

Pandemic Influenza Plan for the Health Sector in Peel 2007

***Prepared by: Peel Public Health
On behalf of the Health Sector in the Region of Peel***

ACKNOWLEDGEMENTS

The success of this initiative is attributed to the hard work and dedication of many individuals. Peel Public Health would like to express appreciation to the key stakeholders, the Region of Peel staff, and Dr. Susan Tamblyn in the development of this Pandemic Influenza Plan for the Health Sector in Peel - 2007.

Approved by Peel Health DMT: 09 Jan 2007

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EXECUTIVE SUMMARY

To prepare for an influenza pandemic, Peel Public Health has worked in partnership with local health care organizations and emergency management partners through the Peel Pandemic Planning Team and the Health Sector Coordinating Committee to develop an overarching pandemic influenza plan for the health sector in the Region of Peel. In total, more than 50 partners representing local governments and health care organizations participated in the planning process and contributed greatly to the development of this plan. The planning process has brought together partners from a variety of organizations from across the health sector, which has served to strengthen health sector planning and preparedness capabilities, as well as, enhancing response coordination at the community level.

This document provides a comprehensive framework for coordinated pandemic planning and response for the health sector in the Region of Peel, and provides information that will guide pandemic planning for the health sector at the local level. This plan is closely aligned with provincial direction in the Ontario Health Pandemic Influenza Plan and the Canadian Pandemic Influenza Plan.

This is a living document and will be reviewed, and regularly updated, as new information is made available.

Section One – Overview

Section One is divided into four chapters: (1) Overview, (2) Background on Influenza and Pandemics, (3) Key Planning Assumptions, and (4) Health and Social Infrastructure in the Region of Peel.

Chapter 1 provides a general introduction to the pandemic planning process in the Region of Peel and identifies the plan structure and purpose, ethical framework and core values for pandemic planning and response. These values are based on the goals of OHPIP, which are, firstly, to minimize illness and death, and to reduce social disruption. The ethical framework is transparent and allows decision making to be consistent across jurisdictions.

Chapter 2 provides background information about influenza and pandemics. Pandemic influenza, a novel influenza A virus which circulates the globe three to four times per century, results in a higher rate of illness and death. The World Health Organization is carefully monitoring new influenza viruses, and classifies influenza activity according to six phases. Canada has adopted this same approach.

Chapter 3 provides an overview of the key assumptions that are used for pandemic planning. It is expected that up to 70% of the population in the Region of Peel will become infected, and that between 15-35% of those infected will become clinically ill. If there were no effective interventions, such as antiviral drugs or an effective vaccine, up to

10% would need hospitalization and 2% could die. The health sector and businesses should plan for a 20-25% rate of work absenteeism. Disruption of supply chains and critical infrastructure are real risks. The plan assumes that a vaccine would be available in four to six months, would require two doses, and some antiviral drugs would be stockpiled.

Chapter 4 provides an overview of the health and social infrastructure in the Region of Peel, the second largest municipality in Canada. The Region has a population of approximately 1.2 million people, which is served by three hospitals, 27 long term care centres, 1,560 physicians, nine coroners, one university, one college, and approximately 380 primary and secondary schools.

Section Two – Concept of Operations

Section Two is divided into three chapters: (5) Roles and Responsibilities, (6) Emergency Response and the Incident Management System, and (7) Authority and Legislation.

Chapter 5 outlines the roles and responsibilities of the various sectors serving the Region of Peel, including Peel Public Health, the health care sector, and the municipal sector. Peel Public Health is responsible for the coordination of pandemic planning and response for the health sector, as directed by the province. Peel Public Health will coordinate the Peel Health Emergency Operations Centre, distribute antiviral medications and vaccines, identify public health and infection control measures, conduct local surveillance, and assess the capacity of local health services. The health sector will provide acute and chronic care and the municipal sector will manage natural death surge and coordinate the non-health sector response, including social services.

Chapter 6 provides an overview of the emergency activation process and describes the Incident Management System for the health sector emergency response. This system consists of five sections: Command, Planning and Intelligence, Operations, Logistics, and Finance and Administration.

Chapter 7 provides a detailed account of authority for the declaration of a Regional emergency and the legislation that guides emergency management programs.

Section Three – Response Components

Section Three is divided into eight chapters, each a component of the pandemic response: (8) Surveillance, (9) Vaccines, (10) Antiviral Drugs, (11) Public Health Measures, (12) Health Services, (13) Communications, (14) Natural Death Surge, and (15) Health Sector Planning and Response by Pandemic Phase.

Chapter 8 reviews the importance of surveillance information in preparing for, and monitoring, a pandemic. Peel Public Health currently prepares a number of surveillance reports, including the Weekly Institutional Outbreak Report, Weekly Influenza Report, annual Communicable Disease Report, and the Health Professionals Update.

The two major surveillance components to be added during the pandemic include mortality surveillance, and hospital and clinical indicators.

Chapter 9 provides an overview of the Peel Public Health vaccine strategy. The objective of the strategy is to vaccinate the susceptible population with a target uptake of 90% over a four-month period. It is likely that the vaccine will be administered in two doses, separated by at least 21 days.

Chapter 10 provides an overview of the Peel Public Health antiviral drug strategy. Antiviral drugs will play an important role in the treatment of influenza illness during a pandemic, their role in prophylaxis will be determined provincially. The objective of the strategy is to provide antiviral drugs to all persons needing treatment within 48 hours of onset of illness and to monitor the update, safety, and resistance to antiviral drugs.

Chapter 11 outlines the range of possible public health measures. These are non-medical interventions that may be used to reduce the spread of the influenza virus. They include public education, social distancing and school closures, case and contact management, travel restrictions, and infection prevention and control strategies. The type of public health measures used will depend on the epidemiology of the virus and will be aligned with direction from the Ministry of Health and Long Term Care.

Chapter 12 reviews the health services strategy in response to a pandemic in the Region of Peel. In a pandemic, both hospital and community health care services may be overwhelmed by a surge in people requiring medical care. The objective of the strategy is to optimize community and hospital capacity to provide care, maintain key community and institutional health care services, and to support people with influenza who can be cared for at home. The range of services includes self care, community assessment, treatment and referral centres, hospitals, alternate care sites, long term care homes, community care access centres, paramedic and medical transportation services, laboratories, and pharmacists.

Chapter 13 outlines the communication strategy, including objectives, principles, responsibilities, internal and external audiences, and key messages and products in response to a pandemic. Consistent, reliable, transparent, and accurate communications will be essential during a pandemic in order to ensure a coordinated response by the health sector. The Medical Officer of Health and Peel Public Health will have responsibility for the communication strategy during the pandemic alert period. In Phase 6, the Regional Emergency Control Group will assume responsibility, with the Medical Officer of Health remaining a key spokesperson and the public health department providing the key health messages. The Regional Communication Services Division will lead the Regional communications response.

Chapter 14 provides an overview of the natural death surge planning for the Region of Peel. The Province of Ontario is currently reviewing the process for death pronouncement and certification. According to pandemic modeling, the Region may experience between 467 and 1,730 deaths over the duration of the pandemic.

Chapter 15 provides tables which summarize the key planning and response components for each part of the health sector, according to pandemic phase.

Section Four – Planning and Preparedness

Section Four is divided into two chapters: (16) Health Sector Planning and Preparedness, and (17) Training and Exercises.

Chapter 16 provides an overview of continuity of operations planning for the health sector. The basis of continuity of operations planning is to ensure the continued operation of priority program areas and services during an emergency. It uses a risk management approach to ensure the provision of critical functions and services. As identified by the Ministry of Health and Long Term Care, health sector organizations are required to maintain a four-week stockpile of essential equipment and supplies. Occupational health and safety issues are also identified in this chapter.

Chapter 17 outlines the various types of training and exercises that can be used by the health sector. Training and exercises are essential components in an emergency management program, and are used to evaluate the validity, accuracy, and effectiveness of emergency response plans. The goals of training and exercises are to create an awareness of emergency management principles and to develop the skills necessary to effectively and efficiently manage an emergency. Training and exercises should include the full range of emergency response personnel, including support staff and volunteers.

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LIST OF ABBREVIATIONS

Abbreviation	Description
BCP	Business Continuity Planning
CCAC	Community Care Access Centre
CDC	Centers for Disease Control
CEMC	Community Emergency Management Coordinator
COOP	Continuity of Operations
CPIP	Canadian Pandemic Influenza Plan
EMCPA	Emergency Management and Civil Protection Act
EMS	Emergency Management System
EMT	Executive Management Team
EOC	Emergency Operations Centre
FAQs	Frequently Asked Questions
FRI	Febrile Respiratory Illness
FSX	Full-Scale Exercise
FX	Functional Exercise
GTAA	Greater Toronto Airports Authority
HPPA	Health Protection and Promotion Act
HSCC	Health Sector Coordinating Committee
ICU	Intensive Care Unit
ILI	Influenza-like Illness
IMS	Incident Management System
IPAC	Influenza Prevention and Control
iPHIS	Integrated Public Health Information System
LHINs	Local Health Integrated Networks
LTC	Long Term Care
MEOC	Ministry of Emergency Operations Centre
MOH	Medical Officer of Health
MOHLTC	Ministry of Health and Long-Term Care
NI	Neuraminidase Inhibitors
OGPMSS	Ontario Government Pharmacy and Medical Supplies Services
OHPIP	Ontario Health Pandemic Influenza Plan
OHSA	Occupational Health and Safety Act
OIE	World Organization for Animal Health
PHAC	Public Health Agency of Canada
PHEMP	Peel Health Emergency Management Program
PHEOC	Peel Health Emergency Operations Centre
PHM	Public Health Measures
PIDAC	Provincial Infectious Diseases Advisory Committee
PPE	Personal Protective Equipment
PREP	Peel Region Emergency Program
PSU	Peel Surveillance Unit
RECG	Regional Emergency Control Group
REOC	Regional Emergency Operations Centre
SO	Safety Officer
TBC	To Be Confirmed
TBD	To Be Determined
TTX	Table-Top Exercise
UTM	University of Toronto at Mississauga
WHO	World Health Organization

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SECTION ONE: OVERVIEW

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Chapter 1: Introduction

Planning is a key component of emergency management, regardless as to the nature, size, or duration of the emergency. The possibility of an influenza pandemic, a natural event that occurs three to four times per century, is recognized as a significant threat that warrants dedicated and ongoing planning to minimize its impact on society. Peel Public Health has been involved in pandemic planning since 2001. This document is part of a comprehensive emergency management strategy for the Region of Peel, and is a collaborative effort between health and municipal stakeholders that is sponsored by the Region of Peel Medical Officer of Health.

While the plan is as complete as possible at the time of publication, pandemic planning is an ongoing process. The plan is a living document that will be reviewed and revised regularly. In some instances, the plan presents options for consideration, as final decisions cannot be made until a pandemic virus emerges and its characteristics are known. Local planning is still in progress and “Next Steps” are identified throughout the document. Furthermore, some content in this document may require revision as new scientific knowledge becomes available and national and provincial pandemic planning provides new or revised direction and guidance.

Peel Health anticipates that the *Pandemic Influenza Plan for the Health Sector in Peel* will guide a timely, coordinated, efficient, and effective response to a pandemic influenza outbreak in the Region of Peel. The plan’s value, however, goes beyond that of a pandemic. Many aspects of the plan will assist the health sector in responding to other communicable disease emergencies or to chemical, radiological, or nuclear incidents. The strong working relationships that have been forged during the planning process will be invaluable in responding to any emergency or disaster.

Pandemic Planning in Peel

In January 2001, a report to Regional Council identified the necessity of pandemic influenza planning and recommended the development of a pandemic response plan for Peel Public Health. As a result of this report, Peel Health published the Region’s first *Peel Public Health Pandemic Influenza Plan* in March 2002.

In January 2006, a subsequent report to Regional Council reiterated the necessity for pandemic influenza planning, and recommended that Peel Health publish an updated pandemic plan. This report was followed by the development of a pandemic planning committee, which led to a number of physician and stakeholder meetings across the Region, and produced a revised *Peel Public Health Pandemic Plan* in June 2006.

Recognizing the need for greater stakeholder engagement, and an integrated approach to pandemic planning across the broader health sector, Peel Health initiated a new pandemic project in July 2006.

Under the sponsorship of Dr Megan Ward, Acting Medical Officer of Health, the project planning group was tasked to engage the broader health sector and lead the development of the content for the public health component of the pandemic plan through task-specific work groups.

The planning process for developing a response to the threat of pandemic influenza is highly complex. It involves input from health and non-health sector stakeholders at all levels, including municipal, provincial, and federal governments. The planning process has focused on both the overarching plan for the health sector and the operational details for Peel Public Health.

Plan Structure

This plan is divided into four main sections:

Section One provides an overview of pandemic influenza, the assumptions driving the planning process, an ethical framework, and a background of the health and social infrastructure in the Region of Peel;

Section Two provides an overview of the concept of operations for both the health and non-health sectors in the Region of Peel for a pandemic response. This section identifies the roles and responsibilities of the various stakeholders in the Region of Peel and the broader health sector. This section also identifies the command and control structure of the emergency response, and outlines the legislated authority of the Peel Medical Officer of Health;

Section Three identifies the basic pandemic response components, specifically surveillance, public health measures (including infection control practices), vaccines, antiviral drugs, health services, communications, and natural death surge management; and

Section Four provides additional information for health sector planning and preparedness, including a basic introduction to continuity of operations planning, equipment and supplies, workforce and human resources, and occupational health and safety. The section also addresses training and exercises.

Pandemic Response Goal

Consistent with the pandemic goals adopted by the federal and provincial government, the goal of the pandemic response in the Region of Peel is to:

- (1) Minimize illness and death; and
- (2) Reduce societal disruption in the Region of Peel as a result of an influenza pandemic.

Ethical Framework for Pandemic Planning

An influenza pandemic will result in the need to make many difficult decisions, many of which will have a significant and lasting impact on the residents of the Region of Peel. To assist in the decision-making process, the *Ontario Health Pandemic Influenza Plan*, (OHPIP) contains an ethical framework¹, the purpose of which is to assist officials and leaders to make honest and transparent decisions, and to prioritize the delivery of possibly scarce services and resources, such as vaccine and antiviral drugs.

OHPIP points out that stakeholders (e.g. general public, patients, health care workers, and other organizations) are more likely to accept difficult decisions if the decision-making process is:

- Open and transparent;
- Reasonable;
- Inclusive;
- Responsive; and
- Accountable.

The framework also describes a series of core ethical values that need to be taken into account in the pandemic response. More than one value may be relevant in any given situation, and some values will be in tension with others. These core values, which are discussed in more detail in the OHPIP, include: individual liberty, protection of the public from harm, proportionality, privacy, equity, duty to provide care, reciprocity, trust, solidarity, stewardship, family-centred care, and respect for emerging autonomy.

Plan Purpose

The *Pandemic Influenza Plan for the Health Sector in Peel* is a hazard-specific emergency management plan designed specifically to guide, on a strategic level, the pandemic planning and response activities of the Peel Health Department and the broader health sector. The purpose of this plan is to identify the need for planning and to identify the roles, responsibilities and key activities of the health sector and their links to the municipal sector in planning and responding to a pandemic emergency.

This plan is not a stand-in document. It supports the Peel Health Department Emergency Plan, which supports the Peel Region Emergency Plan, and also supports the planning process and development of health sector pandemic plans. This plan also works in harmony with federal and provincial pandemic plans, and the pandemic plans of surrounding jurisdictions.

¹ Ministry of Health and Long-Term Care. (2006). *Ontario Health Plan for an Influenza Pandemic 2006*, Section 2.5. Retrieved November 29, 2006, from http://www.health.gov.on.ca/english/providers/program/emu/pan_flu/pan_flu_plan.html

This plan will be maintained by the Peel Health Emergency Management Program on behalf of Peel Public Health.

Use of the Pandemic Influenza Plan for the Health Sector in Peel

This health sector plan has been designed for open use and access by all health sector stakeholders and the general public. Plan annexes, which support the strategic elements of this plan, may be withheld for operational security reasons.

Chapter 2: Background on Influenza and Pandemics

Influenza is a highly contagious, acute viral disease of the respiratory tract that causes outbreaks every winter in temperate climates. Influenza is responsible for thousands of hospitalizations and deaths each year in Canada. Complications, such as pneumonia, are most likely to occur in persons with underlying health conditions, seniors, or young children.

Symptoms of influenza include fever, cough, stuffy or runny nose, sore throat, headache, fatigue, and sore muscles. The illness can last five days or more. Infection rates for annual, or seasonal, influenza typically average between 10-20% of the population. Influenza spreads even more rapidly and widely in closed-population settings, such as long term care homes and schools, where up to 50% of the population can be affected.

How Influenza Spreads

Transmission (spread) of the influenza virus is generally through contact with droplets from respiratory secretions (e.g. from coughs and sneezes). Transmission normally occurs at a short distance (i.e. less than one metre) from an infected person. However, transmission may also occur through contact with contaminated surfaces.

The incubation period of influenza is approximately one to three days. Adults shed virus from 24 hours before onset of symptoms up to five days from onset, and children for longer (7-21 days). However, infected persons are most contagious during the first three days of their illness.

The Influenza Virus

There are three types of influenza virus – A, B, and C – but only influenza A and B viruses commonly cause human disease. Both influenza A and B viruses cause seasonal outbreaks, but only influenza A viruses have caused pandemics. Influenza A viruses are named for the haemagglutinin (H) and neuraminidase (N) antigens found on their surface. There are 16 H types and nine N types found in nature, though only H1, H2 and H3 occur as human viruses.

Influenza viruses undergo gradual change to their genetic structure known as antigenic drift. These ongoing changes, or drift, mean that a new influenza vaccine must be created each year to protect the human population from infection.

At unpredictable intervals, influenza A viruses experience antigenic shift, which is a periodic process of major change to the haemagglutinin (H) type of the genetic make-up. It is thought that antigenic shift can occur in several ways, such as:

- (1) Through genetic re-assortment when two viruses infect the same cell and share genetic material. For example, re-assortment may occur when strains of avian

influenza mix with the genetic material found in the human influenza virus in a host, such as a pig or human; and/or

(2) Through mutation as influenza viruses move from host to host.

Regardless of the means of the antigenic shift, this major alteration to the genetic make-up of the influenza A virus can lead to the emergence of a novel influenza A virus to which humans have little or no immunity.

Pandemic Influenza

Pandemic influenza refers to the occurrence, three to four times per century, of a novel influenza A virus infection that circulates around the globe. For a pandemic to occur, the novel virus must have the capacity to spread efficiently from person to person and to cause widespread illness and death. The exact nature of the next pandemic virus, such as its virulence, genetic make-up, transmissibility, and epidemiologic features (e.g. age groups affected) will not be known until it emerges.

Three influenza pandemics occurred in the last century, the 1918-19 Spanish flu (H1N1), the 1957 Asian flu (H2N2), and the 1968 Hong Kong flu (H3N2). The Spanish flu killed over 40 million people worldwide, and predominantly attacked young, healthy adults between the ages of 15 and 35 years. Although not as deadly, the 1957 Asian flu resulted in an estimated two million deaths worldwide, most of whom were elderly and those with underlying medical conditions. The 1968 Hong Kong flu resulted in an estimated one million deaths, mostly among the elderly. In addition, there have been several pandemic alerts that involved the identification of a novel influenza A virus to which the population was largely susceptible, but which lacked the ability to spread easily from person to person. H5N1 is a current example of a novel virus that is being monitored closely for its pandemic potential.

It is now believed that the 1957 and 1968 pandemics arose from genetic re-assortment between human and avian influenza strains. The origin of the Spanish flu virus is less clear, although it is thought to have progressively mutated from an unknown avian strain of influenza.

Experts suggest that strains of pandemic influenza will likely originate in Asia where wild and domestic birds, pigs, and people live in close proximity. These living conditions create a favourable environment for the mixing of avian and human strains of influenza.

World Health Organization (WHO) Pandemic Periods and Phases

To provide assistance in pandemic planning and preparedness, and help coordinate response activities, the World Health Organization (WHO) has categorized the various phases of a pandemic. In April 2005, WHO revised the pandemic phases to take into account avian influenza and its possible relationship to human pandemics (see Table 2.1).

WHO phases reflect the international risk or activity level, but do not necessarily reflect the situation in Canada. Therefore, an adaptation of the WHO numbering scheme has been developed nationally to reflect the Canadian situation. The WHO phase number will be followed by a period and then a number from 0 to 2 to indicate the level of activity in Canada. The Canadian adaptation of the WHO phases is as follows:²

- 0 – no activity observed in Canada;
- 1 – single case(s) observed in Canada but no clusters; and
- 2 – localized or widespread activity in Canada.

For example, WHO Phase 6, a declared pandemic with sustained human-to-human activity, would be represented by Phase 6.0 if it has not yet arrived in Canada.

Table 2. 1: World Health Organization Phases for Pandemic Influenza³

Period	Phase	Description
Inter-pandemic period	Phase 1	No new influenza sub-types 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 low.
	Phase 2	No new influenza subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human diseases.
Pandemic Alert Period	Phase 3	Human infection(s) with a new subtype, but no human-to-human spread, or limited to rare instances of spread to a close contact.
	Phase 4	Small clusters with limited human-to-human spread, but spread is localized, indicating that the virus has not adapted to humans.
	Phase 5	Larger clusters. However, human-to-human spread remains localized, indicating that the virus is adapting to humans, although not yet fully transmissible (substantial pandemic risk).
Pandemic Period	Phase 6	Increased and sustained human-to-human transmission.
Post Pandemic Period		Return to Inter-pandemic Period.

