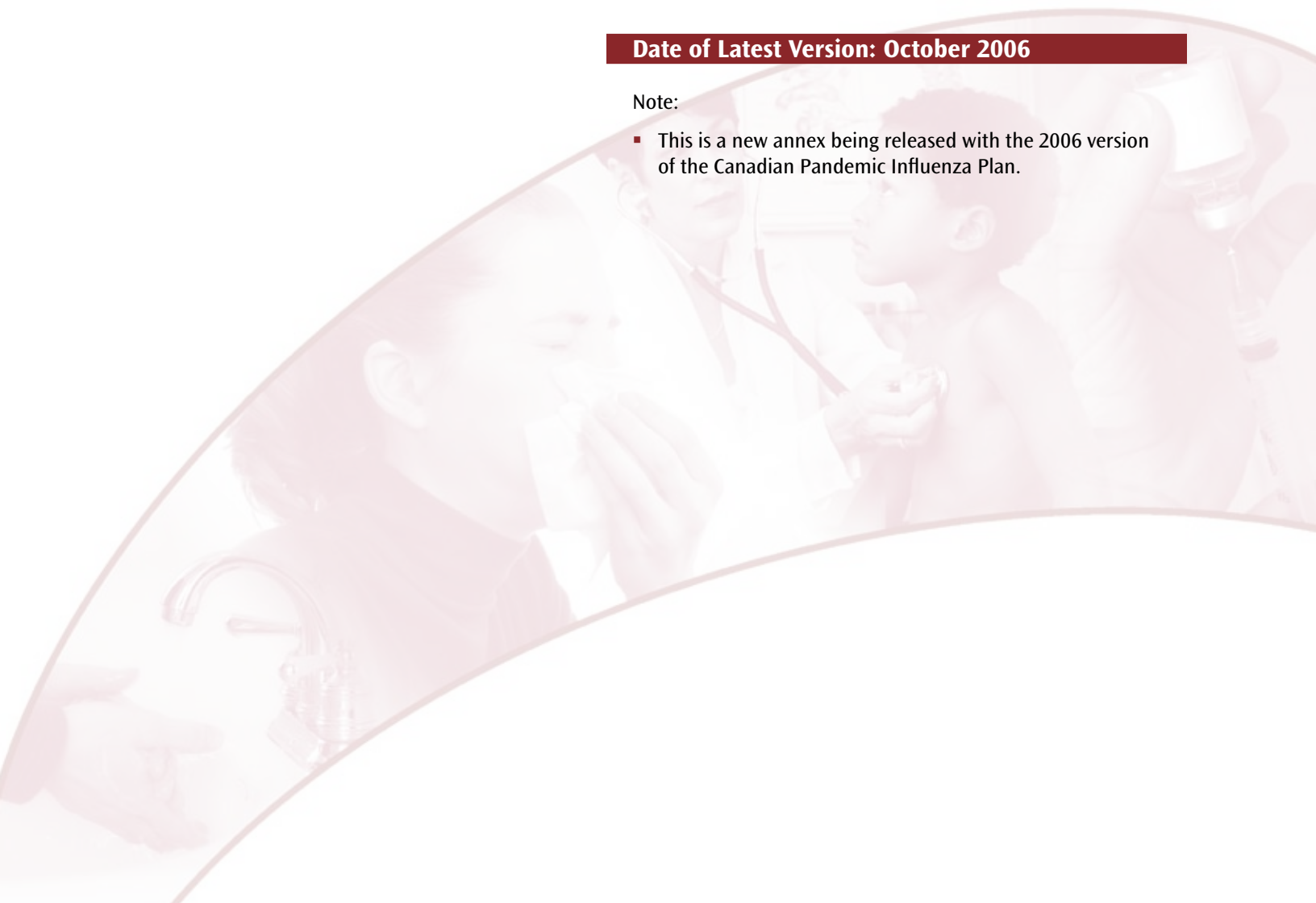


# **Public Health Measures**

**Date of Latest Version: October 2006**

Note:

- This is a new annex being released with the 2006 version of the Canadian Pandemic Influenza Plan.





# Table of Contents

1.0	Introduction	3
2.0	Principles and Assumptions	4
3.0	Public Education	5
3.1	Recommendations	5
3.2	Goals and Anticipated Outcomes	6
3.3	Rationale	6
3.4	Feasibility and Requirements	7
3.5	Impacts and Stakeholders	7
3.6	Anticipated Compliance and Acceptability	7
4.0	Avian Outbreaks in Canada during the Interpandemic Period	7
5.0	Public Health Management of Individuals with Influenza-like Illness	8
5.1	Recommendations	8
5.2	Goals and Anticipated Outcomes	12
5.3	Rationale	13
5.4	Feasibility and Requirements	13
5.5	Impacts and Stakeholders	14
5.6	Anticipated Compliance and Acceptability	14
6.0	Management of Contacts of Cases	15
6.1	Recommendations	15
6.2	Goals and Anticipated Outcomes	20
6.3	Rationale	20
6.4	Feasibility and Requirements	20
6.5	Impacts and Stakeholders	21
6.6	Anticipated Compliance and Acceptability	21
7.0	Community Based Disease Control Strategies	22
7.1	Strengthen Recommendation to Stay Home from Public Events and Locations If You Have Fever and New Onset of Respiratory Symptoms	23
7.2	Close Schools and Daycare Centres	23
7.3	Restrict Indoor Public Gatherings (other than schools)	24
7.4	Use of Masks by Well Individuals	25
7.5	Implement Hand-Sanitizing Stations in Public Settings	26
7.6	Increase Frequency of Cleaning of Surfaces in Public Setting	27
7.7	Other Measures NOT Recommended for Implementation	28
8.0	Isolated Communities	28
9.0	Travel and Border Related Measures	29
	References	36
	Appendix A: Summary of Recommendations	37



## 1.0 Introduction

As an influenza pandemic evolves, the role of public health and consequently the public health measures put in place will shift as priorities and strategies change. The overall goals of influenza pandemic preparedness and response are:

**First, to minimize serious illness and overall deaths, and second to minimize societal disruption among Canadians as a result of an influenza pandemic.**

The strategies used to reach this goal will vary according to the phase of the pandemic, the availability of resources (e.g. human, vaccine, antivirals) and the epidemiology of the pandemic. Given the many possible combinations of these variables, this document endeavours to provide overall guidance. It is expected that the provided recommendations will be considered and modified as necessary when responding to a specific pandemic or pandemic threat.

Unlike other aspects of this illness (e.g. virologic characteristics), public health measures directed toward community disease control have not been well studied or reported in the scientific literature. Therefore in developing this document, the Public Health Measures Working Group of the Pandemic Influenza Committee (the Working Group) has relied mainly on expert consultation to form the recommendations. The conclusions of this group were compared with the results of an international consultation on public health measures at a March 2004 World Health Organization (WHO) meeting<sup>(1)</sup> and were found to be consistent. The report from the WHO consultation meeting was also used as a source of additional details that are included in this document, specifically under section 9, Travel and Border-Related Issues, in this annex.

In the absence of scientific efficacy data for many of the potential public health measures, the Working Group presents these recommendations to help facilitate a common approach to community disease control. This will reduce the need to explain and justify divergent approaches at the time of a pandemic and may also optimize public confidence at a time of much uncertainty. Many of the recommendations are contingent upon local triggers; therefore, the timing of their implementation will not necessarily be simultaneous across the country, but ideally the types of measures and public health messages will be consistent. In general, there is global agreement that, when cases infected with a novel virus first appear, aggressive measures will be valuable in delaying the impact or possibly containing an evolving pandemic.

During an influenza pandemic, public health authorities will be involved in a broad range of activities, including but not limited to surveillance, case and contact management, public education, coordination and delivery of vaccine programs, implementation of community disease control strategies, and potentially the organization of a treatment-focused antiviral strategy, and the establishment and administration of non-traditional health care sites. Because surveillance issues, vaccine program considerations and the public health role in non-traditional sites have been addressed in other sections of the Canadian Pandemic Influenza Plan (the Plan) (available at: <http://www.phac-aspc.gc.ca/cpip-pclcpi/index.html>), this document will focus on the other previously identified public health activities.

## 2.0 Principles and Assumptions

The recommendations included in this document are predicated on the following principles and assumptions:

- The incubation period, period of communicability and method of transmission for the novel strain will be consistent with other known influenza strains, that is:
  - Incubation period: 1 to 3 days;
  - Period of communicability: 24 hours before to up to 5 days after onset of illness (usually up to 3 to 5 days in immunocompetent adults, up to 7 days in young children);
  - Method of transmission: large droplet and contact (direct and indirect);
  - Possibility of transmission by the airborne route is uncertain<sup>1</sup>; and
  - Transmission while asymptomatic is possible but it is more efficient when symptoms, such as coughing, are present and viral shedding is high (i.e. early in symptomatic period).
- The novel virus will be highly infectious (i.e. transmitted efficiently from person to person).
- The initial clinical presentation will be consistent with known influenza strains.
- Sub-clinical infection will occur.<sup>2</sup>
- It is unlikely that an effective vaccine will be available at the start of pandemic influenza activity in Canada but it may be available for a second wave.
- Public health authorities will play a major role in the distribution and administration of vaccine.
- Mass immunization campaigns will occur when sufficient quantities of the new vaccine are available; this will increase the demand for public health human resources.
- The use of antivirals to decrease the risk of transmission from the first cases infected with a novel virus and their contacts will be considered as a strategy to contain or slow the spread of novel viruses that have pandemic potential and that are identified in Canada. The use of this strategy will be limited to cases identified early in the Pandemic Alert Period<sup>3</sup> in Canada. During the Pandemic Period, this strategy will change to the nationally agreed upon antiviral strategy for the Pandemic Period.
- In the absence of data on duration of shedding and the effect of neuraminidase inhibitors on viral load and shedding of the novel virus, the objective of treatment with antivirals is to improve clinical outcome, which is assumed to correlate with decreased communicability.
- Individuals who recover from illness caused by the pandemic strain will be immune to further infection by that strain.
- The novel influenza strain and first human cases will be identified outside of Canada.
- Surveillance measures are in place to detect influenza-like illness (ILI) across Canada.

1 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. Although experimental airborne transmission of influenza A virus to mice has been reported, there is no evidence of such transmission in humans.

2 In a recent British study, 59% of health care workers with serologic evidence of recent influenza infection could not recall having influenza; this suggests that many experienced sub-clinical cases.<sup>(2)</sup>

3 The role of antivirals during the Interpandemic Phase has been addressed elsewhere with respect to the response to an outbreak of avian influenza in Canada.<sup>(3)</sup>

- The pandemic strain may cause more than one wave of illness.<sup>4</sup>
- The public will be interested in all methods of personal protection against infection.
- Public acceptance of restrictive control measures will positively correlate with the proximity of cases.
- It may be possible to delay introduction of pandemic influenza into isolated communities; however, it is not likely that this strategy could be sustained especially if the virus has acquired the ability to spread efficiently from human to human.
- The latest WHO and Canadian pandemic phase terminology will be used in planning and response.

