



Regional

Pandemic Influenza

Response Plan

Version 0.2
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A Note From the Chief Medical Health Officer



Influenza A viruses periodically cause worldwide epidemics, or pandemics, with high rates of illness and death. There have been three Influenza pandemics in the 20th Century; the Spanish Flu of 1918, The Asian Flu of 1957, and the Hong Kong Flu of 1968. Advanced planning for a large scale and widespread health emergency such as this, is required to sustain health care delivery during an influenza pandemic. Unlike other public disaster emergencies, an influenza pandemic will impact on multiple regions across Canada simultaneously. Each region must be prepared to respond and provide services within the context of limited availability of external resources and support. Therefore, contingency planning is required to mitigate the impact of influenza pandemic through consideration, planning and preparation efforts within all communities of Vancouver Coastal Region in collaboration with their stakeholders.

The overall goal of a pandemic influenza preparedness and response plan is first to minimize serious illness and overall deaths, and second to minimize societal disruption among Canadians as a result of an influenza pandemic.

The VCH Regional Pandemic Response Plan is a dynamic document that will be reviewed, updated and revised regularly to ensure that assumptions, resources and priorities are consistent with the existing infrastructure and current knowledge.

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Foreword

The purpose of the Vancouver Coastal Health Pandemic Influenza Implementation Plan is to provide a practical manual-style document to assist front-line health care providers in the execution of emergency response activities during the influenza pandemic. The document is divided into 16 independent chapters which function as stand-alone documents. Each section includes practical information, tables, charts, forms, and tools assembled to assist public health care personnel to carry out their tasks in specific areas of acute and community health care action. For general guidance, a user may consult the background information in chapter 1. To find the appropriate information for specific actions, the executive summary provides a site-map for the entire document. The executive summary allows users to identify the relevant chapters for their respective tasks. In general, the introduction in Chapter 1, the reference lists in Chapter 15, together with one of the other chapters focusing on a specific area of action, should constitute a complete resource to health care personnel seeking to fulfill specific responsibilities within the overall pandemic influenza response mechanism.

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Chapter 1

INTRODUCTION

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CHAPTER SUMMARY

This section begins with a historic and scientific background of pandemic influenza and the origins of the pandemic preparedness planning process. Recommendations by the World Health Organization elicited international, national and provincial efforts to develop plans for dealing with a worldwide influenza outbreak, which may bring with it disease, death, social disruption and economic loss. These pandemic influenza plans elaborate on principles that are primarily intended for execution at the local and regional levels. Thus, the objective of the Vancouver Coastal Health Pandemic Influenza Response Plan is to incorporate ready planning concepts into a practical guide for health care workers and the general public. For a reader who seeks to use this document as such a practical manual, the Executive Summary is the best place to start. This pandemic influenza plan is a living document, which will continue to be updated. An outline of tasks for further developing and maintaining the Pandemic Influenza Response Plan is found in the final subsection, entitled Next Steps.

1.1 — BACKGROUND

What is an Influenza Pandemic?

Yearly influenza outbreaks cause serious illness and death, especially among those who have a higher than average risk for complications of influenza, due to age or underlying medical conditions. Among the general public, however, influenza is recognised as a very uncomfortable but self-limiting, and, ultimately benign, illness. Yet the last century has seen three occasions of worldwide outbreaks of severe influenza. The worst of these pandemics was the infamous Spanish flu of 1918, which killed an estimated 20 to 40 million people around the globe - more than the casualties of the First World War. The 1918 influenza pandemic is considered to be the most devastating epidemic in world history.

The 1918 influenza was deadliest for young healthy adults between the ages of 20 and 40 years. Atypical morbidity and mortality patterns were also seen in subsequent pandemics of 1957 and 1968, when around 40% of those affected were less than 65 years of age. It is now known that pandemics are associated with novel viral strains that emerge due to genetic changes affecting two important proteins on the surface of the virus. Unusual epidemiology and extreme pathogenicity have been typical features of these novel pandemic viruses.

Influenza viruses are widespread in birds, mammals and humans. The strains differ in the type of hemagglutinin (HA) and neuraminidase (NA) proteins that are studded on the viral surface. These proteins are instrumental in the process of binding to and reinfecting host cells. Genetic changes in influenza viruses enable the virus to evade the immune system and re-infect humans year after year. Genetic changes can also allow non-human influenza viruses to acquire the ability to infect and be transmitted among people.

In order for a pandemic to occur, three conditions need to be met. First, a novel strain of influenza virus needs to emerge. Such new strains have either never circulated in humans or have not circulated in humans for many years. Therefore there is little or no immunity to the new strain of influenza in the population. Second, the novel virus acquires the ability to infect humans. This has occurred with the H5N1 strain of avian influenza, currently circulating among poultry in Southeast Asia and infecting some people who come in direct contact with infected poultry. Finally, the novel virus acquires the ability to be transmitted efficiently from person-to-person, allowing for rapid spread in the population.

Small changes in the surface proteins (antigenic drift) give rise to yearly epidemics of influenza. More profound genetic changes, caused by the mixing of human and animal strains of influenza (antigenic shift) can give rise to a new (novel) strains of influenza virus, which can cause severe illness, high mortality, and unusual patterns of infection. The 20th century pandemics were caused by the H1N1, H2N2 and H3N2 strains. H1N1 and H3N2 viruses continue to circulate and cause yearly epidemics of influenza today.

Public health experts agree that the likelihood of a new influenza pandemic in the foreseeable future is high, and steps must be taken to prepare for its arrival. Cases of human infection by the H5N1 pure avian influenza strain in recent years in Hong Kong China, Thailand, Viet Nam and Cambodia are causing particular concern. This current “bird flu” in Asia is producing severe disease and high mortality. If the virus acquires the capacity to be transmitted efficiently between humans, it is feared that a pandemic might be triggered. Potential cases of human-to-human transmission of avian influenza have been reported, but are rare. The World Health Organization is monitoring international developments in avian influenza closely.

In 2004 the WHO published guidelines to assist governments in developing national and regional pandemic influenza plans. In Canada, pandemic planning was initiated in 1983 and the first draft document was published in 1988. The current version is dated February 2005. British Columbia also

has a plan in place. Vancouver Coastal Health is developing its regional pandemic influenza response plan in accordance with these provincial, federal and international directives. Planning at the regional level requires consideration of specific and practical details of implementation of a health emergency response guided by provincial and national plans. In 2001, the pandemic influenza committee at VCH launched a cooperative effort with health administrators and managers in the community to establish a network of interactions that will be essential to execute a pandemic response. The purpose of the Vancouver Coastal Health Pandemic Influenza Regional Response Plan is to present this information in the form of a practical manual. This document is intended as a basic resource for the further development of instructional guides and information sources.

Pandemic Phases

The cornerstone of pandemic planning is the World Health Organization (WHO) classification system, developed in 1999, and revised in 2005. In the new system, pandemic influenza response activities are outlined in terms of phases 0 to 6. The Vancouver Coastal Health Plan, as the federal, provincial and regional plans in Canada, utilizes this classification, which is described in Table 1.

Table 1
NEW WHO PANDEMIC PHASES

PANDEMIC PHASES	OVERARCHING PUBLIC HEALTH GOALS
Interpandemic period	
Phase 1. No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, risk ^a of human infection or disease is considered to be low.	Strengthen influenza pandemic preparedness at the global, national, provincial, and regional levels.
Phase 2. No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk ^a of human disease.	Minimize the risk of transmission to humans, and report such transmissions rapidly if it occurs.
Pandemic alert period	
Phase 3. Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact ^b .	Ensure rapid characterization of the new virus subtype and early detection, notification and response to additional cases.
Phase 4. Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting the virus is not well adapted to humans ^b .	Contain the new virus within limited foci or delay spread to gain time to implement preparedness measure, including vaccine development.
Phase 5. Larger cluster(s), but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk)	Maximize efforts to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures.
Pandemic period	
Phase 6. Pandemic: increased and sustained transmission in general population ^b .	Minimize impact of the pandemic
Post pandemic period	Return to interpandemic period.

^aThe distinction between **phase 1** and **phase 2** is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.

^bThe distinction between **phase 3**, **phase 4** and **phase 5** is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.

Objectives of the VCH Pandemic Influenza Plan

Planning and preparedness are essential to optimally achieve the goals and objectives of a pandemic response. Therefore, the purpose of this plan is to define the roles, responsibilities, and actions of key stakeholders before a pandemic and at each stage of a pandemic response. Specifically, the plan will:

- Describe the role VCH plays in coordinating the regional response
- Provide guidance and tools for the local coordination of the public and private sectors
- Provide guidance and carry out priority research activities
- Provide the technical background underlying recommendations

Preparedness is the key to effective response. Preparation requires planning and testing the plan as well as maintaining and strengthening key capacities and infrastructures such as surveillance, influenza vaccine research, development and production, and communications. It is important that planning be done at all levels of responding organizations – from national to local and institutional levels. Federal agencies and authorities will provide overall direction, guidance and coordination, while provincial and regional health authorities along with the medical care system will form the front line with respect to management of ill persons and administration of interventions such as vaccine and antiviral medications and possibly community-level interventions such as isolation and quarantine.

Multiple stakeholders have important roles in pandemic influenza preparedness and response. Stakeholders include federal departments and agencies; public health organizations; provincial and regional health providers and laboratories; private health care organizations; influenza vaccine and antiviral manufacturers; and vaccine distributors and vaccinators. Not every section of this plan will be immediately relevant to each of the stakeholders. Chapters relevant to specific audiences have been compiled into a single plan to promote understanding and improve coordination between public and private sectors at different levels of the health care system. This structure also emphasizes that an effective response to influenza pandemic requires planning, infrastructure, and action at many levels and by many groups.

Goals and Objectives of Pandemic Influenza Preparedness and Response:

- Ensure optimal coordination between federal, provincial, and regional levels
- Clinical and virologic surveillance for human and animal influenza
- Rapidly develop, evaluate, license and manufacture sufficient quantities of vaccine
- Implement a vaccination program to rapidly administer the vaccine to priority groups and to monitor vaccine effectiveness and safety
- Deliver antiviral drug therapy and prophylaxis and avoid inappropriate use of these agents to minimize antiviral resistance

- Implement measures guided by the emerging epidemiology of the pandemic to decrease the spread of disease
- Provide optimal medical care and maintain essential community services
- Communicate effectively with the public, health care providers, community leaders and the media

1.2 — PANDEMIC RESPONSE PLAN EXECUTIVE SUMMARY

At any level of execution, the first priority of a pandemic influenza response plan is to save lives and care for the ill, while minimizing, as much as possible, social disruption in the community. With this aim, Vancouver Coastal Health established the Pandemic Influenza Steering Committee and assigned it the task of researching and developing implementation procedures for six main areas of responsibility identified in the Canadian Influenza Plan - which in turn are based on the WHO framework.

Chapter 1 - Introduction

This chapter provides a general overview and introduction to pandemic influenza and the origins of the planning process to contend with it. The Background section summarizes the current state of knowledge about pandemic influenza virus strains and briefly describes the development of the planning process by the World Health Organization on the international level, and the federal, provincial and regional governments in Canada. The Pandemic Phases section describes the WHO system of classification, which forms the basis of pandemic influenza planning on any level. Further work to be done on the VCH Plan is detailed in the sections Next Steps and How to Update this Manual.

Chapter 2 – The Health Impact of Pandemic Influenza

The influenza pandemic will have a significant impact on the population within the Vancouver Coastal Health region. Estimates for British Columbia predict that 1.8 million people may become ill and almost 7000 may die from influenza across the province. These estimates will be influenced by the actual epidemiology of the next pandemic. It is impossible to predict in advance how virulent the next pandemic influenza strain will be. The last pandemics of 1957 and 1968 were relatively mild, while the Spanish Flu of 1918 had devastating effects worldwide. Therefore, the actual pandemic impact may be milder or more severe than the projections made in this chapter. As more information emerges on the pandemic virus itself and additional modeling methods are implemented or developed further, the estimates will also be further refined. However, much information is available already to allow preparations to proceed.

This chapter provides the baseline data for response planning. Using population projections by the British Columbia Statistics Agency the numbers of high-risk and standard-risk individuals within VCH and its service delivery areas were estimated. With the help of the spreadsheet-based software FluAid from the US Centre for Disease Control, the health impact of the pandemic in terms of outpatient visits, hospitalizations and deaths in high-risk and standard-risk groups of the region was estimated.

These estimates were produced for the general population as well as for groups considered to be at high-risk for contracting influenza and suffering from complications based on known susceptibility to annual influenza infections. It is important to note that individuals at high-risk for regular influenza strains may differ from those that will be most severely affected in a pandemic. Mortality was highest among young adults during the Spanish Flu of 1918. The most vulnerable group in the next pandemic will not be known in the pre-pandemic phase. Therefore, the estimates should be considered as the best available according to current knowledge.

Chapter 3 – Surveillance

Influenza surveillance is required to determine when, where, and which influenza viruses are circulating; the high risk populations; the intensity and impact of influenza activity; and to detect unusual events (e.g., infection by unusual influenza viruses, unusual syndromes caused by influenza viruses, and unusually large or severe outbreaks of influenza). Both virologic and disease surveillance are necessary for identifying influenza virus variants and for determining their ability to spread and cause disease. Surveillance data will drive the pandemic response as it will be used to determine the pandemic phase, and to track progression through the phases.

The current national influenza surveillance system, “FluWatch”, incorporates data from several sources including a sentinel physician network conducting surveillance for ILI, data from the national network of laboratories, and provincial/territorial activity level reporting. Laboratory data is provided on a weekly basis year-round.

Recommendations for the expansion of respiratory surveillance activities to include hospital-based surveillance for 1) unexplained clusters of severe respiratory illness within the facility, and 2) individual cases of severe respiratory illness in travellers recently returning from a potential zone of emergence of novel influenza strains are being implemented.

Other recommendations include improving the surveillance capacity to enable rapid assessment of the epidemiology of the pandemic once it arrives. Specifically this may include emergency room surveillance for ILI and unusual death due to respiratory disease, provisions for real-time influenza and pneumonia mortality surveillance and improved linkages between the sentinel and laboratory surveillance systems.

The intensity and methods of virologic surveillance will differ depending on the phase of the pandemic. Initially, efforts should be directed toward detecting the arrival of the novel virus into previously unaffected areas and collecting epidemiologic data on infected persons. This data will be used to characterize virus activity and better target prevention and control measures. In addition, arrival of the novel virus into a particular area will guide the mobilization of resources needed to implement control measures. After the virus has spread throughout the country, virologic surveillance must continue in order to track the intensity of virus activity and detect any changes in the virus, including the development of resistance to antiviral drugs in different populations.

Chapter 4 - Infection and Environmental Control

This document presents an overview of infection prevention and control policies and procedures that will be critical to minimize the transmission of pandemic influenza, with or without the availability of immunization or chemoprophylaxis, and for preventing other infectious diseases. Infection control procedures are essential and universal in health care settings. These guidelines are designed to assist those responsible for managing pandemic influenza in traditional and non-traditional health care settings, as well as those working in community settings. Traditional health care settings include acute, long term, ambulatory and community care. Alternate care settings are those settings that are designated for operation prior to influenza pandemic and become operational only when the World Health Organization (WHO) declares an influenza pandemic. Alternate care settings include triage settings; self care settings and temporary influenza hospitals.

There are clear guidelines available for routine infection control and hygiene practices used in any facility that cares for the ill. Hand hygiene is emphasized throughout these guidelines because strict adherence to handwashing/hand antisepsis recommendations is the cornerstone of infection prevention. Proper hand hygiene may be the only preventative measure available during a pandemic.

There is lack of evidence to support the use of masks to prevent transmission of influenza during previous pandemics. The evidence shows that, in the early phase of an influenza pandemic, it may be prudent for health care providers to wear masks when interacting in close face-to-face contact with coughing individuals to minimize influenza transmission. This use of masks is advised when immunization and antivirals are not yet available but is not practical or helpful when transmission has entered the community. Masks may be worn by health care providers to prevent transmission of other organisms from patients with an undiagnosed cough. For the purpose of this document, the term mask refers to surgical masks, not to special masks such as high efficiency dust/mist masks or respirators.

Along with environmental control precautions, additional precautions discussed for health care settings include patient accommodation or placement, patient cohorting, patient admission, patient activity restrictions and visitor restrictions.

Chapter 5 - Self Care

This chapter provides the public with information and tools for caring for themselves and family members during the pandemic. Information is supplied on influenza and its transmission, on reducing the risk of contracting influenza, self-diagnosis, when and where to turn for help, self-care and care for relatives at home. Parts of this chapter appear elsewhere in this document, however, the main purpose here is to provide a self-contained resource for the public. Self-care - including diagnosis, referral, self-treatment, treatment of family members, and preventive measure to avoid exposure to influenza - will be an important public health measure to minimize the effects of the pandemic.

Chapter 6 - Emergency Response

During the influenza pandemic VCH will incorporate established chains of command and procedures from the provincial emergency response mechanisms designed to deal with various types of disasters. The British Columbia Emergency Response Management System (BCERMS) is a standardized ‘all hazards’ method for delivering a coordinated multi-ministry, multi-agency response to emergencies and disasters in the province. The response objectives of BCERMS, in order of priority are to: provide for the safety and health of all responders; save lives; reduce suffering; protect public health; protect government infrastructure; protect property; protect the environment; and reduce economic and social impact.

The specific objectives of the VCH *Regional Pandemic Influenza Response Plan* are to:

- Establish command structures and operational procedures
- Encourage collaboration between key stakeholders, emergency service personnel and public health authorities to ensure that the planned pandemic response will be coordinated
- Facilitate the maintenance of a continuous state of ‘readiness’ through ongoing education, testing and revision of this plan.

Chapter 7 – Medical Management and Health Care Facilities

In order to respond effectively to the pandemic influenza emergency, special measures for delivering health services have to be implemented. Assuming that there will be a large number of cases and limited resources during a pandemic, the measures within the plan were designed to ensure that pandemic patients are appropriately triaged and cared for, while provisions for essential medical services continue.

An important objective of this plan is to coordinate resources in order to ensure equitable health care delivery under emergency conditions. This is accomplished on multiple levels. First, an inventory of hospital beds, ventilators, staff and space is established and maintained throughout the pre-pandemic period to estimate current and potential capacities. In addition to traditional health care facilities, such as hospitals, these parameters have also been estimated for alternate care facilities, such as long-term care sites, where residents with influenza will be treated. In addition to expanding roles and capacities of current health care facilities, other sites, such as community centres, may be converted for use as alternate health care locations. To deem a site suitable for providing emergency health care, it must fulfill various criteria. A list of potential sites fulfilling these conditions is being assembled. Preparations for supplying these facilities with medications, infection control supplies and all other operational equipment are also part of this plan.

Chapter 8 – Human Resources

During a pandemic shortages of personnel can be expected to limit the ability of institutions to respond to a significant increase in patient volume. Health care professionals may need to be moved from vaccination clinics to hospital or between hospitals and alternate care facilities. The plan addresses the need for a regional approach to the redeployment of personnel.

Taking into consideration conditions of acute stress that both front-line health care workers and the public are expected to experience during the pandemic, this chapter provides a psychosocial response plan.

Chapter 9 – Public Health Measures

For the purposes of this plan, the term Public Health Measures refers to traditional public health interventions such as quarantine, isolation, contact tracing and reducing social distance; the term does not include specific interventions such as administration of vaccines and antivirals. Evidence for the effectiveness of public health measures in the control of pandemic influenza is scarce, and is derived largely from experience with SARS. However, the clinical and epidemiologic features of influenza infections are very different from those of SARS, and measures that helped control SARS are not likely to be effective for pandemic influenza. Other evidence for effectiveness of public health measures is derived from mathematical modeling, and mathematical modeling results are now beginning to be utilized for planning. At this time, however, much of the decision-making is based on expert opinion and therefore must be continually updated as more information becomes available.

Public health measures may include isolation of cases, quarantine of contacts or groups of contacts and measures to reduce social distance. Such measures may be voluntary or involuntary and may occur at the individual or community level. For example, during the pandemic, public messages will focus on staying home when sick, avoiding unnecessary travel to areas where pandemic activity is high, and personal hygiene, particularly hand-washing. Community level interventions may include cancellation of public gatherings and temporary closure of schools. Given the limited evidence for such measures, feasibility, acceptability, and ethics of each measure must be carefully considered.

This chapter details the potential public health measures that may be considered during a pandemic. The chapter also provides a risk-based framework for decision-making around public health measures. Potential means of increasing public health resources during a pandemic is also provided. Finally, materials developed for public messaging are included.

This chapter, in particular, will need to be re-visited and refined during the pre-pandemic period to ensure that all new scientific information is incorporated in the plan.

Chapter 10 – Vaccine and Antivirals

During a pandemic, as during yearly epidemics of influenza, vaccination will be the primary means to prevent influenza infection and its complications. However, vaccine is not expected to be available during the first wave of the pandemic. When vaccine first becomes available, it will be in short supply. Therefore, vaccine will initially be distributed according to priority groups, which have been established nationally. Current priority groups for pandemic vaccine are health care providers (Group 1), Essential Service Providers (Group 2), Persons at high risk of severe influenza infection (Group 3), Healthy Adults (Group 4) and Healthy Children 2-28 years of age (Group 5). However, these priority groups will be re-examined as the pandemic evolves, to ensure that they continue to meet the goals of the plan to reduce mortality, morbidity and societal disruption due to the pandemic. This chapter estimates the number of people within Vancouver Coastal Health in each priority group to allow for a rapid assessment of vaccine requirements.

Once vaccine does become widely available, demand for vaccine is expected to be very high. Vaccination of the whole population in four months, which is the target used for planning, will require the establishment of mass vaccination clinics. Mass vaccination clinics will require additional space, equipment, and staff. This chapter estimates the number of clinics, amount of equipment and number and type of additional staff needed to meet immunization targets in Vancouver Coastal Health. In addition, detailed guidelines for the establishment of mass immunization clinics are provided. Specific sites for mass clinics in Vancouver Coastal Health have been identified. Potential pools of additional vaccine providers (such as medical/nursing schools) have also been identified.

Antiviral medications are effective as both treatment and prevention of influenza infections. Although antivirals will be available during the first wave of the pandemic, they are expected to be in

very short supply. Antiviral medications will also be distributed according to nationally established priorities. This chapter provides information for Health Care Providers and the public about the two antiviral medications approved in Canada. In addition, the process for reporting and monitoring adverse drug reactions is included.

The information in this chapter is specific to the population and geography of Vancouver Coastal Health. To complete the planning process, estimates of the number of essential service providers employed by each municipality are required.

Chapter 11 – Communications

Dissemination and sharing of timely and accurate information among public health officials, medical care providers, the media and the general public will clearly be one of most important facets of the pandemic response. Coordination of messages and release of information among international, federal, provincial, and local health officials and affected institutions are critical to avoiding contradictions and confusion that can undermine public trust and impede containment measures.

In order to develop a comprehensive, regional communications strategy to better ensure dissemination of -- and access to -- consistent, accurate and timely information, a series of activities is presently underway at the regional level, including:

- Continuous improvements in pre-pandemic period communications systems (primarily based at the Office of the Chief Medical Health Officer), including enhancements of existing Internet sites, toll-free information lines, surveillance bulletins, routine Q & A's on influenza, influenza vaccine, antiviral agents, etc.
- Development of prototype communication materials for use during the next pandemic:
 - Pandemic-focused Q & A's fact sheets on influenza, influenza vaccine, antiviral agents, etc., in various languages
 - Prototype press kits, bulletins, newsletters, etc.
 - General preventive measures/do's and don'ts for the general public
 - Information/guidelines for health-care providers
 - Telephonic "hot line" systems
 - "Canned" powerpoint presentations, slide sets, videos, documentaries for the purposes of training
 - Posters

Chapter 12 – Handling and Disposal of the Deceased

This chapter highlights that the number of deaths resulting from the influenza pandemic could easily overwhelm local morgues and funeral homes. An important task in pandemic preparation is the estimation of regular capacity and to forecast the need for additional resources as a funeral home could expect to have to handle about six months work within a 6 to 8 week period. Establishing potential sites for temporary morgue space will require further exploration within each municipality at a later date and time.

Contact has been established with funeral businesses whose services would be called upon in the event of a pandemic. This chapter is intended as a resource for contact information for funeral homes in addition to providing information on the safe handling and disposal of the deceased (e.g. those in contact with deceased influenza patients will be vaccinated). Infection control procedures for dealing with the deceased are reviewed in Chapter 4. Autopsies, death registration and transportation issues have also been considered in this chapter. Current lists of suppliers for embalming fluids, body bags and caskets have been established and efforts are underway to secure supplies. Possibilities and limitations for the disposal of the deceased in a culturally sensitive manner under the emergency conditions of the pandemic is a question to be discussed in the future.

Chapter 13 – Private Sector

The effects of an influenza pandemic within Vancouver Coastal Health will not only affect the health services delivery system but also have spillover effects on public services and the private sector. The private sector has an important role in pandemic influenza preparedness and response. In this revision of the plan, we have opted to provide the private sector with links to excellent pandemic and business continuity planning tools and information that have been developed expressly for that sector.

Chapter 14 – Local Governments

Municipalities and Regional Districts within a Health Authority should develop management guidelines and procedures for health emergencies to enable local governments, working in conjunction with the Health Authorities, to maintain the continuity of essential services and support public works and municipal services. Examples of these services are as follows:

- Water treatment-delivery, waste management, garbage disposal and utilities
- Information and advice to the public through regular announcements
- Closure of public buildings where it is deemed to be in the best interests of public safety and to minimize the spread of infection
- Establish alternative care facilities and triage centers as requested by the local Health Authority to facilitate the immunization of the public and provide healthcare in non-traditional settings
- Activate a committee of local business persons charged with the task of initiating their mutual aid pacts to assist one another in maintaining a level of service to the community, particularly those services involving access to pharmaceuticals, retail food purchases, gasoline and other essential commodities.

Chapter 15 – Glossary, References and Contact Lists

Chapter 16 – Pandemic Influenza Vaccine Certification

This chapter provides a power point presentation that can be used to educate all levels of vaccine providers – in the event of mass clinics. Included is a certification test, the same test that provides the answers, an immunization skills checklist, and a sample certificate.

1.3 — NEXT STEPS

Current Status of the VCH Pandemic Influenza Planning

This document represents the first revision of the Vancouver Coastal Health *Regional Pandemic Influenza Response Plan*. It contains additional information, collected since the first iteration of the plan in May, 2005 and is, thus, a more complete document. However, a pandemic response plan must be a dynamic document, if it is to remain useful.

This plan is intended as a first step in the development of an “instruction manual” for public health care personnel, who will be dealing with various aspects of the pandemic influenza response. As this revision is published, we are engaged in a regional process with frontline managers and staff to develop those “instruction manuals” for each of our Health Service Delivery Areas (HSDA’s).

Development of Future Versions

In a pandemic, people with a great variety of skills and specializations will gather together to deliver services to the community. The goal will be cooperation and coordination to provide the best possible care for the ill and to minimize the disruptive effects of the pandemic on many levels of life in the Vancouver Coastal Health region.

We are committed to the annual review and exercise of the plan and will use those opportunities to assess the effectiveness of the document and to identify further gaps in information. As we develop and exercise HSDA “manuals,” we will have further opportunities to identify important information that ought to be included in the regional response plan.

Our planning takes place within a context of international, national and provincial response planning. As guidelines and policies are enunciated at those levels, we will incorporate that new guidance into our planning.

Integrating New Results into the Plan

One important feature of pandemic influenza is the unpredictability of its epidemiology. Exploring the biology of the virus and how this influences the emergence of a pandemic is an active field of research. Monitoring advances in scientific research and new software and implementing novel methods and knowledge on a continual basis could benefit the plan by providing information needed for fine-tuning the strategy.

How to Update this Document

This document was produced using Microsoft Word 2000. An attempt was made to use consistent heading and paragraph styles to facilitate future updates by a number of different individuals. The following section includes a summary of the major style formats used in this report.

To keep the contents current, it will be necessary to review the document periodically. An effort was made to keep information that is most likely to change, such as the references and contact list, in one section at the end of the document. A quick update may involve going through Chapter 14 and making any necessary changes there. Periodically, it will be necessary to carefully review the entire document and make any changes required to keep the information up-to-date.

Summary of MS Word Styles Used in this Document

This document was produced using Microsoft Word 2000. To maintain consistency of style for the entire document, it is recommended that pre-specified style formats are used. In the following the main style formats that were applied in the document are described.

Heading and Body Text Styles

Heading styles are indicated as *Heading 1*, *Heading 2*, *Heading 3*, etc. in MS Word. In the following list the most important styles and their descriptions are listed. Please note that setting these formats manually is not sufficient. In order for the title to appear in the Table of Contents, the styles have to be set globally (*Styles and Formatting* in the *Format* menu)

STYLE	WHERE IT IS USED	FONT
Heading 1	Chapter title	Arial, 18pt, all capitals
Heading 2	Numbered section title (1 st level)	Arial, 14pt bold
Heading 3	Subsection title (2 nd level)	Times New Roman, 14pt, bold
Heading 4	Subsection title (3 rd level)	Times New Roman, 12pt, bold
Heading 5	Subsection title (4 th level)	Times New Roman, 11pt, bold

Additional points to note:

- In heading styles, a 12pt space is set to appear before a header and a 4pt space after it. The paragraph should be started immediately on the next line after the heading.
- Body text is specified under style *Body Text 2*. It is Times New Roman, 11pt, followed by a 4pt space after each paragraph.
- Do not enter an empty space after paragraphs. The *Body Text 2* style was set to already include the space between paragraphs.

Table and Figure Styles

Wherever possible, the following formats are used for producing tables

- Headers are 11 pt Times New Roman or Arial fonts, all capitals, not bold.
- Borders are ½ pt solid lines, usually bordering all cells.
- Table number and caption precedes the table.
- Table number is 11 pt Times New Roman, bold, without a period (e.g. **Table 1**)

- Table captions are 11 pt Times New Roman font, all capitals, entered on the next line immediately following the Table number line (e.g. THIS IS A CAPTION).
- For a table that extends across more than one page, the header is set to repeat at the start of each page (This is set in the *Table Properties* submenu of the *Table* menu. Select the *Rows* tab and tick the box to turn on repetition of the header.)
- Table headers have a background of 5% gray. The font used for the body of the text is usually 11pt Times New Roman or 9 or 10 pt Arial.
- Figure numbers and captions follow the same conventions used for tables.

Bullet and Numbering Styles

Whenever possible, more than two levels of bullets should be avoided as this reduces clarity.

- First level bullets are character Wingdings 110, 8pt (■)
- Second level bullets are character Symbol 183, 11pt (●)
- Numbered lists are as follows: 1) 2) 3) etc. (no period)
- Alphabetical lists are as follows: a) b) c) etc. (no period)

Indentation is specified both as the location of the bullet or number and the location where the text follows. The following conventions are used in this document (can be set in the *Format* menu under *Bullets and Numbering*)

- Bullet indent at 0 cm, with text indent at 0.63
- Bullet indent at 0.63 cm, with text indent at 1.27
- Bullet indent at 1.27 cm, with text indent at 1.9
- Bullet indent at 1.9 cm, with text indent at 2.53

When the first level of a list is a bulleted list, usually bullet indent 1.27 / text indent 1.9 is used.

When the first level of a list is a numbered or alphabetical list, number indent 0 / text indent 0.63 is used.

Text Boxes

A text box is useful for drawing attention to important information.

Text boxes are useful for emphasis and should not be overused. In this document, emphasized text is placed within a text box with a 1 ½ pt single solid line border. The text within a text box is usually Arial 9 to 11 pt.

Table of Contents

Press the **F9** key,
while the Table of Contents is highlighted,
to update recent changes.

In the version of MS Word used to produce this document, the Table of Contents can be updated to reflect changes made in the text by pressing the F9 button while the cursor is located within the Table of Contents is selected and the cursor is located within the selected region. Follow these steps to obtain the Table of Contents style used in this document:

- 1) Select “Index and Tables” from the “Insert” menu.
- 2) In the window under the heading *General*, select *From template* for *Formats*, and 4 for *Show Levels*. This ensures that titles for three section levels will appear in the Table of Contents. Sometimes 3 levels are selected, depending on the type of information presented in the chapter.

- 3) To change the numbered section heading style in the Table of Contents to all capital letters and Arial font,, click the “Modify” button, and change the font style for “TOC2” (click Modify and go to Format, then Font).
- 4) To remove the chapter title from the Table of Contents, *select Index and Tables* from the *Insert* menu again, and choose Options. Delete the number “1” beside the entry *Heading 1* in the *Available Styles* list.

Further Notes

The above instructions may not be appropriate for MS Word version, other than 2000. Please follow software instructions for styles. If this fails, extensive help on various MS Word problems can be found on the web (Google).

The Pandemic Influenza Response Plan is a living document, written by a large number of people. In order to maintain readability and ease of use, it is recommended that the above formatting conventions be applied in future versions of the document. This ensures that those who may need to use this document in the future, can find information easily.

Chapter 2

THE HEALTH IMPACT OF PANDEMIC INFLUENZA

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CHAPTER SUMMARY

The influenza pandemic will have a significant impact on the population at Vancouver Coastal Health. Estimates for British Columbia predict that 1.8 million people may become ill and up to 7,000 may die from influenza across the province. These estimates will be influenced by the actual epidemiology of the next pandemic. It is impossible to predict in advance how virulent the next pandemic influenza strain will be. The last pandemics of 1957 and 1968 were relatively mild, while the “Spanish Flu” of 1918 had devastating effects worldwide. Therefore, the actual pandemic impact may be milder or more severe than the projections made in this chapter. As more information emerges on the pandemic virus itself and additional modeling methods are implemented or developed further, the estimates will also be further refined. However, much information is available already to allow preparations to proceed.

In this chapter population projections provided by the British Columbia Statistics Agency and the templates found in the BC Pandemic Influenza Plan - which in turn are based on freely available public health software - were used to compute the expected rate of illness and mortality at Vancouver Coastal Health. These estimates were produced for the general population as well as for groups considered to be at high-risk for contracting influenza and suffering from complications based on known susceptibility to annual influenza infections. It is important to note that individuals at high-risk for regular influenza strains may not be those that will be most severely affected in a pandemic. Mortality was highest among young adults in the “Spanish Flu” of 1918. The most vulnerable group in the next pandemic will not be known in the interpandemic period. Therefore, the estimates should be considered as the best available, according to current knowledge.

2.1 — POPULATION ESTIMATES AND HIGH-RISK GROUPS

Using the resources described in section 3 (following), estimates for high risk and standard risk individuals in the VCH population have been estimated. The definition for high-risk groups is found in Chapter 8 on Public Health Measures. The values are presented in Tables 1 to 3 for the 0 to 19, 20 to 64, 65 years and over age groups. In the tables of health impact in the following sections some of the information in tables 1 to 3 is repeated partially. The purpose of the following tables is to provide a baseline reference for population estimates that form the starting point for subsequent calculations and projections for health care services throughout the VCH Pandemic Influenza Response Plan.

Table 1

ESTIMATES OF THE TOTAL POPULATION SIZE AND THE NUMBER OF HIGH-RISK INDIVIDUALS IN THE **0 TO 19 YEAR** AGE GROUP AT VANCOUVER COASTAL HEALTH BASED ON 2004 POPULATION STATISTICS (NUMBERS ARE BASED ON AN ESTIMATE OF **6 TO 11 % OF HIGH RISK INDIVIDUALS** WITHIN THIS AGE GROUP)

LHA #	Local Health Area	AGE GROUP ≤ 1 to 19 YEARS				
		Total Population	High risk		Standard-risk	
			Low Estimate (6%)	High Estimate (11%)	Low Estimate (89%)	High Estimate (94%)
38	Richmond	35,575	2,134	3,913	31,662	33,441
44	North Vancouver	29,645	1,779	3,261	26,384	27,866
45	West Vancouver - Bowen Island	9,674	580	1,064	8,610	9,094
46	Sunshine Coast	6,101	366	671	5,430	5,735
47	Powell River	4,555	273	501	4,054	4,282
48	Howe Sound	7,698	462	847	6,851	7,236
49	Bella Coola Valley	1,084	65	119	965	1,019
83	Central Coast	504	30	55	449	474
161	Vancouver - City Centre	9,705	582	1,068	8,637	9,123
162	Vancouver - Downtown Eastside	8,118	487	893	7,225	7,631
163	Vancouver - North East	22,376	1,343	2,461	19,915	21,033
164	Vancouver - Westside	22,924	1,375	2,522	20,402	21,549
165	Vancouver - Midtown	18,814	1,129	2,070	16,744	17,685
166	Vancouver - South	26,217	1,573	2,884	23,333	24,644
VCH Total		202,990	12,178	22,329	180,661	190,812

Table 2

ESTIMATES OF THE TOTAL POPULATION SIZE AND THE NUMBER OF HIGH-RISK INDIVIDUALS IN THE **20 TO 64 YEAR** AGE GROUP AT VANCOUVER COASTAL HEALTH BASED ON 2004 POPULATION STATISTICS (NUMBERS ARE BASED ON AN ESTIMATE OF **14 TO 25 % OF HIGH RISK INDIVIDUALS** WITHIN THIS AGE GROUP)

LHA #	Local Health Area	AGE GROUP 20 to 64 YEARS				
		Total Population Size Within Age Group	High risk		Standard-risk	
			Low Estimate (14%)	High Estimate (25%)	Low Estimate (75%)	High Estimate (86%)
38	Richmond	117,332	16,426	29,333	87,999	100,906
44	North Vancouver	88,748	12,425	22,187	66,561	76,323
45	West Vancouver - Bowen Island	31,491	4,409	7,873	23,618	27,082
46	Sunshine Coast	16,634	2,329	4,159	12,475	14,305
47	Powell River	12,296	1,721	3,074	9,222	10,575
48	Howe Sound	22,619	3,167	5,655	16,964	19,452
49	Bella Coola Valley	1,976	277	494	1,482	1,699
83	Central Coast	1,070	150	268	802	920
161	Vancouver - City Centre	84,616	11,846	21,154	63,462	72,770
162	Vancouver - Downtown Eastside	37,508	5,251	9,377	28,131	32,257
163	Vancouver - North East	63,876	8,943	15,969	47,907	54,933
164	Vancouver - Westside	86,157	12,062	21,539	64,618	74,095
165	Vancouver - Midtown	59,828	8,376	14,957	44,871	51,452
166	Vancouver - South	83,971	11,756	20,993	62,978	72,216
VCH Total		708,122	99,138	177,032	531,090	608,984

Table 3

ESTIMATES OF THE TOTAL POPULATION SIZE AND THE NUMBER OF HIGH-RISK INDIVIDUALS IN THE **65 YEARS AND OLDER** AGE GROUP AT VANCOUVER COASTAL HEALTH BASED ON 2004 POPULATION STATISTICS (NUMBERS ARE BASED ON AN ESTIMATE OF **40 TO 55 % OF HIGH RISK INDIVIDUALS** WITHIN THIS AGE GROUP)

LHA #	Local Health Area	AGE GROUP ≥ 64 YEARS				
		Total Population Within Age Group	High risk		Standard-risk	
			Low Estimate (40%)	High Estimate (55%)	Low Estimate (45%)	High Estimate (60%)
38	Richmond	21,063	8,425	11,585	9,478	12,638
44	North Vancouver	17,236	6,894	9,480	7,756	10,342
45	West Vancouver - Bowen Island	10,325	4,130	5,679	4,646	6,195
46	Sunshine Coast	5,306	2,122	2,918	2,388	3,184
47	Powell River	3,590	1,436	1,974	1,616	2,154
48	Howe Sound	2,088	835	1,148	940	1,253
49	Bella Coola Valley	315	126	173	142	189
83	Central Coast	143	57	79	64	86
161	Vancouver - City Centre	10,126	4,050	5,569	4,557	6,076
162	Vancouver - Downtown Eastside	7,086	2,834	3,897	3,189	4,252
163	Vancouver - North East	13,515	5,406	7,433	6,082	8,109
164	Vancouver - Westside	15,378	6,151	8,458	6,920	9,227
165	Vancouver - Midtown	9,733	3,893	5,353	4,380	5,840
166	Vancouver - South	17,734	7,094	9,754	7,980	10,640
VCH Total		133,638	53,453	73,500	60,138	80,185

2.2 — ESTIMATED HEALTH IMPACT AT VCH

Total VCH Population

The estimated health impact in terms of total numbers of outpatient visits by age group in table 4 summarizes total number of hospitalizations and total number of deaths for all of Vancouver Coastal Health. A summary combining all age and risk groups is given in table 5

Local Health Areas

Tables 6, 7 and 8 show the estimated health impact in terms of outpatient visits, hospitalizations and deaths.