² Public Health Agency of Canada. (2006). *Canadian Pandemic Influenza Plan for the Health Sector*, Background, p.9. Retrieved December 9, 2006, from <http://www.phac-aspc.gc.ca/cpip-pclcpi/index.html>

³ Public Health Agency of Canada. (2006). *Canadian Pandemic Influenza Plan for the Health Sector*, Background, pp.10-12. Retrieved December 9, 2006, from <http://www.phac-aspc.gc.ca/cpip-pclcpi/index.html>

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Chapter 3: Key Planning Assumptions

Influenza, whether seasonal or pandemic, has always been an unpredictable disease. While an influenza pandemic is considered inevitable, its timing and impact cannot be predicted and will not be known until the pandemic virus emerges. The factors that will affect the impact of a pandemic include:

- Characteristics of the virus - attack rate, affected age groups, virulence (rates of complications and death) and speed of spread;
- Effectiveness of the response – vaccines, antiviral drugs, and public health measures; and
- Public behaviour.

Planning Assumptions

Despite these uncertainties, the pandemic planning must proceed. It is helpful to have some agreed-upon general assumptions about the next pandemic as a planning guide. However, given the unpredictability of influenza, flexibility in planning, and the ability to revise plans as new information is made available, are key considerations. The following general assumptions reflect those identified in the Canadian and Ontario pandemic plans:

Origin and Spread

1. The next pandemic will emerge outside of Canada, most likely in Southeast Asia;
2. There will be a relatively short lead time for spread of the virus to Canada, likely within three months of its emergence;
3. The pandemic virus could arrive in Canada at any time of year;
4. Illness will peak within 2-4 months of the virus arriving in Canada;
5. Outbreaks will likely occur simultaneously in multiple locations; and
6. The pandemic will occur in two or three waves of illness over an 18 to 24 month period, with each wave lasting between 6-8 weeks in any locality.

Epidemiology

7. The incubation period, period of communicability, and method of transmission for the novel virus will be consistent with other human influenza strains;
8. There will be a spectrum of clinical illness, from mild to severe, and asymptomatic or sub clinical infections will occur in about 50% of infections; and
9. Existing high-risk persons or groups will be at high risk for complications from the pandemic strain; however, additional high-risk groups may be identified.

Impact

10. The impact of the pandemic virus in terms of severity, age distribution, and extent of spread could differ from seasonal influenza, but will not be known until the pandemic virus begins to spread efficiently;
11. The majority of the population (over 70%) will be infected over the multiple waves of the pandemic, but only 15-35% of the population will be clinically ill;
12. In the absence of any interventions, and for a pandemic of mild to moderate severity, of those who are clinically ill:
 - a. Up to 50% will seek medical care,
 - b. 1% will be hospitalized and recover,
 - c. 0.4% will be fatal cases;
13. In the absence of any interventions in a severe pandemic, up to 10% may be hospitalized and 2% may die;
14. Individuals who recover from infection will be immune to future infection from the same strain;
15. At the peak of the pandemic, businesses should plan for up to 20-25% of their staff being absent (at a given time) as a result of personal illness, caregiver responsibilities, or fear of infection;
16. Supply chains may be weakened or severely disrupted; and
17. There may be intermittent disruptions and reduced service levels in critical infrastructure, including transportation, utilities, and emergency services.

Response

18. As vaccine manufacture takes 4-6 months, it is unlikely that an effective vaccine will be available at the start of pandemic activity in Canada, but it may be available for the second wave;
19. Two doses of pandemic vaccine may be required to confer immunity;
20. Due to high demand, existing stockpiles will constitute the only source for antiviral drugs; and
21. Vaccines and antiviral drugs will be managed by public health authorities in accordance with national and provincial priorities.

Estimated Impact of an Influenza Pandemic in the Region of Peel

Despite the number of variables involved, and the unpredictable nature of pandemic influenza, models provide a useful way to look at estimates of what might happen in a pandemic. The *Ontario Health Pandemic Influenza Plan* (OHPIP) provides impact estimates for health units that may be used for pandemic planning. The estimates are based on the Meltzer model, and are calculated using a CDC software program called FluAid 2.0.⁴ It should be noted that the Meltzer model is based on a *mild-moderate* 1968-like pandemic scenario, not a severe 1918-like pandemic. It does not factor in the use of

⁴ U.S. Department of Health and Human Services. (2000). *FluAid*. Retrieved November 29, 2006, from <http://www.pandemicflu.gov/plan/tools.html>

counter-measures, such as the use and potential effectiveness of antiviral drugs, vaccines, and public health measures, which could reduce the impact. While there are certain limitations to using the Meltzer model, it provides an effective guide for planning purposes. See Table 3.1 for the estimated impact of a mild-moderate pandemic in the Region of Peel.

Table 3. 1: Estimated Impact of Pandemic Influenza on the Region of Peel⁵

POPULATION (Numbers and Distribution)					
	0-18 yrs	19-64 yrs	65+ yrs	Total	% Total
Non-high risk	300,613	678,351	60,977	1,039,941	85.57%
High risk	20,554	114,115	40,651	175,320	14.42%
Totals	321,167	792,466	101,628	1,215,261	100%

DEATHS (Number of Cases)						
Gross Attack Rates				Distribution by age group (% of total): Most Likely		
	15%	25%	35%		% High Risk	% Total
0-18 yrs most likely	5	8	12	0-18 yrs	0	1
Minimum	3	5	7			
Maximum	70	116	162			
19-64 yrs most likely	248	413	579	19-64 yrs	52	59
Minimum	35	59	83			
Maximum	466	776	1,086			
65+ yrs most likely	167	278	389	65+ yrs	32	40
Minimum	162	269	377			
Maximum	207	344	482			
TOTAL: Most likely	420	699	980	Totals	84	100
Total Minimum	200	333	467			
Total Maximum	743	1,236	1,730			

HOSPITALIZATION with Recovery (Number of Cases)						
Gross Attack Rates				Distribution by age group (% of total): Most Likely		
	15%	25%	35%		% High Risk	% Total
0-18 yrs most likely	90	150	210	0-18 yrs	1	5
Minimum	44	74	103			
Maximum	377	629	881			
19-64 yrs most likely	1,465	2,441	3,418	19-64 yrs	11	73
Minimum	214	452	632			
Maximum	1,599	2,665	3,731			
65+ yrs most likely	444	740	1,037	65+ yrs	14	22
Minimum	318	529	741			
Maximum	562	936	1,310			
TOTAL: Most likely	1,999	3,331	4,665	Totals	26	100
Total Minimum	576	1,055	1,476			
Total Maximum	2,538	4,230	5,922			

⁵ Ministry of Health and Long-Term. (2006). *Ontario Health Plan for an Influenza Pandemic 2006*, Chapter 13A, pp.48-49. Retrieved November 29, 2006, from http://www.health.gov.on.ca/english/providers/program/emu/pan_flu/pan_flu_plan.html

OUTPATIENT VISTS (Number of Cases)						
Gross Attack Rates				Distribution by age group (% of total): Most Likely		
	15%	25%	35%		% High Risk	% Total
0-18 yrs most likely	28,493	47,488	66,483	0-18 yrs	3	29
Minimum	23,803	39,672	55,541			
Maximum	33,182	55,303	77,424			
19-64 yrs most likely	61,145	101,909	142,673	19-64 yrs	8	63
Minimum	43,903	73,171	102,439			
Maximum	93,329	155,548	217,767			
65+ yrs most likely	7,889	13,148	18,407	65+ yrs	3	8
Minimum	7,444	12,407	17,370			
Maximum	12,246	20,410	28,574			
TOTAL: Most likely	97,527	162,545	227,563	Totals	14	100
Total Minimum	75,150	125,250	175,350			
Total Maximum	138,757	231,261	323,765			

The model provides the ‘most likely’ estimates for outpatient visits, hospitalizations, and deaths along with minimum and maximum estimates (95% confidence intervals). Results are given for three possible illness attack rates: 15%, 25%, and 35% of the population. The estimates are also segmented by age and non-high or high risk (i.e. those with health conditions that pre-dispose them to complications) status. The FluAid manual emphasizes that planners should always work with a range of estimates.

As an example, the OHPIP identifies the following potential impact for the Region of Peel across the entire pandemic event for a 35% attack rate, affecting a total regional population of 1.2 million people and assuming vaccine and antiviral drugs are not available:

- 175,350 to 323,765 persons may seek medical attention;
- 1,476 to 5,922 persons may require hospitalization and recover; and
- 467 to 1,730 persons may die from influenza or its complications.

It is important to note that, in this model, the categories are mutually exclusive. It is estimated that about 70% of deaths would occur in hospital, so the estimates for numbers hospitalized can be adjusted by adding 70% of the deaths. To adjust for pandemic severity (e.g. a 1918-like pandemic), the FluAid manual suggests that the hospitalization and death data should be increased by a factor of 8.22.

Chapter 4: Health and Social Infrastructure in Peel Region

Overview of the Region of Peel

The Regional Municipality of Peel is directly west of Toronto and York Region, and is comprised of the City of Mississauga, the City of Brampton, and the Town of Caledon:

- Mississauga occupies the southern-most portion of the region, and has a population of approximately 650,000 people, making it the sixth largest city in Canada;
- Brampton is located in the middle of Peel Region, and has a population of approximately 415,000 people; and
- Caledon is located in the northern area of Peel Region, and is the largest in terms of area, but the smallest in terms of population with approximately 55,000 residents.

Region of Peel – Quick Facts

Total Area:	1,241.99 km ²
Total Population: ⁶	1,177,000
Population Density:	796.3/km ²

In total, the Region of Peel has a population of approximately 1,200,000 people, making it the second largest municipality in Canada (Toronto being the largest). The Region of Peel occupies an area of 1,241.99 sq kilometres, giving it a population density of approximately 796.3 persons per sq km. The average age of residents in the Region of Peel is 34.4 years of age, and 43.0 % of the population are immigrants. Table 4.1 indicates the breakdown by age for the most recent census data available.

Table 4. 1: Peel Age Groups by Population and Proportion 2001⁷

Age Group	Population in 2001	Proportion of Peel's Population in 2001
0-4 years	68,115	6.9%
5-19 years	219,980	22.2%
20-44 years	397,050	40.1%
45-64 years	224,995	22.8%
65+ years	78,805	8.0%
All Ages	988,945	100.0%

⁶ Region of Peel. (2006). *Population Forecasts 2001 to 2031*.

Retrieved November 29, 2006, from

<http://www.peelregion.ca/planning/pdc/data/forecasts/population-2001-2031.htm>

⁷ Region of Peel. (2006). *Age and Sex in Peel*. Retrieved November 29, 2006, from

<http://www.peelregion.ca/planning/pdc/data/forecasts/population-2001-2031.htm>

The Region of Peel was incorporated in 1974. The Regional Government is responsible for the services and infrastructure related to water delivery and waste-water treatment, waste collection and disposal, regional roads, public health and long term care, police and public safety, ambulance services, public housing, social services, and some community planning and development. Other municipal functions are provided by the lower-tier municipalities.

The Region of Peel is a key transportation hub for southern Ontario. There are seven 400-series highways and three main railway lines located within its boundaries, as well as Pearson International Airport, and a smaller regional airport located in Caledon.

Overview of Health Sector Organizations

Acute Care Facilities: There are three acute care facilities in the Region of Peel, each with a 24 hour emergency department:

- William Osler Health Centre has three sites serving Brampton and Etobicoke. Peel Memorial Hospital in Brampton has 367 beds. The new Brampton Civic Hospital is slated to open in the fall of 2007;
- Credit Valley Hospital in Mississauga has 365 beds; and
- The Trillium Health Centre is one of Canada's largest community hospitals, with sites in Mississauga and West Toronto. The Mississauga site has 745 beds.

Long Term Care Homes: There are 27 long term care homes, providing a total of 4,094 beds, in the Region of Peel, five of which (for a total of 703 beds) are operated by Peel Health, a department within the Region of Peel.

Public Health: Public health services (health promotion, disease prevention and health protection, and health emergency management) are provided by public health staff within Peel Health.

Community Care Access Centre: The Community Care Access Centres (CCACs) for the Region of Peel coordinates home and community care and placement in long term care facilities for the residents of the Region of Peel. The CCACs has 14 contracted service providers, including five nursing agencies. As of 2007, the CCACs will be restructured into 14 organizations to match the LHINs' boundaries, with the Region of Peel being served by two CCACs.

Health Care Providers: There are 1,560 physicians in the Region of Peel. Twelve midwives practice out of a Mississauga location. Information on walk-in clinics and urgent care centres is being collected.

Laboratory Services: Public health operations in the Region of Peel are supported by the Public Health Lab located in Etobicoke. In addition, there are seven community laboratory centres and clinics operating in the Region of Peel. Each hospital in the Region of Peel has a laboratory that conducts diagnostic testing.

Pharmacies: There are approximately 330 pharmacies operating in the Region of Peel.

Coroners: There are nine coroners in the Region of Peel.

Dentists: There are 750 dentists registered in the Region of Peel.

Veterinarians: There are 72 veterinarian clinics operating in the Region of Peel.

LHINs: Local Health Integrated Networks (LHINs) are new organizations that facilitate the integration of health care services and increase local decision-making. They are responsible for planning, integration of services, and funding a wide variety of health services within their boundaries that are delivered in hospitals, long-term care facilities, community health centres, community support services and mental health agencies. The Region of Peel falls under two LHINs: Mississauga-Halton and Central West.

Community Support Service Agencies: There are a number of agencies in the Region of Peel, sponsored by LHINs, which provide patient services to long term care patients. These agencies include hospices, supportive housing providers, meal services, transportation services, and home help.

Essential and Emergency Services

Paramedic and Emergency Services: The Paramedic and Emergency Services section of the Region of Peel coordinates and administers programs relating to emergencies, paramedic services, and the 911 call system.

Emergency Management: Peel Region Emergency Program (PREP) provides overall coordination for emergency management activities in the Region of Peel and coordinates the Regional Emergency Operations Centre (REOC).

Police Services: Peel Region Police provides police services to the cities of Mississauga and Brampton; and the Ontario Provincial Police provides police services to the Town of Caledon.

Fire Services: Each lower-tier municipality within the Region of Peel coordinates its own fire service.

Funeral Services: There are approximately 12 funeral service operators in the Region of Peel, one of which specializes in Muslim funeral services.

Overview of Educational Facilities and Institutions

Childcare Centres: The Region of Peel Children's Services operates 11 child care centres, with a total capacity of 761 licensed spaces. It also purchases centre and home-based child care services to subsidize another 1,125 spaces. There are another 245

licensed child care centres and 275 licensed in-home child care operators in the Region of Peel. In total, there are approximately 22,400 child care spaces in the Region of Peel.

School Boards: Primary and secondary education in the Region of Peel is provided by the following school boards:

- The Peel District School Board has 221 schools, and is one of the largest school boards in Canada;
- The Dufferin-Peel Catholic District School Board has a total of 141 schools (118 elementary and 23 secondary) in the Region of Peel and the town of Orangeville;
- The Conseil Scolaire de District du Sud-Ouest has three French language schools in the Region of Peel; and
- The Conseil Scolaire de District Catholique Centre-Sud has five French language schools in the Region of Peel.

Private Schools: There are 23 private business schools and 24 private elementary and secondary schools operating in the Region of Peel.

Post-Secondary: Two post-secondary institutions are located in the Region of Peel:

- Sheridan College has a campus located in Brampton and offers 68 post-secondary and 29 post-diploma / degree programs. Sheridan College operates one student residence in Brampton, and the campus has a population of approximately 4,500 students; and
- The University of Toronto at Mississauga (UTM) has 125 programs in 70 areas of study. UTM has approximately 9,000 students, 254 faculty, and 106 staff members.

Overview of Social Services and Other Facilities

Group Homes and Shelters: There are 59 group homes and 10 homeless shelters operating in the Region of Peel.

Correctional Facilities and Detention Centres: The Ministry of Community Safety and Correctional Services operates one detention facility, with a capacity of 288 beds, in the Region of Peel. There are no correctional facilities in the Region of Peel.

Overview of Transportation Infrastructure

Airports: The Region of Peel is serviced by two airports.

- The Greater Toronto Airports Authority operates Pearson International Airport (PIA), which is the largest airport in Canada. PIA has an average of 29.9 million passengers and 409,401 flights per year. The Public Health Agency of Canada is contracted to provide public health services at PIA; and

- The Brampton Flight Centre is located in Caledon, and is a privately-operated general aviation airport.

Land Transit: In the Region of Peel, public land transit is operated by the lower-tier municipalities. Mississauga Transit operates 380 buses and Brampton Transit operates 180 buses. At present, the Town of Caledon does not have a public land transit system, but does offer accessible transit services through Caledon Community Services Transportation. The Region of Peel augments accessible transit services in each lower-tier municipality through Transhelp. VIA Rail and GO Transit also connects the Region of Peel with surrounding jurisdictions, and serves as a primary public transportation service for commuters to Toronto.

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SECTION TWO: CONCEPT of OPERATIONS

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Chapter 5: Roles and Responsibilities

All parts of the health system have a role in preparing for, and responding to, an influenza pandemic. The impact of a pandemic will reach beyond the health sector and be experienced by all parts of society. Therefore, municipal governments, and other non-health stakeholders, should be involved in pandemic planning. Clearly-defined roles and responsibilities, and clear lines of communication, are essential so that both planning and response activities are coordinated.

This section identifies the key roles and responsibilities for lead agencies in planning, and responding to, an influenza pandemic.

Peel Public Health Role

Local public health authorities are responsible for coordinating pandemic planning for the health sector in their jurisdiction, with direction from the provincial and federal governments. Planning involves liaising and coordinating in advance of an emergency with regional partners, such as hospitals, long term care facilities, CCACs, physicians, and others in the community health sector. Peel Public Health also serves as a link to the non-health sector through liaison with local emergency management partners, in particular the Peel Region Emergency Program.

During the pandemic, the Peel Medical Officer of Health (MOH) will be an important member of the Regional Emergency Control Group (RECG), which will direct the pandemic response in the Region of Peel through the Regional Emergency Operations Centre (REOC). Peel Public Health will work closely with the Ministry of Health and Long-Term Care (MOHLTC), who will provide provincial leadership and guidance to the health sector through the Ministry Emergency Operations Centre (MEOC). The MOHLTC may issue directives to health units, hospitals, long term care homes, and physicians. Peel Public Health will help ensure that the health response in the Region of Peel is coordinated, and consistent, with the directives of the MOHLTC.

Specific roles for Peel Public Health in a pandemic include:

- Coordinating the Peel Health Emergency Operations Centre (PHEOC);
- Maintaining a local influenza surveillance system;
- Coordinating mass immunization clinics;
- Coordinating the distribution of vaccines and antiviral drugs (as assigned by MOHLTC);
- Implementing public health measures;
- Providing public health information;
- Communicating with health sector partners;
- Assessing the capacity of local health services;
- Collaborating with the provincial government, in particular MOHLTC; and

- Liaising with local emergency management partners.

Health Care Sector Role

The role of the health care sector in a pandemic is to provide care for those who are affected by pandemic influenza while continuing to deal with non-influenza patients with urgent or life threatening conditions. The health care system will be under great stress to meet the demands put on it, and this situation will continue over many weeks.

While this health sector pandemic plan provides overall vision and direction for the health sector in the Region of Peel, it is expected that each health care organization will have its own pandemic plan (or annex to a general emergency plan) in order to function at maximum capacity during the pandemic. Continued coordination of planning activities across the health sector is essential to ensure seamless operations and interoperability between community, acute, and non-acute health care organizations. This collaborative planning has taken place in several forums, including committee meetings, forums, and symposiums.

As the pandemic threat escalates, the MOH will communicate with the health sector to provide ongoing information and advice. The Health Sector Coordinating Committee (HSCC), which is chaired by the MOH (see Chapter 6), will be convened to provide updates and help coordinate the health response. The MOH will also serve as the link between the health sector response and the municipal response. It is contingent upon each organization, or agency, to activate its own Emergency Operations Centre (EOC) or Command Centre, as necessary, to direct its own emergency response.

Municipal Sector Role

The RECG, which is chaired by the Regional Chair, is responsible for the overall coordination of emergency response activities across the Region of Peel. In response to a pandemic emergency, the RECG will activate the Regional Emergency Operations Centre (REOC). The RECG will coordinate all emergency operations from the REOC. The Regional Chair has the authority to declare, and terminate, an emergency in the Region of Peel.

RECG, through the REOC, is responsible for the following:

- Coordination of decision-making and response;
- Set-up and coordination of the Incident Management System;
- Release of emergency information and communications;
- Coordination of social services;
- Coordination of priority municipal services;
- Providing support for the health sector;
- Managing natural death surge;
- Maintaining critical infrastructure; and

- Ensuring continuity of operations across Region of Peel departments.

Region of Peel departments are responsible for developing emergency response sub-plans and continuity of operations plans, engaging in preparedness activities (such as training and exercises), and supporting emergency operations. Peel Public Health will provide health-related information to assist with the development of departmental pandemic response plans.

Ministry of Health and Long-Term Care

The MOHLTC is responsible for coordinating the province-wide response to an influenza pandemic. The *Ontario Health Pandemic Influenza Plan* (OHPIP) has been updated annually since its release in 2004. The mandate of MOHLTC for pandemic planning, and response, is to:

- Implement national recommendations on influenza surveillance and immunization programs;
- Maintain provincial surveillance activities, report diseases caused by influenza, and participate in national surveillance activities;
- Coordinate the investigation of outbreaks and clusters of febrile respiratory illness (FRI) and influenza-like illness (ILI);
- Undertake tasks most effectively done at the provincial level, such as bulk equipment purchasing, stockpiling and distribution of antiviral medications and vaccines, and the distribution of medical supplies;
- Provide guidelines and direction to local public health authorities to ensure consistent planning and response operations across the province by the health sector;
- Support special studies to enhance the capability of the providers to manage a pandemic;
- Coordinate public education campaigns;
- Provide guidelines and direction to local pandemic planning groups; and
- Provide guidance to the health sector.

