The Toronto EMS Community Medicine Program wants to provide information on pandemic influenza to help paramedics and their families. The recent media coverage given to avian influenza has raised concerns for many staff, and prompted questions regarding TEMS’ preparedness in the event of a pandemic. Please use the following newsletter to inform yourself and your family, and consider exploring some of the resources listed on the last two pages.

If a pandemic influenza develops it will affect everyone. Preparation, through education and encouraging practices which support good health, is the best defense.

**Influenza.**

Influenza is a highly contagious, viral, respiratory illness which occurs on a seasonal basis in North America. We have all been exposed to various strains of influenza in our lives.

Symptoms of infection usually present within 1 to 3 days and can include:
- sudden onset of fever
- cough
- headache
- sneezing
- sore throat
- runny nose
- profound fatigue with weakness

A full recovery is usually made after 7 to 10 days after infection. Although serious complications can arise in elderly patients or the very young, these are relatively rare and usually treatable. The best prevention against contracting influenza is receiving a vaccination every fall.

Avian influenza is a type of virus different from the form that usually infects humans. Primarily infecting bird populations, avian influenza rarely makes the jump to human hosts. There are many variations of the virus with severity ranging from asymptomatic to highly lethal. For unknown reasons, avian influenza viruses sometimes mutate in a way which allows them to infect and spread among humans. The current avian influenza that is circulating in south-east, central, and western Asia appears to be able to infect human hosts; but only if the person has spent a lot of time in direct contact
with infected birds. It is very difficult to transmit avian influenza from one human to another, as indicated by the rarity of suspected human to human transmissions.

Pandemic influenzas have affected the world three times in this century. The worst of the three was the “Spanish Flu” of 1918 which is believed to have killed 20 to 40 million people. The most recent pandemic was the ‘Hong Kong Flu’ in 1968 which killed more than 700,000 people.

Pandemics occur when an influenza virus mutates into a form that human populations have not encountered before. This means that humans have no natural immunity to the mutated virus, resulting in widespread infection with much higher mortality rates than a normal influenza.

Pandemics usually occur in several ‘waves’ of illness. The first wave usually lasts 6 to 8 weeks and is typically not as severe as the second wave. The gap between the first and second waves may provide the time needed to produce an effective vaccine which can then be distributed. Further waves are possible, resulting in a pandemic duration of almost two years from declaration to cessation.

**Why the worry right now?**

Since 1996 the World Health Organization (WHO) has been tracking the existence and spread of an avian influenza virus identified as a virulent strain of “H5N1” (the letters and numbers refer to the virus’ type and sub-type) in south-eastern Asia. This virus has met two of the three “pandemic criteria”. First, it is a new virus to which humans have no natural immunity; and secondly, it causes serious illness or death in humans.

The third criterion, easy and sustainable human to human transmission, has not yet been met. So far most of the human infections with this H5N1 virus have been as a result of close contact with infected birds through farming activities or in markets where infected birds are sold. The concern is that the virus may mutate into a form which can easily infect and spread through the human population.

**What is being done?**

The first line of attack against avian influenza was to enact large scale destruction of birds known to be infected and exposed to the H5N1 virus. Millions of birds have been killed in an attempt to prevent further spread, and mutation, of the disease. Despite best efforts, the natural migration of wild birds has allowed H5N1 to spread to several countries in south-east Asia and Europe. However not all forms of the H5N1 virus that is being spread by the birds is as deadly as the one currently affecting Asian countries.

An international system to monitor the location, spread, and identity of avian influenza is being developed. The WHO has provided guidelines for all nations to follow, a
process aided by the financial assistance provided by countries including Canada. Governments around the world are preparing to cope with a pandemic influenza, creating plans to share information and resources as freely as possible in order to reduce the impact of a pandemic.

Attempts to contain the spread of H5N1 have not been successful, leading to the WHO describing the virus as endemic to parts of south-east Asia. The virus can not be removed from this area, so the global response has shifted from containment to pandemic preparation. A strategy of increasing the capacity and ability of health care systems to cope with a pandemic is a top priority.

Is this going to be like SARS?
The SARS virus, considered much less infectious than influenza, caused severe atypical pneumonia in otherwise healthy people. While transmission of the SARS virus and the influenza virus through coughing and physical contact are similar, there is an important difference. The majority of people infected with the SARS virus were not contagious until they developed symptoms such as fever, cough, and shortness of breath. This made isolation based on symptom identification possible, which assisted in controlling the spread of the disease. Further, the spread of SARS was almost totally contained to close contacts of infected people within the health care system. This meant that closing down of hospitals with SARS patients and strict control of staff and visitors to all other healthcare facilities could be successful in preventing SARS from spreading within the community at large.

An influenza virus is contagious for up to 48 hours before symptoms are present. This makes it almost impossible to isolate an infected person before they can transmit the virus, making community spread of pandemic influenza extremely likely.