Table 4

ESTIMATED NUMBERS AND PERCENTAGES OF OUTPATIENT VISITS, HOSPITALIZATIONS AND DEATHS AMONG HIGH-RISK AND STANDARD-RISK GROUPS AT VANCOUVER COASTAL HEALTH

	High-risk Population				Standard-risk Population			
	Low Estimate		High Estimate		Low Estimate		High Estimate	
AGE GROUP ≤ 1 to 19 YEARS (Total = 202,990)	#	%	#	%	#	%	#	%
Total within Subgroup	12,178	100	22,329	100	180,661	100	190,812	100
OUTPATIENT VISITS	3,520	29	8,999	40	29,809	17	43,886	23
HOSPITALIZATIONS	26	0.2	201	0.9	36	0.02	553	0.3
DEATHS	2	0.01	171	0.8	3	0.001	25	0.01
AGE GROUP 20 to 64 YEARS (Total = 708,122)	#	%	#	%	#	%	#	%
Total within Subgroup	99,138	100	177,032	100	231,090	100	608,984	100
OUTPATIENT VISITS	6,940	7	26,377	15	21,244	4	51,764	9
HOSPITALIZATIONS	89	0.09	903	0.5	96	0.02	1,705	0.3
DEATHS	10	0.01	1,009	0.6	13	0.003	55	0.01
AGE GROUP ≥ 64 YEARS (Total = 133,638)	#	%	#	%	#	%	#	%
Total within Subgroup	53,453	100	73,500	100	60,138	100	80,185	100
OUTPATIENT VISITS	4,223	8	9,555	13	2,706	5	5,933	7
HOSPITALIZATIONS	214	0.4	955	1.3	90	0.2	240	0.3
DEATHS	150	0.3	412	0.6	17	0.03	43	0.05

Table 5

**ESTIMATED NUMBERS AND PERCENTAGES OF OUTPATIENT VISITS,
HOSPITALIZATIONS AND DEATHS FOR ALL AGE AND RISK GROUPS AT
VANCOUVER COASTAL HEALTH AND ITS HEALTH SERVICE DELIVERY AREAS**

Local Health Area	Total Population	OUTPATIENT VISITS		HOSPITALIZATIONS		DEATHS	
		Estimate		Estimate		Estimate	
		Low	High	Low	High	Low	High
38 Richmond	173,970	11,603	24,657	89	753	31	282
44 North Vancouver	135,629	9,293	19,514	71	591	25	221
45 West Vancouver - Bowen Island	51,490	3,377	7,192	35	244	14	92
46 Sunshine Coast	28,041	1,939	4,040	18	131	7	49
47 Powell River	20,441	1,423	2,960	13	94	5	35
48 Howe Sound	32,405	2,272	4,744	13	131	3	49
49 Bella Coola Valley	3,375	273	537	2	14	0	5
83 Central Coast	1,717	133	266	1	7	0	3
161 Vancouver - City Centre	104,447	5,486	13,039	48	438	16	171
162 Vancouver - Downtown Eastside	52,712	3,193	7,075	28	232	10	88
163 Vancouver - North East	99,767	6,917	14,455	54	439	19	163
164 Vancouver - Westside	124,459	7,990	17,262	64	540	22	204
165 Vancouver - Midtown	88,375	5,945	12,623	43	377	14	141
166 Vancouver - South	127,922	8,566	18,152	70	565	25	212
Total at VCH	1,044,750	68,441	146,515	551	4,558	194	1,714

Table 6

ESTIMATED NUMBERS OF **OUTPATIENT VISITS, HOSPITALIZATIONS AND DEATHS** AMONG HIGH-RISK AND STANDARD-RISK INDIVIDUALS IN THE **0 TO 19 YEAR AGE GROUP** IN THE **INDIVIDUAL HEALTH SERVICE DELIVERY AREAS** WITHIN VANCOUVER COASTAL HEALTH

AGE GROUP - 0 TO 19 YEARS										
Local Health Area		Total Population in Age Group	Total Number in Risk Group		OUTPATIENT VISITS		HOSPITAL VISITS		DEATHS	
			Estimate		Estimate		Estimate		Estimate	
			Low	High	Low	High	Low	High	Low	High
HIGH-RISK GROUP										
38	Richmond	35,575	2,134	3,913	617	1,577	4	35	0	30
44	North Vancouver	29,645	1,779	3,261	514	1,314	4	29	0	25
45	West Vancouver - Bowen Island	9,674	580	1,064	168	429	1	10	0	8
46	Sunshine Coast	6,101	366	671	106	270	1	6	0	5
47	Powell River	4,555	273	501	79	202	1	4	0	4
48	Howe Sound	7,698	462	847	133	341	1	8	0	7
49	Bella Coola Valley	1,084	65	119	19	48	0	1	0	1
83	Central Coast	504	30	55	9	22	0	1	0	0
161	Vancouver - City Centre	9,705	582	1,067	168	430	1	10	1	8
162	Vancouver - Downtown Eastside	8,118	487	893	141	360	1	8	1	7
163	Vancouver - North East	22,376	1,343	2,461	388	992	3	22	0	19
164	Vancouver - Westside	22,924	1,375	2,522	397	1,016	3	23	0	19
165	Vancouver - Midtown	18,814	1,129	2,069	326	834	2	19	0	16
166	Vancouver - South	26,217	1,573	2,884	455	1,162	3	26	0	22
STANDARD-RISK GROUP										
38	Richmond	35,575	31,662	33,440	5,224	7,691	6	97	0	4
44	North Vancouver	29,645	26,384	27,266	4,353	6,409	5	81	0	4
45	West Vancouver - Bowen Island	9,674	8,610	9,094	1,421	2,091	2	26	0	1
46	Sunshine Coast	6,101	5,430	5,735	896	1,319	1	17	0	1
47	Powell River	4,555	4,054	4,282	669	985	1	12	0	1
48	Howe Sound	7,698	6,851	7,236	1,130	1,664	1	21	0	1
49	Bella Coola Valley	1,084	965	1,019	159	234	0	3	0	0
83	Central Coast	504	449	474	74	109	0	1	0	0
161	Vancouver - City Centre	9,705	8,637	9,123	1,425	2,098	2	26	0	1
162	Vancouver - Downtown Eastside	8,118	7,225	7,631	1,192	1,755	1	22	0	1
163	Vancouver - North East	22,376	19,915	21,033	3,286	4,838	4	61	0	3
164	Vancouver - Westside	22,924	20,402	21,549	3,366	4,956	4	62	0	3
165	Vancouver - Midtown	18,814	16,944	17,685	2,763	4,068	3	51	0	2
166	Vancouver - South	26,217	23,333	24,644	3,850	5,668	5	71	0	3

Table 7

ESTIMATED NUMBERS OF **OUTPATIENT VISITS, HOSPITALIZATIONS AND DEATHS** AMONG HIGH-RISK AND STANDARD-RISK INDIVIDUALS IN THE **20 TO 64 YEAR AGE GROUP** IN THE **INDIVIDUAL HEALTH SERVICE DELIVERY AREAS** WITHIN VANCOUVER COASTAL HEALTH

AGE GROUP - 20 TO 64 YEARS									
Local Health Area	Total Population in Age Group	Total Numbers in Risk Group		OUTPATIENT VISITS		HOSPITAL VISITS		DEATHS	
		Estimate		Estimate		Estimate		Estimate	
		Low	High	Low	High	Low	High	Low	High
HIGH - RISK GROUP									
38 Richmond	117,332	16,426	29,333	1,150	4,371	15	150	2	167
44 North Vancouver	88,748	12,425	22,187	870	3,306	11	113	1	126
45 West Vancouver - Bowen Island	31,491	4,409	7,873	309	1,173	4	40	0	45
46 Sunshine Coast	16,634	2,329	4,158	163	620	2	21	0	24
47 Powell River	12,296	1,721	3,074	120	458	2	16	0	17
48 Howe Sound	22,619	3,167	5,655	222	843	3	29	0	32
49 Bella Coola Valley	1,976	277	494	19	74	0	2	0	3
83 Central Coast	1,070	150	267	10	40	0	1	0	1
161 Vancouver - City Centre	84,616	11,846	21,154	829	3,152	11	108	1	121
162 Vancouver - Downtown Eastside	37,508	5,251	9,377	368	1,397	5	48	0	53
163 Vancouver - North East	63,876	8,943	15,969	626	2,379	8	81	0	91
164 Vancouver - Westside	86,157	12,062	21,539	844	3,209	11	110	1	123
165 Vancouver - Midtown	59,828	8,376	14,957	586	2,229	7	76	1	85
166 Vancouver - South	83,971	11,753	20,993	823	3,128	11	107	1	120
STANDARD - RISK GROUP									
38 Richmond	117,332	87,999	100,905	3,520	8,577	16	282	2	9
44 North Vancouver	88,748	66,561	76,323	2,662	6,487	12	214	2	7
45 West Vancouver - Bowen Island	31,491	23,618	27,082	945	2,302	4	76	1	2
46 Sunshine Coast	16,634	12,475	14,305	499	1,216	2	40	0	1
47 Powell River	12,296	9,222	10,575	369	899	2	30	0	1
48 Howe Sound	22,619	16,964	19,452	679	1,653	3	54	0	2
49 Bella Coola Valley	1,976	1,482	1,699	59	144	0	5	0	0
83 Central Coast	1,070	802	920	32	78	0	3	0	0
161 Vancouver - City Centre	84,616	63,462	72,770	2,538	6,185	11	204	2	7
162 Vancouver - Downtown Eastside	37,508	28,131	32,257	1,125	2,742	5	90	1	3
163 Vancouver - North East	63,876	47,907	54,933	1,916	4,669	9	154	1	5
164 Vancouver - Westside	86,157	64,618	74,095	2,585	6,298	12	207	2	7
165 Vancouver - Midtown	59,828	44,871	51,452	1,795	4,373	8	144	1	5
166 Vancouver - South	83,971	62,978	72,215	2,519	6,138	11	202	2	6

Table 8

ESTIMATED NUMBERS OF OUTPATIENT VISITS, HOSPITALIZATIONS AND DEATHS AMONG HIGH-RISK AND STANDARD-RISK INDIVIDUALS IN THE 65 YEARS AND OLDER AGE GROUP IN THE INDIVIDUAL HEALTH SERVICE DELIVERY AREAS WITHIN VANCOUVER COASTAL HEALTH

AGE GROUP - ≥65 YEARS									
Local Health Area	Total Population in Age Group	Total Number in Risk Group		OUTPATIENT VISITS		HOSPITAL VISITS		DEATHS	
		Estimate		Estimate		Estimate		Estimate	
		Low	High	Low	High	Low	High	Low	High
HIGH-RISK GROUP									
38 Richmond	21,063	8,425	11,585	666	1,506	34	151	24	65
44 North Vancouver	17,236	6,894	9,480	545	1,232	28	123	19	53
45 West Vancouver - Bowen Island	10,325	4,130	5,679	326	738	16	74	12	32
46 Sunshine Coast	5,306	2,122	2,918	168	379	8	38	6	16
47 Powell River	3,590	1,436	1,976	113	257	6	26	4	11
48 Howe Sound	2,088	835	1,148	66	149	3	15	2	6
49 Bella Coola Valley	315	126	173	10	22	0	2	0	1
83 Central Coast	143	57	79	4	10	0	1	0	0
161 Vancouver - City Centre	10,126	4,050	5,569	320	724	16	72	11	31
162 Vancouver - Downtown Eastside	7,086	2,834	3,897	224	507	11	51	8	22
163 Vancouver - North East	13,515	5,406	7,433	427	966	22	97	15	42
164 Vancouver - Westside	15,378	6,151	8,458	486	1,099	25	110	17	47
165 Vancouver - Midtown	9,733	3,893	5,353	308	696	16	70	11	30
166 Vancouver - South	17,734	7,093	9,754	560	1,268	28	127	20	55
STANDARD-RISK GROUP									
38 Richmond	21,063	9,478	12,638	426	935	14	38	3	7
44 North Vancouver	17,236	7,756	10,342	349	765	12	31	2	6
45 West Vancouver - Bowen Island	10,325	4,646	6,195	209	458	7	19	1	3
46 Sunshine Coast	5,306	2,388	3,184	107	236	4	10	1	2
47 Powell River	3,590	1,615	2,154	73	159	2	7	0	1
48 Howe Sound	2,088	940	1,253	42	93	1	4	0	1
49 Bella Coola Valley	315	142	189	6	14	0	1	0	0
83 Central Coast	143	64	85	3	6	0	0	0	0
161 Vancouver - City Centre	10,126	4,557	6,076	205	450	7	18	1	3
162 Vancouver - Downtown Eastside	7,086	3,189	4,252	143	315	5	13	1	2
163 Vancouver - North East	13,515	6,082	8,109	274	600	9	24	2	4
164 Vancouver - Westside	15,378	6,920	9,227	311	683	10	28	2	5
165 Vancouver - Midtown	9,733	4,380	5,840	197	432	7	17	1	3
166 Vancouver - South	17,734	7,980	10,640	359	787	12	32	2	6

2.3 — RESOURCES FOR CALCULATIONS

P.E.O.P.L.E.

Benchmark population estimates and projections, known as the P.E.O.P.L.E projection series (Population Estimates for Organizational Planning with Less Error) are produced yearly by the British Columbia Statistics Agency. These values provide the basis for the health impact estimates presented in the chapter. As the size of the population changes, health impact estimates will also change over time. Therefore, calculations for health impact estimates should be revised periodically. Table 9 lists population projections for Vancouver Coastal Health from 2000 to 2026. This can serve as a guide in deciding when an update in health impact estimates may be appropriate.

Table 9

TOTAL POPULATION ESTIMATES (UP TO AND INCLUDING 2004) AND PROJECTIONS (AFTER 2004) FOR VANCOUVER COASTAL HEALTH PRODUCED BY P.E.O.P.L.E PROJECTIONS 30 BY BC STATS

Year	Population	Year	Population	Year	Population
2000	1,003,535	2009	1,079,533	2018	1,169,105
2001	1,016,380	2010	1,089,199	2019	1,178,610
2002	1,022,857	2011	1,098,884	2020	1,188,171
2003	1,029,547	2012	1,108,543	2021	1,197,143
2004	1,036,970	2013	1,118,707	2022	1,206,161
2005	1,044,750	2014	1,129,032	2023	1,215,103
2006	1,052,968	2015	1,139,332	2024	1,223,836
2007	1,061,713	2016	1,149,448	2025	1,232,045
2008	1,070,437	2017	1,159,456	2026	1,239,914

Health Impact Calculations

To calculate the health impact of the influenza pandemic, the method given in the BC Influenza Plan was used. The instructions below were adapted from Annex B of the BC Plan and it should be consulted for further details.

- 1) Enter numbers for VCH **age-stratified population** into column 1 of **chart A**. Express the numbers in “1,000s” (e.g. 100,000, expressed in 1,000s, is 100).
- 2) Calculate low and high estimates of the numbers of **high-risk** persons in each age group using the following formula:
 - a) for 0-19 years, compute 6% as low estimate and 11% as high estimate;
 - b) for 20-64 years, compute 14% as low estimate and 25% as high estimate;
 - c) for 65+ years, compute 40% as low estimate and 55% as high estimate.
 - d) For example, for the 0-19 year age group, multiply the number in column 1 by 0.06 for the low estimate and enter it in column 2. Do the same for the high estimate but this time multiply by 0.11 and enter the result in column 3.
- 3) Calculate low and high estimates of the number of **standard risk** persons in each age group. To calculate the low estimate of **standard risk** (column 4), subtract the high estimate of **high-risk** persons (column 3) from the total number of persons in that **age group** (column 1). To calculate the high estimate of **standard risk** (column 5), subtract the low estimate of **high-risk** persons (column 2) from the total number of persons in that **age group** (column 1).
- 4) Then, using **Chart B**, multiply each applicable number by the lower and upper estimates of “rates per 1,000” (shown in columns 1 and 2 respectively).
- 5) For example, to calculate the lower estimate of outpatient visits by high risk persons aged 0-19, multiply 289 x the low estimate of high risk persons aged 0-19 years, that was calculated in **Chart A**.

Chart A

ESTIMATES OF HIGH RISK AND STANDARD RISK INDIVIDUALS IN THE POPULATION

	Column 1	Column 2	Column 3	Column 4	Column 5
VCH Population	Total in 1,000s	Number of High Risk in 1,000s		Number of Standard Risk in 1,000s	
		Low Est.	High Est.	Low Est.	High Est.
0-19 years					
20-64 years					
65+ years					

Chart B**ESTIMATES OF OUTPATIENT VISITS, HOSPITALIZATIONS AND DEATHS**

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
	Rates per 1000 pop*		BC cases		Health Authority cases	
Variable	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
OUTPATIENT VISITS						
High Risk Patients						
0-19	289	403	16762	43121		
20-64	70	149	25760	98042		
65+years	79	130	17775	40300		
Standard Risk Patients						
0-19	165	230	143715	211600		
20-64	40	85	78960	192440		
65+years	45	74	11430	25086		
Total Outpatient Visits			234105	610589		
HOSPITALIZATIONS						
High Risk Patients						
0-19	2.1	9.0	121	963		
20-64	0.9	5.1	331	3,355		
65+years	4	13.0	900	4030		
Standard Risk Patients						
0-19	0.2	2.9	174	2668		
20-64	0.18	2.8	355	6,339		
65+years	1.5	3.0	381	1203		
Total Hospitalizations			2,262	18558		
DEATHS						
High Risk Patients						
0-19	0.13	7.7	7	823		
20-64	0.1	5.7	36	3750		
65+years	2.8	5.6	630	1736		
Standard Risk Patients						
0-19	0.014	0.13	12	119		
20-64	0.025	0.09	49	203		
65+years	0.28	0.54	71	183		
Total Deaths			805	6814		

FluAid

The calculations described above for health impact estimates can be carried out using the FluAid software provided by the US Centers for Disease Control. The software can be used online or downloaded (websites are listed below).

Web Resources

The following websites have been cited in the previous pages. They provide the background and tools for executing the health impact calculations in this chapter.

The British Columbia Statistics Agency:

<http://www.bcstats.gov.bc.ca/index.htm>

Population of BC: Population Estimates & Projections:

<http://www.bcstats.gov.bc.ca/data/pop/pop/dynamic/PopulationStatistics/SelectRegionType.asp?category=Health/>

Online FluAid calculator

http://www2.cdc.gov/od/fluaid/fluaid_page1.asp

Download site for FluAid software:

<http://www2.cdc.gov/od/fluaid/download.htm>

2.4 — NEXT STEPS

The calculations in this chapter are based on P.E.O.P.L.E 30 population projections and will be updated as revised versions of the projections are issued by the BC Statistics Agency.

FluSurge is a spreadsheet-based software that provides estimates of the surge in demand for hospital-based services during an influenza pandemic. The software estimates the number of hospitalizations and deaths occurring during an influenza pandemic, with user-defined length and virulence parameters, and compares the number of persons hospitalized, requiring ICU care, and requiring ventilator support during a pandemic with existing hospital capacity. FluSurge can be found at <http://www.cdc.gov/flu/flusurge.htm>.

Chapter 3

SURVEILLANCE

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CHAPTER SUMMARY

In Canada the federal government bears responsibility to establish surveillance networks. Influenza surveillance takes place in cooperation with provincial and regional epidemiologists and sentinel physicians. Weekly or bi-weekly FluWatch reports are published. The main regional responsibility is to participate in the development of provincial surveillance network and ensure timely reporting of influenza activity to the province and other key stakeholders.

3.1 – SURVEILLANCE OVERVIEW

Influenza surveillance activities in Canada are coordinated by the Public Health Agency of Canada, and reported regularly through FluWatch, a compilation of influenza surveillance information from within Canada and internationally.

FluWatch is found at: <http://www.phac-aspc.gc.ca/fluwatch/index.html>

In the interpandemic period, Vancouver Coastal Health undertakes surveillance for local influenza activity in order to:

- Monitor for the introduction and spread of influenza and other respiratory viruses within the region;
- Allow for rapid identification and control of facility outbreaks, to minimize morbidity and mortality of vulnerable populations;
- Provide information on influenza epidemiology to hospitals, long term care facilities and physicians;
- Provide regional information to provincial and federal authorities that will contribute to national surveillance information.

When a pandemic is declared, surveillance activities will be directed by the Public Health Agency of Canada and directed provincially by the BCCDC. Vancouver Coastal Health will participate in these activities, and will enhance regional surveillance activities to monitor for the local introduction and spread of the pandemic viral strain. A summary of regional surveillance activities is shown in table 1.

Table 1

SUMMARY OF REGIONAL SURVEILLANCE ACTIVITIES BY PANDEMIC PHASE

PANDEMIC PHASE	SURVEILLANCE ACTIVITY	DESCRIPTION
Interpandemic Period -Phases 1 & 2 Novel virus in animals but no human cases	■ ILI outbreaks in facilities	Reports of 2 or more cases of ILI within a one week period in long-term care or acute care facilities
	■ Reports of viral isolates from laboratories (VIRAP or BCCDC)	Testing of viral swabs from ILI outbreaks and individual patients through VIRAP, BCCDC
	■ Reports of school absenteeism	Passive reporting from schools with student absenteeism of 10% or more
	■ Sentinel physician surveillance	Weekly reports of proportion of patient visits for ILI from community physicians

<p>Pandemic Alert -Phases 3, 4, 5 New human viral subtype with localized clusters of human-to-human spread; virus not yet fully transmissible</p>	<ul style="list-style-type: none"> ▪ Border surveillance (Returning travellers) 	Passive surveillance of travellers returning from areas of pandemic alert; provide information on signs and symptoms and seeking medical assessment to returning travellers from affected areas
	<ul style="list-style-type: none"> ▪ Emergency Room Surveillance 	Provide case definitions for reporting of ILI among returning travellers from ERs
	<ul style="list-style-type: none"> ▪ Community physician surveillance 	Provide case definitions for reporting from all community physicians and clinics
	<ul style="list-style-type: none"> ▪ Reports of unusual clusters of respiratory illness or deaths 	Reporting from ERs, hospital infection control (inpatients), Employee Health (healthcare worker clusters), and community physicians
	<ul style="list-style-type: none"> ▪ Healthcare Worker Surveillance 	Active surveillance of employee absenteeism
<p>Pandemic declared -Phase 6 Sustained transmission in general populations</p>	<ul style="list-style-type: none"> ▪ Enhanced sentinel physician surveillance 	Enhancing the existing sentinel physician surveillance of ILI using Vancouver Coastal physicians
	<ul style="list-style-type: none"> ▪ Real time Emergency Room surveillance 	Using electronic data available from VCH Emergency Rooms for pneumonia and ILI
	<ul style="list-style-type: none"> ▪ Enhanced border surveillance 	Assist Health Canada in surveillance at ports of entry
	<ul style="list-style-type: none"> ▪ Active surveillance for school absenteeism 	Active surveillance of school absenteeism by PHNs/CHNs
	<ul style="list-style-type: none"> ▪ Reports of viral isolates from laboratories (VIRAP and BCCDC) 	Testing of viral swabs from ILI outbreaks and individual patients through VIRAP, BCCDC
	<ul style="list-style-type: none"> ▪ Healthcare Worker Surveillance 	Active surveillance of employee absenteeism
<p>Phase 6 – 1st and 2nd peaks</p>	<ul style="list-style-type: none"> ▪ Discontinue border surveillance 	
	<ul style="list-style-type: none"> ▪ Discontinue testing of viral isolates 	Test only for unusual clusters or initial cases in a given community
<p>Post pandemic period</p>	<ul style="list-style-type: none"> ▪ Return to Phase 1 activities ▪ Assess pandemic surveillance activities 	

3.2 – LABORATORY SURVEILLANCE

Rapid Viral Testing (VIRAP) Specimen Collection Procedure

Rapid viral testing (VIRAP) is available throughout the region. Test kits are available at acute care facilities, residential facilities and public health. Physicians may order test kits from BC Children's and Women's Hospital (BCCW), Virology Laboratory. All swabs are processed at and results reported from BCCW.

When to Test

Obtain specimens for testing whenever an influenza-like illness outbreak is suspected. (Two or more cases of ILI in a seven-day period). Once the Medical Health Officer (MHO) has been informed of this suspected outbreak, the MHO will arrange for an Environmental Health Officer (EHO) or courier to take viral collection kits and requisitions to the facility. During normal office hours, contact the MHO or designate (Vancouver: 604-675-3900; Coastal Urban: 604-983-6701; Coastal Rural: 604-886-5620; Richmond: 604-244-5129). After-hours notify the MHO on-call at 604-527-4893.

Who to Test when an ILI is Suspected

Collect specimens from **NOT MORE** than 6 different patients or residents who show symptoms of influenza-like illness (ILI). Specimens from patients or residents who have been ill longer than 48 hours or patients or residents who do not have symptoms are unlikely to produce a positive test result.

Type of Specimen to be Collected

Nasopharyngeal Washings (NPW) are the preferred specimen. Nasopharyngeal washes are more sensitive and specific than nasopharyngeal swabs for antigen detection and culture, i.e., they provide a more reliable result as more cells are obtained for identification.

(Nasopharyngeal Swabs or Nasal Swabs should only be obtained if for some reason it is impossible to obtain a nasopharyngeal washing, as these swabs do not always obtain sufficient cells for laboratory testing).

Collection of Specimens

- Collect nasopharyngeal washes as soon as possible.
- There are two methods to obtain these washes. Method of collection will depend on the equipment available and the condition of the patient or resident.
- A video "Collection of Nasopharyngeal Washes" has been included with the Vancouver Coastal Health (VCH) Influenza binder. If you require instruction or assistance on this procedure, please contact VCH Communicable Disease Control during normal office hours at 604-714-5699 so that it can be arranged.
- Wear personal protective equipment when you collect the specimen; e.g., gloves, mask, eye protection and gowns as required. This is to protect you from a splash or a spray with a body fluid, substance, excretion or secretion, if the patient or resident coughs or sneezes while you are collecting the specimen.

Identification of Specimens

- Label the specimen with the patient or resident's full name, date of birth, PHN number.
- Complete a *Children's and Women's Health Centre of British Columbia, Medical Services Laboratory Requisition, Outpatient's Only Requisition* form
 - Include the patient/resident's name, date of birth and sex.
 - Include the name and address of the facility sending the specimen.
 - Indicate **VIRAP** on the form.
 - Indicate a contact person under the "Special Instructions" (this should be the infection control delegate or other responsible person for your facility)

Notification of the Viral Rapid Testing Program (VIRAP)

Notify the Laboratory at Children's and Women's Health Centre of B. C. that you are sending the specimens, the time that you are sending them, how many there are and how they will be arriving. The phone number is: 604-875-2345 ext 7463.

Transportation of Specimens

- Attempt to send all specimens together as soon as possible after collection.
- Ensure that the lid is securely fastened, place the labeled specimen container in the biohazardous bag and place the completed requisition on the outside of the bag. (Do not put the requisition in with the specimen)
- Keep specimen(s) refrigerated and transport on ice packs, as specimen is only stable at room temperature for approximately ½ hour.
- Place specimens in cooler or other appropriate container with ice pack for transport. Include completed ILI specimen contact sheet. Label outside of container "Diagnostic Specimens".

It is important for the specimens to get to the Viral Laboratory as soon as possible so that the outbreak can be identified and control measures can be taken.

Note: If there is no one available to transport these specimens to the address listed below, please have them sent by courier. You may use the BCCDC courier service "**Dynamex**", **phone number 604-432-7700 and use account #23270**. Let Dynamex know that you have specimens that need to be sent directly to the Laboratory at Children's and Women's Health Centre of BC.

If for some reason you are unable to send the specimens to the laboratory, please contact the MHO for assistance at 604-675-3900 (Vancouver); 604-244-5129 (Richmond); 604-983-6701 (Coastal Urban/North Shore); 604-886-5620 (Coastal Rural). After hours notify the MHO on-call at 604-527-4893.

Transport specimens to:
 VIRAP (Viral Rapid Testing Program)
 Children's and Women's Health Centre of B. C.
 Virology Laboratory
 4500 Oak Street, Room 2G28
 Vancouver, B. C., V6H 3N1

Viral Testing at BCCDC Laboratory

BCCDC offers primary testing for influenza and other respiratory viruses. Test kits are available from BCCDC Laboratory.

Primary test kits consist of sets of 6 nasopharyngeal swabs. Testing undertaken at BCCDC is RT-PCR and culture.

The RT-PCR test targets the M gene and has proven robust at diagnosing influenza and identifying it as type A or B. If the specimen is shown to have influenza A virus, its extracted RNA is subjected to follow-up RT-PCRs to determine if the virus is H1, H3, H5 or H7. H1 and H3 are the haemagglutinins responsible for circulating human illness during typical influenza seasons. H5 and H7 are haemagglutinins that are found in circulating strains of highly pathogenic avian influenza, and have been known to cause human illness. They may be found in new, pandemic subtypes of influenza.

Any influenza A other than H1 or H3 would be cultured in a containment level 3 laboratory at BCCDC. Amplification and gene sequencing of the isolate can be done at BCCDC Laboratory.

If a novel sequence of the HA gene were identified, the specimen would be immediately submitted by BCCDC to the National Laboratory in Winnipeg for confirmation.

If a novel virus were identified elsewhere in the world, BCCDC could access specific RT-PCR to have on hand to detect arrival of the novel virus into BC.

3.3 – ENHANCED SENTINEL PHYSICIAN SURVEILLANCE

The federal government coordinates sentinel physician surveillance across Canada. Physicians participating in the surveillance report on the rate of weekly patient visits for influenza-like illness, as follows:

$\frac{\text{\# of Patient Visits for ILI}}{\text{Total \# of Patient Visits}}$

Because the number of sentinel physicians in any region is small, sentinel physician information with the current system may not be sensitive enough to detect the arrival of influenza at the regional level. When a pandemic has been declared, establishing a regional system of sentinel physician surveillance, to supplement the existing national system, will increase the likelihood of detecting community influenza activity within the region.

Sentinel physicians will be identified in each Health Service Delivery Area of VCH and will be activated with the declaration of a pandemic (Phase 6). Each sentinel physician practice will be supplied with the reporting tool for tracking cases of ILI, and 6 VIRAP kits for obtaining specimens. All physicians will be trained to take nasopharyngeal washings by VCH Infection Control Educators and/or the VIRAP training video.

The sentinel physician system will be implemented and monitored by VCH Infection Control Educators, who will be responsible for:

- Physician training and education
- Maintaining supplies of VIRAP test kits and monitoring forms in physician offices
- Collection of monitoring forms on a weekly basis

Rates of ILI in sentinel physician practices will be compared with historic rates collected through the national sentinel physician program.

3.4 – EMERGENCY ROOM SURVEILLANCE

When a pandemic is declared, it will likely have started outside of VCH, and outside of Canada. It is estimated that a pandemic starting overseas; e.g., in Asia, may arrive in Canada 4 months after initially declared. Vancouver may be the initial point of entry into Canada of a pandemic that begins in Asia because of significant travel back and forth along the Pacific Rim.

Strategies for identifying initial cases or clusters of the pandemic strain within the region will need to be implemented. Waiting for laboratory testing and confirmation of initial cases will likely delay recognition of arrival of the pandemic strain.

One strategy for reducing the delay in recognizing initial cases is to review real-time, or near real-time Emergency Room data. Vancouver Coastal Health is committed to developing a database of chief complaints, in near real-time, of all patients visiting Emergency Rooms in major acute care hospitals in the region. Identification and monitoring of key chief complaints consistent with influenza-like illness may allow recognition of clusters or outbreaks of a new influenza virus within the region. This system can be implemented with the declaration of a pandemic (Phase 6) anywhere in the world.

Acute care hospitals across the region have different information systems to capture Emergency Room data. However there is a regional list of “Chief Complaints” or “Presenting Complaints” that will be common to all systems. By 2006, there will be a central database of chief complaints from all hospitals.

Table 2 is a list of “Chief Complaints” that could be included in the surveillance. Table 3 shows a list of hospitals to be included in the central database.

Table 2

CHIEF COMPLAINTS FOR INCLUSION IN SURVEILLANCE

	CEDIS Presenting Complaint	ICD10 Code	CAEP COT Descriptor	COT Level
112	URTI complaints	J06.9	Fever, cough, rhinorrhea (appears unwell)	3
433	Cough	R05	Cough (severe) + respiratory difficulty	2
434			Cough (constant) + mild respiratory distress	3
436			Cough – Associated with URTI	5
585	Exposure to communicable disease	Z20.9	Exposure to communicable disease	5
597	Fever	A50.9	Fever – looks unwell (+/- mild respiratory distress, moderate dehydration)	2
601			Fever and looks well (+/- mild dehydration only)	4

Table 3**HOSPITALS TO BE INCLUDED IN THE CENTRAL DATABASE**

Hospital	Status of Presenting Complaint Data
Providence – St. Paul’s Hospital	Currently available
Providence – Mount St. Joseph’s Hospital	Currently available
VGH	Pending – 2006
Richmond	Pending – 2006
Lion’s Gate	Pending - 2006

The Admitting Clerk enters “Chief complaint” at the time of patient arrival in the Emergency Department. At St. Paul’s and Mount St. Joseph’s Hospitals, the data is “refreshed” at 2 a.m. daily, for the previous day and is, therefore, 2-26 hours old at the time of refreshing. Other acute care hospitals in the region are planning entry of chief complaint data into an electronic database by 2006.

Other data elements planned for the regional ER system include:

- Discharge diagnosis – completed by the attending physician; therefore, there may be delays in data entry;
- Laboratory tests ordered and results;
- Medications ordered

As these data elements come on-line, it will be possible to refine the data to better capture patients presenting with signs and symptoms consistent with influenza-like illness.

<p>Regional Contact for Emergency Room Surveillance: Dr. Eric Grafstein Providence Health Care</p>
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3.5 – ENHANCED BORDER SURVEILLANCE

The federal government is responsible for enhanced border surveillance at ports of entry. After declaration of a pandemic, the federal government may elect to begin screening visitors to the region arriving from areas affected by the pandemic. Screening could range from checking for fever and other signs and symptoms, and/or provision of information cards with instructions if signs and symptoms develop after arrival. While screening for fever and other illness has not generally proven useful to identify importation of cases of communicable disease, provision of information to returning travellers can be helpful in reducing transmission to contacts and early identification of illness.

Information provided to travellers will be determined by Health Canada and may include:

- Identification of areas where the pandemic virus is circulating
- Incubation period
- Signs and symptoms
- Instructions for isolation if signs and symptoms develop
- Instructions for seeking medical attention if ill

Major ports of entry within VCH are:

- 1) Vancouver International Airport (Richmond HSDA)
- 2) Vancouver Port (Vancouver HSDA)

The role of VCH in enhanced border surveillance may range from:

- 1) Providing personnel to act as quarantine officers at ports of entry, to screen arrivals and/or provide information.
- 2) Point of contact for quarantine officers who wish to refer suspect cases of influenza-like illness for assessment and testing to the appropriate site in VCH.

Referrals by quarantine officers will be:

Richmond:

Daytime:	Dr. James Lu	604-244-5129
After-hours:	VCH MHO On-call	604-527-4893

Vancouver:

Daytime:	Dr. Patricia Daly	604-714-5699
After-hours:	VCH MHO On-call	604-527-4893

3.6 – ACTIVE SURVEILLANCE FOR SCHOOL ABSENTEEISM

When a pandemic has been declared (Phase 6), active surveillance for school absenteeism may be initiated to detect introduction or spread of the pandemic strain. Influenza viruses are known to circulate among school-age children and absenteeism rates above 10% during influenza seasons are known to correlate with spread in the general population.

In the interpandemic period, school surveillance for increased absenteeism is done passively. This relies on schools notifying public health of increased absenteeism, if detected. During active surveillance, contact with schools is undertaken by public health nurses on a regular basis to ask about levels of absenteeism.

The procedure for surveillance is as follows:

- 1) Within each Community Health Area, schools are assigned to public health nurses (PHN).
- 2) PHN to identify a primary contact within the school for absenteeism rates, usually the school secretary.
- 3) PHN to contact each school once per week to obtain the daily absenteeism rate. If rates are below 10%, no further action; school contact advised to call the PHN if rates rise significantly prior to the next week.
- 4) Schools may be contacted more frequently if there is concern that an outbreak is beginning.
- 5) If rate is above 10%, the school is asked to provide the PHN with the list of absent students and their contact information.
- 6) Students or their parents are contacted to ascertain the reason for their absence.
- 7) If a majority of absentees meet the criteria for influenza-like illness (ILI), the PHN will arrange for VIRAP testing of up to 6 students or staff with most recent onset of symptoms of ILI.
- 8) Results provided to the students or parents, the MHO and the school.
- 9) MHO letter provided to parents for information, including instructions for self-care and when to seek medical attention.

3.7 – FORMS AND TOOLS

- Tool 3.1** Influenza-Like Illness Specimen Contact Sheet (VIRAP)
- Tool 3.2** Nasopharyngeal Wash Specimen Collection
- Tool 3.3** Requisition for Laboratory Specimen Containers BCCDC
- Tool 3.4** Checklist for School Absenteeism
- Tool 3.5** Schools and Contact Information

Tool 3.1 Influenza-like Illness Specimen Contact Sheet (VIRAP)**FACILITY SENDING SPECIMENS**

Name of Facility	
Address	
Phone Number	

CONTACT PERSON IN FACILITY: this person will be notified of the test results and should be available to provide information to the Laboratory or Vancouver Coastal Health staff.