During the Pandemic Alert Period there is an expectation that measures will be taken to contain the novel virus at source. During the Pandemic Period the goal has a mitigation focus, that is, to minimize morbidity, mortality and societal disruption. Therefore the recommended actions in this annex differ for these two distinct periods. An example of this is the recommendations for antiviral use for contacts of cases. The containment strategy requires further discussion at the national level, however in the meantime the recommended measures are expected to be applicable should containment be necessary.

### **3.0 Public Education**

Public education is a key activity for public health authorities during all the pandemic phases. During the Interpandemic Period (Phase 1 and Phase 2), most influenza-related educational initiatives will likely focus on general facts about influenza, the influenza vaccine and trends during the current and recent seasons. However, this period is also the optimal time to prepare educational initiatives and introduce concepts (e.g. need to modify recommendations as the pandemic evolves) that will be necessary during a pandemic.

### **3.1 Recommendations**

- Prepare educational materials for the general public during the Interpandemic Period; these can be used in and/or modified for each phase of the pandemic threat. Focus on risks and risk avoidance, universal hygiene behaviours (including “respiratory hygiene”) and information that will be needed to reduce transmission of illness (including how to seek medical attention in a way that minimizes exposure opportunities), and prepare the general public for the next phase.
- Review and update educational materials for health professionals. Reinforce existing recommendations for management of patients that present with febrile respiratory illness including the provision of masks for coughing patients.
- Anticipate special educational and resource needs, for example, translation requirements and targeted packages for more specific groups (e.g. physician offices, school boards, daycare operators, other business owners, travellers, etc.)
  - During the Interpandemic Period, consider speaking to business owners to encourage business continuity planning that is appropriate for the unique challenges that would be presented by an influenza pandemic.

<sup>4</sup> The WHO has noted that in the past “more severe disease has tended to arrive with the second wave.”<sup>(4)</sup> This observation has not affected the recommendations in this document but it is an important consideration for planning purposes.

- Similarly, school boards should be encouraged to strategize with regard to continuation of education (e.g. Internet or other ways for students to receive and submit assignments) in the event that school facilities are closed.
- Ensure appropriate linkages are in place with communications staff within the public health organization and determine roles, responsibilities and information flow in the event of a pandemic. Together with communications staff:
  - Have a toll-free telephone information line established or ready to be rapidly implemented, with prepared transcripts for phone-line staff.
  - Consider components of the information dissemination process, including Web-based postings as well as print materials.
- Develop templates for specific purposes, such as consent for immunization, and public education about indications for the access to antiviral treatment.
- Ensure ongoing training of staff within the public health authority to ensure that expertise is not lost because of staff turnover.

## 3.2 Goals and Anticipated Outcomes

- Minimize the time needed to disseminate educational materials to the public during an alert and as the pandemic evolves and information needs change.
- Increase baseline public knowledge (i.e. before an alert is issued) by providing information on pandemic influenza during the Interpandemic Period.
- Establish the public health authority as an accurate, reliable and trusted source of information on pandemic influenza through a well-coordinated and prepared education and communication plans.

## 3.3 Rationale

An influenza pandemic is a global health emergency and therefore public demand for information will be extremely high and sustained as the illness spreads from remote areas and/or countries to Canada and into local communities. Unlike the severe acute respiratory syndrome (SARS) experience where the epidemiology of the disease and the causal organism was initially unknown, a significant amount of information on influenza is available and this can guide the development of generic fact sheets and specific templates for later use.

Before a pandemic vaccine is available, the mitigation of the potential effects of a pandemic will be largely contingent upon the actions of a public that receives, trusts and acts upon timely public education messages. Public health authorities at all levels of government will need to facilitate this process as much as possible.

In March 2004, WHO hosted an international consultation on priority public health interventions before and during an influenza pandemic. The consultation report concluded, “health authorities will need to make a series of emergency decisions in an atmosphere of considerable scientific uncertainty and fragile public confidence. Prior guidance on which interventions are most likely to be effective and feasible at different phases is therefore greatly needed as part of preparedness planning.”<sup>(1)</sup>



### **3.4 Feasibility and Requirements**

Most public health authorities already see public education on these types of health issues as one of their key responsibilities. The contacts established by other public health programs that target schools, large business owners, governments and municipalities could facilitate the implementation of the above recommendations—in particular, presentations on pandemic preparedness that would be specifically aimed toward these groups. Because it is not known when a novel virus will emerge and cause a pandemic, it is important that several trained staff remain familiar with this issue and can be diverted when needed to work on educational materials without notice.

The communications component of the Plan will need to be considered and incorporated into all public education activities in order to present a coordinated response. A pre-established, well-advertised Web site and pre-determined channels for the dissemination of printed materials and e-mail communications are important requirements for effective public education campaigns. An available toll-free telephone line with trained staff will also be an important requirement to maximize the propagation of educational messages.

### **3.5 Impacts and Stakeholders**

Because the demand for information will be enormous and also likely remain high as the pandemic evolves, the impact on staffing within public health authorities will be substantial. Municipal governments and the broader emergency response structure will also be involved in the delivery of public education messages at the local level; public health authorities will be impacted if they are asked to develop and review the content of these messages. The objective is to have a positive impact on the public by anticipating their educational needs and preparing to meet those needs as soon as possible. If this is achieved, public health authorities are more likely to be seen as reliable sources of timely information.

Likely stakeholders will include the entire population who will need general information and specific groups who will need more detailed or specific information, including direction about response activities.

### **3.6 Anticipated Compliance and Acceptability**

Because most public health authorities have the capacity to develop and deliver public education and are established sources of health information in their respective jurisdictions, it is anticipated that their role as educators during an influenza pandemic will be highly acceptable. However, it will be critical to ensure sustained credibility by providing informed, consistent, clear and timely messages.

Compliance with public education will likely be high, especially if the community is already experiencing cases. The perception of personal risk will likely increase as the proximity to cases increases, and it will result in more and more people seeking information on personal protective measures.

## **4.0 Avian Outbreaks in Canada during the Interpandemic Period**

Although it is considered unlikely that a pandemic strain will first emerge in Canada, the public health system needs to be prepared to deal with this possibility. Recent outbreaks of avian influenza both in Asia and in North America have highlighted the need for clear guidelines to manage these outbreaks. Following the outbreak of highly pathogenic avian influenza in British Columbia in the

spring of 2004, interim guidelines were developed. Those guidelines have recently been updated and are now found in the document: Human Health Issues Related to Avian Influenza in Canada. This document was developed by PHAC with input from all provinces and territories and is available through the Avian influenza link on the PHAC website (available at: <http://www.phac-aspc.gc.ca>).

The purpose of the interim guidelines is to provide recommendations and tools for public health authorities and other stakeholders involved in the management of human health issues related to domestic avian influenza outbreaks. The recommendations are organized to align with certain components of the Plan, i.e. surveillance, public health measures, infection control, antivirals and vaccine programs. Because the occurrence of a single human case of avian influenza usually denotes the onset of the Pandemic Alert Period in Canada, the interim guidelines are consistent with the recommendations herein for case and contact management during Pandemic Alert Period, Canadian Pandemic Phase 3.1. This annex (i.e. Annex M, Public Health Measures) will become the appropriate reference if human-to-human transmission of the novel virus is observed, at which time aggressive measures will be initiated in an attempt to control or delay the spread of the virus. These measures are presented under the Pandemic Alert Period subheadings under section 5, Public Health Management of Individuals with Influenza-like Illness, and section 6, Management of Contacts of Cases, which follow in this annex.

## **5.0 Public Health Management of Individuals with Influenza-like Illness**

This section includes recommendations for the public health management of people with ILI who have been infected with a novel influenza virus during a pandemic alert and people meeting the national case definition during the pandemic. (The current definition for ILI is available at: [www.phac-aspc.gc.ca/fluwatch/index.html](http://www.phac-aspc.gc.ca/fluwatch/index.html)). Modified case definitions developed during a pandemic alert or once pandemic activity is occurring will also be posted on the PHAC Web site and distributed to provinces and territories directly by PHAC.

These activities will be initiated when one or more human cases infected with the novel virus are identified in Canada. Until then, case and contact management should follow the guidelines for the Interpandemic Period (or any modified versions of the interpandemic guidelines due to the occurrence of a pandemic alert outside of Canada). However if a medical officer of health has a high level of suspicion that an ill individual might be infected with the novel virus (e.g. an ill traveller with a epi-link to an affected area and for whom laboratory results are pending), the actions described below may be implemented as a precaution until the case can be confirmed.

The recommendations below refer to the management of ill individuals identified in Canada during the specified pandemic periods and Canadian pandemic phases.

### **5.1 Recommendations**

- Encourage all ill individuals (and those providing care to such individuals) to practice good hand and respiratory hygiene (e.g. frequent handwashing, covering the mouth when coughing, etc.) and to frequently clean and disinfect surfaces that could be potentially contaminated with respiratory droplets for the duration of their illness. (See Annex F for additional details and recommendations on infection control.) Also advise them when to seek medical attention and how to do this in a way that minimizes potential exposures (e.g. take a private vehicle instead of public transit if possible).

## **Recommendations for Management of Individuals with ILI (presumed novel/pandemic flu):**

### ***Pandemic Alert Period: Sporadic activity in Canada – Phase 3.1, Phase 4.1 and Phase 5.1***

**Indicator:** Single human case(s) with a novel virus subtype in Canada with no spread, or at most rare instances of spread to a close contact only. Outside of Canada, clusters resulting from human-to-human transmission may be occurring (e.g. Phase 4.1 and Phase 5.1) but the virus has not demonstrated the efficiency of transmission necessary to cause a pandemic.

- Facilitate appropriate management of ill individual(s) suspected of having the novel virus and who are identified through the surveillance system.
  - Disseminate messages to front-line health care providers in conjunction with enhanced surveillance protocols with regard to the notification and reporting processes for ill individuals of concern (i.e. those with a potential risk factor due to travel or contact with an infected avian or animal source), any updates on infection control precautions, clinical management or laboratory testing recommendations.
- Report ill individuals and facilitate laboratory testing, as agreed upon in the enhanced surveillance process, to the provincial or territorial and federal authorities in the requested format.
- Isolate the ill individual either in hospital (if clinically indicated or recommended, based on available epidemiological data) as per current infection control guidelines or at home.
  - In-home management should include follow-up of the case and their close contacts (see the general recommendations under 6.1 below) through active surveillance, education about infection control precautions in the home setting and instructions about what to do if their illness progresses.
  - Adults recommended for self-isolation at home should stay there for a minimum of 5 days after onset of symptoms (7 days for young children) or until symptoms have resolved, whichever is longer, unless they need to visit a health care provider<sup>5</sup> or unless an alternative diagnosis is made. During this period, they should avoid close contact with unexposed household members.
- Medical management of these individuals should include treatment with antiviral drugs, depending on the sensitivity profile of the novel virus. This treatment will need to be monitored, with any relevant outcomes (e.g. clinical deterioration despite initiation of antivirals within 48 hour of symptom onset, laboratory evidence of viral resistance, compliance problems, adverse events) to be reported to the appropriate public health authority.

