

The H1N1 Flu in Ontario

A Report by Ontario's Chief Medical Officer of Health



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On April 23, 2009, I was selected by a committee of the Ontario legislature to become this province's Chief Medical Officer of Health, a position I took up on June 15. Prior to my appointment, I was serving as the Director General of the Centre for Immunization and Respiratory Infectious Diseases at the Public Health Agency of Canada, and my attention had begun to focus on a health issue that was to dominate the world's headlines for the next several months.

In mid-March, Mexican authorities started reporting cases of what appeared to be a new strain of influenza. By mid-April, alarm bells were ringing in public health agencies around the world. The first case of a novel influenza A (H1N1) outside Mexico was confirmed in the United States on April 15, with another one reported two days later. On April 26, the first cases were reported in Canada. On April 28, Ontario reported its first four cases. By then, there were more than 100 cases of the new disease in seven countries around the world, and seven people had died.

The H1N1 flu has been by far the biggest health story of the past few years, and one of the biggest news stories of any kind. People have become ill. People have died. Like every other public health official in the world, I have lived and breathed the H1N1 flu for the past five months. In public health, when you are dealing with an infectious disease, and particularly a pandemic, communication is absolutely critical. There is a fine line that must be drawn between raising awareness and causing fear and, with the H1N1 flu, awareness is important and fear is unnecessary. That is why I decided the time was right to release this interim report.

We are heading into another flu season, and H1N1 flu will be a part of that season. This report tells, in brief, the story of the H1N1 flu to date here in Ontario and around the world. It seeks to inform Ontarians about the disease. And while nobody knows for certain the extent to which this flu virus will re-emerge over the next few months, this report is intended to reassure the people of Ontario that we are ready. The coming flu season will be a different flu season - that much is certain. But there are precautions that each of us can take that will make a big difference. A vaccine has been developed and it will be available to everyone who needs and wants it.

We are ready.

A handwritten signature in black ink, appearing to read "A. King".

*Dr. Arlene King
Chief Medical Officer of Health
Province of Ontario*

Introduction

*“Between the extremes of panic and complacency lies the solid ground of vigilance.”
Dr. Margaret Chan – Director General, World Health Organization*

The 2009 outbreak began in Mexico. It came to the world’s attention in April, although there is now evidence to suggest, with the benefit of hindsight, that Mexico had likely been experiencing disease activity some time before that. Whenever it began, when the disease finally began to move beyond Mexico’s borders, it did so quickly. World Health Organization (WHO) records indicate that on April 26, there were 38 cases of the new virus – 18 in Mexico and 20 in the United States. On May 1, 13 countries were reporting 367 cases, and 10 people had died. By May 27, the H1N1 flu virus had spread to 48 countries. Nearly 13,400 people were reported to have the virus, and 95 people had died. On June 11, WHO declared that there was a global pandemic due to a novel influenza A (H1N1) – the first flu pandemic in 41 years.

Henceforward, for the sake of clarity and consistency, this report will refer to the virus as the H1N1 flu.

Epidemic vs. Pandemic

Epidemic is the classification given to a disease that appears as new cases in a given human population, during a given period, at a rate that substantially exceeds what is "expected," based on recent experience.

Pandemic is the classification given to an epidemic that spreads across a large region – a country, continent or even worldwide.

Preparing for Pandemic Influenza in Ontario

The outbreak of SARS in 2003 taught us a hard lesson – we had to be better prepared for a potential influenza pandemic.

Hence, the Ministry of Health and Long-Term Care along with key stakeholders developed a pandemic preparedness plan in 2004. Over the past five years, the Ontario Health Plan for an Influenza Pandemic (OHPIP) has evolved considerably through the input of over 400 experts representing all levels of government and a broad spectrum of health and emergency response professionals. The plan is continually improved and enhanced to reflect new knowledge and information, and tested to ensure our preparedness.

In Ontario, even before the WHO declared a global pandemic, we were implementing the OHPIP.

OHPIP is one element in a multi-pronged effort to control the spread of infectious diseases. A hand hygiene program for all Ontario hospitals – called *Just Clean Your Hands* – was launched in March 2008. The program has received international recognition for its innovations. The ministry also engaged in a hand hygiene consumer advertising campaign (from as early as summer 2006) because we know that proper hand hygiene, through the use of alcohol-based hand rub or soap and water, is the single most effective way of reducing the spread of infections.

In the early stages of any pandemic, the focus must be on surveillance and information gathering. In late April, nasopharyngeal (nose and throat) swabs were collected in emergency departments and doctors' offices from patients who were already presenting signs of respiratory illness. These swabs were sent to the Ontario Agency for Health Protection and Promotion (OAHPP) public health laboratory where they were tested for the H1N1 flu virus.