Name:	
Phone Number:	
Fax Number:	
Email address:	

SPECIMENS OBTAINED ON:

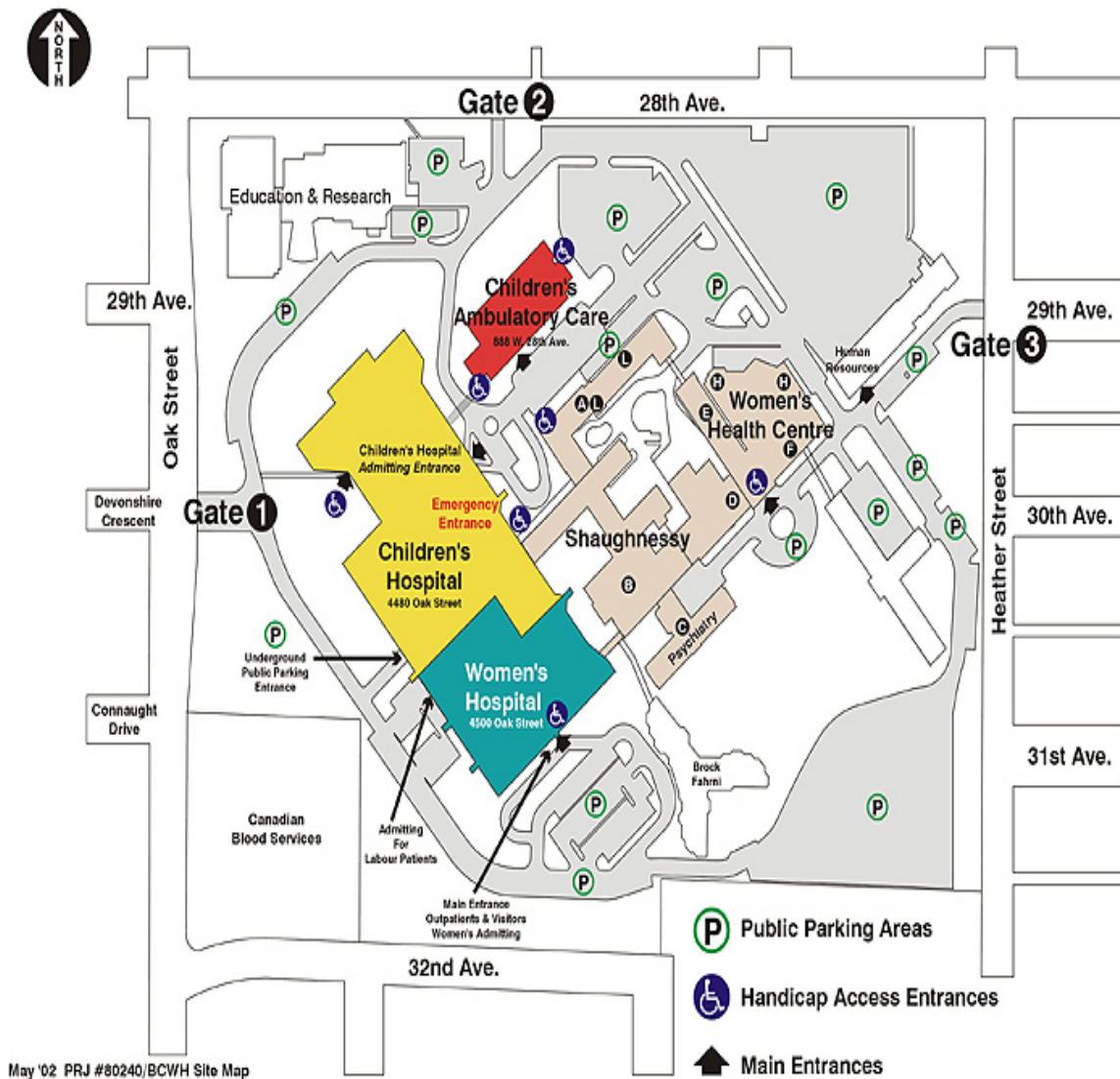
Name of Resident	Date obtained	Time obtained	Results

Transport Specimens to:

VIRAP (Viral Rapid Testing Program)
Children's and Women's Health Centre of B. C.
Virology Laboratory
4500 Oak Street, Room 2G28
Vancouver, B. C., V6H 3N1

Always notify VIRAP that the specimens are on their way
at **604-875-2345 ext 7463**

CHILDREN'S & WOMEN'S HEALTH CENTRE OF BRITISH COLUMBIA

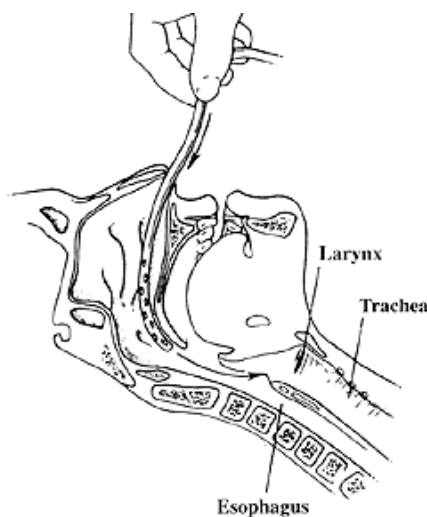


Children's Hospital Entrance Virology laboratory located on 2nd Floor Room 2G28

Tool 3.2 Nasopharyngeal Wash Specimen Collection

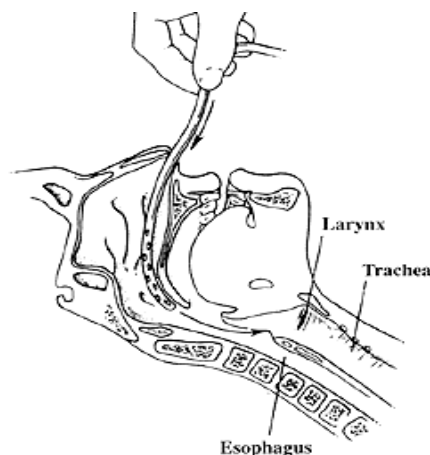
Nasopharyngeal Specimen Collection – ADULT (Using Syringe Drawback Method)

- 1) Assemble supplies:
 - 5cc sterile syringe,
 - #8 or #10 sterile plastic suction catheter with standard tip
 - Sterile saline 10 cc
 - Sterile specimen container with no preservative (e.g., orange top culture and sensitivity containers)
 - Personal protection equipment (e.g., mask, gloves, eye protection, gowns as required)
 - Requisition and label
- 1) Complete requisition and fill in label.
- 2) Explain procedure to resident/patient.
- 3) Wash hands.
- 4) Put on personal protection equipment to protect yourself, if the patient/resident coughs or sneezes while you are collecting the specimen.
- 5) Position patient/resident in 30° Semi-Fowler's or supine with head supported by a pillow or folded blanket, depending on comfort.
- 6) Obtain assistance from another staff member as required.
- 7) Draw 4cc saline into syringe.
- 8) Attach catheter to syringe.
- 9) Prime catheter with saline.
- 10) Gently insert catheter into nasal cavity until the nasopharynx is reached (see diagram below). An approximate measurement of insertion depth is from the base of the nose to the earlobe
- 11) Expel the total amount of saline (the wash) steadily with some force against the nasopharyngeal wall and immediately draw the wash back into the syringe via the catheter. In most cases, the fluid will be cloudy with some mucus present.
- 12) Transfer the aspirate to a sterile container without transport medium. Use further sterile saline to flush any remaining wash out of the catheter into the container. Label specimen, secure cap and place in transport bag.
- 13) Wash hands.
- 14) Attach completed requisition.
- 15) Transport to the laboratory.



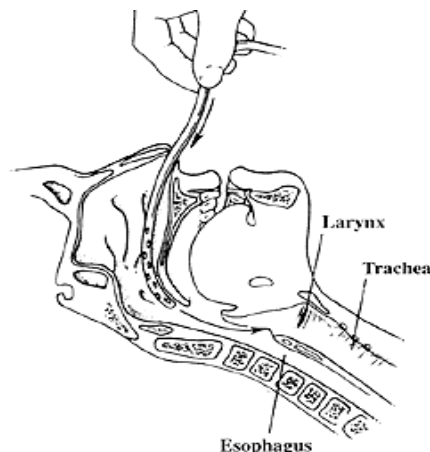
Nasopharyngeal Specimen Collection – CHILD (Using Syringe Drawback Method)

- 1) Assemble sterile supplies:
 - 5cc sterile syringe,
 - #8 sterile plastic suction catheter with standard tip
 - Sterile saline 10 cc
 - Sterile specimen container with no preservative (e.g., orange top culture and sensitivity containers)
 - Personal protection equipment (e.g., mask, gloves, eye protection, gowns as required)
 - Requisition and label
- 1) Complete requisition and fill in label.
- 2) Explain procedure to child and parents.
- 3) Wash hands.
- 4) Put on personal protection equipment to protect yourself if the patient/resident coughs or sneezes while you are collecting the specimen.
- 5) If necessary, bundle or restrain child.
- 6) Place child in supine position and support head.
- 7) Obtain assistance from another staff member as necessary.
- 8) Draw 2-3cc saline into syringe.
- 9) Attach catheter to syringe.
- 10) Prime catheter with saline.
- 11) Gently insert catheter into nasal cavity until the nasopharynx is reached (see diagram below). An approximate measurement of insertion depth is from the base of the nose to the earlobe
- 12) Expel the total amount of saline (the wash) steadily with some force against the nasopharyngeal wall and immediately draw the wash back into the syringe via the catheter. In most cases, the fluid will be cloudy with some mucus present.
- 13) Transfer the aspirate to a sterile container without transport medium. Use further sterile saline to flush any remaining wash out of the catheter into the container. Label specimen, secure cap and place in transport bag.
- 14) Wash hands.
- 15) Attach completed requisition.
- 16) Transport to the laboratory.



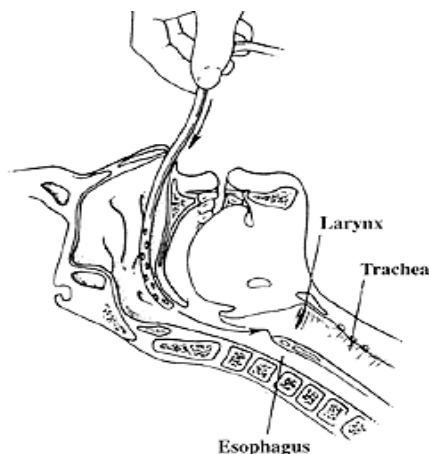
Nasopharyngeal Specimen Collection – ADULT (Using Suction)

- 1) Assemble supplies:
 - 3cc sterile syringe,
 - #8 or #10 sterile plastic suction catheter with vacutip
 - Sterile saline-10 cc
 - Sterile specimen trap (mucus trap)
 - Suction tubing and apparatus
 - Personal protection equipment (e.g., mask, gloves, eye protection, gowns as required)
 - Requisition and label
- 1) Complete requisition and fill in label
- 2) Explain procedure to patient/resident.
- 3) Wash hands.
- 4) Put on personal protective equipment to protect yourself if the person coughs or sneezes while you are collecting the specimen
- 5) Lie patient in supine position with head supported (use a pillow or folded blanket).
- 2) Obtain assistance from another staff member as necessary.
- 3) Draw up 3cc of saline into syringe.
- 4) Peel open package and remove specimen trap ensuring specimen trap lid is secure.
- 5) Attach suction tubing to plastic connector. Turn suction regulator to low setting (<80mm/lg). Check that suction is working.
- 6) Apply gloves, and remove suction catheter from package, maintaining sterility. Attach catheter to tubing on trap.
- 7) Measure distance on catheter from person's nose to earlobe maintaining catheter sterility.
- 8) Instill saline into one nostril. Gently insert catheter into nasal cavity until the nasopharynx is reached (see diagram below). Start suctioning, while gently rotating and withdrawing the catheter. (In most cases, the fluid will be cloudy with some mucus present).
- 9) Rinse catheter with small amount of remaining saline until specimen is rinsed through catheter into specimen trap. Ensure trap remains upright to prevent aspiration of contents into main suction container. Undo specimen container from suction equipment and attach sterile lid. Ensure lid is on securely. Label specimen and place in transport bag.
- 10) Dispose of waste. Ensure suction equipment is cleaned and disinfected as necessary for next use.
- 11) Wash hands.
- 12) Attach completed requisition.
- 13) Transport to the laboratory.




Nasopharyngeal Specimen Collection – CHILD (Using Suction)

- 1) Assemble supplies:
 - 3cc sterile syringe,
 - #8 sterile plastic suction catheter with vacutip
 - Sterile specimen trap (mucus trap)
 - Suction tubing and apparatus
 - Personal protection equipment (e.g., mask, gloves, eye protection, gowns as required)
 - Requisition and label
- 2) Complete requisition and fill in label
- 3) Explain procedure to patient/resident or family member as appropriate.
- 4) Wash hands.
- 5) Put on personal protective equipment to protect yourself if the person coughs or sneezes while you are collecting the specimen.
- 6) Lie child in supine position with head supported (use a pillow or folded blanket).
- 7) Obtain assistance from another staff member as needed. If necessary, bundle or restrain child.
- 8) Draw up 1cc of saline into syringe.
- 9) Peel open package and remove specimen trap ensuring specimen trap lid is secure.
- 10) Attach suction tubing to plastic connector. Turn suction regulator to low setting (<80mm/lg). Check that suction is working.
- 11) Apply gloves, and remove suction catheter from package, maintaining sterility. Attach catheter to tubing on trap.
- 12) Measure distance on catheter from child's nose to earlobe maintaining catheter sterility.
- 13) Instill saline into one nostril. Gently insert catheter into nasal cavity until the nasopharynx is reached (see diagram below). Start suctioning, while gently rotating and withdrawing the catheter. (In most cases, the fluid will be cloudy with some mucus present).
- 14) Rinse catheter with small amount of remaining saline until specimen is rinsed through catheter into specimen trap. Ensure trap remains upright to prevent aspiration of contents into main suction container. Undo specimen container from suction equipment and attach sterile lid. Ensure lid is on securely. Label specimen and place in transport bag.
- 15) Dispose of waste. Ensure suction equipment is cleaned and disinfected as necessary for next use.
- 16) Wash hands.
- 17) Attach completed requisition.
- 18) Transport to the laboratory.



Tool 3.3 Requisition for Laboratory Specimen Containers BCCDC

 <p>BC Centre for Disease Control AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY</p>		<p>Laboratory Services 655 West 12th Avenue Vancouver, B.C. V5Z 4R4 Attn: Shipping Room Fax: (604) 660-3122</p>		<p align="center">REQUISITION FOR LABORATORY SERVICES SPECIMEN CONTAINERS</p>	
DOCTOR/CLINIC/FACILITY NAME (PLEASE PRINT CLEARLY)				DATE	
SHIPPING ADDRESS			CITY	POSTAL CODE	
NAME (PLEASE PRINT)			PHONE NUMBER		
AUTHORIZED SIGNATURE			NOTE: A COMPLETE KIT CONSISTS OF (1) SPECIMEN CONTAINER, (1) SPECIMEN BAG, & (1) REQUISITION UNLESS SPECIFIED		
SPECIMEN CONTAINERS			OUTFIT CODE	COMPLETE KIT QUANTITY	REQUISITIONS ONLY HLTH # QUANTITY
BLOOD TUBES	SYPHILIS SEROLOGY		SS		1867
	RUBELLA SEROLOGY		HI		1809
	NON-VIRAL SEROLOGY: ASOT, BRUCELLA, BORRELLIA, TOXOPLASMA, TULAREMIA, PARASITIC SEROLOGY, BARTONELLA, H.PYLORI, CRYPTOCOCCUS, REFERRED TESTING		BA		1804
	BLOOD/TISSUE PARASITES: (e.g. MALARIA) SPECIMEN TO BE SUBMITTED IN EDTA VACUTAINER TUBE		PS		1808A
	HEPATITIS SEROLOGY		HV		1802
	HIV SEROLOGY: AIDS		AT		1812
	VIRUS SEROLOGY		VS		1810
	ZOO NOTIC DISEASES & EMERGING PATHOGENS: ARBOVIRUSES (e.g. WEST NILE VIRUS) HANTA VIRUS, RICKETTSIA, EHRLICHIA, & LEPTOSPIRA. TICK SPECIMENS TO BE SUBMITTED IN ALTERNATE SEALED CONTAINER		ZD		1806
PRENATAL PANEL: CONSISTS OF (2) PINK VACUTAINER TUBES & (1) LAVENDER EDTA VACUTAINER TUBE		PP		1816	
FAECES VIALS	ENTERIC BACTERIOLOGY		EB		1825
	PARASITOLOGY: O&P, PARASITE IDENTIFICATION (WORMS)		PH		1808
PADDLE	PINWORM		PW		1890
SLIDES	MICROSCOPIC EXAMINATION: GONORRHEA, TRICHOMONAS, BACTERIAL VAGINOSIS, & YEAST		ME		1840
	SYPHILIS: DARK FIELD/DIRECT FLUORESCENT ANTIBODY		DF		1867
SWABS	VIRUS ISOLATION SWAB: HERPES, INFLUENZA AND OTHER VIRUS CULTURE		VI		1811
	INFLUENZA LIKE ILLNESS OUTBREAK KIT: (6 SWABS/KIT) FOR FACILITY TESTING ONLY				ILI FORM
	PLASTIC COTTON SWAB: CULTURE FOR BACTERIAL PATHOGENS EXCLUDING MYCOBACTERIUM SPP. & BORDETELLA PERTUSSIS		MS		1814
	WIRE COTTON SWAB: CULTURE OF URETHRAL & EYE SPECIMENS FOR BACTERIAL PATHOGENS AS FOR MS OUTFIT ABOVE		MS (WIRE SWAB)		1814
	PERTUSSIS KIT: CULTURE AND POLYMERASE CHAIN REACTION (PCR) TEST FOR BORDETELLA PERTUSSIS		MS (PERTUSSIS)		1814
	CHLAMYDIA TRACHOMATIS SWAB: POLYMERASE CHAIN REACTION (PCR) TEST FOR FEMALES		CS		1814
VIALS & JARS	CHLAMYDIA TRACHOMATIS VIAL: URINE FOR POLYMERASE CHAIN REACTION (PCR) TEST FOR MALES		CU		1814
	TUBERCULOSIS PLASTIC VIAL: SPUTUM, URINE & OTHER BODY FLUIDS (ALL MYCOBACTERIA)		KB		1815A
	TUBERCULOSIS TREATED GLASS VIAL: STOMACH WASHINGS (ALL MYCOBACTERIA)				1815A
	GLASS JAR: FOOD QUALITY/FOOD POISONING BACTERIOLOGY		FP		154
	TREATED ICE GLASS JAR: WATER BACTERIOLOGY		WB		1805
BOTTLES				1805	
REQUISITIONS THAT ARE ALSO AVAILABLE FOR USE BY BCCDC (NO SPECIMEN KITS WILL BE PROVIDED)			GENERAL BACTERIOLOGY & MYCOLOGY ORGANISM FOR IDENTIFICATION		1831
			MEDICAL MYCOLOGY		1814
BLOOD TUBES ONLY	BIOHAZARD BAGS	NOTE: PLEASE ORDER SUPPLIES FOR A 3-4 MONTH PERIOD AND VISIT OUR WEBSITE @ www.bccdc.org FOR INFORMATION ON COLLECTION PROCEDURES. THANK YOU PLACE ADDITIONAL REQUESTS IN THIS AREA			

HLTH 1875 REV.10/04

(SEE REVERSE SIDE OF SHEET FOR ADDITIONAL INSTRUCTIONS)

Tool 3.4 Checklist for School Absenteeism

Date: ____/____/____ **Completed by:** _____
 yyyy mm dd

Name of School: _____

Phone: _____

School contact name: _____

a) Student enrolment: _____	c) Total staff: _____
b) Number absent: _____	d) Number absent: _____
Absenteeism (b/a x 100%): _____	(d/c x 100%): _____

If absenteeism is 10% or more:

- Obtain names and contact phone numbers of those absent
- Determine the reason for absenteeism
- If a majority of those absent meet the case definition for ILI, arrange for testing
 - VIRAP testing of up to 6 cases with recent onset of symptoms
 - Results to MHO
 - Notification of those tested
 - If a cause is identified, letter home to all parents with information and instructions

Name	Address	Phone	VIRAP results

Tool 3.5 Schools and Contact Information

HEALTH SERVICE DELIVERY AREA	SCHOOL BOARD	SCHOOL	CONTACT NUMBER
Vancouver – CHA1	Vancouver School Board www.vsb.bc.ca	Elsie Roy	604-713-5890
		False Creek	604-713-4959
		L'Ecole Bilingue	604-713-4585
		Roberts	604-713-5055
		Roberts Annex	604-713-5495
		<i>King George</i>	604-713-8999
Vancouver – CHA2	Vancouver School Board	Britannia	604-713-4497
		Grandview	604-713-4663
		Macdonald	604-713-4696
		Nelson	604-713-4595
		Queen Victoria	604-713-4694
		Seymour	604-713-4641
		Strathcona	604-713-4630
		<i>Britannia</i>	604-713-8266
		<i>Templeton</i>	604-713-8984
		Beaconsfield	604-713-4605
Vancouver – CHA3	Vancouver School Board	Begbie	604-713-4686
		Bruce	604-713-4778
		Carlton	604-713-4810
		Collingwood	604-713-5340
		Cunningham	604-713-4675
		Dickens	604-713-4978
		Franklin	604-713-4709
		Garibaldi	604-713-4740
		Grenfell	604-713-4844
		Hastings	604-713-5507
		Lord	604-713-4620
		Maquinna	604-713-4705
		Maquinna Annex	604-713-4729
		Nootka	604-713-4767
		Norquay	604-713-4666
		Queen Alexandra	604-713-4599
		Renfrew	604-713-4851
		Secord	604-713-4996
		Selkirk	604-713-4650
		Thunderbird	604-713-4611
		Tillicum Annex	604-713-4716
		Tyee	604-713-4723
		<i>Gladstone</i>	604-713-8288
		<i>Van Technical</i>	604-713-8215
		<i>Windermere</i>	604-713-8180

HEALTH SERVICE DELIVERY AREA	SCHOOL BOARD	SCHOOL	CONTACT NUMBER
Vancouver – CHA4	Vancouver School Board	Bayview	604-713-5433
		Carnarvon	604-713-5396
		General Gordon	604-713-5403
		Hudson	604-713-5441
		Jules Quesnel	604-713-4577
		Kerrisdale	604-713-5446
		Kerrisdale Annex	604-713-5488
		Kitchener	604-713-5454
		Maple Grove	604-713-5356
		McKechnie	604-713-4952
		Queen Elizabeth	604-713-5408
		Queen Eliz Annex	604-713-5482
		Queen Mary	604-713-5464
		Quilchena	604-713-5420
		Shaughnessy	604-713-5500
		Southlands	604-713-5414
		Tennyson	604-713-5426
		Trafalgar	604-713-5475
		University Hill	604-713-5350
		<i>Kitsilano</i>	604-713-8961
		<i>Lord Byng</i>	604-713-8171
		<i>Magee</i>	604-713-8200
		<i>Point Grey</i>	604-713-8220
		<i>Prince of Wales</i>	604-713-8974
		<i>University Hill</i>	604-713-8258
Vancouver – CHA5	Vancouver School Board	Brock	604-713-5245
		Carr	604-713-4941
		Cavell	604-713-4932
		Dickens Annex	604-713-4978
		Fraser	604-713-4946
		Livingstone	604-713-4985
		Mackenzie	604-713-4799
		McBride	604-713-4971
		McBride Annex	604-713-5374
		Mount Pleasant	604-713-4617
		Nightingale	604-713-5290
		Selkirk Annex	604-713-4735
		Tecumseh Annex	604-713-5390
		Wolfe	604-713-4912
		<i>Hamber</i>	604-713-8927
		<i>Tupper</i>	604-713-8233
Vancouver – CHA6	Vancouver School Board	Champlain Heights	604-713-4760
		Champ. Hts Annex	604-713-4880
		Cook	604-713-4828

HEALTH SERVICE DELIVERY AREA	SCHOOL BOARD	SCHOOL	CONTACT NUMBER
Vancouver – CHA6	Vancouver School Board	Douglas	604-713-4817
		Douglas Annex	604-713-4885
		Fleming	604-713-4793
		Henderson	604-713-4837
		Henderson Annex	604-713-4872
		Jamieson	604-713-5367
		Kingsford-Smith	604-713-4746
		Laurier	604-713-4925
		Laurier Annex	604-713-5380
		Lloyd George	604-713-4895
		MacCorkindale	604-713-4775
		Moberly	604-713-4784
		Osler	604-713-4920
		Sexsmith	604-713-4901
		Tecumseh	604-713-5390
		Trudeau	604-713-4865
		Van Horne	604-713-4965
		Waverly	604-713-4752
		Weir	604-713-4771
		<i>Churchill</i>	604-713-8189
		<i>David Thompson</i>	604-713-8278
		<i>John Oliver</i>	604-713-8938
		<i>Killarney</i>	604-713-8950
Richmond	Richmond School. District www.sd38.bc.ca	Anderson	604-668-6355
		Blair	604-668-6330
		Blundell	604-668-6562
		Bridge	604-668-6236
		Brighthouse	604-668-6522
		Byng	604-668-6649
		Cook	604-668-6454
		DeBeck	604-668-6281
		Diefenbaker	604-668-6639
		Dixon	604-668-6608
		Errington	604-668-6699
		Ferris	604-668-6538
		Garden City	604-668-7855
		General Currie	604-668-6440
		Gilmore	604-668-6268
		Grauer	604-668-6547
		Hamilton	604-668-6514
		Homma	604-668-7844
		Kidd	604-668-6602
		Kingswood	604-668-6280
		Lee	604-668-6269

HEALTH SERVICE DELIVERY AREA	SCHOOL BOARD	SCHOOL	CONTACT NUMBER
Richmond	Richmond School District	Maple Lane	604-668-6692
		McKay	604-668-6470
		McKinney	604-668-6133
		McNeely	604-668-6250
		Mitchell	604-668-6225
		Quilchena	604-668-6224
		Sea Island	604-668-6468
		Sidaway	604-668-6466
		Spul'u'kwuks	604-303-5100
		Steves	604-668-6660
		Tait	604-668-6444
		Talmey	604-668-6275
		Thompson	604-668-6420
		Tomsett	604-668-6448
		Westwind	604-668-6497
		Whiteside	604-668-6209
		Woodward	604-668-6296
		Wowk	604-668-6198
		<i>Boyd</i>	604-668-6615
		<i>Burnett</i>	604-668-6478
		<i>Cambie</i>	604-668-6430
		<i>London</i>	604-668-6668
		<i>MacNeill</i>	604-668-6212
		<i>McMath</i>	604-718-4050
		<i>McNair</i>	604-668-6575
		<i>McRoberts</i>	604-668-6600
		<i>Palmer</i>	604-668-6288
		<i>Richmond</i>	604-668-6400
		<i>Steveston</i>	604-668-6500
Coastal	North Vancouver School District www.nvsd44.bc.ca	Blueridge	604-903-3250
		Boundary	604-903-3260
		Braemar	604-903-3270
		Brooksbank	604-903-3280
		Canyon Heights	604-903-3290
		Capilano	604-903-3370
		Carisbrooke	604-903-3380
		Cleveland	604-903-3390
		Cove Cliff	604-903-3420
		Dorothy Lynas	604-903-3430
		Eastview	604-903-3520
		Fromme	604-903-3520
		Highlands	604-903-3540
		Larson	604-903-3570

HEALTH SERVICE DELIVERY AREA	SCHOOL BOARD	SCHOOL	CONTACT NUMBER
Coastal	North Vancouver School District www.nvsd44.bc.ca	Lynn Valley	604-903-3620
		Lynnmour	604-903-3590
		Montroyal	604-903-3650
		Norgate Community	604-903-3680
		Plymouth	604-903-3690
		Queen Mary	604-903-3720
		Queensbury	604-903-3730
		Ridgeway	604-903-3740
		Ridgeway Annex	604-903-3747
		Ross Road	604-903-3750
		Seymour Heights	604-903-3760
		Sherwood Park	604-903-3810
		Upper Lynn	604-903-3820
		Westview	604-903-3840
		Windsor House	604-903-3366
		<i>Argyle</i>	604-903-3300
		<i>Balmoral Jr.</i>	604-903-3400
		<i>Carson Graham</i>	604-903-3555
		<i>Handsworth</i>	604-903-3600
		<i>Keith Lynn</i>	604-903-3800
		<i>Seycove</i>	604-903-3666
		<i>Sutherland</i>	604-903-3500
		<i>Windsor</i>	604-903-3700
	West Vancouver School District www.sd45.bc.ca	Bowen Island	604-947-9337
		Caulfield	604-981-1200
		Cedardale	604-981-1390
		Chartwell	604-981-1210
		Cypress Park	604-981-1330
		Eagle Harbour	604-981-1380
		Gleneagles	604-981-1360
		Hollyburn	604-981-1220
		Irwin Park	604-981-1240
		Lions Bay	604-921-8311
		Pauline Johnson	604-981-1225
		Ridgeview	604-981-1250
		West Bay	604-981-1260
		Westcot	604-981-1270
		<i>A.C.C.E.S.S.</i>	604-981-1062
		<i>Rockridge</i>	604-981-1300
		<i>Sentinel</i>	604-981-1130
		<i>West Vancouver</i>	604-981-1100
Coastal	Sunshine Coast www.sd46.bc.ca	Cedar Grove	604-886-7818
		Davis Bay	604-885-9523

HEALTH SERVICE DELIVERY AREA	SCHOOL BOARD	SCHOOL	CONTACT NUMBER
Coastal	Sunshine Coast www.sd46.bc.ca 604-886-8811	Gibsons	604-886-2612
		Halfmoon Bay	604-885-2318
		Kinnikinnick	604-885-6666
		Langdale	604-886-9971
		Madeira Park	604-883-2373
		Roberts Creek	604-885-9229
		Sechelt	604-885-2114
		Sunshine Coast Alt.	604-886-8647
		West Sechelt	604-885-2825
		<i>Chatelech</i>	604-885-3216
		<i>Elphinstone</i>	604-886-7216
		<i>Pender Harbour</i>	604-883-2373
		Edgehill	604-485-6164
		Grief Point	604-485-5660
Coastal	Powell River www.sd47.bc.ca	Henderson	604-483-9162
		James Thomson	604-483-3191
		Kelly Creek	604-487-9022
		Texada	604-486-7616
		Oceanview Middle	604-485-2756
		<i>Brooks Senior</i>	604-483-3171
		<i>Brooks Junior</i>	604-485-6251
		<i>Choices</i>	604-485-5257
		Blackwater Creek	604-452-3330
		Brackendale	604-898-3651
Coastal	Howe Sound www.sd48.bc.ca	Garibaldi Highlands	604-898-3688
		Mamquam	604-898-3601
		Myrtle Philip Community	604-932-5321
		Signal Hill	604-894-6378
		Spring Creek Community	604-935-3822
		Squamish	604-892-9307
		Stawamus	604-892-5904
		Valleycliffe	604-892-9394
		<i>Howe Sound Secondary</i>	604-892-5261
		<i>Pemberton Secondary</i>	604-894-6318
		<i>Don Ross</i>	604-898-3671
		<i>Whistler</i>	604-905-2581
		<i>Howe Sound Outreach</i>	604-894-5437
		Bowen Is. Montessori	604-947-9039
		Bowen Learning Ctr.	604-947-0796
		Collingwood 6-12	604-925-3331

HEALTH SERVICE DELIVERY AREA	SCHOOL BOARD	SCHOOL	CONTACT NUMBER
		Collingwood K-5	604-925-3331
		Gatehouse Montessori	604-925-1437
		Horseshoe Bay Christian	604-921-9978
		Island Pacific School	604-947-9311
		Mulgrave School	604-922-3223
		St. Anthony's	604-922-0011
		West Van Montessori	604-922-7454
Coastal	North Vancouver Independent Schools	Andre Piolat	604-980-6040
		Bodwell High School	604-924-5056
		Brockton Prep.	604-929-9201
		Canadian Int'l College	604-929-1544
		Ecole Francais EFIV	604-924-2457
		Holy Trinity	604-987-4454
Coastal	North Vancouver Independent Schools	Lion's Gate Christian	604-984-8226
		Lucas Centre	604-903-3333
		North Van Christian Academy	604-986-2288
		North Star Montessori	604-980-1205
		St. Thomas Aquinas	604-987-4431
		St. Edmund's	604-988-7364
		St. Pius X	604-929-0345
		Waldorf	604-985-7435
Coastal	Conseil scolaire francophone North Vancouver	Ecole Andre-Piolat	604-980-6040
	Pemberton	Ecole de la Vallée de Pemberton	604-932-9602
	Sechelt/Gibsons	Ecole du Pacifique	604-885-4743
		Chateleh Secondary	604-885-3216
	Squamish	Ecole des Aiglons	604-898-3688
	Whistler	Ecole La Passerelle	604-932-9602
Richmond	Richmond	Ecole des Navigateurs	604-718-5629
Vancouver	Vancouver	Ecole Rose-des-Vents	604-267-9022
	Vancouver	Ecole Anne-Hébert	604-713-4858
	Vancouver	Kitsilano Secondary	604-731-8378

Chapter 4

INFECTION AND ENVIRONMENTAL CONTROL

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CHAPTER SUMMARY

A comprehensive infection prevention and environmental control program forms the basis of a successful pandemic influenza plan. Adherence to infection prevention and control policies and procedures is imperative to minimize the transmission of influenza whether or not vaccine and antiviral medications are available.

Routine practices and additional precautions to prevent the transmission of infection during the delivery of health care in all health care settings during a pandemic are important. Certain precautions may be feasible only in the pandemic alert and early pandemic periods as they may not be achievable or practical as the pandemic spreads and resources (equipment, supplies and human resources) become scarce. Strict adherence to hand-washing or hand hygiene is the cornerstone of infection prevention and may at times be the only significant preventative measure available during a pandemic.

This chapter provides an overview of infection prevention and environmental control guidelines that will be critical to minimizing the transmission of pandemic influenza. This chapter is broken down into information specific to health care settings and to other settings so that all sites can better use it and adapt it for their areas.

4.1 — INFECTION CONTROL GUIDELINES

During the influenza pandemic, adherence to infection control practices is extremely important to prevent or minimize transmission of influenza. These guidelines for the management of pandemic influenza in traditional and other settings are based on published guidelines from the Public Health Agency of Health Canada, as well as the Canadian and British Columbia Pandemic Influenza Plans.

Principles of Infection Control

Mode of Transmission

Influenza is transmitted by:

Droplet contact of the oral, nasal or possibly conjunctiva mucous membranes with the oropharyngeal secretions of an infected individual.

Indirect contact from hands and articles freshly soiled with discharges of the nose and throat of an acutely ill individual.

Droplet transmission from the respiratory tract of an infected individual.

Possibly by the airborne route (controversial) during aerosolizing procedures.

Period of Communicability

Period of communicability of influenza is **24 hours before** symptom onset and **up to 7 days after** the onset of symptoms (may be longer in children and some adults).

Note: Influenza A and B virus can survive on hard surfaces for 24 to 48 hours, on softer, porous surfaces for 8 to 12 hours and on the hands for up to 5 minutes.

Incubation Period

The incubation period is **1 to 3 days**.

Infection Control Practices

Most health care settings in Vancouver Coastal Health use similar systems of infection control precautions, but may refer to them by different names, such as body substance precautions, routine practices or standard precautions. These systems may vary slightly from facility to facility, but the guiding principles are the same. In this document, the term routine practices will be used.

Health Canada provides two excellent guidelines on infection control precautions.

- *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*, which has current infection control recommendations for acute care, long term care, ambulatory care facilities, and home care. This document also provides tools to assist in the implementation of these practices.
- *Infection Control Guidelines for Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*, which has recommendations for hand hygiene and gloves, cleaning and processing of patient care equipment, housekeeping, laundry, and waste management.

Inter-pandemic Period

During the inter-pandemic years, the Health Canada guidelines recommend that in addition to routine practices, which should be taken for the care of all patients, additional precautions (droplet and contact precautions) should be taken for paediatric and adult patients with influenza or who present with an acute, respiratory illness. Children and adults, who are both physically and cognitively able to practice good hand hygiene and good personal hygiene, should be encouraged to do so. General

infection control guidelines that apply to all settings and all those involved in providing health care are discussed in this section. Specific infection control guidelines are discussed in the rest of this chapter.

Routine Practices

Routine practices are the infection prevention and control practices used in the routine care of all patients at all times in all health care settings. Routine practices outline the importance of hand hygiene; the need to wear gloves, masks, eye protection or face shields, and gowns when contact with blood, body fluids, secretions or excretions is possible; the cleaning of patient-care equipment; cleaning of the environment; the handling of soiled linen; waste disposal procedures; patient placement procedures and precautions to reduce the possibility of Health Care Workers (HCW) exposure to blood borne pathogens and other infectious pathogens.

Additional Precautions

Additional precautions are required when routine practices are not sufficient to prevent transmission. In Vancouver, these *additional precautions* may be referred to by different names. For example, *transmission based precautions* include droplet, airborne, and contact precautions; *category specific precautions* include strict, respiratory and enteric precautions. Both are based on the mode of transmission and have been designed to meet the specific needs of the institution. In this document, “**additional precautions**” will be used. In addition to routine practices, contact and droplet precautions may be required in certain situations to prevent transmission of influenza.

Droplet Precautions

Droplet precautions for influenza during the inter-pandemic years include the use of personal protective equipment, such as a mask, goggles or a face shield when providing care, placing the patient in a private room or cohorting the patient with another patient with influenza. Droplet precautions with the addition of a particulate respirator (N95 mask) should be practiced during any procedure that may result in aerosolization, for example, respiratory intubations, bronchoscopy, and cardio-pulmonary arrest management.

Contact Precautions

Contact precautions for influenza during the inter-pandemic years include wearing gloves and gowns when providing care to the patient and when in contact with frequently touched environmental surfaces or objects that may be contaminated, placing the patient in a private room or cohorting the patient with another patient with influenza.

Droplet and contact precautions in regard to pandemic influenza are addressed in each specific section and are described in general in *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care* for each of the health care settings.

Hand Hygiene

Hand hygiene is an important step in preventing the spread of infectious diseases, including influenza. Hand hygiene can be performed with soap and warm water or by using waterless alcohol-based hand sanitizers. Waterless alcohol-based hand sanitizers are especially useful when access to sinks or warm running water is limited. Placing alcohol based hand sanitizers at the entrance of facilities is useful in preventing transmission of infectious diseases. Hand hygiene procedures using both soap and water, developed for the Canadian Pandemic Influenza Plan, are included in the *Forms and Tools* section of this chapter.

Note: Hospital germicides, household-cleaning products, soap, and hand-wash or hand hygiene products readily inactivate the influenza virus. Therefore, special antiseptic hand hygiene products in health care settings or antibacterial hand hygiene products in home settings are unnecessary.

Basic Hygiene Measures

Basic hygiene measures should be reinforced and people should be encouraged to practice them to minimize potential influenza transmission, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Patient Placement

If possible, patients with symptoms of an influenza-like illness (ILI) should be separated from those without symptoms. Ill patients should:

- Be placed in a single room or cohorted with another patient with an ILI.
- Have dedicated bathrooms.
- Be separated by at least one-meter distance in other locations (avoid crowding).

Other Activities to Limit Spread of Influenza

As much as possible, staff working with symptomatic patients should avoid working with patients who are not symptomatic (staff cohort). This can be accomplished as follows:

- Attempt to assign the same staff to assist symptomatic patients.
- Keep symptomatic patients in room until symptoms cease.
- Limit movement and activities of patients including transfers within the facility.
- Limit unvaccinated visitors.
- Avoid group activities.

Use of Masks During an Influenza Pandemic

In this context, masks refer to surgical or procedure masks, not special masks or N 95 masks. There is a lack of evidence that the use of masks has prevented the transmission of influenza during previous pandemics. Masks should be worn by HCW's as outlined in routine practices when splashes or sprays of blood, body fluids, secretions or excretions to the mucous membranes of the mouth are possible. Masks may be useful in the pandemic alert and early pandemic periods during face-to-face contact with coughing individuals, especially when immunization and antivirals are not yet available. The use of masks may not be practical or helpful when transmission is widespread in a facility and in the community.

