



Department of
Health

Prince Edward Island Pandemic Influenza Contingency Plan

for the
Health Sector

Prince Edward Island
**Pandemic Influenza
Contingency Plan**

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Department of Health

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EXECUTIVE SUMMARY

PRINCE EDWARD ISLAND PANDEMIC INFLUENZA CONTINGENCY PLAN

PREFACE

An influenza pandemic occurs when a new influenza virus subtype emerges, against which no one is immune. The appearance of a new virus may result in several simultaneous outbreaks worldwide leading to high rates of illness and death. With increases in global transport and urbanization, outbreaks could occur much more rapidly than we have experienced historically. Some experts say that we are long overdue for an influenza pandemic and that with the circulation of the Asian strain of the novel virus H5N1, there is reason to be concerned that a human influenza pandemic may evolve. While no one knows for sure when an influenza pandemic will occur, most experts agree that it is not a question of if an influenza pandemic will occur, but when.

Prince Edward Island's Plan for the Health Sector

PEI's Pandemic Influenza Contingency Plan for the Health Sector is a framework document to guide the health system in the ongoing development of operational plans for an influenza pandemic. It is closely aligned with the Canadian Pandemic Influenza Plan for the Health Sector which has provided important guidance throughout the planning process.

The PEI Health Pandemic Influenza Committee has the overall responsibility to ensure that each division of the health system has in place an operational plan that will result in an integrated and coordinated health sector response to an influenza pandemic in PEI. Ongoing operational planning will occur throughout the winter of 2007. Ongoing review and testing of the strategies through exercises will occur in order to keep the plans current and responsive.

SECTION 1

PLANNING FOR AN INFLUENZA PANDEMIC

The Risk

While it is rare for novel viruses to evolve into pandemic viruses, the pandemic potential of any new virus like the Asian strain of H5N1 must be considered. The Asian strain of H5N1 meets all but the last of the following conditions necessary for an influenza pandemic to occur:

- ▶ a new influenza A virus arising from a major genetic change, i.e. an antigenic shift;
- ▶ a virulent virus with the capacity to cause serious illness and death;
- ▶ a susceptible population with little or no immunity;
- ▶ a virus that is transmitted efficiently from person to person.

The experience with severe acute respiratory syndrome (SARS) in Toronto in 2003 showed how an infectious disease outbreak could significantly affect the health care system. Another lesson learned however, was in the overall impact to society. Businesses suffered because the

outbreak kept people close to home and tourists away from the city. The economic effects far outweighed the health impacts of SARS in Canada and were felt across the country, including PEI.

The risks associated in an influenza pandemic are significant because of the potential impacts to the health of the population as well as the risks for societal disruption.

The Impacts

History tells us that influenza pandemics occur in waves, with a gradual build in influenza like illness reaching a peak at week 4 or 5, and then gradually declining to “normal” activity by week 8. A second and possibly a third wave might occur either in the same season or in the next year.

Using the Canadian planning assumption of an attack rate of 35% over the course of a pandemic (one or more waves with the majority of cases occurring in the first wave), PEI could see:

- ▶ 140-200 deaths
- ▶ 600 hospitalizations, likely due to secondary complications such as pneumonia
- ▶ 26,000 people with symptoms severe enough to require a visit to an emergency department, doctors’ office, or clinic
- ▶ about 40,000 people ill with symptoms severe enough to keep them home from work for a minimum of a half day.

The Canadian Department of Finance has done predictive modeling on absenteeism during a potential influenza pandemic. The most current recommendation from this work is for health sector employers to plan for a total workplace absenteeism rate of 25% during the peak two-week period of a pandemic wave with lower rates in the preceding and subsequent weeks.

Ethical Decision Making

The development of the pandemic influenza operational plan will be done in collaboration with the Provincial Clinical Ethics Committee. The framework to guide ethical decisions will be used to work through a number of ethical dilemmas that can be anticipated in an influenza pandemic resulting from shortages in human resources, supplies, equipment, and medications. This work will be incorporated into training and education initiatives that are planned for staff and physicians and with the public.

Emergency Management and the Plan

The four components of emergency management are mitigation, preparedness, response and recovery. These components are described within the context of the health system in an influenza pandemic.

Mitigation refers to measures the health system can take in advance of a pandemic in order to prevent, lessen or alleviate the impacts and overall outcomes of a pandemic. These measures are longer term strategies that provide a strong foundation for successful emergency management.

Preparedness refers to the period before a pandemic is declared. It includes all the actions involved in anticipating the pandemic's onset and in limiting the potential impact or repercussions—basically everything involved in getting ready to deal with a pandemic.

Response activities refer to the actions that each division will engage in based on the pre-determined roles and responsibilities in a pandemic.

Recovery consists of activities that facilitate the facilities and programs in the health system return of normal modes of operation after a pandemic wave.

The Chief Health Officer of Prince Edward Island is the lead for the health sector in any infectious disease outbreak or public health emergency. In an influenza pandemic, an Emergency Management Outbreak Team consisting of senior directors, will manage the operations of existing health care facilities and programs as well as any non-traditional sites that are established.

The Challenge for the Health System

An influenza pandemic presents a two-fold challenge for the health system - a significant increase in people with influenza requiring medical care at the same time as a reduction in the workforce as a result of illness, caregiving responsibilities, or due to fear.

No one knows for sure how virulent the next influenza pandemic will be or when it may arrive. An effective vaccine is the primary line of defense in an influenza pandemic. It is expected that a vaccine will be available within 3-6 months after the pandemic virus is identified by the World Health Organization. Along with a vaccine there are a number of other strategies that can be employed to mitigate the impacts to individuals and society.

The following sections discuss the strategies that will be employed by the health system in PEI in the event of an influenza pandemic.

SECTION 2 PROTECTING THE HEALTH OF THE PUBLIC

The *Public Health Act of Prince Edward Island* states that the Chief Health Officer, under the appointment of the Minister of Health, has the responsibility for the prevention, interception and suppression of communicable diseases (including influenza) and other problems affecting the health of the public.

Strategy # 1 Surveillance

Our ability to identify a new influenza virus and track its activity in the population is critical to the success of a pandemic response. Early identification of a virus increases the lead time for the development of a vaccine and the implementation of prevention and control strategies.

Surveillance is a continuous and integrated process of collecting, analyzing, interpreting, and disseminating data. Active surveillance will identify the presence of the virus in our population early and then will both guide our response and evaluate the impacts of the

response. Surveillance activities currently take place internationally, nationally and provincially and work together to "paint the map" as influenza activity increases. The levels of surveillance will increase as a pandemic becomes more imminent.

Strategy # 2 Public Health Measures

Public health measures are non-medical interventions used to reduce or slow the spread of the pandemic influenza virus. These measures will not necessarily prevent people becoming infected with the pandemic virus. However, delaying the spread will allow the health system time to manage the surge in numbers of ill people, thereby decreasing the sudden demands on the health system.

The Chief Health Officer for PEI has the legislated authority under the Public Health Act of Prince Edward Island to enact public health measures when there is a risk to the health of the public. Early and aggressive implementation of public health measures may significantly slow the spread of the disease.

The public health measures for consideration in PEI include:

- ▶ Providing public education to increase awareness
- ▶ Conducting case and contact management
- ▶ Closing schools
- ▶ Restricting public gatherings.

Strategy # 3 Vaccine for Pandemic Influenza

Each year the WHO produces a vaccine based on the strains of influenza A and B that are in circulation in the spring of the year. Most of the time, vaccination provides significant immunity against influenza and it is widely accepted that a vaccine is the first line of defence against a pandemic influenza virus.

Canada is among the few countries in the world to have a contract with a vaccine manufacturer for the development and supply of a pandemic influenza vaccine as soon as the World Health Organization identifies the seed strain and it becomes available for vaccine production. Once this occurs, it is estimated that the vaccine company can produce between 8 and 10 million doses a month. While the goal is to immunize the entire population, there are limits to how many doses will be available at once. Because doses will be available to PEI in limited quantities at first, prioritized groups have been established and will be appropriately adjusted once the epidemiology of the pandemic influenza virus is determined. PEI will follow the national standards on the priority groups.

Strategy # 4 Antiviral Medication in Pandemic Influenza

Because vaccines are not expected to be available early in an influenza pandemic, antiviral medications (anti-influenza drugs) are considered the next best pharmacological intervention in the control and treatment of influenza symptoms. Antivirals work by reducing the ability of the virus to reproduce in the body, but do not provide immunity against the virus.

The Canadian recommendation on the use of antiviral medication in an influenza pandemic is primarily for the symptomatic treatment of people who are ill with influenza.

SECTION 3

DELIVERY OF HEALTH SERVICES

Strategy # 5 Protection of Health Care Workers

It is generally thought that health care workers will be at higher risk of contracting influenza than the general public due to being exposed to greater amounts of influenza virus for concentrated periods of time

The *Occupational Health and Safety Act* outlines the responsibilities of the employer to take all reasonable precautions to protect workers. It also outlines the worker's responsibility to adhere to the precautions that are deemed reasonable. Precautions include the safe use of personal protective equipment such as masks, possibly face shields and gowns, strict adherence to handwashing, and the use of therapeutic interventions such as vaccination and antiviral medications when these are available and recommended.

Education and training will be critical to the protection of health care workers.

PEI's health sector will implement the following three actions to reduce the risk of workers acquiring the pandemic influenza virus in the workplace:

- 1) Ensure all workers have the education and training they need to protect themselves while providing effective care.*
- 2) Institute and monitor appropriate occupational health and infection prevention and control measures.*
- 3) Provide appropriate personal protective equipment as recommended by the Canadian Pandemic Influenza Committee.*

Strategy # 6 Infection Control Measures

Health Canada's Infection Control Guidelines, *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care 1999* recommend that in addition to routine practices, droplet and contact precautions should be taken for pediatric and adult patients with seasonal influenza during the inter-pandemic period. These same precautions are recommended in an influenza pandemic.

Precautions include the importance of hand hygiene before and after caring for patients; the need to use gloves, mask/eye protection, face shields, and gowns when splashes or sprays of blood, body fluids, secretions or excretions are possible; the cleaning of patient care equipment, the physical environment and soiled linen; the precautions to reduce the possibility of health care workers' exposure to blood borne pathogens; and patient placement in a facility. Strict adherence to hand washing/hand antisepsis is the cornerstone of infection prevention and control. Proper hand hygiene may be the most effective control measure available during an influenza pandemic.

Strategy # 7 Patient Prioritization /Essential Services

Programs and facilities will increase their capacity to deal with the increase in influenza patients by moving to an essential services plan. While not all services will be deemed essential in a pandemic it is important to stress that all people will be essential and proper planning will allow for the redeployment of people to areas where their particular skill set can be utilized.

Working collaboratively to ensure the continuum of care in a pandemic, facilities and programs in PEI will define their essential services that will be provided in a pandemic using the following common terminology:

Must Do – critical services, cannot be deferred or delegated

High Priority – do not defer if possible or reinstate as soon as possible

Medium Priority – can wait if a pandemic period is not too long

Low Priority – can be brought back when the pandemic is over.

Strategy # 8 Caring in Place

Caring in place is a strategy to reduce or slow admissions to hospitals in order to decrease the strain on acute care facilities. Caring in place means that as much as possible care sites will care for their patients/residents who become ill with influenza rather than transfer them to an acute care hospital. Individuals will be encouraged to care for themselves in their homes and residents will stay in long term care to receive their influenza care. Preparedness activities, including education for health care workers and the public, will facilitate caring in place.

Strategy # 9 Non-Traditional Sites: Triage Clinics and Alternate Care Sites

The activation of mass triage sites is called for in stage 2 of PEI's pandemic influenza implementation plan. The rationale behind this strategy include:

- ▶ Pooled resources in a centralized location allow for quicker assessment, treatment and placement to the appropriate level of care, ie. discharge to self care, observation, or hospitalization.
- ▶ Separating patients with influenza -like- illness from other patients in emergency rooms, clinics, and doctor's offices is an effective infection control strategy in delaying the spread of the pandemic virus.

Stage 3 of PEI's pandemic influenza plan is declared when the volume of patients requiring hospitalization is significantly higher than available beds, even after the system has scaled back to deliver only essential services and hospitals have maximized their bed capacity. The primary activity of Stage 3 is the establishment of alternate care sites that will function as step down units from acute care hospitals.

Strategy # 10 Stockpiling Essential Supplies Medication and Equipment

An influenza pandemic will result in an increased demand in medical supplies required to treat influenza patients and to protect health care workers. Border closures or illness among workers involved in the manufacturing or delivery of medical supplies, medications, and

equipment may result in supply chain interruptions. A provincial plan will be developed for the stockpiling of supplies in the event of a pandemic.

Strategy # 11 Education for Health Care Workers

During a pandemic, health care workers may need to be re-deployed from their usual roles and settings. Health care workers may be required to take on supervisory duties of volunteers and other staff within their own or another site; facilities may be caring for patients or residents that would, in normal circumstances, be transferred to another facility. Changes in roles and responsibilities will require education and training. Some of the training can be implemented in the pandemic alert stage and partially as a pandemic becomes more imminent.

Strategy # 12 Business Continuity Plans

Critical services are those that must be delivered to ensure survival, avoid causing injury, and meet legal or other obligations of an organization. There are non-clinical services that are essential in the operation of the Health System in an influenza pandemic. These services will prioritize their essential services to ensure that critical functions of the health system are maintained.

SECTION 4

HUMAN HEALTH RESOURCES

Strategy # 13 Optimal Use of Health Care Workers

With the expected absenteeism in health care workers and the surge in people needing health care, PEI's health system will develop in advance of a pandemic a process that will enable the efficient re-deployment of health care workers. Re-deployment may be needed within work sites to support essential services or to another work site to provide care to influenza patients. The overall goal is to match the skill set of the health care worker with the work that is needed.

Strategy # 14 Maximizing the Availability of Health Care Workers

Most jurisdictions are likely to be short on trained health care professionals in a pandemic. For this reason, PEI is not anticipating having health care workers from other provinces or territories coming to work in PEI during a pandemic. Potential sources of health care workers outside of the system include: health care workers who may have recently retired; students in a health related field who have almost completed their course or program; and volunteers. The process for recruiting alternate health care workers to assist during a pandemic will be developed in the coming months.

Strategy # 15 Aligning Work Place Policies and Procedures

There are a number of health sector human resources policies and procedures that can be clarified, realigned, and possibly developed prior to a pandemic to enable an effective response during an influenza pandemic. The Health Human Resources team will work with other planning groups to ensure that as operational plans for the strategies that have been identified are developed, they are supported in policy.

SECTION 5

MASS FATALITY PLANNING

In a pandemic, the number of deaths in a 6- to 8-week wave is estimated to be similar to that which typically occurs over 6 months in a non-pandemic period. As in the health care system, demands on funeral industry services will increase at the same time as their workforce is reduced due to illness or caregiving responsibilities. A mass fatality plan for a pandemic will be established to deal with the predicted increase in deaths.

SECTION 6

COMMUNICATIONS

In any emergency or disaster situation, effective internal and external communications are foundational components necessary for a successful response. In an influenza pandemic, there will be extensive information relating what is known about the pandemic strain, the risks to public health, as well as advice on how to manage those risks during each stage of a pandemic.