From April 22 to June 9, 11,560 patient specimens were tested. The H1N1 flu virus was detected in 1,820 (15.7 per cent) of those samples. Follow-up study on these patients yielded a great deal of important information and laid the foundation for much of what we now know about the illness in Ontario.

Predictably, in the very early stages of the outbreak, most of the patients diagnosed in Ontario had traveled to Mexico within seven days of the onset of symptoms. After the initial importation of the virus, the vast majority of cases were acquired in Ontario. This followed the same pattern as in other countries. Interestingly, the first known patient in Ontario with H1N1 flu virus had not traveled, which implies that the virus may have been circulating in this province for longer than had been assumed. This is consistent with the theory that the virus was circulating in Mexico before it had been recognized by their flu surveillance systems.

The H1N1 Flu – Symptoms and Characteristics

The H1N1 flu is a respiratory illness caused by a type A influenza virus. Typical symptoms are similar to the symptoms of seasonal flu and can include fever, cough, sore throat, body aches, headache, chills and fatigue. In some cases, severe illness (pneumonia and respiratory failure) and deaths have been reported in people with H1N1 flu. Like seasonal flu, the H1N1 flu may cause a worsening of underlying chronic medical conditions.

Spread of the H1N1 flu virus is thought to be happening in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing. Sometimes people become infected by touching contaminated objects or surfaces and then touching their mouths or noses.

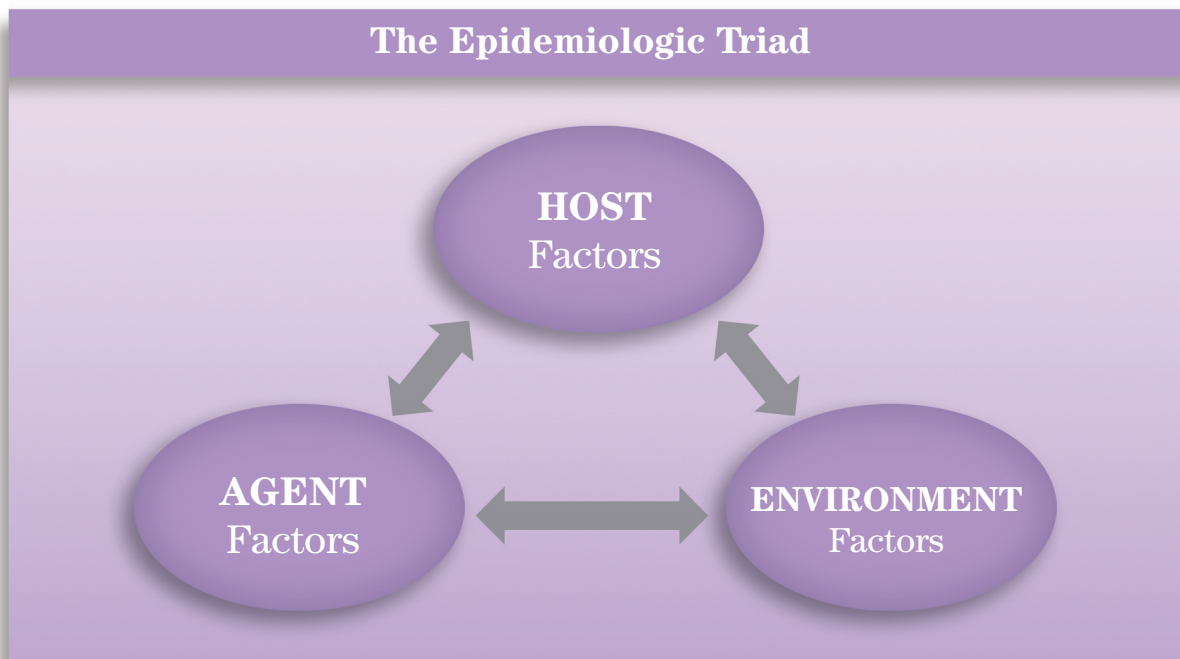
Infected people may be able to infect others beginning one day before symptoms develop and until symptoms have resolved. That means that people can pass on the flu to others before they realize they are sick. Children, especially younger children, might potentially be contagious for longer periods.