## **Recommendations for Management of Individuals with ILI (presumed novel/pandemic flu):**

### ***Pandemic Alert Period: Localized or widespread cluster activity in Canada – Phase 4.2 or Phase 5.2***

**Indicator:** Cluster(s) occurring in Canada with “limited” (Phase 4.2) or “substantial” (Phase 5.2) pandemic risk based on various factors, e.g. rate of transmission, geographic localization and spread, severity of illness, impact of control measures, presence of genes from human strains (if derived from an animal strain), other information from the viral genome and/or other scientific information. Outside of Canada, clusters may be occurring (assuming the virus did not originate in Canada) but the virus has not demonstrated the efficiency of transmission necessary to cause a pandemic.

<sup>5</sup> The case should be given instructions about infection control measures to be implemented if they must leave their home to visit a health care provider (e.g. phone ahead, wear a mask)

- Aggressively implement protocols for influenza case and outbreak management<sup>6</sup> with consideration of the recommendations on infection control in Annex F.<sup>7</sup> These measures include:
  - isolation of cases,
  - laboratory testing of suspect cases,
  - closing of affected hospital wards or institutions to visitors, etc.,
  - aggressive contact tracing and follow-up (see section 6 below, Management of Contacts of Cases), and
  - reporting individual cases to provincial/territorial and federal public health authorities.
- Medical management of cases presenting within 48 hours of symptom onset should include antiviral treatment. Public health authorities may help coordinate the distribution of antivirals because supplies may be limited and prioritization may be necessary. (See Annex E, Planning Recommendations for Anti-influenza (Antiviral) Drugs in Canada During a Pandemic, for additional details.)

As previously noted, antiviral treatment will need to be monitored with outcomes (clinical, laboratory and compliance) reported to the appropriate public health authority.

**Note:** During the Pandemic Alert Period (i.e. prior to declaration of a pandemic), it is anticipated that antiviral drugs will be used to treat the first cases identified in Canada and attempt to control subsequent spread from these cases. When the pandemic is declared or the supplies dedicated for this early control strategy are exhausted, the antiviral strategy will change to focus on the overall goal of the pandemic response by encouraging dispensing of these medications using the nationally agreed-upon antiviral strategy for the Pandemic Period.

### **Recommendations for Management of Individuals with ILI (presumed novel/pandemic flu):**

#### ***Pandemic Period: Sporadic Cases occurring in Canada – Phase 6.1***

**Indicator:** Single human case(s) with the pandemic virus detected in Canada. No cluster(s) identified in Canada.

**Note:** If the incubation period, period of communicability and method of transmission for the novel strain are consistent with other known influenza strains, it is likely that this phase will have a very short duration or may even be skipped in Canada (i.e. novel virus activity may not be detected prior to the occurrence of a cluster of cases).

- Facilitate appropriate management of the ill individual(s) suspected of having the novel virus, identified through the surveillance system.
  - Rapidly disseminate messages to front-line health care providers indicating that the novel virus has been detected in the community.

<sup>6</sup> It is recognized that individual case management by public health authorities will not be sustainable and, depending on the geographical distribution of cases, may need to be discontinued prior to the Pandemic Phase in jurisdictions that are heavily impacted during the Pandemic Alert Period (i.e. Canadian Pandemic Phase 5.2).

<sup>7</sup> For example, this may include triage and provision of surgical masks to patients with respiratory illness presenting for a medical assessment (when cases have already occurred in the specific community).

- If necessary, update and distribute the reporting protocol for suspect cases (i.e. highlighting what may have changed between the Pandemic Alert Period and the Pandemic Period in terms of reporting expectations).
- Distribute any updates on infection control precautions, clinical management or laboratory testing recommendations.
- Report ill individuals to the P/T and federal authorities in the requested format.
- Facilitate laboratory testing as agreed upon for the Pandemic Period.
- Isolate the ill individual(s), as per current infection control guidelines, in hospital (if clinically indicated or recommended, based on available epidemiological data), at an alternate care facility or at home.
  - In-home management should include follow-up of the case and their close contacts (see recommendations under 6.1 below) through active surveillance, education about infection control precautions in the home setting, and instructions about what to do if their illness progresses.
  - Individuals recommended for self-isolation at home should stay there a minimum of 5 days after onset of symptoms (7 days for young children) or until symptoms have resolved, whichever is longer, or if known, until the end of the period during which they are expected to be communicable, unless they need to visit a health care provider<sup>8</sup> or unless an alternative diagnosis is made. During this period, they should avoid close contact with unexposed household members.
- It is expected that antiviral drugs from the National Antiviral Stockpile will be used for treatment of all persons with influenza-like illness (presumed pandemic influenza) who are ill enough to need care, and who are assessed within 48 hours of the onset of symptoms. (See Annex E for additional details on antivirals.)
- If cases have occurred in Canada prior to this period, it will be necessary to communicate any changes to the recommendations for case management now that the pandemic virus has arrived in Canada.

**Recommendations for Management of Individuals with ILI (presumed novel/pandemic flu):**

***Pandemic Period: Localized or widespread activity occurring in Canada – Phase 6.2***

**Indicator:** Sustained transmission of the virus resulting initially in clusters followed by localized and widespread activity in the general Canadian population.

- As case numbers increase, liaise with the group that is in charge of the pandemic response in your jurisdiction to put into effect the sections of the Plan that apply to clinical care (e.g. coordinate patient flow to appropriate sites or settings).
- Switch from reporting individual cases to reporting broad indicators of pandemic impact, (e.g. activity level, hospitalizations) as per surveillance guidelines.

<sup>8</sup> The case should be given instructions about infection control measures to be implemented if they must leave their home to visit a health care provider (e.g. phone ahead, wear a mask).

- Provide public messaging<sup>9</sup> on self-care (including isolation), reporting of illness, where, when and how to present for medical assessment, and the availability of limited resources (discontinue individual-focused active surveillance).
- Determine the duration of isolation for ill individuals cared for outside of a health care facility,<sup>10</sup> based on the epidemiological data available at the time.
  - In the absence of data on period of communicability for the novel virus, isolate patients until 24 hours after their symptoms have resolved.<sup>11</sup>
  - Except when visiting a health care provider, these individuals should stay at home during this time and avoid close contact with unexposed household members (unless an alternative diagnosis is established).
  - Consider extending this isolation period for immunocompromised patients or children who are more likely to have prolonged viral shedding.
- It is expected that antiviral drugs from the National Antiviral Stockpile will be used for treatment of all persons with influenza-like illness (presumed pandemic influenza) who are ill enough to need care, and who are assessed within 48 hours of the onset of symptoms. (See Annex E for additional details on antivirals.)
- If cases have occurred in Canada prior to this the period, it will be necessary to communicate any changes to the recommendations for case management now that the pandemic virus has arrived in Canada.
- As case numbers decrease at the end of a pandemic wave:
  - A more individualized focus may be possible including individual case reporting and management (refer to the recommendations for Canadian Phase 6.1 under section 5.1.3 in this annex), and
  - Consideration should be given to evaluating the implemented case management strategies in order to optimally inform the response to any additional waves or pandemics.<sup>12</sup>

## 5.2 Goals and Anticipated Outcomes

- Cases will have knowledge about how to reduce disease transmission.
- Reduced opportunity for transmission of the novel virus
- Possible containment of an inefficiently spread virus or delayed spread of the pandemic virus
- Documentation and reporting of ill individuals meeting surveillance case definitions
- A well-integrated case-management system that adapts as the situation evolves

<sup>9</sup> The focus on individual case management will need to change because it will not be sustainable when the number of cases increases in the local community. During the WHO consultation, it was recognized that “as levels of morbidity and mortality mount during a pandemic, measures that made good sense at earlier phases – such as isolation of patients, contact tracing and voluntary quarantine... would cease to be effective or feasible because of the large number of cases.”<sup>(9)</sup>

<sup>10</sup> Patients in a health care facility should be managed according to infection control recommendations provided at the time. This recommendation acknowledges that public health may need to recommend a period of isolation for cases remaining in the community (i.e. home setting).

<sup>11</sup> At the time of the pandemic, it may be necessary for essential workers to return to work during their convalescent period while they may still be communicable. In this situation, the appropriate public health authority may make recommendations for these individuals to minimize the possibility of transmission (e.g. wear a mask when in public settings).

<sup>12</sup> Evaluative studies would not need to be implemented in all jurisdictions. To obtain rapid feedback, consideration should be given to coordinating these efforts. For example, different jurisdictions or sites might be asked to examine different aspects of the response.

## 5.3 Rationale

Isolation of cases early in the Pandemic Alert Period or early Pandemic Period in Canada may prevent secondary cases or slow the spread of the illness within the population.<sup>13</sup> This may also prevent or reduce disruption of the health care system by “flattening” the epidemic curve, i.e. reduce the demand for health care services from a short intensive outbreak to a more manageable level of demand over a longer period. This could also help reduce societal disruption and potentially buy time for vaccine manufacture and administration, thus mitigating the effects of the pandemic in the community as a whole.

Scrupulous hand and respiratory hygiene may decrease transmission of the virus, especially if the method of transmission is primarily droplet spread.

Treatment of individuals with presumptive novel or pandemic influenza who present within 48 hours of symptom onset (the period during which neuraminidase inhibitors are known to be most effective in terms of improving clinical outcome) is expected to reduce the duration of symptoms, rate of complications, and potentially decrease the period of communicability.<sup>14</sup> Recognizing that during the Pandemic Alert Period the number of cases will be limited, most cases should be able to be accommodated in hospital settings where infection control procedures are likely more consistent and rigorous compared to the home setting.

Individual case management early in the pandemic will facilitate the collection of epidemiological data that could be used to characterize how the virus presents in Canada. Ongoing evaluation of the epidemiological data from individual cases and comparisons with information from other affected countries may help focus control efforts.

Timely reporting of cases or broad indicators of pandemic impact<sup>15</sup> will enable public health authorities to track the progression of the pandemic throughout Canada. This will inform decision-making about all aspects of the response plan, including the allocation of limited supplies, effectiveness of surveillance and public health control measures, and it will facilitate consistent communication with all stakeholders including the public.

## 5.4 Feasibility and Requirements

Containment, if possible, will require the timely identification and immediate isolation of cases. Access to sufficient rapid tests for influenza A and subtyping results will help focus the intense efforts that are expected to be implemented should cases be identified in Canada prior to the onset of the global Pandemic Period (Phase 6). A laboratory-testing protocol that is endorsed by all involved parties will increase the feasibility of this intervention.

Basic hand and respiratory hygiene should always be facilitated by ensuring access to adequate supplies and equipment for all cases regardless of where they are cared for during their illness, (e.g. access to soap and running water or alcohol-based hand sanitizers). The availability of isolation rooms in hospitals will quickly become an issue, and it is likely that the establishment of dedicated wards or facilities will be necessary. As the pandemic progresses and hospitals reach

<sup>13</sup> If cases occur in Canada prior to the virus gaining the ability to be transmitted efficiently from human to human, aggressive measures and treatment may lead to containment.