The Department of Health is committed to the release of accurate, honest, and timely information during an influenza pandemic. The Crisis Communications Plan will guide communications activities as we move from the pandemic alert period to the pandemic response phase.

CONCLUSION

An influenza pandemic is a threat that cannot be ignored. This plan lays the foundation for the development of the operational plans that are in development. While we do not know for sure when a pandemic will emerge, the planning by PEI's health system will ensure a level of health system readiness aimed at reducing the number of people with serious illness and the number of overall deaths as well as minimizing societal disruption as a result of pandemic influenza. This planning will also assist the health system in preparing for other public health emergencies.

Preface

An influenza pandemic occurs when a new influenza virus subtype emerges, against which no one is immune. The appearance of a new virus may result in several simultaneous outbreaks worldwide, leading to high rates of illness and death. With increases in global transport and urbanization, outbreaks could occur much more rapidly than we have experienced historically. Most experts agree that we are long overdue for an influenza pandemic and that with the circulation of the Asian strain of the novel virus H5N1, there is reason to be concerned that a human influenza pandemic may evolve. While no one knows for sure when an influenza pandemic will occur, again, most experts agree that it is not a question of if an influenza pandemic will occur, but when.

PEI's *Pandemic Influenza Contingency Plan for the Health Sector* is a framework document to guide the health system in the ongoing development of operational plans for an influenza pandemic. It is closely aligned with the *Canadian Pandemic Influenza Plan for the Health Sector* which has provided important guidance throughout the planning process. Representatives from PEI's health system continue to work collaboratively with counterparts from other Provinces and Territories and with the Public Health Agency of Canada in an effort to contribute to the ongoing development of the Canadian Pandemic Influenza Plan, to share information, and to learn from best practices in pandemic planning.

The PEI Health Pandemic Influenza Committee has the overall responsibility of ensuring that each division of the health system has in place an operational plan that will result in an integrated and coordinated health sector response to an influenza pandemic in PEI. The work of developing the operational plans is being done by a number of working groups and task groups with representation from various disciplines across health system work sites. Planning is occurring at the facility and program level and provincially to ensure overall consistency and integration. Once developed, the plans will be tested as a whole for overall effectiveness and to identify areas for improvement. Ongoing review and exercising will ensure that plans are current and relevant when an influenza pandemic is declared by the World Health Organization.

The relationships that have been formed during the planning process and the collaborative efforts of the working groups will serve us well not only in an influenza pandemic but also in the further development of a comprehensive health emergency management framework for other infectious disease outbreaks, as well as other natural and human induced disasters.

SECTION 1
PLANNING FOR AN INFLUENZA PANDEMIC

Background

Influenza is a highly infectious respiratory illness caused by influenza A, B, and C viruses. Annual or seasonal influenza outbreaks are usually caused by influenza A and B while influenza C rarely causes human illness. Influenza strains are circulating throughout the world all the time. Each year there are *slight* changes in influenza viruses which the scientific community refers to as antigenic drift.

An influenza pandemic is caused when there is a *major* change in either one or both surface proteins of a human influenza A virus. This is known as antigenic shift. The result is a completely new virus that has never been in circulation and against which virtually no one is immune (*WHO Influenza Pandemic Preparedness Checklist [WHO IPPC]*, 2004).⁽¹⁾ When there is no immunity to a new influenza virus in the worldwide population, a series of influenza outbreaks will occur simultaneously around the world, leading to high rates of illness and death.

Historical evidence dating back to the 16th century indicates that influenza pandemics occur three or four times each century. The best documented pandemics occurred in the 20th century and are known as the Spanish Flu in 1918-1919, the Asian Flu in 1957, and the Hong Kong Flu in 1968 (*WHO IPPC*, 2004).⁽¹⁾

Most experts agree that an influenza pandemic is inevitable in the foreseeable future although no one can predict for certain when it will occur or how virulent the virus will be. The Spanish Flu in 1918, coming on the heels of World War I, had an estimated international death toll of 20-40 million people, almost double the deaths contributed to the war. It was by far the most virulent of the three influenza pandemics of the twentieth century and it was unusual in that a significant number of deaths occurred in the young adult population between 20-40 years of age. In contrast, the influenza pandemics of 1957 and 1968 killed an estimated one million people each worldwide with the highest number of deaths occurring among the very young and the very elderly.

In 1918, the Spanish Influenza virus spread quickly around the world because of the fact that troops, as well as other workers involved in the war effort, were mobilizing and living in crowded conditions in largely urban centers. Despite the efforts of some scientists and public health officials to slow the spread of the disease, the war efforts resulted in the recommendations to limit contact with people with influenza being unheeded. The current global movement of people and goods has increased dramatically since World War I, and with increasing numbers of people living in towns and cities, a pandemic virus could potentially spread across the globe more quickly than in 1918.

The Avian Influenza Virus Link

Avian Influenza, commonly known as 'bird flu,' is a viral infection that occurs naturally among wild birds but can cause illness and death in domestic poultry. There are many strains of avian influenza viruses, some of which have been found to cause mild to very serious illness in

humans who are in close contact with sick or dead birds. The Asian strain of H5N1 is the avian influenza virus that is of most concern. The H5N1 virus represents a novel influenza virus that has caused serious illness with a relatively high fatality rate in humans who have had close contact with infected birds.

While it is rare for novel viruses to evolve into pandemic viruses, the pandemic potential of any new virus like the Asian strain of H5N1 must be considered. The Asian strain of H5N1 meets all but the last of the following conditions necessary for an influenza pandemic to occur:

- a new influenza A virus arising from a major genetic change, i.e. an antigenic shift;
- a virulent virus with the capacity to cause serious illness and death;
- a susceptible population with little or no immunity;
- a virus that is transmitted efficiently from person to person (*Canadian Pandemic Influenza Plan for the Health Sector [CPIP]*, 2006).⁽²⁾

It is thought that new influenza viruses capable of causing pandemics in human populations arise either through genetic mixing, or *reassortment*, between human and avian influenza viruses or through a series of cumulative *mutations* of a virus. Reassortment is the process where an influenza virus from one species (avian) combines with an influenza virus from another species (human), in a third species to evolve into a virus that has the ability to cause widespread illness in humans. The pig, an animal which can be infected with both human and avian influenza viruses, may act as a vessel for reassortment events (*CPIP*, 2006).⁽²⁾

All three influenza pandemics in the twentieth century originated from influenza viruses. Mounting evidence, including molecular sequencing, suggests that the genes of the 1918 pandemic virus are avian in origin and the human pandemic potential was acquired through a series of adaptive *mutations*. Further studies are being carried out in order to gain a better understanding of the factors governing virulence and transmissibility of the 1918 pandemic influenza virus. The 1957 and 1968 pandemic viruses are *reassortants* of human and avian influenza virus genes (*CPIP*, 2006).⁽²⁾

There is concern that the Asian strain of H5N1 can be carried to North America by migratory birds like ducks or geese. The more widespread the virus becomes, the greater the chances of the virus mutating or of genetic mixing with human influenza viruses. Either of these events could result in a virus that is infectious from human to human.

It can be said that our modern health care system is much better equipped to deal with a pandemic than was the case in 1918. The availability of antibiotics for secondary infections, our knowledge of infection control, our improved nutrition and overall health puts us in a good position to manage an influenza pandemic. However, an influenza pandemic could easily stress health care delivery systems around the world. As well, there are conditions in many parts of the world that could compromise the international community's ability to deal with such a global emergency, including the HIV/AIDS crisis in Africa and political instability in the Middle East.

The SARS crisis in Toronto in 2003 showed how an infectious disease outbreak could significantly affect the health care system. Another lesson learned, however, was in the overall

impact to society. Businesses suffered because the outbreak kept people close to home and tourists away from the city. The economic effects far outweighed the health impacts of SARS in Canada and were felt across the country, including PEI.

No one knows for sure how virulent the next influenza pandemic will be or when it may arrive. An effective vaccine is the primary line of defense in an influenza pandemic and it is generally thought that this will not be available for 3-6 months after the pandemic virus is identified by the World Health Organization. There are a number of other strategies that can be employed to mitigate the impacts to individuals and society. It is prudent that all levels of governments, individuals and private business take the necessary steps to limit the serious impacts of an influenza pandemic.

Characterizing Influenza

Transmission of Influenza Viruses

Seasonal influenza viruses are known to be spread by contact and droplet transmission. It is not anticipated that the spread of the pandemic influenza virus will be any different than that of the influenza viruses which are presently known.

Direct contact transmission refers to the transfer of microorganisms from direct physical contact between an infected or colonized person and a susceptible host (body surface to body surface).

Indirect contact refers to the passive transfer of microorganisms to a susceptible host via an intermediate object, such as contaminated hands that are not washed between patients, or contaminated instruments or other inanimate objects in the patient's immediate environment. (Health Canada Principles for Infection Control, 1999, p. 7).⁽³⁾

Influenza viruses are expelled from the infected respiratory tract of a person through coughing and sneezing in the form of droplets which settle on and contaminate objects in the immediate environment (about 1 meter) of the infected person. Without interventions like hand washing and cleaning the surrounding environment, the viruses can remain viable for the following periods of time:

- ▶ on hard, non-porous surfaces for 24-48 hours;
- ▶ on cloth, paper or tissues for 8-12 hours; and
- ▶ on hands for 5 minutes.

Influenza droplets are large (5 um in diameter), relatively heavy, and fall due to gravity within one metre without becoming suspended in the air. There is evidence that influenza droplets can break into smaller particles and spread further than one meter during high risk aerosol-generating procedures like resuscitation, suctioning, and bronchoscopy. Most scientific experts agree that unlike diseases such as tuberculosis, measles and chickenpox, influenza is not spread through ventilation systems and therefore special ventilation systems such as negative pressure rooms are not required.

Incubation period

The incubation period is the period of time between the infection of an individual by a pathogen and the manifestation of the disease it causes. The incubation period of influenza viruses is one to three days.

Communicability

Most patients are contagious during the 24 hours prior to symptoms and for 3-5 days after the appearance of symptoms. Children and people who are immune compromised take longer to shed the virus and are therefore sometimes communicable for 7 days after the onset of symptoms.

Clinical Manifestations

The case definition for Influenza- Like Illness in the general population is defined as the following:

The acute onset of respiratory illness with a fever over 38C and a new cough and with one or more of the following: sore throat, arthralgia (joint pain), myalgia (muscle aches and pains) or prostration (extreme weakness). Severe headaches may be present. In children under five years of age, gastrointestinal symptoms like vomiting and diarrhea may also be present. In patients under five and over 65, fever may not be prominent (*Fluwatch National Case Definition of Influenza-Like Illness*, 2006).⁽⁴⁾

While other respiratory illnesses, including the common cold, can have similar symptoms, the difference is in the sudden onset, the severity, and the duration of the symptoms.

While most healthy people recover from influenza without complications, some people – such as older people, young children, pregnant women, and people with chronic health conditions – are at high risk for serious complications from influenza. Some of the complications caused by influenza include:

- ▶ dehydration,
- ▶ pneumonia (bacterial or viral),
- ▶ worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes.

Ear infections and sinus problems, while not necessarily high risk complications, may occur among children and adults.

Estimated Impacts for PEI

It is likely that Canada will have some advance warning of an influenza pandemic before it reaches our shores. History tells us that influenza pandemics occur in waves, with a gradual build in influenza-like illness reaching a peak at week 4 or 5, and then gradually declining to “normal” activity by week 8. A second and possibly a third wave might occur either in the same season or in the next year.

Using the generally accepted Canadian planning assumption of an attack rate of 35% over the course of a pandemic (one or more waves with the majority of cases occurring in the first wave), PEI could experience:

- ▶ 140-200 deaths,
- ▶ 600 hospitalizations, likely due to secondary complications such as pneumonia,
- ▶ 26,000 people with symptoms severe enough to require a visit to an emergency department, doctors' office, or clinic,
- ▶ about 40,000 people ill with symptoms severe enough to keep them home from work for a minimum of a half day.¹

It is important to note these figures are estimates based on a mathematical model developed by Meltzer and Colleagues at the US Centre for Disease Control and Prevention in Atlanta, Georgia and are used for planning purposes. Historical data from previous pandemics (1957 and 1968) as well as USA population health data were used to develop the model. The estimates do not take into consideration the use and effectiveness of antiviral medications, the availability of an effective vaccine, or the use of sound infection control measures (*CPIP: Background* 2004, p.18).⁽⁵⁾

The Canadian Department of Finance has done predictive modeling on absenteeism during a potential influenza pandemic. The variables that were used to develop the predictions included current normal absenteeism, peak illness and caregiving absenteeism and a prudent planning buffer to account for absenteeism resulting from possible workplace-avoidance or as a result of public health measures including school closures (*CPIP: Background*, 2006, p.4).⁽⁶⁾

The most current recommendation from this work is for employers to plan for total workplace absenteeism rate of between 20% and 25% during the peak two-week period of a pandemic wave with lower rates in the preceding and subsequent weeks. There is no evidence that significant workplace-avoidance absenteeism occurred in previous pandemics or during SARS. The Canadian Plan suggests that health sectors plan for 25% workforce absenteeism at the peak of an influenza pandemic wave.

An influenza pandemic presents a two-fold challenge for the health system – a significant increase in people with influenza requiring medical care at the same time as a reduction in the workforce as a result of illness, caregiving responsibilities, or workforce avoidance absenteeism.

¹ PEI data generated from Flu Aid 2.0: <http://www2a.cdc.gov/od/fluaid>

Planning Assumptions

- ▶ It is estimated that the next pandemic virus will arrive in Canada within 3 months after it emerges in another part of the world. This timeframe could be much shorter due in part to increases in the volume and speed of air travel.
- ▶ Surveillance systems are in place world wide. In light of travel patterns and population densities, PEI will likely have some advance notice of a pandemic outbreak, and from this will be able to anticipate potential health impacts in the province before the pandemic virus arrives.
- ▶ A pandemic usually has two or more waves, either in the same year or in successive influenza seasons. A wave will build gradually with the peak traditionally seen in the 4th and 5th week after the pandemic virus is first identified in a population.
- ▶ A pandemic is a unique type of emergency because the length of each wave will require a sustained response over a relatively long period of time. As well, because this will be a global health emergency, we cannot depend on help coming in from other provinces or the international community. For this reason provinces have been advised to plan as though we will be on our own in our response to a pandemic.
- ▶ The majority of the population (over 70%) will be infected over the course of the pandemic, but only 15-35% of the population will become clinically ill (i.e., there will be a relatively high rate of asymptomatic infection). Those who are asymptomatic can be assumed to have some level of protection against future infection with the same influenza virus.
- ▶ The virulency of the virus will not be known until it is identified by the World Health Organization, therefore we will need to build flexibility into the plan in order to be prepared to respond to worst case scenarios.
- ▶ Even if the pandemic influenza strain is not highly virulent, the sheer number of people affected will place a large burden the health system and will lead to challenges in all sectors (i.e., emergency response, transportation, medical supplies and medications, food, fuel and other essential products and services).
- ▶ Some systems, including the health system, may be severely challenged under the load, thereby triggering a state of emergency for the Province.
- ▶ Vaccine will be the primary line of defense in an influenza pandemic. The supply will be unavailable or limited during the early stages of the pandemic, therefore plans for the first wave should assume a lack of pandemic influenza vaccine. Priority groups for vaccination, based on agreed upon national criteria, will need to be followed until the vaccine becomes widely available.
- ▶ Antiviral medications may be of some value in lessening the severity of the illness, and at this time reserves are being stockpiled in the province as they become available by the drug manufacturer. PEI will follow the Canadian standard/recommendations in the utilization of antiviral medications.