The most important thing to remember about the H1N1 flu virus is that it is just another strain of influenza. And while the flu is never to be taken lightly, people should not live in fear of it either. Nine thousand cases of seasonal flu occur every year on average in Ontario. Approximately 300 people die, either directly from the flu or from the virus complicating existing chronic conditions. That represents a population-based mortality rate of 3.3 per 100,000. The mortality rate due to the H1N1 flu as of August 25 stands at 0.18 deaths per 100,000 people.

The fact that the H1N1 flu appears to affect younger people more than the seasonal flu is of concern. People born before 1957 appear to have some degree of immunity to the virus. More than half of all the confirmed cases in Ontario were under 20 years of age, and the highest number of those were between the ages of 10 and 14. This is similar to what has been observed in other jurisdictions but is different from our experience with seasonal flu.

We have also started to identify groups of people who appear to be at higher risk of complications from H1N1 flu. These groups include pregnant women and those with underlying medical conditions, such as heart or lung disease, diabetes, cancer, immune suppression and morbid obesity. Studies are underway to review these initial findings and to determine if there are other risk factors for complications. The results of these studies will assist with the identification of groups needing rapid access to antiviral medications and H1N1 flu vaccine when it is available for use in Canada.

Another concern is the vulnerability of residents in remote and isolated communities in northern Ontario. To explain this, we can look to what is called the Epidemiologic Triad, which refers to the interaction of three factors that determine the extent and severity of an outbreak. These factors also help guide the actions needed to prevent and control outbreaks in different settings. They are the host (people), agent (virus) and environment.



When applied to H1N1, the host factors that allow it to spread include younger age and absence of immunity. Pre-existing medical conditions in the host are an important predictor of severity of disease.

Environmental factors include overcrowding, access to running water to enable hand washing and surface cleaning, and access to prompt medical assessment and care when needed.

And the agent, of course, refers to the presence or absence of the virus and its characteristics.

These factors, and the interaction among them, are predictors of where and when an illness will spread and result in serious outcomes. This is why we have observed outbreaks in schools, in summer camps and in our communities, and why the places where younger - and sometimes vulnerable - people live, work, study and gather continue to be the focus of our preparations for the upcoming 2009/2010 flu season.

Antivirals and Vaccines

The Difference Between Antivirals and Vaccines

Antivirals are drugs used for the early treatment of influenza. They do not provide immunity to the virus, but if taken soon enough after symptoms start they can reduce symptoms, shorten the length of illness and reduce the risk of complications. While antivirals can be used to prevent illness, the focus during this flu season will be on early treatment of those who need it

Vaccines produce immunity to specific diseases by stimulating the production of antibodies. They are the primary means of preventing influenza.

Antivirals

Prescription antiviral drugs have been shown to be effective in treating the H1N1 flu. The Public Health Agency of Canada (PHAC) is only recommending their use when the illness is moderate to severe and the patient is at a greater risk for complications. PHAC is not recommending that antivirals be given for mild disease or on a preventive basis at this time, and this is the policy in Ontario as well. The province's stockpile of antivirals is calculated to be more than enough for those who will require it, but it is finite and we need to be sure it is used wisely. Health care providers are the best source for that decision.

In addition, the virus has shown some early warning signs of its potential to become resistant to antivirals. That resistance will only increase if antivirals are overused. At present, there is no indication that milder illness requires antiviral treatment, as most patients are recovering on their own at home as with seasonal flu.

Vaccines

Vaccines are the most powerful public health tool for the prevention of influenza, and scientists around the world began working on the development of a vaccine against the H1N1 flu virus as soon as it was identified as a public health risk. The H1N1 flu vaccine will be ready in late fall. The Government of Canada has placed an order for more than 50 million doses on behalf of all provinces and territories.

Ontario will be getting enough vaccine to immunize 75 per cent of our total population with two doses per person, the current assumption being that two doses will be necessary to provide an acceptable level of immunity. However, we will analyze the effectiveness of the vaccine on an ongoing basis because some target groups, for example certain older age groups, may only end up requiring one dose.

Vaccine Safety

Two concerns are frequently raised about influenza vaccines – that the approval process is too rushed for safety, and that people receiving a vaccine may actually contract the virus being vaccinated against as a result of the injection.

Fast track does not mean short cut – Regulatory procedures in place for the licensing of pandemic vaccines, including procedures for expediting regulatory approval, are rigorous and do not compromise safety or quality controls.

The flu vaccine will not give you the flu – The flu vaccine was specially designed to make it impossible to transmit influenza from an influenza vaccine. Sometimes people will have soreness in the muscle and at the injection site where the shot was received. Other adverse effects are extremely rare. In those cases where people feel that they have contracted the flu from the flu vaccine, it almost always turns out that they are experiencing another illness.

