

Chapter 5: Vaccine and Antiviral Medications

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Chapter 5: Vaccine and Antiviral Medications

1.0 Introduction

The World Health Organization, the Public Health Agency of Canada, and the Ontario Ministry of Health and Long-Term Care all agree that a monovalent influenza vaccine will be a powerful tool for reducing disease, death and societal disruption during an influenza pandemic. Antiviral medications will also play an important role in preventing and treating influenza illness during a pandemic. During a pandemic, Renfrew County & District Health Unit will serve as the primary coordinator for the distribution and administration of vaccine and distribution of antiviral medications.

As it is likely that the supply of both antiviral medications and vaccine will be limited during a pandemic, the distribution of both will be controlled by the Ontario government. Establishing priority groups to guide the use of these limited resources during a pandemic is therefore necessary. The priority groups may change depending on pandemic epidemiology. Ontario has removed the list of priority groups from the 2006 OHPPI and will develop a provincial policy on the use of antivirals for prophylaxis based on the national policy (currently under development) and in accordance with the ethical framework for decision-making.

Ontario's goal is to obtain enough vaccine for the entire population but, during the early stages of a pandemic, vaccine will be in short supply. In this situation, the province will follow the national recommendations for priority groups for influenza immunization, adapting them as required to meet provincial needs.

These recommendations will be used by Renfrew County & District Health Unit to direct the distribution of stockpiled antiviral medications and distribution and administration of vaccine once it becomes available.

2.0 Vaccine

Vaccine is the most effective means to prevent disease and death from influenza during a pandemic; however, it will take four to five months after the pandemic strain is identified to develop a vaccine so it will likely not be available for the first wave. It is not known how effective the vaccine (once developed) will be against the pandemic strain, but vaccines for seasonal influenza usually prevent illness in 70 to 90% of healthy adults.

2.1 Vaccine supply

The federal government is responsible for vaccine procurement and supply, including developing the domestic infrastructure, maintaining a standby supply of fertilized hens' eggs ready to convert into vaccines, phasing in new technologies, and ensuring security of supply (i.e., via a pandemic contract). In case of a pandemic, the domestic supplier (IDBiomedical) guarantees to manufacture 8 million (+/- 10%) monovalent doses, per month, for a period of 4 months starting within 4 to 5 months after the receipt of the pandemic seed stain for Canada.

To immunize the entire province, Ontario would require 24 million monovalent doses (based on two doses per person, over approximately four months).

2.2 Access to Vaccine

Ontario's goal is to obtain enough vaccine for the entire population but, during the early stages of a pandemic, vaccine will be in short supply. In this situation, the province will follow the national recommendations for priority groups for influenza immunization, adapting them as required to meet provincial needs and in accordance with the ethical framework for decision-making.

2.3 Distribution and Administration of Vaccine

Ontario has a vaccine distribution system in place to support its Universal Influenza Immunization Program. A similar system will be used to distribute vaccine during a pandemic, with some changes. In the current system, vaccine is shipped directly to the public health units only. The health units then distribute vaccine to physicians' offices, workplace clinics, and a variety of other settings where immunization services are provided. During a pandemic, Ontario will use primarily a "Pull" strategy to ensure best use of available resources: influenza vaccine will be sent only to public health units. Renfrew County & District Health Unit will in turn organize mass vaccination clinics. People will attend the clinics to receive vaccination.

2.4 Monitoring Adverse Events

In Ontario, adverse events associated with influenza vaccination are reportable under the Health Protection and Promotion Act. Everyone who receives a vaccination will be reminded of the need to report adverse reactions to his/her physician or the clinic where vaccine was received. Health care workers will be reminded to report adverse events to Renfrew County & District Health Unit.

3.0 Antivirals

Antivirals (anti influenza drugs) can be used to treat and prevent influenza, and will be an important disease management strategy during an influenza pandemic – particularly during the early wave(s) when vaccine is not available. It is not known how effective antivirals will be against the pandemic strain but, when used to treat seasonal influenza, they have been shown to reduce the length of time people are ill, symptoms and hospitalizations.

Ontario is working with the federal government to develop an antiviral stockpile that will be large enough to treat 25% of the populations, as recommended by the World Health Organization. This represents the proportion of the population who will be sick enough to need antiviral treatment. Although antivirals can be used both for treatment and prophylaxis (prevention), Ontario will use its supply primarily for treating people who are ill.