Components of Emergency Management

The four components of emergency management are mitigation, preparedness, response and recovery. These components are described within the context of the health system in an influenza pandemic.

Mitigation refers to measures that the health system can take in advance of a pandemic in order to prevent, lessen or alleviate the impacts and overall outcomes of a pandemic. These measures are longer term strategies that provide a strong foundation for successful emergency management.

Mitigation measures include such strategies as the following:

- ▶ Active recruitment of health care workers² to fill vacant positions, thereby maximizing the system's capacity to deal with a surge in ill people.
- ▶ A robust health emergency framework that is inclusive of the entire health organization with appropriate funding, leadership and training for staff and other key partners who are expected to respond in an emergency.

Preparedness refers to the period before a pandemic is declared. It includes all the actions involved in anticipating the pandemic's onset and in limiting the potential impact or repercussions – basically everything involved in getting ready to deal with a pandemic.

Preparedness measures include the following:

- ▶ Determining roles and responsibilities of various stakeholders in a pandemic.
- ▶ Identifying strategies that can be implemented in a pandemic and developing the infrastructure to support the strategies. This may include policy development, stockpiling of supplies, equipment, and medication that will be required, and education and training of workers.
- ▶ Developing communication lines and partnerships that will facilitate the response efforts.

Response activities refer to the actions that each division will engage in based on the pre-determined roles and responsibilities in a pandemic. Response actions will start when there is a specific mandate to protect the health of the population, to provide clear, relevant, and mobilizing information, and to ensure people's psychosocial well-being is supported. Response activities that involve providing medical treatment and keeping the health system operational are critical during the pandemic response period. The trigger for the response period is the declaration of a pandemic by the World Health Organization.

Recovery consists of activities that assist the facilities and programs in the health system to return to normal modes of operation after a pandemic wave. Activities might include de-briefing sessions for staff, the removal or relaxation of precautions, analysis and evaluation of response activities and identifying lessons learned. Recovery also involves a re-stocking or replenishing of key supplies and medications. All workers involved in the response will need to have time to

² Health care workers, for the purpose of this document, refers to all employees and physicians who provide services in or to the Health Sector.

adjust to the scaling back of the emergency response. Leaves and vacations that may have been postponed because of the pandemic should be encouraged where possible. This will need to be balanced with the responsibility and need to resume the services that may have been put on hold to accommodate the pandemic response. It is recognized that recovery activities will be implemented taking into consideration that there may be successive waves of the influenza pandemic.

Canadian Phase Terminology

The World Health Organization is the agency responsible for the declaration of an influenza pandemic. In 2005 the World Health Organization revised its pandemic influenza phases that provides guidance on pandemic planning activities. Table 1.1 outlines the revised Canadian pandemic phase terminology that provides definitions and a description of the levels of novel influenza virus subtype progression. The Canadian Pandemic Influenza Plan for the Health Sector uses these phases to guide pandemic preparedness activities and responses. The phase terminology provides a consistent language across jurisdictions and facilitates an awareness and a set of triggers that will influence pandemic planning activities across the country.

It is noteworthy that we are currently in Phase 3.0 as we have been since the identification of the Asian strain of H5N1 in Hong Kong in 1997.

Table 1.1 (CPIP: Background, 2006, pp.11-12).⁽⁷⁾

Interpandemic Period

| Phase | Definition |
|-------|---|
| 1.0 | No new virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals located outside of Canada. If present in animals, the risk of human infection/disease is considered to be low. |
| 1.1 | No new virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection is present in animals in Canada but the risk of human infection/disease is considered to be low. |
| 2.0 | No new virus subtypes have been detected in humans. However, an animal influenza virus subtype that poses substantial risk to humans is circulating in animals located outside of Canada. |
| 2.1 | No new virus subtypes have been detected in humans. However, an animal influenza virus subtype that poses substantial risk to humans is circulating in animals in Canada. |

Pandemic Alert Period

| Phase | Definition | Example(s) |
|-------|---|---|
| 3.0 | Outside Canada human infection(s) with a new subtype are occurring, but no human-to-human spread, or at most rare instances of spread to a close contact has been observed. No cases identified in Canada. | Outside Canada sporadic human cases are occurring in connection to an avian outbreak. |
| 3.1 | Sporadic human infection(s) with a new subtype detected in Canada. Virus is not known to be spreading from human-to-human, or at most rare instances of spread to a close contact have been observed. | Case imported into Canada from area outside Canada experiencing an avian outbreak. Case arising in Canada “de novo”, OR in association with an avian outbreak in Canada. |
| 4.0 | Outside Canada small cluster(s) with limited human-to-human transmission are occurring but spread is highly localized, suggesting that the virus is not well adapted to humans. No cases identified with these cluster(s) have been detected in Canada. | Outside Canada small cluster(s) of human cases are occurring in connection to an avian outbreak. |
| 4.1 | Sporadic infection(s) with virus that has demonstrated limited human-to-human transmission detected in Canada. No cluster(s) identified in Canada. | Detection of an imported case in Canada that is infected with the virus known to be causing small clusters of human cases outside Canada. |
| 4.2 | Small, localized clusters with limited human-to-human transmission are occurring in Canada but spread is highly localized, suggesting that the virus is not well adapted to humans. | Detection of a localized cluster of cases in Canada linked to an imported case OR from cases arising in Canada. |
| 5.0 | Outside Canada larger cluster(s) are occurring but human-to-human spread still localized, suggesting that virus is becoming increasingly better adapted to humans but may not yet be fully transmissible (substantial pandemic risk). No cases identified with these clusters have been detected in Canada. | Outside Canada larger cluster(s) of human cases are occurring in connection to an avian outbreak. |
| 5.1 | Sporadic infection(s) with virus that is better adapted to humans detected in Canada. No cluster(s) identified in Canada. | Detection of an imported case in Canada that is infected with the virus known to be causing larger clusters of human cases outside Canada. |
| 5.2 | Larger localized cluster(s) with limited human-to-human transmission are occurring in Canada but human-to-human spread still localized, suggesting that virus is becoming increasingly better adapted to humans but may not yet be fully transmissible (substantial pandemic risk). | Detection of a large but localized cluster of cases in Canada linked to an imported case OR from cases arising in Canada. |

Pandemic Period

| Phase | Definition | Example(s) |
|-------|--|---|
| 6.0 | Outside Canada increased and sustained transmission in general population has been observed. No cases identified with the affected populations have been detected in Canada. | Countries outside of Canada have reported sustained transmission of the new virus in their populations. |
| 6.1 | Sporadic infection(s) with the pandemic virus detected in Canada. No cluster(s) identified in Canada. | Detection of an imported case in Canada that is infected with the pandemic virus. |
| 6.2 | Localized or widespread pandemic activity observed in Canadian population. | Large numbers of clinical cases being rapidly identified with no history of travel to an affected area. |

Post-pandemic Period

There is no numerical phase or specific actions associated with the post pandemic phase. The Canadian Pandemic Influenza Plan suggests that a recovery period is expected following Phase 6 after which there would be a return to the interpandemic period. The triggers for the return to the interpandemic period will likely be based on epidemiological indicators of influenza activity rather than on a “return to normal” situation.

Triggers for Pandemic Plan Implementation in PEI

According to the Canadian Phases of Pandemic terminology, we are currently in the Pandemic Alert phase 3.0 which states:

Outside Canada, human infection(s) with a new subtype are occurring, but no human-to-human spread, or at most, rare instances of spread to a close contact, has been observed. No cases identified in Canada (*CPIP: Background*, 2006, p.11).⁽⁸⁾

Surveillance activities that are currently occurring internationally will guide the declaration of an influenza pandemic by the World Health Organization. National surveillance activities will alert us to the presence of the pandemic virus in Canada, thus guiding the movement through the Canadian pandemic phases.

The presence of pandemic influenza somewhere in Canada does not necessarily mean that it is present in PEI. It is therefore important that triggers are identified to guide the implementation of the PEI pandemic plan for the health sector. A staged approach will ensure that the plan is able to be appropriately scaled up and then scaled back. PEI has identified four stages of pandemic plan implementation as described in table 1.2.

Table 1.2

| <i>Stage</i> | <i>Declaration</i> | <i>Description</i> |
|--------------------|---|--|
| 1. Alert | <p>A pandemic has been declared by the WHO.</p> <p>Pandemic Alert Stage 1 declared by the Chief Health Officer in PEI.</p> | <ul style="list-style-type: none"> • Initiate stage 1 alert communication plan including notification of health system personnel and communication to public on personal precautions and system preparedness; • Pandemic Influenza Health Plan Emergency Management Team assembled briefed and at state of readiness which increases as surveillance reporting indicates spread across the globe; • Situation closely monitored and services prepared to implement next stage when this is declared. |
| 2. Pandemic in PEI | <p>1 or more cases are identified on PEI</p> <p>projected volumes / virulence within acceptable range</p> <p>Pandemic Stage 2 declared.</p> | <ul style="list-style-type: none"> • Pandemic stage 2 communication plan initiated; • Relevant sections of Public Health Act invoked; • All services operate at essential service level in line with site / facility / service level pandemic plans; • Surveillance data is analysed periodically throughout the day • Pre-planned Triage sites for patients with influenza-like illness are set up and patients are directed to their closest triage clinic; • Outbreak patient coordination team implemented in line with plan to facilitate patient flow through the system; Initiation of outbreak staff coordination team to maximize staff capacity . • Acute care facilities enact surge capacity plans to allow for increase in patients ill with the pandemic influenza virus. |

| | | |
|--------------------------|--|--|
| 3. High Pandemic Numbers | <p>Projected volumes / virulence indicate high likelihood that the system operating at stage 2 will be overwhelmed, in which case stage 3 is called upon in preparation for cases on PEI; or</p> <p>Specific sites or services are overwhelmed, in which case stage 3 is called either for the province or area, i.e., East Central, or West.</p> <p>Public Health Emergency declared.</p> | <ul style="list-style-type: none"> • Health system becoming overloaded - in order to manage volumes within available (well) staff complement, will need to centralize resources & accommodate large volumes; • System moves to “must do” essential services’ • 2 provincial acute facilities (Queen Elizabeth Hospital and Prince County Hospital) continue to operate at essential services level as well as admit influenza patients who are sick enough to require acute hospitalization; • Triage sites maintained for patients with influenza-like illness; • Non-Influenza Emergencies are handled at pre-determined facilities; • Pre-determined alternate care sites which are considered "step-down" sites are set up to care for influenza patients who are not ill enough to be in hospital but may have limited capacity to remain at home, i.e., if there is no caregiver or the caregiver is ill. It is generally recommended that these types of facilities do not admit those who are acutely ill. • Re-deployment of available health care workers and the “hiring” of retirees and students to manage alternate sites and/or to supervise a volunteer workforce; • Volunteers deployed to various sites; • Standard of care are adjusted to maximize clinical capacity; |
| 4. State of Emergency | <ul style="list-style-type: none"> • Health system as a whole is overwhelmed; • Minister informs Emergency Measures Organization of situation and recommends a State of Emergency to be declared; • Minister of Community and Cultural Affairs declares state of emergency. | |

As the number of cases decrease and then cease, the health sector enters a recovery stage. This time will be devoted to preparing for subsequent waves of the pandemic, or if the World Health Organization has declared that the pandemic is at an end, then scaling back to normal operations will begin. Important in this stage is an evaluation of the response in order to inform planning for future emergencies.

The implementation plan does not have to move systematically from stage one to four. Triggers that might necessitate skipping a particular stage include the following:

- The initial surveillance data from the World Health Organization indicates the virus is highly virulent, or the spread of the virus is very quick, requiring initiating the plan at a higher stage than stage 1.
- As the pandemic virus reaches PEI and one or more aspects of the health service delivery system fail under the load.

Roles and Responsibilities

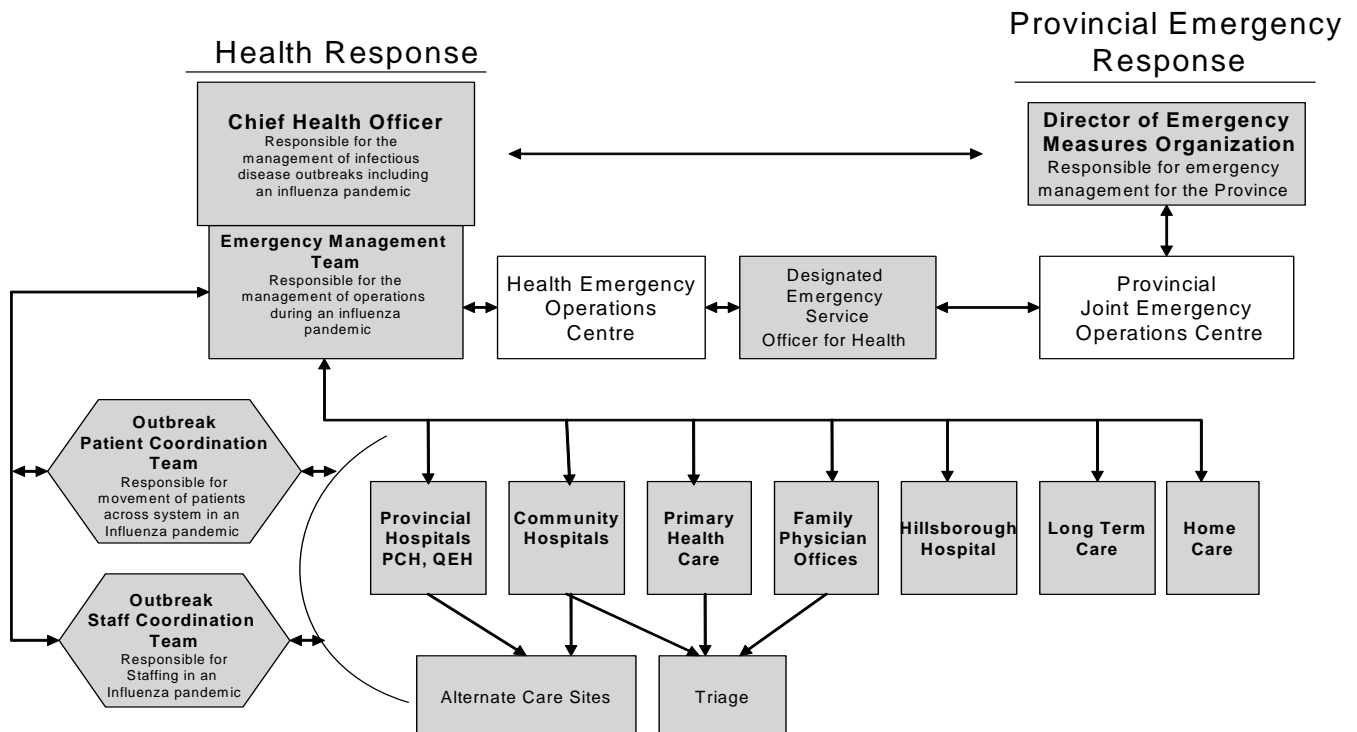
Most facilities in the health system have a disaster plan in place and have exercised and updated their plans periodically and as organizational structures have changed. Most of these plans document a command system and outlines roles and responsibilities. Some plans have been developed in collaboration with other facilities (i.e., acute care and long term care) particularly where these divisions are co-located. Some community-based programs do not have specific disaster plans but their staff are co-located in a facility and therefore affiliated with that facility's plan.