A particulate respirator (N95 mask) should be worn by the health care worker during contact with patients who have an undiagnosed cough that may be caused by an organism that is spread by the airborne route e.g. TB, chickenpox, measles or during aerosolizing procedures with a patient suspected or known to have an organism spread by droplet transmission.

Pandemic Period

Routine practices and additional precautions to prevent the transmission of infection during a pandemic are important. Some infection control strategies may be achievable only in the early pandemic period and other recommendations may not be achievable as the pandemic spreads and resources (equipment, supplies, private rooms, and human resources) become scarce. The complexity

of management of high-risk patients will be greatest in acute care hospitals that will continue to admit patients with other communicable respiratory diseases. It is possible that infection control resources may need to be prioritized to the acute care settings.

The strict adherence to **HAND HYGIENE** recommendations is the cornerstone of infection prevention and control and may be the only preventive measure available during a pandemic.

4.2 — ACUTE CARE SETTINGS

Acute care settings group patients together, who have a high risk of developing serious, sometimes fatal complications related to influenza. In addition, morbidity and mortality related to hospital-acquired (i.e. nosocomial) infections is much greater in acute care populations than in other populations.

Physical Setting

When the Pandemic is declared:

- Open triage settings in acute care hospitals.
- Open cohort areas/units in the hospital.
- Post signs at all entrances informing patients, residents, clients, visitors, volunteers and staff of appropriate actions to be taken before or upon entering the facility.

Management of Staff

- Provide education to all staff.
- Adhere to the organization's Occupational Health Plan for managing Pandemic Influenza.

Infection Control Practices

Routine Practices

Acute Care Facilities should adhere to the previously established policies and procedures they have in place for routine infection control practices.

Additional Precautions

Acute Care Facilities should adhere to the previously established policies and procedures for using additional infection control precautions when routine practices are not sufficient to prevent transmission. Although droplet and contact precautions are recommended in preventing the transmission of influenza during an inter-pandemic period, these precautions may not be achievable or practical as the pandemic spreads and resources become scarce. Infection control resources may need to be prioritized to the acute care settings where the complexity of patient care is greatest.

Hand Hygiene

- Staff, patients and those attending or providing care to a patient should be reminded that hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.
- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced and are found in the Forms and Tools section of this chapter.

Basic Hygiene Measures

Patients, staff and visitors should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

Masks/Eye Protection

- Masks (surgical/procedure) to minimize transmission of influenza may be helpful when having face-to-face contact with individuals suspected of having the flu during the early pandemic period, especially when immunization and chemoprophylaxis is not available. The use of masks may not be practical or helpful when transmission is widespread in a facility or a community.
- Masks, eye protection, or face shields should be worn to prevent HCW exposure to sprays of blood, body secretions or excretions.
- A Particulate Respirator (N95 mask) should be worn by the HCW during:
 - Contact with patients who have an undiagnosed cough that may be caused by an organism that is spread by the airborne route e.g. TB, chickenpox, and measles.
 - Aerosolizing procedures with a patient suspected or known to have an organism spread by droplet transmission..
- HCW's should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

Gloves

- Gloves are not required for the routine care of patients suspected or confirmed to have influenza.
- Clean non-sterile gloves should be worn for:
 - Contact with blood, body fluids, secretions, excretions, mucous membranes and non-intact skin
 - Handling items visibly soiled with blood, body fluids, secretions or excretions.
- Gloves should be used as an additional measure. They are not a substitute for hand washing.
- Single-use gloves should not be re-used or washed.

Gowns

- Gowns are not required for the routine care of patients suspected or confirmed to have influenza.
- Gowns should be used to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions.
- HCW'S should ensure any open skin areas/lesions on forearms or exposed skin are covered as appropriate. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible.

Cleaning, Disinfection and Sterilization of Patient Care Equipment

Acute Care Facilities should adhere to the previously established policies and procedures for the cleaning, disinfection and sterilization of patient care equipment.

Environmental Control (housekeeping, laundry, waste)

- Acute Care Facilities should adhere to the previously established policies and procedures for housekeeping, laundry and waste disposal including regular garbage and biomedical waste.
- Special handling of linen or waste contaminated with secretions from patients suspected or confirmed to have influenza is not required.
- Enhanced cleaning and disinfection of common touch surfaces (handrails, door knobs, sink/toilet) may be required as resources permit.

Patient Accommodation or Placement

- Single rooms in acute care settings are limited and should be:
 - For patients suspected of having or confirmed to have airborne infections, e.g. tuberculosis, measles, varicella and disseminated zoster.
 - Considered for patients who visibly soil the environment or for whom appropriate hygiene cannot be maintained.
- Minimize crowding (i.e. maintain at least a one meter spatial separation) between patients, visitors and staff whenever possible.

Patient Triage or Cohorting

When the Pandemic is declared, open the following cohort areas:

- Influenza-Like-Illness (ILI) Assessment Area;
- Non ILI Assessment Area;
- Suspected/Exposed to ILI Inpatient units;
- Not Exposed/Immune to Influenza, Inpatient Units;
- Not exposed to ILI but at very high risk of complications, Inpatient units.

Patient Admission

- When the Pandemic has been declared medical and surgical acute care hospital admissions will be prioritized according to pre-established guidelines.
- Patients who have recovered from influenza can be moved into the “Non Influenza” cohort areas after the period of communicability of the pandemic strain has passed.
- As the pandemic progresses, the “Suspect/Exposed” Cohort and the “Confirmed Influenza” cohort may need to be merged.
- Maintain cohort principles until the pandemic wave has been declared over.

Patient Activity Restrictions

- Enhance triage and admission process.
- Limit movement/activities of patients including transfers within the hospital, unless the patient has recovered from pandemic influenza.
- Patients with ILI who are coughing should only leave their room for urgent/necessary procedures. The need for the procedure and the scheduling of the time for the procedure need to be considered so that non-influenza patients are not exposed to those with influenza.
- Cancel group activities. One-on-one activities, such as physiotherapy, are desirable if the patient feels well enough.

- Patients with ILI who are coughing should wear a surgical/procedure mask whenever they need to be out of their room until the period of communicability of the pandemic strain has passed.

Visitor Restrictions

- There are no restrictions for asymptomatic visitors who have recovered from pandemic influenza or who have been immunized against the pandemic strain of influenza, at least two weeks previously.
- Visitors with ILI should not visit until they are asymptomatic. Close relatives of terminally ill residents can be exempt, but should put a mask on upon entry into the facility and their visit should be restricted to that patient only.
- Visitors should be informed when the acute care facility has influenza activity. Those who have not yet had the pandemic strain of influenza or who have not been immunized against the pandemic strain should be discouraged from visiting. Close relatives of terminally ill residents can be exempt, but they should restrict their visit to that individual only and they should wash their hands on exit from the patient's room. Wearing a mask upon entry to the facility is only useful if there is no influenza in the community.

4.3 — LONG-TERM CARE SETTINGS

Influenza is a major cause of illness and death in residents of long term care facilities because the resident's advanced age and underlying illness increase the risk of serious complications and because institutional living increases the risk of influenza outbreaks. It is reasonable to anticipate that pandemic influenza would have the same impact in long term care settings.

Long-term care facilities are referred to the *Pandemic Response Planning Checklist for Long-Term Care Facilities* at: http://www.vch.ca/pandemic/docs/long_term_checklist.pdf

Physical Setting

When the Pandemic is declared, post signs at all entrances informing patients, residents, clients, visitors, volunteers and staff of appropriate actions to be taken before or upon entering the facility.

Management of Staff

- Provide education to all staff
- Adhere to the organization's Occupational Health Plan for managing Pandemic Influenza

Infection Control Practices

Routine Practices

Long term care facilities should adhere to the previously established policies and procedures they have in place for routine infection control practices and/or Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*.

Additional Precautions

Although droplet and contact precautions may prevent transmission of influenza when there are individual cases, they have not been shown to be effective or feasible for outbreaks of influenza in long term care facilities.

Hand Hygiene

- Staff, residents and visitors should be reminded that hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus
- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced and are found in the Forms and Tools section of this chapter.

Basic Hygiene Measures

Residents, staff and visitors should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or

using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

Masks/Eye Protection

- Masks (surgical/procedure) to minimize transmission of influenza may be helpful when having face-to-face contact with individuals suspected of having the flu during the early pandemic period, but are not practical or helpful when transmission is widespread in a facility or a community.
- Masks, eye protection, or face shields should be worn to prevent HCW exposure to sprays of blood, body secretions or excretions.
- HCW's should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

Gloves

- Gloves are not required for the routine care of residents suspected or confirmed to have influenza.
- Clean non-sterile gloves should be worn for:
 - Contact with blood, body fluids, secretions, excretions, mucous membranes and non-intact skin;
 - Handling items visibly soiled with blood, body fluids, secretions or excretions.
- Gloves should be used as an additional measure. They are not a substitute for hand washing.
- Single-use gloves should not be re-used or washed.

Gowns

- Gowns are not required for the routine care of residents suspected or confirmed to have influenza.
- Gowns should be used to protect uncovered skin and prevent soiling of clothing during procedures and resident care activities likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- HCW's should ensure any open skin areas/lesions on forearms or exposed skin are covered as appropriate. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible.

Cleaning, Disinfection and Sterilization of Patient Care Equipment

Long Term Care Facilities should adhere to the previously established policies and procedures for the cleaning, disinfection and sterilization of patient care equipment. It may be necessary to send equipment off site for cleaning and processing.

Environmental Control (housekeeping, laundry, waste)

- Special handling of linen or waste contaminated with secretions from residents suspected or confirmed to have influenza is not required.
- Long Term Care Facilities should adhere to the previously established policies and procedures for housekeeping, laundry and waste disposal including regular garbage and biomedical waste.

- Enhanced housekeeping may be required as resources permit.

Transfer to Acute Care

Residents with influenza or influenza-like illness (ILI) requiring more acute care should be cared for in “acute influenza care” areas within the LTC facility itself. They should **only** be transferred to acute care settings under pre-established guidelines.

Admission/Re-Admission

- Patients from acute care who have recovered from pandemic influenza or who are immunized against the pandemic influenza strain may be admitted into the LTC facility without restrictions.
- Residents who were transferred to acute care or other facility and who have recovered from pandemic influenza or who have been immunized against the pandemic influenza strain may be re-admitted into the LTC facility without restrictions.
- LTC facilities that have already had pandemic influenza through their facility may admit individuals from the community or acute care without restrictions.
- LTC facilities that have remained “influenza free” may admit patients from acute care or the community who have been potentially exposed to influenza. However, such residents must be managed using droplet precautions; maintain one meter of spatial separation; apply face protection (mask, goggles or face shield) if within one meter of the resident; and emphasize hand hygiene for 3 days until past the incubation period if no influenza symptoms occur and until 7 days after the onset of symptoms if influenza develops.

Cohorting

- Cohorting resident groups; i.e., confirmed/suspected influenza, exposed/not exposed to influenza, is not a feasible measure to control pandemic influenza in a LTC facility. When influenza has been identified in one area of the LTC facility (via residents, staff or visitors) it can be assumed that the facility has been exposed and the following measures should occur throughout the facility:
- Encourage ill residents to stay in their rooms. Serve meals in resident’s rooms as resources permit. If symptomatic residents insist on eating meals in the dining room, seat them alone or with other symptomatic residents, if possible.
- Cancel group outings and group activities, such as bingo, teas, choir, going to hairdresser, etc.
- Cancel resident appointments/medical procedures if possible until the outbreak is over.

Visitor Restrictions

- There are no restrictions for asymptomatic visitors who have recovered from pandemic influenza or who have been immunized against the pandemic strain of influenza at least two weeks previously.
- If the LTC facility has remained “influenza free”, visitors with ILI should not visit until they have recovered. Visitors for terminally ill residents may be exempt, but should put a mask on upon entering the facility and restrict their visit to that resident only.
- Visitors should be informed when the LTC facility has experienced influenza activity. Visitors, who have not yet had the pandemic strain of influenza and are not immunized against the pandemic strain, should be discouraged from visiting. Visitors for terminally ill residents can be exempt, but should restrict their visit to that resident only and wash their hands on exit from the resident’s room. Wearing a mask upon entering the facility is only useful if there is no influenza in the community.

4.4 — AMBULATORY CARE SETTINGS

These guidelines can be used for already established ambulatory care sites (such as community health centres, doctors' offices, walk-in clinics) or for alternative care sites that have been set-up for the care and management of persons who may have an ILI; e.g., triage settings, immunization sites, clinics, etc.

Administration

When the Pandemic is declared:

- Cancel or postpone non-urgent and routine clinics (e.g. ICY (Infant, Child, Youth), Healthy Baby clinics and ambulatory care visits).
- Consider creating a dedicated telephone “hot line” to provide information about the scope of operations of the setting during this phase of the pandemic. This should also include information about the pandemic influenza, the purpose of triage settings and self-care guidelines.
- Post signs at all entrances informing patients, clients, visitors, volunteers and staff of appropriate actions to be taken before or upon entering the facility.
- Provide instructions on setting up appointments and report any febrile illnesses prior to attending appointment so that appropriate precautions can be taken.

Physical Setting

- If possible, separate well patients from those with ILI by considering the following strategies:
 - Minimizing time spent in waiting rooms;
 - Providing separate entrance/waiting room for patients with ILI;
 - Placing patients with ILI directly into a single room if possible;
 - Separating patients as quickly as possible by placing ILI patients in an area of the waiting room separated from non-ILI patients by at least 1 meter.
- Remove magazines, toys and other unnecessary items from the waiting room.

Management of Staff

- Provide education to all staff.
- Adhere to the organization's Occupational Health Plan for managing Pandemic Influenza.

Infection Control Practices

Routine Practices

Ambulatory care facilities should adhere to the previously established policies and procedures they have in place for routine infection control practices and/or the Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*.

Additional Infection Control Precautions

Although droplet and contact precautions are recommended for preventing the transmission of influenza during an inter-pandemic period, these precautions may not be achievable or practical as the pandemic spreads and resources become scarce. Adherence to routine practices is achievable.

Hand Hygiene

- Staff, patients and those attending or providing care to a patient should be reminded that hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.
- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced and are found in the *Forms and Tools* section of this chapter.

Basic Hygiene Measures

Staff, patients and others in the ambulatory care setting should be encouraged to minimize potential influenza transmission through hygienic measures; e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

Masks/Eye Protection

- Masks (surgical/procedure) to minimize transmission of influenza may be helpful when having face-to-face contact with individuals suspected of having the flu during the pandemic alert and early pandemic periods, but are not be practical or helpful when transmission is widespread in a facility or a community.
- Masks, eye protection, or face shields should be worn to prevent HCW exposure to sprays of blood, body secretions or excretions.
- HCW's should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

Gloves

- Gloves are not required for the routine care of residents suspected or confirmed to have influenza.
- Clean non-sterile gloves should be worn for:
 - Contact with blood, body fluids, secretions, excretions, mucous membranes and non-intact skin
 - Handling items visibly soiled with blood, body fluids, secretions or excretions.
- Gloves should be used as an additional measure. They are not a substitute for hand washing.
- Single-use gloves should not be re-used or washed.

Gowns

- Gowns are not required for the routine care of patients suspected or confirmed to have influenza.
- Gowns should be used to protect uncovered skin and prevent soiling of clothing during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- HCW'S should ensure any open skin areas/lesions on forearms or exposed skin are covered as appropriate. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible.

Cleaning, Disinfection and Sterilization of Patient Care Equipment

Ambulatory Care Facilities should adhere to the previously established policies and procedures for the cleaning, disinfection and sterilization of patient care equipment. It may be necessary to send equipment off site for cleaning and processing. Ambulatory Care settings should adhere to the Health Canada *Infection Control Guidelines Hand Washing, Cleaning, Disinfection And Sterilization In Health Care*.

Environmental Control (housekeeping, laundry, waste)

- Special Handling of linen or waste contaminated with secretions from persons suspected or confirmed to have influenza is not required
- Ambulatory Care settings should adhere to the Health Canada Infection Control Guidelines *Hand Washing, Cleaning, Disinfection And Sterilization In Health Care*.
- Enhanced housekeeping may be required as resources permit.

Patient Activity Transport

Patients with ILI should only leave the ambulatory care area as directed by ambulatory care staff, e.g. home, hospital, non-traditional sites.

4.5 — HOME CARE SETTINGS

These guidelines can be used for any health care provided in the home setting.

Physical Setting

When the Pandemic is declared, cancel home care visits that are not absolutely necessary.

Management of Staff

Provide education to all staff.

Adhere to the organization's Occupational Health Plan for managing Pandemic Influenza Infection Control Practices.

Infection Control Practices

Routine Practices

Home care workers should adhere to the previously established policies and procedures they have in place for routine infection control practices and/or the Health Canada Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*.

Additional Precautions

Although droplet and contact precautions are recommended in preventing the transmission of influenza during an inter-pandemic period, these precautions may not be achievable or practical as the pandemic spreads and resources become scarce. Adherence to routine practices is achievable.

Hand Hygiene

- Home care workers, clients and household members should be reminded that hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.
- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced and are found in the Forms and Tools section of this chapter.

Basic Hygiene Measures

Home care workers and their clients, should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

Masks/Eye Protection

- Masks (surgical/procedure) to minimize transmission of influenza may be helpful when having face-to-face contact with individuals suspected of having the flu during the pandemic alert early pandemic periods, but are not be practical or helpful when transmission is widespread in the community.
- Masks, eye protection, or face shields should be worn to prevent HCW exposure to sprays of blood, body secretions or excretions.
- HCWs should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

Gloves

- Gloves are not required for the routine care of clients suspected or confirmed to have influenza.
- Clean non-sterile gloves should be worn for:
 - For contact with blood, body fluids, secretions, excretions, mucous membranes and non-intact skin.
 - Handling items visibly soiled with blood, body fluids, secretions or excretions.
- Gloves should be used as an additional measure. They are not as a substitute for hand washing.
- Single-use gloves should not be re-used or washed.

Gowns

- Gowns are not required for the routine care of clients suspected or confirmed to have influenza.
- Gowns should be used to protect uncovered skin and prevent soiling of clothing during procedures and client care activities likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- HCW'S should ensure any open skin areas/lesions on forearms or exposed skin are covered as appropriate. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible.

Cleaning, Disinfection and Sterilization of Patient Care Equipment

Home Care Staff should adhere to the previously established policies and procedures for the cleaning, disinfection and sterilization of patient care equipment used in the home. As supplies become scarce, it may become necessary to find alternative methods of cleaning and disinfecting equipment for home use.

Environmental Control (housekeeping, laundry, waste)

- Special handling of linen or waste contaminated with secretions from persons suspected or confirmed to have influenza is not required.
- Home care settings should adhere to already established guidelines for the management of linen, environmental cleaning and waste disposal and/or adhere to Health Canada Infection Control Guidelines *Hand Washing, Cleaning, Disinfection And Sterilization In Health Care*.

Triage

- Perform an ILI assessment of the client and their household contacts by phone prior to the appointment or before going into the home. Assess the risk of influenza in the client or household contacts. Ask clients to notify health care staff if an ILI develops.
- Provide clients and family members with information regarding symptoms of ILI, Self Care Guidelines and the purpose of Triage Settings.
- Counsel clients and household contacts to avoid public gatherings to minimize exposure.

Visitors

- Only well (asymptomatic/unexposed) visitors should visit severely immunocompromised clients in the home, e.g. transplant recipients, hematology/oncology clients as these clients are at risk of serious complication if infected with influenza.
- Visitors for the terminally ill can be exempt, but should put on a mask before entering the home and restrict the length of time spent with the client if possible.

4.6 — EMERGENCY RESPONDERS

Pandemic Planning

- Management should ensure the responsibility for Infection Control and Occupational Health in the Emergency Responder setting is assigned to a specific individual.

Management of Staff

- Provide education to all staff.
- Adhere to the organization's Occupational Health Plan for managing Pandemic Influenza.

Infection Control Practices

Routine Practices

Emergency Responders should adhere to routine infection control practices (aka standard precautions). Routine practices are the infection prevention and control practices used in the routine care of all patients, at all times in all health care settings. Routine practices outline the importance of hand hygiene; the need to wear gloves, masks, eye protection, face shields, and gowns when contact with blood, body fluids, secretions or excretions is possible; the cleaning of patient-care equipment; cleaning of the environment; the handling of soiled linen; waste disposal procedures; patient placement procedures and precautions to reduce the possibility of HCW exposure to blood borne pathogens and other infectious pathogens. A more detailed description of routine precautions can be found in Health Canada's Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*.

Additional Precautions

Although droplet and contact precautions are recommended in preventing the transmission of influenza during an inter-pandemic period, these precautions may not be achievable or practical as the pandemic spreads and resources become scarce. Adherence to routine practices is achievable.

BC Paramedics should also refer to the **BC Ambulance Service Exposure Control Plan, April 2004** for specific guidelines. This document provides detailed instructions on standard precautions (aka routine practices which are described in this document) as well as instructions on decontamination of the work site and the ambulance and equipment.

Hand Hygiene

- Strict adherence to hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.
- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced and are found in the Forms and Tools section of this chapter.

Basic Hygiene Measures

Emergency Responders should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose. Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

Masks/Eye Protection

- Masks (surgical/procedure) to minimize transmission of influenza may be helpful when having face-to-face contact with individuals suspected of having the flu during the pandemic alert and early pandemic periods, but are not practical or helpful when transmission is widespread in a facility or a community.
- Masks, eye protection, or face shields should be worn by the Emergency Responder to protect against exposure to sprays of blood, body secretions or excretions.
- A Particulate Respirator (N95 mask) should be worn by the Emergency Responder during:
 - Contact with patients who have an undiagnosed cough that may be caused by an organism that is spread by the airborne route e.g. TB, chickenpox, measles;
 - Aerosolizing procedures e.g. intubations, with a patient suspected or known to have an organism spread by droplet transmission.
- Emergency Responders should avoid touching their eyes with their hands to prevent self-contamination with pathogens.

Gloves

- Gloves are not required for the routine care of patients suspected or confirmed to have influenza.
- Clean non-sterile gloves should be worn for:
 - Contact with blood, body fluids, secretions, excretions, mucous membranes and non-intact skin;
 - Handling items visibly soiled with blood, body fluids, secretions or excretions.
- Gloves should be used as an additional measure. They are not a substitute for hand washing.
- Single-use gloves should not be re-used or washed.

Gowns

- Gowns are not required for the routine care of patients suspected or confirmed to have influenza.
- Gowns should be used to protect uncovered skin and prevent soiling of clothing during procedures and activities likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- Emergency Responder's should ensure any open skin areas/lesions on forearms or exposed skin are covered as appropriate. Intact skin that has been contaminated with blood, body fluids, secretions or excretions should be washed as soon as possible.

Patient Triage

Whenever feasible, personnel responsible for answering emergency calls related to influenza-like illness (ILI) should triage patients according to pre-established guidelines and **ensure this information gets to the Emergency Room or receiving facility.**

Patient Care Equipment (Cleaning, Disinfection, Sterilization)

Emergency Responders should adhere to previously established procedures and policies for cleaning, disinfecting and sterilization of patient care equipment as outlined in the Health Canada Infection Control Guidelines *Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*.

Environmental Control (housekeeping, laundry, waste)

- Special handling of linen or waste contaminated with secretions from patients suspected or confirmed to have influenza is not required.
- Emergency Responders should adhere to the recommendations for housekeeping, laundry and waste management, as outlined in the Health Canada Infection Control Guidelines *Hand Washing, Cleaning, Disinfection and Sterilization In Health Care* and *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*. Equipment and surfaces contaminated with secretions from patients suspected or confirmed to have influenza should be cleaned before use with another patient.

4.7 — CHILD CARE SETTINGS

Infectious diseases occur with increased frequency in childcare settings. The incidence is affected by the age and immune status of children, the number of children and group size, the degree of close contact between children and attendants and the hygienic habits of children and attendants.

Infections acquired in the childcare setting may spread to attendants, family members and the community.

Influenza in childcare settings can be significant because viral shedding in the nasal secretions usually continues for 7 days from the onset of the illness. Attack rates of influenza in healthy children have been estimated at 10% - 40% each year, with approximately 1% resulting in hospitalization.

Pandemic Planning

- Management should ensure the responsibility for Infection Control and Occupational Health in the Child Care setting is assigned to a specific individual.

Management of Staff/Children

Children:

- When the pandemic is declared, parents should not send children to day care if at all possible until, the pandemic phase has ended; the child has recovered from ILI or the pandemic has gone through the child care centre.
- Parents should not send children with signs of ILI to day care.
- If a child develops signs of ILI while at school or day care, they should be sent home immediately.

Staff:

- Provide education to all staff.
- Adhere to Occupational Health Management as per organization's policy.

Infection Control Practices

Routine Practices

Child Care Workers (CCW) should adhere to routine infection control practices including procedures for washing toys. Guidelines for washing toys can be found in the Forms and Tools section of this chapter. Routine practices are the infection prevention and control practices used in the routine care of all children at all times. Routine practices outline the importance of hand hygiene; the need to wear gloves when contact with blood, body fluids, secretions or excretions is possible; environmental cleaning; proper handling of soiled items and waste disposal. A more detailed description of routine precautions can be found in Health Canada's Infection Control Guidelines *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*.

Hand Hygiene

- Strict adherence to hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.

- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced with all child care workers, visitors, children and their families. Assistance should be provided for those who are unable to wash their own hands. Guideless for these procedures can be found in the Forms and Tools section of this chapter.

Basic Hygiene Measures

Child Care Workers, children and their families should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol-based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

- Personal protective equipment such as masks, aprons, and goggles should be used by CCW's when there is a possibility of an exposure to blood, body fluids secretions or excretions regardless of diagnosis.
- Masks to minimize transmission of influenza may be helpful when having face-to-face contact with coughing children/individuals who are suspected of having the flu during the pandemic alert and early pandemic periods, but are not be practical or helpful when transmission has entered the community.

Environmental Control (housekeeping, laundry, waste)

- Special handling of linen or waste contaminated with secretions from people suspected or confirmed to have influenza is not required.
- Guidelines for toy cleaning can be found in the Forms and Tools section of this chapter.

4.8 — MORTUARY CARE WORKERS

The risk of influenza transmission to Funeral Service Workers will be through their contact with families and friends of the deceased, not the deceased. There is no additional risk of transmission of influenza to funeral home workers related to handling bodies of persons suspected of having or confirmed to have died from influenza. Deceased bodies (confirmed or suspected to have influenza during interpandemic or pandemic years) require routine infection control precautions only.

Pandemic Planning

- Management should ensure the responsibility for Infection Control and Occupational Health in the Mortuary Care Site is assigned to a specific individual.

Management of Staff

- Provide education to all staff.
- Adhere to the organization's Occupational Health Plan for managing Pandemic Influenza

Infection Control Practices

Routine Practices

Funeral Service Workers should adhere to routine infection control practices in the handling of all deceased bodies regardless of the confirmed or suspected cause of death. Routine practices are the infection prevention and control practices used for deceased bodies. It assumes that all blood, body fluids, secretions or excretions should be considered infectious and that personal protective equipment and barrier techniques should be used to protect the Mortuary Care Worker from exposure, e.g. splash, spray or direct contact. Routine practices outline the importance of hand hygiene; the use of personal protective equipment (gloves, masks, goggles, or face shield, protective clothing); environmental cleaning; proper handling of soiled items and waste disposal. A more detailed description of routine precautions can be found in Health Canada's *Infection Control Guidelines Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care*.

Hand Hygiene

- Strict adherence to hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.
- Hand hygiene should be performed after direct contact with bodies and individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced with all staff, visitors and guests of the mortuary care setting. Guidelines for these procedures can be found in the Forms and Tools section of this chapter.

Basic Hygiene Measures

Funeral Service Workers should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

An alcohol based hand sanitizer and a box of tissues placed near the entrance may enhance personal hygiene practices.

Personal Protective Equipment

Masks

- Wearing masks when handling bodies suspected of having or confirmed to have influenza during a pandemic to minimize the transmission of influenza is not required.
- Masks to minimize transmission of influenza may be helpful when having face-to-face contact with individuals suspected of having the flu during the pandemic alert and early pandemic periods, but are not be practical or helpful when transmission is widespread in a facility or a community.

Funeral Service

It may be useful to have a supply of masks and alcohol-based hand sanitizers available for the people attending the funeral service if the person died from influenza or if there is a possibility that some of the attendees may have influenza.

Masks, eye protection, gloves, gowns and other personal protective equipment should be worn by the mortuary service worker to protect against exposure to blood, body fluids secretions or excretions regardless of diagnosis.

4.9 — SCHOOLS AND STUDENT RESIDENCES

Risk of influenza transmission in schools can increase with crowded classrooms, poor ventilation and limited emphasis on hygienic practices. Dormitory living enhances this risk due to increased numbers of those considered to be household contacts. Schools may be closed depending upon the epidemiology of the pandemic strain, e.g. severity of infection, high attack rates and severe complications. School authorities are referred to the *Pandemic Response Planning Checklist for Schools* at: http://www.vch.ca/pandemic/docs/schools_checklist.pdf and the *Pandemic Response Planning Checklist for Colleges & Universities* at: http://www.vch.ca/pandemic/docs/colleges_checklist.pdf

- Health Services in residence settings should develop an interpandemic influenza plan and review it annually.
- An Infection Control and Occupational Health Pandemic Influenza Plan should be developed.
- School Authorities should ensure the responsibility for Infection Control and Occupational Health in school settings is assigned to a specific individual or individuals.

Staff / Student Management

When the Pandemic is declared:

- Students
 - Do not send students to school if at all possible until the pandemic phase has ended, the student has recovered from ILI or the pandemic has gone through the school
 - Do not send students who have been exposed in the past 3 days to an individual with ILI to school unless the pandemic has already been through the school/residence
 - Do not send students with signs of ILI to school
 - Well students should avoid contact with students who have ILI (e.g. not visit in rooms of symptomatic students).
 - If a student develops signs of ILI while at school, send them home immediately.
- Student Health Services
 - Assess symptomatic students.
 - Encourage students with ILI who are well enough to remain in residence to remain in their own room while symptomatic (e.g. not congregate in common areas)

Infection Control Practices

Hand Hygiene

- Strict adherence to hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.
- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced with all staff students and household members. Assistance should be provided

for those who are unable to wash their own hands. Guidelines for these procedures can be found in the Forms and Tools section of this chapter.

Basic Hygiene Measures

Staff, students and their household members should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

Masks

- Wearing masks when face-to-face with coughing individuals to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community.

Environmental Control (housekeeping, laundry, waste)

- Special handling of linen or waste contaminated with secretions from persons suspected or confirmed to have influenza is not required.

4.10 — WORKPLACES

Risk of influenza transmission in workplaces may be increased with crowded or poorly ventilated rooms. Some workplaces may need to close depending upon the epidemiology of the pandemic strain, e.g. severity of infection, high attack rates and severe complications.

Business are referred to the *VCH Pandemic Response Planning Checklist For Businesses*, at: http://www.vch.ca/pandemic/docs/business_checklist.pdf

Pandemic Planning

- Each workplace should develop an Infection Control and Occupational Health Pandemic Influenza Plan.
- Management should ensure that the responsibility for Infection Control and Occupational Health in the workplace setting is assigned to a specific individual.
- Each workplace should develop and implement an education plan to ensure staff are aware of their roles and responsibilities during a pandemic.

Staff Management

- Provide education to all staff.
- Adhere to the organization's Occupational Health Plan for managing Pandemic Influenza

Infection Control Practices

Hand Hygiene

- Strict adherence to hand washing/hand hygiene is the most important procedure in preventing and controlling the spread of infection. Meticulous hand hygiene will inactivate the virus.
- Hand hygiene should be performed after direct contact with individuals with suspected or confirmed influenza and after contact with their personal articles or their immediate environment.
- Waterless alcohol-based hand sanitizers can be used as a substitute for hand washing. They are especially useful when access to sinks or warm running water is limited.
- Hand hygiene procedures for soap and water or alcohol-based hand sanitizers should be reinforced with all workers and visitors to the work place.

Basic Hygiene Measures

Workers should be encouraged to minimize potential influenza transmission through hygienic measures, e.g. use disposable, single-use tissues for wiping noses; covering nose and mouth when sneezing and coughing; hand washing/hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.

Strategically placed alcohol based hand sanitizers and boxes of tissues may enhance personal hygiene practices.

Personal Protective Equipment

Masks

- Wearing masks when face-to-face with coughing individuals to minimize influenza transmission during a pandemic will not be practical or helpful when transmission has entered the community.

Environmental Control (housekeeping, laundry, waste)

- Special handling of linen or waste contaminated with secretions from persons suspected or confirmed to have influenza is not required.

4.11 — FORMS AND TOOLS

- Tool 4.1** Hand Hygiene Procedures
- Tool 4.2** Guidelines for Cleaning Toys
- Tool 4.3** Cough Etiquette Poster (Community)
- Tool 4.4** Cough Etiquette Poster (Acute)

Tool 4.1 Hand Hygiene Procedures

Description on Hand Hygiene Using Non-antimicrobial Soap and Antimicrobial Soap and Water (see attached poster)

- Remove jewelry before hand washing.
- Rinse hands under warm running water.
 - **Rationale:** This allows for suspension and washing away of the loosened microorganisms.
- Lather with soap and, using friction, cover all surfaces of the hands and fingers.
 - **Rationale:** The minimum duration for this step is 10 seconds; more time may be required if hands are visibly soiled.
- The influenza virus is readily inactivated by regular soap, hand wash or hand hygiene products. Frequently missed areas are thumbs, under nails, backs of fingers and hands.
- Rinse under warm running water.
 - **Rationale:** Washes off microorganisms and residual hand washing agent.
- Dry hands thoroughly with a single-use towel.
 - **Rationale:** Drying achieves a further reduction in the number of microorganisms. Avoid re-useable towels because of the potential for microbial contamination.
- Turn off faucet without re-contaminating hands (e.g. use single use towel).
 - **Rationale:** Avoids re-contamination of the hands.
- Keep fingernails short and avoid the use of fingernail polish or artificial nails.
 - **Rationale:** Chipped nail polish may increase bacterial load. Artificial nails including wraps, acrylics or tips increase bacterial load. Nail polish and artificial nails impede visualization of soil under nails.

(Adapted from the Canadian Influenza Plan, Annex F, pages 195-196)

Hand Hygiene with an Alcohol-based Hand Sanitizer (see attached poster, pg.35)

How To Wash Your Hands



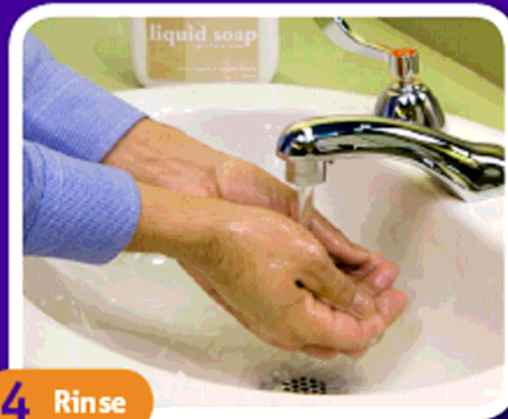
1 Wet Hands



2 Apply Soap



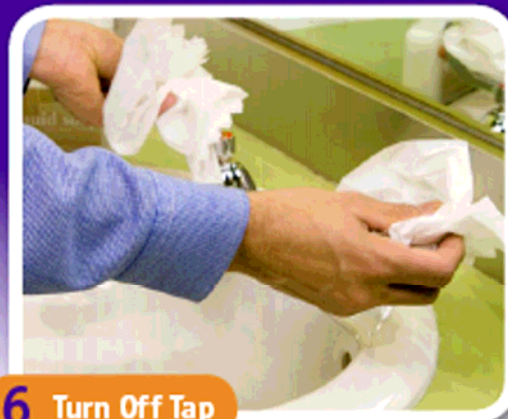
3 Rub Together



4 Rinse



5 Dry



6 Turn Off Tap

How To Use a Hand Sanitizer



1 Apply alcohol-based sanitizer



2 Rub over all surfaces of hands and fingers until dry



Tool 4.2 Guidelines for Cleaning Toys

- Regular cleaning is required for all shared toys.
- Choose toys that are washable, sturdy and of appropriate sizes and shapes to avoid aspiration and other injuries.
- Do not have stuffed animals or other toys that cannot be easily cleaned.
- Attempt to keep children with suspect communicable diseases out of the play area.
- Establish a schedule and assign responsibility for cleaning toys.
- Toys that children have **placed in their mouths** or that are otherwise contaminated by body fluids should be removed from the play area until they can be cleaned.
- Toys should be cleaned when visibly soiled and at least **once a week or more often if indicated**. (e.g. daily in busy play areas).
- Check toys when cleaning for sharp, splintered or jagged edges and small pieces that could easily be broken off. If toys cannot be fixed, they should be discarded.

Cleaning Toys

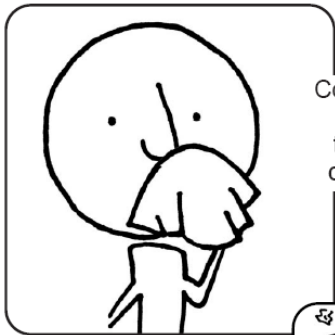
Options include:

- 1) A dishwasher with a sanitizer cycle. The toy can be allowed to air dry before storage, **or**
- 2) Clean toy thoroughly with soap and warm water and then disinfect with a mixture of **one-teaspoon** (5ml) household **bleach** (5%-6% chlorine) in **two cups** (1/2 liter) of **water**. Allow item to air dry, **or**
- 3) Clean toy thoroughly with soap and warm water, wipe toy with a cloth soaked with a disinfectant, allow to air-dry then rinse toy thoroughly with lukewarm water, as some chemicals may be harmful to children who chew toys. Allow to air dry. **Note:** *There are many disinfectants on the market. Ensure that the disinfectant being used is safe; suitable for the intended purpose and that the manufacturer's directions for dilution and contact time are followed. In general disinfectants that contain a quaternary compound, 70% alcohol, a dilute sodium hypochlorite (1:500) or 0.5% accelerated hydrogen peroxide may be used if they are rinsed thoroughly after disinfecting.*

Tool 4.3 “Cover Your Cough” Poster for Community Settings

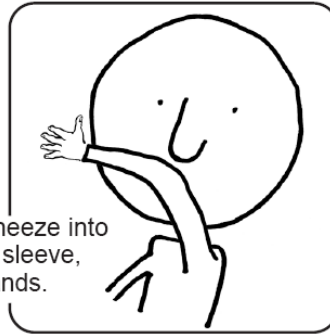
Stop the spread of germs that make you and others sick!

Cover your Cough



Cover your mouth and nose with a tissue when you cough or sneeze

or
cough or sneeze into your upper sleeve, not your hands.



Put your used tissue in the waste basket.



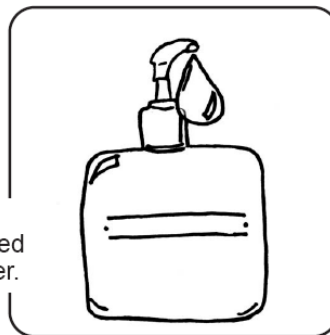
Clean your Hands

after coughing or sneezing.



Wash hands with soap and warm water

or
clean with alcohol-based hand cleaner.