Public Health Agency of Canada

The Government of Canada is responsible for coordinating the national response to a pandemic. The lead for national health pandemic planning is the recently created Public Health Agency of Canada (PHAC), which was previously part of Health Canada.

The *Canadian Pandemic Influenza Plan* (CPIP) was released in 2004, and a revised version for the health sector was released in late 2006. CPIP details the responsibility and role of the federal government, and outlines the expectations of the federal government for the provincial and territorial influenza pandemic health response.

With respect to pandemic influenza, the mandate of PHAC, together with Health Canada, is to:

- Liaise with the World Health Organization, the US Centers for Disease Control, and other national and international health organizations to coordinate surveillance, vaccination, and investigation activities;
- Procure and distribute diagnostic reagents and technical information to provincial/territorial public health laboratories;
- Establish domestic influenza vaccine manufacturing capacity;
- Acquire influenza vaccine and antiviral drugs, and allocate them to the provinces and territories;
- Work with provinces and territories to provide vaccine and antiviral drugs to specific populations for which the federal government is responsible (e.g. First Nations, etc); and
- Develop communication strategies and plans.

Although the Pearson International Airport is located in the Region of Peel, PHAC is responsible for providing public health services to the airport. Peel Public Health provides public health services to a limited area of the airport. However, Peel Public Health may provide assistance to PHAC, when requested and appropriate.

Chapter 6: Emergency Response and the Incident Management System

Activation of the Emergency Response

As the pandemic threat level changes, the Peel Medical Officer of Health (MOH) will notify the Regional Community Emergency Management Coordinator (CEMC) through the Regional Emergency Operations Centre (REOC). In turn, the Regional CEMC will notify the lower-tier CEMCs of the pandemic threat level and the possible need to activate their emergency plans. Depending on the situation, the CEMC may be notified directly by Emergency Management Ontario, who may also recommend the activation of local emergency response plans. The REOC is typically activated after the situation is assessed by the Regional Emergency Control Group (RECG). In consultation with the Regional Chair, the MOH may request that health sector agencies and key community stakeholders activate their own emergency response plans.

Declaration and Termination of an Emergency

The Regional Chair (as Head of Council) has the authority, under the Peel Region Emergency Plan and By-Law Number 3-2005, to declare an emergency if deemed necessary for the pandemic response. Alternatively, the Premier may declare a provincial emergency in response to the arrival and/or spread of the influenza virus.

It is the responsibility of the Regional Chair to inform Emergency Management Ontario that an emergency has been declared, or terminated, in the Region of Peel. The lower-tier municipalities are not required to declare an emergency if the Regional Chair has declared an emergency for the Region of Peel. The Premier of Ontario may, at any time, terminate a municipal declaration of emergency.

Health Sector Coordinating Committee

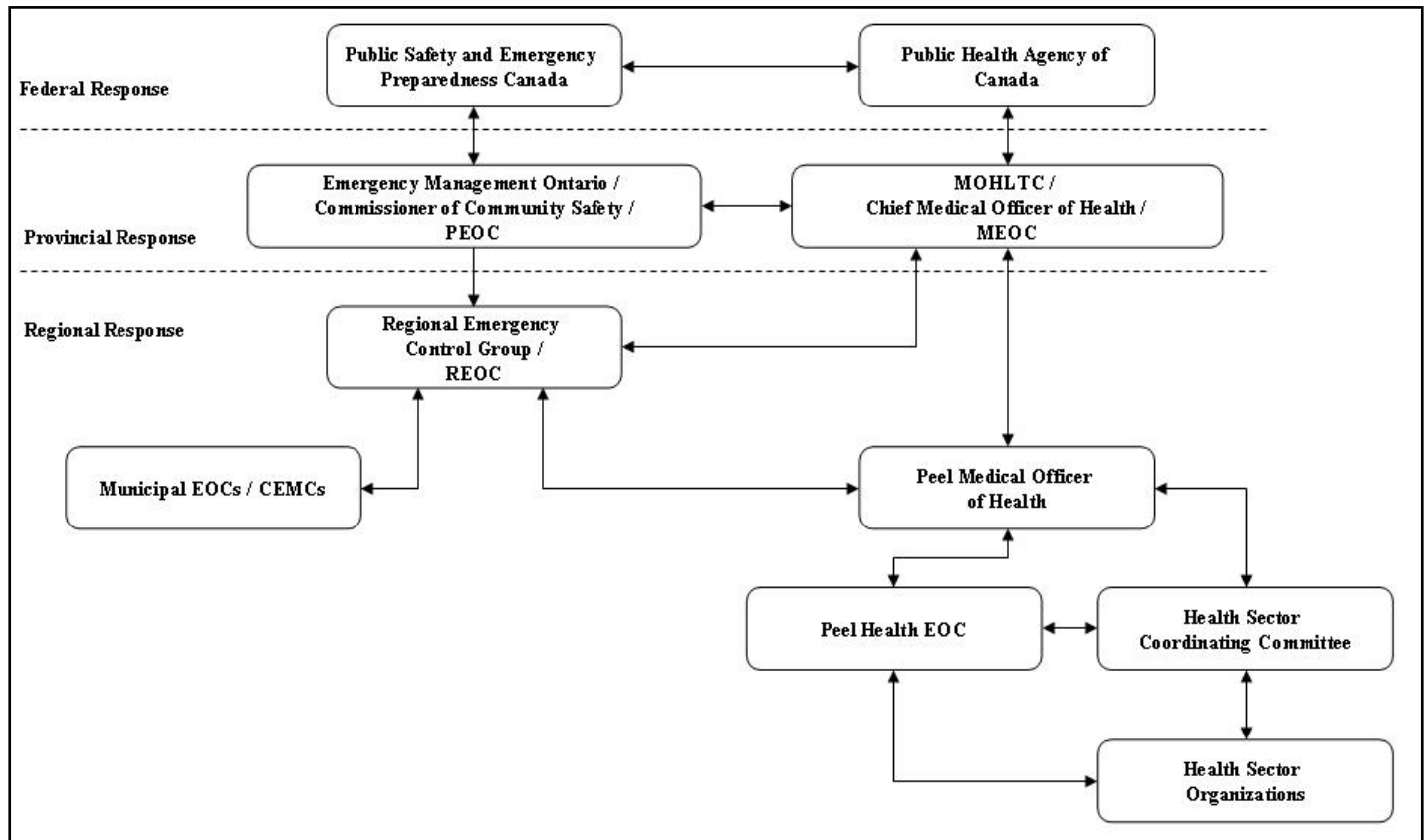
As a member of the Regional Emergency Control Group (RECG) along with the Commissioner of Health, the MOH will be responsible for advising the RECG about the health status of the pandemic, the capacity of the health care system in dealing with the pandemic, and health emergency management issues. A Health Sector Coordinating Committee (HSCC) will be established to help coordinate the health response and provide feedback through the MOH to the RECG. The relationship of this committee to the MOH and the emergency response is shown in Figure 6.1 on the next page.

The mandate of the HSCC will be to:

- Share current information about the pandemic and pandemic strategies;
- Provide a forum for problem-solving and joint decision-making; and
- Identify issues that the region or provincial government should address.

It is anticipated that the MOH will convene this committee periodically as the pandemic phase levels increase, and that weekly or bi-weekly meetings (normally by teleconference) will begin when pandemic activity nears the Region of Peel.

Figure 6.1: Emergency Management Structure of a Pandemic Response in the Region of Peel



The HSCC membership will consist of senior leadership from the following:

- Medical Officer of Health (chair);
- All three hospitals - CEO, Chief of Staff, Infection Control Practitioner, or their delegates;
- Both CCACs;
- Coroner;
- Paramedic Services;
- Long Term Care (Peel Health);
- Peel Public Health;
- Community sector; and
- Other agencies, as appropriate.

Membership in the HSCC does not preclude the member attending the REOC as a support group member.

Incident Management System

The Incident Management System (IMS) is an international emergency management system that provides the basic structure and functions required to manage an emergency situation effectively. The use of IMS permits emergency response organizations to work together to manage multi-jurisdictional incidents. The benefits of IMS are to improve communication, streamline resources, enhance capacity, and facilitate the cooperation and coordination of operational activities between agencies.

IMS has been adopted by Emergency Management Ontario as an operational framework for emergency management in Ontario. The Ministry of Health and Long-Term Care (MOHLTC) also uses IMS to structure its emergency response activities. The *Ontario Health Pandemic Influenza Plan* suggests that all health organizations use the IMS model.

IMS Status in the Region of Peel

A commitment to the use of IMS for emergency response has been made by Peel Health and all three hospitals in the Region of Peel. To ensure inter-operability with all stakeholders, it is recommended that all health sector organizations adopt IMS to structure and coordinate emergency response activities.

The REOC will also use IMS to coordinate overall emergency response activities, as will lower-tier municipalities.

Description of the IMS Structure

The IMS structure is built around five sections (see Figure 6.2):

- (1) Command;
- (2) Planning and Intelligence;
- (3) Operations;
- (4) Logistics; and
- (5) Finance and Administration.

The size of the IMS structure is scalable, and is normally determined by the size of the emergency response organization and the complexity of the incident. In a small-scale, short-duration incident, one person may lead multiple sections. In complex, large-scale emergencies, the IMS may be expanded to include several people supporting each function. The scalability of the IMS allows for maintaining a span of control such that a person in a leadership role has no more than six persons reporting directly to him or her.

The **Command** section includes several key positions (e.g. Incident Commander, Liaison Officer, Public Information Officer, Safety Officer, and Document Control Officer).⁸ It determines the overall flow of emergency operations by identifying an operational (i.e. business) cycle and the strategic objectives to be achieved within operational periods. The Command Section is also responsible for communicating with the general public, monitoring the safety of departmental personnel, maintaining a record of all emergency response activities, and coordinating liaison activities with external partners. For Peel Public Health, emergency operations are lead by the Incident Commander, who consults with, and reports to, the MOH and the Peel Health Commissioner, who are members of the RECG.

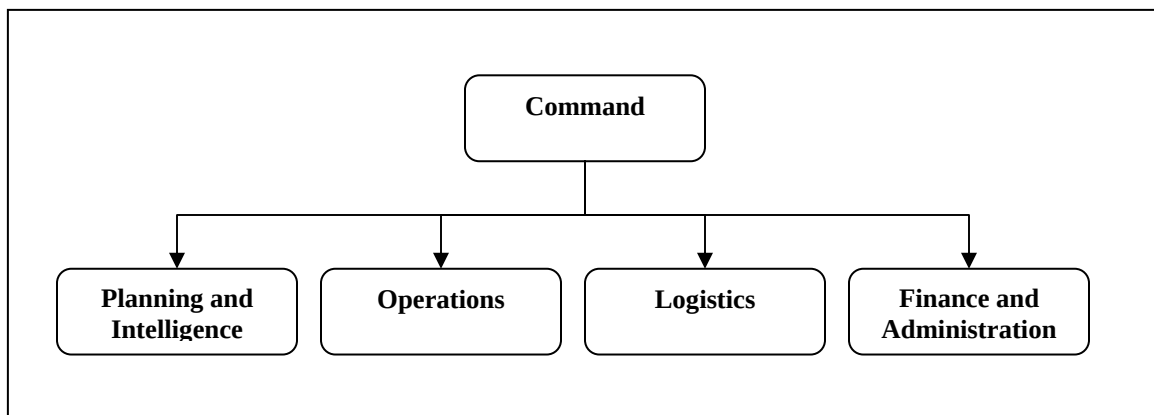
The **Planning and Intelligence** section is responsible for assessing the situation, identifying strategic objectives, and creating action plans so that objectives may be achieved within specific timeframes. For example, planning activities for Peel Public Health include the collection and analysis of influenza surveillance data.

The **Operations** section is responsible for coordinating the operational activities of the agency or organization to achieve the strategic objectives identified by the Incident Commander. For example, operational activities for Peel Public Health may include mass vaccination clinics, pandemic telephone hotlines, and enforcement of medical orders.

The **Logistics** section is responsible for providing the physical space, services, materials, equipment, technology, and technical support necessary for all sections to achieve their objectives. For example, logistics activities for Peel Public Health may include the transportation of vaccines or secure physical space for a mass vaccination clinic.

The **Finance and Administration** section tracks all expenditures, claims, purchases, employee time-sheets, service contracts, and coordinates human resources, as well as, manages volunteers.

Figure 6.2: Typical IMS Structure



⁸ IMS position titles may be revised upon the release of the Provincial Incident Management System (PIMS), to reflect terminology used by Emergency Management Ontario. The release date for the PIMS is expected to be in the fall of 2007.

Chapter 7: Authority and Legislation

During a pandemic, individuals and institutions responsible for managing the health sector emergency response will need the legal authority to implement pandemic plans. Most of this legislation is already in place (e.g. *Health Protection and Promotion Act* and *Emergency Management and Civil Protection Act*), while other legislation is currently under development.

The *Ontario Health Pandemic Influenza Plan* provides a good description of the relevant provincial legislation that will govern the pandemic response, including specifics for hospitals and other facilities and health services. Readers in the health sector should ensure they are familiar with their legislated responsibilities.

Declaration of an Emergency

It is the responsibility of the Head of Council to declare an emergency; thus, the Mayor will declare an emergency for a lower-tier municipality and the Regional Chair will declare an emergency for the entire region. There are certain benefits to declaring an emergency. For example, a declaration allows the Head of Council, or the Regional Chair, to seek financial and other assistance from the province and it provides protection to emergency management personnel and volunteers.

The provincial government may also declare a provincial emergency, either for the entire province or in a particular jurisdiction. The Premier, and the Commissioner of Community Safety (formerly known as the Commissioner of Emergency Management), have this authority under the *Emergency Management and Civil Protection Act*.

Health Protection and Promotion Act

In Ontario, the *Health Protection and Promotion Act* (HPPA) requires Boards of Health to provide or ensure the provision of minimum levels of public health programs and services, including communicable disease control. Under the Act, physicians, labs, school principals, and others must report certain diseases, including influenza, to the local Medical Officer of Health (MOH).

Under Section 22 of the HPPA, an MOH is authorized to issue orders, under prescribed conditions, to control communicable diseases in his or her jurisdiction by requiring a person to take, or not take, any action specified in the order. Such orders may include requiring an individual to be isolated, quarantined, or to submit to an examination by a physician. Section 24 permits the MOH to issue directions to others, such as police, to ensure that orders are enforced.

Sections 83 and 86 of the HPPA permit the Minister of Health and Long Term Care and Chief Medical Officer of Health to provide direction to the local Board of Health and its staff. Section 87 also permits the Minister of Health and Long Term Care to require the

occupier of any premises to deliver possession of all, or any specified part of, the premises to the Minister to be used as a temporary isolation facility or as part of a temporary isolation facility.

SECTION THREE: RESPONSE COMPONENTS

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Chapter 8: Surveillance

Communicable disease surveillance is the collection, analysis, and dissemination of information about infectious diseases like influenza. Surveillance data can be used to determine when, where, and which infectious agent is circulating, and the patterns and severity of illness. Surveillance data is used to guide interventions and determine an effective response.

This section will describe the role of Peel Public Health in performing influenza surveillance and the contribution of other partners (e.g. hospitals, physicians, and schools) to the surveillance process. It will also identify how surveillance will be modified as the pandemic progresses.

Objectives of Surveillance Strategy

Surveillance activities will vary depending on the stage of the pandemic, but at all stages surveillance is designed to provide the information required to make informed decisions about how best to manage the pandemic. The surveillance objectives of the Inter-Pandemic Period include detecting and characterizing seasonal influenza activity. The surveillance objective in Pandemic Alert Period is the monitoring for novel virus activity in the Region of Peel. During the Pandemic Period, surveillance objectives include tracking the virus as it moves through the Region of Peel and measuring the capacity of the health care sector to cope with the outbreak. Specific surveillance objectives for each pandemic phase are shown in Table 8.1.

Table 8. 1: Surveillance Objectives by Pandemic Phase

Pandemic Phase (Alert Period)	Objectives
Phases 1 and 2 (Inter-Pandemic Period)	• To assess the seasonal burden of influenza; • To establish baseline influenza severity levels; and • To detect and describe unusual events, including emergence of new strains and unexpected outcomes such as unusual age distribution or increased severity.
Phase 3 (Pandemic Alert Period)	• To detect and describe the initial appearance of a novel virus in the Region of Peel; • To heighten awareness about the novel virus and communicate surveillance expectations to the health sector and other stakeholders; and • To ensure that surveillance systems meet provincial standards.
Phases 4 and 5 (Pandemic Alert Period)	• To detect and describe the introduction of a novel virus in the Region of Peel; • To identify and capture epidemiological characteristics on the initial cases and clusters of the novel virus in the Region of Peel; • To provide data to monitor, manage, and contain the outbreak, if applicable; and • To provide information to the health sector to heighten awareness and increase vigilance while ensuring system capacity and resource availability.
Phase 6 (Pandemic Period)	• To detect and describe the initial pandemic cases in the Region of Peel; • To inform the response by tracking occurrence and progression of the pandemic waves through the population; • To identify and describe the affected population in the Region of Peel and the impact on capacity of the health care system in order to guide public health actions; and • To determine triggers in preparation for subsequent waves of infection.

Description of Surveillance Activities

SARS taught the health sector that it is very difficult to develop new surveillance systems in the middle of an outbreak. Pandemic surveillance will be built on the strong influenza surveillance systems that are already in place for seasonal flu. Due to limitations of individual components, it is best to have a network of surveillance systems, covering both laboratory and influenza activity-based measures.

Surveillance programs for seasonal influenza are well established. Local results feed into the federal FluWatch⁹ program via the Ontario Ministry of Health and Long-Term Care (MOHLTC).

The key components of seasonal influenza surveillance in the Region of Peel are:

1. Laboratory surveillance – reports of lab-confirmed cases;
2. Institutional outbreak reporting;
3. Sentinel physician reporting – weekly data on influenza-like-illness (ILI) from a sample of Peel physicians;
4. Febrile respiratory illness (FRI) surveillance in health care settings – to identify potential cases or clusters of novel virus infection;
5. Absenteeism Reporting – currently conducted in 11 Region of Peel childcare centres and across all Region of Peel departments;
6. Weekly reporting of influenza activity level to MOHLTC; and
7. Global activity monitoring – to stay on top of developments around the world.

Peel Public Health is currently working with the school boards to introduce a process of school absenteeism surveillance.

Two major surveillance components to be added during the pandemic are:

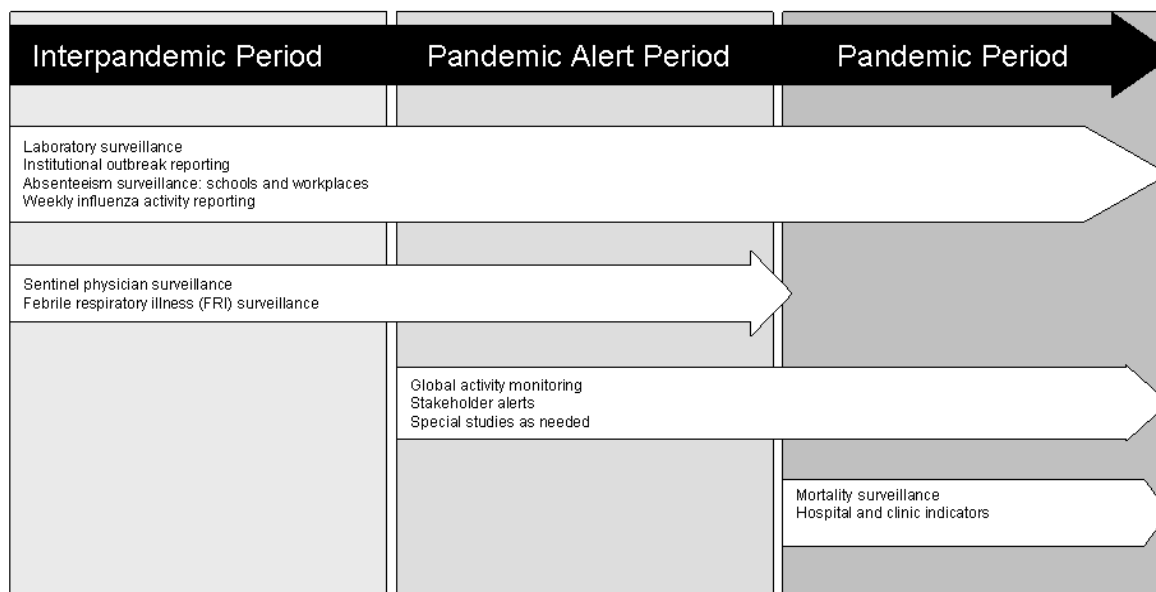
8. Mortality surveillance – to provide a real-time indication of pandemic severity; and
9. Hospital and clinic indicators – to measure influenza activity and monitor health system capacity to meet health care needs.

⁹ Public Health Agency of Canada. (2006). *Flu Watch Reports*.

Retrieved November 29, 2006, from <http://www.phac-aspc.gc.ca/fluwatch/index.html>

The following sections describe the surveillance components in more detail. They also describe the planned modifications to Peel surveillance activities throughout the pandemic alert and pandemic periods. Figure 8.1 provides an overview of the surveillance activities for these periods.

Figure 8 1: Timing of Surveillance Activities by Pandemic Phase



1. Laboratory Surveillance

Influenza is a reportable disease under the Ontario *Health Protection and Promotion Act* (HPPA), and must be reported to the Peel Medical Officer of Health (MOH) by laboratories, physicians, health care facilities, and other institutions. In practice, however, it is primarily lab-confirmed cases (e.g. rapid test or culture positive) that are reported to the MOH.