The H1N1 Flu Today

Since the WHO's declaration of a pandemic, the H1N1 flu virus has continued to spread. As of the release of this report, it is now the dominant influenza virus in circulation in the world and in Ontario. According to a WHO report dated August 4, 71 per cent of all influenza viruses currently detected globally are the H1N1 flu virus. The virus accounts for 66 per cent of circulating influenza viruses in the northern hemisphere and 89 per cent of influenza viruses in the southern hemisphere.

As of August 21, WHO reports more than 182,000 lab-confirmed cases of the H1N1 flu, and 1,799 deaths in 177 countries and territories in all six WHO regions around the world. These numbers represent an underestimation of total cases in the world, as many countries have prioritized lab testing for people with severe illness and/or high risk conditions, meaning that many milder cases are not reported.

In the northern hemisphere, the virus continues to spread but declining activity is being observed in areas affected early in the course of the pandemic. Those areas include Canada where we are indeed seeing overall declining activity, although the virus continues to be detected and local outbreaks are still a concern.

The H1N1 Flu in Ontario*

There are 4,037 lab-confirmed cases of H1N1 flu in Ontario. The number of lab-confirmed cases is much lower than the actual number of cases because most people who have been infected with the virus have not been tested. Studies are underway to determine how many people have contracted the virus in Ontario.

Thirty people are hospitalized. To date, 324 people have been hospitalized – for a rate of 2 to 3 persons per 100,000 people in Ontario. This represents a low rate of hospitalization. The median age of those hospitalized has been 22 years. Twenty per cent of those hospitalized have required intensive care.

Twenty-three deaths – for a rate of 1 to 2 persons per million people in Ontario – have been reported among lab-confirmed cases. And unlike the illness itself, deaths have mostly been reported among persons with underlying health conditions. The median age of those who have died has been 58 years. Death has been a tragic but rare outcome.

*As of August 25, 2009.

Most countries south of the equator – in the southern hemisphere – have experienced increased numbers of cases, but that is because they are experiencing their winter influenza season.

Like other jurisdictions in the northern hemisphere, we in Ontario are keeping a close watch on countries in the southern hemisphere. Scientists believe there is a strong likelihood that our experience with the H1N1 flu this coming winter will reflect the experience of countries like Australia.

If that is indeed the case, the news is at least somewhat reassuring. The overall picture is one of declining transmission in the temperate regions of the southern hemisphere. Not surprisingly, Australia and South America experienced rapid increases in cases of H1N1 flu early in their winter season, but they are now starting to report decreases in the number of cases, as well as in the number of people seeking care. The virus is still circulating and continuing to move into areas not affected earlier, but the overall national trends are downward. The WHO has advised us that although the impact and severity of the season in the southern hemisphere are still being evaluated, it appears to have been slightly worse than a regular influenza season.

All in all, the H1N1 flu remains one of moderate severity. The overwhelming majority of patients worldwide continue to experience mild symptoms. Most recover within a week. The H1N1 flu virus remains unchanged. The fact that the illness is affecting mostly younger age groups and that certain groups with underlying conditions appear to be at increased risk of complications and death remains a concern. But overall, jurisdictions everywhere are coping well.

Myths About the H1N1 Flu

Pregnant women and people with underlying conditions are at “high” risk of contracting H1N1 flu and of developing complications

Pregnant women and people with underlying conditions are at no higher risk of contracting the H1N1 flu than other people. And although the data is still coming in, they do appear to be at somewhat “higher” risk of developing complications from the H1N1 flu, just like they are at higher risk of complications from the seasonal flu. That is why public health authorities are recommending that pregnant women and people with underlying medical conditions discuss influenza with their health care providers and that they contact their health care providers if they develop symptoms of the flu. Health care providers can advise patients as to how to best protect themselves from the flu.

If the H1N1 flu virus is a variant of swine flu, eating pork is risky

The H1N1 flu virus is not transmitted through pork or any other food. Influenza and other respiratory viruses are transmitted from person to person when they enter the nose or throat because of sneezes and coughs. Viruses also can be picked up from commonly touched surfaces and objects and then transmitted through the respiratory tract when people touch their mouths or noses.

The seasonal flu shot can protect against the H1N1 flu virus

Flu shots are designed to act against specific flu strains. The regular seasonal flu shot will not offer protection against the H1N1 flu.

Looking Ahead

Our experience with the H1N1 flu to date, particularly in the southern hemisphere, justifies a certain degree of confidence that we will not be overwhelmed. Influenza can be serious, but we are well prepared to cope. However, in public health as in so much else in life, it pays to hope for the best and plan for worse. And the truth is, nobody knows for certain what the coming influenza season will bring in Ontario, in Canada, or in the rest of the northern hemisphere.

