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1. Human Influenza

What is influenza?

Commonly called “the flu” influenza is a disease of the upper respiratory tract. For basic information about the flu and how it differs from a cold or so-called “24-hour” or “stomach flu”, see IAPA’s Free Download, Colds and the Flu.

How serious is the flu in Canada?

Millions of people get the flu in Canada each year. Most recover in one to two weeks, but each year up to 2,000 Canadians die from the flu or complications such as pneumonia. In an influenza pandemic, those numbers will be much higher. Health Canada estimates that in a pandemic, over 50% of Canadians will be infected, and between 11,000 and 58,000 Canadians may die, depending on the severity of the strain. The Ontario Ministry of Health and Long Term Care estimates the most likely scenario for the next pandemic is that about 8,000 Ontarians will die, but the number could be as high as 20,000.

What is an influenza pandemic?

Influenza viruses regularly mutate or change slightly. That’s why it’s necessary to get a new flu shot each year, since the viruses circulating in the population change. However, 3-4 times each century, a completely new flu virus appears, unrelated to any previous circulating viruses. When this happens, no one has any immunity and the virus spreads rapidly around the globe, infecting and killing millions of people. This is known as a pandemic. In the last century there were three pandemics, during the years of 1918-1919, 1957-1958 and 1968-1969. The 1918 pandemic caused at least 20 million deaths worldwide, including 50,000 in Canada. The two later pandemics were much milder, but still killed 2 million and 1 million people worldwide, respectively, including 7,000 and 4,000 Canadians respectively.

Experts believe that another influenza pandemic is overdue and possibly imminent. See the section below, Pandemic Predictions, for more details.

2. Influenza and Animals

How will a “Pandemic virus” likely occur?

There are two ways that scientists think the pandemic strain could arise:

One way that a pandemic strain could emerge is when a virus is spread from an animal (e.g., a bird) to a human. As it infects more and more humans, it gradually adapts to the human host, until it is able to be transmitted more easily. Scientists believe this is what happened with the 1918 pandemic, since that virus was a totally avian (bird) virus that had adapted to humans.

The second way that a pandemic strain could emerge is through reassortment. Sometimes, humans and animals can swap viruses back and forth through direct close contact (such as in pig production farms). A human (or a pig) becomes infected with a human flu virus and perhaps an avian flu virus from a bird at the same time. The two viruses exchange genetic material while in the same host at the same time, and a new strain emerges that is very deadly, and also spreads easily from person to person. Scientists think this is what happened in the 1958-1959 pandemic and also the 1968-1969 pandemic, which were hybrids of human and avian influenza viruses.

Have any of these conditions occurred recently?

Avian Influenza

Avian Influenza, or “bird flu” has been documented in many Asian, European and African countries since 2003. Avian influenza refers to many different strains of influenza that infect many species of birds. A serious strain that has been infecting chickens and ducks, as well as a few mammals, is a highly pathogenic (disease causing) strain that spreads easily from bird to bird and is almost 100% fatal for chickens.

The H5N1 strain is of concern because of its tendency to mutate rapidly, and also to acquire genes from viruses infecting other species, such as humans. While there have been approximately 420 human avian influenza cases reported to date, there has been limited human-to-human transmission. However, because viruses mutate rapidly, making human-to-human transmission a possibility, the World Health Organization (WHO) continues to monitor the spread of this virus.

Avian flu in humans as of May 6, 2009 but changes often daily.

Country	Number of Human Cases of Avian Influenza	Number of Deaths
Azerbaijan	8	5
Bangladesh	1	0
Cambodia	8	7
China	38	25
Djibouti	1	0
Egypt	68	23
Indonesia	141	115
Iraq	3	2
Lao People's Democratic Republic	2	2
Myanmar	1	0
Nigeria	1	1
Pakistan	3	1
Thailand	25	17
Turkey	12	4
Vietnam	111	56
TOTAL	423	258

Note: Total number of cases includes number of deaths.

Source: World Health Organization, Cumulative Number of Confirmed Human Cases of Avian Influenza A/(H5N1) Reported to WHO

H1N1 Influenza

H1N1 Influenza or “swine flu” became news in April 2009. A number of cases have been reported and the number continues to grow. Scientists say the virus combines genetic material from pigs, birds and humans in a way that researchers have not seen before, and it appears that the virus is easily transmitted from human to human. It is a new strain of the influenza AH1N1 virus.

