section of the Canadian Pandemic Influenza Plan).

↑AIII

##### B. Management of Staff

1. Provide education, as outlined in Section 4.1.
2. Adhere to Occupational Health Management, as outlined in Section 3.5.

## C. Infection Control Practices

1. Using a program to prevent health care-acquired (i.e. nosocomial) infections, long term care facilities should adhere to published guidelines<sup>50,51</sup>, including Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup>.

### 2. Additional Precautions

Although droplet and contact precautions are recommended in preventing the transmission of influenza during an interpandemic period, these precautions will not be achievable during a pandemic. In contrast, adherence to routine practices is achievable during a pandemic.

Routine Practices are summarized below:

#### (a) Hand Hygiene

- i. Staff, residents and visitors should **recognize that strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.**

Hand Hygiene procedures should be reinforced according to Appendix III.

↑**AII**

- ii. Hands should be washed or hand antisepsis performed after direct contact with residents/workers with ILI (see Appendix IV for ILI an Assessment Tool) and after contact with their personal articles or their immediate environment.

↑**AII**

#### (b) Hygiene Measures to Minimize Influenza Transmission

- i. Staff, residents and visitors should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

↑**AIII**

#### (c) Personal Protective Equipment

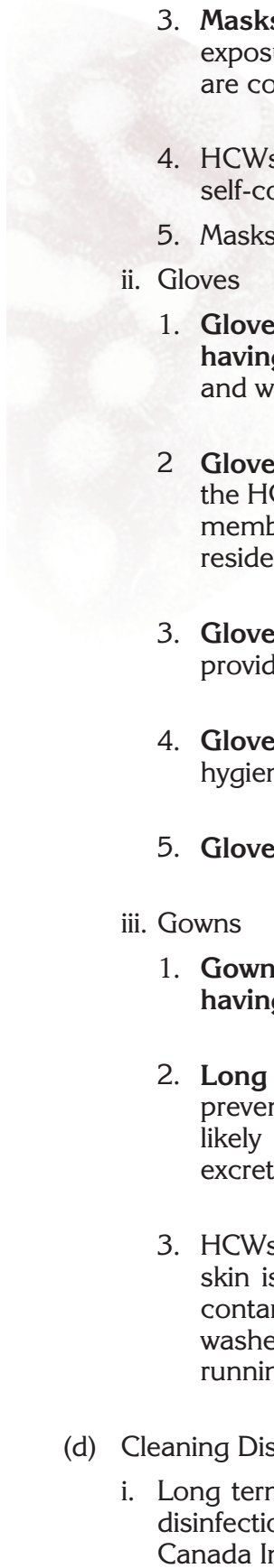
##### i. Masks

1. **Masks to minimize the transmission of influenza may be worn** when face-to-face with coughing individuals during the early phases of the pandemic but are not practical or helpful when transmission has entered the community.

↑**BIII**

2. **Masks should be worn to prevent the transmission of other organisms** when HCWs are face-to-face with undiagnosed coughing patients.

↑**BIII**

- 
3. **Masks and eye protection, or face shields should be worn** to prevent HCW exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose<sup>9,44,45</sup>.  
**↑BIII**
  4. HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.
  5. Masks should be worn, as outlined in Section 2.6.
- ii. Gloves
1. **Gloves are not required for the routine care of residents suspected of having or confirmed to have influenza.** Meticulous handwashing with soap and water or performing hand antisepsis will inactivate the virus.  
**↑AIII**
  2. **Gloves should be worn** to provide an additional protective barrier between the HCWs hands and blood, body fluids, secretions, excretions and mucous membranes to reduce the potential transfer of microorganisms from infected residents to HCWs and from resident to resident via HCW hands.  
**↑AII**
  3. **Gloves are necessary** for HCWs with open lesions on their hands when providing direct resident care.  
**↑AII**
  4. **Gloves should** be used as an additional measure, not as a substitute for hand hygiene<sup>46,47</sup>.  
**↑BII**
  5. **Gloves** should not be reused or washed<sup>47</sup>.  
**↑AII**
- iii. Gowns
1. **Gowns are not required for the routine care of residents suspected of having or confirmed to have influenza.**  
**↑AI**
  2. **Long sleeved gowns should only be used** to protect uncovered skin and prevent soiling of clothing during procedures and resident care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup>.  
**↑BIII**
  3. HCWs should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible, thoroughly but gently with soap and warm running water.  
**↑BIII**
- (d) Cleaning Disinfection Sterilization of Resident Care Equipment
- i. Long term care settings should adhere to the recommendations for cleaning, disinfection and sterilization of resident care equipment as outlined in the Health Canada Infection Control Guidelines *Handwashing, Cleaning Disinfection and*

*Sterilization in Health Care<sup>3</sup> and Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care<sup>5</sup>.*

↑**AIII**

(e) Environmental Control (Housekeeping, Laundry, Waste)

i. Long term care settings should adhere to recommendations for housekeeping, laundry and waste management as outlined in the Health Canada Infection Control Guidelines *Handwashing, Cleaning Disinfection and Sterilization in Health Care<sup>3</sup> and Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care<sup>5</sup>.*

↑**AIII**

ii. Equipment and surfaces contaminated with secretions from residents suspected of having or confirmed to have influenza should be cleaned before use with another patient.

↑**BIII**

iii. Special handling of linen or waste contaminated with secretions from residents suspected of having or confirmed to have influenza is not required.

↑**AII**

**D. Transfer to Acute Care**

1. Residents with influenza (see Glossary for definition) or Influenza-Like Illness (ILI)(see Glossary for definition and Appendix IV for an ILI Assessment Tool) requiring more acute care should *not* be transferred to acute care settings. Such residents should be cared for in “acute influenza care” areas within the LTC facility as described in the IC/OH Pandemic Influenza Plan.

↑**BIII**

**E. Admission/Re-Admission**

1. Patients from acute care who have recovered from pandemic influenza or who are immunized against the pandemic influenza strain may be admitted into the LTC facility without restrictions.

↑**AIII**

2. Residents who were transferred to acute care and who have recovered from pandemic influenza or who have been immunized against the pandemic influenza strain may be re-admitted into the LTC facility without restrictions.

↑**AIII**

3. LTC facilities that have already had pandemic influenza through their facility may admit individuals from the community or acute care without restrictions.

↑**AIII**

4. LTC facilities that have remained “influenza free” may admit patients from acute care or the community who have been potentially exposed to influenza. However, such residents must be managed using influenza precautions (maintain one metre of spatial separation, mask if within one metre of the resident and emphasize hand hygiene) for 3 days until past the incubation period if no influenza symptoms occur and until 7 days after the onset of symptoms if influenza develops.

↑**AIII**

## **F. Cohorting**

1. Cohorting resident groups (i.e., confirmed/suspected influenza, exposed/not exposed to influenza) is not a feasible measure to control pandemic influenza in a LTC facility. When influenza has been identified in one area of the LTC facility (via residents, staff or visitors) it can be assumed that the facility has been exposed and the following measures should occur:
  - (a) Cancel or postpone inside and outside facility procedures, appointments and activities until influenza activity has stopped.
  - (b) Encourage coughing residents to remain in their own rooms to prevent the spread of influenza in common areas.

**↑AIII**

## **G. Visitor Restrictions**

1. There are no restrictions for asymptomatic visitors who have recovered from pandemic influenza or have received immunization against the pandemic strain of influenza.
2. If the LTC facility has remained “influenza free”, visitors with ILI (see Glossary for definition and Appendix IV for an ILI Assessment Tool) should not visit until they have recovered. Visitors for terminally ill residents may be exempt, but should put a mask on upon entering the facility and restrict their visit to that resident only.
3. Visitors should be informed when the LTC facility has experienced influenza activity. Those visitors who have not yet had the pandemic strain of influenza and are not immunized against the pandemic strain, should be discouraged from visiting. Visitors for terminally ill residents can be exempt, but should restrict their visit to that resident only and wash their hands on exit from the resident’s room. Wearing a mask upon entering the facility is only useful if there is no influenza in the community.

**↑AIII**

**↑AIII**

**↑AIII**

### 3.0 Management of Pandemic Influenza in Ambulatory Care Settings

A comprehensive infection prevention and control program forms the basis for a successful pandemic plan. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza and other infectious diseases in the ambulatory care setting with or without availability of immunization or chemoprophylaxis.

#### Recommendations

##### 3.1 Prevention of Pandemic Influenza

###### A. Immunization and Antivirals

Adherence to the recommendations for vaccine and antivirals for patients and HCWs, as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan is required.

##### 3.2 Control of Pandemic Influenza

###### A. Administration

1. When Pandemic Phase 2 is declared (see appendix II), non-urgent and routine ambulatory care visits should be cancelled. **↑BIII**
2. Consider creating a dedicated “hot line” to provide consistent pandemic influenza information explaining symptoms of Influenza-like-illness (ILI) (see Glossary for definition and Appendix IV for an ILI Assessment Tool), the purpose of Triage Settings (see Annex G of the Canadian Pandemic Influenza Plan) and Self-care guidelines (See 7.2 and Annex G of the Canadian Pandemic Influenza Plan). **↑AIII**
3. When Pandemic Phase 2 is declared (see Appendix II), open Triage Settings in Ambulatory Care, as described in the Preparedness Section of the Canadian Pandemic Influenza Plan). **↑AIII**
4. Patients attending ambulatory settings for concerns related to ILI should be assessed according to an ILI Assessment Tool, (see Appendix IV). **↑AIII**

## B. Physical Setting

1. If possible, separate well patients from those with ILI by considering the following strategies: (a) minimizing time spent in waiting rooms; (b) providing separate entrance/waiting areas for patients with ILI; (c) placing patients with ILI directly into a single room; or, (d) separating patients as quickly as possible by placing ILI patients in an area of the waiting room separated from non ILI patients by at least 1 metre. ↑AIII
2. Remove magazines and toys from the waiting rooms. ↑AIII
3. Clean equipment and environmental surfaces, potentially contaminated by coughing patients, as frequently as possible, preferably after each patient. ↑AII

## C. Management of Staff

1. Provide education as outlined in Section 4.1.
2. Adhere to Occupational Health Management of staff as outlined in Section 3.5.

## D. Infection Control Practices

1. Ambulatory care settings should adhere to published infection control guidelines<sup>52-58</sup> to prevent infections, including Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup>.
2. Additional Precautions

Although droplet and contact precautions are recommended in preventing the transmission of influenza during an interpandemic period, these precautions will not be achievable during a pandemic. In contrast, adherence to routine practices is achievable during a pandemic.

Routine Practices are summarized below:

### (a) Hand Hygiene

- i. Staff, patients and those attending to a patient should recognize that **strict adherence to hand washing/ hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.** Hand hygiene procedures should be reinforced according to Appendix III. ↑AII

- ii. Hands should be washed or hand antisepsis performed after direct contact with ILI patients, after contact with their personal articles or their immediate environment. ↑AII

### (b) Hygiene Measures to Minimize Influenza Transmission

- i. Ambulatory care workers and their patients should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand antisepsis after coughing, sneezing

or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

↑**AIII**

(d) Personal Protective Equipment

i. Masks, Eye Protection and Face Shields

1. **Masks to minimize the transmission of influenza may be worn** when face-to-face with coughing individuals in the early phase(s) of the pandemic but are not practical or helpful when influenza transmission has entered the community.

↑**BIII**

2. **Masks should be worn to prevent the transmission of other organisms** when HCWs are face-to-face with undiagnosed coughing patients.

↑**BIII**

3. **Masks and eye protection, or face shields should be worn** to prevent HCW exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose<sup>9,44,45</sup>.

↑**BIII**

4. HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

5. Masks should be worn, as outlined in Section 2.6

ii. Gloves

1. **Gloves are not required for the routine care of patients suspected of having or confirmed to have influenza.** Meticulous hand washing with soap and water or performing hand antisepsis will inactivate the virus.