An influenza pandemic presents a unique challenge to emergency management. It is very likely that the entire province, as well as the rest of the country, will be managing a pandemic at the same time. System-wide collaboration and prioritization of services and resources (both human and physical) are key strategies in meeting the objectives identified earlier in this section. Facilities and programs with existing disaster plans will need to review and update their plans in consideration of the unique challenges described. Programs and facilities without disaster plans will need to develop their plans with the same considerations.

Figure 1.1 illustrates the emergency management structure in an influenza pandemic from the provincial health sector perspective. The Chief Health Officer is the lead in any infectious disease outbreak or public health emergency.

Figure 1.1

Emergency Management System in a Pandemic



Emergency Management Team

The Emergency Management team consists of senior directors who have direct operational leadership for their respective sites and programs. In an influenza pandemic, this team will manage the operations of existing health care facilities and programs as well as any non-traditional sites that are established. For pandemic planning purposes, the Canadian Influenza plan for the Health Sector defines non-traditional sites as: a) sites that are not currently part of the health organization; b) an established site in the health organization that usually offers a different type or level of care. The functions of non traditional sites will vary depending on the needs of the community being served but will focus on the monitoring, care, and support of influenza patients in an influenza pandemic. Non-traditional sites are further described in Section 3 of this document.

Each facility and program will have a role to play in the response, whether it is in maintaining essential services, working to support other essential services, or managing a non-traditional site. The emergency management structure will be further developed as each site and program confirms their management structures for emergencies. For those with an existing disaster plan, this structure may not change but should take into account that each role deemed essential in a pandemic response should have an alternate person identified who is able to act in this role. This is to ensure that the leadership or chain of command is maintained should people in key roles become ill with influenza or have to leave their roles due to other responsibilities.

In each government department, a designated emergency services officer and at least one alternate is appointed by their respective deputy minister to represent each department at the Joint Emergency Operating Centre during a provincial emergency. The Joint Emergency Operating Centre and the emergency response is coordinated by the Emergency Measures Organization which has broad responsibilities for emergency management in PEI. The designated emergency services officer for the Department of Health is the Director of Population Health. The designated emergency services officer role is the link between the health sector response and the overall government response.

Staff Coordination Outbreak Team

The purpose of the staff coordination team is to facilitate the movement/deployment of staff across the system when needed. Team members would consist of workers who have knowledge of matching staff/skill sets with the work required.

Patient Coordination Outbreak Team

The patient outbreak coordination team is responsible for the movement of patients from one care site to another based on the assessed needs and the availability of the resource. The purpose of this team is to ensure the right patient is in the right place at the right time when system wide resources are stretched.

Framework for Ethical Decision Making

When the World Health Organization declares an influenza pandemic many people, ranging from government leaders and key decision makers to front line health care workers, will face extremely difficult decisions that will challenge the individual rights and freedoms that have been won over centuries.

A number of ethical dilemmas can be anticipated as a result of shortages of health care workers, critical supplies, medicines, and equipment, the level of risk health care workers will face while caring for the sick, and the use of containment measures such as limiting public gatherings, closing schools, and early isolation in a pandemic. A more global dilemma is the possibility of a disproportionate level of illness and death due to influenza in impoverished countries where existing standards of health are low compared to developed nations.

The ethical framework *Stand on Guard for Thee*, published by the University of Toronto Joint Centre for Bioethics Pandemic Influenza Working Group, calls for health care leaders and government officials to be open and transparent with the public regarding the decisions that will have to be made. It calls for dialogue to start during the pandemic planning process and not at the doors of emergency rooms in the middle of the pandemic response.

Openly discussing the choices and confirming that they are based on ethical values that are shared by members of a society brings important benefits. If ethics are clearly built into pandemic plans in an open and transparent manner, and with buy-in from multiple sectors of society, the plans carry greater trust, authority and legitimacy. Advance discussions of such issues can help to address fears of the unknown. People will be more likely to cooperate, and accept difficult decisions made by their leaders for the common good (*Stand on Guard For Thee*, 2005, p.3).⁽⁹⁾

The Ontario Pandemic Influenza Plan identifies the following ethical principles that have guided their pandemic planning process:

- | | |
|-------------------------------|--|
| <i>Open and transparent –</i> | The process by which decisions are made must be open to scrutiny and the basis for decisions should be explained. |
| <i>Reasonable –</i> | Decisions should be based on reasons (i.e., evidence, principles, values) and be made by people who are credible and accountable. |
| <i>Inclusive –</i> | Decisions should be made explicitly with stakeholder views in mind and stakeholders should have opportunities to be engaged in the decision-making process. |
| <i>Responsive –</i> | Decisions should be revisited and revised as new information emerges, and stakeholders should have opportunities to voice any concerns they have about decisions (i.e., dispute and complaint mechanisms). |
| <i>Accountable –</i> | There should be mechanisms to ensure that ethical decision-making is sustained throughout the pandemic (<i>The Ontario Pandemic Influenza Plan</i> , 2006, chap.2, p.8). ⁽¹⁰⁾ |

Objectives

The objectives of an ethical decision making process include:

- ▶ An evidence-based strategy for allocation of resources;
- ▶ A provincial rather than facility based criteria for decision making;
- ▶ To provide support to clinicians and decision makers in the decisions that are made;
- ▶ Understanding by the public in the event that resources are exhausted.

The Department of Health in PEI has recently approved the implementation of a Framework for Ethical Decision Making for the health system. The proposed ethics framework and decision making process are based on the premise that ethics should play a major role in shaping the overall culture of the system. The development of the pandemic influenza operational plan will be done in collaboration with the Provincial Clinical Ethics Committee. The framework to guide ethical decisions will be used to work through a number of ethical dilemmas that can be anticipated in an influenza pandemic. This work will be incorporated into training and education initiatives that are planned for staff and physicians and with the public.

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SECTION 2
PROTECTING THE HEALTH OF THE PUBLIC

Introduction

The *Public Health Act* of Prince Edward Island states that the Chief Health Officer, under the appointment of the Minister of Health, has the responsibility for the prevention, interception and suppression of communicable diseases (including influenza) and other problems affecting the health of the public.⁽¹⁾

Our ability to identify a new influenza virus and track its activity in the population is critical to the success of a pandemic response. Early identification of a virus increases the lead time for the development of a vaccine and the implementation of prevention and control strategies.

Strategy # 1 Surveillance

Surveillance is a continuous and integrated process of collecting, analyzing, interpreting, and disseminating data. It serves both to guide our response and then to evaluate the impacts of the response. Surveillance activities currently take place internationally, nationally and provincially and work together to "paint the map" as influenza activity increases.

Objectives

The objectives of surveillance activities are to:

1. Identify the appearance of the pandemic influenza virus as soon as it is present in PEI..
2. Monitor influenza-like illness to identify modes of disease transmission, people who are at high risk for complications, and protective measures to take.
3. Guide the activation and any required modifications of the pandemic influenza health plan based on the impacts to the population.
4. Evaluate the response efforts and estimate the attack rate, number of outpatient visits, hospitalizations, and case fatality rate, to prepare for a subsequent wave.
5. Contribute to the knowledge of the overall impact of the influenza pandemic across the country.

Determination of epidemiological parameters and indicators are critical for determining the level of response needed by the health system. Surveillance activities will be enhanced during the pandemic alert phases because jurisdictions need to be aware of the progress of the virus. At the point when the virus enters the pandemic phase and influenza activity increases to the point where is widespread in Canada, the level of surveillance will be streamlined to a set of activities which will allow resources to be directed to assisting the health care system to carry out clinical functions as efficiently as possible.

Laboratory / Virology Surveillance

The signs and symptoms of influenza are similar to those of other respiratory viruses and therefore definitive diagnosis of the pandemic influenza virus early in a pandemic requires laboratory testing. These tests contribute to the early detection of the virus and positive diagnosis will act as a trigger in the escalation of the pandemic influenza health response in PEI. It is expected that

once the pandemic influenza virus is widespread throughout the Province, lab testing will decrease and diagnosis/treatment be made based on presentation of signs and symptoms.

Disease / Epidemiological Surveillance

Regional seasonal flu activity data is currently collected through a network of sentinel physicians located across all provinces and territories; they report influenza-like illness per total number of patients. When influenza activity or severity is higher than normal, as it will be in a pandemic, a more representative report on disease impact can be obtained from hospital admissions, emergency room, triage/clinic visits, mortality rates, influenza-like illness rates in long term care facilities, and by workplace, day care and school absenteeism reports. Elements of the report could include such data as the number of cases, severity of symptoms, hospital admission and discharge data and mortality rates.

This information will track the progression of the virus including how quickly it is spread, who is at greatest risk of complications and thus will drive the appropriate health system response. Surveillance data will also guide health care workers and decision makers in the management of critical resources such as vaccines and antiviral medications.

Adverse Event Surveillance

The purpose of reporting adverse events, particularly related to vaccine and antiviral use is to identify early potential complications associated with specific treatment options.

Data Collection System

An important factor in data collection is whether systems exist that provide an efficient, consistent and timely way to collect information. Furthermore, that information will guide decision-makers in a health system response to a pandemic. It is important to ensure that as clinical resources are stretched at the peak of a pandemic, that data collection will be focused on content which is critical for decision-making processes.

Data collection systems must be available in non-traditional, as well as existing sites. Because of the array of surveillance data to be collected (e.g., vaccine and antiviral uptake statistics) and the range of health care sites providing data, a number of data collection options will be explored.

Effective Lines of Communication

Surveillance is occurring at international, national, and provincial levels. It is critical these three levels of surveillance work together, that lines of communication are defined in advance of a pandemic. Communication networks (e.g. *FluWatch*, and provincial and territorial networks) are currently established.

Canada has improved its public health alert systems since SARS. Launched in 2004, the Global Public Health Intelligence Network is an internet-based early warning system that gathers and disseminates preliminary reports of public health significance throughout the world. The monitoring system operates in seven languages, seven days a week, 24 hours a day. Within Canada, information is shared rapidly with public health authorities across the country through e-mail and web alerts. In PEI these alerts go to the Chief Health Officer who also monitors and directs the management of communicable disease outbreaks in the Province.

Linkages with Animal Health Authorities

Local animal health authorities detect respiratory outbreaks, such as Avian influenza, in domestic and wild animals, particularly in swine, poultry and other fowl. While these outbreaks are primarily of highest concern for their effect on animal health, they do pose risks to humans, and therefore a health system response aimed at protecting the health of the public is necessary. The ongoing monitoring of infectious disease outbreaks in animals is also important because of the potential risk they pose in the chain of events that may lead to human to human transmission of a novel virus, potentially resulting in an influenza pandemic in humans.

In PEI the linkages with animal health authorities are established. The Department of Health has representation on an early response team that has been established to manage foreign animal disease emergencies that potentially pose a risk to human health, for example an avian influenza outbreak. This team is led by the Provincial Department Agriculture, Aquaculture, and Fisheries in partnership with the Canadian Food Inspection Agency.

Strategy # 2 Public Health Measures

Public health measures are non-medical interventions used to reduce or slow the spread of the pandemic influenza virus. These measures will not necessarily prevent people becoming infected with the pandemic virus. However, delaying the spread will allow the health system time to manage the surge in numbers of ill people, thereby preventing the system from becoming overwhelmed.

Objectives:

1. To prevent sudden peaks in illness which could quickly cause the health system to be overwhelmed.
2. To decrease the number of individuals who are exposed to and potentially infected with the pandemic influenza virus.
3. To slow the spread of the disease and gain time for implementing medical measures, for example a vaccine.
4. To reduce the morbidity and mortality caused by the pandemic influenza virus.

The goals of the Canadian Pandemic Influenza Plan for the Health Sector are to reduce the amount of illness and death due to influenza and to minimize societal disruption. The provincial and territorial plans are being developed in keeping with these goals.

The 2006 Canadian Pandemic Influenza Plan, discusses several possible public health measures for feasibility of implementation compared to their likely effectiveness. The comparison is based on public acceptability and the overall benefit to the response. This next section will outline the public health measures that will most likely be implemented in an influenza pandemic in PEI. The final decision to implement specific public health measures may change at the time of the pandemic depending on the epidemiology of the virus, such as its pathogenicity, mode/s of transmission, incubation period, attack rate in different age groups, and the period of communicability.

The public health measures for consideration in PEI include:

- ▶ Providing public education to increase awareness
- ▶ Conducting case and contact management
- ▶ Closing schools
- ▶ Restricting public gatherings.

The Chief Health Officer for PEI has the legislated authority under the *Public Health Act* of Prince Edward Island to enact public health measures when there is a risk to the health of the public. The timing of enacting public health measures a key factor in the effect they will have on the spread of the disease. Early and aggressive implementation of public health measures may significantly slow the spread of the disease.

Public Education

Providing the public with the knowledge needed for self care may be the most simple, effective and, therefore important, public health measure that can be implemented. During a crisis, people want to know what they can do for themselves and their loved ones. The public will look to public health officials for direction and guidance in an influenza pandemic. Important public information includes both preventative as well as treatment options and will be offered throughout the pandemic phases. Messages will include the following:

- ▶ Personal protective practices, such as hand and respiratory hygiene, social distancing to reduce the risk of influenza infection, avoiding crowds and increasing fresh air in buildings.
- ▶ Personal preparedness messages which may include the need to develop personal contingency plans for things like child care or elder care.
- ▶ If sick, stay home (from day-care, school, work and public events).
- ▶ Practice respiratory hygiene, including covering one's mouth when coughing/sneezing into a tissue followed by proper tissue disposal and handwashing.
- ▶ How to clean and disinfect environmental surfaces.
- ▶ When and how to seek medical attention in a way that minimizes exposing others to influenza (i.e., where to go for prevention/treatment; other information resources,)
- ▶ Getting an annual flu shot.

While annual flu shots will not protect people against a pandemic influenza virus it may prove beneficial if there are seasonal influenza viruses circulating at the same time as a pandemic virus. Getting people into the habit of getting their flu shots will increase the quantity of vaccine required causing vaccine companies to ramp up their capacity on an annual basis. Increased vaccine production allows for proper infrastructure to develop so that large scale immunization may become the norm.

Public health officials will work closely with communications experts to deliver consistent information in a variety of ways such as media campaigns, posters, pamphlets, special telephone lines and websites. Section 6 of this document further details the Communications Plan in an influenza pandemic.

Conducting case and contact management

Conducting case and contact management of people with influenza like illness will be advantageous in the pandemic alert phases and early in the pandemic phase in identifying when the pandemic influenza virus is present on PEI. This will be important when there is still inefficient transmission of the virus human to human which is consistent with stage 5 of the pandemic alert phases. The Canadian Pandemic Influenza Plan for the Health Sector recommends that the decision to do contact tracing should be made at the time of the pandemic by the local public health authority based on the pandemic situation in Canada and on the resources available.