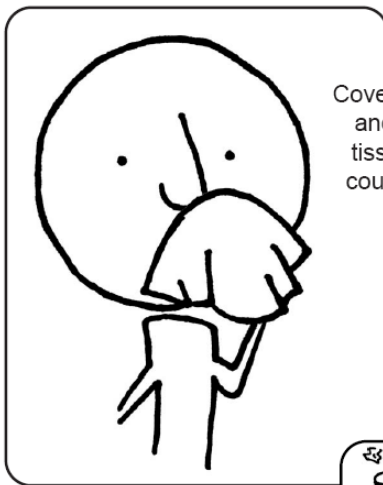
Minnesota Department of Health
717 SE Delaware Street
Minneapolis, MN 55414
612-676-5414 or 1-877-676-5414
www.health.state.mn.us



Tool 4.4 “Cover Your Cough” Poster for Acute Health Care Settings

Stop the spread of germs that make you and others sick!

Cover your Cough



Cover your mouth
and nose with a
tissue when you
cough or sneeze
or

cough or sneeze into
your upper sleeve,
not your hands.



Put your used tissue in
the waste basket.



You may be asked to
put on a surgical mask
to protect others.

**Clean
your
Hands**
after coughing or sneezing.



Wash with
soap and water
or
clean with
alcohol-based
hand cleaner.



Minnesota Department of Health
717 SE Delaware Street
Minneapolis, MN 55414
612-676-5414 or 1-877-476-5414
www.health.state.mn.us



Minnesota
Antibiotic
Resistance
Collaborative



4.12 — NEXT STEPS

Chapter 5

SELF CARE

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CHAPTER SUMMARY

This chapter provides the public with information and tools for caring for themselves and family members during the pandemic. Information is supplied on influenza and its transmission, on reducing the risk of contracting influenza, self-diagnosis, when and where to turn for help, self-treatment and care for relatives at home. Parts of this chapter appear elsewhere in this document. However, the main purpose here is to provide a self-contained resource for the public. The following pages can be freely adapted for distribution as public education.

In the initial phases of the influenza pandemic, there will be shortage of antiviral medication and vaccine and reserves will be allocated to priority groups. Antivirals will be available to treat hospitalized patients to shorten the course of illness and prevent complications. Vaccination is the best method for preventing influenza. However, manufacturing and licensing the pandemic vaccine may take as long as 3 to 6 months once the pandemic viral strain has been identified. Thus, the vaccine will be available to the wider public well after pandemic influenza becomes established in Vancouver and surrounding areas.

At that time, many thousands may fall ill and the health care system will face unprecedented demands for services. This will be compounded by a reduction in health care workers due to illness or caring for sick family members. While VCH strives to provide resources for the best possible care to influenza patients, long waiting times at physician's offices, emergency departments and specialized influenza centres will be unavoidable. Expect disruptions in services. Self-care - including diagnosis, referral, self-treatment, treatment of family members, and preventive measure to avoid exposure to influenza - will be an important public health measure to minimize the effects of the pandemic.

“Enabling individuals to increase control over and to improve their health “

5.1 — PANDEMIC INFLUENZA FACT SHEET

What is influenza?

Influenza or the “flu” is a highly contagious infection of the respiratory tract. It is caused by a virus. (It is not what some people call 'stomach flu' that causes abdominal upset and diarrhea.) There are different types of influenza virus, A and B and C. Only **type A causes pandemics in humans**.

What is pandemic influenza?

Pandemic influenza is a global outbreak of severe influenza affecting many people in many countries. Unlike the usual influenza virus that infects people each winter, pandemic influenza may strike at anytime of the year causing much more sickness and death than seasonal influenza.

What causes pandemic influenza?

Pandemics are caused by subtypes of the influenza A virus. It may be a new subtype or a subtype that has not circulated among humans for a long time. Certain things need to take place for a pandemic to occur. For example, the subtype has to be able to cause serious illness in humans who have little or no immunity to that specific subtype and it has to be easily transmitted from person to person.

When will the next pandemic happen?

Many scientists believe that it is only a matter of time until the next influenza pandemic occurs. What they don't know is whether it will occur in the near future, or in several years. The three pandemics of this century were in 1918 (Spanish flu), 1957 (Asian flu) and 1968 (Hong Kong flu). Past influenza pandemics have led to high levels of illness, death, social disruption, and economic loss. Pandemics can affect communities in “waves”, such that after the first peak, there is a reduction of illness, followed by one or more additional peaks of influenza.

How many people will be affected by the next pandemic?

All segments of Canadian society will be affected by pandemic influenza. It is estimated that 4.5 to 10.6 million Canadians may become ill during the next pandemic and 11,000 to 58,000 may die. These estimates are based on experiences from the 1957 and 1968 pandemics. With so many ill, every Canadian will be affected by the pandemic either through being ill, having to take care of someone who is ill, losing loved ones to influenza, or having to carry the burden of responsibility at work due to a reduced workforce.

How is influenza spread?

It is spread from person to person in respiratory droplets of coughs and sneezes. It can also be spread when a person touches respiratory droplets of another person or an object and then touches their own eyes, mouth or nose before washing their hands. The virus may enter through the eyes or more commonly through the nose or mouth and into the throat and lungs where it begins to multiply. The time from when a person is first exposed to the flu virus to when symptoms begin is one to three days.

How long is the influenza virus infectious/contagious?

A person with the flu is contagious 24 hours before they become sick and for 3-5 days after becoming sick. Some children may be contagious for longer than a week. The virus can live for up to 2 days on hard surfaces such as doorknobs, handrails, toys, cups, utensils and telephones. It can live on the hands for up to 5 minutes.

How do I know if I have influenza?

You may have the flu if you have a sudden onset of a respiratory illness with a cough, fever, headache, muscle pain, a runny nose, sore throat, and body aches. Sometimes, but not very often, children with influenza can have nausea, vomiting or diarrhea. **Sometimes adults over 65 and children under 5 may not have a fever when sick with the flu.** Although colds and other viruses may cause similar symptoms, influenza weakens a person much more than other viruses. Most healthy people will feel better in about five to seven days but symptoms may last for 2-3 weeks. Complications of influenza, such as pneumonia, can be more severe for the elderly, infants or people with chronic health problems.

What can I do to protect my family and myself?

You can protect yourself from getting the flu by washing your hands frequently and avoiding close contact with people who may be sick with the flu. Healthy eating, adequate sleep and physical activity are essential to your well being. Practicing good personal hygiene will also help to protect you from getting and spreading the flu, e.g. use disposable, single-use tissues for wiping noses; cover your nose and mouth when sneezing and coughing; hand wash after coughing, sneezing or using tissues; keep hands away from the eyes, nose and mouth. It is recommended that people at high risk of getting influenza and its complications and their caregivers receive an annual influenza vaccine. These groups include: people 65 years old and older, children 6-23 months of age, people in nursing homes, long-term care facilities and other institutions, people with chronic medical conditions such as heart or lung disease, diabetes or those with a weakened immune system health care workers, essential service workers and healthy people living in the same house as high risk people who either cannot be vaccinated or may respond inadequately to vaccination.

Will there be a vaccine against the pandemic influenza?

Research and development of new influenza vaccines is ongoing. Development of new vaccines and testing them for effectiveness and safety takes time. Once the pandemic influenza strain is identified, the first lots of pandemic influenza vaccines are expected to be available in 6-9 months. Therefore, vaccine may not be available during the first “wave” of the pandemic. When vaccines first become available, they may be in short supply. Our Canadian influenza experts have identified high-risk groups who will receive the vaccine first as it becomes available.

Will there be medications to prevent or cure pandemic influenza?

Two different influenza antiviral medications (amantadine and oseltamivir) are approved in Canada for the treatment and/or prevention of influenza. Both work against influenza A viruses. It is important that antiviral medications are used in the correct manner, because incorrect use may lead to drug resistance. Antiviral medications are also expected to be in short supply during a pandemic. Therefore, like vaccines, they will be given according to the high-risk groups. Canadian and Provincial governments are stockpiling some antiviral medications

5.2 — HOW TO STAY HEALTHY DURING AN INFLUENZA PANDEMIC

Personal Health

- Eat, rest well and exercise in moderation
- Wash your hands frequently with warm water and soap
- Cover your nose and mouth when coughing or sneezing
- Don't smoke
- Minimize visitors to your home
- Check up on friends and family who live alone
- Watch for regular influenza updates from your Public Health Department
- Get the pandemic influenza vaccine when available
- It is recommended that people at high risk of getting influenza and its complications and their caregivers receive an annual influenza vaccine and a pneumococcal vaccination

Washing hands is one of the most important ways to prevent the spread of the influenza

Stay Away from Crowds

- Stock up on basic items, such as food stuffs, personal hygiene supplies, medications and cleaning supplies
- Shop at smaller stores with smaller line-ups
- Shop at off peak hours and find out which stores stay open late/24 hours
- If possible phone ahead your grocery order for quick pick up
- Order groceries over the phone/on line for delivery
- Arrange to pay bills at ATMs, on line or over the phone
- Cancel or postpone family gatherings, outings or trips

If you cannot avoid crowds, minimize the amount of time you spend around people

Stay Healthy at Work

- Work from home or arrange to work flex hours if possible
- Wash your hands frequently with warm water and soap
- Use waterless sanitizing gel to clean hands if soap & water are not available
- Clean objects and hard surfaces that are handled by many people with a disinfectant
- Keep your office door closed
- Use stairs instead of crowded elevators
- Cancel non-essential meetings: use teleconferencing/video conferencing/emails/fax
- Travel on public transit at off peak hours or walk, ride your bike to and from work

If you feel unwell, stay home, rest and drink plenty of fluids

Personal Hygiene

Along with vaccines and antiviral medication, good personal hygiene will help protect you and your family from coming in contact with influenza viruses. Vaccines and antiviral medications will not be available to the general public in the early phases of the pandemic. Strict adherence to personal and environmental hygiene may be the only preventive measure available during a pandemic. Wash your hands frequently, especially when you are near sick people. Use disposable, single-use tissues for wiping noses; cover nose and mouth when sneezing and coughing; hand wash after coughing, sneezing or using tissues; keep hands away from the eyes, nose and mouth. Healthy eating, adequate sleep and physical activity are essential to your health.

By **frequently washing your hands** you wash away germs, viruses and bacteria that you have picked up from other people, or from contaminated surfaces, or from animals and animal waste.

When should you wash your hands?

You should wash your hands often. It is especially important to wash your hands

- Before, during and after you prepare food
- Before you eat
- After using the bathroom
- After sneezing or coughing or blowing your nose
- When your hands are dirty
- More frequently when someone in your home is sick
- After touching commonly used items

Alcohol-based Hand Wipes and Gel sanitizers

When soap and water are not available, alcohol based disposable hand wipes or gel sanitizers may be used. You can find them in most supermarkets and drugstores.

See hand hygiene guidelines in the “Forms and Tools” section of this chapter on how to wash your hands with soap and water or with alcohol-based hand sanitizers.

What happens if you do NOT wash your hands frequently?

You pick up germs and viruses from other sources and then you can infect yourself when you

- Touch your eyes
- Touch your nose
- Touch your mouth

Environmental Cleanliness

Influenza virus can live up to 2 days on hard surfaces. Washing hard surfaces (sinks, counters, etc.) with a disinfectant such as a ten percent bleach solution (one part bleach and nine parts water) will kill the influenza virus. Surfaces that are frequently touched with hands should be cleaned often. Careful, thorough cleaning of surfaces is effective in removing the influenza virus and many other germs. If a member of your family is ill with influenza, keep their personal items, such as towels, separate from the rest of the family. Do not share towels. Do not share eating utensils or drinks with anyone (you never know who may or may not be sick).

Ensure that your home always has an adequate supply have supplies for hand washing and cleaning. Special handling of laundry or linen from a person who may have influenza is not necessary. Wash

clothing and linen in a warm wash cycle with a commercial laundry detergent and dry as usual. The garbage generated by a person with influenza does not require special handling.

Individuals who die at home should be wrapped in a sheet (with a plastic covering on the mattress to protect from any urine or feces) and kept in a cool, dry location until pick up by funeral services. Bodies of persons who died from influenza are not considered contagious to others.

Avoid Crowds

Another way to protect yourself and minimize being exposed to influenza viruses is by avoiding crowds of people. Influenza is infectious for 24 hours before symptoms develop so, people can look healthy but still spread the virus. The **more people** you are in contact with, the more you are at risk for coming in contact with someone who has influenza. The **more time** you spend in contact with people, the greater the chance you will be exposed to someone who is carrying the influenza virus.

The risk of spreading the influenza virus in day care settings and schools can be increased because of the large number of people and the amount of time spent together in a confined area. The risk of infection is influenced by the age of the child or person, group size, the nature of the activity and the hygienic habits of the child or person. Influenza acquired in these settings may spread to attendants, teachers, family members and the community.




When the pandemic is declared within the Vancouver Coastal Health region, the local Medical Health Officer will decide whether schools and day care settings need to be closed based on how serious the situation is. You may choose not to send your child to day care, play groups, sports or other activities until the pandemic is over. If your child is sick with influenza-like illness or has been exposed to a person with influenza in the past three days, do not send your child to day care, school or other activities.

It is impossible to say for certain which situations are safe and which situations should be avoided. To help you decide which situations to avoid during a pandemic, use the Decision Chart for situations to avoid during a pandemic (Table 1). In this chart, some common activities and places are listed in boxes. Situations in the black box should be avoided as your chances of catching the influenza virus is highest with these places or activities. The dark grey boxes list situations that are of an intermediate risk, while those in the light grey boxes carry the lowest risk for transmission of infection. Compare your own situation to those in the chart and choose the most similar one listed. Then follow the instructions indicated for your choice. Remember that the places and activities listed are only examples and the decision to close schools and other public gatherings will be made by the local Medical Health Officer.

Prevention is the best defense against influenza. You should protect yourself and others by:

- Covering your mouth with a disposable tissue when coughing or sneezing
- Washing your hands frequently, especially after touching your nose, mouth, eyes or used tissues
- Avoiding crowds
- Staying at home if you are sick

Table 1 Decision Chart for Situations to Avoid During a Pandemic.

-  Consider canceling or postponing events and avoid places that are listed (or are similar to those listed) in the **BLACK** box.
-  If possible, avoid places and events in the **DARK GREY** boxes.
-  May attend places or events in the **LIGHT GREY** box, but continue to use good personal and environmental hygiene practices.

		How many people am I in contact with?		
		Very crowded	Many People	A Few people
How long am I in this situation?	Prolonged (Over 4 hrs)	<ul style="list-style-type: none"> • Child day cares • Elementary & high schools • Post-secondary institutions (including dormitories) 	<ul style="list-style-type: none"> • Closed workplaces 	<ul style="list-style-type: none"> • Home • Baby-sitting neighbors' children
	Intermediate (Over 1 hr)	<ul style="list-style-type: none"> • Entertainment venues (movies, concerts) • Sporting venues (among participants or spectators) • Special events (e.g. Olympics 2010) • Community centres • Swimming pools 	<ul style="list-style-type: none"> • Day tours via buses, boats • Religious gatherings • Weddings or funerals • Business conventions and trade shows • Playgrounds • Team sports activities 	<ul style="list-style-type: none"> • Restaurants • Shopping Malls
	Short (Less than 1 hr)	<ul style="list-style-type: none"> • Public transit during rush hour • Retail stores during major sale events 	<ul style="list-style-type: none"> • Public place waiting areas or lines (e.g. banks, store check-out lines) 	<ul style="list-style-type: none"> • Home deliveries

Other Helpful Hints to Maximize Your Health During a Pandemic

At Home

- ❑ Check up on family, friends and neighbors who live alone.
- ❑ Offer to get groceries and run errands for family/friends/neighbours who are at higher risk for getting influenza (elders, persons with other chronic medical conditions).
- ❑ Anticipate what you will need during a pandemic and stock up on foodstuffs, cleaning supplies, prescription medication and basic medications such as Acetaminophen (i.e. TylenolTM, TemptraTM).
- ❑ Keep in mind that the pandemic may last several months and come in waves.
- ❑ Keep emergency phone numbers and self-care instructions in a place where everyone in the family can find them.
- ❑ Schools and community centers may be closed, keep books and games at home for your children to play with.
- ❑ Arrange for childcare that minimizes exposing your children to crowds.
- ❑ Make arrangements with your child's teacher for schoolwork to be done from home.
- ❑ Most family pets are not at risk for getting or passing on influenza. Pigs, birds/poultry and horses are at risk for getting influenza. If you have these animals as pets or live on a farm you should take extra special care in washing your hands after coming in contact with them.

At Work or School

- ❑ Stay at home if you are ill
- ❑ Drive your car, walk or ride your bike
- ❑ Go early or late to avoid rush hour crowding on public transit
- ❑ Minimize contact with others
- ❑ If you need to meet with people, stay 3 feet apart (one metre)
- ❑ Avoid shaking hands, hugging or kissing people as greetings
- ❑ Work from home if possible
- ❑ Work flex hours (come in early or late to avoid working in close spaces with others)
- ❑ Cancel or postpone travel and face-to-face meetings where possible
- ❑ Have meetings using video or teleconferencing
- ❑ Make use of emails to pass on information
- ❑ Bring your lunch and eat at your desk or away from others (avoid the cafeteria and crowded restaurants)
- ❑ Sit at the back of the class away from others
- ❑ Walk up and down stairs instead of using crowded elevators

Shopping

- ❑ Go to stores at off hours to avoid crowds
- ❑ Shop at smaller stores which have few other customers
- ❑ Find out which stores are open 24 hours in your neighbourhood
- ❑ Find out which stores and pharmacies take telephone orders or deliver to your home

5.3 — SELF DIAGNOSIS

How do I know if I have influenza?

You may have influenza if you have a sudden onset of a respiratory illness with a cough, fever, headache, muscle pain, a runny nose, sore throat, and body aches. Sometimes, but not very often, children with influenza can have nausea, vomiting or diarrhea. Sometimes adults over 65 and children under 5 may not have a fever when sick with influenza. Although colds and other viruses may cause similar symptoms, influenza weakens a person much more than other viruses. Most healthy people will feel better in about five to seven days but symptoms may last for 2-3 weeks. Complications of influenza, such as pneumonia, can be more severe for the elderly, infants or people with chronic health problems. Gastroenteritis, sometimes referred to as “stomach flu”, is not influenza.

Is it a cold or influenza?

Although colds and other viruses may cause similar symptoms, influenza weakens a person much more than other viruses and can lead to complications. The following is a chart of the common signs and symptoms of influenza and colds.

SYMPTOM	FLU (Influenza)	COLD (Rhino Virus)
Fever	Usual, sudden onset 38°C - 40°C and lasts 3-4 days	Rare
Headache	Usual and can be severe	Rare
Aches and pains	Usual and can be severe	Rare
Fatigue and weakness	Usual and can last 2-3 weeks or more	Sometimes, but mild
Extreme fatigue	Usual, early onset can be severe	Rare
Nausea, vomiting	In children < 5 years old	Rare
Runny, stuffy nose	Rare	Usual
Sneezing	Rare	Usual
Sore throat	Rare	Usual
Chest discomfort	Usual and can be severe	Sometimes, but mild to moderate
Complications	Respiratory failure; can worsen a current chronic condition; can be life-threatening	Congestion or earache
Prevention	Influenza vaccine; frequent hand-washing, cover your cough	Frequent hand-washing, cover your cough

What to Expect with Influenza?

Influenza usually begins with a sudden onset of a respiratory illness with a cough, fever, headache, muscle pain, a runny nose, sore throat and body aches. In a few days, fever and muscle aches will decrease and a sore throat, cough and mild chest discomfort may become more noticeable.

Most healthy people will feel better in five to seven days but symptoms may last for 2-3 weeks.

It is not necessary to seek medical attention if you have symptoms of influenza, unless you are concerned about your symptoms or your symptoms worsen. People with chronic health problems may need to seek medical attention. If in doubt, refer to the Decision-Making Tools located in the Forms and Tools section of this chapter.

5.4 — SELF TREATMENT

What Can I Do if a Family Member or I Become Sick?

Providing care to a person with influenza at home will be common during influenza pandemic. Ask for help from family members/friends if you live alone, are a single parent with small children, and are having a hard time taking care of your own/family's needs.

Stay home when you are feeling ill

Do not go to work or school and possibly spread influenza to others. You should avoid other people until at least seven days after your symptoms start. This is to avoid spreading the influenza virus to others. Persons who are ill should stay in their rooms as much as possible to maintain physical separation from other family members who are not ill. If more than one person in the home is ill they can share a room.

Get plenty of rest

You will probably feel very tired and weak. Resting will allow your body to recover from influenza.

Drink plenty of fluids

Extra fluids such as water, juice, and chicken soup are needed to replace the fluids lost especially if you have a fever. If your urine is dark, you need to drink more fluids. Try to drink a glass of water for every hour that you are awake. Warm fluids may also help loosen up mucus in your throat and lungs.

Treat fever or muscle aches at home

Taking Acetaminophen (Tylenol™, Tempra™) may provide some comfort. Always follow the directions on the package as to how much and how frequently you should take Acetaminophen. Acetaminophen is a good choice as it causes less stomach upset than other pain medications. **Never give any products containing ASA (Acetylsalicylic acid), e.g. Aspirin™ to any child under the age of 18 years.** Giving ASA products may lead to Reye's syndrome, a serious condition affecting the nervous system and the liver.

Always use a tissue to cover your mouth and nose when coughing and sneezing. Throw the tissue away after use and wash your hands immediately.

Over-the-Counter Cough and Influenza Remedies

If you buy an over the counter medication, check with the pharmacist to see which one is best for you:

- Tell the pharmacist if you are taking other medications or if you have any chronic medical conditions
- It is better to buy a remedy that treats only one symptom at a time (that way you are not taking substances that do not work or that may cause an unwanted reaction)
- Read the label carefully to see if the ingredients treat the symptom you want to treat
- Read the label and note any side effects or interactions with other medications
- Only take the recommended dose on the label
- Extra strength remedies contain a higher dose of medication. Start with a standard dose first as it may work fine and have fewer side effects

If you have a cough that you are worried about, you may want to take a medication to help, e.g., a cough suppressant for a dry nagging cough or an expectorant to help loosen the mucus. Decongestants may help with a stuffy nose and throat lozenges may help a sore throat. Consult your pharmacist or family doctor for advice on the medication that is right for you and your symptoms

If you have any questions about medications, don't hesitate to talk to your pharmacist.

It is possible that during a pandemic, you will hear stories of cures and medications promising to prevent or cure influenza. It is important to realize that only Health Canada regulated antiviral medications and vaccines have been through extensive testing and have been found to be safe for humans. Beware of false promises. If you have any doubts or questions about a product, speak with a pharmacist or your family physician

Fevers

In most cases, fever is not serious and is a good sign that your body is working to fight off an illness. For details on how to take a temperature, using a thermometer, refer to *How to Take a Child's Temperature* and *How to Take an Adult's Temperature* in the forms and tools section of this chapter. The placement of the thermometer is different for infants, children and adults. It is important that the thermometer is used correctly in order to get the proper temperature reading. If you do not have a thermometer, you can check for a fever by touching the skin of the person who is sick. If the skin is hot and dry, cheeks are flushed, lips and mouth are dry and they have the "chills", they probably have a fever.

What to do if you have a fever?

How to bring down a fever and make your child/family member more comfortable:

- Take off heavy clothing and blankets so that the heat may leave the body
- Dress in lightweight clothing and keep room temperature at 20°C
- Give a lukewarm sponge or tub bath (never use alcohol rubs)
- Offer cool fluids frequently when the child/person is awake
- May give Acetaminophen (Tylenol™, Tempra™) every 4-6 hours for comfort and to reduce fever. **Never give ASA (Aspirin™) to children.**
- Allow the child/person to rest and stay home if possible for at least 7 days (to avoid spreading influenza to other people)

What are febrile (fever) seizures?

A febrile (fever) seizure is a convulsion in a child caused by a rapid rise of body temperature over 102.2 °F (39 °C). Most occur within the first day that the child is sick and not always when the fever

is the highest. Sometimes the seizure is the first sign of a fever in an infant or child. Most are triggered by respiratory infections including influenza, ear infections and roseola.

The first time a child has a seizure is very frightening for parents. Simple febrile seizures do not cause harm to the child. There is **no evidence** that a simple febrile seizure causes death, brain damage, epilepsy, mental retardation, a decrease in IQ or learning difficulties. A child cannot swallow his or her tongue during a seizure.

A **simple febrile seizure** will stop by itself within a few seconds to 10 minutes. It is followed by a brief period where the child is sleepy or confused. Medication is not needed. A **complex febrile seizure** last longer than 15 minutes, occurs in one part of the body and happens again during the same illness.

A febrile seizure may be as mild as the child's eyes rolling or limbs stiffening. Sometimes a fever will trigger a convulsion that involves the whole body.

Signs that your child maybe having a febrile seizure:

- Sudden, stiffness of the muscles of the face, arms legs, on both sides of the body
- A cry or moan from the child
- The child will fall if standing and may pass urine
- The child may vomit or bite their tongue
- The child may not be breathing and may begin to turn blue
- The child's body will then begin to have jerky movements
- The child will not respond to voice or touch
- The child's body will begin to relax and the seizure will be over

What to do if your child has a febrile seizure:

- Stay calm
- Leave your child on the floor (you may want to slip a blanket under the child if the floor is hard)
- Loosen tight clothing, especially around the neck
- Move the child only if he or she is in a dangerous location
- Turn the child on her or his side or stomach to protect the head and to prevent the child from choking if he or she vomits
- Do not hold your child down
- Do not force anything into the mouth as this increases the risk of injury
- Observe closely and time the febrile seizure, so you can tell the doctor what happened

Seeking Medical Attention:

- Children should see a doctor as soon as possible after their first febrile seizure
- If the seizure ends quickly, take your child to the family doctor or emergency department when it is over. If the child is stable, you can also call the BC Nurse line at 604 215 4700 or 1-866-215-4700.
- If the seizure is lasting longer than 10 minutes, call 911 to have an ambulance take your child to the hospital
- A child should also see a doctor if there are repeated seizures during the same illness or if this looks like a new type of seizure for your child.

Preventing Further Febrile Seizures:

If your child has a history of febrile seizures and has a fever:

- Give your child acetaminophen at the first sign of fever (you may want to have acetaminophen suppositories on hand)
- Sponge or bathe your child in lukewarm water. You may apply cool washcloths to the forehead and neck if tolerated by the child
- Offer your child cool drinks

Increased Breathing

For details on how to measure the breathing rate of someone who is sick, refer to *How to Measure Breathing Rates* in the “Forms and Tools” section of this chapter. If someone with influenza develops very high breathing, this may be a sign of a complication, such as pneumonia. People who develop complications from influenza may need further assessment and care.

Quarantine and Isolation

The *Quarantine Act and Regulations* helps protect Canadians from dangerous and infectious diseases. Under this Act, Public Health Quarantine Officers have the authority to ask a person suspected of having an infectious disease to undergo a medical examination and to detain that person if necessary.

Quarantine may be used in the early stages of the pandemic to stop the spread of the influenza virus. A person suspected of having pandemic influenza would be placed under quarantine for three days, or until the Public Health Quarantine Officer decides the person is not at risk for spreading the influenza virus to others. A Public Health Quarantine Officer monitors people under quarantine. If the individual becomes ill or requires hospitalization, a transfer to the appropriate influenza hospital is arranged. People under quarantine would stay at home or in a special facility and would not be able to go to work, school or other public gatherings until the quarantine was lifted. Visitors would be restricted. People are placed in quarantine in an effort to stop the spread of pandemic influenza to others in the community.

In the late stages of the pandemic, after it has spread through out the community, quarantine would be self-imposed. Quarantine is the word used for people who may develop influenza after being exposed to it. Isolation is the word used when someone is sick with influenza and is separated from others either at home or in a health care facility. For further information on quarantine and isolation, refer to *People on Home Isolation* and *Persons on Quarantine* in the forms and tools section of this chapter.

5.5 — REFERRAL FOR FURTHER CARE

You may seek advice from your **family physician**, the **BC Nurse Line** (24 hours per day, 7 days a week) or from the Vancouver Coastal Health Influenza Line. (See numbers on following page.)

If symptoms are severe and need immediate action, call 911 (Ambulance, Paramedics) or go to the closest emergency department.

When to Seek Medical Attention:

You may need to seek medical care if you are an adult and have any of the following:

- You are short of breath (not getting enough air) even while resting
- Your breathing is difficult or painful
- You have a pain in your chest when you breathe
- You have chest pain that will not go away
- You have heart disease and develop chest pain
- You are coughing up bloody sputum
- You are wheezing
- You still have a fever after three or four days and are not getting better or are feeling worse
- You are feeling better and then suddenly develop a fever and start to feel sick again
- You or others notice you are extremely drowsy, confused or disoriented
- You have extreme pain in your ear

Seek medical attention as soon as possible to prevent your condition from worsening. Your doctor may prescribe antibiotics for a secondary bacterial infection.

**Antibiotics will not work against influenza.
Antibiotics fight bacteria, not viruses.
A virus causes influenza.**

You may need to seek medical care for your child if your child has any of the following:

- A medical condition that requires on going medical care
- Trouble breathing
- Is less than 6 months old and has a temperature over 38.5° Celsius
- Is constantly irritable and will not calm down
- Is listless and not interested in playing with toys
- Has a fever which lasts more than 5 days
- Drinks so little fluid that they are not urinating at least every 6 hours while awake
- Has vomited for more than four hours or has severe diarrhea

Take your child to the hospital emergency department or call 911 if your child has any of the following:

- Has severe trouble breathing not caused by a stuffy nose
- Has very high number of breaths in one minute
- Has blue lips
- Is limp or unable to move
- Is hard to wake up, unusually quiet or unresponsive
- Has a stiff neck
- Seems confused
- Has a febrile (fever) seizure (convulsion or fit)
- Has not had a wet diaper in 12 hours

Older children and teens have the same influenza symptoms as adults. Very young children and infants probably have similar symptoms, but do not know how to tell people they have sore muscles or a headache. These children may be irritable and eat poorly.

To help you decide when to seek further care, please refer the Decision Making Tools in the forms and tools section at the end of this chapter.

For More Information

Talk to your family physician or your local Public Health Clinic

By telephone:

Vancouver Coastal Health Influenza Line:	604- 875-4252, press 3
BC Nurse Line:	604 215 4700 or 1-866-215-4700
BC Ministry of Health Information Desk:	1 800 465 4911

On the web:

Vancouver Coastal Health:	www.vch.ca
BC Center for Disease Control:	www.bccdc.org
Public Health Agency of Canada:	www.phac-aspc.gc.ca/influenza/pandemic_e.html/
World Health Organization:	www.who.org

5.6 — FORMS AND TOOLS

- Tool 5.1** Hand Hygiene Procedures
- Tool 5.2** How to Take a Child’s Temperature
- Tool 5.3** How to Take an Adult’s Temperature
- Tool 5.4** How to Measure Breathing Rate
- Tool 5.5** People on Home Isolation
- Tool 5.6** People on Quarantine
- Tool 5.7** Decision-making Tool for Self Referral for Infants, Children & Adults

Tool 5.1 Hand Hygiene Procedures

Description on Hand Hygiene Using Non-antimicrobial Soap and Antimicrobial Soap and Water (see attached poster)

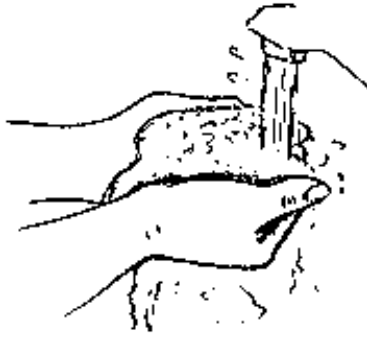
- Remove jewelry before hand washing.
- Rinse hands under warm running water.
 - **Rationale:** This allows for suspension and washing away of the loosened microorganisms.
- Lather with soap and, using friction, cover all surfaces of the hands and fingers.
 - **Rationale:** The minimum duration for this step is 10 seconds; more time may be required if hands are visibly soiled.
- The influenza virus is readily inactivated by regular soap, hand wash or hand hygiene products. Frequently missed areas are thumbs, under nails, backs of fingers and hands.
- Rinse under warm running water.
 - **Rationale:** Washes off microorganisms and residual hand washing agent.
- Dry hands thoroughly with a single-use towel.
 - **Rationale:** Drying achieves a further reduction in the number of microorganisms. Avoid re-useable towels because of the potential for microbial contamination.
- Turn off faucet without re-contaminating hands (e.g. use single use towel).
 - **Rationale:** Avoids re-contamination of the hands.
- Keep fingernails short and avoid the use of fingernail polish or artificial nails.
 - **Rationale:** Chipped nail polish may increase bacterial load. Artificial nails including wraps, acrylics or tips increase bacterial load. Nail polish and artificial nails impede visualization of soil under nails.

(Adapted from the Canadian Influenza Plan, Annex F, pages 195-196)

Hand Hygiene with an Alcohol-based Hand Sanitizer (See attached poster.)

Hand Hygiene with Soap and Water

1. Remove jewelry. Wet hands with warm water



2. Add soap to palms



3. Rub hands together to create a lather



4. Cover all surfaces of the hands and fingers



5. Clean knuckles, back of hands and fingers



6. Clean the space between the thumb and index finger



7. Work the finger tips into the palms to clean under the nails



8. Rinse well under warm running water



9. Dry with a single-use towel and then use towel to turn off the tap



Minimum wash time 10-20 seconds.

Hand Hygiene with Alcohol-based Hand Sanitizer

**1. Remove jewelry.
Apply enough
product to open
palms.****



**2. Rub hands
together palms to
palms**



**3. Rub in between
and around fingers**



**4. Cover all
surfaces of the
hands and fingers**



**5. Rub backs of
hands and fingers.
Rub each thumb.**



**6. Rub fingertips
of each hand in
opposite palm**



7. Keep rubbing until hands are dry.

****The volume required to be effective varies from product to product. Enough product to keep hands moist for 15 seconds should be applied.**

Do not use these products with water. Do not use paper towels to dry hands.

Note: Wash hands with soap and water if hands are visibly dirty or contaminated with blood or other body fluids. Certain manufacturers recommend washing hands with soap and water after 5-10 applications of gel.

Tool 5.2 How to Take a Child's Temperature

There are 4 ways to take a child's temperature:

- In the mouth (oral)
- Under the armpit (axilla)
- In the ear (tympanic)
- In the bum (rectal) – not recommended for babies or young children

The right method depends on your child's age. It is important to get the most accurate temperature reading as possible. For older children and teenagers, you can use the adult method as well. The following chart will help you decide which method to use. Do not use rectal thermometers in babies or young children.

The best method of taking a temperature depends on your child's age:

Age	Best Method	Second Best Method	Third Best Method
Birth to 2 years of age	Armpit (axilla)	-----	-----
2 to 5 years of age	Ear (tympanic)	Armpit (axilla)	-----
Older than 5 years	Mouth (oral)	Ear (tympanic)	Armpit (axilla)

There are several different types of thermometers. Modern thermometers are **digital** that display the temperature. A digital thermometer can be used for taking temperatures in the mouth or armpit. It is made of unbreakable plastic; it is easy to read and measures temperature quickly.

Ear thermometers are available but are expensive. A **fever strip is not recommended** because it does not give an accurate temperature reading.

You may have an older thermometer that is made of glass or plastic and uses mercury. **The Canadian Pediatric Society does not recommend using mercury thermometers.** Accidental exposure to this toxic substance can occur if the thermometer breaks.

The following guidelines on how to take a temperature are general. Please follow the directions provided by the manufacturer of your thermometer.

Digital Thermometer: (oral, axilla, not for use in the ear)

- 1) Clean the thermometer with cool, soapy water and rinse
- 2) Press the button to turn the thermometer on
- 3) Put the thermometer in the mouth or armpit, depending on your child's age.
- 4) Hold the top of the thermometer for the length of time specified by the manufacturer
- 5) Wait for the thermometer to beep
- 6) Remove the thermometer
- 7) Read the temperature on the display
- 8) To clean a digital thermometer, wash only the tip with soap and warm (not hot) water and wipe off with 70% alcohol after use. Dry well.

Mouth: place silver tip under the tongue and ask child to close mouth but not bite down on the thermometer. Do not give the child hot or cold liquids for ½ hour before taking his/her temperature as this will affect the temperature reading.

Armpit: hold the thermometer so that the silver tip is touching the skin, and have your child cross that arm across their chest (or use your other hand to hold your child's arm snugly against their body).

Ear Thermometer: (use only an ear thermometer when taking temperatures from the ear)

- 1) Use a clean probe tip each time and follow the manufacturers instructions very carefully.
- 2) Gently tug on the ear, pulling it back and up. This will straighten the ear canal, and make a clear path on the inside of the ear to the eardrum.
- 3) Gently insert the thermometer until the ear canal is fully sealed off.
- 4) Squeeze and hold the button down for one second or as directed by the manufacturer of the thermometer.
- 5) Remove the thermometer and read the temperature.

Note: this ear method is not recommended for children under two years of age.

Ask the pharmacist any questions you may have when you buy a thermometer.

The **NORMAL** body temperature range for children depends on the method used to take the temperature

Armpit:	34.7 °C to 37.3 °C	(94.5 °F to 99.1 °F)
Mouth:	35.5 °C to 37.5 °C	(95.9 °F to 99.5 °F)
Ear:	35.8 °C to 38 °C	(96.4 °F to 100.4 °F)

It is important to know that a child's temperature will normally rise by half or a full degree during the day and fall again while the child is sleeping at night. If your child has a fever, follow the instructions in *What to do if your child/family member has a fever*, to lower the fever.

If you do not have a thermometer you can check for a fever by touching the skin. If the skin is hot and dry, the child's lips and mouth are dry, if the cheeks are flushed and if they have the "chills", follow the instructions for lowering the fever even if you do not know what the actual temperature is. To help you decide when to seek further care, please refer the Decision Making Tools in the forms and tools section at the end of this chapter.

Tool 5.3 How to Take An Adult's Temperature

Normal adult body temperature is regulated between 35.8 °C and 37.2 °C (96.4 °F to 99°F) in healthy persons. Temperatures will vary 0.5-1.0 °C during the day. Body temperature shows a definite pattern: low in the morning, gradually increasing during the day, and reaching its maximum during the late afternoon or early evening. There are 3 ways in which an adult's temperature is usually taken:

- By the mouth (oral)
- In the ear (tympanic)
- Under the armpit (axilla). This method is least accurate and is usually only used if the person is very sleepy or not mentally clear.

Digital Thermometer

- 1) Clean the thermometer with cool, soapy water and rinse
- 2) Press the button to turn the thermometer on
- 3) Put the thermometer in the mouth or armpit
- 4) Hold the top of the thermometer for the length of time specified by the manufacturer
- 5) Wait for the thermometer to beep
- 6) Remove the thermometer
- 7) Read the temperature on the display
- 8) To clean a digital thermometer, wash only the tip with soap and warm (not hot) water and wipe off with 70% alcohol after use. Dry well

Mouth: place tip of thermometer under tongue and close mouth. Do not bite down on thermometer. Do not smoke a cigarette or drink something hot/cold for half an hour prior to taking a temperature.

Armpit: Place tip of thermometer against the skin and hold the arm snugly against chest.

Ear Method

- 1) Use a clean probe tip each time and follow the manufacturers instructions very carefully
- 2) Gently tug on the ear, pulling it back and up. This will straighten the ear canal, and make a clear path on the inside of the ear to the eardrum
- 3) Gently insert the thermometer until the ear canal is fully sealed off
- 4) Squeeze and hold the button down for one second
- 5) Remove the thermometer and read the temperature

Ask the pharmacist any questions you may have when you buy a thermometer.