The information and experience we gained in the 2003 SARS outbreaks has given us a good start in knowing how to respond to an outbreak of a pandemic. The preventative measures we used then, such as diligent hand-washing, increased communication between agencies, careful donning of PPE, and recognition of possible infections based on pre-contact screening of patients and staff, will also be used in a pandemic environment.

Pandemic in Toronto
Toronto Public Health released the Toronto Pandemic Influenza Plan (TPIP) on November 24, 2005. While pandemic influenza is primarily a health concern, the estimated 15 to 35% infection rate would have significant effects on every industry in our city. The widespread impact requires representatives from financial, law enforcement, educational, recreational, and many other industries being actively involved in the creation of Toronto’s plan.
The TPIP was designed to be continuously modified based on recommendations and reports from all involved agencies. Developing communication between agencies which previously worked independent of each other, and improving existing information sharing between all agencies has been given a high priority. The continuing development of the plan will follow international, federal, and provincial guidelines while addressing the specific needs of Toronto. Communication and coordination with neighbouring municipalities is also being addressed in order to minimize the impact of a pandemic.

Toronto’s response will include; monitoring global infections, treating the ill, distributing resources to where they are most needed, and educating the public in protecting themselves.

**Pandemic at TEMS**

Toronto EMS has been involved in pandemic planning at municipal and provincial levels for several years. The experience we gained through the SARS outbreaks has been studied, respected, and valued by other health care providers, researchers, and organizations in Canada and internationally.

The TEMS Pandemic Response Plan also recognizes the importance of inter-agency collaboration and includes recommendations for improving communication before and during a pandemic, and developing and securing a distribution system with suppliers to minimize pandemic-related disruptions of equipment, fuel, medication, and personal protective equipment.

The CACC will implement modified protocols to compensate for higher call volumes such as:

- using other resources such as TeleHealth referral
- advising self-transport to influenza clinics, urgent-care clinics, or hospitals
- advising self-care
- prioritizing paramedic response to life-threatening calls

Provisions for canceling non-emergency calls and transfers may also be available to CACC staff in order to ensure paramedic response to emergency calls.

The Sunnybrook-Osler Centre for Pre-Hospital Care (SOCPC, base hospital) will be asked to provide modified medical directives for paramedics in the event of a pandemic. Consideration will be given to drug administration, pronouncement of death, transport of deceased, refusal of transport, and other paramedic duties required in a pandemic environment. Paramedics may also receive medical direction regarding vaccine administration, anti-viral administration, or other treatments. In accordance with current policy, paramedics will not be forced to accept anti-influenza vaccination if they do not want it.
An influenza pandemic will result in a large increase in the daily call volume at the same time as we experience an increase in illnesses among family and staff. TEMS is planning to assist paramedics and their families before, during, and after a pandemic has passed, through initiatives such as increased communication and distribution of supplies. We are also exploring options of on-site care for children and elderly relatives of employees.

As with the federal and provincial plans, the TEMS Pandemic Response Plan will continue to evolve and improve as more information is available.

**What about medications?**
In the early stages of an influenza pandemic there will not be a vaccine available. Drugs such as Tamiflu and Relenza may be beneficial to some people, however the effectiveness of these drugs against the pandemic flu strain will not be known until the strain is identified. Antibiotics may also be used for people who develop secondary bacterial infection due to the flu.

As pandemics hit in several ‘waves’, it is hoped that a vaccine will be available for mass immunization after the first wave has passed. This should occur approximately four to six months after a pandemic is identified.

The distribution of vaccines and anti-virals will be determined by government health authorities. The federal, provincial and municipal governments have all agreed that paramedics and other front-line health care workers will be given top priority to receive both vaccine and anti-viral medication. Membership in the different priority-groups for vaccination or treatment will not be finalized until a pandemic develops. Toronto EMS is and will continue to provide recommendations to governmental authorities on treatment priorities for all TEMS staff.

In the event of mass vaccination or prophylaxis with anti-virals, TEMS paramedics will likely provide the vaccination or medication distribution to both staff of TEMS and Toronto Fire Services. As of now the plan would be to set up vaccination clinics at TFS training centres in each of the four quadrants; providing space for the parking of both fire trucks and ambulances. These vaccination clinics would be open for 24 hours-a-day for 12 days in an attempt to vaccinate and/or distribute anti-viral medication to all interested front-line paramedic and firefighter staff while they are at work. Catch-up clinics would then be held after these days to vaccinate any staff missed.

Guidelines for vaccine and anti-viral distribution are being developed by Toronto Public Health.
How can I prepare my family?
Practicing a healthy lifestyle is the best way to physically prepare yourself and your family to defend against a pandemic. Practicing diligent, frequent, and excellent hand-hygiene is the best way to help prevent being infected by bacteria or viruses you may contact in the community. Get your family used to using an alcohol-based hand-sanitizer after touching common areas; door handles, railings, after using the bathroom, blowing their nose, and before and after they eat.