<sup>14</sup> If during the Pandemic Alert Period a novel virus is causing severe disease, and data suggest that treatment initiation beyond the first 48 hours of symptoms is beneficial, this recommendation will be reviewed and changed as necessary.

<sup>15</sup> It is assumed that the surveillance protocol will be followed as much as possible. It will likely be necessary to switch to “broad indicators,” such as hospitalizations, clinic attendance or all-cause mortality, because tracking individual case counts will not be feasible beyond the earliest stages of the pandemic. (See Annex N for details regarding surveillance)

capacity, satellite or non-traditional health care sites may need to be established to deal with the increased demand.<sup>16</sup>

Keeping up with reporting requirements will require a dedicated team with pre-established communication protocols. Ideally, electronic databases with Web-based reporting will make this task more efficient. To effectively use broad indicators of pandemic impact, baseline data on these indicators should be collated at the local or regional level during the Interpandemic Period.

## **5.5 Impacts and Stakeholders**

Prior to pandemic activity in Canada, laboratories will be greatly affected by increased demands for influenza testing. (See Annex C, Laboratory Procedures, for recommendations during the Pandemic Alert Period and the Pandemic Period.)

When the activity level increases, the major impact will be on health care facilities with respect to demands for isolation rooms and wards, isolation supplies and the potential availability of staff to care for patients who may require intensive care. At a minimum, more staff time may be needed because of the requirements for isolation procedures.

Isolation at home will affect not only the patient but also the entire household because special precautions are recommended to minimize transmission in these settings (see section 6 below, Management of Contacts of Cases).

Increased reporting requirements and the need for ongoing updates on patient status (especially at the beginning of the pandemic when it is important to characterize the epidemiology of the pandemic in Canada) will impact both primary health care settings and public health authorities.

## **5.6 Anticipated Compliance and Acceptability**

If cases are detected in Canada prior to evidence of the efficient spread of the virus, compliance with isolation and infection control recommendations may vary and likely will be linked to the observed severity of illness in cases occurring at that time. If cases have already occurred elsewhere in the world, familiarity with the existence and outcomes of those cases may also affect compliance.

As public awareness of pandemic activity outside of Canada increases, there probably will be an increased expectation to protect the health of Canadians. Isolation of ill individuals as a control strategy will likely have high public acceptance, especially if the novel virus is causing severe illness and deaths. The potential effectiveness and role of scrupulous hand and respiratory hygiene in limiting the spread of the novel virus should be emphasized. The general public may perceive these basic “low-tech” measures as insufficient and therefore compliance may be less than optimal. With proper emphasis and consistent messaging by public health authorities, these basic measures, which include covering the mouth when coughing and frequent handwashing, could become so ingrained that it would be “socially unacceptable” to ignore them.

Compliance among isolated individuals will likely vary with severity of the illness and their perception of whether or not they are infected with the pandemic virus. Personal situations (e.g. the tolerance of employers and/or compensation available) may also affect compliance.

<sup>16</sup> The National Emergency Stockpile System (NESS) has approximately 33,000 beds and cots that are available in the 165 to 200 mobile hospitals and that can be requested through the NESS system.



Orders issued by public health officers or even the courts for isolation may be necessary in some situations; however, this “individual-focused” intervention likely could not be sustained beyond the earliest stages of the pandemic.

If the pandemic spreads to the degree that a community is severely affected and resources are exhausted, it is possible that self-isolation within the home, regardless of severity of illness, will gain acceptance as a control strategy.

## **6.0 Management of Contacts of Cases**

This section includes recommendations for the public health management of contacts of suspected or confirmed cases. For the purposes of this document, a “contact” is someone with face-to-face exposure within 1 metre of a case. The duration of a significant exposure is unknown; therefore, exposures will need to be considered as part of the risk assessment. Follow-up of contacts is expected to be more aggressive during the Pandemic Alert Period and possibly at the earliest stage of the Pandemic Period before public health resources are overwhelmed. This activity is expected to become less focused toward individuals as the pandemic progresses, with messages for contacts being conveyed primarily by public education campaigns as public health resources are re-directed towards other control strategies.

### **6.1 Recommendations**

- Health care workers who are contacts of cases due to occupational exposure should follow the directions provided by the occupational health and/or infection control departments within their facilities.
- Risk assessments should be performed to ensure that the recommendations included in this document are tailored to suit the specific situations, particularly prior to declaration of a pandemic (e.g. if the predominant clinical presentation is conjunctivitis, as opposed to more severe illness, then recommendations for activity restriction of close contacts may not include quarantine).
- All contacts of cases should be provided with information (in a format that takes into consideration literacy levels and language preferences) on:
  - personal protective measures (e.g. handwashing),
  - symptoms of ILI,
  - what to do if they develop symptoms (i.e. who to call and when),
  - how to seek medical attention for any reason, and
  - objectives and expectations with respect to any activity restrictions.
- Encourage contacts and members of their households to practice good hand and respiratory hygiene (e.g. frequent handwashing, covering mouth when coughing, etc.) and to frequently clean and then disinfect household surfaces that could be potentially contaminated, particularly during the 3 days following last exposure to a case.

- If a contact of a case develops one or more symptoms compatible with influenza, then they should be managed as per section 5, Public Health Management of Individuals with Influenza-like Illness, in this annex.
- Any use of antivirals for post-exposure prophylaxis during the Pandemic Alert Period should ideally be monitored with outcomes (break-through infection and any adverse events) being reported to the appropriate public health authority.
- As the number of cases and contacts increases, consider setting up telephone “hot-lines” and/or designated assessment clinics.

## Recommendations for Management of Contacts of Cases

### *Pandemic Alert Period: Sporadic activity in Canada – Phase 3.1*

**Indicator:** Single human case(s) with a novel virus subtype in the Canadian population, with no spread, or at most rare instances of spread to a close contact only. Outside of Canada, sporadic cases may be occurring with no spread, or at most rare instances of spread to a close contact only.

Monitoring	<ul style="list-style-type: none"> <li>▪ Trace contacts of cases and monitor for symptoms of illness for 3 days after last exposure to the case or for the duration of the incubation period associated with the novel virus, whichever is longer.</li> <li>▪ Monitoring for illness may be passive (i.e. contact is encouraged to self-monitor and report any illness) or active, with or without activity restrictions, depending on the specific situation and the discretion of the local medical officer of health.</li> </ul>
Activity Restriction	<ul style="list-style-type: none"> <li>▪ Consider advising contacts to defer travel to unaffected areas for duration of monitoring period.</li> </ul>
Antiviral Use	<ul style="list-style-type: none"> <li>▪ Do not routinely offer post-exposure prophylaxis with antiviral drugs to household members and other close contacts of human cases in the absence of any suspected human-to-human transmission; however, consider this strategy in severe or unusual cases or when limited human-to-human transmission cannot be ruled out.<sup>17,18</sup></li> </ul>

## Recommendations for Management of Contacts of Cases

### *Pandemic Alert Period: Sporadic activity in Canada – Phase 4.1 and Phase 5.1*

**Indicator:** Single human case(s) with a novel virus subtype in the Canadian population. Outside of Canada clusters resulting from human-to-human transmission are occurring but the virus has not demonstrated the efficiency of transmission necessary to cause a pandemic.

Monitoring	<ul style="list-style-type: none"> <li>▪ Trace contacts of cases and implement active surveillance for symptoms of illness for 3 days after last exposure to the case or for the duration of the incubation period associated with the novel virus, whichever is longer.</li> </ul>
------------	---

<sup>17</sup> This precautionary measure is intended to reduce the risk that a contact of a case transmits the infection when it is unclear whether human-to-human transmission is occurring.<sup>(1)</sup>

<sup>18</sup> See reference (3) under References for additional recommendations regarding contacts of non-human cases of novel (avian or animal) influenza.

Activity Restriction	<ul style="list-style-type: none"> <li>▪ If contacts are promptly identified (i.e. within the incubation period), quarantine them or at a minimum ask them to restrict contact with others for 3 days after last exposure to the case or for the duration of the incubation period, whichever is longer.</li> <li>▪ Recommend that contacts refrain from travelling for duration of monitoring period.</li> </ul>
Antiviral Use	<ul style="list-style-type: none"> <li>▪ Consider use of antivirals for post-exposure prophylaxis, depending on the resistance status of the novel virus.<sup>19</sup></li> </ul>

## Recommendations for Management of Contacts of Cases

### *Pandemic Alert Period: Localized or widespread cluster activity in Canada – Phase 4.2*

**Indicator:** Small localized cluster(s) occurring in Canada with “limited” (Phase 4) pandemic risk based on various factors, e.g. rate of transmission, geographic localization and spread, severity of illness, impact of control measures, presence of genes from human strains (if derived from an animal strain), other information from the viral genome and/or other scientific information.

Monitoring	<ul style="list-style-type: none"> <li>▪ Aggressively trace contacts of cases and implement active surveillance for illness in these individuals.</li> </ul>
Activity Restriction	<ul style="list-style-type: none"> <li>▪ If contacts are promptly identified for the cases (i.e. within the known or expected incubation period), quarantine these individuals or at a minimum ask them to restrict their contact with others for a period of 3 days after last exposure to the case or for the duration of the incubation period associated with the novel virus, whichever is longer.</li> <li>▪ Recommend that contacts refrain from travelling for the duration of monitoring period.</li> </ul>
Antiviral Use	<ul style="list-style-type: none"> <li>▪ Consider the use of antiviral drugs for post-exposure prophylaxis of close contacts, depending on the resistance status of the novel virus.</li> <li>▪ Public health authorities will likely coordinate the distribution of antivirals for this purpose; this strategy will be used in the Pandemic Alert Period in an attempt to control the spread of the novel virus.</li> <li>▪ Discontinue this strategy once a pre-determined trigger (e.g. detection of community spread) is met or the supplies dedicated for this early control/containment strategy are exhausted<sup>20</sup>.</li> </ul>

## Recommendations for Management of Contacts of Cases

### *Pandemic Alert Period: Localized or widespread cluster activity in Canada – Phase 5.2*

**Indicator:** Cluster(s) occurring in Canada with “substantial” pandemic risk based on various factors, e.g. rate of transmission, geographic localization and spread, severity of illness, impact of control measures, presence of genes from human strains (if derived from an animal strain), other information from the viral genome, and/or other scientific information).

<sup>19</sup> The decision to quarantine would be based on the risk assessment, which takes into consideration the specifics of the situation(s), including the severity of illness and the pandemic potential of the virus.

<sup>20</sup> At this time a decision regarding any prophylaxis indications for the Pandemic Period, including post-exposure prophylaxis of close contacts, has not been reached and the size of the national stockpile has not been increased to accommodate this or any other prophylaxis indications.