↑**AIII**

2. **Gloves should be worn** to provide an additional protective barrier between the HCWs hands and blood, body fluids, secretions, excretions and mucous membranes to reduce the potential transfer of microorganisms from infected patients to HCWs and from patient to patient via HCWs' hands.

↑**AII**

3. **Gloves are necessary** for HCWs with open lesions on their hands when providing direct patient care.

↑**AII**

4. **Gloves should be used** as an additional measure, not as a substitute for hand hygiene<sup>46,47</sup>.

↑**BII**

5. **Gloves should not be reused or washed**<sup>47</sup>.

↑**AII**



### iii. Gowns

1. **Gowns are not required for the routine care of patients with suspected of having or confirmed to have influenza.** ↑**AI**
2. **Long sleeved gowns should only be used** to protect uncovered skin and prevent soiling of clothing during procedures and resident care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup>. ↑**BIII**
3. HCWs should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible, thoroughly, but gently with soap and warm running water. ↑**BII**

### *E. Patient Activity/Transport*

Patients with ILI should not leave the ambulatory care area, except for essential procedures. ↑**AIII**

## **4.0 Management of Pandemic Influenza in Home Care Settings** (Care Provided by Regulated and Unregulated HCWs)

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza and other infectious diseases in the home care setting with or without availability of immunization or chemoprophylaxis.

### **Recommendations**

#### **4.1 Prevention of Pandemic Influenza**

##### **A. Immunization and Antivirals**

1. Adherence to the recommendations for vaccine and antivirals for patients and HCWs, as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan, is necessary.

#### **4.2 Control of Pandemic Influenza**

##### **A. Physical Setting**

1. When Pandemic phase 2 (see Appendix II) is declared, cancel home care visits that are not absolutely necessary. ↑**BIII**

## **B. Management of Staff**

1. Provide education, as outlined in Section 4.1.
2. Adhere to Occupational Health Management of staff as outlined in Section 3.5.

## **C. Infection Control Practices**

1. Home care settings should adhere to published infection control guidelines<sup>59-62</sup> including Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup>.
2. Additional Precautions

Although droplet and contact precautions are recommended in preventing the transmission of influenza during an interpandemic period, these precautions will not be achievable during a pandemic. In contrast, adherence to routine practices is achievable during a pandemic.

Routine Practices are summarized below:

### (a) Hand Hygiene

- i. HCWs, clients and household members should **recognize that strict adherence to hand washing/hand antiseptics recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.** Hand hygiene procedures should be reinforced according to Appendix III.

**↑AII**

- ii. Hands should be washed or hand antiseptics performed following direct contact with a client with ILI, articles contaminated by the client and the client's immediate environment.

**↑AII**

- iii. If running water is not available or when hand-washing facilities are inaccessible, use the following steps for effective hand antiseptics:

Apply an alcohol-based hand hygiene product to dry hands (moisture dilutes the alcohol) and rub vigorously for the period of time specified by the manufacturer, or until dry.

If there is heavy microbial soiling, first wipe hands with a towelette to remove visible soiling.

**↑AI**

### (b) Hygiene Measures to Minimize Influenza Transmission

Home care workers and their clients should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antiseptics after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

**↑AIII**

(c) Personal Protective Equipment

i. Masks, Eye Protection and Face Shields

1. **Masks to minimize the transmission of influenza may be worn** when face-to-face with coughing individuals in the early phase(s) of the pandemic but are not practical or helpful when influenza transmission has entered the community.

↑**BIII**

2. **Masks should be worn to prevent the transmission of other organisms** when HCWs are face-to-face with undiagnosed coughing clients.

↑**BIII**

3. **Masks and eye protection, or face shields should be worn** to prevent HCW exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose<sup>9,44,45</sup>.

↑**BIII**

4. HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

5. Masks should be worn, as outlined in Section 2.6.

ii. Gloves

1. **Gloves are not required for the routine care of clients suspected of having or confirmed to have influenza.** Meticulous handwashing with soap and water or performing hand antisepsis will inactivate the virus.

↑**AIII**

2. **Gloves should be worn** to provide an additional protective barrier between the HCWs hands and blood, body fluids, secretions, excretions and mucous membranes to reduce the potential transfer of microorganisms from infected clients to HCWs.

↑**AII**

3. **Gloves are necessary** for HCWs with open lesions on their hands when providing direct client care.

↑**AII**

4. **Gloves should be used as an additional measure,** not as a substitute for handwashing<sup>46,47</sup>.

↑**BII**

5. **Gloves** should not be reused or washed<sup>47</sup>.

↑**AII**

iii. Gowns

1. Gowns are not required for the routine care of clients suspected of having or confirmed to have influenza.

↑**AI**

2. **Long sleeved gowns should only be used** to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely

to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup>.

↑**BIII**

3. HCWs should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretion or excretions should be washed as soon as possible, thoroughly but gently with soap and warm running water.

↑**BIII**

#### **D. Triage**

1. Perform an ILI assessment (see appendix IV for an ILI Assessment Tool and glossary for definition of ILI) of the client and their household contacts by phone (if possible) prior to the appointment or before going into the home. Assess the risk of influenza in the client or household contacts

↑**AIII**

2. Provide clients and family members with information regarding symptoms of ILI and Self Care Guidelines and the purpose of Triage Settings (see Annex G of the Canadian Pandemic Influenza Plan).

↑**AIII**

3. Counsel clients and household contacts to avoid public gatherings to minimize exposure.

#### **E. Visitors**

1. Only well (asymptomatic/unexposed) visitors should visit severely immunocompromised patients in the home, e.g., transplant recipients<sup>32</sup>, hematology/oncology patients<sup>33-35</sup>, patients with chronic heart or lung disease or patients with HIV/AIDS and dialysis patients as these patients are at risk of serious complications if infected with influenza.

↑**AIII**

2. Visitors for the terminally ill can be exempt.

↑**AIII**

## **5.0 Management of Pandemic Influenza in Community Settings**

### **5.1 Management of Pandemic Influenza in Emergency Responder Settings**

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. Emergency Responders (see Glossary for definition) are to be a priority group to receive influenza vaccination and chemoprophylaxis when, and if, it is available during a pandemic. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza and other infectious diseases with or without the availability of immunization or chemoprophylaxis.

## Recommendations

### A. Pandemic Planning

1. Management should ensure the responsibility for Infection Control (IC) and Occupational Health (OH) in the emergency responder setting is assigned to a specific individual. **↑AIII**
2. Management should develop an interpandemic influenza plan and review it yearly. In addition, an IC/OH Pandemic Influenza Plan should be developed as outlined in Section 3.1 and reviewed every 3 years. **↑AIII**
3. Provide education, as outlined in Section 4.1.
4. Occupational Health management of emergency responder workers should be in keeping with OH Section 3.5.

### B. Control of Pandemic Influenza

#### 1. Immunization/Chemoprophylaxis

In the early phases of the pandemic, vaccine and antivirals may not be readily available. Essential workers (including EMS) will be given high priority for immunization when vaccine is available (see Annexes D and E of the Canadian Pandemic Influenza Plan).

#### 2. Infection Control Practices

Emergency Service Workers should adhere to routine infection control practices<sup>5,63,64</sup>. All patients' blood and body secretions should be considered infectious, thus personal protective equipment and barrier techniques should be used accordingly.

#### Additional Precautions

Although droplet and contact precautions are recommended in preventing the transmission of influenza during an interpandemic period, these precautions will not be achievable during a pandemic. In contrast, adherence to routine practices is achievable during a pandemic.

Routine Practices are summarized below:

##### (a) Hand Hygiene

- i. Strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.

Hand hygiene procedures should be reinforced according to Appendix III. **↑AII**

- ii. Hands should be washed or hand antisepsis performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment. **↑AII**

- iii. Waterless antiseptic hand rinses are superior to soap and water for reducing hand contamination<sup>65-68</sup> and should be made available as an alternative to hand

washing. Antiseptic hand rinses are especially useful when time for hand washing or access to sinks is limited.

↑**BIII**

iv. When there is visible soiling, hands should be washed with soap and water before using waterless antiseptic hand rinses. If soap and water are unavailable, cleanse hands first with detergent-containing towelettes.

↑**BIII**

v. Wearing gloves does not eliminate the need for proper hand hygiene after care is rendered. As soon as feasible, hands must be washed after the removal of gloves.

↑**AI**

(b) Hygiene Measures to Minimize Influenza Transmission

i. Emergency Responders should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

↑**AIII**

(c) Personal Protective Equipment

i. Masks

1. **Masks may be worn to minimize the transmission of influenza** when face-to-face with coughing individuals in the early phase(s) of the pandemic but are not practical or helpful when influenza transmission has entered the community.

↑**BIII**

2. Masks should be worn to prevent the transmission of other organisms when HCWs are face-to-face with undiagnosed coughing patients.

↑**BIII**

3. **Masks and eye protection, or face shields should be worn** to prevent HCW exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose<sup>9,44,45</sup>.

↑**BIII**

4. HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

5. Masks should be worn, as outlined in Section 2.6.

ii. Gloves

1. **Gloves are not required for the routine care of patients suspected or confirmed to have influenza.** Meticulous handwashing with soap and water or performing hand antisepsis will inactivate the virus.

↑**AIII**

2. **Gloves should be worn** to provide an additional protective barrier between the HCWs hands and blood, body fluids, secretions, excretions and mucous

membranes to reduce the potential transfer of microorganisms from infected clients to HCWs.

↑**AII**

3. **Gloves are necessary** for HCWs with open lesions on their hands when providing direct patient care.

↑**AII**

4. **Gloves should be used as an additional measure**, not as a substitute for hand hygiene<sup>46,47</sup>.

↑**AII**

5. **Gloves** should not be reused or washed<sup>47</sup>.

↑**AII**

iii. Gowns

1. Gowns are not required for the routine care of patients with ILI.

↑**AI**

2. **Long sleeved gowns should only be used** to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup>.

↑**BIII**

3. HCWs should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretion or excretions should be washed as soon as possible, thoroughly, but gently, with soap and warm running water.

↑**BIII**

(d) Patient Triage

Whenever feasible, personnel responsible for answering emergency calls related to influenza-like-illness (ILI) should triage patients according to an ILI Assessment Tool (see Appendix IV).

↑**AIII**

(e) Environmental Control (Housekeeping, Laundry, Waste)

i. Emergency Responders should adhere to the recommendations for housekeeping, laundry and waste management, as outlined in the Health Canada Infection Control Guidelines *Handwashing, Cleaning Disinfection and Sterilization in Health Care*<sup>3</sup> and *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup>.

↑**AIII**

ii. Equipment and surfaces contaminated with secretions from patients suspected or confirmed to have influenza should be cleaned before use with another patient.

↑**BIII**

iii. Special handling of linen or waste contaminated with secretions from patients suspected of having or confirmed to have influenza is not required.

↑**AII**

- (f) Patient Care Equipment (Cleaning Disinfection Sterilization)
  - i. Emergency Responders should adhere to the recommendations for cleaning, disinfection and sterilization of patient care equipment, as outlined in the Health Canada Infection Control Guidelines *Handwashing, Cleaning Disinfection and Sterilization in Health Care*<sup>3</sup> and *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup>.

↑AIII

## 5.2 Management of Pandemic Influenza in Mortuary Care Settings

The risk of influenza transmission to Funeral Service Workers will be through their contact with families and friends of the deceased, not the deceased. There is no additional risk of transmission of influenza to funeral home workers related to handling of bodies of persons suspected of having or confirmed to have died from influenza. Deceased bodies (confirmed of having or suspected to have influenza during interpandemic or pandemic years) require routine handling only. Infection control recommendations for Funeral Services Profession have been published<sup>9,69</sup>.

