

## **Pandemic Influenza Preparedness Update**

<b>Date:</b>	January 15, 2007
<b>To:</b>	Board of Health
<b>From:</b>	Medical Officer of Health
<b>Wards:</b>	All
<b>Reference Number:</b>	

### **SUMMARY**

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This report updates the Board on issues affecting the City of Toronto's ability to respond to an influenza pandemic. The City is guided by the directions set out by the federal and provincial governments in their respective Pandemic Influenza Plans. Several important issues such as personal protective equipment and the distribution of antiviral medication for prophylaxis (prevention) remain unresolved in the latest versions of these plans which were released within the past four months.

Communication with the Ministry of Health and Long-Term Care indicates that Toronto Public Health will be responsible for planning the implementation of alternative assessment and care centres but that issues regarding the management and resourcing of such centres during a pandemic are still to be determined.

The report also updates information on the spread of avian influenza and outlines the Toronto Public Health (TPH) preparedness activities which will be priorities in 2007.

### **Financial Impact**

There are no financial implications arising from this report.

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### **DECISION HISTORY**

At its meeting of January 31, 2006, City Council adopted the Pandemic Influenza Plan for the City of Toronto (Policy and Finance Committee Report No. 1, Clause No. 14).

The Board of Health has requested that the Medical Officer of Health provide monthly verbal updates and quarterly written reports on the state of preparedness for an influenza pandemic. This is the first quarterly report for 2007.

## **ISSUE BACKGROUND**

Influenza is a highly contagious respiratory illness caused by a virus which is constantly changing and mutating. An influenza pandemic occurs when there is an abrupt and major change in the protein structure of the Influenza A virus resulting in a new subtype. Since people have little or no immunity to this new strain, it can spread quickly causing outbreaks in one or more countries or worldwide. This is called a pandemic. The exact nature of the pandemic virus and illness will not be known until it emerges. Because health care services in Toronto are currently working at or near capacity, pandemic influenza may quickly overwhelm the system.

Pandemic strains of influenza tend to emerge three or four times each century. In the last century influenza pandemics occurred in 1918 (Spanish flu), 1957 (Asian flu) and 1968 (Hong Kong flu). The pandemic of 1918-1919 caused between 20 and 40 million deaths worldwide, while the pandemics of 1957 and 1968 caused much less mortality and morbidity. It is generally believed that another influenza pandemic will occur but there is no way of predicting when that might be, nor precisely the level of illness that might result.

Influenza pandemics occur in two or three waves over a period of months to a year or more. An effective vaccine would likely take four to six months to become available. Initially, public health measures will include case investigation; isolation and treatment; and contact identification and follow-up potentially including quarantine and prophylaxis in an effort to stop or slow the spread of infection locally. However, as public health resources are exhausted it is unlikely that these measures can be sustained in the pandemic period and it is generally believed they will have only limited effectiveness.

A strain of avian influenza known as H5N1 is currently spreading in bird populations globally. To date there is no evidence that this virus has the ability to spread efficiently person-to-person. However, if the virus changes and acquires this ability, a pandemic may ensue.

## **COMMENTS**

### **A) Surveillance Update**

The World Health Organization (WHO) pandemic alert phase remains at Phase 3. This means that there are cases of human infection(s) with a new subtype of influenza virus, but no human-to-human spread or at most rare instances of spread to a close contact.

There is currently no pandemic or highly pathogenic H5N1 avian influenza in North America.

### **Human Cases**

The WHO continues to monitor the number of human cases of avian influenza (H5N1) and, as of December 31, 2006, reports 261 human cases and 157 deaths (an increase of 20 human cases and 16 deaths since September 6, 2006).

In 2006, the outbreak of highly pathogenic H5N1 avian influenza spreading from animals to humans has expanded geographically from Asia to parts of the Middle East. To date, the WHO has confirmed human infection in ten countries (five new countries in 2006), with the majority of 2006 cases affecting the young (mean 20.5 years, median 18.0 years, range 1 year–75 years) but not gender specific (53.9% female). Confirmed cases with known exposure in 2006 acquired their infection following contact with diseased birds; several cases which have no known exposure to infected birds occurred in areas where H5N1 is now believed to be endemic.

The case fatality rate in 2006 for confirmed cases varies by country, ranging from 0 to 100%, with an overall rate of 69.3%. This is an increase over previous years (2003-2005) with an overall case fatality rate of 53.1% (range 45.2% –100.0%). This may reflect lack of access to health care in the newly identified countries (e.g. mountains of Azerbaijan, Iraqi war zone).