Why is H1N1 Influenza of concern?

H1N1 Influenza has been diagnosed in humans in different parts of Mexico and is now being reported in other countries, so it appears to be spreading. And since Mexico is a major tourist destination, there is a strong possibility of further spread. Since this is a new strain, people will likely have no natural immunity to protect against the virus. The good news is that, while there are fatalities reported in Mexico, the majority of cases in other countries appear to be mild.

Is it safe to continue eating pork (and poultry)?

Yes, at least in Canada. In the case of H1N1 Influenza, it has not been shown to be transmissible to people through eating properly handled and prepared pork. The H1N1 Influenza virus is killed by cooking temperatures corresponding to the general guidance for the preparation of pork and other meat (>70 degrees C).

For many years, Canada has banned imports of poultry from all countries affected by the Avian Flu virus because of concerns about other diseases. However, you should continue to only eat poultry and eggs that have been thoroughly cooked and handle raw poultry safely because of the many bacterial contaminants that are common in these foods. Thorough cooking destroys all these bacteria as well as the Avian Flu virus.

Are there any Avian or H1N1 Influenza cases in Canada?

To date, there have been no reported cases of Avian Influenza in humans in Canada since the 2003 outbreak in other parts of the world.

There have now been cases of H1N1 Influenza reported in Canada and health officials are warning that there will likely be more. Information and updates about H1N1 Influenza should be obtained from reliable internet sources such as Health Canada and the Ontario Ministry of Health.

3. Pandemic Predictions

What causes a pandemic?

There are four requirements for a pandemic:

1. A new influenza A virus must emerge, which can infect people
2. The new virus must be highly “virulent”, meaning it causes severe illness
3. The population must have little immunity to the virus; and
4. The virus must spread easily from person to person

At present, it appears that in Mexico, all four requirements have been met for the H1N1 Flu. However, cases reported in other countries do not appear to be “virulent”.

What is the expected course of the next pandemic?

Since 2003, health officials have been watching South-East Asia for signs of a pandemic. However, they have always cautioned that a pandemic could arise elsewhere. The Mexico epidemic of H1N1 Influenza is now being closely monitored. Wherever a pandemic arises, based on past history, there will likely be two or more waves of the pandemic, which will occur three to nine months apart. Each wave will last about two months.

Is there a Government plan to deal with the influenza pandemic?

Health Canada has developed the *Canadian Influenza Pandemic Plan*, which was released on February 12, 2004. The World Health Organization has called it an “excellent template” for other nations to use.

The Plan’s focus is on prompt vaccine development and delivery, with Canadian vaccine manufacturers gearing up to produce the millions of doses of vaccine that will be needed in a pandemic. The WHO notes that “Canada is better placed than virtually any other country on the issue of a flu vaccine, having contracted with a Canadian-based company to produce its vaccine.” (It is speculated that in a pandemic situation, many countries may embargo their domestically manufactured vaccines to make sure that their own citizens are protected first, so countries without their own vaccine producers may have difficulties obtaining vaccine.)

Most provinces and territories have their pandemic plans in place, to complement the federal plan. In Ontario, the *Ontario Health Pandemic Influenza Plan* is also supplemented by a number of regional plans.

What assumptions are being made about flu vaccine in a pandemic?

Because the vaccine manufacturing process cannot begin until the specific pandemic strain emerges, and because of the complexity of the process, it is expected that a vaccine against the pandemic strain will not be available for 4 to 6 months after the start of the pandemic. In other words, no vaccine will be available during the first wave, and possibly not for a second wave, depending on how quickly the second wave follows the first. Even once the vaccine is available, it will be in short supply for some time, and the government will decide who has access to it first. The Ontario Health Pandemic Influenza Plan sets out the highest priorities, in order as:

1. Health Care Workers (HCW) who are caring for patients who have influenza
2. Other HCW
3. Emergency workers or providers of essential services

4. Those at highest risk of fatal outcomes of influenza (primarily the very young and the elderly)
5. Healthy adults
6. Children from ages 2 to 18 years of age

What are the stages of a pandemic?