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza and other infectious diseases with or without the availability of immunization or chemoprophylaxis.

### Recommendations

#### A. Planning for Pandemic Influenza

1. Management should ensure the responsibility for Infection Control (IC) and Occupational Health (OH) in a funeral home setting is assigned to a specific individual; preferably an individual who has had professional training.
2. Management should develop an interpandemic influenza plan and review it yearly. In addition, an IC/OH Pandemic Influenza Plan should be developed as outlined in Section 3.1 and reviewed every 3 years.
3. Management should provide education as outlined, in Section 4.1.

↑AIII

#### B. Control of Pandemic Influenza

##### Immunization/Chemoprophylaxis

1. In the early phases of the pandemic, vaccine and antivirals may not be readily available. Essential workers (including funeral service workers) will be given high priority for immunization when vaccine is available (see Annexes D and E of the Canadian Pandemic Influenza Plan).

##### Infection Control Practices

1. Funeral Service Workers should adhere to routine infection control practices<sup>9,69</sup> in the handling of all deceased bodies regardless of the confirmed or suspected cause of death.



All patients' blood and body secretions should be considered infectious, thus personal protective equipment and barrier techniques should be used accordingly.

↑**AIII**

(a) Hand Hygiene

- i. Strict adherence to hand washing/hand antiseptics recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.

Hand hygiene procedures should be reinforced according to Appendix III.

↑**AII**

- ii. Hands should be washed or hand antiseptics performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.

↑**AII**

(b) Hygiene Measures to Minimize Influenza Transmission

- i. Funeral Service Workers should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antiseptics after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

↑**AIII**

(c) Personal Protective Equipment

i. Masks

1. Wearing masks when handling bodies suspected of having or confirmed to have influenza during a pandemic to minimize the transmission of influenza is not required.

↑**BIII**

2. Wearing masks when face-to-face with coughing individuals to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community.

↑**BIII**

### 5.3 Management of Pandemic Influenza in Child Care Settings

Infectious diseases occur with increased frequency in child care settings. The incidence is affected by the age and immune status of children, the number of children and group size, the degree of close contact between children and attendants and the hygienic habits of children and attendants. Infections acquired in the child care setting may spread to attendants, family members and the community.

Influenza in child care settings can be significant because viral shedding in the nasal secretions usually continues for about 7 days from the onset of illness and can be more prolonged in young children<sup>23</sup>. Attack rates of influenza in healthy children have been estimated at 10%-40% each year, with approximately 1% resulting in hospitalization.

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. Adherence to infection prevention and control policies and

procedures is imperative to minimize the transmission of influenza and other infectious diseases in the child care setting with or without availability of immunization or chemoprophylaxis.

## Recommendations

### *Planning for Pandemic Influenza*

1. One person in the program must be designated as the individual responsible for the Infection Control (IC)<sup>70</sup> and Occupational Health (OH) program. ↑**AIII**
2. Management should develop an interpandemic influenza plan and review it annually. In addition, an IC/OH Pandemic Influenza Plan should be developed, as outlined in Section 3.1 and reviewed every 3 years.
3. Education should be provided, as outlined in Section 4.2.

### Control of Pandemic Influenza

#### *A. Immunization/Chemoprophylaxis*

1. In the early phases of the pandemic, vaccine and antivirals may not be readily available. (See Annexes D and E of the Canadian Pandemic Influenza Plan).

#### *B. Infection Control Practices*

1. Child Care Workers should adhere to routine infection control practices<sup>71-77</sup> including procedures for washing toys.
  - (a) Hand Hygiene
    1. Workers, children and their families should recognize that strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic. Hand hygiene procedures should be reinforced according to Appendix III. ↑**AII**
    2. Hands should be washed or hand antisepsis performed after direct contact with individuals with ILI (see glossary for definition and Appendix IV for an ILI Assessment Tool) and after contact with their personal articles or their immediate environment. ↑**AII**
  - (b) Hygiene Measures to Minimize Influenza Transmission
    1. Child care workers, children and their families should be encouraged to minimize potential influenza transmission through good hygienic measures, ie. use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose. ↑**AIII**

(c) Masks

1. Wearing masks, when face-to-face with coughing children/individuals, to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community.

**↑BIII**

(d) Staff/Child Management

Child care settings may be closed depending on the epidemiology of the pandemic strain, e.g., severity of infection, high attack rates and severe complications (see Section 5.).

1. Children:

- a. When pandemic phase 2 has been declared (see Appendix II), do not send children to day care if at all possible until the pandemic phase has ended; the child has recovered from ILI (see Glossary for definition, Appendix IV for an ILI Assessment Tool) or the pandemic has gone through the child care centre.
- b. Do not send children with signs of ILI to day care and notify the day care of the reason for their absence (unless the pandemic has gone through the centre).
- c. Do not send children who have been exposed in the past 3 days to an individual with ILI, (unless the pandemic has gone through the centre), to day care.

**↑AIII**

2. Staff

- (a) Inform Public Health authorities of staff absence(s) due to ILI.

Ideally, staff with ILI should not go to work until their symptoms have resolved.

**↑AIII**

#### 5.4 Management of Pandemic Influenza in Schools and Student Residences

Risk of influenza transmission in schools can increase with crowded classrooms, poor ventilation and limited emphasis on hygienic practices. Dormitory living enhances this risk due to increased numbers of those considered to be household contacts.

### Recommendations

(a) Planning for Pandemic Influenza

1. Health Services in residence settings should develop an interpandemic influenza plan and review it annually. In addition, an Infection Control (IC) and Occupational Health (OH) Pandemic Influenza Plan should be developed as outlined in Section 3.1 and reviewed every 3 years.

Education should be provided, as outlined in Section 4.2.

(b) Control of Pandemic Influenza

1. Immunization/Chemoprophylaxis

In the early phases of the pandemic, vaccine and antivirals may not be readily available. (See Annexes D and E of the Canadian Pandemic Influenza Plan).

2. Infection Control Practices

a. Hygiene Measures to Minimize Influenza Transmission

- i. Staff, students and their household members should recognize that strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.

Hand hygiene procedures should be reinforced according to Appendix III.

**↑AII**

- ii. Hands should be washed or hand antisepsis performed after direct contact with individuals with ILI (see Glossary for definition, see Appendix IV for an ILI Assessment Tool) and after contact with their personal articles or their immediate environment.

**↑AII**

- iii. Staff, students and their household members should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

**↑AI**

b. Masks

- i. Wearing masks when face-to-face with coughing individuals to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community.

**↑BIII**

c. Staff/Student Management

- i. Schools may be closed depending upon the epidemiology of the pandemic strain, e.g., severity of infection, high attack rates and severe complications (See Section 5.0).

**↑AIII**

- ii. When pandemic phase 2 is declared (see Appendix II) consider the following:

Students

- i. When pandemic phase 2 has been declared do not send students to school if at all possible until the pandemic phase has ended; the student has recovered from ILI (see Glossary for definition and Appendix IV for an ILI Assessment Tool) or, the pandemic has gone through the school.

- ii. Do not send students who have been exposed in the past 3 days to an individual with ILI to school unless the pandemic has already been through the school/residence.
- iii. Do not send children with signs of ILI to school (unless the pandemic has gone through the school) and notify the school of the reason for their absence.
- iv. Well students should avoid contact with students who have ILI (e.g., not visit in rooms of symptomatic students).

↑**AIII**

#### Staff

- i. Inform Public Health authorities of absence(s) due to ILI.
- ii. Ideally, staff with ILI should not go to work until their symptoms have resolved.

↑**AIII**

#### Resident Health Services

- i. Assess symptomatic students according to an ILI Assessment Tool, see Appendix IV.
- ii. Encourage students with ILI who are well enough to remain in residence to remain in their room while symptomatic (e.g., not congregate in common areas).

↑**AIII**

## 5.5 Management of Pandemic Influenza in Workplaces

### Planning for Pandemic Influenza

- 1. Provide education, as outlined in section 4.2 of Part A.

### Control of Pandemic Influenza

#### *A. Immunization/Chemoprophylaxis*

- 1. Immunization will not be available to the general public in the early phases of the pandemic. See Annex D of the Canadian Pandemic Influenza Plan.

#### *B. Hygiene Measures to Minimize Influenza Transmission*

- 1. Workers and their household contacts should recognize that strict adherence to hand washing/hand antiseptics recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.

Hand hygiene procedures should be reinforced according to Appendix III.

↑**AII**

- 2. Hands should be washed or hand antiseptics performed after direct contact with individuals suspected of having or to have confirmed influenza and after contact with their personal articles or their immediate environment.

↑**AII**

- Workers and their household members should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., using disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antiseptics after coughing, sneezing or using tissues; and understanding the importance of keeping hands away from the mucous membranes of the eyes and nose.

↑**AIII**

### **Masks**

- When face-to-face with coughing individuals, wearing masks to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community.

↑**BIII**

### **Education**

- Provide education, as outlined in Section 4.2 of Part A.

## **5.6 Management of Pandemic Influenza in Shelters**

The risk of influenza transmission in a shelter setting during a pandemic will be high because of the crowded physical conditions, inadequate health and hygiene of clients and the reduced priority for immunization or chemoprophylaxis in this population.

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. The promotion of hand washing and hygienic practices is imperative to minimize the transmission of influenza and other infectious diseases in the shelter with or without availability of immunization or chemoprophylaxis during a pandemic. Guidelines for Infection Control in shelters have been published<sup>78-81</sup>.

### **Recommendations**

#### ***Planning for Pandemic Influenza***

- Designate one person responsible for the infection control program<sup>78,80</sup> and liaise with local public health. The program should prevent or minimize the occurrence and transmission of communicable diseases such as influenza<sup>79,81</sup>.
- ↑**AIII**
- An interpandemic influenza plan should be developed and reviewed annually. In addition, an Infection Control and Occupational Health Pandemic Influenza Plan should be developed as outlined in Section 3.1 and reviewed every 3 years.
  - Shelters that are in the process of being planned should pay special attention to the number and placement of hand washing sinks and methods to reduce overcrowding<sup>80,81</sup>.
- ↑**AIII**
- Provide education, as outlined in Section 4.2.

## Control of Pandemic Influenza

### A. Immunization/Chemoprophylaxis

1. Immunization may not be readily available to this setting in the early phases of the pandemic (See Annexes D and E of the Canadian Pandemic Influenza Plan).

### B. Infection Control Practices

#### Hygiene Measures to Minimize Influenza Transmission

1. Workers and clients should recognize that strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.

When planning for a pandemic, operators should ensure that adequate supplies of hand hygiene products is a high priority as there may be an interruption to the supply or shortages of soap and hand towels.

Hand hygiene procedures should be reinforced according to Appendix III.

↑**AII**

2. Hands should be washed or hand antisepsis performed after direct contact with individuals with ILI (see Glossary for definition, see Appendix IV for an ILI Assessment Tool) and after contact with their personal articles or their immediate environment.

↑**AII**

3. Workers and clients should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

↑**AII**

#### Masks

1. When face-to-face with coughing individuals, wearing masks to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community (also see Section 2.6).

↑**BIII**

#### Triage

1. Clients and workers with influenza-like illness should be assessed using an ILI Assessment Tool, (see Appendix IV).

↑**AIII**

## 5.7 Management of Pandemic Influenza in Correctional Facilities

A comprehensive infection prevention and control program forms the basis for a successful pandemic influenza plan. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza and other infectious diseases with or without the availability of immunization or chemoprophylaxis.