In the event you do not have access to a thermometer, you can assess if someone has a fever by touching his or her skin. If the person's skin is hot and dry, if they have the "chills", if their mouth and lips are dry, if their cheeks are flushed, they might have a fever. Follow the instructions in *What to do if your child/family member has a fever* on how to lower a fever even if you are not sure what the person's temperature is.

To help you decide when to seek further care, please refer the Decision Making Tools in the forms and tools section at the end of this chapter.

Tool 5.4 How to Measure Breathing

For adults and older children watch the chest rise and fall. Use a watch or clock and count the number of times the chest rises (or expands) in one minute (60 seconds). Write this number down so you do not forget.

Children and infants use their stomachs to breathe and so you should uncover the child so you can see the stomach as well. Count the number of times the stomach **or** chest rises (expands). You may want to count for 30 seconds (half a minute) using a watch or clock. If you counted for 30 seconds you need to multiply by 2 (double the number) in order to get the number of breathes per minute. Write this number down so as not to forget it.

Compare the number you counted to the chart below. If your child's breathing rate is the same or over the number in the chart, it is a sign that they are having trouble breathing and you should seek medical attention. If your child has other symptoms or behaviour that you are concerned about, seek medical advice.

Definition of fast breathing:

Age	Number of breaths per minute
Less than 2 months of age	Over 60 breathes per minute
2 to 12 months of age	Over 50 breathes per minute
Over 12 months to 5 years of age	Over 40 breathes per minute
Greater than 5 years of age	Greater than 30 breathes per minute

In children under 5 years of age, signs of trouble breathing includes:

- Grunting with breathing
- Stridor (whistling/squeaking/wheezing noise) with breathing
- Flaring nostrils with each breath
- Chest rising opposite to the stomach rising (paroxysmal breathing)

To help you decide when to seek further care, please refer to the Decision Making Tools in the “Forms and Tools” section at the end of this chapter.

Tool 5.5 People on Home Isolation

What is home isolation?

A person may be placed on isolation if they have an infectious illness such as influenza. In order to protect the public, Public Health Quarantine Officers can place people on isolation to prevent influenza from spreading to others. Isolation means staying at home, not going outside, not going to work, school or other public places and not meeting with other people. While at home, the person who is sick should stay isolated or away from other household members as much as possible.

Why am I on home isolation?

You are on home isolation to prevent spreading influenza to other people. It also gives you time to recover from influenza. The influenza virus is contagious for 24 hours before symptoms start and for about 5 days after the symptoms start.

How long do I have to stay on home isolation?

You will likely be on home isolation for about seven days or until symptoms disappear. Instructions on how long to remain on isolation will be provided by the Public Health Quarantine Officer or through the Vancouver Coastal Health (VCH) Influenza phone line.

What can I do to prevent the spread of influenza while under home isolation?

- The sick person should stay in one room with the door closed to separate themselves from healthy family members.
- Wash hard surfaces and items handled by the isolated person thoroughly with soap and hot water and a disinfectant such as a 10% bleach solution (made up of one part bleach and nine parts water).
- Discourage any visits from people who do not live in the house.
- All household members, including the sick person, should wash their hands frequently using soap and water or an alcohol based hand gel.
- Keep personal items, such as towels, separate from the rest of the family.
- Do not share eating utensils or drinks.
- Dishes and laundry should be washed with warm water and soap as usual.

Is my family safe?

Household members should stay away from the isolated person as much as possible and try to keep a 1 meter (3 feet) distance when contact with other members of the household is unavoidable. All household members and the isolated person should wash their hands often, using soap and warm water. Healthy household members should remain on quarantine until at least three days after the symptoms in the sick person go away. (See Tool 5.6 Persons on Quarantine).

For more information contact:

You can refer to the Self Care Chapter in the VCH Pandemic Influenza Plan or the BC Health Files for more information. You may seek advice from your family physician, the BC Nurse Line or from the VCH Influenza Line.

If symptoms are severe and need immediate action, call 911 (Ambulance, Paramedics) or go to the closest emergency department

BC Nurse Line:	604 215 4700 or 1-866-215-4700
VCH Influenza Line:	604 875-4252, press 3
VCH Information Line:	604 XXX XXXX

Tool 5.6 People on Quarantine

What is quarantine?

A person may be placed on quarantine if they have been in contact or exposed to person with an infectious illness such as influenza. This is because a person with influenza is infectious for 24 hours before they know they are sick. In order to protect the public, Public Health Quarantine Officers can place people on quarantine to prevent influenza from spreading to others. Quarantine means staying at home or in a designated building for 3 days from last exposure until the Public Health Quarantine Officer is sure that the person is not infected with the flu. Quarantine means not going outside, not going to work, school or other public places and not meeting with other people unless given permission by the Public Health Quarantine Officer.

Why am I on quarantine?

You have been identified as being in contact with someone who has influenza or have recently been in an area with high rate of influenza. You may have been exposed to the influenza virus and may spread it to other people. Although you feel well today, you may become ill in a few days. Persons having influenza can spread the virus even when they are still feeling well.

How long do I have to stay on quarantine?

You must stay on quarantine for at least 3 days or until a Public Health Quarantine Officer tells you that it is safe for you to be off quarantine. While on quarantine, someone from public health may call you to see how you are doing and will ask you questions about having fever, chills, aches or a cough. While on quarantine you must stay inside and not go to work or school or visit anyone until you are off quarantine. It is advised that you do not have visitors while on quarantine.

What will happen if I develop symptoms of influenza while in quarantine?

If the person on quarantine becomes ill with influenza, notify the Public Health Quarantine Officer via the Vancouver Coastal Health (VCH) Influenza phone line. If you have influenza please refer to Self Care in the VCH Pandemic Influenza Plan or the BC Health Files on managing pandemic influenza. You may seek advice from your **family physician**, the **BC Nurse Line** (24 hours per day, 7 days a week) or from the VCH Influenza Line. If symptoms are severe and need immediate action, call 911 (Ambulance, Paramedics) or go to the closest emergency department.

Is my family safe?

If you are on home quarantine, you and your family should take certain steps for protection. Your family should stay at least 1 meter away from you. All of you should wash your hands frequently with warm water and soap. Items handled by the person on quarantine should be washed thoroughly with soap and hot water or a disinfectant such as a 10% bleach solution (made up of one part bleach and nine parts water).

For more information contact:

BC Nurse Line	604 215 4700 or 1-866-215-4700
VCH Influenza Line	604 875-4252, press 3
VCH Information Line	604 XXX XXXX

Tool 5.7 Decision Making Tools for Self-Referral of Infants, Children & Adults

The following three pages are tools to help you decide what steps to take if you or your child are sick. Follow the questions, which will guide you through these flow charts. Depending on how you answer the questions, the decision making tool will tell you when it is safe to treat yourself or your child at home; or when further referral is necessary.

There are three different decision-making tools. One each for

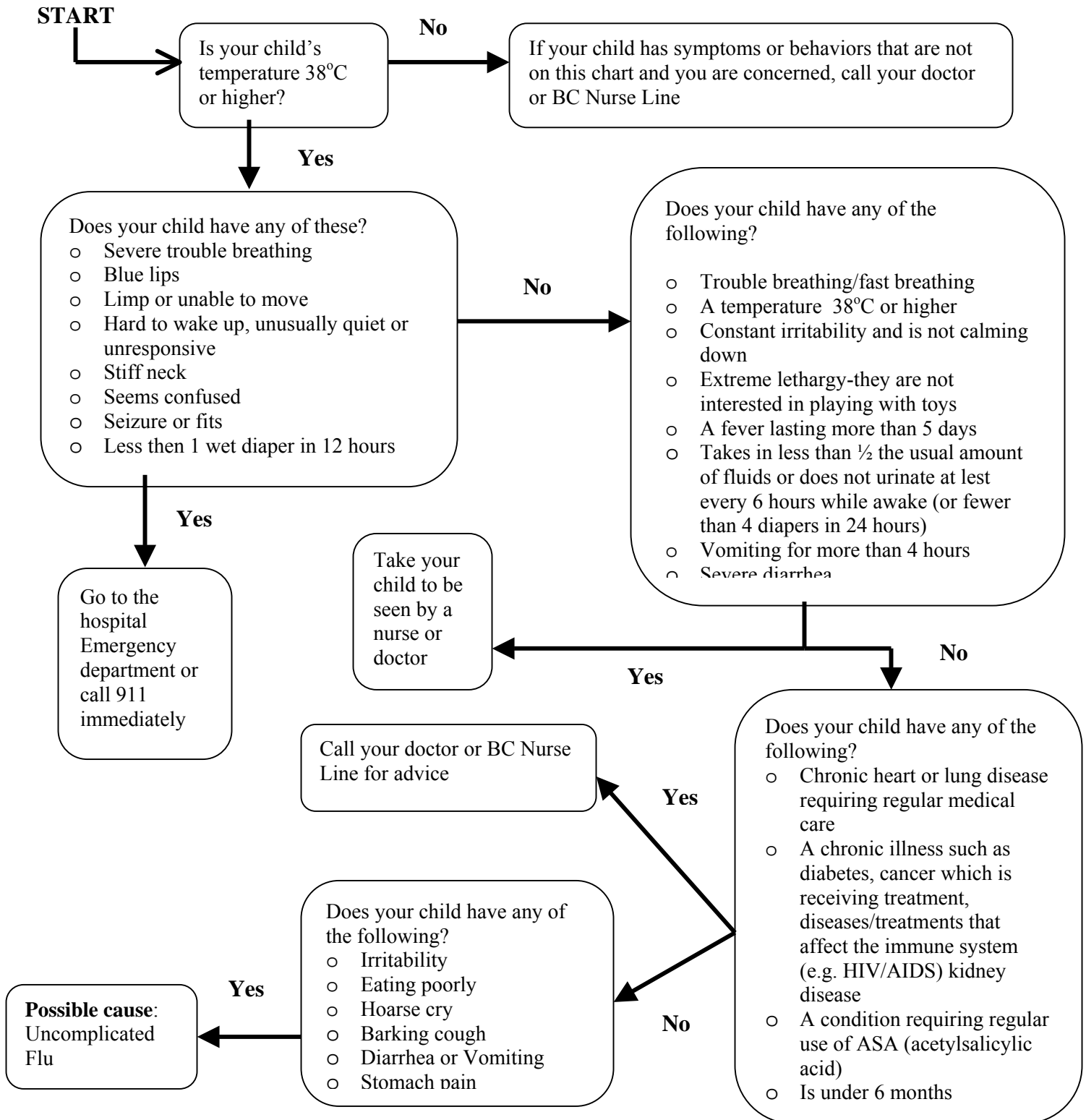
- Infants and Young Children (birth to 6 years old)
- Older child (6 years to adolescence)
- Adults

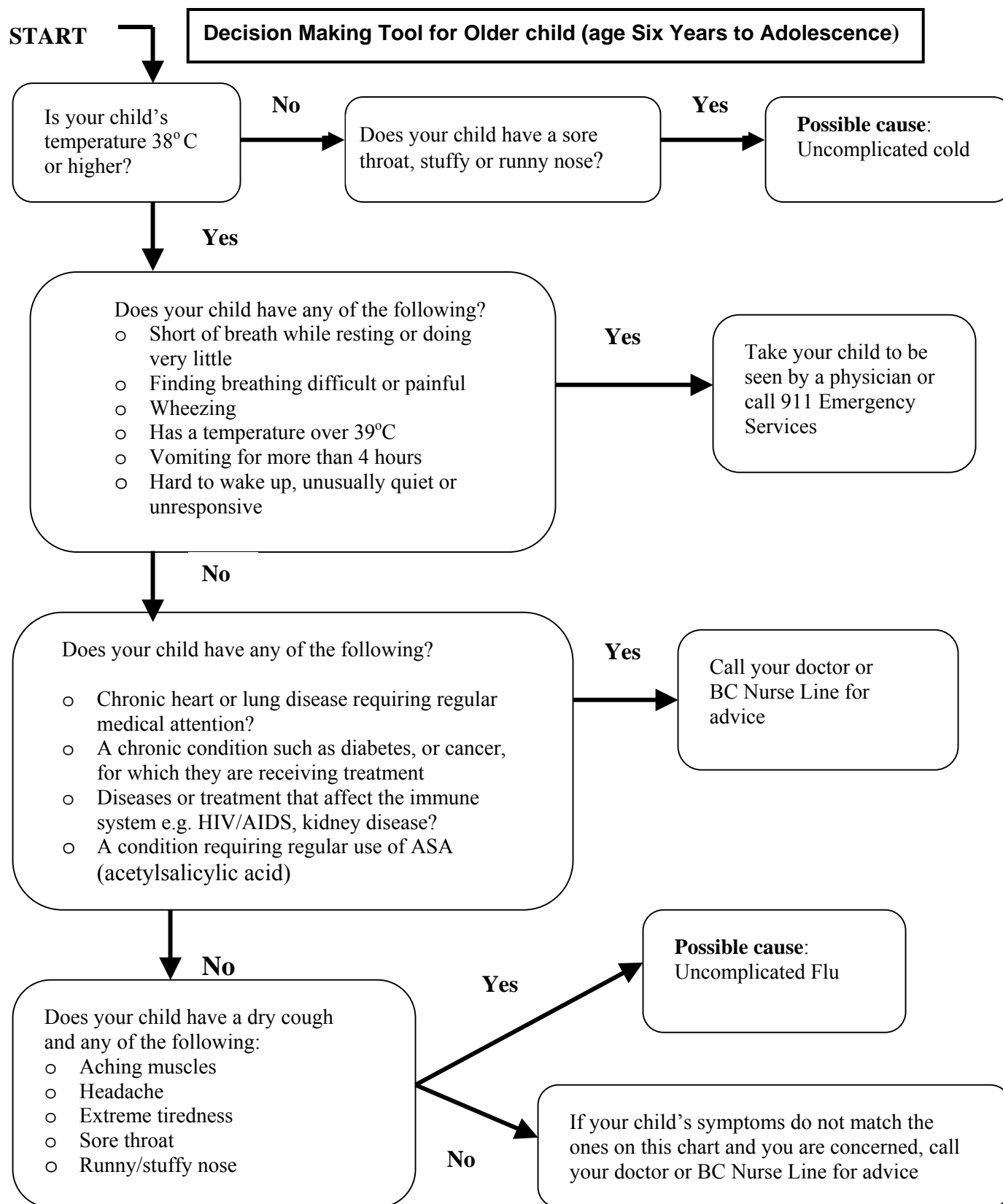
Choose the Decision Making Tool, which is appropriate for the person who is sick. The top left of the diagram is where to start. Follow the arrow to the first box. Ask the question and decide if the answer is YES or NO. If the answer is YES, follow that YES arrow to the next box and answer those questions. Continue on until you reach the end of your boxes. If the first answer was NO, follow the arrow marked NO to the other question box.

To answer some of the questions in the boxes, you may need to measure the temperature and the breathing of the person who is sick. Refer to *How to Take a Child's Temperature*, *How to Take an Adult's Temperature* and *How to Measure Breathing Rates* in the forms and tools section of this chapter.

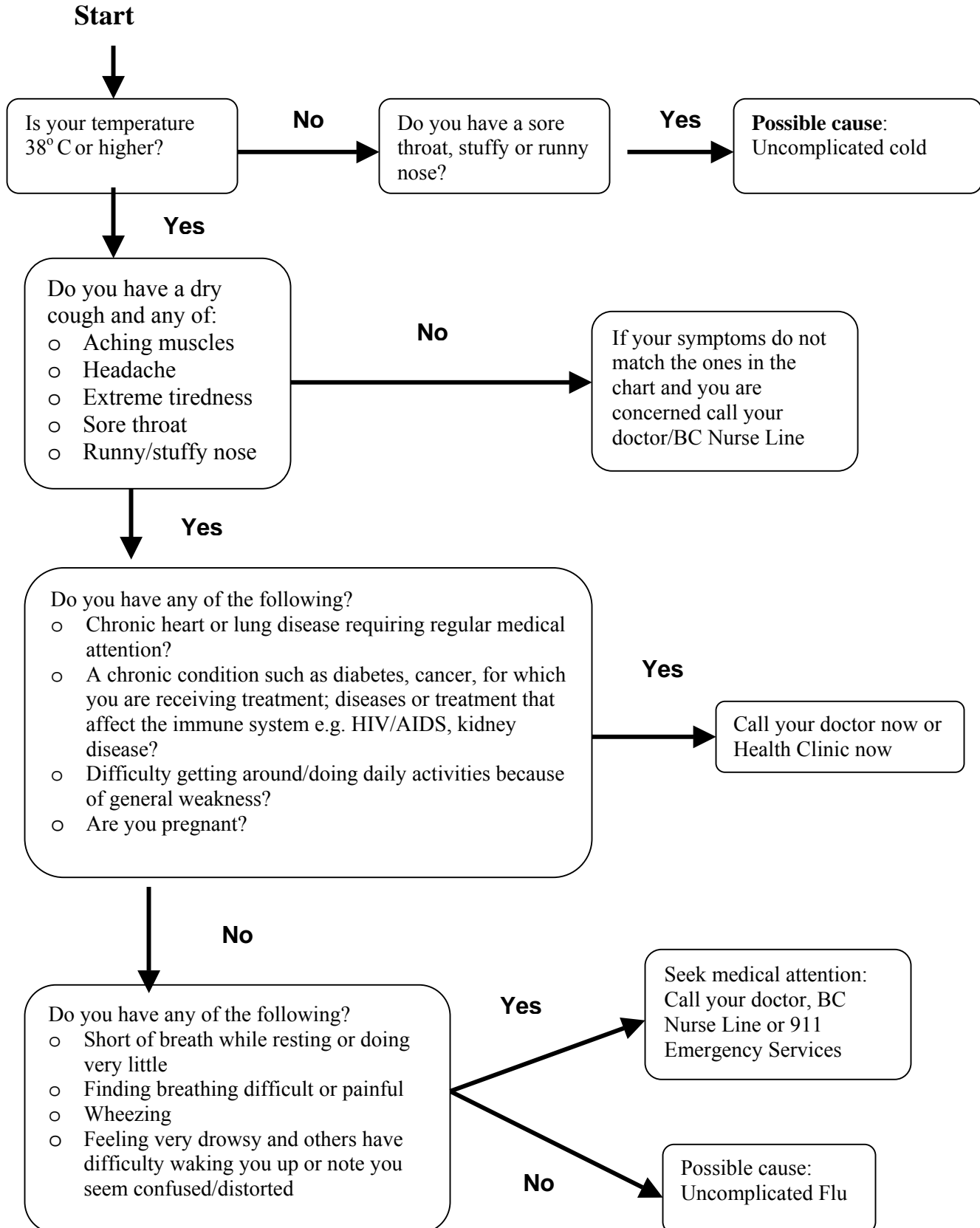
Remember that if you have any questions or concerns you may at any time phone your family doctor or the BC Nurse Line 604 215 4700, or toll free at 1-866-215-4700.

Decision Making Tool for Infant or Young Child





Decision Making Tool for Adults



7 — NEXT STEPS

All public information fact sheets and decision-making tools need to be translated into commonly used languages.

Dedicated telephone lines for influenza information and counselling will have to be established and the information shared early on in the event of a declared influenza pandemic.

Chapter 6

EMERGENCY RESPONSE

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CHAPTER SUMMARY

The British Columbia Emergency Response Management System (BCERMS) is a standardized “all hazards” method for delivering a coordinated multi-ministry, multi-agency response to emergencies and disasters in the province. BCERMS guides key ministries and crown corporations in preparing emergency plans, and outlines the functions of various supporting ministries in an emergency. BCERMS is based on the Incident Command System (ICS), which was originally developed for fire response management and is now widely implemented by first responders and emergency management programs in North America. ICS – thoroughly tested in various emergencies and jurisdictions – coordinates management, operations, planning, logistics, finance and administration in an emergency response. The response objectives of BCERMS, in order of priority are to (1) provide for the safety and health of all responders, (2) save lives, (3) reduce suffering, (4) protect public health, (5) protect government infrastructure, (6) protect property, (7) protect the environment, and (8) reduce economic and social impact.

Roles and responsibilities in an emergency are legislated by the Emergency Program Act and are shared among provincial ministries and authorities as well as crown corporations. The lead authority for pandemic influenza planning and response is the Ministry of Health, headed by the Provincial Health Officer. Vancouver Coastal Health, its Service Delivery Areas, Providence Health Services and Value-In contractors, in co-ordination with local emergency management departments have already developed plans for emergencies other than pandemic influenza. These plans are consistent with BCERMS, and provide a solid starting point and a valuable resource for pandemic influenza emergency response planning. They incorporate important features, such as the use of common language, the principles of coordinated decisions and priorities based on the “greater need”, and the utilization of a chain of command.

The specific objectives of the VCH emergency response plan are (1) to establish command structures and operational procedures, (2) to encourage collaboration between key stakeholders, emergency service personnel and public health authorities to ensure that the planned pandemic response will be coordinated and (3) to facilitate the maintenance of a continuous state of “readiness” through ongoing education, testing and revision of regional plans.

6.1 — COMMAND STRUCTURE

Internal command structures and operational procedures in existence at individual Vancouver Coastal Health, Health Service Delivery Areas, Providence Health Care Services and Value In contractors form the basis for overall Vancouver Coastal Health command structures and these are represented in flow charts of Figures 1 through 5.

Figure 1
VANCOUVER COASTAL HEALTH EMERGENCY OPERATION CENTRE PANDEMIC ACTIVATION

Vancouver Coastal Health
Emergency Operation Centre Pandemic
Activation

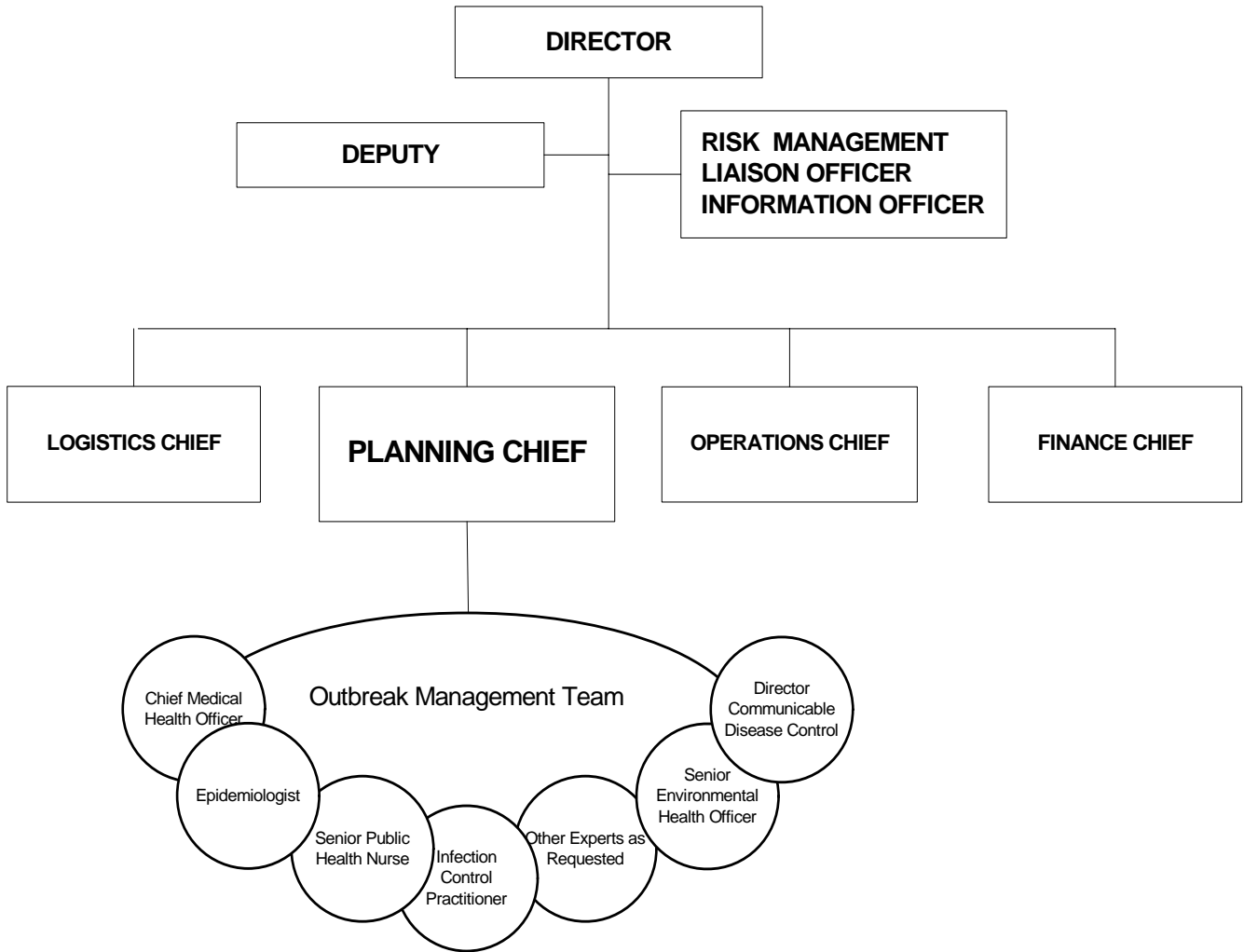


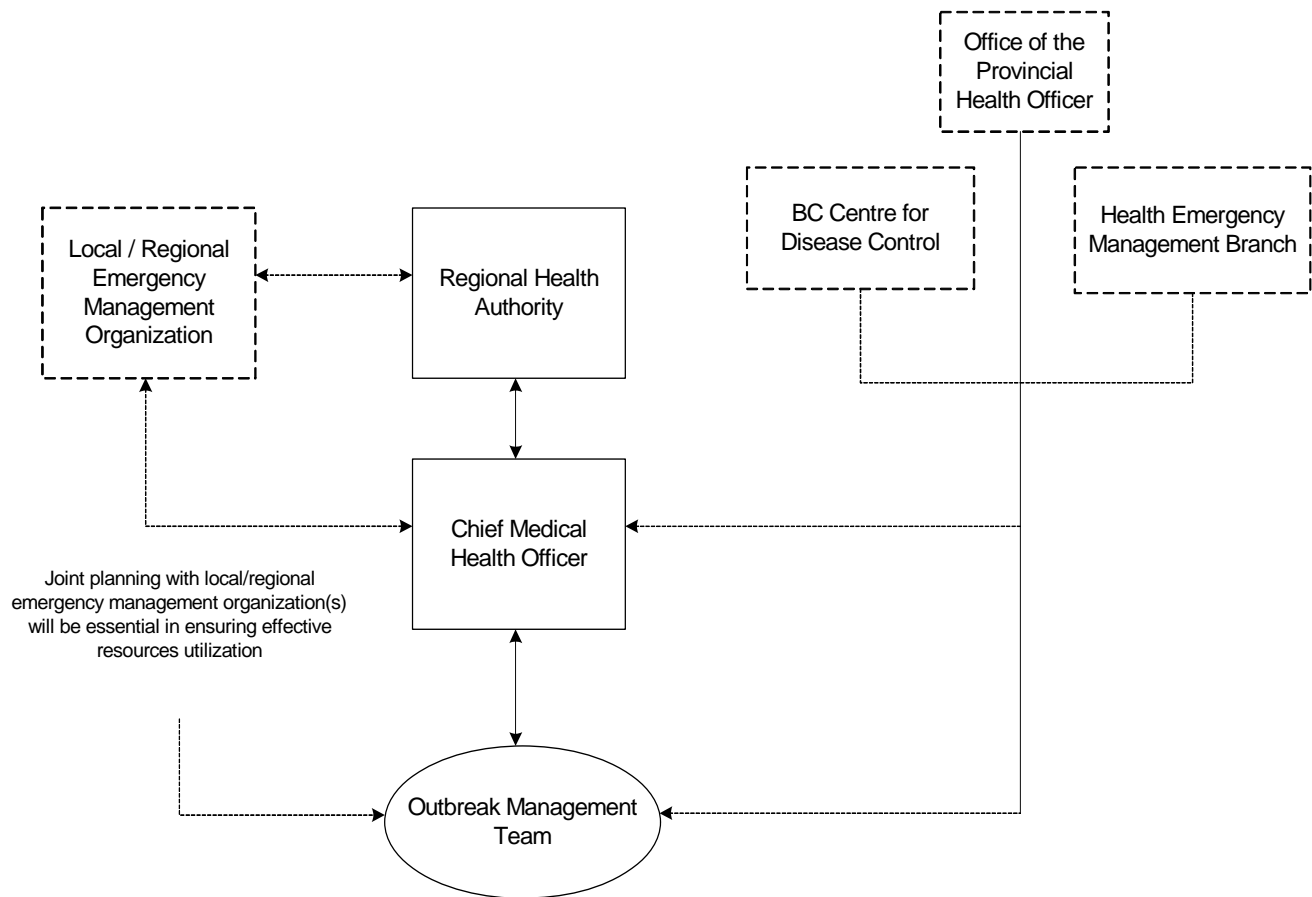
Figure 2**OUTBREAK MANAGEMENT PRE-EMERGENCY (PREPAREDNESS) PHASE
RELATIONSHIPS****Outbreak Management Pre-emergency
(Preparedness) Phase Relationships**

Figure 3
VANCOUVER COASTAL HEALTH PANDEMIC COMMUNICATIONS

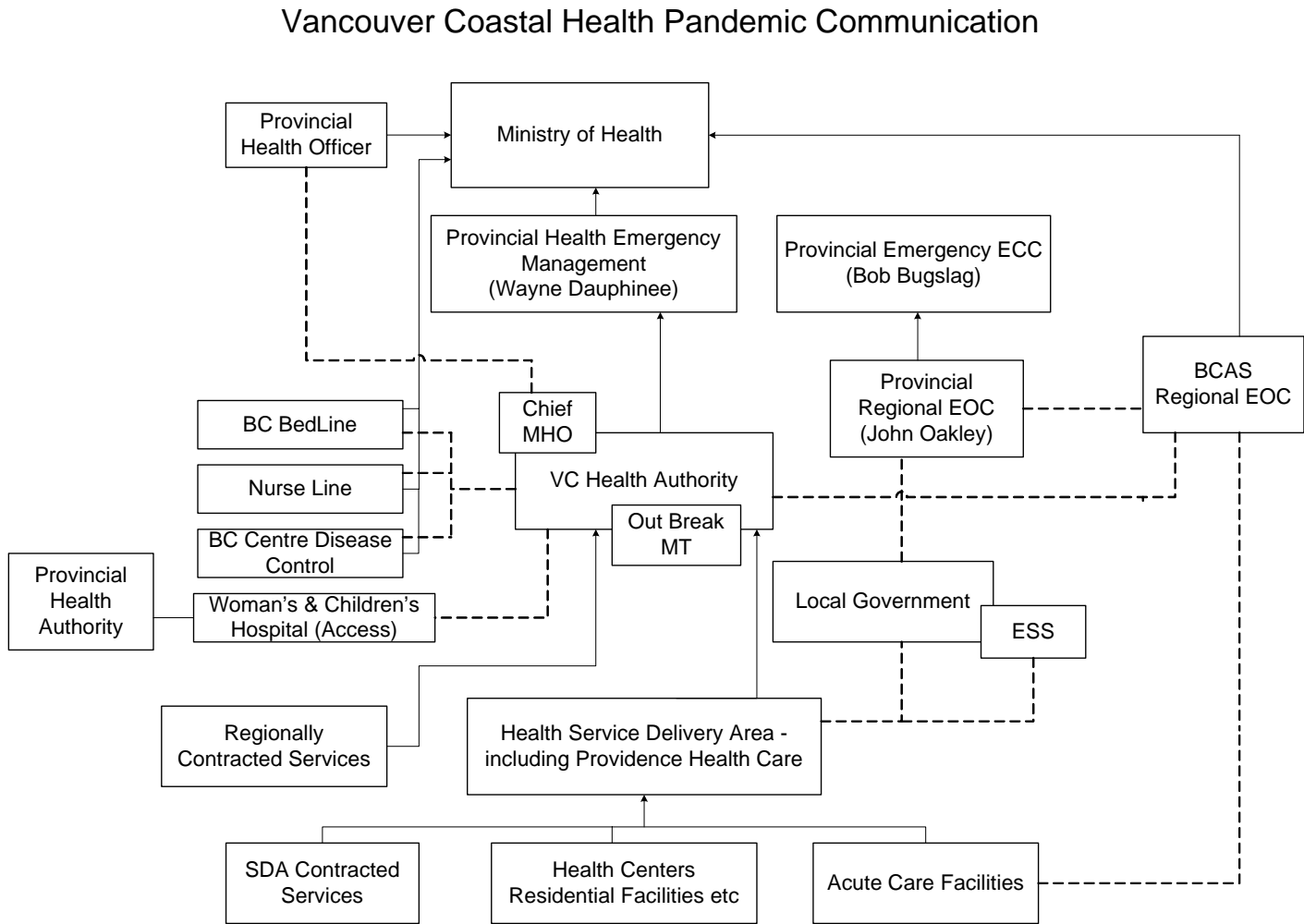


Figure 4**VANCOUVER COASTAL HEALTH EMERGENCY MANAGEMENT ORGANISATION**

EOC = Emergency Operation Centre

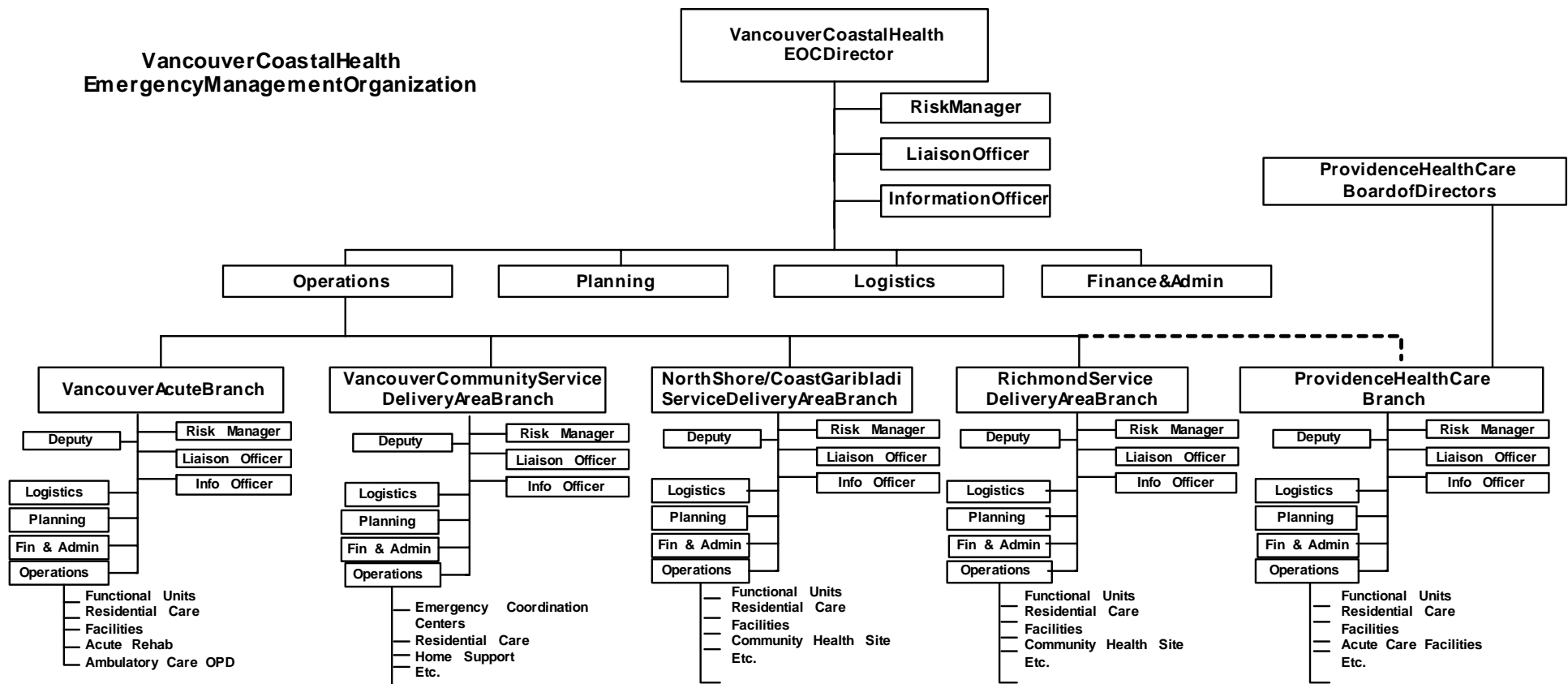
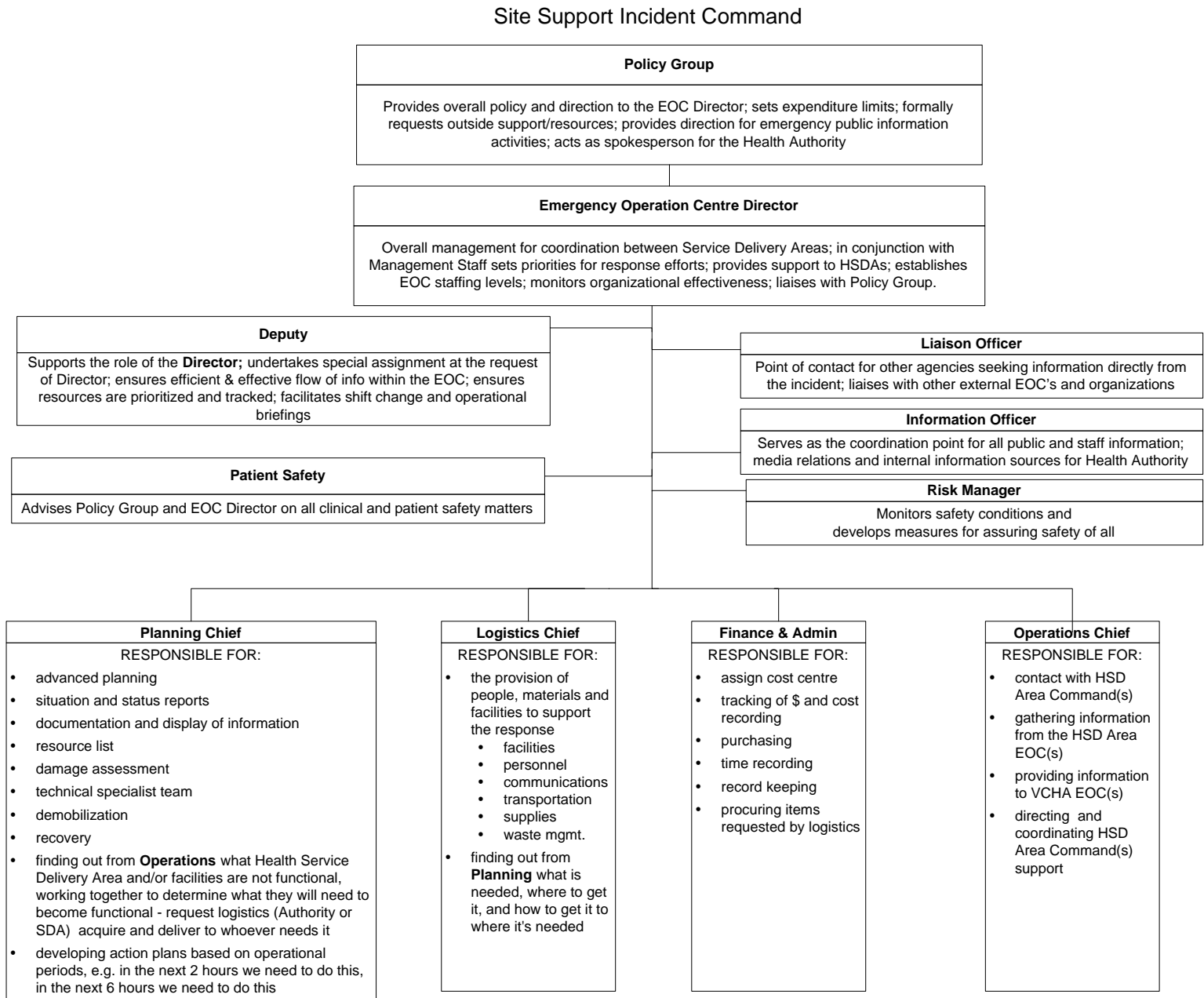


Figure 5
SITE SUPPORT INCIDENT COMMAND



6.2 — COMMUNICATION

A communication network to connect Provincial Emergency Response Organizations and Ministry Departments has been established by gathering essential contact information for key participants. These are listed in tables 1 through 4.