The WHO has defined six stages of a pandemic:

Period	Phase	Description
Interpandemic Period	Phase 1	No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection is considered to be low.
	Phase 2	No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.
Pandemic Alert Period	Phase 3	Human infection(s) are occurring with a new subtype, but there is no human-to-human spread, or at most rare instances of spread to a close contact.
	Phase 4	Small cluster(s) are occurring with limited human-to-human transmission but spread highly localized, suggesting that the virus is not well adapted to humans.
	Phase 5	Large cluster(s) are occurring, but human-to-human spread is still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk)
Pandemic Period	Phase 6	Increased and sustained transmission is occurring in the general population
Postpandemic Period		Return to interpandemic period.

You can find out what phase the world is currently in by checking the World Health Organization website.

4. Workplace Precautions and Planning

What is considered an influenza outbreak in a workplace?

Absenteeism of 10% or more on any one day due to “influenza-like illness” (ILI) is considered an outbreak, and a workplace should report this to their local public health unit. “Influenza-like-illness” is defined as the sudden onset of respiratory illness with fever and cough and with one or more of the following: sore throat, aching joints, aching muscles or extreme exhaustion.

What should an employer do in the Interpandemic Period to protect workers?

As with any workplace hazard, it is important to follow a continuous improvement process. The following should be implemented during “usual” flu seasons, and continued on an ongoing basis:

1. First, assess the risks to workers in your particular workplace. Those who have contact with the public are at particular risk of contracting the flu. Make sure you include workers in your discussions about the potential problems and possible remedies.
2. With input from workers, plan the controls you intend to put in place, and develop your standards, policies, and procedures. Some of these that may be applicable are suggested below:
 - > Offer free on-site flu vaccine to all workers and their families every October or November. While the flu vaccine is free to all Ontarians, making it convenient by offering it in the workplace may encourage people to get their shot. Including family members may avoid having immunized workers stay home to care for ill family members.
 - > Strongly encourage any employees who may travel to regions where influenza cases are present for business or vacation to have the current influenza vaccination two to three weeks before they leave.
- > Ensure that you have a sickness and absenteeism policy that encourages people to stay home when they are sick and does not penalize people for compliance (through loss of pay when off sick, or giving rewards for perfect attendance). Having sick people come to work is the best way to decimate the workforce in a pandemic.
- > Encourage good hygiene among all your workers, which means covering their mouth during a cough or sneeze, not spitting, handwashing, and keeping their hands away from their mouth, eyes, and nose.

People should wash their hands:

 - after touching anything that could be contaminated with the body fluids of others (e.g., saliva, nasal secretions, feces)
 - after coughing or sneezing
 - after using the toilet
 - before and after meals and snacks
 - before and after preparing food
 - before and after smoking cigarettes
 - when arriving home
 - before and after work
- > Provide alcohol-based hand sanitizers for workers in places or situations where it is impossible or inconvenient to wash hands with running water and soap.
- > Ensure regular cleaning of frequently touched environmental surfaces, such as doorknobs, railings, telephones, keyboards, etc.
- > Do appropriate cross training so that essential services or processes can continue if key people are off sick with the flu.
3. Communicate your standards, policies, and procedures clearly and appropriately to all employees on a regular basis and through many vehicles.
4. Train employees so that they understand the facts about flu vaccine and good hygiene practices.
5. Measure and evaluate your efforts and make improvements as necessary.

How can businesses prepare for the next pandemic, in addition to what they do in the Interpandemic Period?

During a pandemic, up to 35% of employees may be absent at one time due to illness. An additional number may be absent for other reasons, such as the need to care for ill family members, caring for children who are at home due to school closures, or simply due to fear of travel on public transit. Apart from the risk of illness to employees, this unprecedented absenteeism can threaten the survival of a business.