Monitoring	<ul style="list-style-type: none"> <li>▪ Aggressively implement protocols for influenza case and outbreak management as long as possible<sup>21</sup> with consideration of the recommendations for infection control in Annex F<sup>22</sup>.</li> <li>▪ Assessment of exposure may involve identifying possible exposure sites (e.g. schools, workplace) rather than trying to identify individuals that were in close contact with the case.</li> <li>▪ If feasible consider active surveillance for close contacts of the case(s).</li> <li>▪ Facilitate and encourage self-monitoring for ILI for individuals linked to possible exposure sites but with unknown exposure to the case(s).</li> <li>▪ Provide the necessary instructions and resources to permit those who are self-monitoring to report of any early signs of ILI immediately (24 hours/day, 7 days/week) and to receive instructions regarding isolation and medical management.</li> </ul>
Activity Restriction	<ul style="list-style-type: none"> <li>▪ Quarantine close contacts and individuals linked to the exposure sites or at a minimum ask these individuals to restrict their contact with others for a period of 3 days after last exposure to the case or for the duration of the incubation period associated with the novel virus, whichever is longer.</li> <li>▪ If not quarantined, recommend that contacts and individuals linked to exposure sites refrain from travelling for the duration of monitoring period.</li> </ul>
Antiviral Use	<ul style="list-style-type: none"> <li>▪ Consider the use of antiviral drugs for post-exposure prophylaxis of close contacts, depending on the availability of the drugs and resistance status of the novel virus.</li> <li>▪ Public health authorities will likely coordinate the distribution of antivirals for this purpose; this strategy will only be used in the Pandemic Alert Period in an attempt to control the spread of the novel virus.</li> <li>▪ Discontinue this strategy once a pre-determined trigger (e.g. detection of community spread) is met or the supplies dedicated for this early control/containment strategy are exhausted.<sup>23</sup></li> </ul>

## Recommendations for Management of Contacts of Cases

### *Pandemic Period: Sporadic activity in Canada – Phase 6.1*

**Indicator:** Single human case(s) with the pandemic virus detected in Canada. No cluster(s) identified in Canada.

**Note:** If the incubation period, period of communicability and method of transmission for the novel strain is consistent with other known influenza strains, it is likely that this phase will have a very short duration and may not occur at all in Canada (i.e. novel virus activity may not be detected prior to the occurrence of a cluster of cases).

<sup>21</sup> It is recognized that individual case management by public health authorities will not be sustainable and, depending on the geographical distribution of cases, may need to be discontinued before the Pandemic Period in jurisdictions that are heavily impacted during the Pandemic Alert Period.

<sup>22</sup> For example, this may include triage and provision of surgical masks to patients with respiratory illness presenting for a medical assessment (when pandemic influenza cases have already occurred in the specific community).

<sup>23</sup> At this time a decision regarding any prophylaxis indications for the Pandemic Period, including post-exposure prophylaxis of close contacts, has not been reached and the size of the national stockpile has not been increased to accommodate this or any other prophylaxis indications.

Monitoring	<ul style="list-style-type: none"> <li>Identify possible exposure settings and instruct all close contacts of the case(s) and individuals linked to the exposure setting (e.g. passengers on same flight) to self-monitor for early signs of ILI for 3 days after last exposure to the case or for the duration of the incubation period associated with the novel virus, whichever is longer.</li> <li>Provide the necessary instructions and resources to permit those who are self-monitoring to report of any early signs of ILI immediately (24 hours/day, 7 days/week) and to receive instructions regarding isolation and medical management.</li> </ul>
Activity Restriction	<ul style="list-style-type: none"> <li>Educate known and potential contacts of cases about the period of communicability for influenza and the need to isolate themselves immediately should they start to develop signs of ILI.</li> <li>Discourage travel during the self-monitoring period.</li> </ul>
Antiviral Use	<ul style="list-style-type: none"> <li>At this time a decision regarding any prophylaxis indications for the Pandemic Period, including post-exposure prophylaxis of close contacts, has not been reached and the size of the national stockpile has not been increased to accommodate this or any other prophylaxis indications.</li> </ul>

## Recommendations for Management of Contacts of Cases

### *Pandemic Period: Localized or widespread activity in Canada – Phase 6.2*

**Indicator:** Sustained transmission of the virus resulting initially in clusters followed by localized and widespread activity in the general Canadian population.

Monitoring	<ul style="list-style-type: none"> <li>As the number of cases and subsequent contacts increases, advice to contacts should be incorporated in messages directed to the affected community as a whole.</li> <li>Provide guidance on how to monitor for signs of ILI (e.g. recording temperature or identifying respiratory symptoms).</li> <li>Contact follow-up may intensify in order to identify the end of a pandemic wave when pandemic activity appears to be declining.</li> </ul>
Activity Restriction	<ul style="list-style-type: none"> <li>If quarantining of contacts was previously implemented, consider discontinuing this practice during this phase, i.e. when the virus is known to be efficiently spreading from human to human and resources might be better allocated for other activities.</li> </ul>
Antiviral Use	<ul style="list-style-type: none"> <li>At this time a decision regarding any prophylaxis indications for the Pandemic Period, including post-exposure prophylaxis of close contacts, has not been reached and the size of the national stockpile has not been increased to accommodate this or any other prophylaxis indications.</li> </ul>

### Post-Pandemic Period

**Indicator:** Reports of cases counts and other broad indicators of pandemic activity in Canada suggest that the pandemic virus is no longer causing significant illness in the population.

- Consider evaluation activities that examine the effectiveness of the contact management strategies employed during the pandemic wave(s).

## 6.2 Goals and Anticipated Outcomes

- Identification of infected contacts of cases prior to their becoming communicable
- Early detection of additional cases, decreasing interval between onset of communicability and isolation
- Potential limitation of spread or slowing of the spread
- People in close contact with cases will have the knowledge about how to reduce the possibility of further exposure to the virus.
- Gain knowledge about the impact of implemented strategies

## 6.3 Rationale

If outbreaks occur in Canada while transmission of the virus is still relatively inefficient (i.e., during the Pandemic Alert Period), containment may be possible if prompt and effective contact management, including activity restriction and quarantine, and potentially the prophylactic use of antiviral drugs can be implemented.

Ensuring that those individuals who are known to have had contact with a case are appropriately monitored and informed about whom to contact should they become symptomatic will facilitate early case detection and early antiviral treatment. At the start of the pandemic, epidemiological data available from these early cases will be helpful in characterizing the pandemic activity and epidemiology in Canada. This information will further inform the response, especially interventions requiring the identification of high-risk groups.

Because supplies of antiviral drugs may be limited for the containment strategy, targeted use is recommended for contacts of the first cases identified in an area during the Pandemic Alert Period when human-to-human transmission is known to be occurring. This attempt to decrease spread of the virus will likely have limited application because it will not be operationally feasible once widespread community transmission occurs.

The public health authority is responsible for providing information on how to manage any potential illness in contacts of cases or members of their households and on how to reduce the chance of viral infection. By doing so, individuals (and the community as a whole) will perceive the public health authority as an engaged partner in this health care crisis and a credible presence in any future public health interventions (especially with regard to potentially less popular strategies that may involve prioritizing limited supplies).

## 6.4 Feasibility and Requirements

The use of quarantine is not anticipated to be as effective for influenza compared with other diseases with longer incubation periods. But if cases and clusters occur in Canada prior to the onset of the pandemic, it will be essential to implement restrictions on activities in order to try to contain the outbreak(s). This intervention will be most successful if the cases and subsequently their contacts are identified very quickly after onset of illness in the case and if the novel strain is not being efficiently transmitted among humans (as in the Pandemic Alert Period). Given these caveats, the use of individual quarantine measures should be employed at the discretion of the local public health authority and only when appropriate resources can be allocated to this effort.

Quarantining contacts will require extensive public health resources; its success as a containment and control strategy is contingent on thoroughness of contact tracing, rapid implementation and ongoing monitoring. These efforts will not be sustainable beyond the Pandemic Alert Period and, depending on the size of the outbreaks, they may need to be discontinued during the Pandemic Alert Period (i.e., prior to Phases 6.1 and Phase 6.2 in Canada).

Providing information to contacts will be done initially on an individual basis by fact sheets or telephone advice. This will require trained staff who have access to the list of contacts that have been generated by the case investigation process. This approach may be feasible early in the pandemic, but it will quickly need to change to a more efficient population-based strategy (see section 3, Public Education, in this annex).

The availability of antiviral drugs and dedicated human resources will dictate the feasibility of implementing post-exposure prophylaxis for contacts of cases. Public health authorities will likely be involved in overseeing that drugs are dispensed to the targeted individuals.

Due to the epidemiology of influenza (e.g. the possibility of transmission prior to onset of symptoms), it would be extremely difficult to evaluate how the contact management strategies will affect pandemic activity in any one community. However from a resource management perspective, it may be worthwhile to examine how resources are allocated for the purpose of contact management and whether any changes can be made to these strategies to improve the efficiency of the overall pandemic response.

## **6.5 Impacts and Stakeholders**

The occurrence of a case will immediately increase the number of “stakeholders” because contacts of the case will be seeking advice on the mitigation of personal risk. The local public health authority may be overwhelmed with inquiries and the need to collect information on contacts soon may be superseded by other priorities. For educational and communication purposes, the entire population should be considered potential contacts of a case in this situation.

## **6.6 Anticipated Compliance and Acceptability**

If cases are detected in Canada prior to evidence of the efficient spread of the virus, compliance with quarantine and infection control recommendations may vary and likely will be linked to the observed severity of illness in cases occurring during that time.

In light of the SARS experience of 2003 where contacts of cases were notified and monitored by local public health authorities throughout the outbreak(s),<sup>(5)</sup> the public may not understand why contacts of the novel influenza cases may not be notified and put into quarantine or why this strategy may be employed only at the start of activity in Canada. A proactive education campaign may increase acceptability of the proposed recommendations, which exclude routine quarantine during the Pandemic Period. It is important to recognize and be prepared to deal with individuals who choose to self-quarantine or other institutions (e.g. schools, workplaces) that may implement their own quarantine rules.

If antiviral drugs are initially made available for contacts of the first cases in a particular jurisdiction, it will be difficult to discontinue this intervention when it is no longer feasible or effective from a population perspective or if it is not a recommended use of antivirals from the national stockpile during the Pandemic Period. The public will need to be informed in advance about strategies for the availability of antivirals and reasons for these strategies. This information will facilitate the

acceptance of public health decisions that focus on the main objective of reducing the overall number of cases and deaths. Two concepts will need to be addressed by educational and risk-communication messaging to optimize compliance and facilitate acceptance to public health decisions; these are that certain public health measures will need to change as the pandemic evolves and that the use of the drugs in the national stockpile has been based on national-level decisions to facilitate equitable access and optimal usage across Canada.

Evaluation activities may be more successful if they are coordinated to ensure that selected sites examine specific issues, thus potentially reducing duplication of effort and the need for all sites to participate. This approach may improve the acceptability of evaluation activities among health authorities in jurisdictions that are still recovering from the pandemic.