Will there be several types of flu, both H1N1 flu and seasonal flu? Possibly, or we may just see the H1N1 flu.

Will there be more flu activity than normal? Probably, but not certainly.

What is most important for the general public to know is that in one form or another, we will see influenza in Ontario this coming fall and winter. Knowing the type of virus is not as important for people as being aware of how to protect themselves, their families and their communities.

Guided by OHPIP, what we are planning in this province is for a different kind of flu season. We are assuming that the flu season will be worse than usual, and that consequently there will be a higher demand than usual for both primary and hospital care. Employers should not be surprised if there is a higher degree of absenteeism. After all, if people are sick, we want them to stay home.

We will be monitoring northern and remote locations and expect to see more outbreaks where people under age 50 live and work – schools, colleges and universities, work camps, military bases and some health care settings. We know more about the virus than we did last spring, and one of our main goals will be communicating that knowledge to Ontarians so they understand when they do not need to worry, but also know when they need to seek care.

H1N1 Flu – When to Get Medical Help

Most cases of the H1N1 flu virus have been relatively mild, but there are some symptoms that signal a need for urgent care:

- Difficulty breathing
- Shortness of breath
- Chest pain
- Severe or persistent vomiting
- High fever in adults that lasts more than two days
- Severe tiredness in a child
- Confusion or difficulty waking an ill person

The H1N1 flu virus is a new kind of flu, but there is nothing new about the steps we must take to control it. We need first class tracking of the virus so that, with increased understanding of how the virus behaves, we can identify what actions need to be taken to control it.

We have these things in place. The world has never been as ready or as equipped to deal with a global pandemic as it is today. The best scientists and the most dedicated public health officials from every country are sharing information and exchanging ideas. In this country, in partnership with the PHAC, the provinces and territories, we are working to limit the spread of the virus, prevent infection and bring about the best possible health outcomes for those infected.

In Ontario, we are also getting ready for the flu season with a public education campaign to inform Ontarians about what they can do to protect themselves against the flu. In early September, the Ministry of Health and Long-Term Care will begin to run television ads that will show people what steps to take to protect themselves, their families, and their communities with measures that work, like frequent hand washing, sneezing into their sleeve and staying home if they are ill.

Also in September, every household in Ontario will receive a brochure with information about seasonal flu and H1N1 flu. It will be a handy reference guide that everyone can keep at home.

The brochure will tell people why this flu season is different; what the symptoms are; who is most at risk; how viruses spread; what vaccines are available; when to seek medical care; and where to get more information.

In terms of preparing the health care sector, we have directed organizations to have a four-week supply of personal protective equipment for health workers; provided emergency infection control kits with a supply of surgical masks, gloves, gowns, eye protection and hand sanitizer to community-based health care practitioners and Community Health Centres; and are looking at strategies for increased ventilator capacity to address a possible increase in the demand for critical care.

We have been continually providing guidance to the health care sector through Important Health Notices posted on the ministry's website. And we engaged our key stakeholders and other levels of government in ongoing discussions at every step in our planning.

Basic Precautions Against Influenza

There are everyday actions that can help prevent the spread of germs that cause respiratory illnesses like influenza. Take these everyday steps to protect your health:

- Wash your hands often with soap and water, especially after you cough or sneeze. Also effective is a hand rub that contains 60 - 90 per cent alcohol.
- Sneeze and cough into your sleeve.
- Avoid touching your eyes, nose or mouth. Germs spread this way.
- If you get sick with the flu, stay home from work or school and limit contact with others. Know when to contact your health care provider for advice.

Historically, pandemics have lasted 12 to 18 months so we must expect – and plan for – another wave of activity in our communities this fall or winter. This is particularly important because we will be entering our usual flu season in Ontario. Immunization programs against both seasonal flu and the H1N1 flu are being planned and will be communicated when finalized in September and October. These vaccines will be available to everyone who needs and wants them. In addition, we have a stockpile of antivirals that will be mobilized to ensure they are provided in a timely manner to those who need them.

At the end of the day, Ontarians should know that the H1N1 flu is just another variety of the flu, and that they need to know how to protect themselves, their families and their communities from getting sick. Basic common sense behaviours along with immunization (against seasonal and H1N1 flu) and a health system leadership that is aware, committed, coordinated and prepared will get us through this.

It's going to be a different flu season, but we are ready for it.

For more information on the H1N1 flu and OHPIP, please visit the ministry's website at www.ontario.ca/flu