Laboratory surveillance for influenza occurs year-round. Many of the positive influenza results reported to public health come from clinical specimens ordered by physicians who have seen a patient with influenza-like illness. Other specimens are collected during outbreaks in long term care facilities or when public health organizes testing specifically for surveillance purposes (e.g. if it is suspected that a different strain has started to circulate). Surveillance of lab-confirmed influenza in the Region of Peel contributes to a worldwide system of influenza surveillance that guides vaccine development through the potential identification of new virus strains and monitors resistance to antiviral drugs. Laboratory surveillance also helps identify cases and outbreaks for timely investigation and control.

Pandemic Modifications to Lab Surveillance

The Lab Services chapter of the *Ontario Health Plan for an Influenza Pandemic* (Chapter 14) describes how testing for influenza will change as the pandemic progresses, although this refers primarily to clinical or diagnostic testing. In the first one to two weeks of pandemic activity (Phase 6), all suspect cases might be tested to confirm the entry of pandemic activity into the Region of Peel. During the peak of the pandemic, most clinical management will be based on clinical criteria and testing will be confined to cases with unusual presentations. As the pandemic subsides, the level of clinical testing will increase again to mark the departure of the pandemic virus. Public health has a role in advising practitioners on appropriate testing, while ensuring that sufficient specimens are being collected for surveillance purposes, as directed by the provincial laboratory.

Peel Public Health uses the integrated Public Health Information System (iPHIS) to report lab-confirmed cases of influenza to MOHLTC. It will not be practical for Peel Public Health to keep up with timely iPHIS reporting of individual lab-confirmed cases to the MOHLTC during the peak of the pandemic. It is anticipated that MOHLTC will develop a pandemic module for streamlined electronic reporting by public health units.

2. Institutional Outbreak Reporting

Under the HPPA, outbreaks of respiratory disease, including influenza, in long term care homes and other health care institutions are to be reported immediately to the MOH. The purpose of this outbreak reporting is to facilitate the following:

- Timely outbreak investigation and control;
- Monitoring of epidemiological trends;
- Evaluation of prevention and control activities; and
- Dissemination of local information to stakeholders in a timely fashion.

Peel Public Health conducts an investigation following a report of a suspected or confirmed outbreak in an institution. During an investigation, epidemiological information is collected by case investigators, who work with the institution staff to implement infection control measures, obtain laboratory specimens from those with respiratory symptoms, and isolate ill individuals. Once influenza is confirmed, antiviral prophylaxis and treatment are administered, as appropriate. Preliminary and final outbreak reports are reported by Peel Public Health to MOHLTC using iPHIS. Peel Public Health also issues a weekly institutional outbreak report for stakeholders, which identifies the active outbreaks in the Region of Peel.

Pandemic Modifications to Institutional Outbreak Reporting

Reporting of institutional outbreaks to Peel Public Health during the Pandemic Period (Phase 6) is expected to continue, though it is anticipated that the usual level of public health assistance to the facilities may not be available. Detailed final outbreak reports may not be processed until the pandemic wave is over.

3. Sentinel Physician Reporting

The federal Flu Watch program includes a national sentinel physician surveillance system. The purpose of this system, which is administered by the Public Health Agency of Canada (PHAC), is to detect the occurrence of influenza-like illnesses by family physicians and track their movement through the community. Sentinel physicians may also collect nasopharyngeal specimens from symptomatic patients, and submit the specimens for analysis.

Sentinel physicians are recruited for this program by the College of Family Physicians of Canada, and the goal of the program is to have one sentinel per 250,000 persons. The current program includes two physicians in the Region of Peel. Data from this program go directly to PHAC and are not accessible to Peel Public Health; however, they form part of the national reports on the FluWatch website.

Pandemic Enhancements to Sentinel Physician Surveillance

It is recommended that Peel Public Health enroll additional sentinel physicians to supplement the current sentinels and report directly to Peel Public Health. It is best to do this during the pandemic alert phase, as this will allow the system can be piloted in advance. Sentinel physician reporting should be of value through pandemic Phase 5 and early Phase 6 (when the pandemic is declared), but would be discontinued if patients are directed away from family doctor offices during the pandemic

4. Febrile Respiratory Illness (FRI) Surveillance

Following the 2003 SARS outbreak, surveillance for febrile respiratory illness (FRI) was initiated in health care settings to detect any unusual occurrences of severe respiratory infections and to facilitate the rapid implementation of infection control and public health measures. The recommended process is well set out in the MOHLTC document *Preventing Febrile Respiratory Illnesses*.¹⁰

¹⁰ Ministry of Health and Long-Term Care. (2006). *Ontario Best Practice Manual: Preventing Febrile Respiratory Illnesses*. Retrieved November 29, 2006, from <http://www.health.gov.on.ca/english/providers/program/infectious/syndromes/fri.html>

This document states that health care setting administrators, labs, and physicians:

- *Should report* to the local MOH when a patient has a new cough, fever AND a travel history to a country with a health alert OR contact with someone with such a travel history; and
- *Must report* to the local MOH when the etiology of the febrile respiratory illness is a reportable disease (like influenza) or there is a cluster of FRI in any health care facility.

Peel Public Health has provided standardized forms for this reporting to all health care facilities and the Greater Toronto Airports Authority, and will keep these partners informed about countries with a health alert. Clusters of FRI are investigated by Peel Public Health together with the affected facility.

Pandemic Modifications to FRI Surveillance

FRI surveillance will play an important role in the pandemic alert period. However, in the pandemic itself (Phase 6), this measure will no longer be practical or useful.

5. Absenteeism Reporting

There is evidence that school-aged children are usually the first in the community to become infected with influenza. Tracking school absenteeism serves as a potential early warning system for influenza activity at the community level. Increased school absenteeism (10% or higher) can trigger the following:

- The collection of nasopharyngeal swabs to confirm influenza and identify circulating strains;
- The implementation of prevention and control measures; and
- The timely dissemination of advice to stakeholders and the general public.

Workplace absenteeism surveillance provides similar information on illness activity in the community, though usually not as early as school absenteeism. Both systems facilitate the tracking of virus spread across the Region of Peel. Preschool children also have high rates of influenza, but absenteeism rates from childcare centres are not as reliable or predictive as from schools.

Currently, both the Region of Peel (as an employer), and the 11 childcare centres operated by the Region of Peel, provide weekly absenteeism data to Peel Public Health. Absenteeism rates of 10% or higher are reported to communicable disease investigators for further investigation. The absenteeism data are used to inform the weekly reporting of influenza activity to MOHLTC.

Enhancements to Absenteeism Reporting

Peel Public Health plans to expand absenteeism surveillance to area schools and several large workplaces. School absenteeism reporting will be continued as far into the pandemic as possible. However, if the pandemic arrives in the summer (i.e. when schools are closed), or if schools are closed as the result of the pandemic, surveillance would shift to large workplaces.

6. Weekly Influenza Activity Reporting

Influenza activity is reported by Peel Public Health to the MOHLTC on a weekly basis. Influenza activity is the level of influenza-like illness in the community and is categorized as:

- No activity;
- Sporadic activity;
- Localized outbreaks; or
- Widespread outbreaks.

The assigned activity level is based on the data sources that are used to track influenza and respiratory infection activity in the Region of Peel, and include laboratory-confirmed cases of influenza, reported outbreaks in institutions, and absenteeism data from childcare centres and workplaces. Provincial data are analyzed and published weekly in the *Ontario Influenza Bulletin*.¹¹

7. Global Activity Monitoring

Peel Public Health conducts ongoing monitoring of global activity levels of infectious disease, in particular avian and pandemic influenza. This assists Peel Public Health to identify emerging health threats in other areas of the world that have the potential to spread to the Region of Peel; and to take preventative and preparatory action, including communication to stakeholders and residents.

Peel Public Health receives regular updates and alerts from MOHLTC, which provide information about global influenza and novel virus activity. In addition, the Peel Surveillance Unit (PSU) routinely scans web resources and publications, and participates in external working groups to increase awareness of emerging infectious diseases. Relevant global activity data is collated and disseminated in an internal weekly *Avian Influenza Report*, and in monthly communicable disease reports. Relevant information is included in the *Health Professionals Update*, which is sent to external stakeholders.

¹¹ Ministry of Health and Long-Term Care. (2006). *Ontario Influenza Bulletins: 2005-2006 Season*. Retrieved November 29, 2006, from http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_05/flubul_mn.html

Pandemic Enhancements to Global Activity Monitoring

As part of the daily review of data sources, Peel Public Health will continue to monitor national and international surveillance activity via bulletins from PHAC, the Centers for Disease Control and Prevention, WHO, World Organization for Animal Health (OIE), ProMed and other pertinent websites and list serves. The frequency of both internal and external summaries and alerts will be increased (or decreased), as appropriate.

8. Mortality Surveillance

Influenza deaths are reportable to the MOH. However, reports of influenza deaths are often late arriving, if at all, except when there is a recognized outbreak (such as in long term care homes). Moreover, not all related deaths are recognized, or attributed, to influenza, as influenza can lead to complications like myocardial infarction, stroke, or exacerbation of diabetes.

It is anticipated that timely death data will be useful and sought after in a pandemic as a measure of severity, though currently there are no practical methods for real-time mortality surveillance. The Chief Coroner has indicated that most pandemic deaths will not be investigated by the coroner, so reporting through coroners will not be comprehensive. PHAC is exploring options regarding the timely collection and analysis of mortality rates.

9. Hospital and Clinic Indicators

Over the past five years, chief complaint data from hospital emergency department records have been used in the United States as a part of syndromic surveillance systems to detect significant increases in illness. At present, MOHLTC is working to pilot and evaluate the use of emergency department data for the detection of enteric and respiratory illnesses. This could serve as an early alert for novel virus activity. Peel Public Health is currently developing a strategy to approach hospitals in the Region of Peel to determine the interest and feasibility of initiating this type of syndromic surveillance for respiratory illness in the inter-pandemic period.

Pandemic Enhancements to Hospital and Clinic Indicators

During a pandemic, hospitals and large medical clinics can provide simple information that assists to measure influenza activity and monitor health system capacity. Daily reports are proposed for the following:

- Emergency room visits;
- New admissions to hospital;
- Admissions to Intensive Care Unit;
- Patients on ventilators; and
- Patients seen at Flu Centres.

Peel Public Health will collect and collate this information and make it available to the MOH and others responsible for overall management of the pandemic response. The pandemic alert period provides an opportunity for Peel Public Health to work with the hospitals to organize and pilot this surveillance initiative so as to streamline data collection and transfer.

Surveillance Reports for Stakeholders

It is important for public health to disseminate local information to stakeholders in a timely fashion so that they can initiate appropriate prevention and control measures. Current Peel Public Health publications that provide reports on influenza are:

- *Health Professionals Update*, which is sent periodically to physicians;
- *A Weekly Institutional Outbreak Report*, which identifies the active institutional outbreaks (including influenza) in the Region of Peel and their start dates. This information allows appropriate infection control measures to be implemented for patients being transferred between institutions. This report is shared with internal and external stakeholders (e.g. hospital infection control practitioners, long-term care home administrators, CCACs, and first responders);
- *A Weekly Influenza Report* during flu season that provides current influenza status and advice. This is sent by email and fax to hospital infection control practitioners and infectious disease specialists; and
- *An annual communicable disease report* produced by the Peel Public Health Epidemiology Unit which is posted on the Region of Peel website.

Pandemic Modifications to External Reporting

Peel Public Health will keep stakeholders apprised of new developments and surveillance data as the World Health Organization announces moves to higher pandemic phases. During the pandemic itself, Peel Public Health will provide more frequent reports.

Next Steps

Peel Public Health will seek to:

- Introduce school and expanded workplace absenteeism surveillance;
- Work with hospital partners to develop and pilot basic hospital indicator reporting for use during the pandemic;
- Enhance the sentinel physician surveillance system in the Region of Peel;
- Work with regional and provincial partners to develop data collection techniques and forms; and
- Improve the dissemination of surveillance data to stakeholders.

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Chapter 9: Vaccine

Influenza vaccination is the best way to prevent disease and death during a pandemic. However, a vaccine will likely not be available until 4-6 months after the pandemic virus is identified. While vaccine may not be available in time for the first wave of illness in the Region of Peel, it should be available in time to provide protection during the second wave (for those who have not yet been ill).

The vaccine strategy describes the role of Peel Public Health, and other health sector stakeholders, in the distribution of influenza vaccine during the pandemic. The strategy addresses all activities from the time Peel Public Health receives vaccine, until Peel residents have been vaccinated. The mass vaccination plan is generic and can be adapted for any public health emergency, including pandemic influenza.

Objectives of the Vaccine Strategy

The objectives of the pandemic vaccine strategy are:

- To vaccinate the susceptible population of the Region of Peel with pandemic vaccine, as soon as it becomes available, with a target of 90% uptake; and
- To monitor uptake and safety of the pandemic vaccine.

Seasonal Influenza Vaccination

Influenza vaccination is a key disease prevention strategy for seasonal influenza during non-pandemic periods. Seasonal influenza vaccination is provided each fall by Peel Public Health, family doctors, and other providers. Although the seasonal influenza vaccination does not provide protection against pandemic influenza, strong annual programs improve Canada's capacity to manufacture and administer large quantities of vaccine, while protecting individuals against a serious winter disease.

Peel Public Health also encourages the use of pneumococcal polysaccharide vaccine in the inter-pandemic period. This vaccine is publicly funded for seniors, and for persons over two years of age who have chronic heart, lung disease, or other chronic conditions. It protects against invasive infections caused by pneumococcal bacteria, which frequently complicate influenza infections. During a pandemic, there will not likely be time to provide pneumococcal vaccine to those who could benefit from it; thus, it should be given in advance.

Description of the Pandemic Vaccine Strategy

Canada has a contract with the domestic influenza vaccine manufacturer, GlaxoSmithKline, to manufacture enough pandemic vaccine for all Canadians over a four month period. At this time, it is not known if the manufacturer has the ability to decrease

the time for vaccine development and distribution. Peel Public Health has a responsibility to deliver vaccines to the population as soon as a vaccine is made available.

The exact nature of the vaccine to be used for the next influenza pandemic is unknown, as it must be developed in response to the pandemic virus. It is expected to be a monovalent inactivated vaccine, possibly with an adjuvant to improve its immunogenicity. It is also likely that the vaccine will be administered in two doses, separated by at least 21 days, and given by intramuscular injection.

Distribution and Administration

The goal of the *Ontario Health Pandemic Influenza Plan* (OHPIP) is to obtain enough vaccine in order to vaccinate the entire population. However, vaccine may be in short supply, especially during the initial phases of the pandemic; thus certain groups may receive the vaccine before other groups. The *Canadian Pandemic Influenza Plan* (CPIP) provides interim priorities (see Table 9.1). These priorities will be reviewed, and modified as necessary, at the time of the pandemic. Peel Public Health will follow the national recommendations for priority groups, as adapted to meet provincial needs.

Table 9. 1: Interim Priority Groups for Pandemic Influenza Vaccination

Priority	Priority Group*	Estimated Numbers in Peel
1	Health care workers, paramedics, public health responders, key health decision-makers, and public health workers.	23,000
2	Pandemic societal responders and key societal decision-makers	7,000
3	Persons at high-risk of severe or fatal outcomes following influenza infection (including children < 24 months old and adults >65 years old).	230,000
4	Healthy adults (excluding those in priority group 1, 2, and 3).	650,000
5	Children 24 months to 18 years of age.	300,000
* For detailed description and rationale for priority groups, see CPIP, Annex D (December 2006).		

Initial supplies will likely be directed to those persons essential to the pandemic response (e.g. health care providers and first responders) and persons most at risk of severe disease or death. To assist in planning, Peel Public Health conducted an enumeration of the first two priority groups in 2006.

It is expected that, as vaccine becomes available, the Ontario Government Pharmacy and Medical Supplies Services (OGPMSS) will transport equitable quantities to Peel Public Health, which is responsible for vaccine storage and distribution within the Region of Peel.

Peel Public Health will maintain an inventory for all vaccine stored and distributed in the Region of Peel.

The plan for distribution within the Region of Peel is as follows:

- Peel Public Health will release vaccine to health care facilities and agencies that can administer the vaccine to their patients/clients and their own employees (hospitals, long term care, CCACs, etc);
- Peel Public Health will release vaccine to employers of societal responders (essential service workers) that can administer the vaccine to their own employees;
- Peel Public Health will hold mass vaccination clinics for health care workers or essential service workers whose employers cannot conduct their own vaccination programs; and
- Peel Public Health will hold mass vaccination clinics for the general public (priority groups 3, 4 and 5) according to provincial priorities and direction.

It is not expected that vaccine will be released to individual family doctors, as they will be occupied with other pandemic response activities.

Mass Vaccination Clinics

Mass vaccination clinics will be organized and run by Peel Public Health for the general public and for others as outlined above. When vaccine receipt is being prioritized, priority group members will be required to prove their eligibility for the vaccination. The MOHLTC will provide guidelines for eligibility criteria and proof required. Clinics for the general public are expected to be open to anyone who lives or works in the Region of Peel.

It is anticipated that Peel Public Health will receive 300,000 doses of pandemic influenza vaccine per month over a four month period for a one-dose program and may receive 600,000 doses per month for a two dose program.

Peel Public Health has designed a four-month clinic schedule that is to include the following:

- Six simultaneous clinics, operating five-hours per day, six days per week;
- Each five-hour clinic is to deliver 2,000 shots; and
- Each clinic is to be staffed by 24 nurses, plus support staff and volunteers.

Based on the above schedule, a total of 576 clinics will be required to provide one dose of vaccine to the entire population of the Region of Peel in a four-month period.

Peel Public Health will advertise the locations and hours of mass vaccination clinics on the Region of Peel website, through public service announcements on local cable television channels, paid advertisements and articles in local newspapers, and posters and flyers in community centres and medical offices.

In coordination with Peel Region Emergency Program (PREP), Peel Public Health will enter into agreement with local municipalities for locations suitable for mass vaccination clinics. Peel Public Health is currently in the process of identifying these sites, some of which are currently utilized for the annual fall flu clinics. The decision about which sites are appropriate will be based on pre-determined criteria, including (but not limited to) the size of the site and accessibility (e.g. parking, public transport access, wheelchair access). All clinics will require security, especially during periods when the vaccine is only available to certain priority groups. Appropriate security arrangements will be made by Peel Public Health in coordination with PREP.

All clinics will have Febrile Respiratory Illness (FRI) screening for clients upon entry. This screening process will identify clients who may already be ill and should be directed to a community Flu Centre for treatment rather than vaccination.

Clinic staffing will be a major challenge for Peel Public Health due to the number of simultaneously operating clinics, possible illness of clinic staff, and the unavailability of casual employees who may be needed in hospitals. Peel Public Health will train all of its nursing employees to administer vaccines in mass vaccination clinics. Peel Public Health will also train extra administrative employees in clinic procedures (such as packing supplies, managing vaccine and supply inventory, data entry for vaccine records and adverse events), to assist in documentation and clerical duties at mass vaccination clinics. Other options include the expanded use of volunteers, and the use of allied health professional groups (e.g. dentists, veterinarians), either as support or administering vaccines.

Peel Public Health anticipates that the federal or provincial government will supply consent form templates to public health departments, which can be modified for local use and made available to other health providers.

If two doses of the pandemic vaccine are needed, it will be up to individuals to return to the clinic for the second dose. Although second dose uptake will be tracked, Peel Public Health will not actively recall clients for the second visit.

Storage and Transport of Vaccines

It is the responsibility of the health department to provide safe and adequate storage for the influenza vaccine once delivered from the OPGMSS. To maintain efficacy and safety, vaccines must be stored between +2 to +8 degrees Celsius. Cold chain maintenance is expected of all providers during transportation and storage, including at the clinic site.

Transporting vaccines and antiviral medications to other organizations or community clinics will be the responsibility of Peel Public Health. Coolers, ice packs, and thermometers will be used to transport vaccines to ensure the cold chain is monitored and maintained. Due to scarcity, and anticipated high demand for vaccine, Peel Public Health will ensure security, in coordination with PREP, during storage and transportation. The

organization receiving the vaccine must be prepared to provide a secure storage location and to maintain the cold chain.

Clinic Supplies

Medical supplies will be in short supply during an influenza pandemic. The MOHLTC recommends that one month worth of certain equipment and supplies be stockpiled by local agencies. Peel Public Health will stockpile essential supplies (e.g. needles, syringes) for one month requirements for mass vaccination clinics. It is anticipated that further supplies will come from the province. Other supplies required at a mass vaccination clinic include consent forms, fact sheets, signage, and stationary supplies. Most documents are electronic in nature, and can be printed as required in the event of an influenza pandemic.

Tracking and Surveillance

All organizations, to which Peel Public Health releases vaccine, will be expected to administer the vaccine in accordance with provincial priorities, including the documentation and reporting of vaccine use and wastage. Peel Public Health will also maintain a tracking system for distribution, administration, and uptake of vaccines in the Region of Peel. Requirements for reporting, in particular timelines, will be identified in future editions of this plan.

Adverse reactions to the vaccine may occur, as the pandemic influenza vaccine will be a novel vaccine given to many people. Hospitals, physicians, and other health care agencies will be expected to report any adverse vaccine reactions to Peel Public Health by using the MOHLTC *Adverse Event Following Immunization* form.

Next Steps

Peel Public Health will:

- Finalize sites for mass vaccination clinics, and storage and security arrangements for vaccines;
- Train all Peel Public Health nursing staff in mass vaccination procedures;
- Train additional clinic support staff; and
- Use seasonal influenza vaccination clinics to gain experience with mass vaccination clinic procedures.