Table 1

HEALTH EMERGENCY MANAGEMENT CONTACT LIST

(information pending)

Table 2

VCH KEY EMERGENCY RESPONSE PHONE NUMBER LIST

(information pending)

Table 3

PROVINCIAL CONTACTS

(information pending)

Table 4

LOCAL AUTHORITY / FIRST NATIONS CONTACT LIST

(information pending)

6.3 — ALERT LEVELS

Vancouver Coastal Health has adopted a standard set of Alert Levels. These levels have been established to ensure Units, Sites, Health Area Emergency Coordination Centres, Health Service Delivery Areas and the Health Authority can clearly communicate their level of response or the impact of an event on a specific Unit, Sites, Health Area Coordination Centres, Service Delivery Areas and the Health Authority.

Table 5

VCH ALERT LEVELS

Alert Level	Level of Response Definitions
Alert	Confirmed incident – no specific information. Requires awareness and an attempt to acquire more information as soon as possible.
Level I	Incident manageable by the staff and resources currently in the affected Service Delivery Area. No requirement for extra staff or resources. Notification to Senior Executive required.
Level II	An incident that overwhelms the resources within the affected Service Delivery Area, but can be handled by the staff and resources within or available to Vancouver Coastal Health. Activation of the Emergency Operations Centre
Level III	The incident has or has the potential to overwhelm resources of Vancouver Coastal Health. Will need the coordination of staff and resources from more than one organization. Activation of regional EOC's are required (e.g., PEP, ECOMM, RECC)

The World Health Organization (WHO) pandemic influenza plan identifies specific phases for identifying the spread or potential spread of the virus. Table 6 shows the WHO Phases (as of 2005.5), their definitions as defined by WHO, and how the phases should trigger Vancouver Coastal Health planning strategies. These triggers do not replace Vancouver Coastal Health Alert Levels, but are intended to provide triggers for plan activation. They do not indicate the level of impact the pandemic has or will have on our organization

Table 6**TRIGGERS FOR VCH ACTION BASED ON WHO GUIDELINES**

WHO	As defined by WHO	VCH	VCH Action Required
INTERPANDEMIC PERIOD			
Phase 1	<ul style="list-style-type: none">No new influenza subtypes in humansInfluenza subtype that has caused human infection may be present in animals, but risk* of human infection is low	PRE PANDEMIC PLANNING	<ul style="list-style-type: none">PlanningEncourage coordinated planning with local private and public partners; local emergency management directors; local First Nation Communities
Phase 2	<ul style="list-style-type: none">No new influenza virus subtypes have been detected in humans.Circulation animal subtype poses a substantial risk* of human disease		
PANDEMIC ALERT PERIOD			
Phase 3	<ul style="list-style-type: none">Human infections(s) with a new subtypeNo human spread or rare spread to close contacts	NOVEL VIRUS ALERT	<ul style="list-style-type: none">Keep planning or review planIn Coordination with MoH notification of novel virus alert to: hospitals; local private and public partners; local emergency management directors; local First Nation CommunitiesActivate Outbreak TeamPut VCH Emergency Operation Centre on Alert
Phase 4	<ul style="list-style-type: none">Small cluster(s) limited human-to-human transmissionSpread highly localized, virus not well adapted to humans		
Phase 5	<ul style="list-style-type: none">Large cluster(s), human-to-human still localizedIncreasingly better adapted to humans, not fully transmissible, substantial pandemic risk[†]	PANDEMIC ALERT	<ul style="list-style-type: none">Activate VCH Emergency Operations CentreReview plan for distribution of public sector vaccineEnhance collection of clinical specimens and surveillanceContact private partners and advise they review their plansEstablish Pandemic cost centre#, track related costAdminister vaccine, once available
PANDEMIC PERIOD			
Phase 6	Increased and sustained transmission in general populations	PANDEMIC	<ul style="list-style-type: none">Coordinate use of available local resources, including private, public and volunteerTrack and report pandemic related information
		SECOND WAVE	<ul style="list-style-type: none">Continue all activitiesReview evaluate, and modify as neededContinue to vaccinateMonitor resources and staffing needs
POSTPANDEMIC PERIOD			
	Return to interpandemic period	PANDEMIC OVER / RECOVERY	<ul style="list-style-type: none">Assess local capacity to resume normal public health functionsAssess local capacity to resume normal health care deliveryAssess fiscal impact of pandemic responseReport results of assessment to local government authorities and Min of Health

WHO global influenza preparedness plan WHO/CDS/GIP/2005.5

* The distinction between *phase 1* and *phase 2* is based on the risk of human infection or disease resulting from circulation strains in animals. The distinction would be based on various factors and their relative importance according to current scientific knowledge. Factors may include: pathogenicity in animals and humans; occurrence in domesticated animals and livestock or only in wildlife; whether the virus is enzootic or epizootic, geographically localized or widespread; other information from the viral genome; and/or other scientific information

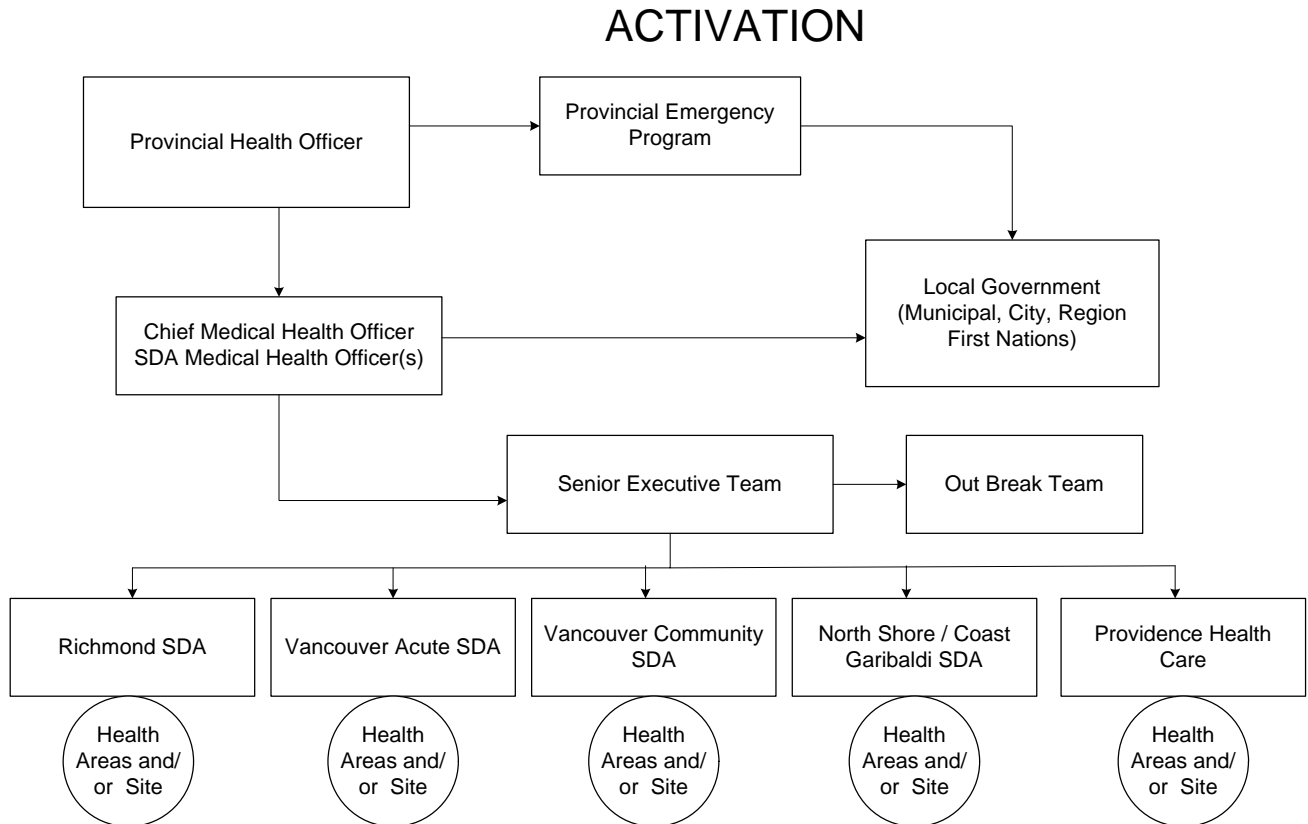
[†] The distinction between *phase 3*, *phase 4* and *phase 5* is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include: rate of transmission; geographical location and spread; severity of illness; presence of genes from human strains (if derived from an animal strain); other information from the viral genome; and/or other scientific information

6.4 — ACTIVATION OF THE EMERGENCY RESPONSE PROGRAM

When the Provincial Health Officer issues a declaration of the pandemic, the local and emergency programs are activated according to the command structure in figure 7.

Figure 7

ACTIVATION OF THE LOCAL AND REGIONAL EMERGENCY PROGRAMS



6.5 — BASIC OVERVIEW OF EMERGENCY OPERATIONS

The organizational charts (Figures 1 and 4) outline the chain of command, which incorporates four sections under the overall leadership of an Emergency Operation Centre (EOC) Director. As required, each of the four sections (logistics, planning, finance, and operations) is appointed a Chief, by the EOC Director. The Chiefs, when required, appoint leaders to sub-functions filling various crucial roles. This structure limits the span of control of each position or function in an attempt to distribute the work evenly.

Emergency Operation Center (EOC) Director → Reports to CEO / Policy Section

- Organize and direct EOC in the health service delivery area and / or region
- Initiate Health Authority / Service Delivery Area emergency response management system
- Appoint necessary Command Staff as needed (Information, Liaison and Safety Officers and Logistics, Planning, Finance and Operation Chiefs)
- Give overall direction for Health Authority / Service Delivery Area operations
- Receive status reports and discuss and initiate actions plans
- Obtain patient census and status
- Establish overall objectives
- Call for a health authority-wide patient census and status projection report
- Authorize a patient prioritization assessment for the purpose of designation early discharge to obtain beds for incoming influenza patients
- Consult with Section Chief's on needs for staff and volunteers responders
- Deliver regular briefings/updates to all EOC staff
- If requested, provide Health representative to the Provincial Regional Emergency Operation Center
- Establish roles and reporting relationships which involve agencies from within the same jurisdiction and under multi-jurisdiction conditions
- Establish area of cost sharing
- Provide for EOC staff rest periods and relief

Liaison Officer → Reports to EOC Director

- Contact person from outside agencies
- Directs call to ensure that the appropriate connections are made between internal and external contacts

Information Officer → Reports to EOC Director

- Prepare information release (approved by Director)

Safety / Security Officer → Reports to EOC Director

- Establish secure EOC
- Establish ambulance entry and exit routes
- Ensure security of the EOC, the hospital's triage areas, pharmaceuticals, patient care, morgue and other sensitive or strategic areas for unauthorized access
- Provide vehicular and pedestrian traffic control
- Secure food, water, medical and blood resources
- Establish routine briefings with Safety and Security staff

Operations Chief → Reports to EOC Director

- Contact and gather information from Units, Sites, Health Area Coordination Centres and/or Service Delivery Areas to enable the Health Authority to coordinate and supervise the Clinical Services, Ancillary Services (Laboratory, Radiology, Pharmacy, Cardiopulmonary, Respiratory etc.) and Human Services subsections
- Overall director of Community Services/Programs which include
 - Community mental health
 - Community health nursing
 - Continuing care
 - Community facilities

Planning Chief → Reports to EOC Director

- Supply morbidity and mortality data to appropriate authorities; prepare the following minimum data:
 - Number of hospitalized and number of discharged to home or other facilities
 - Number of dead
 - Individual influenza patient data:
 - Name or physical description
 - Sex, age, address
 - Seriousness of condition
- Advance Planning strategies
- Activates Labour Pool Unit
 - Short term planning (with planning staff solicit physician and other hospital personnel to volunteer as Disaster Service workers from outside the hospital)
- Activates Situation Status Unit
 - Oversee information flow and documentation
 - Resource tracking
 - Situation status
 - Personnel time sheets
 - Activity log
 - Emergency incident message form

Finance Chief → Reports to EOC Director

- Oversee and track the acquisition of supplies, services and associated cost of pandemic response
- Supervise the documentation of expenditures relevant to pandemic influenza

Logistics Chief → Report to EOC Director

- Ensure necessary supplies and facilities to support the medical objective
- Coordinates the delivery of consumables to healthcare facilities
- Ensure necessary communication tools are operational

6.6 — ESSENTIAL STAFF

Required EOC response personnel are identified according to the procedure outlined in the BCERMS/ICS organizational charts. Vancouver Coastal Health Corporate Office will identify essential staff to maintain corporate services, which if postponed or disrupted would cause the corporation severe negative consequences or an inability to support the Service Delivery Areas, Providence Health Care and Value-In contractors. Service Delivery Areas, Providence Health Care Services and Value-In will identify the process to establish essential services levels and early warning triggers. Staff fan-out lists are maintained and are available from the individual Service Delivery Areas.

6.7 — ESSENTIAL NEEDS

Contingency plans are established to provide food, medical and other essential life-support needs for people confined to their homes by choice or in response to direction by health officials. Service Delivery Areas and Providence Health Care Services will develop a process to identify individual clients and/or facilities that may require life-support services in the event of a pandemic (home support, frail elderly, quarantine, etc.) Forms 6.1 and 6.2 are used for the assessment of risk and need for critical services used in the Vancouver Community HSDA. These can be adapted to overall VCH needs. Service Delivery Areas in coordination with local, city, municipality and town Emergency Management and Emergency Social Services personnel are responsible for identifying target groups and for developing a plan for providing services.

6.8 — ESSENTIAL COMMUNITY SERVICES

In co-operation with local government, each Service Delivery Area will develop a list of essential community services and corresponding personnel. These services and personnel are considered essential because their absence would pose a serious threat to public safety or would significantly interfere with the ongoing response to the pandemic. Each SDA will also develop triggers and notification processes with identified services, as well as assist services to identify replacement personnel; e.g., retired personnel, government or private-sector employees with relevant expertise.

6.9 — COMPENSATION AND DISASTER FINANCIAL ASSISTANCE

Because of its immense scope and broad, prolonged impact, an influenza pandemic will result in additional costs in a number of different areas. During an emergency, local government bodies – including municipalities, regional districts, health authorities and educational authorities – may be eligible for financial assistance to offset some of these extraordinary cost.

A Vancouver Coastal Health Cost Centre shall be established during WHO Phase 5 and Vancouver Coastal Health Pandemic Alert Phase, for the purpose of tracking all cost related to a Pandemic Influenza response.

6.10 — RECOVERY

The development of “aftercare” and recovery plans and guidelines is underway. Main components, features and issues are outlined in the following list.

Notification

- To staff
- Community
- Contracted Services
- Agencies
- Others

Staff

- Immediate emotional needs
- Long term emotional needs
- Critique of response

Site

- Physical needs
- Equipment needs
- Recommendation to improve response capabilities

Client Services

- Are there services that were postponed due to the response that need to be reinstated?
- Are there services that were initiated due to the response that need to be cancelled or extended?
- Are there clients whom services will need to be re-evaluated as a result of the event?
- Are there new services required long term as a result of the event?

Acquired Equipment

- Have you rented, leased, purchased or borrowed items for the response that need to be returned?
- Have you lent out equipment that will need to be returned?

Supplies

- Will you need to replenish supplies?
- Do you need to return any borrowed supplies?

Paper work

- Staff payroll documentation
- Activity Log records
- Financial processing and documentation
- Seek Financial redress
- After-Action Reports

6.11 — EDUCATION FOR THE PUBLIC, NEW STAFF AND EXISTING STAFF

Vancouver Coastal Health will facilitate and host a Public Awareness session in May of 2005, and in any subsequent non-pandemic years, to increase private, public and individual awareness of pandemic influenza and encourage collaborative planning.

The Health Authority Emergency Management Office will conduct a minimum of one pandemic simulation exercise each year. Service Delivery Areas, Providence Health Care Services and Value-In will conduct or participate in at least one pandemic simulation exercise each year.

Service Delivery Areas, Providence Health Care Services and Value-In, will identify a process to orientate new staff and keep existing staff cognizant of their role in a pandemic response and the overall Vancouver Coastal Plan. Awareness brochures, tabletop and functional exercises will be encouraged and supported by the Emergency Management Office.

Service Delivery Areas will collaborate with their municipal emergency planners to develop and deliver a local authority (municipalities, cities, towns, resort districts, etc.) pandemic exercise yearly.

6.12 — EVALUATION AND REVIEW

This plan will be reviewed annually in July. Service Delivery Areas, Providence Health Care Services and Value-In will establish annual review dates for their individual pandemic plans

Lessons learned from exercises, functional and tabletop will be used to evaluate this plan prior to activation. Post-activation lessons learned, after action reports and other information are collected, will be utilized (including social-economical evaluations) in the evaluation and review of this plan. Service Delivery Areas, Providence Health Care Services and Value-In will develop methods to evaluate their response.

6.13 — MAINTENANCE OF EMERGENCY RESPONSE PLAN

The Emergency Management Office and the Vancouver Coastal Health Pandemic Influenza Planning Group will maintain this plan.

6.14 — FORMS AND TOOLS

Form 6.1 Disaster Response Classification for Critical Services Pre-incident Assessment

Tool 6.1 Disaster Response Risk Classification Tool for Assessing an Individual Client's General Condition and Level of Risk at Time of Incident

Form 6.1

Example from Vancouver Community
SITE NAME AND DATE COMPLETED HERE
DISASTER RESPONSE RISK CLASSIFICATION FOR CRITICAL SERVICES
PRE-INCIDENT ASSESSMENT

1 – Service provided or contact within 24 hrs (The client has a high probability of immediate negative outcome if not seen within 24 hours.)	2 – Service provided or contact within in 48 hrs (The client has a high probability of negative outcome to health, safety of client or family and/or the development of primary and/or secondary complications if not seen within 48 hrs.)	3 - Service provided or contact within 48 hrs to 2 weeks (The client has a moderate probability of a negative outcome or of secondary complication if not seen in 48 hrs to 2 weeks)	4 – Minimal Consequences (The client has the probability that the impact of a delay of service will effect client/family quality of life, but has no safety or immediate health or significant economic impact)
--	--	--	---

Program	Service	Acuity	Exception
Infant, Child and Youth Service	Programs focus on the health issues of infants, children, youth, and mothers	<i>Critical Service Level</i> 1 ⇔ 4	

Program	Service	Acuity	Exception
Adult & Older Adult Services	Programs provide care to the adult and older adult population who have acute, chronic, or palliative health care needs, and they also assist with organizing support for independent community living or enabling admission to residential care	<i>Critical Service Level</i> 1 ⇔ 4	

Form 6.2

Example from Vancouver Community

**DISASTER RESPONSE RISK CLASSIFICATION TOOL FOR
ASSESSING AN INDIVIDUAL CLIENT'S GENERAL CONDITION AND LEVEL OF RISK AT TIME OF INCIDENT**
USE with clients of level one rating (on risk classification for critical services) and/or vulnerable clients who may be at risk

Client Name	
File #	

RISK INDICATORS	ACTUAL			DETERIORATING			STABLE	NOT ASSESSED	NOT APPLICABLE		
	Good	Fair	Poor	Rapid	Moderate	Slow					
1. Current health status											
2 -8. Cognitive ability											
3 -2. Gross mobility											
4 -3. Psychomotor ability											
5 -4. Family / significant other support											
6 -5. Specialized technology needs											
7 -6. Economical											
8 -7. Environmental											
POTENTIAL RISK OUTCOME	HIGH PROBABILITY			MEDIUM PROBABILITY			LOW PROBABILITY	SERVICE LEVEL			
								1	2	3	4
1. Injury / illness											
2. Caregiver stress / breakdown											
3. Inappropriate admit / readmit hospital / institutionalization's											

1. Grade the clients ACTUAL level of acuity, indicating good, fair or poor in the 8 categories listed, considering any other factors that may impact this client.
2. Indicate if the clients condition is DETERIORATING and at what level; or STABLE, NOT ASSESSED or NOT APPLICABLE
3. Grade the clients POTENTIAL RISK OUTCOME in the 3 categories listed, considering any other factors that may impact this client, as HIGH, MEDIUM or LOW PROBABILITY
4. Using the information you have graded, indicate if the client's SERVICE LEVEL is a 1, 2, 3, or 4 and strategize how to meet that need.
5. Once individual clients with Level One Services have been evaluated - **if there is a need** evaluate individual recipients of Level Two Services

Chapter 7

CLINICAL MANAGEMENT AND HEALTH CARE FACILITIES

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CHAPTER SUMMARY

In order to respond effectively to pandemic influenza, special measures for delivering health services have to be implemented. Assuming that there will be a large number of cases and limited resources during a pandemic, the measures within the plan were designed to ensure that pandemic patients are appropriately triaged and cared for, while provisions for essential medical services continue.

An important objective of this plan is to coordinate resources in order to ensure equitable health care delivery under emergency conditions. This is accomplished on multiple levels. During the pre-pandemic period, an inventory of hospital beds, staff and space is established and maintained. In addition to traditional health care facilities, such as hospitals, these parameters have also been estimated for non-traditional facilities, such as long-term care sites, where residents with influenza will be treated. In addition to expanding roles and capacities of current health care facilities, other sites, such as community centres, may be converted for use as alternate health care locations. To be deemed suitable for providing emergency health care, a site must fulfill specific criteria. A list of potential sites meeting these criteria is being assembled. Preparations for supplying these facilities with medications, infection control supplies and all other operational equipment are also part of this plan.

Within facilities, the prioritization of health services during a pandemic will be accomplished by implementing triage algorithms.

7.1 — CLINICAL MANAGEMENT OF INFLUENZA

Case Definitions

The spectrum of illness associated with influenza virus infections is wide, and ranges from asymptomatic infection to fatal disease, frequently due to viral pneumonia. The previous experience of a population with antigenically related virus variants is a determinant of the severity of disease. Therefore, with a pandemic strain, which will be new to the population, **the clinical disease associated with influenza infection will be more severe**. Age and pre-existing risk factors also influence the outcome of influenza. Young children, the elderly, pregnant women and individuals with chronic diseases are at greatest risk of complicated influenza.

Clinical Case Definition: When influenza is circulating in the community, the presence of fever and cough of acute onset are good predictors of influenza. The positive predictive value increases when fever is higher than 38°C and when the onset of the clinical illness is acute (less than 48 hours after the prodrome). Other symptoms, such as sore throat, rhinorrhea, malaise, rigors or chills, myalgia and headache, although non-specific, may also be present.

Confirmed cases of influenza are cases 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.

For **surveillance** purposes, the Health Canada **definition of influenza like illness (ILI)** is as follows: “Acute onset of respiratory illness with fever (>38°C) and cough accompanied by one or more of the following: sore throat, arthralgia, myalgia or prostration, which could be due to an influenza virus.”

Most Common Clinical Presentations

All Age Groups

The typical clinical presentation of uncomplicated influenza is tracheobronchitis with some small airway involvement. The onset of disease is usually abrupt: headache, chills and dry cough, followed by fever of 38–40°C that may peak as high as 41°C within the first 24 hours, together with myalgia, malaise, and anorexia. Physical signs include hot and moist skin, flushed face, injected eyes and clear nasal discharge. Some patients also have nasal obstruction, sneezing, pharyngeal inflammation, excessive tearing and mild cervical adenopathy. Chest x-rays and auscultatory findings are usually normal, with occasional crackles and wheeze. In uncomplicated influenza, the airflow in large airways remains relatively normal. There is, however, a transient increase in bronchial reactivity and some temporary alterations in gas exchange in the small, peripheral airways. Bronchial hyper-reactivity may continue well beyond the clinical illness, even in subjects without a history of bronchospasm. In uncomplicated influenza, fever usually declines after 2 to 3 days and disappears by the 6th day (median three days). Biphasic fever patterns are usually associated with secondary bacterial infections, but may be observed in some cases of uncomplicated influenza. While the temperature declines, some respiratory symptoms, like cough and rhinorrhea, may increase, followed by the production of small amounts of, usually mucoid, sputum. Cough, weakness and fatigue can persist for 1 to 2 weeks and up to 6 weeks.

The disease is more severe in individuals younger than 5 years or older than 65 years. The risk of lower respiratory tract infection (LRTI) is much higher in young children, smokers, geriatric patients and people with underlying cardio-respiratory disorders (most frequently asthma in younger patients and chronic bronchitis and emphysema in older people). Viral pneumonitis is most frequent in young children, while bacterial superinfection is common in the elderly. *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*, and *Staphylococcus aureus* are the most common agents of secondary bacterial pneumonia. Gram-negative bacteria, *Chlamydia pneumoniae* and *Mycoplasma pneumoniae* are also found in some patients.

Different strains of influenza may be associated with different symptoms or severity of disease. Two influenza A subtypes: A (H1N1) and A (H3N2), and one influenza B strain, have been circulating worldwide in the last decade (with minor strain variations) and are associated with yearly epidemics. Influenza A (H3N2) is frequently associated with more severe clinical disease and pneumonia. It affects young and old equally, and accounts for up to 28% of acute cardiopulmonary hospitalizations of older people. Influenza A (H3N2) viruses usually cause focal outbreaks in nursing homes. Influenza A (H1N1), on the other hand, infects children every year but has only a minor impact in the elderly, and influenza B preferentially causes disease in children, with frequent gastrointestinal symptoms.

Children

Children have the highest attack rates of influenza and are the major disseminators of the virus. In a regular “influenza season,” influenza infections are the most important causes of consultation in outpatient clinics and account for one half of lower respiratory tract infections that result in hospitalizations of children. During most influenza epidemics, influenza viruses supplant all other major respiratory viruses as causes for consultation for respiratory infection in children.

The highest rate of influenza-related serious illness in children occurs in the 6 to 12 months-old age group, after the waning of maternal antibodies. Although uncomplicated influenza in children may be similar to the disease in adults, there are some age-related differences in toddlers and infants:

- 1) Young children usually develop higher temperatures (over 39.5°C) and may have febrile seizures.
- 2) Unexplained fever can be the only manifestation of the disease in neonates and infants.
- 3) Influenza viruses are an important cause of laryngotracheobronchitis (croup), pneumonia, and pharyngitis-bronchitis in young children. Both types A and B are significant causes of low respiratory tract infections.
- 4) Gastrointestinal manifestations, such as nausea, vomiting, diarrhea and abdominal pain are found in 40-50% of children, with an inverse relation to age (mainly in 3 years old or younger).
- 5) Otitis media and non-purulent conjunctivitis are more frequent in the young.
- 6) A variety of central nervous system findings, including apnea, opisthotonos (Opisthotonos is an abnormal posturing condition characterized by rigidity and severe arching of the back, with the head thrown backwards. This is such that, if a person were laid on his or her back, only the back of the head and the heels would touch the supporting surface) and seizures may appear in as many as 20% of the infants. Children may also present with symptoms suggestive of meningitis; e.g., headache, vomiting, irritability and photophobia.
- 7) Myositis (inflammation of skeletal muscles) is a complication in young children, especially after infection with influenza B.

In children over 5 years and adolescents the most frequent symptoms are fever, cough, non-localized throbbing headache, chills, myalgia and sneezing. Fever is usually in the 38-40°C range and a second peak, without bacterial superinfection, may occur around the fourth day of illness. Backache, sore throat, conjunctival burning with watery eyes and epistaxis may be present, but gastrointestinal symptoms are infrequent. Chest auscultation is usually normal, but occasionally coarse breath sounds and crackles may be heard.

Management of Influenza Patients among the General Public

The algorithms in this chapter were designed to be used by health care staff, as well as by volunteers with minimal triaging experience, to identify influenza patients among the general public who present to the health clinics, doctor’s offices, emergency rooms, temporary emergency services and other influenza triaging centres. Assuming that there will be a large number of cases and limited resources during a pandemic, the assessment guidelines are intended to evaluate the needs of each individual, and triage influenza patients efficiently in a crisis situation. Triage personnel will decide when patients can be managed in an ambulatory setting, redirected home, sent to an alternate care site or admitted to an acute care hospital.

Management of patients and residents in long-term care facilities is considered separately. Because of their age or underlying medical condition, most individuals living in long-term care facilities are at increased risk for

developing complications after influenza infection. It is expected that long-term care residents will remain in the long-term care facility for treatment during a pandemic.

Initial Assessment or Triage

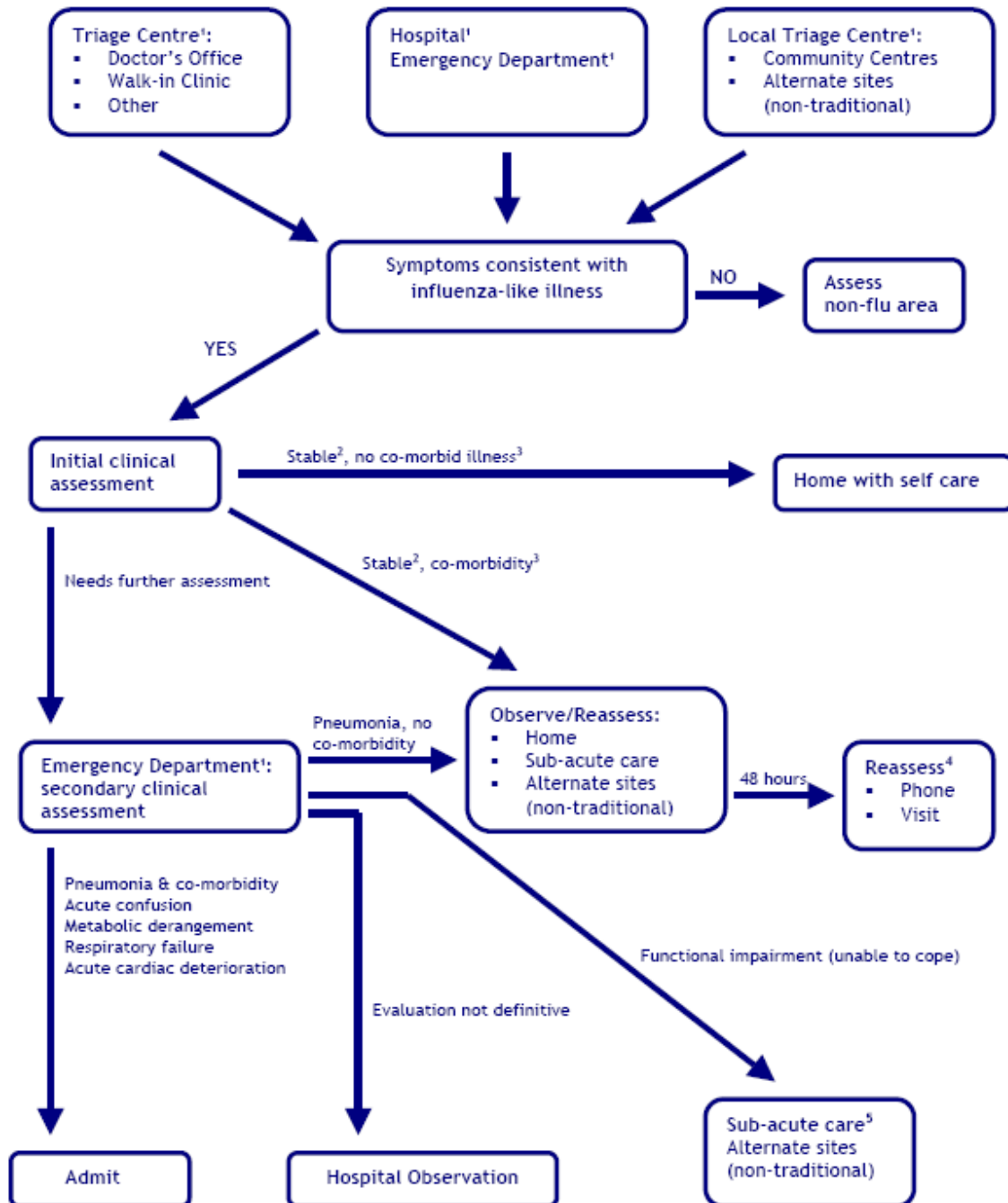
Two algorithms are included in this chapter, one for adults and adolescents (figure 1) and a second for infants and children (figure 2). There is no clear age limit for the use of these algorithms.

Depending on the age of the patient, place of consultation and on the number of cases of influenza in a given community, young children and adolescents may be seen by personnel specialized in child care or by the same staff and volunteers who assess the adult population. In either case, the criteria used to assess severity of illness in adults and children are different. Healthy seniors living in the community can be evaluated as other adults.

Figure 1

ALGORITHM FOR THE INITIAL ASSESSMENT OF ADULTS AND ADOLESCENTS OVER 18 YEARS OF AGE

Adolescents & Adults (≥ 18 years old)
Initial Influenza Illness Assessment Algorithm (Figure 1)



Vancouver Coastal Health: adapted from Canadian Pandemic Influenza Plan, Public Health Agency of Canada

Notes to Figure 1 appear on the following page.

The following explanations refer to parts of Figures 1 & 2:

- 1) Triage centres may be located at doctors' offices, clinics and in non-traditional (NT) sites such as schools, churches, community centres, military field hospitals, etc. When possible, hospitals should assign a special "emergency" area for the triage, secondary assessment and treatment of influenza patients, avoiding the passage of these patients through the regular Emergency Department.
- 2) Stable: Patient with ILI but without abnormalities meeting the criteria for secondary assessment (table 2)
- 3) Co-morbidity:
 - Age ≥ 65 yrs
 - pregnancy
 - chronic lung disease (e.g., chronic obstructive pulmonary disease, cystic fibrosis, asthma)
 - congestive heart failure
 - renal failure
 - immunosuppression (due to underlying disease or therapy)
 - haematological abnormalities (anemia, haemoglobinopathies)
 - diabetes
 - hepatic disease
 - socially unable to cope (i.e., without personal support at home, such patients may need an alternative centre of care). An alternate care arrangement may also be considered if a high-risk individual lives in the same household as the influenza patient.
 - Patients on long-term acetylsalicylic acid therapy (increased risk of Reye's syndrome).
- 1) Neighborhoods should develop local plans for the support, assessment and control of influenza patients at home (e.g., "Flu-block" watch). Some people may not be able to take care of themselves at home and will therefore need community support or an alternate care centre. When possible, individuals from the same household should be kept together.
- 2) In addition to providing sub-acute care, some local NT sites may be able to handle more critically ill patients.

Table 1**INITIAL INFLUENZA ASSESSMENT (≥ 18 YEARS)**

Primary Assessment	Results Requiring Secondary Assessment
Temperature	$\leq 35^{\circ}\text{C}$ or $\geq 39^{\circ}\text{C}$
Pulse	New arrhythmia (irregular pulse) / >100 beats/min (if 16 years or older)
Blood pressure	<100 systolic or Dizziness on standing
Respiratory rate	>24 / minute (tachypnea)
Skin color (lips, hands)	Cyanosis
Chest signs or symptoms	Any abnormality on auscultation or chest pain
Mental status	New confusion
Function	New inability to function independently / Persistent vomiting (2-3 times/24 hr.)
Oxygen saturation	$\leq 90\%$ on room air

After considering the factors listed in table one,

- If no abnormality and no co-morbidities are found, send patient home with instructions for self-care (Chapter 5)
- If there is no abnormality, but co-morbidity is present, send patient home with instructions for self-care (Chapter 5) and reassess after 48 hrs; or send to alternate care facility if warranted.

Follow-up to initial assessment:

- Co-morbidities: > 65 yr, pregnancy, chronic lung disease, congestive heart failure, renal failure, immunocompromised, hematological abnormalities, diabetes, neoplastic disease, hepatic diseases, socially unable to cope (i.e., non supportive household).
- If secondary assessment is required and the patients are sent to another centre/ward for complementary evaluation, each individual should be provided with a summary of the clinical/laboratory data. Some triage centres may have the facilities to perform secondary assessment and treatment without transferring patients.

Secondary Influenza Illness Assessment

When the patient's secondary assessment has to be completed in a different setting, a new clinical evaluation to confirm the diagnosis at the primary triage centre should precede laboratory studies. Not all the tests mentioned below will be needed for all patients, and clinical assessment should determine which procedures are done, particularly if resources are scarce:

Table 2

SECONDARY INFLUENZA ASSESSMENT (≥ 18 YEARS)

Complementary laboratory studies	Results requiring supervision or admission
CBC (core battery, if appropriate) ^a	Hgb ≤ 80 g/l WBC ≤2,500 or ≥12, 000 Bands ^b >15% Platelets <50, 000/L
Electrolytes	Na ≤125 meq/L or ≥148 meq/L K ≤3 meq/L or ≥5.5 meq/L
BUN, creatinine	BUN ≥10.7 mmol/L Creatinine ≥150 µmol/L
Glucose	≤3mmol/L or ≥13.9 mmol/L
CPK (only in patients with severe muscle pain)	CKMB > 50% Total CK >1,000 U/L
Blood gases, O2 saturation	Blood gases pO2 ≤60 % on room air O2 saturation ≤90% on room air
Chest x-ray (CXR) ^a	Abnormal, consistent with pneumonia or with congestive heart failure
EKG (clinical criteria)	Evidence of ischemia, new arrhythmia

^a Under optimal circumstances, blood work and CXR should be obtained before admission. If resources are limited, priority should be given to patients with co-morbidity or suspected complications (i.e., pneumonia, etc.). Patients with normal gases and normal chest auscultation do not need CXR. Likewise, when the clinical diagnosis of pneumonia is unquestionable and the resources are scarce, no CXR need to be taken unless there is suspicion of a complication of the pneumonia (i.e., empyema). If antibiotics are limited, however, CXR may be indicated to confirm pneumonia before prescribing any drug. Conversely, if pneumonia is suspected but the radiology resources are limited, antibiotics may be prescribed without radiological confirmation.

^b An increase in the number of circulating neutrophil-bands (i.e., immature neutrophils, with an elongated, non-segmented nucleus) suggests bacterial infection. Mean normal values of bands are 12.4% (range 9.5-15.3%). In a typical acute bacterial infection, the ratio bands/segmented neutrophils may go up to values of 16-17%.

Microbiologic Diagnostic Tests

Microbiologic diagnostic tests (bacteriologic or virologic) may be appropriate for secondary assessment (see table 3). They will be performed depending on the clinical presentation and availability of resources. Once the pandemic strain is confirmed in a community, virologic tests will be needed only to confirm diagnosis in atypical cases and for surveillance purposes. Rapid tests are useful for diagnostic and treatment decisions. Isolation and culture of the virus is needed for surveillance purposes.