## Planning for Pandemic Influenza

1. Designate one person responsible for the infection control program and liaise with local public health authorities. The program should prevent or minimize occurrence and transmission of communicable diseases such as influenza. **↑AIII**
2. Develop an interpandemic influenza plan and review it annually. In addition, an Infection Control and Occupational Health Pandemic Influenza Plan should be developed, as outlined in Section 3.1 and reviewed every 3 years. **↑AIII**
3. See Section 3.5 for Occupational Health management of correctional workers. **↑AIII**
4. When Pandemic Phase 2 is declared (see Appendix II), provide additional education to health care workers and inmates, as outlined in Section 4.0. **↑AIII**

## Control of Pandemic Influenza

### A. Immunization/Chemoprophylaxis

1. In the early phases of the pandemic, vaccine and antivirals may not be readily available. Essential service workers (including correctional officers) will be given high priority for immunization when vaccine is available. See Annexes D and E of the Canadian Pandemic Influenza Plan.

### B. Infection Control Practices

1. Adhere to published infection control recommendations for correctional settings. **↑AIII**

## Hygiene Measures to Minimize Influenza Transmission

1. Workers and inmates should recognize that strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.  
  
When planning for a pandemic, administrators should make ensuring adequate supplies of hand hygiene products a priority as there may be an interruption to the supply or shortages of soap and hand towels. Hand hygiene procedures should be reinforced according to Appendix III. **↑AII**
2. Hands should be washed or hand antisepsis performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment. **↑AII**
3. Workers and inmates should be encouraged to minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose. **↑AIII**



## **Masks**

1. Wearing masks when face-to-face with coughing individuals to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community (also see Section 2.6).

**↑BIII**

## **Triage/Cohorting**

1. Provide a separate triage area to assess inmates and workers with ILI (see Glossary) according to an ILI Assessment Tool, (see Appendix IV).
2. Place inmates with ILI in cohort units/areas whenever possible. Good hygiene should be emphasized.

**↑BIII**

**↑BIII**

## **Visitors**

1. Visitors with febrile respiratory illness should be discouraged from visiting if there is no pandemic activity in the facility.
2. Visitors should be made aware of pandemic activity in the facility and discouraged from visiting unless they have recovered from ILI or been immunized against the pandemic strain of influenza.

**↑AIII**

**↑AIII**

## **Part C. Infection Control and Occupational Health in Non Traditional Settings during an Influenza Pandemic**

### **1.0 Infection Control and Occupational Health in Triage Settings**

Upon declaration of WHO pandemic phase 2 (see Appendix II), triage settings will be established in locations as predetermined in the Canadian Pandemic Influenza Plan. The purpose of triage settings is to facilitate efficient and consistent assessment for those with influenza-like illness (ILI) (see Glossary for definition and see Appendix IV for an ILI Assessment Tool).

It is important to note that the influenza virus can survive on hands for 5 minutes following the transfer from environmental surfaces<sup>14</sup>. **The importance of hand washing/hand antisepsis during a pandemic cannot be overemphasized. See Appendix III.** Hand washing/hand antisepsis is the single most important method to prevent the transmission of infection including influenza and will be even more important because of the unavailability of influenza vaccine and antiviral prophylaxis early, during or even late in the pandemic.

There is evidence that overcrowding has contributed to the transmission of respiratory-transmitted infections<sup>82</sup>. Crowding and breathing recycled air was identified as risk factors for influenza transmission in a grounded airplane<sup>18</sup> and in a long term care facility<sup>83</sup>.

### **Recommendations**

#### **1.1 Prevention of Pandemic Influenza**

##### **A. Immunization and Antivirals**

Adherence to the recommendations for vaccine and antivirals for patients and HCWs, as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan, is required.

#### **1.2. Control of Pandemic Influenza**

##### **A. Physical Setting**

1. When Pandemic Phase 2 is declared (see Appendix II), open triage settings in hospitals and community locations as predetermined in the Preparedness Section of the Canadian Pandemic Influenza Plan.

**↑AIII**

2. When planning for the location of a triage setting, emphasize the need for spatial separation between patients, those accompanying them and care givers/triage workers. **↑AII**
  - a. Ideally, triage settings should only be placed in an area that has a well maintained ventilation system. **↑AII**
  - b. Prevent crowding in triage settings by ensuring ample room is available in waiting and assessment areas in order to maintain spatial separation of at least 1 metre. **↑AII**
  - c. Consider the need for a separate area for temporary storage of deceased bodies. **↑AIII**

### ***B. Management of Staff***

1. Adhere to Occupational Health Management, as outlined in Section 3.5.
2. Provide education, according to Section 4.1 of Part A.

### ***C. Infection Control Practices***

1. Hygiene Measures to Minimize Influenza Transmission
  - a. Patients, staff and visitors should minimize potential influenza transmission through good hygienic measures, i.e., use disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; handwashing/hand antisepsis after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose. **↑AIII**
  - b. To prevent nosocomial infections, triage settings should adhere to published guidelines<sup>6,9,84</sup>. Infection Control Practices adapted from Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup> and *Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*<sup>3</sup> are summarized below:
2. Hand Hygiene
  - a. Staff, patients and visitors should recognize that strict adherence to hand hygiene recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic.  
Hand hygiene procedures should be reinforced according to Appendix III. **↑AII**
  - b. Hands should be washed or hand antisepsis performed after direct contact with ILI patients and after contact with their personal articles or their immediate environment. **↑AII**
  - c. Ideally, hand washing facilities should be conveniently located throughout the triage setting. Sinks for hand washing should be used only for hand washing and not for any other purpose, e.g., as a utility sink. There should be access to adequate

supplies and soap and towel dispensers in good working order, or liberal use of waterless hand antiseptic agents<sup>85-87</sup>.

**↑BII**

d. Plain soap may be used for routine hand washing<sup>88,89</sup>.

**↑BIII**

e. Hand antiseptics with an antiseptic soap or antiseptic hand rinse is indicated<sup>88,90</sup> before performing invasive procedures such as starting an intravenous (maximal barrier technique in addition to hand antiseptics is required for insertion of central lines).

**↑BIII**

f. When access to sinks is limited, antiseptic hand rinses should be used. Waterless antiseptic hand rinses are superior to soap and water in reducing hand contamination<sup>66-68,91</sup> and should be made available.

**↑AIII**

g. When there is visible soiling, hands should be washed with soap and water before using waterless antiseptic hand rinses. If soap and water are unavailable, cleanse hands first with detergent-containing towelettes<sup>92</sup>.

**↑BIII**

h. Health Care Workers can reduce the frequency of hand washing required by minimizing unnecessary direct contact with patients and their immediate environments.

**↑BIII**

i. Hands must be washed<sup>93,94</sup>:

- i. between patients,
- ii. after contact with blood, body fluids, secretions (e.g., respiratory secretions),
- iii. after contact with items known or considered likely to be contaminated with blood, body fluids, secretions (e.g., respiratory secretions), or excretions,
- iv. immediately after removing gloves<sup>46</sup>,
- v. between certain procedures on the same patient in which soiling of hands is likely, to avoid cross-contamination of body sites<sup>91,95</sup>,
- vi. when hands are visibly soiled.

**↑AII**

j. Hand lotion may be used to prevent skin damage from frequent hand washing<sup>96</sup>. Lotion should be supplied in disposable bags in wall containers by sinks or in small, non-refillable containers to avoid product contamination. Inappropriate handling and management of skin lotions for patient's and care giver's use have been reported as sources of outbreaks<sup>97-101</sup>.

**↑BII**

k. Liquid hand wash products should be stored in closed containers and dispensed from either disposable containers or containers that are washed and dried thoroughly before refilling.

**↑AII**

### 3. Personal Protective Equipment

#### a. Masks, Eye Protection and Face Shields

i. Masks and eye protection, or face shields should to prevent the transmission of influenza should be worn by triage personnel when face-to-face with individuals for ILI assessment.

**↑BIII**

ii. Masks and eye protection, or face shields should be worn by triage personnel to prevent exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose<sup>9,44,45</sup>.

**↑BIII**

iii. HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

iv. Masks should be worn by triage personnel to prevent the transmission of other organisms when HCWs are face-to-face with undiagnosed coughing patients.

**↑BIII**

v. Wear masks, as outlined in Section 2.6

#### b. Gloves

i. Gloves are not required for the routine care of patients suspected of having confirmed to have influenza. Meticulous hand washing with soap and water or performing hand antisepsis will inactivate the virus.

**↑AIII**

ii. Appropriate use of clean, non-sterile gloves includes<sup>9,44,102-105</sup>:

a. for contact with blood, body fluids, secretions (e.g., respiratory secretions) and excretions, mucous membranes, draining wounds or non-intact skin (open skin lesions or exudative rash);

b. when handling items visibly soiled with blood, body fluids, secretions (e.g., respiratory secretions) and excretions;

c. when the health care worker has open skin lesions on the hands.

**↑AII**

iii. Gloves should be used as an additional measure, not as a substitute for hand washing<sup>46,47</sup>.

**↑BII**

iv. When indicated, gloves should be put on directly before contact with the patient or before the procedure requiring gloves<sup>95,106,107</sup>.

**↑AII**

v. Potentially contaminated gloves should be removed and disposed of immediately after completion of care, procedure or specific task, at the point of use prior to touching clean environmental surfaces (e.g., blood glucose or temperature machines, blood pressure cuffs)<sup>46,95,106-108</sup>.

**↑AII**

vi. Hands should be washed immediately after removing gloves<sup>46,47</sup>.

**↑AII**

vii. Single-use disposable gloves should not be reused or washed<sup>46</sup>.

**↑AII**

c. Gowns

i. Gowns are not required for the routine care of patients with suspected of having or confirmed to have influenza.

**↑AI**

ii. Long sleeved gowns should only be used to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup>.

**↑BIII**

iii. HCWs should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible, thoroughly but gently with soap and warm running water.

**↑BIII**

4. Environmental Control  
(Patient Care Equipment, Housekeeping, Laundry and Waste)

The influenza virus survives well in the environment and patients may contaminate their environment with respiratory secretions. On hard porous surfaces the virus can survive for 24-48 hours, can then be transferred to hands and survive for up to 5 minutes<sup>14</sup>.

Equipment and surfaces (i.e., desks, arm rests, etc.) contaminated with secretions from patients suspected of having or confirmed to have influenza should be cleaned before use with another patient.

## Recommendations

a. Process

i. “Parent” organizations must provide a specially trained, knowledgeable person to be responsible for the reprocessing patient care equipment, housekeeping, laundry and waste services. Where there is no “parent” organization to plan or operate the triage settings, it is expected another organization would assume this role.

**↑AIII**

ii. Reprocessing (i.e., disinfection or sterilization) equipment is not recommended in the Triage Setting but if considered, the “parent” organization must provide a specially trained, knowledgeable person to be responsible for the processes. If soiled equipment is to be transported for disinfection or sterilization, the parent organization must develop processes for the separation of soiled and clean/sterile equipment and the safe handling/transport of contaminated equipment.

**↑AIII**

iii. Procedures should be established for assigning responsibility and accountability for the routine cleaning of all patient care equipment<sup>109-112</sup> and housekeeping services.