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Chapter 10: Antiviral Drugs

Antiviral drugs can be used to treat or prevent influenza, and will likely be the only virus-specific measure available during the first wave of illness before vaccine is available. Statistical modeling suggests that early treatment of influenza with antiviral drugs can significantly reduce influenza complications and the need for hospitalization.

The antiviral drug strategy describes the role of Peel Public Health and other health sector stakeholders in the distribution and use of antiviral drugs during the pandemic.

Objectives of the Antiviral Drug Strategy

The objectives of the antiviral strategy are:

- To provide antiviral drugs to all persons needing treatment within 48 hours of onset of their illness; and
- To monitor uptake, safety, and resistance to antiviral drugs.

Description of the Antiviral Drug Strategy

All provinces and territories are participating in the national stockpile of antiviral drugs that is being created for use in the next influenza pandemic. Stockpiling is essential if antiviral drugs are to be used, as commercial supplies are expected to be scarce, or not available, at the time of a pandemic. Ontario has announced plans for a large stockpile that will allow treatment of 25% of the provincial population.

The Ministry of Health and Long-Term Care (MOHLTC) is stockpiling two antiviral drugs: oseltamivir (Tamiflu®) and zanamivir (Relenza®) (see Table 10.1). The stockpile will consist of 90% oseltamivir, some in oral suspension form for children or elderly persons who are unable to swallow capsules, with the remaining 10% as zanamivir to provide an alternative drug.

Table 10. 1: Antiviral Drugs for Pandemic Use

Oseltamivir phosphate:

Tamiflu® is available in two forms: 75 mg tablets in a 10-dose blister pack, or an oral suspension which is reconstituted into a treatment course of the drug. Tamiflu® can be used for the treatment or prevention of influenza in persons one year of age or older.

Zanamivir:

Relenza® is a powdered neuraminidase inhibitor taken by inhalation. Relenza® is supplied with an inhalation system called a Diskhaler. Relenza® is currently approved in Canada for treatment or prevention of influenza in persons seven years of age and older.

Oseltamivir and zanamivir are classified as neuraminidase inhibitors (Nis). Nis act by inhibiting the release of new viruses from an infected cell, thereby stopping the spread of the virus. When used for treatment, the Nis have been shown to shorten the duration of illness and to reduce the risk of complications and hospitalization. A major challenge to their use is that treatment with Nis must begin within 48 hours of onset of illness, and preferably within 12-24 hours.

Antiviral drugs may also be used to prevent illness in individuals, or in family settings, and to control outbreaks in long term care homes and other health care facilities. Prophylactic use by health care workers or essential service workers could help maintain the health care system and other essential services. This potential deployment of antiviral drugs is still under consideration at the national and provincial levels.

Antiviral Drug Release, Distribution, and Use

The provincial distribution plan for antiviral drugs has not yet been developed; thus, it is not known how antiviral drugs will flow from the province to the end user. However, it is anticipated that distribution of antiviral drugs to local areas will begin before pandemic activity reaches Ontario. If antiviral drugs flow through public health departments, Peel Public Health will have to store, and subsequently distribute, approximately 2.75 million doses of drug.

For treatment of ill persons, it is anticipated that amounts of antiviral drugs, based on the population served by the hospital, will be provided to each of the three hospitals and long term care homes based in the Region of Peel. These health care settings are expected to follow MOHLTC guidelines in using the antiviral drugs for treatment of pandemic influenza in hospital patients, long term care residents, and ill employees.

The Health Services chapter of this plan (Chapter 12) describes the establishment of community influenza assessment, treatment, and referral centres (Flu Centres) throughout Peel Region to deal with persons in the community with suspect influenza. If established, Flu Centres will likely be the primary venue for the distribution of antiviral drugs to ill persons in the community. It is not expected that antiviral drugs will be made available to individual doctor offices or to every community pharmacy. However, depending on provincial direction, select community pharmacies may be used as distribution points for antiviral drugs, especially early in the pandemic before Flu Centres are established.

Peel Public Health will provide ongoing advice to physicians and other health care providers on recommended antiviral treatment and prophylaxis regimes and will make patient information materials available for use. Peel Public Health will also alert health care organizations and physicians when influenza reaches and leaves the Region of Peel, as antiviral therapy or prophylaxis is only appropriate when influenza is circulating. It is anticipated that once influenza is known to be circulating locally, most antiviral prescribing will be based on clinical criteria, with diagnostic testing confined to cases with unusual presentations.

Transport and Storage

Although the precise details are not yet known, some general principles for transportation and storage can be identified:

- Antiviral drugs can be stored and transported without cold chain considerations; and
- Due to the anticipated demand and scarcity of antiviral drugs, security should be provided during transportation and storage.

Specifics on the coordination of antiviral drug transportation will be identified in future editions of the plan.

Tracking and Surveillance

All organizations and sites that will dispense, or administer, antiviral drugs will be expected to follow provincial eligibility criteria and guidelines for use, and to provide data on antiviral drug use and wastage, as required by MOHLTC or Peel Public Health.

Hospitals, physicians, and other health care providers will be expected to report any severe or unexpected adverse reactions to antiviral drugs through the usual Health Canada system for reporting adverse drug reactions. This process involves on-line, telephone (1-866-234-2345), or fax reporting to Health Canada. These reports are to be sent directly to Health Canada, not Peel Public Health.

Instances of suspected antiviral drug resistance (e.g., failed outbreak prophylaxis) should be reported to Peel Public Health, which will provide advice on appropriate specimen collection and testing in conjunction with the public health laboratory.

Prophylactic Use of Antiviral Drugs

Antiviral drugs can be used to prevent influenza infection, as well as to treat illness. The federal and provincial governments will determine if prophylaxis will be provided from national or provincial antiviral stockpiles and will identify who will be eligible to receive prophylaxis. Decisions regarding prophylaxis are expected in early 2007. Peel Public Health will develop plans to distribute or dispense, prophylactic antiviral drugs, as directed by MOHLTC.

If prophylactic antiviral drugs are provided to health care organizations, these organizations will be responsible for distributing the medications to employees in accordance with MOHLTC direction and guidelines. Peel Public Health will assist organizations to develop efficient distribution plans.

Some hospitals and private agencies may have their own stockpile of antiviral drugs for prophylaxis of employees and medical staff. These organizations will be responsible for the use and distribution of their own antiviral drugs.

Next Steps

Peel Public Health will:

- Finalize the antiviral strategy, in cooperation with health stakeholders, when the provincial guidelines are available; and
- Develop storage and security arrangements for antiviral drugs.

Hospitals, long term care homes, and CCACs will:

- Develop their own plans for secure storage, distribution, and administration of antiviral drugs.

Chapter 11: Public Health Measures

Public health measures (PHM) refer to non-medical interventions used to reduce the spread of influenza. Public health measures involve strategies for both individuals and communities, and include, but are not limited to, the following:

- Infection prevention and control;
- Case and contact management;
- Social distancing strategies, such as closing schools or restricting public gatherings;
- Public education; and
- Travel restrictions and screening of travellers.

Objectives of Public Health Measures

The overall objectives of implementing public health measures are to:

- Decrease the number of individuals in the Region of Peel exposed to the novel virus, and potentially slow the development or progress of the pandemic;
- Slow disease spread and gain time for implementing medical interventions (e.g. vaccination);
- Reduce the risk of illness and death caused by the pandemic; and
- Reduce the impact on the health care system by lowering the burden of illness and/or spreading pandemic activity over a longer timeframe.

Considerations for the Use of Public Health Measures

Public health measures directed to community disease control have not been well studied. The recommendations in the Canadian and Ontario pandemic plans are largely based on advice from the World Health Organization (WHO) that was gathered through expert opinion and modelling studies. Recent modelling suggests that public health measures, used in combination, could significantly reduce transmission of the pandemic influenza virus and lower attack rates in different age groups.

The strategies to be used will vary according to a number of factors, including:

- *The phase of the pandemic* – aggressive measures might be applied early (i.e. during pandemic alert phases) to try to contain the virus, whereas application of measures later in the pandemic focuses on reducing individual risk;
- *Pandemic severity and epidemiology* – a mild pandemic would not require an aggressive approach to the application of public health measures;
- *The characteristics of the community* – some measures are easier to apply in more remote, or rural areas than in large urban areas;
- *Social disruption* – the impact that a particular measure may have on the public;

- *Public acceptance* – will the public adhere to and tolerate the measures; and
- *Availability* – the availability of resources to carry out the measure, if it is labour intensive (e.g. contact tracing).

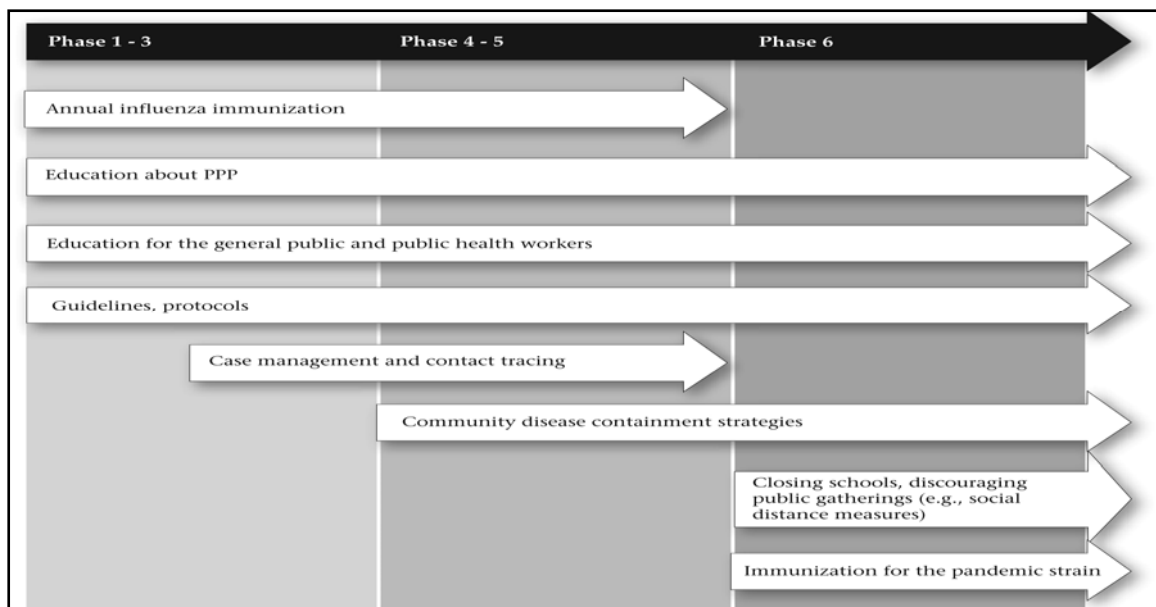
As a result, some of the strategies outlined in this plan can only be described in a general manner at this time. Public health measures will be modified and clearly identified once the epidemiology of the pandemic virus is known.

Under the authority of the *Health Protection and Promotion Act*, the Medical Officer of Health (MOH) has the authority to implement public health measures (e.g. isolation, quarantine, or school closures) in the local jurisdiction. In the case of an influenza pandemic, the decision to use particular public health measures will be made by the Ontario Chief Medical Officer of Health, in consultation with MOHs. This will lead to consistency in the application of measures across the province, and thereby help to ensure public confidence, compliance and reduce confusion. The specific timing for the implementation of a measure may vary across the province, as this depends on the phase and severity of the pandemic in each local area.

Timing of Measures by Pandemic Phase

Figure 11.1 provides an overview of the proposed public health measures by pandemic phase. The measures themselves are described in the following sections of the chapter.

Figure 11. 1: Timing of Public Health Measures by Pandemic Phase¹²



¹² Ministry of Health and Long-Term. (2006). *Ontario Health Plan for an Influenza Pandemic 2006*, Figure 6.1. Retrieved November 29, 2006, from http://www.health.gov.on.ca/english/providers/program/emu/pan_flu/pan_flu_plan.html

Description of Public Health Measures

1. Infection Prevention and Control

Infection Prevention and Control in Health Care Settings

Ongoing infection prevention and control programs are important in all health care settings. All health care workers should be familiar with basic infection prevention and control measures. During a pandemic, health care providers in the Region of Peel will be expected to follow federal and provincial infection prevention and control guidelines, and any additional directives from the Peel MOH.

The Public Health Agency of Canada (PHAC) has published *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*¹³, which outlines the principles, routine practices, and additional precautions for acute, long-term, ambulatory, and home care settings.

In Ontario, the Provincial Infectious Diseases Advisory Committee (PIDAC) has published two best practice manuals that are relevant to influenza control:

- *Best Practice for Cleaning, Disinfection and Sterilization in all Health Care Settings*¹⁴; and
- *Preventing Febrile Respiratory Illness*¹⁵ – this includes recommendations for Febrile Respiratory Illness, or FRI, screening in all health care settings.

For community physicians, the College of Physicians and Surgeons of Ontario has published a guide entitled, *Infection Control in the Physician's Office*.¹⁶

Influenza is thought to be transmitted primarily by droplet and contact spread, thus the current infection control guidelines in the Canadian pandemic plan emphasize droplet and contact precautions. These include the use of surgical (procedure) masks, together with eye protection and gloves and gowns as necessary, for health care encounters within one metre of the influenza patient. Influenza patients should be placed in single rooms or in cohort accommodation. Negative pressure rooms are not necessary.

¹³ Public Health Agency of Canada. (2006). *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*. Retrieved from November 29, 2006, from <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/99vol25/25s4/index.html>

¹⁴ Ministry of Health and Long-Term Care. (2006). *Ontario Best Practice Manual: Cleaning, Disinfection and Sterilization*. Retrieved November 29, 2006, from http://www.health.gov.on.ca/english/providers/program/infectious/diseases/ic_cds.html

¹⁵ Ministry of Health and Long-Term Care. (2006). *Ontario Best Practice Manual: Cleaning, Disinfection and Sterilization*. Retrieved November 29, 2006, from http://www.health.gov.on.ca/english/providers/program/infectious/diseases/ic_fri.html

¹⁶ College of Physicians and Surgeons of Ontario. (2006). *Publications*. Retrieved November 29, 2006, from <http://www.cpso.on.ca/Publications/publications.htm>

The role and contribution of airborne spread remains controversial. As a result, national and provincial recommendations for personal protective equipment (PPE) during a pandemic have not been finalized at the time of writing of this plan. The updated federal and provincial PPE guidelines will be incorporated in future editions of the plan.

In the Region of Peel, infection prevention and control guidelines and initiatives are promoted through several initiatives:

- *The establishment of Regional Infection Control Networks*, which will assist in communication about infection prevention and control strategies. The networks will function as an expert infection and control resource and will maintain an ongoing communication network with health care stakeholders. They are aligned with the Local Health Integration Networks (LHINs) boundaries. Both Regional Infection Control Networks that will serve Peel (Mississauga-Halton and Central West) are in the process of being established, and representatives from Peel Public Health serves as members of their steering committees; and
- *Peel Public Health collaboration with all health care settings in the Region of Peel*, which includes:
 - Consultations by certified Infection Control Specialists;
 - Hosting regular infection prevention and control meetings with emergency responders and community health care organizations in the Region of Peel;
 - Participation and membership in Infection Control Committees at all three hospitals and at long term care facilities and retirement homes; and
 - Providing regular Health Professionals Updates to local physicians.

In 2007, PIDAC is expected to provide training packages which will address core competencies in infection prevention and control for all health care workers. It is anticipated that all health care providers in the Region of Peel will take advantage of these materials and conduct the appropriate training for their employees.

Infection Prevention and Control in the Community

Basic hygienic practices, such as hand washing and respiratory etiquette, are measures that reduce the impact of seasonal influenza and other respiratory diseases. They will be the cornerstone for reducing the risk of transmission of the pandemic virus. These measures should be adopted by individuals and families, and be promoted in schools and workplaces.

Promotion of cough etiquette, hand hygiene, and related measures is an ongoing public education initiative of Peel Public Health (see Table 11.1 for details).

Table 11. 1: Public Education Messages to Prevent the Spread of Influenza and Pandemic Influenza

Measure	Description	Pandemic Enhancement
Cough and Sneeze Etiquette (covering your coughs and sneezes)	Messages are to cover one's cough or sneeze, use the arm or sleeve if tissues are not available, and dispose of tissues appropriately to reduce the spread of respiratory infections.	Messages to promote respiratory etiquette will be reinforced starting at Phase 4 and be maintained during pandemic activity in the Region of Peel.
Hand Hygiene	Hand hygiene is the most important measure to prevent the transmission of infection. Hand hygiene involves hand-washing with soap and water or use of an alcohol based hand rub (60-95% alcohol).	Messages to increase the frequency and improve the quality of hand hygiene will be reinforced starting at Phase 4 and be maintained during pandemic activity in Peel; and During a pandemic, public institutions (e.g. workplaces, schools, churches, and malls) may consider setting up hand sanitizing stations at entrances and/or exits.
Self Isolation (stay at home when you are sick)	Staying at home when you are sick (away from work, school or childcare centre) helps to reduce the spread of infection by limiting contact with others.	Messages to encourage ill people to stay home and away from work, schools and childcare centres will be reinforced starting when pandemic flu arrives in the province. Messaging will include the recommended duration of self isolation.
Keeping Your Environment Clean (increased frequency of surface cleaning in public settings and at home)	The influenza virus can live for minutes to hours on environmental surfaces. Cleaning surfaces with any general cleaning product (using manufacturer's instructions) may decrease the risk of transmission of infection and help control the spread of infections in the workplace or at home.	Messages to increase the quality and frequency of cleaning in schools, childcare centres, and workplaces will be provided once pandemic flu arrives in the province.

2. Case and Contact Management

Pandemic Alert period (Phases 3, 4, 5) – Peel health care practitioners are expected to use the Febrile Respiratory Illness (FRI) screening system to screen for influenza-like illnesses and to report suspect or confirmed influenza cases to the MOH. Prompt reporting and laboratory confirmation allows appropriate public health measures to be implemented as quickly as possible.

Peel Public Health is responsible for case and contact management of suspect or confirmed cases of novel virus infection, including human cases of avian influenza.

Detailed protocols for this follow-up are found in the Public Health Measures Annex of the *Canadian Pandemic Influenza Plan* and in the *Human Health Issues Related to Domestic Avian Influenza Outbreak* document.¹⁷

In the pandemic alert period, there will be individual public health follow-up of suspect and confirmed cases to prevent transmission through case isolation and contact management. Isolation may be voluntary, or ordered by the MOH, depending on the willingness of the individual. However, Peel Public Health will initially use the least restrictive measure. Contacts will be placed under public health surveillance, and may be formally quarantined. Antiviral drugs will be provided to cases and contacts in accordance with established protocols.

The Public Health Agency of Canada (PHAC) is responsible for public health services at Pearson International Airport. However, Peel Public Health may be involved in case and contact management of returning travelers or visitors who are suspected of having novel virus infection (as requested by PHAC). Under the Quarantine Act, federal Quarantine Officers are posted at the airport and have the authority to take action to prevent the introduction of infectious or contagious diseases into Canada. Peel Public Health liaises with the Greater Toronto Airports Authority, Public Health Agency of Canada, and the federal Quarantine Officers to develop protocols to manage these incidents.

Pandemic (Phase 6) – By the time pandemic influenza arrives in the Region of Peel, individual case and contact management will not be used as a measure to control spread of infection. Due to its labour intensive nature, it will not be effective during this phase against a fast-moving pandemic virus. In Phase 6, Peel Public Health will provide general advice to residents to isolate themselves at home if they are sick with symptoms of influenza. Contacts will be advised to watch for symptoms and to self-isolate immediately should illness develop.

3. Social Distancing Strategies

Social distancing strategies refer to measures designed to reduce the risk of infection by limiting person to person contact and avoiding crowds or situations with very close personal contact. During an influenza pandemic, best practices indicate that all social interactions should be conducted by maintaining a one metre distance between individuals. This practice can be creatively applied at home, in the workplace, and in the community at large. This may include restrictions on public gatherings, school or child care centre closures, or maintaining a distance of one metre between individuals.¹⁸

¹⁷ Public Health Agency of Canada. (2006). *Human Health Issues Related to Avian Influenza in Canada*. Retrieved November 29, 2006, from <http://www.phac-aspc.gc.ca/publicat/daio-enia/index.html>

¹⁸ Government of Canada. (2006). *Pandemic Influenza*. Retrieved November 29, 2006, from http://www.influenza.gc.ca/index_e.html

A brief description of the most likely measures to be employed, and the probable triggers for their use, includes:

- **Strengthened recommendations to stay home if you are ill**

Peel Public Health will reinforce the recommendation for symptomatic persons to stay home, away from schools or work, and to avoid public places and events.

Trigger for action – when pandemic flu arrives in the province, which suggests that arrival of the virus in the Region of Peel is imminent.

- **Closure of schools and childcare centres**

School-aged children spread influenza efficiently, as they shed larger amounts of virus than adults and for longer periods of time. School children are a major source of influenza transmission for the community during seasonal outbreaks of influenza. Because of their expected impact on decreasing and slowing transmission, school, and childcare closures will be considered during a moderate or severe pandemic. Recent modelling studies have shown that such closures, when used in combination with other public health measures and medical interventions, can be effective in preventing the spread of infection to the broader community. This could reduce health care utilization and make it easier for local health care providers to keep up with demand.

School closures (and re-openings) would most likely be directed by the MOH; however they could be directed by the Ontario Chief Medical Officer of Health. Alternatively, local school boards might decide to close schools individually, or en masse, if they are severely impacted by pupil or teacher absenteeism.

The impact of school closures on the community (e.g. caring for the children, impact on workplaces) will be considered before this measure is initiated, as it could cause considerable societal disruption. School and childcare centre closures will not be effective in preventing, or delaying, influenza transmission if children continue to congregate in other settings.