Influenza viruses are very susceptible to alcohol-based hand sanitizers and household cleaning products. On a hard surface the virus can live for up to 48 hours – simple disinfection of these surfaces on a regular basis combined with good hand washing will easily kill the virus.

Proper sleep, regular exercise, good nutrition and a chance to alleviate stress are all ways to help keep you and your family stay in good health. This may help mitigate the effects of any illness.

Immunization for pandemic influenza will not be available right away, but the ‘flu shot’ can help you prepare. While the annual vaccine may not provide protection against the pandemic strain, it can prevent illness and complications due to ‘normal’ influenza. Each immunization may convey some immunity against other types of influenza, including the possibility of partial immunity against a pandemic strain. The risks associated with the vaccine are very low, and the benefits are considered very high. Talk to your doctor, public health unit, or the Community Medicine Program at TEMS about immunization opportunities every fall.

If you notice influenza-like symptoms in yourself or your family during a pandemic, choose to stay home from work or school and see a doctor. While not practical for paramedics, other family members may be able to develop methods for ‘telecommuting’ with employers to make working from home possible. Being in a large group of people for an extended period of time while you are symptomatic makes it much easier to spread illness to others. During a pandemic Toronto Public Health may place restrictions on large public gatherings, assign quarantine to individuals, or give other directions to prevent the spread of disease. These advisories will be broadcast through various forms of media and should be helpful.

An influenza pandemic resulting in illness of 35% of the population would have serious, tangible effects on all our lives. While the effects will happen somewhat slower than a typical disaster – such as a hurricane, earthquake, or blackout - its effects will be widespread and long lasting. Preparing an emergency kit of necessary supplies including food, water, medication, and a plan is an excellent way to reduce the impact of an influenza pandemic on you and your family.
**Emergency Supplies**

Having enough supplies for you and your family to handle an interruption in water, food, or electricity is relatively simple to do. While storing supplies may seem difficult at first, organizations such as the Canadian Red Cross and Toronto’s Office of Emergency Management have compiled lists of items and tips on storing them. The location of this information is included in the “Resources” section of this document. If you are unable to access the online content, contact your public health office, local chapter of the Canadian Red Cross, or Emergency Management Ontario for information on emergency preparedness.

While transmission in the community is difficult to control, you can minimize the spread of influenza at home quite easily. Ensure all members of the household wash their hands just after entering the house and before touching any surfaces; a bottle of alcohol-based, waterless sanitizer at the door makes this easier. Regular household cleaners are sufficient to clean household surfaces (countertops, railings, handles, etc) that are touched by anyone who may be infectious. Contaminated laundry can be cleaned in a normal washing machine using commercial detergent. If solids such as stool or blood clots are present, these should be removed with a gloved hand and flushed in the toilet. Garbage and recycling do not require special handling, although plans should be in place to store such material safely if municipal service is interrupted.

After any of these tasks hand washing is a requirement – it is the single most effective way to prevent influenza transmission.

**More Information**

Please explore some of the resources listed on the next few pages regarding pandemic influenza and preparedness. Contact your public health unit or the Community Medicine Program at Toronto EMS if you would like more information.

Throughout all stages of our pandemic response, the health and safety of TEMS staff will continue to be a top priority.

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Resources

Pandemic Influenza Info

World Health Organization
http://www.who.org

Public Health Agency of Canada
http://www.phac-aspc.gc.ca/influenza/

Toronto Public Health
http://www.toronto.ca/health/pandemicflu/
Phone 416-338-7600

ProMED – Global Outbreak Reporting System
http://www.promedmail.org/

Healthy Ontario
http://www.healthyontario.com
Phone 866-797-0000

Durham Public Health
http://www.region.durham.on.ca/
Click “Public Health”
Phone 800-841-2729

York Public Health
http://www.region.york.on.ca/Services/Public+Health+and+Safety/
Phone 800-361-5653

Peel Public Health
http://www.region.peel.on.ca/health/
Phone 905-799-7700
Resources, continued

Emergency Preparedness

Government of Canada
http://www.safeCanada.ca
Click ‘Emergencies & Disasters’ or ‘Health Protection’
Extensive information and links to other information

Emergency Management Ontario
http://www.mpss.jus.gov.on.ca/english/pub_security/emo/about_emo.html
Phone 416-326-5010

Toronto Emergency Medical Services
http://www.toronto.ca/ems/divisions/planning.htm
Phone 416 392 2000

Toronto Office of Emergency Management
http://www.toronto.ca/oem
Phone 416-392-4554

Emergency Preparedness Guide

Canadian Red Cross
http://www.redcross.ca
Phone 905-890-1000

Disaster Preparedness
http://www.redcross.ca/main.asp?id=000285