The Canadian Pandemic Influenza Plan for the Health Sector defines a “*contact*” as *someone with face-to-face exposure within 1 metre of a case*. Because the duration of a significant exposure is unknown, exposures will need to be considered as part of the risk assessment (*CPIP: Annex M*, 2006, p.15).⁽²⁾

All contacts of cases should be provided with information as described in the public health education section, and more specifically the following:

- ▶ Personal protective measures (e.g. handwashing);
- ▶ Symptoms of influenza-like illness;
- ▶ What to do if symptoms develop (i.e. who to call and when);
- ▶ How to seek medical attention for any reason;
- ▶ Objectives and expectations with respect to any activity restrictions.

Contact management activity is expected to become less focused on individual management as the pandemic is declared and as the number of cases progress, with messages for contacts being conveyed primarily through public education campaigns. This will allow scarce public health resources to be re-directed towards other control strategies (*CPIP: Annex M*, 2006, p.15).⁽²⁾

Isolation of Cases

This measure, similar to the contact management measure, is expected to be effective only during the early pandemic alert phases. As influenza cases become widespread in the community, individuals may self-isolate in their homes to avoid getting sick. This has been noted to happen in other communicable disease outbreaks. Quarantining of cases and their contacts is not feasible given the highly communicable nature of influenza.

Closing Schools

The purpose of closing schools is to address the risk of large numbers of people in close contact with each other. Such conditions are typically seen in schools, kindergartens, and day care centres. Children shed more virus for a longer period of time than adults and depending on the age of the child they may not be as efficient with proper hand and respiratory hygiene when they are sick. Also, depending on the age of the child, they may need a high level of parental care and contact. While they may not become seriously ill with influenza, children are an efficient transmitter of influenza viruses.

Although there is limited scientific evidence that school closures slow the spread of influenza, anecdotal reports indicate that closures can limit influenza outbreaks. Mathematical modeling suggests that school closures can flatten the epidemic curve and reduce the magnitude of the

disease at the peak of an outbreak, particularly if schools are closed early and long enough in a pandemic (*The Ontario Pandemic Influenza Plan*, 2006, ch.6, p4).⁽³⁾

Closing schools will cause societal disruption as parents of younger children will need alternate forms child care. Some parents may need to stay home to look after children and these may be the very parents that are needed to work to maintain essential services. Depending on the length of the closures, older high school children may be faced with lost classroom time that is critical to post secondary education. Prudent planning by school officials should assume that schools will be closed for some period of time, particularly if the surveillance data indicated that the pandemic virus spreads quickly through school-aged children.

Restricting Indoor Public Gatherings

Restricting indoor public gatherings is one method of social distancing. The purpose of social distancing is to reduce or avoid contact with other people as much as possible thereby reducing the risk of coming in contact with someone who has influenza. Social distancing can be a useful control measure for diseases that are transmitted by people who are asymptomatic (i.e., are infected but have no symptoms) or mildly ill, as may be the case with influenza. Social distancing will not stop the spread of influenza but it may be effective in slowing the spread to enable the continued delivery of health and other essential services during a pandemic.

Measures that might be undertaken include, closing theaters, canceling sporting events or conferences, and limiting any large indoor public gatherings.

Strategy # 3 Vaccine for Pandemic Influenza

Role of Vaccines

Following their development more than 50 years ago, influenza vaccines have been considered the cornerstone of influenza prevention and control. Studies confirm the effectiveness of influenza vaccine in reducing influenza illness, hospital admissions and deaths for seasonal influenza. Vaccines work by stimulating the body's immune system to produce antibodies against a particular virus causing disease (Gold, 2002, p.9).⁽⁴⁾

Each year the WHO produces a vaccine based on the strains of influenza A and B that are in circulation in the spring of the year. In the Northern Hemisphere, influenza season is traditionally in the late fall and winter. Most of the time, vaccination provides significant immunity against influenza and it is widely accepted that a vaccine is the first line of defence against a pandemic influenza virus.

Objectives

The objectives of the vaccine strategy are:

1. To provide a secure supply of safe, effective vaccine for all Islanders as quickly as possible.
2. To store, distribute, allocate and administer vaccine safely, efficiently, and appropriately.
3. To monitor the safety and effectiveness of vaccine programs.

Vaccine Dosage

For seasonal influenza, an immune response in adults is gained with one dose of influenza vaccine. In contrast, young children who may have had no previous exposure to influenza viruses, require two doses to produce an immune response. In an influenza pandemic it is anticipated that the population's immunity would be similar to that of young children, i.e., people would have no immunity. Plans are therefore based on the requirement of two doses of vaccine spaced at least two weeks apart in order to generate adequate levels of immunity. Peak immunity against influenza viruses is reached ten days following immunization and then immunity begins to fall.

Vaccine Supply

Canada is among the few countries in the world to have a contract with a vaccine manufacturer for the development and supply of a pandemic influenza vaccine as soon as the World Health Organization identifies the seed strain and it becomes available for vaccine production. In 2001, the Government of Canada signed a 10-year contract with vaccine manufacturer ID Biomedical (now Glaxo Smith Kline Biologicals) to develop and maintain the capacity to produce enough vaccine for all Canadians in the event of a pandemic influenza.

A vaccine against a new pandemic influenza virus can only be developed once the pandemic strain emerges and is identified by the World Health Organization. The strain is then distributed to vaccine producers around the world to begin preparing the vaccine. Because current production methods are complex and lengthy, it is unlikely that a vaccine will be available when the first wave of the pandemic strikes Canada. Once the World Health Organization declares the influenza pandemic, it is estimated that the vaccine company can produce between 8 and 10 million doses a month. While the goal is to immunize the entire population, there are limits to how many doses will be available at once. Because doses will be available to PEI in limited quantities at first, prioritized groups have been recommended by the national Vaccine Supply Working Group and accepted by the Canadian Pandemic Influenza Committee.

Priority Groups for Vaccination

Priority groups for vaccination have been established to facilitate consistent immunization strategies for pandemic influenza across Canada. In keeping with the goals of the pandemic response, the prioritization process considers the impact that the vaccine will have on (1) reducing morbidity and mortality by maintaining the health services response and the protection of high-risk groups, and (2) minimizing societal disruption by maintaining the essential services necessary for public health, safety and security.

When data on the epidemiology of the pandemic virus becomes available, the Canadian Pandemic Influenza Committee will provide guidance on the final identification and prioritization of groups to receive influenza vaccine. National guidelines will be distributed with the expectation that they will be followed by all provinces in order to ensure a consistent and equitable vaccination strategy. The national recommendation outlining the draft Canadian priority groups for vaccine are listed in the 2006 Canadian Pandemic Influenza Plan for the Health Sector, Annex D as follows:

- Group 1 - Health care workers, public health responders and key health decision makers
- Group 2 - Pandemic societal responders and key societal decision makers
- Group 3 - Persons at high risk of severe or fatal outcomes following influenza infection
- Group 4 - Healthy adults
- Group 5 - Children, 24 months to 18 years of age (*CPIP, Annex D, 2006, pp. 2-4*).⁽⁵⁾

Each province is developing a process to quickly identify the individuals belonging in the each of the priority groups. Procedures to ensure that individuals who receive a first vaccination also receive a second dose, if required, will be part of the process.

Mass Vaccination

A mass vaccination process is in development and is aimed at addressing the following:

- Vaccine storage and distribution issues, including security and appropriate maintenance of the vaccine as it is moved to the vaccination sites;
- Location and staffing of mass vaccination clinics as well as vaccine administration in health care facilities;
- Staff training related to knowledge of vaccine and competency of vaccine administration;
- The development of a communication plan to advise staff and the public on vaccine related issues including priority groups, availability of vaccine, location of clinics, etc.

Pneumococcal Vaccination

Immunization of high risk groups with pneumococcal vaccine during the interpandemic period is important in the prevention or minimization of secondary complications of influenza such as secondary bacterial pneumonia. Most people should receive the pneumococcal vaccine at 65 years of age. This is important to ensure that there will not be a demand which is greater than supply in the event of a pandemic.

Strategy # 4 Antiviral Medication in Pandemic Influenza

Role of Anti-Virals

Because vaccines are not expected to be available early in an influenza pandemic, antiviral medications (anti-influenza drugs) are considered the next best pharmacological intervention in the control and treatment of influenza symptoms. Antivirals work by reducing the ability of the virus to reproduce in the body, but do not provide immunity against the virus. While we do not know how effective they will be against the pandemic influenza strain, they have proven to be effective in treating symptoms due to seasonal influenza. If taken within 48 hours of the first appearance of symptoms, antivirals can reduce influenza symptoms, shorten the length of illness by approximately a day and a half, and in the case of oseltamivir (Tamiflu®), potentially reduce serious complications of influenza.

The Canadian recommendation on the use of antiviral medication in an influenza pandemic is primarily for the symptomatic treatment of people who are ill with influenza. This recommendation is consistent with the first goal of most pandemic plans in Canada which is to reduce overall illness and death due to influenza.

There has been much discussion about the prophylactic use of antiviral medication, particularly for high risk groups in a pandemic such as health care workers and critical infrastructure workers, in order to reduce absenteeism in the workforce. This would be consistent with the second goal of Canadian pandemic plans which is to minimize the disruption to society and the economy. However there are concerns about using antivirals for widespread prophylaxis including the following:

- ▶ The potential for adverse side effects for people on antivirals for a prolonged period of time particularly when the expected length of a pandemic wave (8 weeks) and possibly repeated waves, is longer than the recommended period of time that one should be on antivirals prophylactically (6 weeks).
- ▶ The potential for the virus to develop resistance to the antiviral medication rendering it ineffective in the treatment of those who are ill with influenza
- ▶ The limited supply of antiviral medications worldwide
- ▶ It is not known how effective the antiviral medication that is available will be against a pandemic influenza virus.
- ▶ It is costly to stockpile antiviral medications which have only a five year shelf life.

The Canadian Pandemic Influenza Committee *does* recommend prophylaxis with antiviral medication in the pandemic alert phases if there is an outbreak of avian influenza among people who have had close contact with infected birds. The purpose of this is primarily as a containment measure to reduce the incidence of human illness and therefore the risk that the virus will develop efficient human to human transmission.

Objectives

The objectives of an Antiviral Strategy are:

1. To maintain a secure supply of antiviral medication large enough to treat the proportion of the population in PEI that is expected to be ill enough with influenza like illness to require treatment with antivirals.
2. To store, distribute, allocate and administer antivirals efficiently and appropriately.
3. To monitor the safety and effectiveness of antivirals

Anti-viral Supply

The federal government is responsible for approving and licensing antiviral medication. At the time of writing, the two antivirals that are licensed for use in Canada for prophylaxis and treatment of influenza A infections are amantadine and oseltamivir (Tamiflu®). A third antiviral, zanamivir (Relenza™) is licensed in Canada for treatment and not prophylaxis. It is recommended for the treatment of influenza like illness in pregnant and lactating women. A fourth antiviral, rimantadine is not currently licensed in Canada.

The Asian strain of Avian Influenza H5N1 has developed resistance to amantadine in the laboratory. Amantadine also causes significant side effect in humans and requires individual dosing. Because of these issues with amantadine, oseltamivir (Tamiflu®) is the drug of choice in the treatment of influenza symptoms for most people during a pandemic (*The Ontario Pandemic Influenza Plan*, 2006, chap.9, p.2).⁽⁶⁾

Like other provinces, PEI is working in partnership with the Public Health Agency of Canada to develop and maintain an antiviral stockpile which includes oseltamivir as well as zanamivir.

Antiviral Storage and Distribution

To be effective, antivirals must be started within 48 hours of the onset of symptoms. To provide timely treatment, PEI must have an efficient distribution system for antivirals. A plan for antiviral

storage and distribution in PEI during an influenza pandemic is being developed. Issues under consideration include:

- ▶ Adequate storage facilities in terms of the size and security of the available space.
- ▶ Secure and timely method of distribution as a pandemic is declared.
- ▶ Process for prescribing and dispensing medications, while preventing overflow in assessment and treatment sites by patients needing anti-viral medication only.
- ▶ A mechanism to monitor adverse events related to antivirals, and to monitor the development of antiviral resistance to the pandemic influenza virus.

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SECTION 3
DELIVERY OF HEALTH SERVICES

Introduction

History shows us that influenza pandemics generally occur in one or more waves, sometimes several months apart, each lasting 6-8 weeks. During a pandemic wave we can expect a marked and prolonged increase in the number of people ill with influenza who are in need of medical care. The resulting rise in patient volume is referred to as a “surge.” Degrees of illness will vary; some people will manage at home caring for themselves while others will be critically or fatally ill. Like a wave, a surge tends to gather momentum, peak and then decline. It is possible that as the first wave declines the second will begin. In the midst of a surge, the health care system will be confronted by major challenges which may include significant increases in absenteeism due to worker illness, illness in the family, or due to fear.

The health system’s capacity to modify day to day activities to deal with a prolonged surge is called “surge capacity.” The term surge capacity might imply that there is excess capacity in our current health care system to deal with an increase in patient load. We know that this is not the case and that in many places right across the nation the health system could be in crisis at any given time due to staff shortages. It must be noted that dealing with such issues such as lengthy wait times and recurring staff shortages in all areas including critical care and emergency are long term strategies that should be prioritized by senior decision makers to help mitigate a system failure during a disaster such as a pandemic (*Surge Capacity Overview*, 2006, p.5).⁽¹⁾ As noted in Section 1, mitigation is the first component of emergency management.

The second component of emergency management is preparedness. Pandemic preparedness means the necessary measures are in place before an influenza pandemic occurs, enhancing the effectiveness of response and recovery efforts. Plans include: establishing the roles and functions of each facility and program, determining in advance how surge capacity will be handled and determining who will perform the various roles and activities needed in a response, and planning for supply and equipment issues.

In the event of an influenza pandemic, our goal is for PEI’s health system to have a coordinated and comprehensive system response. Response is the third component of emergency management. The strategies identified in this section are geared for use during the response period of a disaster and are not part of the normal mode of operation. Such strategies cannot be sustained for a prolonged period of time.

Recovery is the fourth component of emergency management and involves the scaling down whereby these and other response strategies are gradually withdrawn and there is a return to normal operations.

For pandemic influenza planning, health services refer to all components of our health system which play a role in patient care delivery. These components include: provincial acute care hospitals, community hospitals, long-term care, home care, primary health care programs and physicians’ offices. Integrated planning ensures that each facility and program is aware of the pandemic plans being developed across the health system.

Objectives

The objectives of PEI's health services during an influenza pandemic are consistent with the health sector plans of other jurisdictions and include:

1. The delivery of the highest quality care possible for those ill with influenza;
2. Minimizing the risk of influenza for those with other serious health conditions that might lead to complications;
3. Maximizing efficiencies in the delivery of care.

Health System Strategies to Manage the Surge in People Ill with Influenza

As discussed in Section 1, the predicted impact of an influenza pandemic on our population is based on the *Flu Aid* Model developed by Meltzer and Colleagues from the Centre for Disease Control in Atlanta, Georgia. The predicted values do not take into consideration any interventions such as the use of antiviral medications, effective vaccines, or stringent infection control measures. While we use the Meltzer models for planning purposes, it is expected that as the proposed strategies are implemented, the overall impacts to our population will be reduced.