Peel Public Health has been working with the Boards of Education to develop pandemic plans for schools, including school closures. The school strategy should include alternative educational plans for children during prolonged school closure. Essential service providers, including health care workers and first responders, are encouraged to develop personal contingency plans for the care of children if schools are closed.

Trigger for action – when confirmed cases of influenza are identified in the school system in the Region of Peel. To be an effective strategy, school closures must be initiated before there is a widespread local transmission, and must be maintained for at least 4-6 weeks before reopening.

- **Restriction of Public Gatherings**

Due to close proximity of individuals, large public gatherings increase the risk of transmission of influenza.

Peel Public Health messages will include advice for:

- Individuals with fever and respiratory symptoms to stay home from public events and locations;
- Avoiding crowds and large public events;
- Frequent and meticulous hand-washing; and
- Any other measures that decrease the risk of transmission of the virus.

Actual restrictions on public gatherings may be implemented by the MOH in a moderate or severe pandemic.

Trigger for action – when influenza activity is identified in the Region of Peel.

Both the Canadian and Ontario pandemic plans contain detailed discussions of these and other potential social distancing and community-based measures. Please refer to these plans for information about potential benefits and limitations of each strategy.

4. Public Education

The best preparation for a pandemic is through public awareness of the personal protective measures that reduce the risk of infection. Although many educational materials are ready, Peel Public Health is currently developing additional educational materials on infection prevention for the general public and stakeholders. All educational materials are available through the pandemic website (www.peelpandemic.ca)¹⁹ and community outreach activities. As the pandemic progresses, continuing health messages, appropriate for the specific pandemic phase, will be provided by Peel Public Health in conjunction with the Region of Peel, through the Region of Peel website (www.peelregion.ca).

Organizations and agencies in the health sector have a responsibility, and opportunity, to provide ongoing education about personal protective measures to their employees, volunteers, and visitors. Schools should be able to reach large numbers of parents with similar messages as part of their pandemic preparedness program. Similarly, businesses should provide ongoing education for their employees. If practised routinely, measures (e.g. hand washing and respiratory etiquette) will help reduce respiratory infections every year, not just during a pandemic.

¹⁹ Region of Peel. (2006). *Pandemic Influenza Planning*.

Retrieved November 29, 2006, from <http://www.peelpandemic.ca>

Examples of public educational materials that are (and will be) available through Peel Public Health are shown in Table 11.2.

Table 11. 2: Public Education Materials to Support Public Health Measures

Public Health Measure	Materials to be Developed or in Process of Development
Infection Prevention and Control for Pandemic Influenza	• Posters, pamphlets, and promotional materials will be available via the Region of Peel website for stakeholders and the general public; and • Fact sheets will be available on risk reducing measures such as respiratory and hand hygiene, environmental cleaning and disinfection of the home and workplace, dealing with sick people in the workplace, and use of personal protective equipment (PPE).
Case and Contact Management	• Fact sheets will be available on various topics such as self-isolation, monitoring self for illness, caring for self or sick family members, and when to seek medical attention.
Social Distancing	• Information on school and childcare centre closures will be provided by Peel Public Health in conjunction with school boards and childcare centres. Regular updates will be posted on the Region of Peel website; • The Region of Peel will use outlets such as website, television, radio, and print media to disseminate status information on public gatherings in the Region of Peel; and • Fact sheets will be available on practical suggestions for social distancing in a variety of settings.
Travel Restrictions	• The federal or provincial government will make public service announcements regarding any possible travel advice or restrictions. The pandemic website will have links to travel advisories.

5. Travel Restrictions

International Travel Health Advisories are posted on the Public Health Agency of Canada website to:²⁰

- Inform travellers about occurrence of human infection in specific geographic regions;
- Recommend personal health measures to reduce health risk; and/or
- Advise delay of non-essential travel.

Peel Public Health will monitor advisories and will provide updates to local health care professionals so they can appropriately prepare travellers for visits to affected countries. Peel Public Health will also evaluate influenza-like illness in returning travellers.

²⁰ Public Health Agency of Canada. (2006). *Travel Health – Know before you go!*
Retrieved November 29, 2006, from <http://www.phac-aspc.gc.ca/tmp-pmv/index.html>

Health Alert Notices may be distributed by federal authorities at points of entry (e.g. airports and border crossing) to travellers returning from pandemic affected areas. Health Alert Notices contain outbreak information, guidelines for self-screening, and guidelines for reporting to health care professionals if symptoms of illness develop.

Decisions to implement travel restrictions within Canada will be taken by the federal or provincial government. Such decisions are very complex and have many ramifications. Although travel restrictions may not be formally applied, Peel Public Health messaging may advise people to reduce non-essential travel.

Trigger for action – when cases of influenza are confirmed in specific geographic areas.

Next Steps

Peel Public Health will continue to:

- Develop educational materials and content appropriate for each pandemic phase;
- Support pandemic planning for school boards and child care centres, including plans for potential closures; and
- Refine and test isolation, quarantine, transfer and follow-up protocols with local port and airport authorities to mitigate spread of infection from ill travellers.

Health care organizations are to:

- Provide infection prevention and control training programs for all staff when MOHLTC program is rolled out.

Chapter 12: Health Services

The delivery of health services in the Region of Peel will be significantly challenged during an influenza pandemic. This is particularly true for acute care facilities, which are functioning at close to capacity during normal operations and often have difficulty coping with winter influenza outbreaks. In a pandemic, both hospital and community health care services could be overwhelmed by a surge in people seeking medical care.

The *Ontario Health Pandemic Influenza Plan* (OHPIP) estimates that the province will use approximately 86% of all acute care beds, 187% of the intensive care unit beds, and 74% of ventilator supported beds just for influenza cases during the peak of pandemic activity. It should be noted that these estimates are for an attack rate of 35%, and that the impact of the pandemic will not be uniform or evenly distributed across the province. In other words, some municipalities may experience higher, or lower, percentages of use.

To respond effectively to the increased demand, the health sector will require a coordinated approach to health services and may need to use non-traditional methods or sites to deliver health care. A change in public expectation will also be required to accommodate the demands placed upon the health sector. It may be necessary for health care services to reduce, or suspend, services to meet the needs of influenza-related care. In a severe pandemic, it may be necessary to triage who gets care, and who gets care first.

Overview of Health Sector Planning

Planning the health sector response requires coordination between all aspects of the health sector, including:

- Telehealth Ontario;
- Primary health care providers (family physicians, pediatricians, walk-in clinics, and urgent care centres);
- Emergency departments and urgent care centres;
- Hospital care, including intensive care;
- Long-term care homes;
- Community Care Access Centres (CCACs) and contract agencies that deliver home care services;
- Paramedic services;
- Private medical transportation services;
- Laboratory services; and
- Community pharmacies.

In order to accommodate expected surge demands on the health sector, influenza pandemic planning also requires consideration of alternate methods of health care delivery, including:

- Promotion of self-care;
- Influenza assessment, treatment and referral centres (Flu Centres); and
- Other non-traditional health care sites.

Peel Public Health has formed a Health Leaders Forum to work collaboratively on a strategic approach to provide health care services during a pandemic. Work is also proceeding within sectors (e.g. long term care). At an operational level, Peel Region Emergency Program (PREP) convenes the Peel Region Healthcare Emergency Planning Working Group which deals with health emergency issues including pandemic planning.

Health service planning is complicated by the fact that some health services in the Region of Peel are closely aligned with other counties and regions, and that the Region of Peel is part of two Local Health Integrated Networks (LHINs). The new Regional Infection Control Networks will be aligned with the LHINs, rather than geographic boundaries, as will CCACs. These arrangements will complicate both pandemic planning and response.

Objectives of the Health Care Sector Response

The objectives for the health care sector response are to:

1. Optimize community and hospital capacity to provide care for patients with influenza and its complications;
2. Maintain key community and institutional health care services during a pandemic; and
3. Support people with influenza who can be cared for at home.

Self-care

The ability to care for oneself and one's family members will minimize the demand for health care services during an influenza pandemic. Information to support this family role will be provided in several ways:

- *Telehealth Ontario* (1-866-797-0000) provides 24-hour access to telephone consultation with a registered nurse. Advice from Telehealth Ontario will assist people with self-care and identify those who need to seek medical care. Peel Public Health will coordinate with Telehealth Ontario to ensure users of the system have access to the locations of clinics and Flu Centres in the Region of Peel; and
- *Peel Public Health* will also provide key information and messages on self-care through the Region of Peel website, Regional call centres, and the media. This information will include a self-assessment tool provided by MOHLTC. Information will also include the locations and hours of operation of mass vaccination clinics and Flu Centres.

Care in the Community

Primary care providers (e.g. physicians, nurse practitioners, walk-in clinics, community health centres etc.) will be essential during a pandemic, but their precise role remains to be determined. During the pandemic alert phases, they must watch for imported flu cases and be prepared to notify public health. As local pandemic activity begins, they can expect to see patients with suspect illness in their offices. Once Flu Centres are established and operational (see Section Four), it is expected that they will be staffed, in part, by family doctors, perhaps on rotation, while others continue to provide office care for urgent non-flu conditions.

The Peel Medical Officer of Health (MOH) will provide ongoing alerts and advice to community health care practitioners as the pandemic threat increases and as the pandemic reaches the Region of Peel. A two week supply of infection control supplies has been provided to each family doctor's office by the MOHLTC.

Influenza Assessment, Treatment, and Referral Centres

The OHPIP states that the health system will establish community influenza assessment, treatment and referral centres (Flu Centres) during the pandemic.

The purpose of Flu Centres is to:

- Assess people with influenza-like illnesses and identify those who need hospital care;
- Provide coordinated, efficient, streamlined influenza-related services in a limited number of sites to decrease patient movement and reduce the risk of infecting others; and
- Provide rapid access to antiviral drugs.

The concept of Flu Centres is being explored by Peel health care leaders, and a collaborative planning process is underway.

Hospital Planning

The issues facing hospitals are complex. Despite the availability of Telehealth and the planned Flu Centres, it is expected that many flu patients will visit emergency departments. The need for admission to hospital, or intensive care unit (ICU), and need for ventilator care could increase dramatically. FluSurge projections for the Region of Peel (see Table 12.1) show that existing capacity would be totally overwhelmed by expected numbers of flu cases in a mild-moderate pandemic if vaccines and antiviral drugs are not available. At the same time hospitals are expected to continue to provide essential services such as cardiac care, obstetrics, emergency surgery and orthopedics, and renal dialysis.

Table 12. 1: Potential Pandemic Impact on Hospitals in Peel Region*

Type of care required	% of capacity used at peak of wave	
	15% attack rate twelve week wave	35% attack rate six week wave
Admitted flu patients	28%	91%
ICU flu patients	102%	334%
Flu patients on ventilators	51%	166%
* Assumptions: moderate scenario, no vaccine or antiviral medications Existing Peel capacity: 989 non-ICU beds, 78 ICU beds, 81 ventilators		

Both the federal and provincial pandemic plans present guidance for hospitals in optimizing their capacity. This includes deferral of non-critical services, admissions and discharge criteria, critical care triage, supply chain management and plans to expand physical space. Human resources present a particularly difficult challenge because of ongoing shortages of health care workers and anticipated absenteeism due to illness or other factors. Stockpiles of key supplies and antibiotics are recommended.

OHPIP provides guidance for hospitals in developing surge capacity using a phased approach. However, it suggests that 20% surge capacity is the maximum upper limit to any ‘surge in place’ response during major emergencies, and this will not be enough to meet peak demands of a 35% attack rate. After hospital surge capacity and other health system resources have been exhausted, hospitals will have to shift to mass emergency care in order to ensure fair and equitable allocation of scarce resources and maximize the benefit to the population at large. OHPIP provides rationales and tools for critical care triage.

The three hospitals in the Region of Peel have been actively engaged in pandemic planning for some time and have developed draft pandemic plans. Refining of these plans and integration with the long term care and community sectors will be an ongoing process.

Alternate Care Sites (Non-Traditional Care Sites)

The *Canadian Pandemic Influenza Plan* (CPIP) outlines the following possible roles of alternate care sites:

- Care of patients who are not critically ill, when hospitals are overloaded;
- As residences for individuals unable to care for themselves; and
- As ‘step-down’ units to care for stable patients who have been transferred from acute care hospitals.

Rather than free-standing sites, the CPIP recommends satellite sites that are linked to healthcare facilities, as this will allow them to utilize the infrastructure, policies,

procedures, and equipment of the parent healthcare facility. Identifying the possible need and planning for the alternate care sites will be conducted in the future.

Long Term Care Homes

Provincial guidance for pandemic planning has been provided to long term care homes and OHPIP clarifies additional areas to assist long term care (LTC) planning. The Peel Health Long Term Care Division is providing leadership and planning coordination for all LTC homes in the Region of Peel.

Expectations of long term care homes include:

- Provision of, as much on-site care as possible, to avoid transfers to hospital unless absolutely necessary;
- Management of influenza outbreaks with limited assistance from Peel Public Health;
- Consideration of capacity to transfer additional patients from hospital or community to free up hospital beds;
- Provisions for vaccination of residents, staff, and volunteers when vaccine is available; and
- Provisions to administer antiviral drugs to residents, staff, and volunteers for treatment, outbreak control and prophylaxis (as per provincial policy).

Staffing will present a severe challenge, as many homes have casual staff expected to work in hospital during the pandemic. Expanded roles for family members and volunteers will have to be explored.

Community Care Access Centres

The Community Care Access Centres (CCACs) will be expected to expand their service capacity during a pandemic. Enhanced home care services will play an important role in supporting influenza patients in the community, thus enhancing the capacity of hospitals to look after the most seriously ill patients. Increased patient loads will come from early discharge from acute care facilities, and from patients seen at Flu Centres, who can be treated at home instead of being hospitalized. A provincial planning process for CCACs is underway and it is expected that the CCACs will work with their provider agencies to ensure that they will meet pandemic expectations.

Paramedic Services / Medical Transportation Services

Paramedic and Emergency Services (Region of Peel) is responsible for ensuring that paramedic services continue to meet needs during the pandemic. The SARS experience showed the need to coordinate policies and planning with hospitals and long term care homes. As for other partners in the health care system, continuity of operations planning

is critical and maintaining staffing will likely represent the biggest challenge faced by organizations during the pandemic.

Laboratories

Laboratories will play a vital role in the response to pandemic influenza, as outlined in detail in Chapter 14 of the Ontario pandemic plan (OHPIP). That document spells out the roles of community, hospital and public health laboratories along with guidelines for each type of laboratory.

During the pandemic, Peel Public Health will ensure the collection of appropriate surveillance specimens and provide advice on influenza testing to practitioners in collaboration with the Public Health Laboratory. Non-influenza testing, through community and hospital labs, will remain important for patient care, though some tests will have to be curtailed at the peak of pandemic activity. This will permit labs to focus on the most essential services to support the surge in severely ill patients.

Pharmacists and Community Pharmacies

Hospital pharmacists will play a key role in supporting hospital services during a pandemic, including the management of antiviral drugs for hospitalized and emergency department patients and for hospital staff. Similarly the pharmacists serving long term care homes will be expected to support the antiviral strategy for these facilities.

Community pharmacies typically play an important role in seasonal flu outbreaks, which includes filling prescriptions for antiviral drugs and antibiotics and providing advice on medications for symptomatic relief. Some pharmacies provide annual flu shot clinics. The national and provincial Chain Drug Store Associations are exploring the roles that community pharmacies could play to support the pandemic response. These include providing public information, assessing and monitoring patients, distributing antiviral drugs and other supplies, and enhanced dispensing such as prescription refills. Consideration of expanded duties is under review by the Ontario College of Pharmacists.

Representatives of both hospital and community pharmacists have been added to pandemic planning initiatives in the Region of Peel to look at how best to maximize their potential during a pandemic.

Next Steps

All health care organizations are to:

- Complete a pandemic plan (or annex to an existing emergency plan);
- Examine essential equipment and stockpile needs to ensure continuity of operations for a four week period; and
- Participate in sector-wide planning.

Peel Health will continue to support health sector planning through the following:

- Peel Public Health will prepare self-care information and materials;
- The Associate Medical Officer of Health will convene regular meetings of the Health Leaders Forum to coordinate high level planning and solve cross-sector issues;
- Peel Health Long Term Care Division will work with the broader long term care sector to promote pandemic planning; and
- Peel Health will participate in the Flu Centre Planning Group, which is developing plans for such centres in the Region of Peel, including the identification of the role of community health care practitioners in the pandemic response.

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Chapter 13: Communications

Effective, clear, and timely communication is a critical component of emergency management. Open communication with the community and key stakeholders is essential to secure support and co-operation, build confidence, and dispel rumours and misinformation.

This chapter defines communication objectives, target audiences, key messages, and specific strategies (written, spoken and visual) during each phase of the pandemic influenza. It also includes evaluation activities to measure the effectiveness of the communication strategies.

Communication Objectives

The overall goal of the pandemic communication strategy is to communicate accurate and timely information to multiple target audiences regarding personal and professional actions for each pandemic phase, and to share information among stakeholders involved in the pandemic response. Communication objectives by pandemic phase are shown in Table 13.1.

Table 13. 1: Communication Objectives by Pandemic Phase

Pandemic Phase	Objectives
All phases	• To communicate in a clear and timely manner with all target audiences and key stakeholders; • To educate all target audiences about routine infection prevention control practices to decrease the spread of infectious diseases; • To communicate with the media accurately, consistently, and in a timely manner; and • To respond to rumours and inaccuracies promptly.
Inter-Pandemic Period (Phases 1 & 2)	• As above; and • To promote annual flu vaccination.
Pandemic Alert Period (Phases 3, 4 & 5)	• As above; • To inform all target audiences about pandemic influenza planning across the Peel Health Care Sector; • To increase understanding among target audiences of the potential impact of pandemic influenza and the need for personal and organizational preparedness; and • To increase stakeholder awareness of the need to develop pandemic plans, including business continuity.
Pandemic Period (Phase 6)	• To inform all target audiences about the level and nature of pandemic activity in the Region of Peel; • To communicate to all stakeholders the need to activate their pandemic plans; • To inform the public about personal protection, self and family care and when and where to seek medical attention; • To communicate the availability (or not) of vaccine and antiviral drugs and times/locations of clinic sites; and • To inform the public about changes to services provided by the Peel health care sector and the Region of Peel.
Post-pandemic period	• To thank everyone for their support and co-operation during pandemic; and • To evaluate communications measures used in the pandemic and modify the pandemic plan as needed.

Communication Roles and Responsibilities

Region of Peel

At the time of a pandemic, if a local or provincial emergency is declared, the Region of Peel will take charge of all aspects of the emergency. This provides the Region of Peel, through the Regional Emergency Control Group (RECG), overall responsibility for pandemic communications. To ensure consistency and accuracy of messages, communication to all target audiences will be controlled and monitored. Region of Peel spokespersons will be designated, and will include the Regional Chair and the Medical Officer of Health (MOH).

Communication Services Division (Corporate Services Department) will lead the Regional communication response including media relations, website updates, design, and production. The People, Information and Technology Department will lead communication to Region of Peel staff. Access Peel is responsible for the Customer Contact Centre response.

Peel Public Health

When communicable disease outbreaks occur in non-pandemic situations, Peel Public Health is responsible for communications to the general public, health professionals and other stakeholders, Regional Council, and the media. In these situations, the MOH, or designate, is the usual spokesperson. The communications support for Peel Public Health is provided by the Region of Peel, through the Communication Services Division, and this support can be enhanced as necessary by Corporate Services Department.

It is anticipated that Peel Public Health will continue to have overall responsibility for public, media, and key stakeholder communication during the pandemic alert period (Phases 3, 4, and 5).

In Phase 6, as outlined above, the Region of Peel assumes responsibility of all aspects of the emergency if a local or provincial emergency is declared. The MOH and Commissioner of Health are members of the Regional Emergency Control Group, which directs the emergency response. In line with their legislated responsibility for communicable disease control, the MOH and Peel Public Health will continue to play a major role in pandemic communication as follows:

- The MOH will be a key spokesperson for the Region of Peel during all phases of an influenza pandemic (along with the Regional Chair and others as designated);
- Peel Public Health will prepare the health messages and content for corporate and public communications; and
- Peel Public Health will continue to serve as the main conduit of pandemic information to the health care sector.

Hospitals, Long Term Care Homes, CCACs, and other Health Care Organizations

Health care organizations are responsible for communication to their own staff, patients/clients, families, volunteers, and visitors at all pandemic phases. During phase 6, when the Region of Peel is in charge of communication to the general public and the media, individual health care organizations should have as their focus, matters affecting their own facility. All media messages will be coordinated with the RECG to ensure consistency.

During a pandemic, health sector communications will be facilitated if all organizations are using the Incident Management System (IMS) (see Chapter 6). With this system each organization would have a Public Information Officer and a Liaison Officer, who form networks to problem-solve and share information.

Key Operating Assumptions for Pandemic Communication

The following key operating assumptions for effective pandemic communication apply to all organizations in the Region of Peel with communication responsibilities:

- Each organization should be prepared to conduct pandemic communications in accordance with the roles and responsibilities outlined above;
- Communications need to be synchronized and consistent with communications from other levels of government. Some messages may differ depending on local pandemic activity and its timing;
- Coordination of messages with neighbouring regions and health units;
- All public communications should be written in plain language and all pictures and graphics should be clear and easily understood, regardless of familiarity with the English language and literacy level;
- Key written materials (such as personal protection, where to go for care, or vaccine information) should be translated into the languages of need (i.e. top five most common languages, plus French) for use in the Region of Peel. These include: Punjabi, Hindi, Urdu, Chinese, Vietnamese, and French. If translations are not feasible, these materials should include the following translated statement: *“This information is very important. Please have it translated.”*; and
- Those responsible for pandemic communications should understand and apply the principles and best practices of crisis and risk communication.