### **Animal Cases**

Since January 2004, a total of 59 countries have identified highly pathogenic H5 infection in domestic and/or wild birds. There have been no cases identified in Canada. Since last report (September 2006) no new countries have reported a first case of highly pathogenic H5N1 in bird populations but the following countries reported re-emergence of the virus in bird populations: Cambodia, China, Egypt, S. Korea and Vietnam. Additional animal hosts have been confirmed in Germany (cat and weasel), Iraq (cat) and Indonesia (pigs).

### **Bird Surveillance**

Toronto Animal Services collects dead animals including birds year round. The Canadian Cooperative Wildlife Health Centre (CCWHC), through its ongoing wildlife surveillance program, accepts dead birds for avian influenza testing. Beginning in February 2007, TPH will submit clusters of three or more dead birds of one species or a single larger bird (crow-sized or larger) to CCWHC if requested to do so.

### **B) Federal and Provincial Developments**

In September 2006, the provincial Ministry of Health and Long-Term Care released the latest version of the Ontario Health Pandemic Influenza Plan (OHPPI) and in December the Public Health Agency of Canada released the latest version of its Canadian Pandemic

Influenza Plan (CPIP). Local pandemic preparedness planning is guided by these plans and it is the objective of each new version to provide more specific direction to local public health planners. The latest versions of CPIP and OHPIP address but do not resolve some of the most important preparedness issues.

## **1. Personal Protective Equipment**

The effectiveness of masks in limiting the spread of infection is one of the most important outstanding issues and remains unresolved in both the federal and provincial plans. TPH is addressing worker protection policies through the Occupational Health and Safety Coordinating Committee which includes labour and management representatives.

The final report of the SARS Commission, released in January 2007, emphasises the importance of worker safety. Justice Archie Campbell provides an extensive review of the use of N95 masks during the SARS outbreak of 2003 and urges the adoption of a “precautionary principle” in dealing with future infectious diseases. The report says:

*As occurred during SARS, there is now a debate over how influenza is spread and how health workers should be protected during a pandemic. Some experts believe influenza is mostly droplet-spread and surgical masks would be sufficient protection for health workers. Others believe that airborne transmission is a possible means of spreading influenza, and health workers should, as a result, wear fit-tested N95 respirators when caring for people suffering from a pandemic flu virus. The Commission is not in a position to wade into this evolving scientific debate. However, it is worth noting how the CDC [Centers for Disease Control] has used the precautionary principle in addressing this issue. The CDC is saying, in effect, we don't know enough about how a pandemic influenza might be spread, so it's better to be safe than sorry. It is the kind of precautionary approach all pandemic planners should carefully consider.*

A national meeting of experts held in October 2006 failed to reach consensus on this issue. CPIP observes that there is a lack of evidence that the use of masks prevented transmission of influenza during previous pandemics. The plan suggests that it may be prudent for health care workers to use surgical masks when they are in close-face-to-face contact with coughing individuals during the early phase of a pandemic but are not practical or helpful when influenza transmission has entered the community. CPIP goes on to say:

*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. At the time of the 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.*

A provincial position on the use of masks is expected in the first quarter of 2007. This position will provide guidance to TPH in making recommendations on the use of personal protective equipment.

## **2. Vaccine Issues**

It is anticipated that a pandemic influenza vaccine will become available in batches over a period of time. The federal plan again lists the groups who would be priority recipients for a pandemic influenza vaccine when it becomes available. They are defined as:

- Group 1: Health care workers, public health responders and key health decision makers
- Group 2: Pandemic societal responders (e.g. police, utility workers) and key societal decision makers (e.g. key government employees/elected officials)
- Group 3: Persons at high risk of severe or fatal outcomes following influenza infection
- Group 4: Healthy adults
- Group 5: Children (24 months to 18 years of age)

The priority groups are similar to those identified in the previous version of CPIP. Significant additions in the 2006 release are key health decision makers to Group 1 and key societal decision makers to Group 2.

The plan notes that vaccine eligibility criteria should be defined on the basis of the work, duties and role that an individual performs rather than merely a position label. OHPIP indicates that the province would follow the federal lead in determining eligibility.

OHPIP estimates that to immunize the entire province, Ontario would require 24 million doses of vaccine, based on two doses per person over approximately four months. CPIP notes that for a two-dose program, completion of second dose should be carried out as soon as possible to effect immunity and should not wait until every priority group has received a first dose. It is estimated that 75 per cent of the population would seek vaccination.