**↑BIII**

- iv. Reuse of single use items is strongly discouraged. **↑AII**
- b. Patient Care Equipment (Cleaning, Disinfection and Storage)
  - i. Equipment that touches the patient's intact skin should be clean. Equipment that is shared should be cleaned between patients. A hospital grade germicide should be used for routine cleaning. Please refer to Appendix V, Table A Cleaning Procedures for Common Items. **↑BIII**
  - ii. Equipment that is visibly soiled should be cleaned promptly. **↑BIII**
  - iii. Soiled equipment should be handled in a manner that prevents exposure of the skin and mucous membranes and contamination of clothing and the environment. **↑BIII**
  - iv. Reuseable equipment touching mucous membranes, e.g., respiratory therapy equipment or equipment contacting non-intact skin, should be discarded or it should be treated appropriately using high level disinfectant between patients<sup>3,113-116</sup>. **↑AIII**
  - v. Reuseable equipment must be thoroughly cleaned (washed with hot soapy water, using an enzymatic cleaner), rinsed and dried before disinfection or sterilization<sup>117</sup> and dried before storage. **↑AII**
  - vi. Manufacturers' written recommendations for use of chemical disinfectant should be strictly followed.
  - vii. Only disinfectants with a DIN (disinfectants approved for use in Canada) should be used.
  - viii. Sterile items must remain sterile until they are used<sup>118-120</sup>. **↑AII**
  - ix. Sterile and clean supplies should be stored in a clean dry area. **↑AII**
- c. Housekeeping
  - i. Surfaces that are frequently touched by the hands (i.e., contaminated) of health care providers and patients/residents/clients, such as the surfaces of medical equipment and knobs for adjustment or opening, should be cleaned at least twice daily and when known to be contaminated, i.e., after use<sup>121-123</sup>. **↑BIII**
  - ii. Careful vigorous cleaning of environmental surfaces is effective in removing many contaminants from surfaces. **↑AII**
  - iii. A barrier (sheet or paper) should be placed on the examining or procedure table and changed between patients. Alternatively, the table should be cleaned between patients. **↑BIII**

- d. Laundry (linen)
  - i. When reusable linen is used, it should be changed between patients. Special handling of linen contaminated with secretions from patients suspected of having or confirmed to have influenza is not required. ↑**AII**
- e. Waste
  - i. Special handling of waste contaminated with secretions from patients with suspected or confirmed influenza is not required. ↑**AII**
  - ii. Used needles and other sharp instruments should be handled with care to avoid injuries during disposal or reprocessing. Used sharp items should be disposed of in designated puncture-resistant containers located in the area where the items were used<sup>9,124,125</sup>. ↑**AIII**
- 5. Care of the Deceased

Attention to routine infection prevention and control practices is sufficient for handling bodies of individuals who have died from influenza. There is no additional risk of transmission of influenza infection.

### **Recommendations**

- i. Adherence to routine infection control practices for hand washing/hand hygiene, mask/eye protection/face shields, glove and gown use, as outlined above for handling a deceased body, is highly recommended. ↑**AIII**
- ii. The body of the deceased should be placed in a body bag or wrapped in a sheet when a body bag is unavailable and, preferably, kept in a cool, dry location until picked up by funeral services. ↑**AIII**



## 2.0 Infection Prevention and Control in Self Care Settings

### (Care provided by Self, Family or Friends/Volunteers)

Providing care to an individual with influenza like-illness (ILI) who are well enough to be cared for at home will be common during an influenza pandemic. Care may be provided by family members, neighbors, volunteers or individuals themselves. Therefore, adapting Routine Practices to the home setting to prevent transmission of other infections (including blood borne pathogens) to those providing care is necessary.

It is important to note that the influenza virus can survive on hands for 5 minutes following the transfer from environmental surfaces<sup>14</sup>. **The importance of hand washing/hand antisepsis during a pandemic cannot be overemphasized. See Appendix III.** Hand washing/hand antisepsis the single most important method to prevent the transmission of infection including influenza and will be even more important because of the unavailability of influenza vaccine and antiviral prophylaxis early, during or even late in the pandemic.

## Recommendations

### 2.1 Prevention of Pandemic Influenza

#### A. Immunization and Antivirals

Adherence to recommendations for vaccine and antivirals for patients and individuals providing self care as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan.

### 2.2 Control of Pandemic Influenza

#### A. Physical Setting

1. When Pandemic Phase 2 is declared (see Appendix II), Triage Settings will be opened as indicated in the Preparedness Section of the Canadian Pandemic Influenza Plan. Patients with influenza-like-illness (ILI) (see an ILI Assessment Tool, Appendix IV) not directed to hospital or temporary influenza settings and will be provided with Self Care guidelines.

**↑AIII**

2. In the home setting, it is recommended that an attempt be made to maintain spatial separation of one metre unless providing direct care. Where feasible, the individuals with ILI (see glossary) should stay in their room.

**↑BII**

3. In a household where well (non-ILI) individuals (e.g., an elderly or immunocompromised person, or an infant) require care, it is important to provide their care prior to caring for individuals with ILI.

**↑AIII**

#### B. Management of Individuals Involved in Self Care

1. Provide education as outlined in Section 4.2 of Part A .

## C. Infection Control Practices

To prevent the transmission of infections, individuals providing care should adhere to the following recommendations adapted from *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup> and *Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*<sup>3</sup>.

### 1. Hand Hygiene

- a. Wash hands before, and after, the care of the individual who has ILI. See Appendix III. **↑AII**
- b. Plain soap may be used for hand washing<sup>88,89</sup>. Soaps containing antiseptics are not required. **↑BII**
- c. Bar soap should be stored in such a manner as to allow for drying after use. Liquid hand wash products should be stored in clean closed containers and dispensed from either disposable containers or containers that are washed and dried thoroughly before refilling. **↑AII**
- d. A waterless antiseptic hand rinse for hand hygiene should be used if hand washing facilities (sink and running water) are inaccessible<sup>66-68,91</sup>. If there is visible soiling of the hands, first wipe with detergent containing towelettes, then use the antiseptic hand rinse<sup>92</sup>. **↑AI**

### 2. Personal Protective Equipment

- a. Masks, Eye Protection and Face Shields
  - i. Masks to prevent the transmission of influenza are not helpful when transmission has entered the community. **↑BIII**
  - ii. Wear masks and eye protection, or face shields to protect the mucous membranes of the eyes, nose and mouth during procedures and care activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,44,45</sup>. **↑BIII**
  - iii. Avoid touching the eyes with the hands to prevent self-contamination with pathogens.
  - iv. Wear masks, as outlined in Section 2.6.
- b. Gloves
  - i. Gloves are not routinely necessary in the care of an individual with ILI. Hand washing is sufficient. **↑AIII**
  - ii. Gloves are an additional measure to protect hands from soiling with secretions and excretions but are not a substitute for hand washing. **↑AIII**

- iii. Individuals should avoid touching the mucous membranes of their eyes and mouth with their hands; especially when providing care to individuals with ILI. **↑AIII**
- iv. Dishwashing or utility household gloves may be worn in place of single-disposable medical gloves. They should be used by one individual only and washed and dried between use. **↑AIII**
- v. Single-use disposable medical gloves should not be reused or washed<sup>47</sup>. **↑AII**
- vi. Single use plastic bags can also be used as gloves to protect hands from gross soiling. **↑AIII**
- vii. Appropriate use of clean non-sterile gloves includes the following<sup>9,44,102,103,105</sup>:
  - a. for contact with blood, body fluids, secretions and excretions, mucous membranes, draining wounds or non-intact skin (open lesion or oozing rash),
  - b. when handling items visibly soiled with blood, body fluids, secretions and excretions,
  - c. when the care provider has open skin lesions on the hands. **↑AII**
- viii. Gloves should be removed immediately after completion of the procedure for which they were worn and before touching clean environmental surfaces<sup>95,106,107</sup>. **↑AII**
- iv. Hands should be washed immediately after removing gloves<sup>46,47</sup>. If not gloves are available, plastic bags may be worn as gloves. **↑AI**
- c. Gowns
  - i. Over-garments such as aprons, or gowns are not required for the care of an individual with ILI. **↑AI**
  - ii. Over-garments should be used to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup> (also see laundry instructions below). **↑BIII**
  - iii. Caregivers should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible, thoroughly, but gently, with soap and warm running water. **↑BIII**

### 3. Environmental Control (Housekeeping, Laundry and Waste)

The influenza virus survives well in the environment and patients may contaminate their environment with respiratory secretions. On hard porous surfaces the virus can survive for 24-48 hours, can then be transferred to hands and survive for up to 5 minutes<sup>14</sup>. Equipment and surfaces contaminated with secretions from patients suspected of having or confirmed to have influenza should be cleaned before use with another individual.

#### a. Housekeeping

- i. Environmental surfaces and objects that have been touched by an individual with ILI or the caregiver should be cleaned daily with a regular household cleaning agent. **↑AII**

- ii. Products that are labeled “antibacterial” are not necessary. **↑AIII**

#### b. Laundry

- i. Special handling of clothing or linen used during the care of an individual with ILI is not necessary. **↑BIII**

- ii. Heavily soiled linen should be rolled or folded to contain the heaviest soil in the centre of the bundle<sup>126,127</sup>. Large amounts of solid soil, feces, or blood clots should be removed from linen with a gloved hand and toilet tissue then placed into a bed pan or toilet for flushing. In order to prevent splashing, excrement (e.g., from clothing, reusable incontinence pads) should not be removed by spraying with water. **↑BIII**

- iii. Use of a commercial laundry detergent with household bleach (according to product instructions and where suitable for fabrics) and a normal machine wash and machine dry are sufficient to clean soiled linen in a home care setting<sup>50,128-131</sup>. **↑BIII**

- iv. Machine drying or hanging clothing and linens on a clothes line at the home care site is a suitable method for drying. **↑BIII**

#### c. Waste

- i. Garbage generated during the care of an individual with ILI does not require special handling and may be placed with household waste for disposal. **↑AIII**

- ii. Medical sharps, i.e hypodermic needles used in the care of an individual with ILI should be placed in an impervious container (e.g., coffee can) with household waste prior to disposal **↑AII**

#### 4. Care of the Deceased

Attention to routine infection prevention and control practices is sufficient for handling bodies of individuals who have died from influenza. There is no additional risk of transmission of influenza infection.

#### Recommendations

- a. Adherence to the routine infection control practices for hand washing/hand hygiene, mask/eye protection/face shields, glove and gown use as outlined above during the care of the deceased body is recommended. ↑**AIII**
- b. Individuals who die in a home setting should be wrapped in a sheet (ideally using a plastic bag to protect the mattress) and preferably kept in a cool, dry location until pick up by funeral services. ↑**AIII**

### 3.0 Infection Control and Occupational Health in Temporary Influenza Hospitals

Patients triaged as unable to be cared for at home and not ill enough for an acute care hospital will be sent to Temporary Influenza Hospitals as predetermined in the Canadian Pandemic Influenza Plan. Therefore, patients in these settings will either be ill with the pandemic strain of influenza or will have recovered from the pandemic strain of influenza; thus, patient-to-patient transmission of influenza will not be a concern. In this setting, the risk of acute infections other than influenza (e.g., gastroenteritis, other respiratory infections, ectoparasites) will be of concern. Adherence to current Infection Control Guidelines to prevent the transmission of infection is required<sup>3,5,6,9,84</sup>.

It is important to note that the influenza virus can survive on hands for up to 5 minutes following the transfer from environmental surfaces<sup>14</sup>. **The importance of hand washing/hand antisepsis during a pandemic cannot be overemphasized. See Appendix III.** Hand washing/hand antisepsis is the single most important method to prevent the transmission of infection including influenza and will be even more important because of the unavailability of influenza vaccine and antiviral prophylaxis early, during, or even late, in the pandemic.

Maintaining spatial separation of at least 1 metre between patients in this setting should be maintained because there is evidence that overcrowding has contributed to the spread of respiratory-transmitted infections<sup>82</sup>.

#### Recommendations

##### 3.1 Prevention of Pandemic Influenza

###### A. Immunization and Antivirals

Adherence to the recommendations for vaccine and antivirals for patients and HCWs, as outlined in Annexes D and E of the Canadian Pandemic Influenza Plan, is vital.