## **7.0 Community-Based Disease Control Strategies**

Controlling the spread of influenza in the community likely will not be possible without an effective vaccine, assuming that the novel virus will cause illness with similar characteristics to other influenza A infections. Specifically, the short incubation period, high infectiousness, ability of the virus to survive for extended periods of time on environmental surfaces, non-specific clinical symptoms, and potential for asymptomatic infection and spread from asymptomatic individuals greatly limits the effectiveness and feasibility of most traditional public health control measures. During the SARS outbreak, no vaccine or virus-specific drugs were available for treatment or prophylaxis; therefore, the need to effectively isolate communicable cases and identify and quarantine their respective contacts became paramount. A recent modeling exercise concluded that influenza would be “difficult to control even with 90% quarantining and contact tracing because of the high level of presymptomatic transmission.”<sup>(6)</sup>

Because the potentially high attack rate of a novel virus in the general population will stretch all existing health care resources, ideally planners should consider dedicating resources only to measures that will effectively mitigate the impact of the pandemic. Unfortunately most community-based measures under consideration, including the widespread use of masks, cancellation of public gatherings and closure of schools and businesses, have been anecdotally reported to be ineffective, or their effectiveness has not been formally evaluated. The use of mathematical modeling to predict the potential effectiveness of these types of interventions may provide estimates of their impacts that will help in the development of future planning documents.

Despite the absence of data on effective measures, it is recommended that the conclusions related to the measures or actions described below should be considered when planning for a pandemic. These recommendations are based mainly on expert opinion and are intended to facilitate a consistent approach. They are not intended to supersede the implementation of any measures that may be directed by P/T authorities.

The triggers for the following measures will depend both on the measure and on the way the pandemic unfolds. In general, decisions about implementing these measures will likely be made by the local public health authority (i.e. Medical Officer of Health). However, it is recognized that directions may also be forthcoming from the P/T or regional levels to ensure the consistency of a broad-based approach.



## **7.1 Strengthen Recommendations to Stay Home from Public Events and Locations (i.e. Self-Isolate) If You Have Fever and New Onset of Respiratory Symptoms<sup>24</sup>**

### **Trigger**

- Arrival of one or more confirmed cases in the P/T. Local authorities should reinforce this recommendation when cases occur in their jurisdiction.

### **Advantages**

- Potential to decrease the number of people exposed to an ill person and therefore decrease (or delay) the spread of disease
- Easy to implement as a “recommendation for the public”
- Likely to have high public acceptance

### **Disadvantages**

- Compliance will vary and will not be measurable (therefore effectiveness will not be quantifiable)
- May result in unnecessary absenteeism among essential workers because, based on the non-specific symptoms, individuals ill due to other causes will end up staying home
- Potential expectation for public health authorities to provide resources to “enforce” the recommendation

### **Conclusion**

This measure is sensible, feasible and easy to implement from a public health perspective. Despite being potentially disruptive to businesses and society as a whole, it may delay the spread of the disease within the community. This “flattening out” of the epidemic curve is beneficial because it may reduce the demand for health care services on any particular day or week and result in a high but manageable level of demand over several weeks instead.

- Strongly recommend implementation

## **7.2 Close Schools and Daycare Centres**

### **Trigger**

Declaration of one or more confirmed cases in the local community by the local public health authority (i.e. confirmation of pandemic presence), depending on the epidemiological context (i.e. extent to which these settings are expected to contribute to transmission based on observed age of cases, etc.). It is not necessary or desirable to wait until spread in these settings is demonstrated.

---

<sup>24</sup> Individuals with chronic respiratory conditions should consider staying home if they have onset of fever and an exacerbation of respiratory symptoms.

### **Advantages**

- Children are known to be efficient transmitters of influenza; closing schools and large daycare facilities may reduce transmission or delay spread of the disease (in this age group and in younger siblings, parents and close contacts of school and daycare attendees).
- Most public health authorities have the legal authority to implement this measure and have a working relationship with school boards.

### **Disadvantages**

- Alternate arrangements will need to be made for child care which may lead to “gatherings” of children outside of the school setting thus contradicting the intended benefit of the school closure.
- Only applies to school-age children and children attending large daycare facilities
- Essential workers might be diverted to child-care responsibilities.

### **Conclusion**

This measure is feasible and would be most effective if the pandemic was causing high attack rates in pre-school or school-age children. It is recognized that school boards or daycare administrators may choose to independently close their facilities regardless of the epidemiology of the pandemic. The Working Group recommends this measure as a key consideration for decreasing transmission of influenza in a community.

- Recommend implementation be considered

## **7.3 Restrict Indoor Public Gatherings (other than schools)**

**(e.g. close theatres and other venues where large amounts of people gather indoors in close proximity, halt mass public transportation services)**

### **Trigger**

When the local public health authority indicates that transmission is occurring within the community<sup>25</sup>

### **Advantages**

- Decreases the number of venues in which spread to a large number of people is possible

### **Disadvantages**

- May feed public panic and cause societal disruption
- Negative economic impact on business owners (may generate compensation claims)
- Sustainability for the duration of the pandemic wave may be problematic, especially when the pandemic activity is widespread.

<sup>25</sup> These types of measures would be likely be most effective prior to cases with transmission occurring in the community. However in the absence of disease, it would be difficult to justify this type of drastic measure for which there is no sound data for its effectiveness.

## Conclusion

This type of measure may be feasible but compliance and sustainability might be difficult, especially because effectiveness is unproven. This is particularly true for gatherings and activities that are considered “essential” (e.g. public transportation) and would cause significant societal disruption should they be discontinued.

If the epidemiology of the pandemic suggests higher morbidity and/or mortality in a specific group of individuals (e.g. adolescents), then canceling events known to attract this specific high-risk group should be considered, especially if the virus is being efficiently transmitted. The objective of these targeted cancellations or restrictions would be to avoid a sudden increase in demand for health care services as a consequence of a “spike” in cases due to efficient transmission at a large gathering.

Once the virus is circulating in a community, indoor gatherings at events or at locations for businesses may be suspended without public health intervention because of public reluctance to participate in large gatherings. Because the effectiveness of this measure is unknown and it may be difficult to sustain, the Working Group does not recommend its broad implementation. However, it is recommended that those who are involved in hosting large gatherings ensure the availability of hand-sanitation supplies in public washrooms.

- Not recommended for broad implementation
- Consider if high-risk gatherings can be identified

## 7.4 Use of Masks by Well Individuals

### Trigger

Declaration of the arrival of one or more confirmed cases in the local community by the local public health authority

### Advantages

- May decrease exposure to large droplets containing virus
- Psychologically reassures people that they are taking measures to prevent infection

### Disadvantages

- Hands and other surfaces may be contaminated when mask is removed (requires public education).
- May cause panic if the availability of masks is limited
- Public purchase of masks may limit the availability of masks in health care settings where they are required.
- Not all members of the public can afford to purchase masks. If recommended by public health authorities, there could be an expectation that they will be publicly funded and provided by public health programs.
- It is not feasible to wear masks constantly for the duration of pandemic wave.
- Use of masks, apart from other infection control practices, is of limited effectiveness and may provide a false sense of security.

## Conclusion

This measure is not feasible or sustainable on a population basis. It is not likely to be effective in reducing disease spread in the general population and therefore is not recommended as a community-based strategy. It is acknowledged that individual people who are wearing a recommended mask properly at the time of an exposure may benefit from the barrier that a mask provides. The WHO has recommended that mask use by the public should be based on risk, including frequency of exposure and closeness of contact with infectious persons and suggests that based on this risk assessment use of masks in crowded settings such as public transit may be justified.<sup>(7)</sup> At the time of a pandemic, however, when the virus is circulating in the community it will not be possible for public health authorities to assess and compare risks of exposure in specific public settings (e.g., public transit, restaurants, recreational complexes). Therefore, members of the public may wish to purchase and use masks for individual protection; however, outside of known high-risk settings (e.g. a hospital with cases) this would not be an appropriate use of public resources.

Well individuals caring for cases in a non-traditional site or home setting should follow the recommendations provided by the Infection Control Working Group for individuals functioning in this capacity (see Annex F).

- Not recommended as a community-based intervention or measure

## 7.5 Implement Hand-Sanitizing Stations in Public Settings

(e.g. public transit settings)

### Trigger

When the local public health authority indicates that transmission is occurring within the community

### Advantages

- May increase frequency of handwashing and therefore reduce spread of disease
- Reinforces key message about handwashing

### Disadvantages

- Effectiveness depends on public compliance
- Will not be effective against droplet spread via coughs and sneezes
- Requires human and financial resources to keep stations adequately supplied
- Potentially expensive to supply and maintain
- May give people a false sense of security

## Conclusion

Frequent handwashing is an effective infection control measure when dealing with people known to be infectious. This measure is feasible, but maintaining these hand-sanitizing stations at the time of a pandemic would likely be possible only if the responsibility of supplying them could be assumed by organizations other than public health ones.

The effectiveness of public hand-sanitizing stations as a community-based strategy in a pandemic situation is unknown and would be largely influenced by public compliance, which could be highly variable, and the proportion of infectious individuals in public places at any given point in time. Therefore, this measure (i.e. the establishment of new sanitizing stations) is not considered to be effective for significantly reducing the spread of the disease in the general population. It is not recommended as a community-based strategy because of its anticipated minimal incremental benefit.

Public messaging about handwashing must be encouraged and existing public washrooms should be appropriately stocked with supplies at all times. However for the reasons previously stated and the difficulty in maintaining these stations at the time of a pandemic, the establishment of new hand-sanitizing stations in public settings is not considered to be an appropriate use of public resources.

- Not recommended as a community-based intervention or measure

## **7.6 Increase Frequency of Cleaning of Surfaces in Public Settings** (e.g. public transit settings, large institutions, businesses)

### **Trigger**

When the local public health authority indicates that transmission is occurring within the community

### **Advantages**

- May remove viable virus from frequently touched surfaces and therefore reduce spread of disease
- Reinforces key message about mode of transmission and personal hygiene

### **Disadvantages**

- Requires resources to maintain cleanliness
- Impossible to “target” cleaning efforts
- Efficacy depends on frequency and quality of cleaning (with appropriate supplies and techniques)
- Optimal frequency of cleaning cannot be determined and could be unsustainable during the peak of the epidemic in the community
- Potentially expensive

### **Conclusion**

Environmental cleaning is most effective when dealing with surfaces associated with people known to be infectious. Increasing the frequency of cleaning is feasible, but identifying infectious individuals in public settings is not. The frequency of hand contact with various “public” surfaces would virtually require constant cleaning to have any effect on reducing the number of microorganisms on these surfaces. Realistically, this measure cannot be implemented; therefore, it is not recommended for broad use as a community disease containment strategy.

Individuals who may want to reduce their risk of exposure to infectious droplets may want to consider more frequent cleaning of their own environments and limiting hand contact with “public surfaces” (e.g. elevator buttons, public telephones).<sup>26</sup> These strategies could be included in public education messages.

- Not recommended as a community-based intervention/measure.

## 7.7 Other Measures NOT Recommended for Implementation

All of the measures or general principles addressed in this document were also raised during the WHO international consultation process (March 2004), as outlined in the meeting report.<sup>(1)</sup> The consensus was that the measures that follow were either not necessary or not appropriate. The Public Health Measures Working Group also agrees with these conclusions.