Target Audiences

Effective communications are targeted to specific audiences. Each health care organization should identify its own target audiences and develop messages and strategies to reach them. Target audiences may be classified as internal to the organization or external. External audiences may be classified as general (e.g. general public and media), healthcare sector and non-healthcare sector. Table 13.2 identifies the target audiences for Peel Public Health/Region of Peel pandemic communications.

Table 13. 2: Target Audiences for Peel Public Health Communications

Internal	External: General	External: Health Sector	External: Non-Health Sector *
• Region of Peel staff; • Regional Council; • Executive Management Team (EMT); • Peel Public Health staff; • Human Resources; and • Regional volunteers.	• General public; and • Media.	• Health care professionals: physicians, nurses, pharmacies, dentists, others; • Hospitals; • Long term care homes; • CCACs; • Paramedic services; • Mortuary Service; • Coroner's office; and • Community support service agencies.	• Schools, colleges and universities; • Child care providers; • GTAA; • Local municipalities; • Local fire departments; • Peel Regional Police; • Essential services (e.g. utilities); • Social Services agencies; • Multi-faith/religious groups; • Multicultural services; • Animal surveillance & agriculture groups; • Community volunteer organizations; and • Large and small businesses.

*** Note: All Communication to the non-health care sector will be coordinated through PREP.**

Key Messages for Pandemic Communications

Key messages are tailored to specific audiences for each phase. Proposed key messages by pandemic phase are shown in Table 13.3.

Table 13. 3: Key Messages by Pandemic Phase

Pandemic alert period (Phases 3, 4, and 5):

- Region of Peel has the *Pandemic Influenza Plan for the Health Sector in Peel*;
- Know the signs and symptoms of pandemic influenza;
- Use infection control practices such as hand washing, covering your cough and sneeze, staying home when you're sick, to reduce the spread of disease;
- Prepare personally for pandemic influenza;
- Organizations and businesses should prepare pandemic plans; and
- Vaccine for pandemic influenza is not available at this time and will take time to be developed once a pandemic begins.

Pandemic period (Phase 6):

- Pandemic influenza is here;
- There exists a *Pandemic Influenza Plan for the Health Sector in Peel*;
- Some government services have been suspended;
- Know the signs and symptoms of pandemic influenza;
- Use infection control practices such as hand washing, covering coughs and sneezes, and staying home when sick to reduce the spread of disease;
- Call the Region of Peel or Telehealth or visit the Region of Peel website for information on how to care for the ill, infection prevention and control, self-treatment, when are where to seek medical attention;
- Activate pandemic/business continuity plans;
- Activate personal preparedness plans for pandemic influenza;
- Peel Public Health is responsible for the distribution and administration of the pandemic vaccine in Peel (when available);
- Vaccine for pandemic influenza is/is not available at this time; and
- Information on school and public places closures.

Post-pandemic period:

- Thank everyone for support and co-operation;
- Call the Region of Peel or visit the website for latest updates; and
- Continue using infection control practices such as hand washing, covering your cough or sneeze, and staying home if sick.

Communication Strategies

Each health care organization needs to develop communication strategies to reach its target audiences. The main communication strategies that will be used by the Region of Peel and Peel Public Health during the pandemic alert period (Phases 3, 4, 5) and the pandemic (Phase 6) are listed below and described in more detail in Table 13.4:

- Website;
- Region of Peel and Peel Public Health call centres;
- Media relations;
- Educational materials;
- Advertising campaigns;
- Community outreach and presentations;
- Regional intranet (for internal communications); and
- Updates and alerts.

Rapid communication to large numbers of stakeholders requires modern communication methods, preferably electronic (e.g. email, internet, etc). Each health care organization should have the capability to send and receive fax, electronic communications, and should monitor these communications. Physicians are encouraged to have fax machines, internet, and e-mail access at their offices. All organizations should be prepared to participate in teleconferences and major organizations should consider videoconferencing capability. Expanded use of cell phones, mobile email devices, and other emerging technologies needs further consideration.

Table 13. 4: Region of Peel Communications Strategies by Pandemic Period

Strategy	Pandemic Alert Period	Pandemic Period
Website	The Peel Health pandemic website will provide accurate and current updates on pandemic influenza for all target audiences during all pandemic phases. This includes: • Pandemic and avian flu updates for all target audiences; • Pandemic 101 FAQs; • Fact sheets (infection prevention and control, personal preparedness, self-care, caring for the ill, etc) and translated materials; • Special updates for physicians and other health care providers; • Links and resources (downloadable educational materials, posters, presentations); • Travel advisories; and • Contact information.	The Region of Peel website will be the primary source of information for the majority of target audiences and contain the following information, in addition to previous list: • Regular updates on status of pandemic, possible reduction of Regional services, whom to contact, etc; • Additional fact sheets and translated materials; • Updates on closures of schools, malls, public places (if necessary); • Schedule of vaccination clinics (if and when available); • Health professionals section; and • Additional links and resources (downloadable educational materials, posters, presentations).
Call Centre	In the pandemic alert period, phone calls about pandemic influenza will be handled by the Customer Contact Centre at the Region of Peel. Peel Public Health will: • Share key message with Customer Contact Centre, Communicable Disease Call Centre and Environmental Health Duty Desk (second tier); • Ensure all pandemic updates, educational materials, media releases and communications to external groups are shared with call centres; and • Include the call centre's phone number on all educational materials and communications.	During the pandemic, the first tier Customer Contact Centre will be expanded and staff trained to handle a wider range of questions. Other enhancements: • Add phone message with the latest pandemic update for those on hold and calling after hours.
Media relations	• Issue media releases; • Work with spokespersons to ensure consistent messages; • Organize media conferences/briefings, when necessary; • Respond to media inquiries; • Arrange for media interviews; and • Respond to rumours and inaccurate information.	• Same as pandemic alert period; • Activation of media centre; and • Public Service Announcements.

Table 13. 4: Region of Peel Communications Strategies by Pandemic Period (cont'd)

Strategy	Pandemic Alert Period	Pandemic Period
Educational and design materials	• Continue to develop and distribute educational materials on pandemic influenza, infection prevention and control, emergency preparedness for all target audiences - displays, fact sheets, hand-washing posters, etc; • Design update/alert templates for key stakeholders (physicians, health care providers, schools, EMT, Regional Council, others); • Collect translated fact sheets prepared by province or other municipal governments. Develop additional translated materials, if necessary.	• Same as pandemic alert period; • Develop additional fact sheets as needed; and • Develop signage for vaccination clinics.
Advertising campaign	• Consider newspaper ad campaign with infection prevention and control messages (hand-washing, cover your cough and sneeze, stay home if ill).	• Consider media advertising (local newspapers, transit ads) with infection prevention and control messages (hand-washing, cover your cough and sneeze, stay home if ill); • Use mobile signs to promote call centre and website; • Consider transit ads with messages about infection prevention and control; and • Place ads in local newspapers with vaccination clinic schedule (if and when available).
Community outreach and presentations	• Ongoing presentations for target audiences on: ○ Pandemic and avian influenza ○ Infection prevention and control; and • Consider community forums to raise awareness about pandemic influenza, infection prevention and control.	
Regional intranet	• Pandemic 101 information and key messages, infection prevention and control, personal preparedness, etc; • FAQs on pandemic response, roles of Regional staff, HR-related questions; and • Dedicated hotline for Regional staff.	• Same as for the pandemic alert period; • Enhance FAQs for Regional staff; and • E-mail and voice broadcasts for Regional staff.
Updates and alerts for key stakeholders	<i>Health care sector stakeholders:</i> • Physicians – provide Health Professionals Updates, pandemic website updates, rounds, forums; and • Hospitals, EMS, LTC homes, CCACs, pharmacies, dentists, other stakeholders – provide email and fax updates and alerts, teleconferences, face-to-face meetings, forums (TBC), pandemic website. <i>Non-health stakeholders:</i> • Provide timely updates via e-mails, fax, and pandemic website.	<i>Health care sector stakeholders:</i> • Same as for pandemic alert period; • Increased frequency of alerts and health information; • Add health care professionals section to pandemic website; • Add dedicated phone lines; and • Regular teleconferences for Health Sector Coordinating Committee. <i>Non-health stakeholders:</i> • Same as for pandemic alert period.

Monitoring and Evaluation

Evaluation is an ongoing and evolving process throughout all pandemic phases. Timely feedback allows modification or enhancement to pandemic messages. Specific monitoring and evaluation measures will include:

- Daily monitoring, and analysis, of media coverage (e.g. number of articles, editorials, their tone and content);
- Number of website visits;
- Number of calls to the Customer Contact Centre (ROP);
- Number and nature of requests for educational materials;
- Number and nature of comments and feedback from general public and other audiences;
- Attendance and nature of comments and feedback at community forums; and
- Number of presentations to target audiences and feedback/comments from attendees.

Next Steps

Peel Public Health will:

- Continue to develop the educational materials that will be needed in a pandemic;
- Continue to enhance the pandemic website and to add downloadable materials for key stakeholders; and
- Finalize plans for communication to health care and other key stakeholders during a pandemic.

All health care organizations should:

- Develop communications plans, strategies and materials for their own target audiences; and
- Ensure that they have technology in place for rapid communication with their health care partners through fax, monitored email and teleconferencing.

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Chapter 14: Natural Death Surge Planning

Pandemic influenza is expected to result in excess deaths in the Region of Peel. Modeling used by the Ministry of Health and Long-Term Care for a pandemic of mild to moderate severity suggests that the Region of Peel can expect, over the duration of the pandemic, between 467 and 1,730 deaths due to influenza and its complications. The availability of vaccines and antiviral drugs could significantly reduce the expected number of deaths. A severe pandemic, however, could be associated with much higher mortality rates. If many deaths occur in a short-time frame, they could overwhelm current fatality management systems.

Peel Region Emergency Program (PREP) is working extensively with relevant stakeholders to plan for a natural death surge (e.g. the result of a pandemic). The purpose of this planning is to ensure that the management of dead bodies occurs as efficiently, effectively, and respectfully as possible during what will be a difficult time for all concerned.

A community response is needed to deal logically and systematically with a natural death surge. This should include first responders, emergency managers, hospitals, funeral homes, cemeteries, crematoria, and death registry offices. Changes to the normal processing of human remains may be required along with short-term adaptations to an organization's operating policies and procedures. Further details are available in the *Canadian Pandemic Influenza Plan* and the *Funeral Service Guide to Pandemic Planning*.²¹

Natural death surge planning requires examination of each step in the management and processing of human remains to determine what issues might arise during a pandemic. Some of these issues are described below.

Pronouncement and Certification of Death

There are no statutory guidelines or requirements for who can pronounce death, although historically this responsibility has fallen to physicians, nurses, and nurse practitioners. At present, only physicians can complete a "Certificate of Death". This situation is currently under review at the provincial level, and the possibility of extending the authority to certify death to other health practitioners (in order to facilitate the processing of dead bodies during a pandemic) is being examined.

Infection Control

Deceased persons are not considered to be capable of transmitting influenza. No additional or special precautions are required when transporting or managing a body of a person known, or suspected, to have died of influenza.

²¹ Funeral Service Association of Canada. (2006). <http://www.fsac.ca/>

However, the people attending funeral services and visitations may be infected with influenza, either acquired from the deceased or elsewhere in the community. Funeral services and visitations provide a potentially efficient route for transmitting the influenza virus. Alcohol-based hand sanitizers, tissues, and proper disposal containers should be readily available in funeral homes and signs posted to encourage their use. Funeral home operators will be expected to pay special attention to the environmental cleaning of their premises.

All persons charged with responsibilities in the management of the deceased, from the pronouncement of death through to the interment, must be made aware of routine infection control precautions.

The Office of the Chief Coroner and Peel Public Health will provide assistance in identifying appropriate infection control procedures, and public health measures for gatherings, such as visitations and funerals. Specific advice is also available from the Funeral Services Association of Canada.

Supplies and Storage Capacity

The Funeral Service Association of Canada recommends that funeral home operators consider establishing an inventory of supplies sufficient to handle the first wave of a pandemic. This is estimated to be enough supplies for the number of deaths that normally occur over a six month period.

It is expected that at the peak of the influenza pandemic, the increased demand on funeral homes, cemeteries, and crematoria may require extended hours of operation. Even with this, it may not be possible to keep up and temporary storage sites for bodies may have to be established. Provincial direction is anticipated to assist with this planning.

Special Considerations

During natural death surge planning and response, special consideration must be given to the following:

- The Region of Peel is an ethno-culturally and religiously diverse community. Some religious and ethnic groups have special requirements regarding the management of deceased persons. Religious and ethnic leaders should be consulted during the planning process to ensure that their requirements are identified and incorporated into the natural death surge plan;
- The public will need to know the reporting and management process if a death occurs in the home. It is estimated that about 30% of deaths could occur at home; and
- Financial assistance may be needed for some families coping with burials.

Next Steps

- Multi-stakeholder planning to continue to address natural death surge strategy.

Chapter 15: Health Sector Planning and Response by Pandemic Phase

This chapter contains a series of charts that provide an overview of key planning and response areas for each part of the health sector. Table 15.1 deals with the interpandemic period (Phases 1 and 2). Table 15.2 covers the pandemic alert period (Phases 3, 4 and 5) while Table 15.3 covers the actual pandemic (Phase 6).

The charts summarize the key points from the previous chapters under the main components of the pandemic response – surveillance, vaccines, antivirals, public health measures, infection prevention and control (separated out from public health measures for ease of reading), health services and communication. The columns are for the different parts of the Peel Health sector, with the second column representing the provincial role. It is hoped that the charts will provide a quick overview for each organization's responsibilities and proposed activities

Abbreviations Used in Tables 15.1, 15.2 and 15.3

Abbreviation	Description
AV	Antiviral
CCAC	Community Care Access Centre
ER	Emergency Room
FRI	Febrile Respiratory Illness
HC	Health Canada
HCW	Health Care Worker
HR	Human Resources
IPAC	Infection Prevention and Control
LTC	Long Term Care
LTCH	Long Term Care Homes
MOHLTC	Ministry of Health and Long-Term Care
PHAC	Public Health Agency of Canada
PHM	Public Health Measures
PPE	Personal Protective Equipment
PPH	Peel Public Health
Px	Prophylaxis

Table 15.1A: Inter-pandemic Period – Phases 1 and 2

Response Component	Proposed Activity				
	Province	Peel Public Health	Hospitals	Long Term Care	CCAC/ Contract Agencies
Surveillance	Provide annual surveillance guidelines. Collate surveillance data and report to PHAC Weekly Flu Bulletins. Provide influenza lab testing.	Surveillance of outbreaks, lab-confirmed cases, absenteeism surveys. Report cases, outbreaks and activity to MOHLTC. Weekly flu reports to stakeholders.	FRI surveillance. Report outbreaks and lab-confirmed cases to PPH. Provide influenza testing.	FRI surveillance. Report outbreaks and lab-confirmed cases to PPH.	FRI surveillance. Report outbreaks and lab-confirmed cases to PPH.
Vaccines	Purchase, distribute and promote seasonal flu vaccine. Report adverse events to PHAC.	Distribute and promote seasonal flu vaccine. Conduct mass clinics. Report adverse events to MOHLTC.	Provide seasonal flu vaccine to patients, staff, and volunteers. Report adverse events to PPH.	Provide seasonal flu vaccine to residents, staff, and volunteers. Report adverse events to PPH.	Provide seasonal flu vaccine to staff and patients. Report adverse events to PPH.
Antivirals	Provide antivirals for LTCH outbreak control and guidelines for use.	Provide guidelines for use to LTC homes and physicians.	Treat flu cases. Use for outbreak control.	Treat flu cases. Use for outbreak control.	Make clients and staff aware of antiviral distribution.
Public Health Measures	Mass campaigns to promote respiratory and hand hygiene.	Promote respiratory and hand hygiene to public. Investigate FRI reports and outbreaks.	Promote respiratory and hand hygiene to patients.	Promote respiratory and hand hygiene to residents.	Promote respiratory and hand hygiene to clients.
Infection Control (Health Care Settings)	Publish IPAC and FRI guidelines.	Follow IPAC and FRI guidelines.	Follow IPAC and FRI guidelines. Improve physical layout as needed.	Follow IPAC and FRI guidelines. Improve physical layout as needed.	Follow IPAC and FRI guidelines.
Health Services	TBD	TBD	Provide care for seasonal flu cases.	Provide care for seasonal flu cases.	Provide care for seasonal flu cases.
Communications	Ontario Influenza Bulletin & activity map Web site for public and health professionals Media releases.	Weekly flu reports to hospitals, LTC homes, HSCC etc. Health Prof. Updates Media releases; Web site.	Updates to staff.	Updates to staff.	Updates to staff.

Table 15.1B: Interpandemic Period – Phases 1 and 2

Response Component	Proposed Activity				
	Community physicians	Other Community Practitioners	Paramedics	Community Pharmacies	Labs
Surveillance	FRI surveillance. Report lab-confirmed flu. Improve physical layout as needed.	FRI surveillance.	FRI surveillance.	TBD	Provide influenza testing or transport of specimens. Report lab-confirmed flu.
Vaccines	Provide seasonal flu vaccine to patients/staff. Provide pneumococcal vaccine to patients. Report adverse events to PPH.	Promote seasonal flu vaccine to clients and staff.	Promote seasonal flu vaccine to staff.	Promote seasonal flu vaccine to customers and staff. Consider on site vaccination clinics.	Promote seasonal flu vaccine to staff.
Antivirals	Treat flu cases; consider prophylaxis as indicated.	TBD	TBD	Dispense antivirals and patient materials.	TBD
Public Health Measures	Promote respiratory and hand hygiene to patients.	Promote respiratory and hand hygiene to clients.	TBD	Promote respiratory and hand hygiene to customers.	TBD
Infection Prevention and Control (ICAP)	Follow IPAC and FRI guidelines.	Follow IPAC and FRI guidelines.	Follow IPAC and FRI guidelines.	Follow IPAC and FRI guidelines.	Follow IPAC and FRI guidelines.
Health Services	Provide care for seasonal flu cases.	TBD	Transport flu cases as needed.	Provide medications for seasonal flu cases.	Provide diagnostic influenza testing or forward specimens.
Communications	TBD	TBD	TBD	Include flu messages in promotional materials.	TBD

Table 15.2A: Pandemic Alert Period – Phases 3, 4 and 5****Note: All interpandemic activities shown in Table 1 are to continue**

Response Component	Proposed Activity				
	Province	Peel Public Health	Hospitals	Long Term Care	CCAC/ Contract Agencies
Surveillance	Develop surveillance plans and indicators for Phases 3-6. Develop lab protocols Disseminate alerts.	Disseminate alerts and enhance surveillance as needed. Expand absenteeism surveillance. (schools, workplaces). Develop and pilot hospital, clinic and mortality indicators.	Develop and pilot hospital indicators in collaboration with PPH.	TBD	TBD
Vaccines	Develop plans for pandemic vaccine storage, security and transport. Stockpile vaccination supplies.	Develop plans for pandemic vaccine storage, security, transport and mass clinics, monitoring uptake and adverse events. Enumerate priority groups. Train all PPH nurses to vaccinate.	Develop plans for pandemic vaccine storage, security, and clinics for staff, volunteers, patients.	Develop plans for pandemic vaccine storage, security, and clinics for staff, volunteers, residents.	Develop plans for pandemic vaccine storage, security, and clinics for staff, volunteers, clients.
Antivirals	Develop provincial antiviral strategy. Create antiviral stockpile.	Develop local antiviral strategy in collaboration with health sector. Develop plans for prophylaxis clinics as necessary.	Develop plans for antiviral storage, security, and administration (including staff Px).	Develop plans for antiviral storage, security, and administration (including staff Px).	Develop plans for antiviral storage, security, and administration (including staff Px).
Public Health Measures	Develop guidelines for PHM.	Investigate FRI reports and outbreaks. Case and contact management of suspect novel or avian flu cases. Help municipalities and schools plan for closures.	TBD	TBD	TBD

Table 15. 2A: Pandemic Alert Period – Phases 3, 4 and 5* (cont'd)
***Note: All inter-pandemic activities shown in Table 1 are to continue**

Response Component	Proposed Activity				
	Province	Peel Public Health	Hospitals	Long Term Care	CCAC/ Contract Agencies
Infection Control (Health Care Settings)	Develop guidelines for avian/pandemic flu including PPE. Develop HCW IPAC training program.	Incorporate new guidelines. Train all staff.	Incorporate new guidelines. Train all staff.	Incorporate new guidelines. Train all staff.	Incorporate new guidelines. Train all staff.
Health Services	Provide guidelines for hospital, LTC and community care, including assessment and treatment centres Stockpile supplies.	Lead health care sector collaboration to develop coordinated plans for health care in the region. Stockpile supplies (4 wks).	Develop plans for surge capacity to meet pandemic demands, including HR issues. Stockpile equipment and supplies (4 wks).	Develop plans to meet pandemic demands, including HR issues. Stockpile equipment and supplies (4 wks).	Develop plans for surge capacity to meet pandemic demands, including HR issues. Stockpile equipment and supplies (4 wks).
Communications	Develop detailed strategy for Phase 6 Plan Telehealth expansion. Enhance public messaging.	Develop detailed strategy for Phase 6. Enhance public messaging. Communicate with staff and the Health Sector Planning Committee re: pandemic planning.	Develop detailed strategy for Phase 6. Communicate with staff re: pandemic planning.	Develop detailed strategy for Phase 6. Communicate with staff re: pandemic planning.	Develop detailed strategy for Phase 6. Communicate with staff re: pandemic planning.