## 3.2 Control of Pandemic Influenza

### A. Physical Setting

1. When Pandemic Phase 2 is declared (see Appendix II), open Temporary Influenza Hospitals as predetermined in the Canadian Pandemic Influenza Plan. ↑**AIII**
2. When planning for the location of a temporary influenza hospital, emphasize the need for spatial separation between patients, their families and care givers. ↑**AII**
3. Maintain at least a 1 metre spatial separation between beds in patient care areas and chairs in waiting areas<sup>82</sup>. ↑**AII**
4. Plan for separate soiled and clean utility rooms; clean storage areas; dedicated sinks for utility purposes versus hand washing; designate food preparation areas including, dedicated utility versus hand washing sinks; provide an adequate number of toilets; set p a bereavement room and a location to store deceased bodies prior to pick up for funeral services. ↑**AII**
5. Settings with carpeted floors are discouraged. ↑**BIII**

### B. Management of Staff

1. Provide education, as outlined in section 4.1.
2. Adhere to Occupational Health Management, as outlined in Section 3.5.

### C. Infection Control Practices

1. Hygiene Measures to Minimize Influenza Transmission
  - a. Temporary Influenza hospitals should adhere to published guidelines<sup>3,6,9</sup> to prevent nosocomial infections. Infection Control Practices adapted from Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*<sup>5</sup> are summarized below:
  - b. Patients, staff and visitors should minimize potential influenza transmission through good hygienic measures, i.e., using disposable, one-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand antisepsis after coughing, sneezing or using tissues; and keeping their hands away from the mucous membranes of the eyes and nose. ↑**AIII**
2. Hand Hygiene
  - a. Staff, patients and visitors should recognize that strict adherence to hand washing/hand antisepsis recommendations is the cornerstone of infection prevention and may be the only preventative measure available during a pandemic. Hand hygiene procedures should be reinforced according to Appendix III. ↑**AII**

- b. Hands should be washed or hand antiseptics performed after direct contact with ILI patients (see Glossary) and after contact with their personal articles or their immediate environment. **↑AII**
- c. When planning for the location and operation of a Temporary Influenza Hospital, it is important to note that, ideally, hand washing facilities should be conveniently located.  
Note: See g. below if hand washing facilities are not available. **↑BII**
- d. Hand washing facilities should be available in, or adjacent to rooms where care is provided. If a large room is used for several patients, more than one sink may be necessary. Sinks for hand washing should be used only for hand washing and not for other purposes, e.g., as a utility sink. There should be access to adequate supplies as well as soap and towel dispensers should be in good working order<sup>85-87</sup>. **↑BII**
- e. To avoid re-contaminating hands, single-use towels should be supplied for users to turn off faucets. **↑BIII**
- f. Plain soap may be used for routine hand washing<sup>89,132</sup>. **↑BII**
- g. When access to sinks is limited, supplies of antiseptic hand rinses and detergent containing towelettes are necessary. Waterless antiseptic hand rinses are superior to soap and water in reducing hand contamination<sup>66-68,91</sup> and should be made available in prominent areas throughout the temporary hospital. **↑AI**
- h. If there is visible soiling, hands should be washed with soap and water before using waterless antiseptic hand rinses. If soap and water are unavailable, cleanse hands first with detergent-containing towelettes<sup>92</sup>. **↑BIII**
- i. Health Care Workers can reduce the required frequency of hand washing by minimizing unnecessary direct contact with patients and their immediate environments. This can be accomplished by the organization of care activities and avoiding touching surfaces in the patient's environment, e.g., bedrails, tabletops. **↑BIII**
- j. Hands must be washed<sup>93,94</sup> or antiseptic hand rinse used in the following situations:
- i. after any direct contact with a patient or their immediate environment and before contact with the next patient;
  - ii. after contact with items known or considered likely to be contaminated with blood, body fluids, secretions, or excretions (e.g., bedpans, urinals, wound dressings, suction apparatus);
  - iii. immediately after removing gloves<sup>46</sup>;
  - iv. between certain procedures on the same patient if soiling of hands is likely, to avoid cross-contamination of body sites<sup>91,95</sup>;

- v. before preparing, handling, serving or eating food and before feeding a patient;
  - vi. when hands are visibly soiled; and,
  - vii. after personal use of toilet, wiping nose, coughing or sneezing. **↑AII**
- k. Patients and family members and visitors should be taught how and when to wash their hands, e.g., after personal use of toilet, wiping nose, coughing or sneezing. **↑AII**
- l. When patient hygiene is poor, they should have their hands washed for them. Patients should be helped to wash their hands before meals, after going to the bathroom, when soiled and before leaving their bedspace. **↑BIII**
- m. Hand antiseptics, with an antiseptic soap or antiseptic hand rinse, is indicated before performing invasive procedures<sup>92,132</sup>. **↑BIII**
- n. Hand lotion may be used to prevent skin damage from frequent hand washing<sup>96</sup>. Lotion should be supplied in disposable bags in wall containers by sinks or in small, non-refillable containers to avoid product contamination. Inappropriate handling and management of patients' or care givers' skin lotions have been reported as a source of outbreaks<sup>97-101</sup>. **↑BII**
- o. Liquid hand-wash products should be stored in closed containers and dispensed from either disposable containers or containers that are washed and dried thoroughly before refilling. **↑AII**
3. Personal Protective Equipment
- a. Masks, Eye Protection, and Face Shields
- i. Masks to minimize the transmission of influenza may be worn when face-to-face with coughing individuals in during the early phases of the pandemic but are not practical, or helpful, when transmission has entered the community and temporary hospitals have been opened. **↑BIII**
  - ii. Masks should be worn in the temporary influenza hospital to prevent the transmission of other organisms when HCWs are face-to-face with undiagnosed coughing patients. **↑BIII**
  - iii. Masks and eye protection, or face shields should be worn to prevent HCW exposure to sprays of blood, body secretions or excretions. Surgical masks are considered adequate for this purpose<sup>9,44,45</sup>. **↑BIII**
  - iv. HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.
  - v. Wear masks, as outlined in Section 2.6.



## b. Gloves

- i. Gloves are not required for the routine care of patients suspected of having or confirmed to have influenza. Meticulous hand washing with soap and water or performing hand antisepsis will inactivate the virus. **↑AIII**
- ii. Gloves should be used as an additional measure, not as a substitute for hand hygiene<sup>46,47</sup>. **↑BII**
- iii. Gloves are not required for routine patient care activities in which contact is limited to a patient's intact skin, e.g., when transporting patients. **↑BIII**
- iv. Appropriate use of clean non-sterile gloves includes the following situations<sup>9,44,102-105</sup>:
  - a. for contact with blood, body fluids, secretions and excretions, mucous membranes, draining wounds or non-intact skin (open skin lesions or oozing rash);
  - b. for handling items visibly soiled with blood, body fluids, secretions or excretions;
  - c. when the health care worker has open skin lesions on the hands. **↑AII**
- v. When indicated, gloves should be put on directly before contact with the patient or just prior to starting the task or procedure requiring gloves<sup>95,106,107</sup>. **↑AII**
- vi. Gloves should be changed between care activities and procedures with the same patient after contact with materials that may contain high concentrations of microorganisms<sup>46,95</sup>, e.g., after handling an indwelling urinary catheter. **↑BIII**
- vii. Worn gloves should be changed:
  - a. between patient contacts,
  - b. if a leak is suspected or the glove tears. **↑AII**
- viii. Potentially contaminated gloves should be removed and disposed of immediately after completion of care or a specific task, at the point of use prior to touching clean environmental surfaces (e.g., blood glucose or temperature machines, blood pressure cuffs)<sup>46,95,106,107,133</sup>. **↑AII**
- ix. Hands should be washed immediately after removing gloves<sup>46,47</sup>. **↑AII**
- x. Single-use disposable gloves should not be reused or washed<sup>47</sup>. **↑AII**

c. Gowns

i. Gowns are not required for the routine care of patients with suspected or confirmed to have influenza.

↑**AI**

ii. Long sleeved gowns should only be used to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions<sup>9,45</sup>.

↑**BIII**

iii. HCWs should ensure any open skin areas/lesions on forearms or exposed skin is covered with a dry dressing at all times. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible thoroughly, but gently, with soap and warm running water.

↑**BIII**

***D. Patient Activity Restrictions***

1. There are no patient activity restrictions as patients and staff will have already been exposed to or infected with influenza.

↑**AIII**

***E. Visitor Restrictions***

1. Notices should be placed at the entrances to the temporary hospital:

a. warning visitors that they may be at risk of acquiring influenza and requesting visitors who have not had influenza-like-illness not to visit. Close relatives of terminally ill patients are exempt.

b. requiring that visitors with acute respiratory illness not visit as other respiratory illness may be circulating.

↑**AIII**

***F. Patient Care Equipment (Cleaning, Disinfection and Sterilization)***

Sterilization and high-level disinfection requires supervision by a trained professional, dedicated space and specialized equipment. Items requiring sterilization or high level disinfection should be disposable or managed by the “parent” organization.

The appropriate cleaning, disinfection sterilization, storage and handling of patient care equipment is an obligatory component of health care and cannot be overemphasized. Equipment and surfaces contaminated with secretions from patients suspected of having or confirmed to have influenza should be cleaned before use with another patient. The following recommendations apply in all circumstances. Please refer to the Glossary for definition of terms.

## Recommendations

### 1. Process

- a. Reprocessing equipment (i.e., disinfection or sterilization) is **not** recommended but, if considered, the “parent” organization must provide a specially trained, knowledgeable person to be responsible for the processes. Where there is no “parent” organization to plan or operate the Temporary Influenza Hospital, it is expected that another organization would assume this role. If soiled equipment is to be transported for disinfection or sterilization, the parent organization must develop processes for the separation of soiled and clean/sterile equipment and safe handling/transport of contaminated equipment.

↑**AIII**

- b. Procedures should be established for assigning responsibility and accountability for routine cleaning of all patient care equipment<sup>109,111,112,134</sup>.

↑**BIII**

- c. Reuse of single use items in this setting is strongly discouraged.

↑**AII**

### 2. Cleaning

- a. Items that are shared, should be cleaned between patients. A hospital grade germicide should be used for routine cleaning. Please see Appendix V, Table A *Cleaning Procedures for Common Items*.

↑**BIII**

- b. Reuseable items must be thoroughly cleaned before disinfection or sterilization<sup>135-137</sup>. Items should be washed with hot soapy water, using an enzymatic cleaner.

↑**AII**

- c. Equipment that is visibly soiled should be cleaned promptly.

↑**BIII**

- d. Soiled patient care equipment should be handled in a manner that prevents exposure of skin and mucous membranes and contamination of clothing and the environment.

↑**BIII**

- e. Commodes and toilets should be cleaned twice daily and when soiled. Ideally, bedpans should be reserved for use by a single patient, labeled appropriately or cleaned between uses.

↑**BIII**

- f. Personal care supplies (e.g., lotion, creams, soaps) should not be shared between patients.

↑**BIII**

3. Disinfection
  - a. Reuseable items must be adequately rinsed and dried before disinfection or sterilization and dried before storage. ↑**AII**
  - b. Manufacturers' written recommendations for the use of chemical disinfectant should be followed.
  - c. Only disinfectants with a DIN (disinfectants approved for use in Canada) should be used.
  - d. Respiratory therapy and anesthesia equipment require, at a minimum, high level disinfection<sup>113-116</sup>. ↑**AIII**
4. Sterilization
  - a. Critical items must be sterile<sup>135</sup>. ↑**AIII**
  - b. The steam sterilization process must be monitored by biologic indicator testing at least daily<sup>137</sup>. ↑**AIII**
  - c. The sterilization process must be monitored at each cycle by mechanical and chemical indicators<sup>118</sup>. Each pack must contain a chemical indicator<sup>137</sup>. ↑**AIII**
  - d. A procedure for the recall of items processed from a load that contained a positive biological indicator should be established and followed<sup>137</sup>. ↑**AIII**
  - e. Flash sterilization is **not** recommended. ↑**AIII**
  - f. Microwave ovens, glass bead sterilizers and boiling for sterilization should not be used<sup>138</sup>. ↑**AIII**
5. Storage
  - a. After reprocessing, sterility must be maintained until point of use<sup>118</sup>. ↑**AIII**
  - b. Sterile items must be maintained sterile until use<sup>118-120</sup>. ↑**AII**
  - c. Sterile and clean supplies should be stored in a clean dry area. ↑**AII**
  - d. Clean and sterile supplies should not be hoarded. ↑**AII**
  - e. Soiled equipment should be kept physically separate from clean/sterile supplies and equipment. ↑**AII**

## G. Environmental Control (Housekeeping, Laundry and Waste)

The influenza virus survives well in the environment and patients may contaminate their environment with respiratory secretions. On hard porous surfaces the virus can survive for 24-48 hours, can then be transferred to hands and survive for up to 5 minutes<sup>14</sup>.