3.1 Antiviral Supply

The federal government is responsible for approving and licensing antivirals. At the current time, two antivirals are licensed for use in Canada for prophylaxis and treatment of influenza A infections; amantadine and oseltamivir (Tamiflu), a neuraminidase inhibitor. When administered within two days (48 hours) of the onset of illness, both amantadine and neuraminidase inhibitors (e.g., oseltamivir) are effective in reducing length of illness and hospitalization and, in the case of oseltamivir, influenza complications, but resistance to amantadine can develop when the drug is used for treatment during

annual influenza season. The strain of avian influenza responsible for the recent outbreak strain in Asia (H5N1) is resistant to amantadine in laboratory. Another antiviral zanamivir (Relenza) is licensed for treatment only – and is the recommended treatment for pregnant and lactating women.

Tamiflu is the drug of choice for most people during a pandemic. Based on provincial consultation with the Chief Medical Officer of Health, the Public Health Agency of Canada is now working with the provinces to establish stockpile, with a target of having enough supplies to treat 22% of the population.

Ontario has committed to maintaining a stockpile large enough to treat up to 25% of the population, and has placed orders to purchase more antivirals (in addition to its share of the national stockpile). The stockpile will consist primarily of oseltamivir, but the Ministry of Health and Long-Term Care is also purchasing a supply of zanamivir to diversify the stockpile and provide appropriate treatment for pregnant and lactating women. The stockpile will be complete in 2009.

3.3 Antiviral Storage and Distribution

To be effective, antivirals must be started within 48 hours of the onset of symptoms, and the earlier they are started, the more effective they are. To provide timely treatment, Ontario must have an effective distribution system for antivirals.

During a pandemic, the Ministry Emergency Operations Centre (MEOC) will be responsible for coordinating the distribution of antivirals to public health units across the province. Renfrew County & District Health Unit will be responsible for coordinating the distribution of antivirals among health care organizations throughout our jurisdiction.

Should a pandemic occur before Ontario's stockpile is complete, antivirals for treatment will be distributed according to the available epidemiological evidence (e.g., priority may be given to those likely to develop complications from influenza) and in accordance with the ethical framework for decision-making.

3.4 Use of Antivirals

Currently there is no evidence that putting large groups of otherwise healthy Canadians on antivirals in order to prevent influenza (i.e., prophylaxis) will slow or stop the spread of a pandemic; however, prophylaxis with antivirals may play a key role in maintaining critical services (i.e., preventing infection in and providing reassurance to people caring for individuals with influenza as well as workers in critical industries) until a vaccine becomes available. Both the 2004 and 2005 OHPIP listed preliminary groups of people who, based on their health status or their role during a pandemic, would be the first to receive antivirals for treatment or prophylaxis.

Ontario has removed those lists from the 2006 OHPIP and will develop a provincial policy on the use of antivirals for prophylaxis based on the national policy (under development as of February 2007) and in accordance with the ethical framework for decision-making. This will help ensure a consistent approach to using antivirals for prophylaxis across all provinces and territories, which will lead to stronger public confidence and morale.

With regard to antivirals for treatment, the Ontario government is committed to providing treatment for individuals who become ill during an influenza pandemic and will maintain an antiviral stockpile large enough to treat 25% of the population.

3.5 Monitoring Adverse Effects

Based on national recommendations, Ontario will develop a mechanism to monitor adverse effects from antivirals as well the development of antiviral resistance. The Ontario Health Pandemic Influenza Plan, September 2006 describes a specific Pandemic Data Collection Form (figure 5.1) for institutions to report adverse effects related to antiviral use.

Figure 5.1

Ontario Health Plan for an Influenza Pandemic September 2006

Antiviral Use

If an antiviral medication was prescribed during the outbreak, please complete the chart below:

	Residents/Patients		Staff	
	Oseltamivir	Other (Please specify):	Oseltamivir	Other (Please specify):
1. How many individuals received a prophylactic dose of antiviral?				
2. Range of length of prophylaxis (in days)				
3. How many individuals received a treatment dose of antiviral?				
4. How many individuals contracted ILI while on prophylactic antiviral medication for more than 72 hours?				
5. Among those who contracted ILI (question #4), how many had lab-confirmed influenza?				
6. How many individuals developed side effects to antiviral medication?				

Please describe any severe side effects to the antiviral that led to its discontinuation.

4.0 Next Steps

Ontario will work with the Public Health Agency of Canada and other provinces and territories to develop a policy on access to antivirals for prophylaxis. MOHLTC will also:

- Continue to develop its antiviral stockpile
- Establish a storage and distribution system for antivirals that will ensure access within 48 hours in all parts of the province

To promote effective use and management of antivirals and vaccine, Ontario will develop the following tools:

- Fact sheets on antivirals (i.e., who will receive them, where to access them, how to take them)
- Antiviral comparison chart
- An algorithm for antiviral treatment
- Guidelines for handling and managing antivirals including dispensing procedures and how to limit wastage
- Clinical guidelines for antiviral use and patient care in health care settings
- Fact sheets on immunization (i.e., benefits, location of immunization clinics)