Measure	Comments
Urge entire population in an affected area to check for fever at least once daily	<ul style="list-style-type: none"> <li>▪ A potential measure to decrease interval between symptom onset and patient isolation; however, this has not been effective in other situations</li> </ul>
Introduce thermal scanning into public places	<ul style="list-style-type: none"> <li>▪ Experience has not shown this measure to be effective</li> </ul>
Widespread environmental or air disinfection	<ul style="list-style-type: none"> <li>▪ Not practical</li> </ul>
Disinfect clothing, shoes or other objects of persons exiting affected areas	<ul style="list-style-type: none"> <li>▪ Not recommended for public health purposes</li> <li>▪ May be required by veterinary authorities to prevent spread of infection in animals</li> </ul>
Restrict travel to and from affected areas	<ul style="list-style-type: none"> <li>▪ Enforcement considered impractical in most countries</li> <li>▪ Likely to occur voluntarily when risk is appreciated by the public</li> </ul>
Cordon sanitaire	<ul style="list-style-type: none"> <li>▪ Enforcement considered impractical</li> </ul>

## 8.0 Isolated Communities

Some of the community-based interventions and travel and border-related measures in this document might be more feasible for isolated communities than for heavily populated areas. This is because potential community-exposure sites may be identified more easily in isolated communities, and the movement of individuals can be monitored or possibly restricted. It has been anecdotally reported that during the 1918 and 1919 Spanish flu pandemic, small villages in Alaska that stringently restricted movement in and out of the village remained free of influenza. While this measure may not be possible in this day and age, there may be a greater potential in isolated communities than in more populated regions to delay the introduction of the pandemic strain until vaccines are available. Pandemic planners for these areas should consider engaging the residents in the planning process in order to investigate their potential support for these restrictive but potentially helpful early measures.

<sup>26</sup> During the 1918 and 1919 Spanish Flu pandemic, there are anecdotal reports that greeting by shaking hands was discouraged.

## 9.0 Travel and Border-Related Measures

An extensive list of public health measures that could be considered at the international level is addressed in the report from the WHO international consultation on this subject.<sup>(1)</sup> In general, entry screening for travellers from affected areas is not encouraged, with the exception of geographically isolated infection-free areas (e.g. islands) where it is considered to be potentially more feasible. There was consensus however on potential value of exit screening for all travellers from areas with human infection when human-to-human transmission was known to be occurring (i.e. starting in the Pandemic Alert Period, Phase 4 and Phase 5). This could be achieved by using health declarations and questionnaires, and possibly temperature screening, in combination with widespread messaging that recommends ill persons to postpone travel. Implementing “stop lists” (i.e. of isolated or quarantined persons) was considered feasible for certain countries, but generally it was not encouraged nor was medical examination for travellers at risk or with fever.

The following text is organized by pandemic period and phase. It is intended to document travel and border-related measures that may be implemented in Canada in response to the evolving pandemic whether it originates outside of Canada (i.e. International Origin) or inside of Canada (i.e. Domestic Origin). It is intended to provide guidance on potential P/T and local public health roles in travel and border-related measures.

### International Origin: Canadian Pandemic Phase 3.0

**Indicator:** Human infection(s) with a novel virus subtype occurring in one or more locations outside of Canada, but little immediate pandemic risk (no spread, or at most rare instances of spread to a close contact only).

#### Advisories

A Travel Health Advisory will be posted on the PHAC Web site to inform travellers about the occurrence of human infections in specific international geographic regions and recommend personal health measures to reduce health risks. Advisories will recommend pre-travel medical consultation for individual risk assessment and post-travel medical assessment for illness that occurs during travel or develops on return.

#### Public health measures

- Be prepared to respond to news releases and travel health advisories posted on international and domestic public health Web sites (e.g. PHAC, WHO) informing travellers of the occurrence of human infection with a novel influenza virus<sup>27</sup> in a specific international geographic region.
- Provide updates to health care professionals to:
  - Raise awareness among health care professionals providing pre-travel consultations,
  - Increase awareness of the “travel” risk factors for infection with the novel virus among health care professionals assessing ILI in returning travellers, and
  - Ensure that the recommended surveillance measures, infrastructure and links are in place. (The Surveillance Section of the Plan, which is currently being developed for the next edition of the Plan, will contain specific recommendations.)
- Manage any cases from a public health perspective (see section 5, Public Health Management of Individuals with Influenza-like Illness, in this annex).

<sup>27</sup> This may have been preceded by media attention and alerts about outbreaks in avian or animal populations in which the public would be advised to avoid contact with possible sources of the virus (e.g. poultry farms, live animal markets).

## Domestic Origin: Canadian Pandemic Phase 3.1

**Indicator:** Human infection(s) with a novel virus subtype in the Canadian population, but little immediate pandemic risk (no spread, or at most rare instances of spread to a close contact only).

### Advisories

In collaboration, the Council of Chief Medical Officers of Health (CCMOH) and PHAC could post (on the PHAC Web site) a Travel Health Advisory informing Canadians about the occurrence of human infections in a specific domestic geographic area. This advisory would provide up-to-date and comprehensive information about any health risks and indicate whether or not there are recommendations not to travel to the affected geographic area, i.e. the area defined by the local or P/T public health authority where the case(s) occurred. Dissemination of the Travel Health Advisory beyond posting on the PHAC Web site would be dictated by both the CCMOH and PHAC. This could involve direct messaging to specific audiences (e.g. Canadian Medical Association) or to the media.

### Public health measures

- Be prepared to respond to news releases and public health Web site postings (PHAC and WHO) that inform international travellers to Canada and the general Canadian public of the occurrence of human infection with a novel influenza virus<sup>28</sup> in a specific geographic region of Canada.
- Provide updates to health care professionals to:
  - Raise awareness among Canadian health care professionals who may be required to respond to their clients requests for information regarding their risks, should they be travelling to the affected geographic area in Canada;
  - Increase awareness of the travel-risk factors for infection with the novel virus among health care professionals who may assess persons with ILI who have visited or recently left the affected geographic area; and
  - Ensure that the recommended surveillance measures, infrastructure and links are in place. (The Surveillance Section of the Plan, which is currently being developed for the next edition of the Plan, will contain specific recommendations.)
  - Manage any cases from a public health perspective (see section 5, Public Health Management of Individuals with Influenza-like Illness, in this annex).

## International Origin: Canadian Pandemic Phase 4.0, Phase 4.1, Phase 5.0 and Phase 5.1

**Indicator:** Cluster(s) occurring outside of Canada with “limited” (Phase 4.0) or “substantial” (Phase 5.0) pandemic risk based on various factors, e.g. rate of transmission, geographic localization and spread, severity of illness, impact of control measures, presence of genes from human strains (if derived from an animal strain), other information from the viral genome and/or other scientific information. Sporadic imported cases may or may not be occurring in Canada (denoted by Phase 4.1 and Phase 5.1).

<sup>28</sup> Ibid.



## Advisories

Based on available information, either a Travel Health Advisory or a Travel Warning will be posted on the PHAC Web site to inform travellers about the occurrence of human-to-human transmission in a specific international geographic region(s) and to recommend deferral or delay of all non-essential travel to a specific destination. This may be targeted to readily identified groups who are potentially at very high risk or to all travellers, depending on the situation.

PHAC may consider disseminating public health messages by other means (e.g. posters, TV monitors, large video screens) at ports of entry. Provinces and territories will be notified about these decisions, and they will be consulted with regard to the content of messages that have implications about the provision of public and clinical health services in their jurisdictions.

## Public health measures

- Manage any cases arriving or identified in Canada as specified under section 5, Public Health Management of Individuals with Influenza-like Illness, in this annex (also see “Screening logistics” below).
- Manage any contacts of cases as specified under section 6, Management of Contacts of Cases, in this annex (also see “Contact management logistics” below).
- P/T and local public health authorities need to consider how to manage travellers from affected areas who are advised to self-monitor for fever:
  - may initially involve direct public health follow-up and monitoring of contacts,
  - may involve designated phone lines for self-reporting by symptomatic travellers, and
  - may involve establishing local public health designated assessment sites that would be linked to public health surveillance activities.
- Ensure appropriate and timely dissemination of Travel Health Advisory and Travel Warning updates (may include further publicizing of the Web site).
- Provide latest outbreak information, guidance and support to government and non-government officials and the institutions they represent (for PHAC this would likely include port authorities, Canada Border Services Agency, the Royal Canadian Mounted Police and international air carriers)
- F/P/T and local public health authorities will need to collaborate on advance notification of the arrival of ill travellers, and assessing, releasing or detaining and transferring ill travellers for medical examination.
- PHAC will implement Traveller Contact Information Forms (TCIFs) if deemed necessary on appropriate air carriers:
  - initially at Customs, and
  - within 48 hours on selected air carriers.
- PHAC will distribute Health Alert Notices at points of entry to international returning travellers:
  - initially on debarkment, and
  - within 48 hours on selected air carriers.
- PHAC and P/Ts will consider implementing additional public educational materials (e.g. posters, TV monitors, video screens) at all arrival sites in ports of entry to reinforce the messages in Health Alert Notices

## Screening logistics

Health assessments for arriving ill travellers will continue to be conducted as usual, under the authority of the Quarantine Act. Screening by thermal scanning, visual inspection or other means of all arriving international travellers or those arriving from specific geographical regions will not likely be considered. Participants at the WHO international consultation meeting did not consider such screening to be effective but rather to be “one example of a resource-intensive intervention that might nonetheless be introduced in response to public and political pressure.”<sup>(1)</sup>

## Contact management logistics

Contact tracing will be initiated for those arriving on international conveyances (i.e. airplanes, ships) with a confirmed case (or suspect case, as deemed necessary). The operational framework to access contact information of airline passengers will be left to the discretion of P/Ts.

Passengers could be directly contacted using the contact information collected from the flight manifest or from TCIFs if they have been filled out on air carriers. Alternatively, passengers could be contacted through public messaging by media sources.

If P/Ts chose to contact passengers directly, they will need to make a formal request that PHAC obtain the flight manifest or forward on the appropriate TCIFs for the flights of concern. To access the flight manifest, the PHAC will formally request passenger contact information from airline carriers and forward this information to the appropriate domestic and international public health officials so that they can contact individual travellers directly. To facilitate contact tracing of travellers, the TCIF system can be implemented on selected air carriers.

As the occurrence of clusters of cases continues or increases, contact tracing and notification will likely be conducted indirectly (passively) by public messaging rather than by actively attempting to directly contact each individual traveller. This transition to indirect tracing may occur in specific areas of Canada before the declaration of a pandemic, if these areas experience such a high level of activity during this alert period that the sustainability of available resources for this initiative becomes an issue.

## Domestic Origin: Canadian Pandemic Phase 4.2 and Phase 5.2

**Indicator:** Cluster(s) occurring in Canada with “limited” (Phase 4.2) or “substantial” (Phase 5.2) pandemic risk based on various factors, e.g. rate of transmission, geographic localization and spread, severity of illness, impact of control measures, presence of genes from human strains (if derived from an animal strain), other information from the viral genome and/or other scientific information).