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Table 15.2B: Pandemic Alert Period – Phases 3, 4 and 5

Response Component	Proposed Activity				
	Community Physicians	Other Community Practitioners	Paramedics	Community Pharmacies	Labs
Surveillance	TBD	TBD	TBD	TBD	TBD
Vaccines	TBD	TBD	TBD	TBD	TBD
Antivirals	Develop familiarity with antiviral use.	TBD	TBD	Collaborate with PPH to define pandemic role re: antivirals.	TBD
PHM	TBD	TBD	TBD	TBD	TBD
Infection Prevention and Control (ICAP)	Incorporate new guidelines. Train all staff.	Incorporate new guidelines. Train all staff.	Incorporate new guidelines. Train all staff.	Incorporate new guidelines. Train all staff.	Incorporate new guidelines. Train all staff.
Health Services	Participate in health sector planning to clarify role in pandemic.	Participate in health sector planning to clarify role in pandemic.	Develop plans to meet pandemic demands, including HR issues. Stockpile equipment and supplies (4 wks).	Participate in health sector planning to clarify role in pandemic.	Develop plans to meet pandemic demands. Stockpile equipment and supplies (4 wks).
Communications	Communicate with staff re: pandemic planning.	Communicate with staff re: pandemic planning.	Communicate with staff re: pandemic planning.	Communicate with staff re: pandemic planning.	Communicate with staff re: pandemic planning.

Table 15.3A: Pandemic Period – Phase 6 ****Note – interpandemic measures no longer apply, except as noted below**

Response Component	Proposed Activity				
	Province	Peel Public Health	Hospitals	Long Term Care	CCAC/ Contract Agencies
Surveillance	Collate lab and health unit surveillance data and report to PHAC. Provide provincial alerts, status reports and info on pandemic epidemiology. Provide influenza lab testing.	Adjust surveillance indicators. Monitor lab-confirmed flu, school and workplace absenteeism, hospital and clinic indicators, mortality. Report to MOHLTC. Provide local alerts and status reports.	Report activity indicators (ER visits, admits, etc.) to PPH. Report outbreaks. Provide influenza lab testing.	Report outbreaks to PPH.	TBD
Vaccines	Confirm priority groups; no. of doses. Release pandemic supplies and vaccine when available. Monitor provincial uptake, adverse events and effectiveness.	Confirm clinic sites and staffing. Supply vaccine to hospitals, LTC homes, CCAC etc. Provide clinics for priority groups and general public. Monitor uptake and adverse events.	Vaccinate staff, volunteers, patients when pandemic vaccine available. Report uptake and adverse events.	Vaccinate staff, volunteers, residents when pandemic vaccine available. Report uptake and adverse events.	Vaccinate staff, volunteers, clients when pandemic vaccine available. Report uptake and adverse events.
Antivirals	Distribute stockpiled antivirals. Confirm priority groups if necessary. Provide guidelines for antiviral use. Monitor resistance, uptake and effectiveness.	Distribute antivirals (if part of provincial strategy) Provide advice on use to health care providers, including when to start/stop. Provide prophylaxis clinics as necessary.	Use supplied AVs to treat ill patients/staff. Monitor use and report to PPH. Report adverse reactions to HC. Provide antivirals for staff prophylaxis if available.	Treat ill pts/staff. Monitor use and report to PPH. Report adverse reactions to HC. Outbreak control. Provide antivirals for staff prophylaxis if available.	Treat ill patients and staff (as per local strategy). Provide antivirals for staff prophylaxis if available. Report use and adverse events.

Table 15.3A: Pandemic Period – Phase 6 (cont'd) *

***Note – interpandemic measures no longer apply, except as noted below**

Response Component	Proposed Activity				
	Province	Peel Public Health	Hospitals	Long Term Care	CCAC/ Contract Agencies
Public Health Measures (PHM)	Provide guidance for provincial and/or local PHM. Provide travel advisories.	Discontinue individual case/contact management. Provide public advice for isolation, contacts, self care, keeping well, social distancing, etc. Consider closing schools or public places.	TBD	TBD	TBD
Infection Control (Health Care Settings)	Provide additional direction for IPAC as required.	Follow provincial direction for IPAC.	Follow provincial direction for IPAC.	Follow provincial direction for IPAC.	Follow provincial direction for IPAC.
Health Services	Provide additional guidelines for hospital, LTC and community care. Provide additional supplies (beyond first 4 weeks).	Provide public advice on self care, when and where to seek medical care. Monitor health care sector capacity. Convene Health Sector Coordinating Committee.	Implement pandemic plan. Establish flu centres in conjunction with other organizations.	Implement pandemic plan.	Implement pandemic plan.
Communications	Expand Telehealth Enhance public messaging. Implement regular communications with health sector.	Expand Regional Customer Contact Centres. Enhance public messaging and web site. Enhance communications with health sector and practitioners. Communicate with staff.	Implement pandemic strategy. Communicate with staff, volunteers, patients, families.	Implement pandemic strategy. Communicate with staff, volunteers, residents, families.	Implement pandemic strategy. Communicate with staff, volunteers, clients, families.

Table 15.3B: Pandemic Period – Phase 6

Response Component	Proposed Activity				
	Community physicians	Other Community Practitioners	Paramedics	Community Pharmacies	Labs
Surveillance	Report activity measures (selected sites).	TBD	TBD	TBD	Enhance surveillance capacity re: lab testing. Report lab-confirmed cases.
Vaccines	Promote vaccination to staff and patients when available. Report adverse events.	Promote vaccination to staff and clients when available.	Provide staff clinics Report adverse events.	Promote vaccination to staff and clients when available.	Promote vaccination to staff when available.
Antivirals	Treat ill patients/staff. Report adverse reactions to HC.	TBD	Provide staff with antiviral prophylaxis if available. Report uptake and adverse events.	Dispense antivirals as per local strategy.	Ensure forwarding of specimens for antiviral resistance monitoring.
Public Health Measures	TBD	TBD	TBD	TBD	TBD
Infection Control (Health Care Settings)	Follow provincial direction for IPAC.	Follow provincial direction for IPAC.	Follow provincial direction for IPAC.	Follow provincial direction for IPAC.	Follow provincial direction for IPAC.
Health Services	Provide ambulatory care in office or Flu Centres.	Assist with flu care as per local plans (to be determined).	Implement pandemic plan.	Implement pandemic plan.	Implement pandemic plan.
Communications	Implement pandemic strategy. Communicate with patients and staff.	Implement pandemic strategy. Communicate with patients and staff.	Implement pandemic strategy. Communicate with staff.	Implement pandemic strategy. Communicate with clients and staff.	Implement pandemic strategy. Communicate with staff.

SECTION FOUR: PLANNING AND PREPAREDNESS

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Chapter 16: Health Sector Planning and Preparedness

Continuity of Operations Planning

Continuity of Operations planning, sometimes referred to as Business Continuity Planning (BCP) in the private sector, involves closely examining the key facets of an organization and developing strategies to ensure the continued operation of priority program areas and services during an emergency. Strategies for continuity of operations include a range of planning and assessment activities. The goal of continuity of operations planning is to ensure that an agency is able to maintain, at a minimum, its critical program areas and key deliverables for the duration of an emergency.

A continuity of operations program is a component of an emergency management program that ensures an organization will be able to provide critical functions and services during an emergency. Continuity of operations planning uses a risk management approach to ensure critical functions and services, by identifying and assessing the following:

- Threats and hazards, and the risk and probability of occurrence;
- The impact and consequence of emergencies and other critical incidents; and
- The criticality of program areas and services.

Continuity of operations is an ongoing process that takes organizational changes into consideration. It must be supported by senior management to ensure the planning process is properly resourced. Continuity of operations planning for a pandemic is transferable and will assist organizations in planning and preparing for any other emergency.

For some health sector organizations, the emergency management program will largely focus on the development of a continuity of operations plan, whereas other health sector organizations, that respond directly to incidents in the community, will need their emergency management program to include both emergency response (external operations) and continuity of operations planning (internal functioning). For example, some long term care homes will focus their attention on the development of a continuity of operations plan, as they will not respond to an incident in the community. In other words, a continuity of operations plan focuses on internal operations, whereas emergency management plans focus on a response in the community. In the case of a pandemic, a continuity of operations plan includes the location and amount of stockpiled equipment and resources, how equipment is to be deployed; and identifies the key skills and competencies needed for staff to respond to a pandemic emergency.

This section will provide basic information to assist the health sector in developing and maintaining a continuity of operations program. Specifically, this section will address the following components of continuity of operations:

- Equipment and supplies;

- Human resource planning;
- Volunteers; and
- Occupational health and safety.

Additional information on continuity of operations planning for the health sector may be found at www.peelpandemic.ca.

Peel Health recommends that all health sector stakeholders engage in continuity of operations planning.

Equipment and Supplies

Health sector organizations will require large quantities of equipment and supplies to provide care and to protect health care workers during an influenza pandemic. It is anticipated that supplies, equipment, and medications will be in high demand, and that breakdowns in the supply chain may occur due to a lack of raw materials, personnel or border closures. Health sector organizations must take pro-active steps to ensure that they will have adequate stock to meet the needs of patients and to protect health care workers.

In 2006, the Ministry of Health and Long Term Care (MOHLTC) developed a pandemic procurement strategy that includes building a stockpile of personnel protective equipment (PPE), developing a system for purchasing, storing, and distributing supplies, and a process to manage perishable supplies. At present, MOHLTC is focusing on the procurement of infection control and mass vaccination supplies.

The objective of the MOHLTC strategy is to:

- Have all health care settings and organizations maintain a four-week stockpile of equipment and supplies for use during a pandemic;
- Develop a provincial stockpile to supplement setting and organization stockpiles and provide a source for supplies and equipment when setting stockpiles are depleted or if agencies experience supply-chain failures; and
- Develop an effective system for procuring, storing, and distributing equipment and supplies.

The MOHLTC recommends that all health care settings and providers plan for, and maintain, a four-week stockpile of PPE and other critical supplies. This will provide local organizations with surge capacity, and ensure that they are able to maintain critical operations across the first wave of the pandemic. If depleted, local organizations will be able to access the provincial stockpiles until regular supply chains can be re-established.

According to Peel Health surveys, health care organizations in Peel are in the process of creating the required four-week local stockpiles. To assist small clinical settings, the MOHLTC has already provided emergency infection control kits to physician offices and midwives across the province. These contain a two week supply of basic infection control supplies for the ambulatory care setting.

Planning for Generic Supplies

MOHLTC has developed preliminary templates to assist agencies in estimating their generic equipment and supply stockpile requirements. Preliminary templates will assist agencies in identifying stockpile needs for PPE, diagnostic equipment, and supplies for direct patient care supplies (see Chapter 10A of the Ontario Health Pandemic Influenza Plan). Separate templates are provided for hospitals, community care, and EMS. The formula for estimating stockpile requirements is based on a 35% pandemic attack rate or a 35% surge capacity requirement.

Preliminary templates include:

- Generic equipment and supplies across health sectors that are likely to be in short supply (or unavailable) due to high demand; and
- PPE equipment, based on Provincial Infectious Diseases Advisory Committee recommendations for infection control.

Planning for Specialized Equipment

MOHLTC has identified that some sectors will require specific, or specialized, equipment and supplies. For example, public health laboratories have identified requirements for nucleic acid extractors, liquid handlers, real-time thermocyclers, and reagents and disposables. It is recommended that agencies use the same formula (noted above for generic equipment) to calculate stockpile requirements for specialized equipment. Please note that these lists are not inclusive; for example, medications and antibiotics are not addressed.

Workforce and Human Resources

As estimated by MOHLTC and the Canadian Pandemic Influenza Plan, as many as 20-25% of health sector workers may be absent from the workforce (either due to illness or care-giving responsibilities at home) at the peak of the pandemic (in the absence of vaccine or antivirals). MOHLTC notes in the Ontario Health Pandemic Influenza Plan that the health system will be “hard pressed to maintain its workforce” when the demand for care will be greatest.²²

MOHLTC recommends that the health sector utilize a competency-based approach to human resource planning, and urges all parts of the health care system to work together to plan a coordinated and comprehensive approach to optimize the workforce during a pandemic. The Peel Health Leaders Forum has begun to address issues, including human resources, which affect various parts of the health care system.

²² Ministry of Health and Long-Term. (2006). *Ontario Health Plan for an Influenza Pandemic 2006*. Retrieved November 29, 2006, from http://www.health.gov.on.ca/english/providers/program/emu/pan_flu/pan_flu_plan.html

More detailed information on human resource planning for the health sector, including assessment and planning tools, is provided in Chapter 8 of the OHPIP.

Competency-based Approach

Competencies are defined as the skills, knowledge, and judgment required for the delivery of a particular service. A competency-based approach identifies the competencies required to delivery a particular service, and the competencies available, during an emergency. The objective of this approach is to increase care capacity for a large number of patients by making strategic use of the competencies available in a particular agency or setting. With this approach, planners consider the competencies rather than the profession required to meet the needs of the patients. This allows for more staffing options as based on skills, rather than staying with position title or job description. Planners would use the information collected on the competencies required and available, to redeploy staff to critical areas.

Competency-based planning involves a range of data collection activities. This includes developing data on provider requirements and provider supply. Sample tools are found in Chapter 8A of OHPIP, and include information on population size, attack rates and key planning assumptions, the number of workers available within a particular agency or setting, the competencies of the workers, and the level of production.

Volunteers

Volunteers play an essential role in emergency response by filling in service gaps. MOHLTC recommends that when planners identify a gap between competencies required and those available from existing staff members, organizations should look beyond the traditional workforce and utilize qualified volunteers.

MOHLTC recommends that health care organizations:

- Engage and integrate local volunteer organizations early in the planning process (before an emergency occurs);
- Develop effective working relationships and partnerships with local volunteer agencies rather than national organizations; and
- Develop effective communication among volunteer groups, governments, local communities, and other stakeholders to enhance planning capabilities.

Volunteer Management

Volunteers are expected to play an important role in the pandemic response. Effective use of volunteers requires advance planning, which includes the following steps:

- Identification of appropriate roles for volunteers;
- Development of volunteer job descriptions;

- Strategy for volunteer recruitment and screening (to include interviews, police check, reference check, testing, and other screening tools, as appropriate); and
- Strategy to train key skills and maintain volunteer involvement in the organization.

To assist planners, MOHLTC provides more detailed guidance and tools in applications form templates in Chapters 8 and 8A of the OHPIP.

Occupational Health and Safety

In Chapter 7 of the OHPIP, MOHLTC identifies that, in Ontario, both workers and employers share the responsibility for occupational health and safety. Chapter 7 of the OHPIP also identifies the purpose of the *Occupational Health and Safety Act* (OHSA), and states that several provisions of the act are designed to foster the internal responsibility system, including the requirement for employers to have a health and safety policy and program.

Under the OHSA, the Joint Health and Safety committees or, in smaller workplaces, the Health and Safety representative, play a key role in monitoring the internal responsibility system. This Act identifies the basic rules of operation for Joint Health and Safety Committees and Health and Safety representatives, and these committees should be involved in pandemic planning and in the pandemic response.

Safety Officer in the Incident Management System

The Incident Management System (IMS) also provides for a Safety Officer (SO). Ideally, this position should be filled by the organization's Health and Safety representative. As mentioned in Chapter 6, each health organization should utilize the IMS to coordinate emergency response operations.

The Safety Officer is a member of the Command Section, and is responsible for ensuring the safety and well-being of all personnel, including volunteers, involved in emergency operations. The SO is responsible for monitoring and assessing hazardous and unsafe conditions and developing measures for ensuring personnel safety. The SO will correct unsafe acts or conditions through the regular line of authority, although the SO may exercise emergency authority to stop or prevent unsafe acts when immediate action is required. The SO maintains an awareness of active and developing situations, including the development of safety messages for all staff members and volunteers.

Typical activities of the SO include:

- Identifying hazardous situations associated with the incident or emergency operations;
- Identifying PPE requirements and ensuring that PPE is both accessible to, and appropriately used by, staff;
- Conducting site visits and identify potentially unsafe situations;

- Participating in planning meetings;
- Providing safety messaging for all staff members and volunteers;
- Exercising emergency authority to stop and prevent unsafe acts; and
- Investigating accidents that have occurred within the incident area or a part of emergency operations.

Next Steps

All health sector organizations are to:

- Assess and identify supply needs and stockpile requirements to ensure continuity of operations during a pandemic;
- Engage in human resource planning, as based on pandemic key assumptions;
- Develop a volunteer strategy to augment human resource planning, to ensure continued operation during a pandemic; and
- Develop guidelines to ensure health and safety during pandemic emergencies.

Chapter 17: Training and Exercises

Conducting staff and volunteer training, and developing/conducting regular emergency exercises, are important components of building emergency response capability. The purpose of conducting regular training and exercises is to enhance competencies in emergency management, to test the effectiveness and capacity of emergency plans, and to identify gaps/fine-tune procedures and policies.

Training

The goals of training are to:

- Create awareness of emergency management principles and doctrine for those involved in the emergency response; and
- Build the skills and knowledge necessary to effectively and efficiently manage an emergency (both staff and volunteers).

Ideally, agencies should provide emergency management training for all staff members and volunteers, regardless as to whether they will be involved in a particular emergency. At a minimum, agencies should provide regular training for members of the emergency control group (Executive decision-makers), emergency operations centre personnel, and other personnel with key emergency response responsibilities.

A training program should, as a minimum, address the following areas:

- Principles of emergency management, including the four-pillars (mitigation / prevention, preparedness, response, and recovery);
- The structure of emergency operations, in particular the Incident Management System (IMS) and Emergency Operations Centre (EOC) operations;
- Roles and responsibilities of staff and volunteers during an emergency (including appropriate training);
- Personal protective equipment and infection control practices; and
- Emergency communications and notification procedures.

Exercises

Exercise is the generic term for a range of activities that test emergency response capabilities, evaluate the capabilities and relevance of plans, and assess the effectiveness of training programs. Emergency management exercises are evaluated demonstrations of the capabilities and components of an organization's emergency response structure (e.g. personnel, facilities, equipment, resources, policies, plans, and procedures). They are conducted for the purpose of validating elements of an emergency management program. Exercises should be realistic and include command, control, and communications activities. Exercises do not always have to be simulated events; rather real-life situations

or operations, such as outbreaks or annual influenza clinics, may be used to test parts of the pandemic plan.

Exercise-specific objectives that are used should be developed to establish the scope of the exercise, specify the emergency response functions to be demonstrated and evaluated, identify the extent of organizational participation, and identify the depth and breadth of activities to be accomplished or simulated.

Types of Exercises

The five basic categories of exercises are as follows:

- Orientation exercises;
- Table-top exercises;
- Drills;
- Functional exercises; and
- Full-scale exercises.

Orientation Exercises (Workshops / Seminars)

The purpose of an orientation exercise is to familiarize new staff with an organization's emergency plan(s) and/or familiarize experienced staff with new or changing information, policies, or procedures. Orientation exercises typically make use of a range of training methods, including lectures, films, slides, case studies, and panel discussions. Orientation exercises are designed to be inter-active and encourage problem-solving and decision-making.

Table-Top Exercises (TTX)

A table-top exercise (TTX) is a low-stress evaluation designed to stimulate discussion of a situation. Participants discuss issues in depth and make decisions using slow-paced problem-solving methods (in contrast to quick-paced problem-solving, founds in drills and functional exercises). TTXs are designed as a first-step towards functional and full-scale exercises. A TTX begins with a briefing by a facilitator to orient participants and simulators, identify ground rules, communication, and decision-making procedures. The scenario is generally invented and describes an event or emergency incident that is realistic to the agency. The event should be based on the organization's identified hazards and risks.

Drills

Drills can be used to test and evaluate personnel training, response time, inter-agency cooperation, equipment and resources, workforce capabilities, and policies and procedures. Drills take place after the emergency response personnel are trained, and are usually limited in scope (i.e. testing of a single function or procedure). Drills may be announced in advanced or spontaneous (i.e. conducted without announcement).

Functional Exercises

The purpose of a functional exercise (FX) is to test and evaluate the capabilities of an emergency response system. Events and situations that would actually occur over an extended period of time are depicted or described, inputs are provided by an exercise controller and elements may be generated through computer simulation, and time transitions (e.g. it is now 24 hours later) to advance the activity and maintain exercise momentum. Participants are briefed on objectives, procedures, time-frame, and scenario before the start of the FX, and inputs are scripted.

Full-Scale Exercises

The purpose of a full-scale exercise (FSX) is to test and evaluate all, or a significant portion, of an emergency plan and the supporting system / structure. Typically, FSXs involve more than one agency responding to a mock event (or events). While inputs may be computer simulated, the exercise is conducted in real-time. Similar to FXs, participants are briefed on the objectives, procedures, time-frame, and scenario in advance of the exercise.

Exercise Planning

Exercise planners are responsible for overall exercise planning, including exercise preparation, conduct, control, evaluation, critique, report/review, and follow-up actions. Depending on the size of the exercise, either a small group of planners, or a large, formalized committee, may be required to fully plan, prepare for, and conduct an exercise, and each participating agency should be involved in the exercise planning process to ensure that the exercise is relevant to the agency's mission and scope of operations.

For each exercise, the following should be defined:

- Planning and scheduling;
- Scope – the who, what, where, how, and why of an exercise;
- Objectives – specific, measurable performance indicators;
- Participants – who will plan the exercise and who will respond (i.e. the players), control, evaluate, and observe;
- Safety – guidance for all participants;
- Security – instructions on facility access, information classification, and operational security issues;
- Scenario – the situation or sequence of events that sets the parameters of exercise and allows the objectives to be achieved;
- Budget – the cost of planning, conducting, and evaluating the exercise;
- Logistical support – specific responsibilities of each participating agency;
- Administrative activities – procurement of resources and document/reproduction responsibilities of each participating organizations; and
- Evaluation and reporting on lessons learned.

Next Steps

All health sector organizations are to:

- Develop a training and exercise program to develop key competencies and test pandemic response capabilities.

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