Strategy #5 Protection for Health Care Workers

In planning for the protection of health care workers in an influenza pandemic, it is important to understand the risk that health care workers will face in their workplace. It is generally thought that health care workers will be at higher risk of contracting influenza than the general public due to being exposed to greater amounts of influenza virus for concentrated periods of time. However, influenza is a highly contagious, community acquired illness and health care workers are also at risk when they are out in the general community. This is related directly to how influenza is spread and its high rate of contagiousness.

As noted in *Section 1, Characterizing Influenza*, influenza is directly transmitted from person to person through droplet spread and indirectly through contact with surfaces contaminated with respiratory discharge from infected individuals. The issue of whether influenza can also be spread by airborne transmission is controversial. It is suggested in a number of plans that the virus can become aerosolized during high risk procedures such as intubations and resuscitation. People are generally contagious for 24 hours before and up to 5 days (7 days for children) after symptoms first appear. Symptoms include coughing, sneezing, fever over 38 Celsius, fatigue, and general aches and pains. Fever may not necessarily be present in the elderly. People are most contagious when symptoms first present and as symptoms decline and then cease, so does the risk of transmitting the virus to others.

It is expected that some people with influenza will develop complications such as dehydration or pneumonia which may require hospitalization. These more acutely ill people may have symptoms for a longer period of time compared to those with uncomplicated influenza. However given the period that people are generally contagious with influenza, by the time a patient with complications is needing hospitalization, they may no longer be contagious to other people, including health care workers. Therefore, the risk to health care workers in the workplace is highest in settings where people first present with symptoms (e.g., physicians' offices, community

health centres/clinics, emergency departments, first responders such as ambulance drivers), in settings providing care for vulnerable people (e.g., long term care facilities), and in settings where staff are performing high risk procedures (i.e., high for providers, not necessarily for patients) that create sprays and splashes (e.g., nebulized therapies, resuscitation) (*The Ontario Health Plan for an Influenza Pandemic [OHPIP]*, 2005, chap.7, p.48).⁽²⁾

Duty to Provide Care

Most professional health care licensing bodies have a Code of Ethics which includes the duty to provide care and respond to suffering. The knowledge health care workers hold puts them in the greatest position to provide care for ill people. Health care workers encounter a certain element of risk on a daily basis.

There has been significant public attention recently about the possible impacts of the next influenza pandemic. The SARS outbreak in Toronto in 2003 highlighted the fact that health care workers can be at an increased risk during a communicable disease outbreak. The media attention around avian influenza and human influenza pandemics, including documentaries and made for TV movies, have increased public awareness but have also contributed to a sense of fear.

When faced with an influenza pandemic, there is concern in many organizations that health care workers will not report for work. Workers' concerns about their own health or the health of their families may cause them to weigh their duty to provide care against their competing obligations (*OHPIP*, 2005, chap.7, p.48).⁽³⁾ A study by Quereshi et.al (2005) noted that barriers exist for health care workers reporting to work an emergency situation. Some barriers are related to willingness by the health care worker, for example fear of infection, and others are related to ability, for example, childcare issues. The findings from the study provide an opportunity to enhance health care workers' ability and willingness to respond by addressing those barriers which are amenable to intervention, such as the availability and proper use of personal protective equipment.⁽⁴⁾

Health care workers will be on the front lines, bearing the greatest risk in their efforts to protect the health of the public. The health sector response to an influenza pandemic is dependent on having health care workers. Employers and society in general have a legal and ethical responsibility to protect their workers.

PEI's *Occupational Health and Safety Act* clearly outlines the responsibilities of the employer to take all reasonable precautions to protect workers.⁽⁵⁾ It also outlines the worker's responsibility to adhere to the precautions that are deemed reasonable. Precautions include the safe use of personal protective equipment such as masks, possibly face shields and gowns, strict adherence to handwashing, and the use of therapeutic interventions such as vaccination and antiviral medications when these are available and recommended. Education and training is critical to the protection of health care workers.

The *Occupational Health and Safety Act* also outlines the right of the worker to refuse to work if they feel that the tasks they are being asked to perform puts their health and safety at unreasonable risk.⁽⁵⁾

In environments where people with infectious diseases are treated, there is no such thing as “total protection” or “zero risk” for patients, visitors or health care workers, but there are steps that health care settings can and must take to protect its workers and significantly reduce the risk to providing care. PEI will adopt the following three recommendations outlined in the *The Ontario Health Plan for an Influenza Pandemic* (2005).⁽⁶⁾

Pandemic Influenza Plan to reduce the risk of workers acquiring the pandemic influenza virus in the workplace:

- 1) *Ensure all workers have the education and training they need to protect themselves while providing effective care.*

Training and educational programs can be provided during the pandemic alert phase and be reviewed at the beginning of and during an influenza pandemic. Staff education programs should be appropriate to the audience, and should include:

- ▶ the difference between an upper respiratory infection and influenza, and modes of transmission;
- ▶ information about an influenza pandemic (what it is, novel strains);
- ▶ the criteria for determining influenza-like-illness;
- ▶ the risk of infection and subsequent complications in high-risk groups;
- ▶ respiratory hygiene programs that can reduce the risk of transmission;
- ▶ the facility or work site plan for an influenza pandemic;
- ▶ the provincial health sector plan for an influenza pandemic health and safety measures;
- ▶ information about protective practices, including strict adherence to hand hygiene and the importance of hygienic measures to minimize influenza transmission;
- ▶ safe use of personal protective equipment including donning and doffing procedures;
- ▶ priority groups for immunization when vaccine is available, and the importance/necessity and safety of being immunized ;
- ▶ the indications for treatment with antivirals when they are available, and the potential use and safety of prophylaxis;
- ▶ the importance of routine and additional infection prevention and control practices to prevent the transmission of infection in all care sites
- ▶ any changes in protective practices that may occur as the pandemic progresses.

- 2) *Institute and monitor appropriate occupational health and infection prevention and control measures.*

During the interpandemic and pandemic alert periods, health care settings protect patients and health care workers from the spread of respiratory infections by the following practices:

- ▶ Promoting annual influenza immunization for all staff, particularly workers who provide care for or have contact with individuals in high-risk groups;
 - ▶ Case finding/surveillance for influenza-like illness by all health care sites and programs and then taking appropriate contact and droplet precautions.
- 3) *Provide appropriate personal protective equipment as recommended by the Canadian Pandemic Influenza Committee.*

Nationally, consensus building discussions have been ongoing in an attempt to establish a national standard. Work will be done in PEI to develop a provincial policy on the use of personal protective equipment in health care settings in the event of an influenza pandemic. Policy development will include broad consultation with key stakeholders such as infection control experts, bargaining unions, occupational health and safety, and public health experts. This section will be updated as this policy is developed.

A “workplace,” for the purpose of this section, includes all health care settings, both existing and temporarily established, where influenza patients receive care.

Occupational Health Management of Health Care Workers

The *Canadian Pandemic Influenza Plan for the Health Sector, Annex F (CPIP, 2006, pp.9-10)*⁽⁷⁾ outlines the terminology for three categories used in occupational health and safety to communicate a worker’s ability to work. The categories include fit for work, unfit for work, and fit to work with restrictions.

1. *Fit for Work* - Fit to work with no restrictions.
2. *Unfit for Work* - Defined as a medically determinable illness that prevents an employee from performing the regular or modified duties of their occupation.
3. *Fit for work with restrictions* - Allows for the re-assignment of duties or re-integration into the workplace in a manner that will not pose an infection risk to health care workers, patients and other individuals in the workplace.

These categories will be further defined for a pandemic influenza situation in the operational plan that is being developed.

Strategy # 6 Infection Control Measures

During an influenza pandemic, infection prevention and control can help protect the public, patients, and health care providers from exposure to the influenza virus. It is important that all individuals be aware that they have a role in reducing the spread of influenza during a pandemic. While this document is for an influenza pandemic, these precautions are consistent in the prevention and control of seasonal influenza.

Health Canada guidelines recommend that in addition to routine practices, additional precautions, specifically droplet and contact precautions, should be taken for pediatric and adult patients with seasonal influenza. These same precautions are recommended for the pandemic period.

Strict adherence to hand washing/hand antisepsis is the cornerstone of infection prevention and control. Proper hand hygiene may be the most effective control measure available during an influenza pandemic.

Clinical Case Definition of Influenza

When influenza is circulating in the community, the acute onset of fever and cough are good predictors of influenza. The positive predictive value increases if fever is higher than 38°C and when the onset of the clinical illness is acute (less than 48 hours after the prodromes). Other symptoms, such as sore throat, rhinorrhea, malaise, rigors or chills, myalgia and headache, although unspecific, may also be present (CPIP:Annex F, 2006, p.iv).⁽⁸⁾

Confirmed Case of Influenza

Confirmed cases of influenza are those with laboratory confirmation (i.e., virus isolation from respiratory tract secretions, identification of viral antigens or nucleic acid in the respiratory tract, or, a significant rise in serum antibodies), or clinical cases with an epidemiological link to a laboratory confirmed case (CPIP:Annex F, 2006, p.iv).⁽⁸⁾

Immunity to Influenza

Immunity to influenza is obtained in two ways: first when a person is infected with the circulating influenza virus and recovers, and secondly when they are immunized with an effective vaccine. It can be assumed that during an influenza pandemic, health care workers who become ill with influenza and then recover have immunity for a period of time.

Infection Control Practices for Pandemic Influenza (CPIP: Annex F, 2006, pp.18-19)⁽⁹⁾

A. Hand Hygiene: Strict adherence to hand washing/hand antisepsis is critical. Hands should be washed or hand antisepsis performed after direct contact with patients/residents with influenza-like illness and after contact with their personal articles or their immediate environment.

Waterless alcohol hand sanitizers are an effective alternate to hand washing and are especially useful when time for hand washing or access to sinks or running water is limited. The product is applied to dry hands and hands are rubbed vigorously until dry. If there is heavy microbial soiling, hands should be washed thoroughly or wiped with a moist towelette to remove visible soiling.

B. Respiratory Hygiene Measures to Minimize Influenza Spread: Staff, patients, residents, and visitors should all be encouraged to minimize influenza transmission by practicing the following:

1. Use disposable, one use tissues;
2. Cover nose/mouth when sneezing/coughing;

3. Perform hand antisepsis after coughing, sneezing or using tissues and before and after providing care or visiting patients/residents;
 4. Keep hands away from mucous membranes of the eye and nose.
- C. Personal Protective Equipment: Consultation is currently underway to develop a provincial policy on the use including specific personal protective equipment to be used and under what circumstances. This section will be updated when the policy is developed.
- D. Cleaning, Disinfection and Sterilization of Patient Care Equipment: The influenza virus is readily inactivated by hospital germicides, household cleaning products, soap, hand wash or hand hygiene products.
- E. Environmental Control (Housekeeping, Laundry, Waste):
1. Adhere to the recommendations for housekeeping, laundry and waste management as outlined in the Health Canada Infection Control Guidelines, 1999.
 2. Equipment and surfaces contaminated with secretions from patients/residents suspected or confirmed to have influenza should be cleaned before use with another patient/resident.
 3. Because influenza viruses survive on porous materials like linens for up to 8-12 hours, those handling contaminated linens or waste must practice proper hand hygiene and contact precautions. Special handling of linen or waste (i.e., double bagging) contaminated with secretions from patients/residents suspected or confirmed to have influenza is not required.

Strategy # 7 Patient Prioritization / Essential Services

In the early days of a pandemic, programs and facilities may be able to increase their surge capacity by moving to an essential services plan. While not all services will be deemed essential in a pandemic, it is important to stress that all people will be essential and proper planning will allow for the redeployment of people to areas where their particular skill set can be utilized.

Because essential services in each program area are different, the use of common terminology enhances consistency. Services can be categorized as follows:

Must Do – critical services, cannot be deferred or delegated;

High Priority – do not defer if possible or reinstate as soon as possible;

Medium Priority – can wait if a pandemic period is not too long;

Low Priority – can be brought back when the pandemic is over.

Cancellation of elective admissions and surgeries is often the first thing considered when managing limited resources. Delay of surgery may be of greater risk to the cancer or cardiac patient compared to others and when the availability of beds is low there is an added urgency to

prioritize how those beds are best utilized. Decisions frequently need to be reassessed. The status of an individual changes, potentially affecting the priority of their care and resulting needs. An ethical decision-making framework/process is currently in development to assist in fair and equitable decision-making regarding the allocation of resources that might be in short supply.

The aim of moving to an essential services plan is to increase patient capacity for a particular program or site, specifically to manage the increased demand of people ill with influenza. It is important to note that increasing capacity is not just about opening up new beds or taking on more clients. In any institution, a bed includes infrastructure support, including all the trained staff, food services, laundry capacity, pharmacy capacity, etc., required to care for the patient in that bed. Prioritization of existing services is required in order to meet the expected increase of influenza patients.

The rates of staff absenteeism will be considered when plans are being developed. It is hoped that by implementing all of the strategies discussed in this plan, that staff absenteeism will be manageable, thereby allowing the health system to cope with the anticipated increase in patients. As programs and sites identify essential services, they will also identify the workers required to maintain these essential services as well as workers who can potentially be re-deployed to other service areas, according to their particular skill set. The aim of this strategy will be to match a worker's skill set with an area in need. A centralized staff coordination team concept for efficient staff re-deployment in an influenza pandemic will be developed further in the operational plan.

All programs and services are determining a prioritized list of their essential services and subsequently the worker complement/skill set that might be freed up as a result of this streamlining of services. Programs will engage in a consultative process with their partners and stakeholders to ensure that the continuum of care is maintained across care sites. The impacts of the virus (including the numbers of patients and staff who are ill) will determine the level of essential services that can be provided.

Strategy # 8 Caring in Place

Hospitals in PEI and across the country are anticipating that they will be quickly overwhelmed with patients needing care in an influenza pandemic. Hospitals are developing plans for maximizing bed capacity to care for those who are in need of acute medical attention. However, hospital capacity is limited. It is not feasible to consider setting up another complete acute care site, mainly because there will not be the necessary human resources, equipment or supplies to staff another facility to provide an appropriate level of acute care.

Caring in place is a strategy to reduce or slow down the admissions to hospitals and therefore prevent them from becoming overwhelmed. Caring in place means that as much as possible care sites will care for their patients/residents who become ill with influenza rather than transfer them to an acute care hospital. Individuals will be encouraged to care for themselves in their homes unless their care needs necessitate an acute care admission. Residents will stay in long term care to receive their influenza care. Transfers to acute care for non-influenza needs will be based on

the defined essential services plan as described in strategy #7. If there are significant influenza related complications for long term care residents, the decision to transfer to acute care will be made based on a number of factors including the resident's care plan which documents their goals of care, and the availability of resources to support the care needs of the resident. Using the ethical decision making framework, a set of guidelines for patient transfers to acute care in an influenza pandemic will be developed by the Health Service Delivery Working Group.

Fact sheets on self care and public information lines will be developed to raise awareness and to provide accurate information to the public.

Facilities and health care programs in PEI are working on site specific plans with collaborating partners in other sites in order to maintain the continuum of care.