Equipment and surfaces (i.e., desks, arm rests, etc.) contaminated with secretions from patients suspected or confirmed to have influenza should be cleaned before use with another patient.

### 1. Housekeeping

Appropriate housekeeping is a required component of health care and cannot be overemphasized. The following recommendations apply in all circumstances. Please refer to the glossary for a definition of terms.

## Recommendations

### a. Process

- i. “Parent” organizations must provide a specially trained, knowledgeable person responsible for housekeeping and the policies for cleaning schedules and methods.

When there is no “parent” organization to plan or operate the triage settings, it is expected another organization would assume this role.

**↑AIII**

- ii. Products and procedures should be aligned with, or approved by, the “parent” organization

**↑AIII**

- iii. An education program for those providing housekeeping services should help them to understand the effective methods of cleaning and the importance of their work.

**↑BIII**

- iv. Housekeepers, as with other health care workers, should be offered immunization against hepatitis B<sup>6,9</sup>.

**↑AII**

### b. Cleaning

- i. Daily cleaning of environmental surfaces and noncritical patient care items should be sufficient to keep surfaces clean and dust free<sup>121-123</sup>. Surfaces that are frequently touched (i.e., contaminated) by the hands of health care providers and patients/residents/clients, such as surfaces of medical equipment and knobs for adjustment or opening, should be cleaned twice daily or when known to be contaminated.

**↑BIII**

- ii. Careful vigorous cleaning of environmental surfaces is effective in removing many contaminants from surfaces.

**↑AII**

- iii. Damp rather than dry dusting or sweeping should be performed, whenever possible, in order not to generate dust particles. Any dry cleaning should be done carefully with a chemically treated dry mop or vacuum cleaner

(equipped with exhaust filter) rather than a broom. (Note: carpets are discouraged in this setting).

↑**BIII**

- iv. Vacuum cleaners, equipped with exhaust filters, should be used on carpeted areas. Expelled air from vacuum cleaners should be diffused so that it does not aerosolize dust from uncleaned surfaces.

↑**BIII**

- v. During wet cleaning, cleaning solutions and the tools with which they are applied soon become contaminated. Therefore, a routine should be adopted that does not redistribute microorganisms. This may be accomplished by cleaning less heavily contaminated areas first and also by changing cleaning solutions and cloth/mop heads frequently.

↑**BIII**

- vi. Wet mopping is most commonly done with a double-bucket technique, i.e., one bucket for soil, one for rinsing. This technique extends the life of the solution because fewer changes are required. When a single bucket is used, the solution must be changed more frequently because of increased soil.

↑**BIII**

- vii. Tools used for cleaning and disinfecting must be cleaned and dried between uses.

↑**BIII**

- viii. Mop heads should be laundered daily. All washed mop heads must be dried thoroughly before storage<sup>121</sup> or reuse.

↑**BIII**

c. Cleaning agents

- i. In most areas, detergents are acceptable for surface cleaning. Please refer to Appendix V, Table A, Cleaning Procedures for Common Items.
- ii. Cleaning and disinfecting agents must be mixed and used according to manufacturers' recommendations.

↑**AIII**

- iii. Protective apparatus: Household utility gloves should be worn during cleaning and disinfecting procedures. Manufacturers' directions should be followed for product use to ensure safe handling practices.

↑**BIII**

- iv. Disinfectant fogging (spraying disinfectant in a closed area) is not necessary and should not be done<sup>139</sup>.

↑**AIII**

d. Blood Spills<sup>9</sup>

- i. Appropriate personal protective equipment should be worn for cleaning up a blood spill. Gloves should be worn during the cleaning and disinfecting procedures. Care must be taken to avoid splashing or generating aerosols during the clean up. If the possibility of splashing exists, the worker should wear a face shield or safety glasses/mask and gown. For large blood spills, overalls, gowns or aprons as well as boots or protective shoe covers should be worn. Personal protective equipment should be changed if torn or soiled, and

always removed before leaving the location of the spill, then hands should be washed immediately.

**↑BIII**

- ii. The blood spill area must be cleaned of obvious organic material before applying a disinfectant, as hypochlorites and other disinfectants are substantially inactivated by blood and other materials<sup>9,140,141</sup>. Excess blood and fluid capable of transmitting infection should be removed with disposable towels. Discard the towels in a plastic-lined waste receptacle.

**↑AII**

- iii. After cleaning, areas should be disinfected with a low level chemical disinfectant (e.g., chemical germicides approved for use as ‘hospital disinfectants’, such as quaternary ammonium compounds) or sodium hypochlorite (household bleach). Concentrations ranging from approximately 500 ppm (1:100 dilution of household bleach) sodium hypochlorite to 5000 ppm (1:10 dilution of household bleach) are effective, depending on the amount of organic material (e.g., blood or mucous) present on the surface to be cleaned and disinfected. Please refer to Appendix V, Table B, Directions for Preparing Using of Chlorine-based Disinfectants.

Commercially-available chemical disinfectants may be more compatible with certain medical devices that might be corroded by repeated exposure to sodium hypochlorite, especially the 1:10 dilution<sup>62,140,142</sup>. Manufacturers’ recommendations for dilutions and temperatures of chemical disinfectants approved for use as hospital disinfectants must be followed. Sodium hypochlorite or chemical germicide should be left on surface for at least 10 minutes.

**↑AII**

- iv. The treated area should then be wiped with paper towels soaked in tap water. Allow the area to dry. The towels should be discarded in a plastic lined waste receptacle.

**↑AIII**

- v. Hands must be thoroughly washed after gloves are removed.

**↑AII**

## 2. Laundry

Special handling of linen contaminated with secretions from patients suspected of having or confirmed to have influenza is not required. The following recommendations apply in all circumstances.

### Recommendations

#### a. Process

- i. Parent organizations must provide a specially trained, knowledgeable person responsible for laundry. Where there is no “parent” organization to plan or operate the triage settings, it is expected that another organization would assume this role.

**↑AIII**

- b. Collection and handling
- i. There is no special handling required for linen from patients suspected of having or confirmed to have influenza. **↑AII**
  - ii. All soiled linen should be handled in the same way for all patients. **↑AII**
  - iii. Linen should be handled with a minimum of agitation and shaking<sup>126,127,143</sup>. **↑BIII**
  - iv. Sorting and rinsing of linen should not occur in patient care areas. **↑BIII**
  - v. Heavily soiled linen should be rolled or folded to contain the heaviest soil in the centre of the bundle<sup>126,127</sup>. Large amounts of solid soil, feces or blood clots should be removed from linen with a gloved hand and toilet tissue then placed into a bed pan or toilet for flushing. In order to prevent splashing, excrement (e.g., from clothing, reusable incontinence pads) should not be removed by spraying with water. **↑BIII**
- c. Bagging and containment
- i. Soiled linen should be bagged at the site of collection<sup>126,127,144</sup>. **↑CIII**
  - ii. To prevent contamination or soaking through, a single, leakproof bag<sup>126,144,145</sup> or a single cloth bag can be used<sup>143</sup>. A second outer bag is only required to contain a leaking inner bag<sup>126,127,145,146</sup>. **↑BII**
  - iii. Use of water soluble bags is not recommended. These offer no benefit for infection control and add additional costs<sup>126,127</sup>. **↑BIII**
  - iv. Laundry carts or hampers to collect or transport soiled linen do not need to be covered<sup>127</sup> unless odor control is a factor. **↑BIII**
  - v. Bags should be tied securely and not over-filled when transported either by chute or cart<sup>126</sup>. **↑BIII**
  - vi. Linen bags should be washed after each use and can be washed in the same cycle as the linen contained in them<sup>127</sup>. **↑BIII**
- d. Transport
- i. When linen is commercially laundered, adequate separation of clean and dirty laundry in the truck is essential to ensure that there is no opportunity for mixing clean and dirty linen. **↑BIII**
  - ii. Linen transported by cart should be moved in such a way that the risk of cross contamination is minimized<sup>121,127</sup>. **↑BIII**



- iii. Separate carts should be used for dirty and clean linens. Carts used to transport soiled linens should be cleaned after each use with a cleaning product specified for use in the health care setting.  
**↑BIII**
- iv. Clean linen should be transported and stored in a manner that prevents its contamination and ensures its cleanliness<sup>121,126,127</sup>.  
**↑BIII**
- e. Washing and Drying
  - i. If low temperature water (less than 71.0° C) is used for laundry cycles, chemicals suitable for low temperature washing at the appropriate concentration should be used.  
**↑BIII**
  - ii. High temperature washes (more than 71.1° C) are necessary if cold water detergents are not used<sup>127</sup>.  
**↑BIII**
  - iii. To achieve a level of at least 100 ppm of residual chlorine with household bleach, 2 mL of household bleach should be added for every litre of water. See Appendix V, Table B, Directions for Preparing and Using Chlorine-based Disinfectants.  
**↑BIII**
  - iv. In institutional laundry areas, the addition of a mild acidic “souring” agent neutralized the alkalinity from the fabric, water and detergent. This shift in pH, from approximately 12 to 5, may inactivate any remaining bacteria and reduce the potential for skin irritation<sup>127</sup>.  
**↑BIII**
- f. Protection of laundry workers
  - i. Workers should protect themselves from potential cross infection from soiled linen by wearing appropriate protective equipment, such as gloves, gowns or aprons, when handling soiled linen. Reuseable gloves should be washed after use, allowed to hang to dry, and discarded if punctured or torn.  
**↑BIII**
  - ii. Hand washing facilities should be readily available.  
**↑BII**
  - iii. Personnel should wash their hands whenever gloves are changed or removed<sup>3,5,9</sup>.  
**↑BII**
  - iv. Staff in care areas need to be aware of sharps when placing soiled linen in bags. Workers are at risk from contaminated sharps, instruments or broken glass that may inadvertently be contained with linen in the laundry bags<sup>126,127</sup>.  
**↑BIII**
  - v. Laundry workers, as other health care workers, should be offered immunization against hepatitis B<sup>6,9</sup>.  
**↑AII**

- vi. All caregivers and laundry workers should be trained in procedures for handling soiled linen<sup>9</sup>.

**↑BIII**

### 3. Waste

Waste generated in temporary hospitals is no more hazardous than household waste. Only sharps contaminated with body fluids<sup>9</sup> require special handling and treatment. Appropriate waste handling is a required component of health care and cannot be overemphasized. Special handling of waste contaminated with secretions from patients with suspected or confirmed influenza is not required. The following recommendations apply in all circumstances.

See Glossary for terms.

## Recommendations

### a. Process

- i. Parent organizations must provide a specially trained, knowledgeable person responsible for waste. Where there is no “parent” organization to plan or operate the triage settings, it is expected that another organization would assume this role.

**↑AIII**

- ii. Written policies and procedures to promote the safety of waste handlers should be established.

**↑BIII**

- iii. Special handling of waste contaminated with secretions from patients with suspected or confirmed influenza is not required.

**↑AII**

### b. Regulations

- i. Local environmental and health regulations should be followed when planning and implementing treatment and disposal policies for biologic waste.