Employers planning for a pandemic should first ensure that they have done all the things listed in the section above. But in addition, they should:

1. **Assemble a team to plan for the pandemic.** The team should include senior leadership, senior union leaders, senior human resource staff, health and safety staff, key suppliers, and ideally a health professional from inside or outside the organization.
2. **Assess the risks to the organization.** Consider which people and which processes are at highest risk. For example:
 - > People at risk – those in contact with the public, those who travel extensively in planes and trains, those with school-aged children, those with chronic illnesses (e.g., diabetes, heart disease)
 - > Processes at risk – those that involve public gatherings, those that are dependent on a small number of skilled workers, those dependent on supplies from external suppliers.
3. **Set your priorities.** Which processes are the most critical for the survival and continuance of your business? Which support jobs are most critical for your business (e.g., payroll staff, IT support). Also, determine which are your least essential processes, which could be shut down for a few weeks in an emergency, without affecting your ability to survive as a business.
4. **Protect your people and your processes as much as possible.** This may include increasing your fresh air circulation, shifting staff from less essential processes or functions to critical processes and functions, encouraging alternate working arrangements such as telecommuting and conference calls, etc. Don't forget contingency planning for suppliers. Also be sure to define trigger points for instituting some of these contingency plans.
5. **Build the Foundation.** The controls listed above won't be possible to institute without a solid foundation including:
 - > Good succession planning and cross training
 - > A clear definition of the chain of command in a pandemic situation
 - > A well-defined communication plan for internal and external communications
 - > A definition of the new criteria for alternate work arrangements, as well as the availability of the technology to support them

Could Public Health Officials “commandeer” our facilities or employees in a pandemic?

During a pandemic, Canada's health care system may be overwhelmed, and public health officials may be required to use community resources to meet the needs of the population. Therefore, public health officials may come to businesses for assistance, as follows:

1. Facilities

The Canadian Pandemic Influenza Plan has a section (Appendix J) titled, “Guidelines for Non-Traditional Sites and Workers”. This section discusses the possibility of the need for using non-healthcare facilities for the monitoring, care or support of influenza patients during a pandemic. These sites might be used for triage centres, clinics, emergency residential care, etc. The Plan suggests the following types of sites might be appropriate for a Non-Traditional Site:

- > schools
- > hotels
- > community halls
- > banquet facilities
- > wards
- > day care centres
- > arenas
- > churches
- > closed hospitals or hospital

If your workplace is one of the above, or if your company owns large facilities that could be useful for handling large numbers of people or supplies in a pandemic situation, you may want to contact your local Public Health Unit’s Pandemic Planning staff, to offer your location as a potential Non-Traditional Site.

2. Human Resources – Needed Skills

In a pandemic situation, up to 35% of the population may be clinically ill and unable to work. This will be especially critical if shortages of health care workers result. The Plan calls for searching out additional health care workers, who may not normally be employed in a health care setting, or volunteers who could be trained to do non-medical work. If your company has an occupational health department, or employs trained health care workers who may be working in educational or administrative work, they could be called upon by the government to assist in managing the pandemic. Under certain circumstances, the time or property of such workers could be legally compelled to assist with the pandemic, though this would be a last resort. Employers should look at the list of skill sets in this section of the Plan, and consider whether your company has health care or other workers who could be of assistance in a pandemic.

The government will also be looking for large numbers of volunteers for non-medical work, and you may want to consider the role your company could play in this.

Will legislation change during a pandemic?

Employers should ensure that they have a mechanism to remain aware of legislative changes. During a pandemic, a state of emergency may, or may not, be declared. If it is declared, it may change the implications of various pieces of legislation. Even if it is not declared, there may be changes or policy decisions that affect employers and workers. For example, the Workplace Safety and Insurance Board may publish a policy statement clarifying the eligibility of various classes of workers for compensation if they should acquire influenza while on the job. Similarly, the Ministry of Labour may publish policies or clarification of policies related to the right to refuse work, job reassignments, and other employment issues.

5. Travel Issues

Are there any travel restrictions at this time?

As travel safety issues can change rapidly during Phases 4 to 6 of the WHO Pandemic Advisory, it is advisable to check the Public Health Agency of Canada’s website for up-to-date travel information.

6. Additional Resources

Where can I get more information on this subject?

There are many excellent web sites with information about influenza. Here's a selection of some of the best:

- > Canadian Food Inspection Agency
- > Canadian Pandemic Influenza Plan
- > Healthy Ontario
- > Ontario Ministry of Health
- > Ontario Ministry of Labour
- > Ontario Health Pandemic Influenza Plan
- > Public Health Agency of Canada
- > US Government Pandemic Flu Site
- > World Health Organization

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IAPA (Industrial Accident Prevention Association)

Toll free: 1-800-406-IAPA (4272) Fax: 1-800-316-IAPA (4272)

Website: www.iapa.ca