Strategy #9 Non-Traditional Sites: Triage Clinics and Alternate Care Sites

Triage is defined as a process whereby a group of casualties or patients is sorted according to the seriousness of their illness or injuries, so that treatment priorities can be allocated between them. In emergency situations it is designed to maximize the number of survivors.
(CPIP: Annex J, 2006, p.6).⁽¹⁰⁾

During SARS in Toronto in 2003, reports indicate that demand for family physician offices decreased by 60%. Patients weighed the benefit of the visit to a physician's office with the potential risk of exposure to SARS. For the most part, offices and clinics delivered essential services during SARS. If family doctors offices move to an essential services plan during an influenza pandemic, a number of physicians and some staff could be available to work in triage sites.

Consultation with a number of family doctors, hospital staff and primary health care staff resulted in the recommendation to develop a mass triage approach for the assessment of patients who are ill with influenza like illness. This approach will be supported by a public awareness campaign on self care, and when and where to seek medical care. Caution is being exercised in setting up too many health care sites outside of the existing facilities because of the predicted decrease in human resources during a pandemic.

Activating triage sites is called for in stage 2 of PEI's pandemic influenza implementation plan. The rationale behind this strategy include:

- Pooled resources in a centralized location allow for quicker assessment, treatment and placement to the appropriate level of care, i.e., discharge to self care, observation, or hospitalization.

- ▶ Separating patients with influenza-like illness from other patients in emergency rooms, clinics, and doctor's offices is an effective infection control strategy in delaying the spread of the pandemic virus. It will hopefully delay the health system becoming overwhelmed.

Even with this separation, hospitals and doctors' offices will not be immune to influenza. Some patients may not heed the public messaging, or they may become exposed to the virus from a worker, or they may present with another more serious problem, but also have influenza and still be a risk to other patients. All facilities and programs need to be prepared to manage pandemic influenza patients utilizing the infection control measures discussed in Strategy #6.

Administration of Triage Sites

According to the *Canadian Pandemic Influenza Plan for the Health Sector: Annex J* (2006, p. 3),⁽¹¹⁾ setting up non-traditional site such as a triage clinic as a "satellite site" of an existing program or facility is advantageous since it does not require the establishment of a separate administrative structure at a time when all human resources are scarce. Specifically, linkage with an existing facility or health care program would facilitate the following:

- ▶ prompt implementation of an administrative structure;
- ▶ ordering, tracking and maintenance of equipment and supplies;
- ▶ implementation of record keeping and patient tracking systems;
- ▶ implementation/establishment of clinical protocols and patient care guidelines;
- ▶ sharing of expertise and human resources between sites;
- ▶ access to services such as sterilization, laboratory services, pharmacy services, laundry, food services;
- ▶ referrals between the site and an affiliated health care facility; and
- ▶ extension of liability, workers compensation and other insurance programs to the satellite site.

In our current system, PEI has both salaried and fee-for-service family physicians. Family Health Centres that employ family physicians are managed under the Primary Health Care Division. As assessment of people with influenza like illness is generally a primary care role, the decision for the Primary Health Care Division to act as the administration structure for the triage sites was made by the Provincial Health Pandemic Influenza Committee.

In Charlottetown and Summerside where there are denser populations, triage clinics or non-traditional sites will be established outside of existing health care sites. Work is underway to determine the location of the sites, the care that will be delivered, the staffing process to support the sites, and the equipment and supplies that will be needed in the sites. There are five community hospitals in rural PEI; 3 in Prince County and 2 in Kings County. One facility in each county will be designated as an influenza site in the event of a pandemic. The result will be four influenza sites located across PEI.

The development of the process for hiring and deploying staff, physicians, students, and volunteers to work in the triage centres as well as other sites in the health system is part of the health human resources component of the contingency plan. This component is further discussed in Section 4 of this document.

Alternate Care Sites

Stage 3 of PEI's pandemic influenza plan is declared when the volume of patients requiring hospitalization is significantly higher than available beds, even after the system has scaled back to deliver only essential services and hospitals have maximized their bed capacity. The primary activity of Stage 3 is the establishment of alternate care sites, another type of non-traditional site.

Alternate care sites will function as "step-down" units from acute care hospitals for influenza patients who do not require acute medical care. Examples of patients who might be cared for in an alternate care site include: a patient who may have recovered from the flu but whose caregiver is ill; or the patient might be too weak to return home, requiring a minimal amount of physical help. Care at these sites will be limited to convalescent or supportive care with patients who are critically ill being in acute care.

Administration of Alternate Care Sites

Alternate care sites will fall under the administrative structure of existing acute care hospitals. It is important to note the need to open or designate facilities as alternate care sites means that the systems' capacity to "surge" in place is exhausted and the human resources strategy will need to include the extensive use of trained volunteers.

If the alternate care sites are needed, a method of increasing the capacity of our human resources is the consideration of a non-traditional site that will combine both the triage and alternate care site functions. Consideration of a combined site will allow the strategy to be scaled up or down based on the numbers of people being treated for influenza. Should the response be manageable at Stage 2, the site would be utilized as a triage site. Should the response need to be escalated to stage 3, the site could be expanded to fulfill the alternate care function. This will allow for the centralization of human resources, supplies and equipment.

As previously discussed, setting up non-traditional care sites will challenge the health system workforce because of the number of workers absent from work. As a last resort, standards of care may need to be adjusted to the resources available. Staff to patient ratios will need to be further adjusted and roles changed to allow staff who would normally deliver patient care to supervise volunteers in care delivery. Strong leadership will be required to support staff as they transition through to this stage.

Insurance and Liability Issues

In planning for the establishment of triage sites during a pandemic, it is important that insurance needs are considered. The involvement of risk management in the planning stage is critical in order to ensure that the insurance and liability coverage for existing structures and programs will be extended to non-traditional sites. Specifically, fire/damage/theft insurance and site liability insurance will be required for any non traditional sites that are established.

Strategy # 10 Stockpiling Critical Equipment, Supplies, and Medications

A pandemic may result in shortages of medications, personal protective equipment supplies, and potentially, supplies required to maintain essential services. Since all provinces and territories in Canada and other countries will potentially be affected by these shortages, assistance from other jurisdictions will likely not be available.

In an effort to reduce costs, most health organizations have moved to "just-in-time" inventory systems that results in minimal supplies on hand. While the federal government has a 200 bed emergency hospital stored in PEI, the supplies and equipment are those for a temporary trauma field unit. For example, the X-Ray machine is suitable only for assessing bone fractures, not in doing chest X-Rays. However, in an influenza pandemic, it is possible to deploy parts of the emergency hospital to sites across the province if needed.

Facilities and programs will use the following strategies in managing supply chain interruption:

- ▶ Have discussions with current suppliers regarding the availability of supplies in a pandemic.
- ▶ Assess the current supply, equipment and medications "excess".
- ▶ Develop a stockpile of critical supplies (size to be determined) and a process for rotating those items that might expire through the supply chain.
- ▶ Determine extent and condition of older equipment such as beds, which need little maintenance and have no specific "shelf life". After a critical assessment, consider maintaining certain critical pieces of older equipment such as ventilators and X-Ray machines.
- ▶ Determine what supplies may be available locally and explore process for procurement.
- ▶ Stock larger quantities of medications and equipment to manage persons with co-morbidities, e.g., chronic cardiac and respiratory disease, diabetes, renal failure, that may be exacerbated by influenza.
- ▶ Once personal protective equipment recommendations are finalized, add to the stockpile of personal protective equipment.

A task group of the Health Services Delivery Working Group will be meeting to develop a province wide supplies strategy. The same approach will be considered for medications as well as equipment.

Strategy # 11 Education Needs of Health Care Workers

During a pandemic, health care workers may be redeployed from their usual roles and settings. Examples include: health care workers may be required to take on supervisory duties of volunteers and other staff within their own or another site; facilities may be caring for patients or residents that would, in normal circumstances, be transferred to another facility.

Changes in roles and responsibilities will require education and training. Some of this can be done in advance and some done when a pandemic is declared. Planning groups will be identifying training needs of staff who will be taking on new roles in an influenza pandemic. Issues under consideration include how and when the delivery of an education curriculum will happen. A staged education plan for staff will be developed.

Strategy #12 Business Continuity Planning for Non Clinical Resources

Critical services are those that must be delivered to ensure survival, avoid causing injury, and meet legal or other obligations of an organization. (*Continuity Planing Guide for Canadian Business*, 2006, p.10).⁽¹²⁾ There are non-clinical services that are essential in the operation of the Health System in an influenza pandemic. These services will need to go through the process of prioritizing their essential services, so that in the event that workers are ill, the critical functions of the health system will be maintained, ensuring that the clinical response will continue.

Business continuity planning is needed for a the following divisions in the health sector and for the Information Technology division responsible for the health sector programs.

- ▶ Divisions that require food services, fuel delivery, waste disposal, maintenance, laundry, and security in order to provide services;
- ▶ Payroll and Finance;
- ▶ IT Systems;
- ▶ Corporate Services;
- ▶ Population Health;
- ▶ Certain components of Primary Health Care;
- ▶ Medical Programs.

It is noteworthy that many workers who will be freed up as a result of an essential services plan in these divisions will have skill sets that are valuable and required for re-deployment to areas involved in the clinical response.

A Business Continuity Plan template is in development and includes:

- ▶ A clear command and control structure within the specific division.
- ▶ Plans, measures and arrangements to ensure the continuous delivery of critical services and products, which permits the organization to recover its facility, data and assets.
- ▶ Identification of necessary resources to support business continuity, including personnel, information, equipment, financial allocations, legal counsel, infrastructure protection and accommodations.
- ▶ Plan for education for infection control practices and principles for non-clinical staff.

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SECTION 4
HEALTH HUMAN RESOURCES

Introduction

The success of the health system's response in an influenza pandemic is largely dependent on the availability of trained health care workers who will be needed to care for people with influenza as well as those health care workers needed to care for patients requiring non-influenza care. The supply of health care workers will be challenged by the fact that workers will become ill with influenza, requiring time away from work. Influenza pandemics traditionally occur in one or more waves with each wave lasting six to eight weeks. The challenge for the health system will be to sustain a relatively high level of staffing over a prolonged period of time when the demand for care will be highest.

Absenteeism modeling done by the Federal Department of Finance suggests that, for planning purposes, provinces consider a 25% absenteeism rate in the health sector at the peak of the first wave of a pandemic (*CPIP: Background* 2006, p.4).⁽¹⁾ Staffing challenges during a pandemic can be expected for the following reasons:

- ▶ Health care worker illness or incapacity;
- ▶ Personal caregiving responsibilities for sick family members;
- ▶ Public health measures causing schools/daycares to close, creating childcare challenges;
- ▶ Fear of infection for themselves or family members.

There are a number of human resources strategies that can be implemented to enhance the ability of health care workers to respond in an influenza pandemic. The strategies discussed in this section will be developed in advance of an influenza pandemic and in partnership with other planning groups, bargaining unions, regulatory bodies of health professions, and Occupational Health and Safety. These strategies will be advantageous in preparing the health system for other types of emergencies resulting from other natural and/or human induced disasters as well as in an influenza pandemic.

Objectives

1. Optimizing the ability of health care workers to deliver the services that will be offered during a pandemic.
2. Maximizing the availability of health care workers during the pandemic.
3. Aligning workplace policies and procedures to support the strategies identified throughout other sections of the plan.

Strategy # 13 Optimal Use of Health Care Workers

The Canadian Pandemic Influenza Plan for the Health Sector recommends that provinces and territories develop in advance of a pandemic the process that will enable the efficient re-deployment of health care workers. There are two scenarios in pandemic where re-deployment may be needed: within a worker's existing work site to support essential services; or to a triage clinic or alternate care site established to care for influenza patients.

Prioritizing Services

Health care sites and programs will manage the early stages of pandemic influenza in PEI by moving to a prioritized list of essential services. Sites and programs are working collaboratively to identify the essential services that will be delivered in order to ensure the continuity of care in a pandemic. The process of prioritizing essential services includes the identification of the required skill sets, knowledge, and competencies of the workers needed to maintain these services at an appropriate and safe level throughout a pandemic.

Surge Triage

As discussed in Section 3 of this document, Strategy #9 outlines the establishment of mass triage clinics and possibly alternate care sites across the province to manage the surge in influenza patients needing care in a pandemic. Work is underway to determine the level of services that will be delivered in these sites and subsequently the identification of the necessary skill sets, knowledge, and competencies of the health care workers required to operate these sites.

Identifying Re-deployment Options

As the health care services to be delivered in a pandemic are finalized, and the skill sets of workers are determined, sites and programs will work together to develop a coordinated plan for the optimal re-deployment of health care workers during a pandemic. The Health Human Resources team will facilitate the development of a re-deployment plan by developing new policies or revising existing policies; this work will be done in consultation with health care workers, licensing bodies of health care professionals and labour groups. The following processes will be established in advance of an influenza pandemic:

- ▶ An inventory that quickly identifies a workers skill sets to facilitate the matching of the worker to the work
- ▶ Training and education initiatives both prior to and when an influenza pandemic is declared (in collaboration with other planning groups).
- ▶ A provincial policy on the use of personal protective equipment in a pandemic.
- ▶ Communication strategies to keep health care workers informed about pandemic influenza, the health sector pandemic plans as they are developed and revised, and worker roles within these plans.

Strategy # 14 Maximizing the Availability of Health Care Workers

Because no one can predict when an influenza pandemic will occur, the *Canadian Pandemic Influenza Plan for the Health Sector: Annex J* (2006, p.21),⁽²⁾ indicates that the recruitment of specific health care workers to provide care in an influenza pandemic is not necessary until the pandemic arrives. However, it is important to have discussions with health care workers, the licensing bodies of regulated health care workers and affected unions in order to develop, in advance of a pandemic, the process to efficiently expedite re-deployment of workers when a pandemic arrives in PEI.

Existing Mechanisms

There are a number of actions that can be implemented in the event of a pandemic that will maximize the availability of health care workers. The following actions are within existing policies and collective agreements and apply to existing health care workers:

- ▶ Deferral of all leaves (e.g., vacation, personal, education);
- ▶ Restriction of employment-related out-of-province travel;
- ▶ Maximizing the pool of casual staff who can respond.

Potential Sources of Health Care Workers

Limited Licensure

PEI is not anticipating having health care workers from other provinces or territories coming to work in PEI in a pandemic. All jurisdictions are likely to be short on trained health care professionals in a pandemic. However, there are two sources of workers outside of the health care system who might augment the Province's existing workforce in a pandemic:

- ▶ health care workers who may have recently retired; and,
- ▶ students in a health related field who have almost completed their course or program.

For regulated health care workers, issues regarding licensing and scope of practice in the event of a pandemic or any other public health emergency are being discussed with their respective licensing bodies. The availability of private agency health care providers who can be contracted or hired into the system in a pandemic will be explored.

The provision of a limited license (limited both in duration and possibly scope) to workers by their respective licensing body would remove one barrier to the utilization of workers who may not, for a number of reasons, have a license. Discussions with the health unions are also underway in order to work through various options related to an expedited staffing and redeployment models.