**↑BIII**

- ii. Specific categories of biologic waste may be disposed of in a properly managed landfill provided that there are procedures in place to protect workers and the public from contact with the waste.

**↑BIII**

- iii. Medical waste, (e.g., gloves, sponges, dressings, or surgical drapes that are soiled or soaked with blood or secretions) may be contained in impervious waste-holding bags or double bags and may be disposed of in a landfill<sup>147-149</sup>.

**↑BIII**

- iv. If local regulations permit it, blood, suctioned fluids, excretions and secretions may be disposed of in a sanitary sewer.

**↑BIII**

- v. Used needles and other sharp instruments should be handled with care to avoid injuries during disposal. Used sharp items should be disposed of

immediately in designated puncture-resistant containers located in the area where the items were used<sup>9,125</sup>.

↑**AIII**

- vi. A biohazard symbol is required on all sharp containers. Provincial or territorial regulations regarding colour coding must be followed.

↑**BIII**

- vii. The transportation of infectious waste must comply with the *Transportation of Dangerous Goods Act and Regulation*, Transport Canada<sup>150</sup>.

- viii. Infectious waste must be stored in a designated location with access limited to authorized personnel. Refrigerated space should be provided for lockable, closed storage of laboratory waste that will be disposed of off site<sup>151</sup>. Provincial/territorial regulations for specific storage requirements must be followed.

↑**BIII**

- ix. As the waste generator is accountable for waste disposal, ensure careful selection of waste hauling, treatment and disposal firms so all stages of transportation and disposal are carried out in a safe and legal manner<sup>151</sup>.

↑**BIII**

c. Waste Handlers

- i. Waste handlers should wear protective apparatus appropriate to the risks involved, (e.g., protective footwear and heavy work gloves).

↑**BIII**

- ii. Waste handlers, as with other HCWs, should be offered hepatitis B immunization<sup>6,9</sup>.

↑**AII**

## H. Care of the Deceased

Attention to routine infection prevention and control practices is sufficient for handling bodies of individuals who have died from influenza. There is no additional risk of transmission of influenza infection.

## Recommendations

1. Adherence to the routine infection control practices for hand washing/hand hygiene, mask/eye protection/face shields, glove and gown use, as outlined above during the care of the deceased body, is required.

↑**AIII**

2. The body of the deceased should be placed in a body bag or wrapped in a sheet when a body bag is unavailable and, preferably, kept in a cool, dry location until pick up by funeral services.

↑**AIII**

## **Appendix I.** **Guideline Rating System**

### **Health Canada Guideline Evidence-Based Rating System**

Three categories rank the strength of evidence for a recommendation and three grades describe the quality of supportive studies for that recommendation. This format uses an evidence-based approach through the critical scrutiny of evidence from clinical trials research, well designed experimental and observational studies, and places less emphasis on descriptive studies, clinical intuition, and recalled experiences. The rating scale is outlined in the table below.

**Table: Strength and Quality of Evidence for Recommendations**

<b>Categories for strength of each recommendation</b>	
<b>CATEGORY</b>	<b>DEFINITION</b>
A	Good evidence to support a recommendation for or against use
B	Moderate evidence to support a recommendation for or against use
C	Insufficient evidence to support a recommendation for or against use
<b>Categories for quality of evidence</b>	
<b>GRADE</b>	<b>DEFINITION</b>
I	Evidence from at least one properly randomized, controlled trial
II	Evidence from at least one well-designed clinical trial without randomization; from cohort or case-controlled analytic studies, preferably from more than one centre, from multiple time series; or from dramatic results in uncontrolled experiments
III	Evidence from opinions of respected authorities on the basis of clinical experience, descriptive studies, or reports of expert committees

Note: If established regulations are quoted in a document, no ratings are assigned to these legislative requirements



## **Appendix II. World Health Organization (WHO) Definition of Preparedness Levels**

### **Phase 0: Interpandemic activities**

No indication of any new virus type has been reported.

### **Phase 0: Preparedness Level 1**

New influenza strain in a human case.

No clear evidence of spread or outbreak activity.

### **Phase 0: Preparedness Level 2**

Human infection confirmed.

Two or more human infections have occurred with a new virus sub-type, but the ability of the virus to readily spread from person-to-person and cause multiple outbreaks of disease leading to epidemics remains questionable.

### **Phase 0: Preparedness Level 3**

Human transmission of the new virus sub-type has been confirmed through clear evidence of person-to-person spread in the general population, such as secondary cases resulting from contact with an index case, with at least one outbreak lasting over a minimum two week period in one country.

### **Phase 1: Confirmation of onset of pandemic**

The pandemic will be declared when the new virus sub-type has been shown to cause several outbreaks in at least one country, and to have spread to other countries with consistent disease patterns indicating that serious morbidity and mortality is likely in at least one segment of the population.

### **Phase 2: Regional and multi-regional epidemics**

Outbreaks and epidemics are occurring in multiple countries, and spreading region by region across the world.

### **Phase 3: End of the first pandemic wave**

The increase in outbreak activity in the initially affected countries or regions has stopped or reversed, but outbreaks and epidemics of the new virus are still occurring elsewhere.

**Phase 4: Second or later waves of the pandemic**

Based on past experiences, at least a second severe wave of outbreaks caused by the new virus would be expected to occur within 3-9 months of the initial epidemic in many countries.

**Phase 5: End of the pandemic (back to Interpandemic phase; Phase 0)**

WHO will report when the Pandemic Period has ended, which is likely to be after 2-3 years. The indications for this will be that indices of influenza activity have returned to essentially normal inter-pandemic levels and that immunity to the new virus subtype is widespread in the general population.

## Appendix III. Hand Hygiene Procedures

### A. How to Wash Hands (using non antimicrobial soap and antimicrobial soap)

Remove jewellery before hand wash procedure <sup>152,153</sup> .
Rinse hands under warm running water. Rationale: This allows for suspension and washing away of the loosened microorganisms.
Lather with soap and, using friction, cover all surfaces of the hands and fingers. Rationale: The minimum duration for this step is 10 seconds <sup>154</sup> ; more time may be required if hands are visibly soiled. For antimicrobial agents 3-5mL are required <sup>152</sup> . Frequently missed areas are thumbs, under nails, backs of fingers and hands.
Rinse under warm running water. Rationale: To wash off microorganisms and residual hand washing agent.
Dry hands thoroughly with a single-use towel. Drying achieves a further reduction in number of microorganisms <sup>155,156</sup> . Re-useable towels are avoided because of the potential for microbial contamination.
Turn off faucet without re-contaminating hands, e.g., use single use towel. Rationale: To avoid re-contaminating hands
Keep fingernails short <sup>157,158</sup> and do not use fingernail polish or artificial nails. Rationale: Chipped nail polish may increase bacterial load <sup>158</sup> . Artificial nails including wraps, acrylics or tips increase bacterial load <sup>159-161</sup> . Nail polish and artificial nails impede visualization of soil under nails.

Adapted from Health Canada Infection Control Guidelines: *Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*, 1998<sup>3</sup>.

## **B. Decontaminating Hands with an Alcohol-based Hand Rub**

To decontaminate hands that are not visibly soiled\* using an alcohol-based hand rub:

- ▶ Follow the manufacturer's recommendations on the volume of product to use;
- ▶ Apply product to palm of one hand and rub hands together, covering all surfaces of hands and finger, until hands are dry.

Note: \* Hand wash if hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids by washing with either a non-antimicrobial soap and water or an antimicrobial soap and water as outlined in Appendix III A, How to Wash Hands.

(adapted from<sup>1</sup>)





## **Appendix IV. An Influenza-like Illness (ILI) Assessment Tool**

An ILI assessment tool is to be used for immediate triage of patients or staff and for accommodation/cohort of patients prior to further OH or clinical management. This is not intended to be used as a clinical management tool. A clinical management assessment tool can be found in Annex G of the Canadian Pandemic Influenza Plan.

### **ILI Assessment Tool**

Please check the following.

**ILI in the general population is determined by the presence of 1, 2 and 3 and any of 4., a – c, which could be due to influenza virus:**

- ( ) 1. Acute onset of respiratory illness
- ( ) 2. Fever ( $>38^{\circ}\text{C}$ )\*
- ( ) 3. Cough
- ( ) 4. One or more of the following:
  - ( ) a. sore throat
  - ( ) b. arthralgia
  - ( ) c. myalgia or prostration

\* May not be present in elderly people

Adapted from the ILI surveillance definition currently used by FluWatch for the 2002-2003 season<sup>8</sup>.

**Table A. Cleaning Procedures for Common Items**

Surface/object	Procedure	Special considerations
Horizontal surfaces such as over bed tables, work counters, baby weigh scales, beds, cribs, mattresses, bedrails, call bells	<ol style="list-style-type: none"> <li>1. Thorough regular cleaning</li> <li>2. Cleaning when soiled</li> <li>3. Cleaning between patients/clients and after discharge</li> </ol>	<p>Special procedures sometimes called carbolizing are not necessary.</p> <p>Some environmental surfaces may require low level disinfection (e.g., in nurseries, pediatric settings, critical care, burn units, emergency rooms, operating rooms and bone marrow transplantation facilities).</p>
Walls, blinds, curtains	Should be cleaned regularly with a detergent and as splashes/visible soil occur.	
Floors	<ol style="list-style-type: none"> <li>1. Thorough regular cleaning</li> <li>2. Cleaning when soiled</li> <li>3. Cleaning between patients/clients and after discharge.</li> </ol> <p>Damp mopping preferred</p>	<p>Detergent is adequate in most areas.</p> <p>Blood/body fluid spills should be cleaned up with disposable cloths followed by disinfection with a low level disinfectant.</p>
Carpets/upholstery	Should be vacuumed regularly and shampooed as necessary.	
Toys	Should be regularly cleaned, disinfected with a low level disinfectant, thoroughly rinsed, and dried (between patients in acute care setting).	<p>For pediatric settings, toys should be constructed of smooth, nonporous (i.e., not plush) materials to facilitate cleaning and decontamination.</p> <p>Do not use phenolics.</p>
Toilets and commodes	<ol style="list-style-type: none"> <li>1. Thorough regular cleaning</li> <li>2. Cleaning when soiled</li> <li>3. Clean between patients/clients and after discharge.</li> </ol> <p>Use a low level disinfectant</p>	<p>These may be the source of enteric pathogens such as <i>C. difficile</i> and <i>Shigella</i>.</p>

**Table B. Directions for Preparing and Using Chlorine-based Disinfectants<sup>3</sup>**

Product	Intended use	Recommended dilution	Level of available chlorine
Household bleach (5% sodium hypochlorite solution with 50,000 ppm* available chlorine)	Cleanup of blood spills	Use concentrations ranging from 1 part bleach to be mixed with 99 parts of tap water (1:100) or one part of bleach to be mixed with 9 parts of tap water (1:10), depending on the amount of organic material (e.g., blood or mucus) present on the surface to be cleaned and disinfected.	0.05% or 500 ppm 0.5% or 5,000 ppm
	To add to laundry water	One part (one 8 ounce cup) of bleach to be mixed with about 500 parts (28 gallons†) of tap water	0.01% or 100 ppm
	Surface cleaning Soaking of glass-ware or plastic items	One part (one 8 ounce cup) to be mixed with about 50 parts (2.8 gallons) of tap water	0.1% or 1,000 ppm
NaDCC (Sodium dichloroisocyanurate) powder with 60% available chlorine	Cleanup of blood spills	Dissolve 8.5 g in one litre of tap water	0.85% or 5,000 ppm
Chloramine-T powder with 25% available chlorine	Cleanup of blood spills	Dissolve 20 g in one litre of tap water	2.0% or 5,000 ppm

\* *Parts per million*

† *Imperial gallon (4.5 litres)*

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