## **3. Antiviral Medication Issues**

Antiviral medication will be useful in treating influenza patients who have been assessed within 48 hours of the onset of symptoms. The medication would be drawn from the national and provincial antiviral stockpiles. CPIP calls for increasing the size of the national stockpile from 16 million doses to 55 million doses of neuraminidase inhibitors, primarily oseltamivir (Tamiflu), by the spring of 2007. The provincial objective is to have sufficient supply to treat 25 per cent of the population.

Previous versions of CPIP and OHPIP contained priority groups for antiviral medication. These priority listings have been withdrawn from the most recent versions of the plans because of a new emphasis on using the medication for early treatment.

The use of antiviral medication for prophylaxis during the pandemic period is an unresolved issue. A national consultation has been underway to seek a consensus on the use of antivirals for prophylaxis and a position statement on the issue is expected from both the federal and provincial governments early in 2007.

#### **4. Public Health Measures**

The latest version of CPIP contains a new annex on public health measures to respond to pandemic influenza. It suggests that most cases during the Alert Period should be able to be accommodated in hospitals where infection control procedures are more consistent. It also suggests that there would be aggressive follow-up of contacts during the Alert Period and possibly at the earliest stage of the Pandemic Period before public health resources are overwhelmed. This follow up of contacts, which may include quarantine, will be discontinued once a predetermined threshold is passed or supplies dedicated to this early containment strategy are exhausted.

The federal plan recommends that closing schools and daycares be considered during the Pandemic Period but does not recommend broad restrictions on indoor public gatherings.

#### **C) City of Toronto Developments**

Every government and every sector has a role to play in planning and preparing for a pandemic. Toronto Public Health completed the Toronto Pandemic Influenza Plan in November 2005 and updated it in March 2006. Five sectoral planning guides were also produced during 2006.

TPH has been working on four core areas of focus for pandemic influenza planning and preparedness:

1. TPH internal planning and preparedness
2. City of Toronto planning and preparedness
3. Linkages with the health care system
4. Working with the community

A summary of progress to date is provided in Attachment 1.

#### **Assessment/Alternative Care Centres**

The OHPIP projects that, depending on the severity of the pandemic, between 67 and 156 alternative pandemic influenza assessment and care sites would be required in the City of Toronto. At its September 14, 2006 meeting the Board of Health requested that the Minister of Health and Long-Term Care designate a lead agency for the development

of alternative pandemic influenza assessment and care sites in Toronto and ensure the availability of sufficient resources. In response (see Attachment 2), the Ministry recommended that Toronto Public Health take the lead for planning the implementation of assessment and care centres but noted that TPH would not necessarily lead the management of the centres in the event of a pandemic. The Ministry observes that legal, licensing, scope of practice and resourcing issues remain unresolved and says that provincial-municipal funding roles and responsibilities are yet to be determined.

Given the size, complexity and lack of coordination of the health-care sector in Toronto, the number of assessment and care centres envisioned in the provincial plan, and the critical outstanding issues, there are very significant logistical and financial challenges associated with planning and setting up such centres.

### **Priorities for 2007**

Toronto Public Health has identified a range of priority activities for 2007 to increase preparedness for a pandemic influenza. Planning the implementation of the alternative assessment and care centres will be a major priority. The stockpiling of infection control supplies has begun and planning for mass vaccination centres and the distribution and administration of anti-viral medication will also continue. Another priority is the training of key management staff for the roles they would play in managing Toronto Public Health's response.

Public Health will continue to work with the health care sector including hospitals, long-term care homes, community health centres, community care access centres, local health integration networks and community physicians on the development of pandemic influenza response plans. There will also be an emphasis on contact with providers of services to the homeless. The Toronto Pandemic Influenza Plan will be regularly updated.

In an effort to assist City divisions prepare for an influenza pandemic, Public Health staff will support the Office of Emergency Management in refining divisional plans on maintaining continuity of their operations. They will also continue to build greater understanding among City staff on prevention and response issues. External communications aimed at increasing public awareness about infection control will also be important.

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## **SIGNATURE**

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Medical Officer of Health

## **ATTACHMENTS**

- Attachment 1: Pandemic Influenza Planning Status Update (January 9, 2007)
- Attachment 2: Letter to the Board of Health from the Director, Emergency Management Unit, Ministry of Health and Long-Term Care (December 7, 2006)