The use of volunteers early in a pandemic is being discussed across the country as a means of supporting the work of health care workers. Should the numbers of people ill with influenza be higher than predicted, volunteers may play a significant role in the pandemic response. Volunteers have a long history in responding to past pandemics as well as to other emergencies such as the tsunami affecting much of South East Asia in 2004 and Hurricane Katrina in 2005. Discussions with non-governmental agencies such as the Red Cross have centered around the roles volunteers can play in a pandemic and as well the process needed to recruit, train, and deploy volunteers at the time of a pandemic.

The same processes that need to be developed for health care workers in advance of a pandemic which are identified in Strategy # 13 need to be applied when utilizing health care workers who are not traditionally in the system as well as volunteers. These processes include:

- ▶ An inventory that quickly identifies a workers skill sets to facilitate the matching of the worker to the work;
- ▶ Training and education initiatives both prior to and when an influenza pandemic is declared (in collaboration with other planning groups);
- ▶ A provincial policy on the use of personal protective equipment in a pandemic;
- ▶ Communication strategies to keep health care workers informed about pandemic influenza, the health sector pandemic plans as they are developed and revised, and worker roles within these plans.

Strategy # 15 Aligning Work Place Policies and Procedures

There are a number of health sector human resources policies and procedures that can be clarified, realigned, and possibly developed prior to a pandemic to enable an effective response during an influenza pandemic. The Health Human Resources team will work with other planning groups to ensure that as operational plans for the strategies that have been identified are developed, they are supported in policy.

Clarifying Compensation Policies

The re-deployment of health care workers will result in workers taking on different roles. These roles may be at a higher level of responsibility/pay, or be in a different bargaining unit, or the role may be totally new and only needed in an emergency situation. As well there will likely be significant overtime hours logged by health care workers. As discussed in Strategy # 14, some workers will be hired into the system or, as in the case with fee-for-service physicians, may already be providing services within the health system.

Supports for Health Care Workers

Health care workers will each have pressure points that may determine their ability to report to work, or influence their productivity at work. These may include issues around child care, elder care, family illness, transportation challenges, and secondary stress issues arising from working in a crisis situation for a prolonged period of time.

The Health Human Resources team will do further work to identify specific pressure points for health care workers and in consultation with other planning groups will develop worker benefits in the event of a pandemic, which might include the following:

- ▶ Support for workers to develop personal preparedness kits;
- ▶ Availability of influenza vaccines at work sites during a pandemic;
- ▶ Care for families of health care workers;
- ▶ Accommodations for health care workers during a pandemic for those workers who do not want to go home after caring for patients with influenza;
- ▶ Enhanced access to Employee Assistance Program providers.

Facilitating Public Health Measures

As discussed in Section 2 of this document, Public Health Measures will be enacted in an influenza pandemic. There are workplace policies that can be implemented that will support the public health measures, specifically minimizing unnecessary contact as a means of slowing the spread of the pandemic influenza virus. While the nature of most health care services involves direct interaction with people, there are a variety of workplace functions and processes that could be performed with limited or no contact. The Health Human Resource team will work with its partners on the following:

- ▶ Identifying work (and the supports required) and processes that could be performed off-site, i.e., at home;
- ▶ Preparing Social Distancing Policies for the workplace, specifically how people congregate during breaks;
- ▶ Infection Prevention and Control Practices, specifically good hand and respiratory hygiene and environmental cleaning.
- ▶ Restricting in-person meetings as much as possible by promoting the use of teleconferencing, webcams and webinar technology to conduct business and transfer information.

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SECTION 5

PLANNING FOR MASS FATALITIES

Introduction

Influenza pandemics have historically resulted in increased deaths due to influenza. Traditionally, those at risk for serious complications and death due to seasonal influenza are the very young and the very elderly. The influenza pandemics of 1957 and 1968 primarily affected these same traditional age groups. The age groups affected in the Spanish Influenza of 1918-1919 were adolescents, young adults, as well as the traditional risk groups. However, the largest increase in deaths occurred among those 20-40 years of age. It is impossible to know which part of the population will be the most at risk of dying until the pandemic influenza virus is identified and its epidemiology determined.

Within any locality, the total number of fatalities (including influenza and all other causes) occurring during a 6- to 8-week pandemic wave is estimated to be similar to that which typically occurs over 6 months in the inter-pandemic period (*CPIP: Annex I*, 2006, p.1).⁽¹⁾ Demands on funeral industry services will increase at the same time as their workforce is reduced, due to illness or caregiving responsibilities.

Objectives

1. To establish a plan for the transportation, storage, and final disposition of the bodies of those who died as a result of influenza during a pandemic (keeping in mind that there will also be a delay in processing the bodies of those who died of causes other than influenza).
2. To distill fears about the body as a source of infection for influenza.

All provinces and territories are involved in planning for mass fatalities as part of their pandemic planning activities. The *Canadian Pandemic Influenza Plan for the Health Sector, Annex I*, (2006)⁽²⁾, provides a comprehensive set of guidelines for local working groups involved in planning for mass fatalities in the event of a pandemic.

PEI has a relatively efficient system in place to look after people when they die. The majority of deaths occur as a result of natural disease processes where the individual is well known to a physician, and that physician is able to sign a death certificate indicating a cause of death. If the death is expected and occurs at home, under the direction of a physician the Expected Death in the Home Guidelines⁽³⁾ allow the funeral home chosen by the family to remove the body from the home and transport it directly to the funeral home. When a death occurs in a hospital, the body is held until a funeral home of the family's choice picks up the deceased. Section 5.2 of the *Coroner's Act* outlines a specific set of circumstances under which a death becomes a coroner's case, requiring an inquest. These circumstances include deaths which occur within 24 hours of admission to a hospital, or deaths as a result of negligence or misconduct.⁽⁴⁾

Existing disaster plans in the health system may include provisions for mass fatalities. These plans will be reviewed and modified as required for an influenza pandemic, which, as previously indicated, will result in a significant increase in deaths, impacting the workload of all those who play a role in the management of deaths in the province.

Points for Consideration in the Development of Mass Fatality Plans

Post Mortem Surveillance

For the purpose of public health surveillance (e.g., confirmation of the first case(s) at the start of the pandemic), respiratory tract specimens or lung tissue for culture or direct antigen testing could be collected post-mortem. Serological testing is not optimal but could be performed if 8-10 ml of blood can be collected from a subclavian puncture post-mortem. Permission will be required from next-of-kin for this purpose (*CPIP: Annex I*, 2006, p.4).⁽⁵⁾

Supply Chain Disruptions

Supply chain interruptions are likely in an influenza pandemic. Funeral homes may need to consider stockpiling the necessary supplies to maintain body disposition services in the event of a pandemic.

Body Storage

In normal circumstances, temporary storage for bodies is needed for a relatively short period of time. However as stated earlier the challenge of a surge in deaths during an influenza pandemic may necessitate storage of bodies for a longer period of time. Part of the operational plan that is in development in PEI is the determination for temporary storage facilities for bodies.

Some plans do not recommend the use of local industry refrigerators and local ice arenas, primarily because their locations are fixed and the post-pandemic psychological implications of the fact that human bodies were stored in these sites can be very serious. For example people may not want to engage in activities in an arena that has been used as a temporary storage facility for bodies in a pandemic.

Body Transportation

Normally bodies are transported from the place of death to a licensed funeral home by funeral home staff who have special training for this work. Transportation of bodies by ambulances is not considered to be appropriate in normal circumstances and would not be accessible during an influenza pandemic when ambulance services will likely be operating at maximum capacity. With the increase in deaths during a pandemic, some capacity for temporary body storage will be established. Transportation guidelines will need to be reviewed for mass fatality plans in a pandemic including who is able to transport bodies and specific vehicle requirements in transportation from the place of death, to a temporary storage facility if needed, and then to a funeral home for final disposition.

Handling of the Bodies of Those Dying of Influenza

All individuals who handle the bodies of those who died from the pandemic influenza virus should use universal precautions which are designed to protect workers from disease carried in blood and body fluids. The actual risk of influenza infection spreading from the body of a deceased individual is minimal, since influenza is spread through infected respiratory droplets of a person who is coughing and sneezing. However, precautions against disease spread due to exposure to splashes or aerosols from body fluids should be taken (*CPIP: Annex I*, 2006, p.6).⁽⁶⁾

Final Disposition of Bodies

In normal circumstances, memorial services and funerals can be held within 2-5 days of a death. We have duly noted the expected stresses on the funeral industry and staff. As well, public health measures can limit public gatherings which may cause a delay in conducting funerals. As a result, it should be anticipated that the time from death to final disposition of the deceased could take weeks as opposed to days, particularly during the peak of the an influenza wave.

It is recognized that delays in caring for the dead, particularly for those whose religious beliefs subscribe to strict timelines, will be especially disturbing for these families. Mass fatality plans require particular compassion and empathy by all who play a role in their implementation.

On a concluding note, the Canadian Plan for the Health Sector recommends that jurisdictions do not resort to mass burials or mass cremations in order to accommodate the increased numbers of deaths arising from a pandemic influenza outbreak. Such measures would only be considered in the most extreme circumstances (*CPIP: Annex I*, 2006, p.3).⁽⁷⁾

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SECTION 6

COMMUNICATIONS PLAN

Introduction

In any emergency or disaster situation, effective internal and external communications are foundational components necessary for a successful response. In an influenza pandemic, there will be extensive information relating what is known about the pandemic strain, the risks to public health, as well as advice on how to manage those risks during each stage of a pandemic. A wide range of groups at the international, federal, provincial and local levels will be sharing this information.

In all phases of the pandemic, maintaining the confidence of health care workers as well as the general public will require credible spokespersons delivering timely, consistent, and accurate messages about the impacts of the pandemic. As we move from the pandemic alert phases to the response and then recovery phases, the content and intensity of communications efforts will change.

Objectives

1. Ensure that health care workers have access to transparent, accessible, and accurate information in a timely manner that enables them to respond with confidence to challenges during each phase of the pandemic.
2. Ensure that the public has access to accurate, clear, and current information.
3. Provide a strong and sustainable communications infrastructure throughout the influenza pandemic.
4. Support and facilitate the communications efforts of Federal, Provincial and local jurisdictions.

Crisis or Risk Communications

Covello et.al (2001) states:

“The National Academy of Sciences defines risk communication as an interactive process of exchange of information and opinion among individuals, groups, and institutions. It involves multiple messages about the nature of risk and other messages, not strictly about risk, that express concerns, opinions, or reactions to risk messages or to legal and institutional arrangements for risk management.”⁽¹⁾

Covello and Allen (1988) identify seven rules of crisis communications:

1. Accept and involve the public as a legitimate partner;
2. Listen to your audiences;
3. Be honest, frank, and open, and acknowledge uncertainty;
4. Coordinate and collaborate with credible sources;
5. Meet the needs of the media;
6. Speak clearly and with compassion;
7. Plan carefully and evaluate performance;⁽²⁾

In an influenza pandemic, the following factors contribute to the need for communications to be delivered using the principles of risk communications:

- ▶ There will be significant disruption to the lives of individuals and communities.
- ▶ Pandemic influenza poses a significant threat to public health, including the possibility of high fatality rates.
- ▶ There are many unknowns about an influenza pandemic and the unpredictable impacts and effects contribute to the sense of fear.
- ▶ A health system response to an influenza pandemic will require resources over and above what may be available (including communications resources). This necessitates the development of process to prioritize the allocation of resources, which may be perceived as unjust by some individuals.

The Department of Health is committed to the release of accurate, honest, and timely information during an influenza pandemic. A Crisis Communications Plan has been drafted by the Department to guide communications activities as we move from the pandemic alert period to the pandemic response phase. Health communications staff will work in partnership with other key government communications officers including the Emergency Measures Organization.

Communication System Considerations

- ▶ The Emergency Measures Organization, in partnership with Public Safety Emergency Preparedness Canada has a Joint Emergency Operations Centre with state of the art communications capacity. This is to ensure that communications are maintained throughout emergency situations.
- ▶ The Department of Health will establish a command centre for the health sector which will work in concert with the Joint Emergency Operating Centre.
- ▶ Communications staff will work out of their own offices/sites. Depending on the need, communications staff may be required to work at the Health Command Centre or at the Joint Emergency Operating Centre.
- ▶ Maintaining a list of emergency communication contacts in each department throughout government is critical. This list should include contact information for each department's Designated Emergency Services Officers.
- ▶ National briefings throughout various pandemic phases will be available through the Canadian Pandemic Communications Working Group and these will be monitored and communicated as appropriate.
- ▶ Island Information Service with Provincial Treasury is the provincial distribution centre for media releases and public service announcements. Island Information Service will need to develop a business continuity plan including their role in the event of a pandemic and, in the event that Island Information Service is not available, a mechanism will need to be developed to ensure the prompt distribution of releases and announcements.
- ▶ Translation Services of Acadian and Francophone Affairs with the Executive Office will provide translation services for media releases and public service announcements.

Partners in the Communication Effort

- ▶ Department of Health including all facilities and programs, physicians and staff
- ▶ Emergency Measures Organization/Public Safety and Emergency Preparedness Canada
- ▶ Health Canada/Public Health Agency of Canada
- ▶ Department of Social Services and Seniors
- ▶ Other Federal / Provincial Ministries

Key Stakeholder Groups/ Individuals

Internal - Health

Department of Health /Department of Social Services and Seniors - Senior Management Teams

- ▶ Staff
- ▶ Physicians
- ▶ Volunteers
- ▶ Unions
- ▶ Minister

External

- ▶ Government Officials
- ▶ Media
- ▶ Municipal Leaders and Community Councils
- ▶ General public
- ▶ Partner organizations in pandemic effort (i.e., Red Cross, Seniors Federation - Non Government Organizations)

Communication Tools

Existing communications tools can be utilized and enhanced as the influenza pandemic progresses. The following tools are examples of how information, including important health messages will be delivered to identified stakeholders and to the general public:

- ▶ Fact sheets
- ▶ Web sites with links to other critical pandemic influenza sites
- ▶ Newsletters
- ▶ Timed Press releases, press conferences
- ▶ Backgrounders
- ▶ Technical briefing
- ▶ PowerPoint Presentations
- ▶ Regular media availabilities
- ▶ Advertisements, public service announcements
- ▶ Toll-free telephone information line

Key Messages to be Delivered in the Canadian Pandemic Phases

Interpandemic and pandemic alert phases:

Messages will be distributed to the identified audiences and focus on raising awareness regarding influenza pandemic and the provincial plan for the health sector as well as encouraging basic hygiene practices consistent with infection prevention and control. Personal preparedness messages will also be developed. Testing the pandemic influenza plan for the health sector will serve to identify gaps and areas for improvement as well as to facilitate knowledge and awareness. This testing will be initiated through a table top exercise, planned for the winter of 2007.

Pandemic Phase:

During the pandemic phase, key messages tailored to the specific nature of the outbreak will be developed based on surveillance information and scientific analysis. Information to the public during a pandemic will include information on the disease and its impacts; specific measures individuals, families and communities can take to protect themselves against the pandemic influenza virus; steps to take to manage daily activities; and steps that individuals who are ill with influenza need to take, including how and where to access health services.

Post Pandemic Period:

During the recovery phase, focus will be on evaluation of the communications activities and how the activities facilitated the response as preparation is started for a possible second pandemic wave. Public messages will focus on sustaining hygiene practices, preparing for a possible second wave and timely messages should a second wave be imminent.

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