## Advisories

In collaboration, CCMOH and PHAC may recommend postponement of all non-essential travel to an affected geographic area within Canada. This recommendation can be targeted to readily identified groups of travellers who are potentially at very high risk or to all travellers, depending on the epidemiological data available from the affected area.

Health Alert Notices can be distributed at points of entry to the affected area(s) by P/Ts. These notices will contain (i) outbreak information consistent with information provided in travel advisories and other formal communications, (ii) guidelines or a questionnaire for self-screening, and (iii) guidelines for reporting to health care professionals or other officials specified symptoms (e.g. fever) that start during the interval that is consistent with the observed or known incubation

period. Provinces and territories might consider disseminating similar public health messages at mass transit facilities that serve domestic travellers.

### **Public health measures**

- Affected area: manage cases as specified under section 5, Public Health Management of Individuals with Influenza-like Illness, in this annex (also see “Screening logistics” below).
- Affected area: manage any contacts of cases as specified under section 6, Management of Contacts of Cases, in this annex (also see “Contact management logistics” below).
- P/Ts in collaboration with local public health authorities can implement exit screening at domestic airports serving affected areas within Canada. This may occur in collaboration with PHAC under delegated provincial authority or the Emergency Act
  - Increase public messaging regarding staying home, specifically not to travel when ill, and
  - Ensure directions for symptomatic individuals identified by the health declaration process at airports are clear and consistent with the local response to the pandemic activity.
- Unaffected areas: see “Contact management logistics” and “Screening logistics” below.
- P/T and local public health authorities not in an area experiencing a cluster(s) need to consider how to manage travellers from the affected area(s) who have not been specifically identified as contacts of a case:
  - may involve active or passive surveillance or designated phone lines for self-reporting by symptomatic travellers,
  - may involve designating assessment sites which would be linked to public health surveillance activities, and
  - ongoing appropriate and timely dissemination of Travel Health Advisory and Travel Warning updates and latest outbreak information in all areas.

### **Contact management logistics**

Although identified cases are not expected to be circulating in public, contact tracing for any individuals arriving in an unaffected area on domestic conveyances (e.g. plane, bus, train) with a confirmed case (or suspect case, as deemed necessary) can be initiated. If initiated, P/Ts will formally request traveller contact information from domestic air carrier flights and forward all contact information on Canadian travellers to the appropriate domestic public health authorities for follow-up contact tracing activities. At the discretion of the provincial authority, PHAC may be asked to contact the air carrier and forward the appropriate information to all involved Canadian jurisdictions. Provinces and territories will need to forward all contact information on international travellers to PHAC who will forward it to appropriate international public health authorities.

In the unlikely event that short-term detention (1 to 3 days) of arriving travellers from a Canadian geographic area of risk proves necessary, P/Ts in collaboration with local public health authorities will take the lead in managing the event. At the discretion of the provincial authority, they may ask PHAC to provide this service.

As the occurrence of clusters of cases continues or increases, contact tracing and notification will likely be conducted passively by public messaging rather than by actively attempting to contact

individual travellers. This transition may occur before the declaration of a pandemic if increasing notifications make it non-sustainable.

### **Screening logistics**

Provinces and territories could implement health assessments of ill travellers arriving on domestic flights that originate from affected area within Canada. Alternatively, P/Ts could request assistance from PHAC to implement these health assessments under delegated provincial authority.

Exit screening for all travellers from the affected areas within Canada (i.e. those experiencing clusters of human infection) would likely be implemented during this phase in the form of health declaration questionnaires.<sup>29</sup> This would likely be limited to those exiting the area by air travel.

At exit points (i.e. airports, sea ports, land border crossings) from the affected area(s) within Canada, modified versions of Health Alert Notices (or “health declarations”) containing (i) information about the outbreak consistent with information provided in Travel Health Advisories and other formal communications, (ii) a questionnaire for self-screening, and (iii) guidance for reporting specified signs of illness would likely be distributed. Additional screening methods aimed at detecting potentially infected individuals might also be considered at the directive of the CMOH and PHAC.

## **Pandemic Period: Canadian Pandemic Phase 6.0, Phase 6.1 and Phase 6.2**

**Indicator:** Amplification and sustained transmission in the population

### **Advisories**

During these phases, the wording of travel advisories may be strengthened to specifically recommend not traveling under any circumstances to affected areas. This may not be necessary if public demand for travel decreases and airline companies cancel service to certain areas.

While pandemic activity is increasing in Canada, actions implemented during the Pandemic Alert Period (Phase 4 and Phase 5) will quickly become unsustainable. Once widespread community transmission occurs in Canada, the allocation of resources targeted to keeping the virus out of the country will become unnecessary and resources should be re-allocated.

### **Public health measures**

- Similar to the Pandemic Alert Period (Phase 4 and Phase 5) until no longer feasible or deemed to be ineffective due to widespread activity
- Public health measures directed toward travellers will likely be discontinued or scaled back at different times in different jurisdictions as the local epidemiology dictates.
- In subsequent waves of the pandemic, messaging and wording on health declarations and screening activities may need to be revised to take into consideration persons who were ill during the first wave and are now probably immune.

<sup>29</sup> Public or political pressure may result in the implementation of more visible interventions, such as thermal scanning or ear-temperature measurement. Note: Airlines also have a responsibility for disallowing obviously ill persons from boarding.

## Post-Pandemic Period

**Indicator:** Reports of cases counts and other broad indicators of pandemic activity in Canada suggest that the pandemic virus is no longer causing significant illness in the population.

### Advisories

Travel advisories would be revised as pandemic activity declines in various geographical areas. Public messaging may focus again on travellers as sources of infection if the wave has already moved through specific jurisdictions and community transmission is no longer being observed.

### Public health measures

- May be similar to Pandemic Alert Period (Phase 3.1), i.e. focus on public and health care provider education as opposed to high levels of activity at airports
- Support recommended surveillance activities as per surveillance component of the Plan

## References

1. Department of Communicable Disease Surveillance and Response, World Health Organization. *WHO consultation on priority public health interventions before and during an influenza pandemic*. Geneva, Switzerland: World Health Organization, 2004.
2. Nguyen-Van J. Do influenza epidemics affect patterns of sickness absence among British hospital staff? *Infect Control Hosp Epidemiol* 1999;20:691–94.
3. Pandemic Influenza Committee, Health Canada. *Human health issues related to domestic avian influenza outbreaks, Interim Guidelines, May 2005*. URL: <http://www.phac-aspc.gc.ca/publicat/daio-enia/index.html>. Date of access: May 2005.
4. Global Influenza Programme, World Health Organization. *Avian influenza: assessing the pandemic threat*. 2005 (pre-publication). URL: [http://www.who.int/csr/disease/influenza/WHO\\_CDS\\_2005\\_29/en/index.html](http://www.who.int/csr/disease/influenza/WHO_CDS_2005_29/en/index.html). Date of access: January 2005.
5. Svoboda T, Henry B, Shulman L, et al. *Public health measures to control the spread of the severe acute respiratory syndrome during the outbreak in Toronto*. *N Engl J Med* 2004;350(23):2352–61.
6. Fraser C, Riley S, Anderson R et al. *Factors that make an infectious disease outbreak controllable*. *Proc Natl Acad Sci USA* 2004;101(16):6146–51.
7. World Health Organization Writing Group. *Nonpharmaceutical Interventions for Pandemic Influenza, National and Community Measures*. *EID* Vol. 12, No. 1, January 2006;88-94.

## Summary of Recommendations

### A.1 Case and Contact Management Summary

Canadian Pandemic Phase	Case Management	Contact Management
3.1	<ul style="list-style-type: none"> <li>Isolate adults for 5 days (young children for 7 days) or until symptoms have resolved, whichever is longer (or period of communicability if known).</li> <li>Active surveillance for those isolated at home.</li> <li>Report individual cases.</li> <li>Facilitate laboratory testing.</li> <li>Early treatment with antivirals.</li> </ul>	<ul style="list-style-type: none"> <li>Active or passive surveillance for symptoms for 3 days or duration of incubation period if known.</li> <li>Consider asking to defer travel for duration of surveillance period.</li> <li>Consider post-exposure antiviral prophylaxis for severe or unusual cases or when human-to-human transmission cannot be ruled out.</li> <li>Recommend annual flu vaccine.</li> </ul>
4.1 or 5.1	<ul style="list-style-type: none"> <li>As per 3.1 above</li> </ul>	<ul style="list-style-type: none"> <li>Active surveillance for symptoms for 3 days or duration of incubation period if known.</li> <li>Quarantine or activity restriction to limit contact with others.</li> <li>Consider post-exposure prophylaxis with antiviral drugs.</li> </ul>
4.2 or 5.2	<ul style="list-style-type: none"> <li>As per 3.1 above</li> <li>Close off wards and restrict visitors if applicable.</li> <li>Report cases and clusters.</li> </ul>	<ul style="list-style-type: none"> <li>As per 4.1 or 5.1 above.</li> <li>For 5.2, recommend self-monitoring for those linked to a possible exposure site (instead of individual-focused active surveillance).</li> </ul>
6.1	<ul style="list-style-type: none"> <li>As per 3.1 above</li> </ul>	<ul style="list-style-type: none"> <li>Self-monitoring for symptoms.</li> <li>No quarantine.</li> <li>Consider deferring travel during self-monitoring period.</li> <li>Antiviral use as per national antiviral strategy for the Pandemic Period.</li> </ul>
6.2	<ul style="list-style-type: none"> <li>Isolate for 24 hours after symptom resolution or duration of period of communicability if known.</li> <li>Public messaging on self-care (including isolation), reporting of illness, where, when and how to present for medical assessment, and availability of limited resources (discontinue individual-focused active surveillance).</li> <li>Antiviral treatment for those presenting within 48 hours and for whom it is deemed medically necessary.</li> </ul>	<ul style="list-style-type: none"> <li>As per 6.1 above.</li> <li>More public messaging.</li> <li>No quarantine.</li> </ul>

## A.2 Community-Based Disease Control Strategies

Recommended as a Community-Based Intervention	Not Recommended as Community-Based Intervention
<ul style="list-style-type: none"> <li>▪ Stay home from public events and locations (i.e. self-isolate) if you have fever and new onset of respiratory symptoms.</li> <li>▪ Consider school and daycare closure.</li> <li>▪ Restrict indoor public gatherings (other than schools) if “high-risk” settings can be identified.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Broad restrictions on indoor public gatherings other than schools.</li> <li>▪ Use of masks by well individuals (not including care-providers).</li> <li>▪ Implement hand-sanitizing stations in public settings.</li> <li>▪ Increase frequency of cleaning of surfaces in public settings.</li> <li>▪ Urge entire population in an affected area to check for fever at least once daily.</li> <li>▪ Thermal scanning in public places.</li> <li>▪ Air disinfection.</li> <li>▪ Disinfection of clothing, shoes or other objects of persons exiting affected areas.</li> <li>▪ Actively restrict travel to and from affected areas.</li> <li>▪ Cordon sanitaire.</li> </ul>