Ideally, purulent sputum will be analyzed by Gram staining and culture to identify infecting bacteria and their susceptibility. In a pandemic, these studies should be reserved for patients admitted to hospital, especially those in intensive care or those failing initial antibiotic therapy. If culture is not possible, Gram staining should be attempted.

Ideally, blood cultures should be obtained prior to antibiotic therapy in patients with pneumonia. If resources are scarce, blood cultures will be reserved for patients who are very ill, with toxic signs and low blood pressure, for patients who fail to recover after 48 hours of treatment with antibiotics, or for patients admitted to intensive care units.

Table 3

MICROBIOLOGIC DIAGNOSTIC TESTS

Sample	Test
Sputum (purulent)	Bacteriologic: Gram stain and culture
Blood (only for very ill patients or for patients who do not respond to 48h of treatment with antibiotics)	Bacteriologic: Culture
Nasopharyngeal aspirate (only for atypical cases or for surveillance)	Virologic: Virus antigens, RNA, culture

Instructions for Self-care of Patients Sent Home (≥ 18 years)

No co-morbidity:

- a) Acetaminophen (adults or children), ibuprofen or acetylsalicylic acid (adults only), to treat myalgia and arthralgia (see note below).
- b) Fluids
- c) Bed rest
- d) Drink hot liquids
- e) Decongestants
- f) Do not smoke and avoid exposure to second hand smoke
- g) Seek help if:
 - Increasing shortness of breath
 - New, pleuritic chest pain
 - New, purulent sputum
 - Persistent vomiting

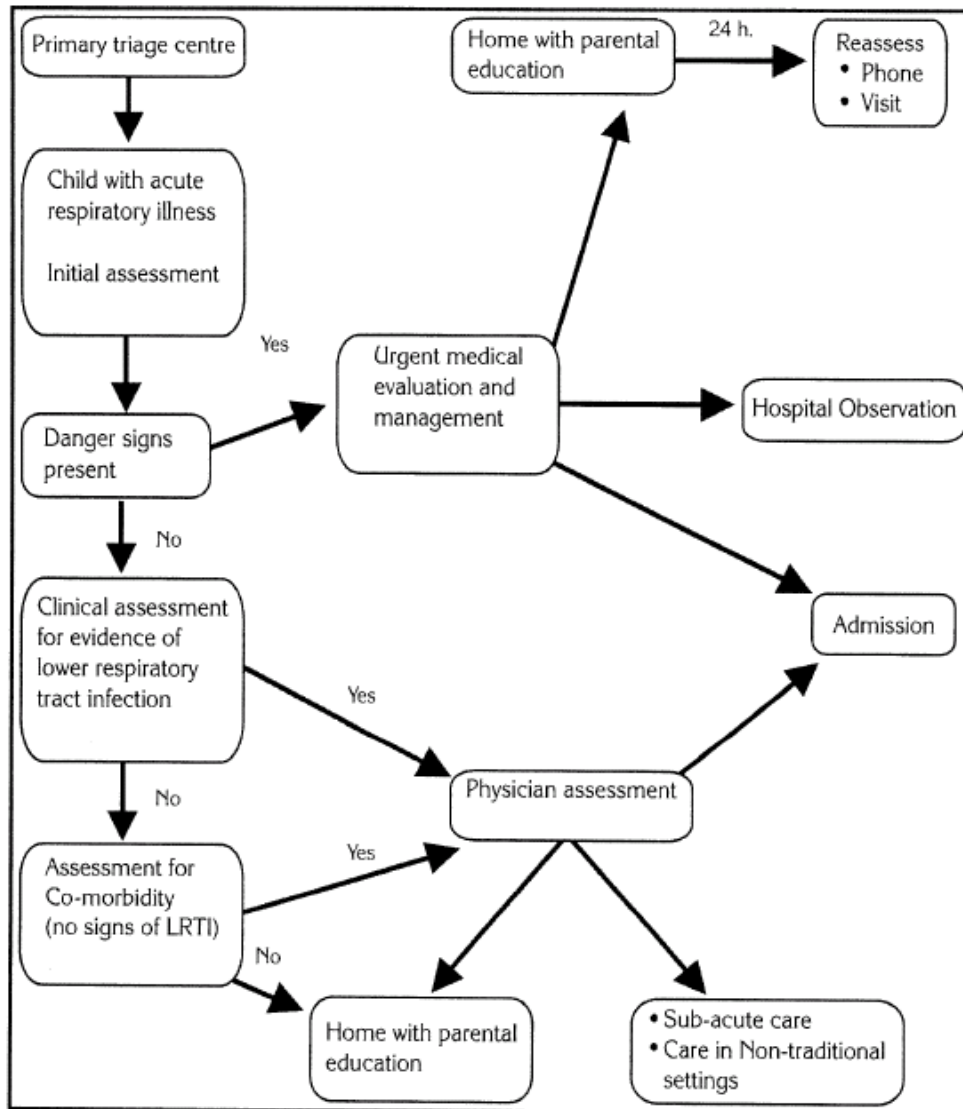
Co-morbidity: in addition to the above

- h) Supervision (family, friends, allied health, nurse)
- i) Antiviral therapy (if seen before 48 hours of onset, contingent on pandemic priorities)
- j) Follow-up after 48 hours by phone call/ health care worker visit.

Note: A syndrome characterized by acute encephalopathy with fatty micro-infiltration of the liver and liver failure, **Reye's syndrome**, has been described in children and adolescents younger than 18 years of age (most commonly in the 4-12 year range) with influenza and receiving acetylsalicylic acid (ASA) e.g., Aspirin. The classic presentation is a change in mental status, ranging from lethargy to delirium, seizures and respiratory arrest. The recognition of the association of this syndrome with the use of acetyl salicylic acid to treat viral symptoms led to the recommendation for the use of other agents and a decrease in the number of cases.

Figure 2

ALGORITHM FOR THE INITIAL ASSESSMENT OF PATIENTS UNDER 18 YEARS OF AGE (Children and Infants (< 18 Years Old))



The most common presentation of influenza in children is fever and cough of sudden onset. The term acute respiratory illness (ARI) is preferred for children since most distinguishing features in adults are not characteristic in children until the second decade. Young infants (less than 2 months old) can become ill and progress to severe illness rapidly. They are much less likely to cough with pneumonia and frequently have only non-specific signs such as poor feeding, apnea, and fever or low body temperature.

Child with acute respiratory illness (i.e., one respiratory symptom and fever)

a) **Systemic:**

- Fever ($\geq 38^{\circ}\text{C}$ core temperature)
- Apnea

b) **Respiratory symptoms:**

- Cough
- Nasal congestion and/or rhinorrhea (second most common presentation),
- Difficulty breathing (including chest retractions, stridor, etc.)
- Fast breathing* (tachypnea)
- Hoarse voice
- Earache

***Definition of fast breathing:**

Age	Number of breaths per minute
Less than 2 months of age	Over 60 breathes per minute
2 to 12 months of age	Over 50 breathes per minute
Over 12 months to 5 years of age	Over 40 breathes per minute
Greater than 5 years of age	Greater than 30 breathes per minute

c) **Associated non-respiratory symptoms:**

- Not feeling well, malaise
- Low energy, lethargic
- Not playing,
- Needing extra care
- Poor feeding
- Vomiting, diarrhea
- Irritability, excessive crying, fussiness

Table 4**INITIAL INFLUENZA ILLNESS ASSESSMENT (<18 YEARS)**

Primary Assessment	Results Requiring Secondary Assessment
Temperature ^a	≤ 35°C or ≥ 39°C core temperature
Respiratory rate	< 2 months = >60 breaths per minute 2-12 months = >50 breaths per minute > 12 months to 5 years = >40 breaths per minute > 5 years = > 30 breaths per minute
Skin color and temperature (lips, hands)	Cyanosis, sudden pallor, cold legs up to the knee
Chest signs and symptoms ^b (pain may be difficult to detect in young children)	Chest indrawing, wheezing, grunting, inquire for chest pain
Mental status	Lethargic or unconscious, confused ^c
Function	Unable to breastfeed or drink, persistent vomiting (>2-3 times/24 hr) ^d Inability to function independently ^c
Neurologic symptoms and signs	Convulsions, full fontanel, stiff neck, photophobia
Oxygen saturation ^e	≤ 90% on room air
Signs of dehydration	Sunken eyes, no saliva, doughy skin

^a Temperature ≥ 39° C in adolescents is a warning sign and needs further assessment.

^b Children with ARI and chest pain should always have medical evaluation, since it may be a sign of pneumonia (chest pain on inspiration). It may also appear as retrosternal pain (tracheal/bronchial pain) or as a pleuritic pain.

^c A deterioration of consciousness and functional status, lack of interest in playing and inappropriate sleepiness should be further investigated.

^d Vomiting (>2-3 times/24 hr.), particularly if the children are not feeding or drinking well, requires secondary assessment.

^e Determination of blood gases by pulse oximetry as sign of respiratory failure.

Note: If the child must be transported for secondary assessment, a summary of the clinical/laboratory data should accompany the patient. Some triage centres, however, may have the facilities to perform secondary assessment and treatment without moving the patients.

Danger signs (pediatrics): (2 months to 5 years old)

- Difficulty breathing (chest indrawing or nasal flaring or grunting or stridor or fast breathing)
- Cyanosis
- Unable to breastfeed or drink
- Vomiting everything (continuous vomiting)
- Lethargic or unconscious or confused
- Convulsions/seizures
- Full fontanel
- Stiff neck, photophobia

When these danger signs are present in infants younger than 2 months, they suggest very severe disease and may be life threatening. These children should always be referred immediately for physician assessment. Additional danger signs in children under 2 months

include:

- The child stopped feeding well (less than half of the usual amount of fluids)
- Fever or low temperature (high fever can represent a serious infection, but low temperature may also be present)
- Wheezing
- Grunting or stridor when calm
- Severe chest indrawing
- Abnormally sleepy or difficult to wake
- Poor circulation: sudden pallor, cold legs up to the knees
- Less than four wet diapers in 24 hours
- Signs of pneumonia (pneumonia in young infants is considered very serious and these children should be referred urgently to a hospital for evaluation)

Secondary assessment (<18 years)

When the patient's secondary assessment has to be completed in a different setting, a new clinical evaluation to confirm the primary assessment should precede laboratory studies. Not all tests will be needed for all patients and clinical judgement should be used, particularly if resources are scarce.

Table 5

SECONDARY ASSESSMENT TESTS

Complementary laboratory studies	Results requiring supervision or admission For all of the quantities below, check age appropriate values
CBC (core battery, if appropriate) ^a	Hgb ^b ≤8.0 g/dL WBC ^c ≤2,500 or ≥12, 000 cells/ l Bands ^d >15% Platelets ^e ≤50,000/ l
Electrolytes	Na ^f ≤ 125 meq/L or ≥148 meq/L K ^f ≤3 meq/L or ≥5.5 meq/L
BUN, creatinine	BUN ^g ≥ 10.7 mmol/L Creatinine ^g ≥ 150 µmol/L
Glucose ^f	≤3mmol/L or ≥13.9 mmol/L
CPK ^f (only in patients with severe muscle pain)	CKMB > 50% Total CK >1, 000 U/L
Blood gases, O2 saturation	Blood gases pO2 ≤60% on room air O2 saturation ≤ 90% on room air
Chest x-ray ^a	Abnormal, consistent with pneumonia

Legend

a) Under optimal circumstances, blood work and CXR should be obtained for all patients before admission. When resources are restricted, priority should be given to patients with co-morbidity or suspected complications (i.e., pneumonia, etc.). Similarly, when the clinical diagnosis of pneumonia is definite and resources are scarce, no CXR is needed, unless there is suspicion of a complication of the pneumonia (i.e., empyema). When antibiotics are limited, CXR may be indicated to confirm pneumonia before prescribing any drug and, if pneumonia is suspected but the resources for CXR are in short supply, antibiotics may be prescribed without radiological confirmation.

b) Values of hemoglobin for young children are age related. Normal values for different ages are shown in Table 6.

Table 6

HEMOGLOBIN LEVELS FOR CHILDREN <18 YEARS

Age	Hemoglobin g/dL	Reference values (SI) mmol/l
1-3 days	14.5 - 22.5	2.25 - 3.49
2 months	9.0 - 14.0	1.40 - 2.17
6 - 12 years	11.5 - 15.5	1.78 - 2.40
12 - 18 years (M)	13.0 - 16.0	2.02 - 2.48
12 - 18 years (F)	12.0 - 16.0	1.86 - 2.48

c) Values of WBC for young children are age related. Normal values for different ages are:

Table 7

WBC VALUES FOR CHILDREN <18 YEARS

Age	Cells/ μ L (limits)	Reference values (SI) 10^9 cells/L
Birth	9,000 - 30,000	9.0 - 30.0
24 h	9,400 - 34,000	9.4 - 34.0
1 month	5,000 - 19,500	5.0 - 19.5
1-3 years	6,000 - 17,500	6.0 - 17.5
4-7 years	5,500 - 15,500	5.5 - 15.5
8-13 years	4,500 - 13,500	4.5 - 13.5
> 13 years	4,500 - 11,000	4.5 - 11.0

d) In a typical acute bacterial infection, the ratio bands/segmented neutrophils may increase up to 16-17%. Mean values of bands in normal individuals are 12.4 % (range 9.5-15.3%).

e) Normal values for children older than one week are the same as for adults.

f) Values normal for infants/children:

Table 8

NORMAL VALUES FOR CHILDREN <18 YEARS

Analyte	Age ranges	Normal Values
Sodium (Na)	Infants Children Thereafter	139 - 146 mmol/L 138 - 145 mmol/L 136 - 146 mmol/L
Potassium (K)	< 2 months 2 -12 months > 12 months	3.0 - 7.0 mmol/L 3.5 - 6.0 mmol/L 3.5 - 5.0 mmol/L
BUN	Infant/child Thereafter	1.8 - 6.4 mmol urea/L 2.5 - 6.4 mmol urea/L
Creatinine	Infant Child Adolescent	18 - 35 μ mol/L 27 - 62 μ mol/L 44 - 88 μ mol/L
Glucose	Child	3.3 - 5.5 mmol/L

Microbiologic Diagnostic tests

See adult assessment

Pediatric Clinical assessment for evidence of LRTI (lower respiratory tract infection)

a) Clinical assessment

- Crackles
- Wheeze
- Tachypnea (fast breathing), use of accessory muscles of respiration
- Consolidation (dullness to percussion)
- Poor air entry

Any young infant (< 2 months) with pneumonia has a severe, life threatening infection. The most important signs to consider when deciding if a young infant has pneumonia are:

- Breathing rate (≥ 60 times/minute)
- Severe chest indrawing, use of accessory muscles of respiration

b) Secondary assessment (laboratory):

- Chest radiograph (CXR)
- Respiratory tract specimen for diagnosis (e.g., nasopharyngeal aspirate, sputum on children over 7 years of age)
- Blood work
- Other diagnostic tests (as required).

Determine if patient has co-morbidity of concern

(No evidence of lower respiratory tract infection).

According to NACI, patients at “high risk for complications from influenza” include:

- Chronic cardiac or pulmonary disorder (bronchopulmonary dysplasia, cystic fibrosis, asthma) severe enough to require regular medical follow up or hospital care
- Chronic conditions such as diabetes and other metabolic diseases
- Cancer
- Immunosuppression (due to underlying disease or therapy)
- Renal disease
- Anemia, hemoglobinopathy
- Residents of chronic care facilities
- Patients on long-term acetylsalicylic acid therapy (increased risk of Reye’s syndrome).

Asthma and diabetes are the most frequent co-morbidities found in young children.

Premature babies and low-weight infants should also be included in this list. All children younger than 2 years of age may be considered high-risk patients.

Socio-economic issues such as age and education of the parents, single parents, multiple young siblings, support at home by other family members, etc., should also be taken into account when sending a child back home. Similarly, whether other individuals at home have high risk of influenza associated complications (siblings with chronic diseases, elderly grandparents, etc.) should be evaluated.

Children at risk for influenza-associated complications (no signs of LRTI)

Consider physician assessment to determine eligibility (in agreement with the pandemic guidelines) for:

- Antiviral therapy (within the framework of antiviral prioritization for pandemic influenza)
- Stopping ASA *
- Immunization of patient and family if not already done (according to the pandemic guidelines)
- Plan follow up
- Setting for care (admission, home, institution, etc.). When possible, members of the same household should be kept together

* A syndrome characterized by acute encephalopathy with fatty micro-infiltration and liver failure, **Reye’s syndrome**, has been described in children and adolescents younger than 18 years of age (most commonly in the 4-12 year range) with influenza and receiving salicylates (ASA). The classic presentation is a change in mental status, ranging from lethargy to delirium, seizures and respiratory arrest. The recognition of the association of

this syndrome with the use of acetyl salicylic acid to treat viral symptoms led to the recommendation for the use of other agents and a decrease in the number of cases.

Parental/patient education

Children without co-morbidities presenting with uncomplicated influenza infection may be sent home with parental education regarding:

- Maintaining hydration
- Fever management (avoid salicylic acid*)
- Watching for signs of deterioration, failure to improve
- When to return
- Follow up plan if necessary
- Parents of young infants should be told to return to the health centre immediately if the child worsens or does not feed well, or if breathing becomes difficult.
- Immunization/prophylactic treatment of high-risk contacts in the household (abide by existing pandemic guidelines).
- Infection control practices such as avoiding close contact with others and paying attention to hand hygiene, proper disposal of tissues, etc.

See Chapter 5 - **Self Care During a Pandemic**: “When a child is unwell” and “how to take a child’s temperature”.

* A syndrome characterized by acute encephalopathy with fatty micro-infiltration and liver failure, **Reye’s syndrome**, has been described in children and adolescents younger than 18 years of age (most commonly in the 4-12 year range) with influenza and receiving salicylates (ASA). The classic presentation is a change in mental status, ranging from lethargy to delirium, seizures and respiratory arrest. The recognition of the association of this syndrome with the use of acetyl salicylic acid to treat viral symptoms led to the recommendation for the use of other agents and a decrease in the number of cases.

7.2 — MANAGEMENT OF PATIENTS IN LONG-TERM CARE FACILITIES

Long-term care facilities (LTCF) include a heterogeneous group of facilities. Although they accommodate mainly elderly individuals (nursing homes are the most common), the spectrum of services provided is wide and there are establishments for residents with physical or psychiatric disabilities, pediatric centres and geriatric centres. Some institutions provide permanent custodial care, while other organizations provide only temporary rehabilitation care.

Because of their age and underlying medical conditions, most individuals living in long-term care facilities are at increased risk for developing complications after influenza infection. Health-care personnel and visitors may introduce the virus, and the closed environment will favor transmission. During influenza outbreaks in long term care facilities as many as 70% of people (either staff or patients) may become infected.

During the pandemic, it will be necessary to **manage patients within the facility** rather than transferring them to an acute care facility. An area for acute care may need to be designated within the long-term care facility, where closer monitoring and more intensive nursing care can be provided and where parenteral therapy and oxygen therapy may be given.

The inter-pandemic epidemics suffered almost every year are an opportunity to develop influenza management policies and test their efficacy. The goals of an institutional influenza plan are:

- a) To prevent influenza illness and complications in residents and staff;
- b) Timely diagnosis and appropriate management of influenza infection in patients;
- c) Timely diagnosis and management of an influenza outbreak within the LTCF;
- d) To provide care for ill residents within the facility without transfer to another facility.

They should include:

- a) An institutional policy for the management of influenza outbreaks
- b) Immunization of residents and staff
- c) Plans to establish an area within the facility for management of acutely ill patients.

Symptoms Consistent with Flu-like Illness

These recommendations assume that influenza is known to be present in the community or region. In this situation, any resident of a long-term facility who deteriorates clinically and for whom there is no clear alternate diagnosis may have influenza illness.

Influenza infection of elderly residents in a long-term care facility may present with:

- a) Fever (could be only a low-grade fever) or hypothermia.
- b) Anorexia
- c) Vomiting
- d) Increased confusion or decreased functional status (e.g., a decreased ability to walk independently).
- e) White cell count may be normal, with or without a shift to the left.

Rapid diagnostic tests are useful to confirm or exclude influenza in elderly patients with uncertain clinical presentations. They are helpful if antiviral therapy is considered, as these should be started within the 48 hours of symptom onset to get maximum results. Rapid tests may not be available in a pandemic, and there may be many false negatives tests. Therefore, patients with symptoms compatible with influenza should be assessed and managed as such, especially if there is no obvious alternate diagnosis.

Influenza Illness Assessment

The **initial assessment** and evaluation of the residents should be consistent with advance directives, and include the following:

- a) History: age, duration of residence in the facility, co-morbid illnesses, documentation of last influenza vaccination, documentation of pneumococcal vaccination, time of onset of symptoms.
- b) Physical assessment: temperature, skin color, pulse, blood pressure, respiratory rate, peripheral edema, chest auscultation, chest pain on inspiration, mental status, function (ability to function independently, continuous vomiting, etc.).
- c) Diagnostic testing: this should include O₂ saturation. For residents who are clinically stable and not judged to be severely ill this may be sufficient.

In residents where there are concerns about metabolic status, or the degree of illness, additional tests may be considered including a CBC, electrolytes, blood glucose, CPK, BUN and creatinine, an EKG if there is a new arrhythmia or evidence of significant deterioration in cardiac status. A chest x-ray should be considered for all residents with an oxygen saturation of $\leq 90\%$ on room air, with new purulent sputum, or respiratory rate ≥ 30 per minute. A sputum culture may be helpful for residents with a productive cough. Blood cultures may also be helpful to identify a specific infecting agent.

Long-term care facilities should have in place arrangements by which portable chest x-rays may be obtained, and should consider a phone reporting system to ensure that results are returned promptly and in a standardized fashion.

In addition to long term care facilities; some elderly adults live in residences where there are basic health services. These residences should be considered as potential sites for triage and care of residents (non-traditional sites) in a pandemic, and should be equipped to provide basic diagnostic tests and healthcare services to residents with influenza.

Management of Residents Remaining in the Long-term Care Facility

Diagnostic and Follow-up Tests

- a) Chest X-Rays as required
- b) Blood tests, urine analysis, etc. as required
- c) Viral/Bacterial studies: sputum, cerebrospinal liquid, nasopharyngeal aspirate, blood culture

General Management

The goals of general management are to maintain comfort, to preserve functional status and to limit complications. Specific aspects of management for influenza and its complications include:

- a) **Maintenance of hydration.** This may be achieved through oral fluids or if necessary through parenteral fluids. Where parenteral fluids are necessary hypodermoclysis is an option rather than intravenous therapy and may be more practical in the long-term care setting.
- b) **Oxygenation.** Patients with an oxygen saturation of $< 90\%$ on room air should have oxygen supplementation. This may usually be given by portable oxygen with nasal prongs. Where this is insufficient, patients may require more aggressive efforts of oxygenation including non-intubation methods of respiratory therapy.
- c) **Antipyretics and analgesics** may be required to limit discomfort associated with myalgia and arthralgia. Usually acetaminophen will be sufficient.
- d) **Other therapies** such as antitussives may occasionally be indicated depending on the clinical features of the given patient.
- e) **Specific therapy:** Specific therapy is directed at the influenza infection itself and influenza complications including secondary pneumonia or aggravation of pre-existing disease.

During the early stages of the pandemic, LTCFs should determine access to antivirals and antibiotics. When antivirals/antibiotics are not available, symptom control and oxygenation may be the only management approaches. Strategies to manage patients pending antivirals should be developed.

Antiviral agents including amantadine (for prevention), zanamivir, and oseltamivir (for treatment) may be given for the prevention and treatment of influenza. Treatment with these drugs is, usually, only indicated if symptoms have been present for less than 48 hours. They may not be available, depending on supplies and on the priorities for the pandemic situation. When amantadine is used, dosage adjustment for renal function is necessary. Zanamivir may be impractical because it requires cooperation from the individual to use an inhaler, and this may not be achievable in many long-term care facility patients, especially when acutely ill.

Antibiotics should be given only for the management of presumed or diagnosed secondary bacterial pneumonia

Transfer to and from Acute Care Facilities

A goal, in the pandemic situation, will be to manage patients within the same facility. In some special circumstances, however, the transfer to acute care services may be considered and this has to be planned in advance.

Discharge Criteria from the “Acute Care Area” Designated for Influenza Patients

It is important to define when patients are clinically stable and can be moved back to the usual residential area. Patients will be considered clinically stable when, in the preceding 24 hours:

- They are not acutely confused
- They are able to be fed orally or by naso-gastric tube
- Their vital signs are stable. Values should be established ahead of time. (e.g., O₂ saturation > 90%, heart rate < 100/minute, respiratory rate < 24/minute, blood systolic pressure > 90 mm Hg, temperature < 38°C).

Once the patients have been clinically stable for 48 hours and intravenous medication has been switched to oral therapy, the attending personnel should consider discharge from the “acute care area”. In the pandemic setting, prioritization for earlier discharge may be necessary due to limitations of resources.

7.3 — HOSPITAL MANAGEMENT

Patient management in the hospitals will be similar to interpandemic influenza care. Changes may be required, however, to operate with limited resources, or if the pandemic strain shows an unusual pattern of disease. Prior planning should consider actions to follow in the event of insufficient resources (beds, personnel, equipment and/or drugs), and alternatives. Cancellation of non-urgent admissions and elective surgery will help to relieve pressure for supplies. Unnecessary admissions of influenza patients should be avoided and alternative community services should be used appropriately. The pandemic influenza committee and the communications network will activate the influenza contingency plan after the WHO informs them of the onset of the pandemic and will update the provinces about the evolution of the pandemic.

Emergency Room

A separate assessment/admission area should be identified for patients with suspected influenza. These patients should be rapidly diverted to the assessment/admission area, to minimize disease transmission. Admission forms will be completed at this point. Patient-triaging and initial assessment are discussed in a previous section of this chapter. If the patient is not admitted to hospital and is sent home, or to an alternative care centre, provide the patient a copy of:

- a) Assessment sheet
- b) Instructions for self-management
- c) Names and numbers of contacts to notify, if the patient deteriorates clinically
- d) Arrangements for follow-up as required: usually 48 hours later for adults and 24 hours for children.

Short-term Observation

A special area of the hospital should be assigned for “short-term” observation of those patients whose clinical assessment does not lead to a definitive admission.

Ward Management

Standard ward management of influenza patients should occur. Local plans to address potential shortages of beds, personnel, equipment or drugs should be in place.

Diagnostic and Follow-up Tests

The following tests and criteria for patient management, based on clinical assessment of each case, should be considered on admission to hospital. Availability of resources and the pandemic guidelines must be considered. Tests may include

- a) Chest radiograph
- b) Complete blood count
- c) Urea, creatinine, electrolytes
- d) Nasopharyngeal aspirate, sputum, cerebrospinal fluid for viral studies (antigen/nucleic acid determination, virus culture), and/or bacterial Gram stain and culture
- e) Blood culture
- f) Electrocardiogram, urine analysis, blood glucose.

Specific Management

Anti-viral Therapy

Antivirals are most effective when started within 48 hours of onset of symptoms. Since supply is expected to be limited, drugs may be reserved for patients severely ill or those at high risk of influenza-related complications.

Antibiotics

Antimicrobial therapy is indicated for treatment of patients with secondary bacterial pneumonia. In any upper respiratory tract infection, runny nose and sinus inflammation (rhinosinusitis) are common. In some cases, when severe symptoms are present or persist for more than 10-14 days, a bacterial sinusitis may be present. Acute sinusitis presents clinically with purulent nasal discharge, maxillary, tooth or facial pain (especially unilateral), unilateral sinus tenderness and worsening of these symptoms after initial improvement of influenza. In children, suspected sinusitis at 10 days to 2 weeks of symptoms would likely be treated, although it may not be in adults. Antibiotics may also be needed to treat bacterial otitis media, which is uncommon in adults but can complicate influenza in children younger than 12 years.

General Management

- Fluid therapy. Ensure adequate fluid intake (fluid management in patients with primary viral pneumonia must be well assessed and closely monitored, because some of these patients may develop adult respiratory distress syndrome (ARDS) and under these circumstances, restricted intake of liquids may be indicated)
- Oxygen therapy based on pulse oximetry
- Management of associated cardiovascular illness

Symptom Control

Discharge Criteria and Follow-up

A shortage in hospital beds is anticipated; therefore identification of patients who can be discharged or transferred to an alternative care centre must be timely. Patients will be considered clinically stable when, in the preceding 24 hours:

- Their mental state returned to normal (or baseline)
- They are able to maintain oral intake
- Their vital signs remained within a specified threshold. Cut-off values should be established (e.g., O₂ saturation > 90%, heart rate 100/minute, respiratory rate 24/minute, blood systolic pressure 90 mm Hg, temperature < 38°C).

Once patients are clinically stable for at least 24 hours, symptoms and signs have improved, oral therapy is being given (as necessary and as available) and they are functionally independent, discharge from the hospital with designated follow up may be considered. The use of an alternative centre of care should be considered, if more prolonged observation is necessary for patients with pneumonia, co-morbidities or for those who are not functionally independent.

Release and Follow-up:

If the patient is sent home, provide a copy of:

- a) Assessment sheet
- b) Instructions for self-management
- c) Names and numbers of contacts to notify, if the patient deteriorates clinically
- d) Arrangements for home care or follow-up, as required: usually 48 hours later for adults and 24 hours for children.
- e) Arrangements for alternate care will be required for some patients

Intensive Care Unit (ICU)

Management of patients in the ICU will be similar to interpandemic influenza care. The clinical presentation of the disease and the availability of resources will determine which changes may be desirable throughout the pandemic. Infection control in the ICU, on the other hand, will be essential to avoid transmission of the virus to critically ill patients who do not have influenza. The isolation of influenza patients should be planned in advance.

7.4 — ACUTE CARE FACILITIES

Patient management in the hospitals will be similar to interpandemic influenza care. However, changes will be required to operate if resources are limited or if the pandemic causes an unusual pattern of disease. Prior planning should look at response capacity with respect to personnel, beds, equipment or drugs. Cancellation of non-urgent admissions and elective surgery will help to relieve pressure for supplies.

Bed Capacity

Acute care facilities at Vancouver Coastal Health were surveyed in 2005 to assess the currently and potentially available number of beds. Tables 9 and 10 list beds at acute care facilities by type and availability. These surveys should be repeated periodically to keep values current.

Table 9

BED CAPACITY AT PROVIDENCE HEALTH CARE

Patient Care Area	Beds With O2			Beds Without O2			Ventilated Beds			Comments
	Availability			Availability			Availability			
	Now Funded	in 72 Hours	in 7 Days	Now Funded	in 72 Hours	in 7 Days	Now Funded	in 72 Hours	in 7 Days	
MSJ-ER	6			2						
MSJ-PACU							9	9	0	
MSJ-SDC	19	19	0							
MSJ-1S	20	3	2							
MSJ-ICU							4	2	0	Current space very cramped; new unit in fall
MSJ-3E	25	0	5	0	0	4				
MSJ-3W	25	0	5	0	0	4				
MSJ-4E	25	0	11	0	6	0				
MSJ-4W	25	15	0							
SPH-ER										
SPH-GI	12	0	0							Open M-F 0730-1930
SPH-OP										Open M-F
SPH-2E				13	1	0				
SPH-2N				20	12	8				
SPH-PACU							24	12	0	
SPH-CCR							10	1	0	
SPH-ICU							11	8	0	3 isolation rooms (neg pressure)
SPH-CCU							11	0	0	
SPH-3MC	22	0	0							1 isolation room (neg pressure)
SPH-3SCN	8	2	0							
SPH-4NW				7	3	4				
SPH-5A	24	0	0							
SPH-5B	24	0	0							
SPH-6B	23	2	0							
SPH-7A	25	0	0							
SPH-7B	25	0	0							
SPH-7C	28	5	0							
SPH-7D	12	12	0							**HUB unit
SPH-8A	25	0	0							
SPH-8C	28	2	8							
SPH-8D	15	15	0							
SPH-9C/D	37	6	0	0	14	3				
SPH-10A	25	2	6							
SPH-10B	25	2	6							
SPH-10C	21	0	0							
SPH-10D	12	0	12							
TOTAL	536	85	55	42	36	23	69	32	0	
	Total Capacity:		676	Total Capacity:		101	Total Capacity:		101	Total Capacity (all bed types): 878

MSJ=Mt. St. Joseph; SPH=Saint Paul's Hospital

Table 10

BED CAPACITY AT VGH AND UBC HOSPITALS (under revision)

Facility/Department	Beds With O2					Beds Without O2					Ventilated Beds				
	Availability			Cancel Elective		Availability			Cancel Elective		Availability			Cancel Elective	
	Now	72 Hours	7 Days	72 Hours	7 Days	Now	72 Hours	7 Days	72 Hours	7 Days	Now	72 Hours	7 Days	72 Hours	7 Days
Perioperative Care	Yes (M-F)					0					N/A	N/A	N/A		
Day Bed	20	20		20							N/A	N/A	N/A	N/A	N/A
Medical Day Care	15	20		20		11			20		N/A	N/A	N/A	N/A	N/A
Preadmission Centre	0	0	0	0	0	11			25		N/A	N/A	N/A	N/A	N/A
Endoscopy UBC				7							N/A	N/A	N/A	N/A	N/A
Endoscopy VGH											N/A	N/A	N/A	N/A	N/A
ICU at VGH											25	29	N/A	N/A	N/A
Ward 1A UBCH	18	30	42	30	42						N/A	N/A	N/A	N/A	N/A
Ward 1D UBCH	20	22	30	20	22						N/A	N/A	N/A	N/A	N/A
ACE - T11A	22	0	0	0	0	0	4	0	0	0	N/A	N/A	N/A	N/A	N/A
GTU - WCC3	17	0	0	0	0	0	4	4	0	0	N/A	N/A	N/A	N/A	N/A
T7A & T10D	28	34	34	34	36	0	4	4	4	4	0	0	0	0	0
T7B Recon Ortho	22	22	22	22	22	0	4	4	4	4	0	0	0	0	0
Burns and Plastics	12	15		? 1-2	1-2	12	15	34-36			N/A	N/A	N/A	N/A	N/A
TSCU	4	8	8	8	8	0	0	0	0	0	0		8	8	8
T10A/B	30	32	32	12	20	0	6-7	6-7	6-7	6-7	N/A	N/A	N/A	N/A	N/A
T7A/T10D Ortho Trauma	[TSCU?]	?	?	?	?	28	32	38	32	38	22	22	23	22	23
HP B2	0					5	9		9		N/A	N/A	N/A	N/A	N/A
JPPAR	25	4	4	29	29	N/A	N/A	N/A	N/A	N/A	7	7	7	29	29
AMU Tower 4	43	0	0	0	0	0	4	0	0	0	N/A	N/A	N/A	N/A	N/A

	Data given as numerical totals:
	Data given as numerical increments:
	Data interpretation unclear:

Ventilator Capacity

The types and total numbers of ventilators available at Vancouver Coastal Health are shown in tables 11 – 15. To update these values in the future, use form 7.2 in the Forms and Tools section of this chapter.

Table 11

VENTILATOR CAPACITY AT ST. PAUL'S HOSPITAL

Type of Ventilator	Intensive Care (ICU)	Coronary Care (CCU)	CSICU	Recovery Room (PAR)	Operating Room (OR)	Emergency Department	Storage	In Repair	Sleep Study Laboratory	Physiotherapy	Other
PB 840`	22										
Avea			7								
PB7200			2	3		1					
Transport LTV's	1					1					1§
Siemens 300	1	1	2								
Siemens 900C	1										
High Frequency Oscillator	2										
Noninvasive Ventilators (BiPAP)	2		1			1	2				
Babylog (Neonatal Vent)											1*
Totals	29	1	12	3	0	3	2	0	0	0	2
TOTAL NUMBER OF VENTILATORS	52										

* Special Care Nursery

§ Cardiac Catheterization Lab

Table 12**VENTILATOR CAPACITY AT MOUNT ST. JOSEPH HOSPITAL**

Type of Ventilator	Intensive Care (ICU)	Coronary Care (CCU)	CSICU	Recovery Room (PAR)	Operating Room (OR)	Emergency Department	Storage	In Repair	Sleep Study Laboratory	Physiotherapy	Other
PB 840`	4						1				
Avea											
PB7200				1		1	1				
Transport LTV's	1										
Siemens 300											
Siemens 900C											
High Frequency Oscillator											
Noninvasive Ventilators (BiPAP)	1					1					
Babylog (Neonatal Vent)											
Totals	6			1		2	2				
TOTAL NUMBER OF VENTILATORS	11										

Table 13
VENTILATOR CAPACITY AT RICHMOND HOSPITAL

Type of Ventilator	Intensive Care (ICU)	Coronary Care (CCU)	CSICU	Recovery Room (PAR)	Operating Room (OR)	Emergency Department	Storage	In Repair	Sleep Study Laboratory	Physiotherapy	Other
LP6							1				
Evita	5										
Home Vents (Legendaire)							2				
Transport LTV's	1					1					
Siemens 300				1			5				1*
Siemens 900C											
High Frequency Oscillator	1										
Noninvasive Ventilators (BiPAP)	4					2	9				
Non-Invasive Vents (CPAP)									6		
Totals	11			1		3	17		6		1
TOTAL NUMBER OF VENTILATORS	39										

* Special Care Nursery

Table 14**VENTILATOR CAPACITY AT LION'S GATE HOSPITAL**

Type of Ventilator	Intensive Care (ICU)	Coronary Care (CCU)	Special Care Nursery	Recovery Room (PAR)	Emergency Department	Storage	CT Scan	Other
Evita	2							
Home Vents (Legendaire)								
Transport LTV's					1		1	
MRI Ventilator							1	
Siemens 300	2			1		1		
Noninvasive Ventilators (BiPAP)	1				1			
PB 840	4							
Baby Logs			2					
Totals	9		2	1	2	1	2	
TOTAL NUMBER OF VENTILATORS	17							

Table 15**VENTILATED BED CAPACITY AT RICHMOND HOSPITAL**

	Intensive Care Unit	Post- Anesthetic Recovery	Operating Rooms	Emergency Department	Labour & Delivery Rooms	Maternity (3M)	Ambulatory	Pediatrics	Surgical Day Care
Suction	11	16	7	20	8	20	10	6	6
Oxygen	11	16	7	20	8	20	10	6	6
Medical Air Outlet	11	16	7	20	8	0	10	6	0
Airflow (negative pressure)	3	0	0	1	0	0	2	0	0
Airflow (positive pressure)	0	0	7	0	1	0	0	0	0
Room Monitoring			0	20	7	20	0	0	0
Physical Bed	11	16	7	20	7	20	7	3	0
Space, but no physical bed	0	0	0	0	0	0	3	3	6

Additional Information: Ventilator Capacity

St. Mary's Hospital, Sechelt has 1 Puritan Bennett model 740 located in ICU (which has a 4-bed capacity) and 2 Daytec Ohmeda Aestiva located in the OR Suite. There is no RT support.

Powell River General Hospital, Powell River has 1 Draeger Evita 2 dura in ICU (which has a 4-bed capacity) and 2 Daytek Ohmeda S5 monitors in the OR suite. There is no RT support.

Staffing Capacity

The 2005 health care facility survey also covered staffing, assessing current number of staff and potential capacity to increase staffing in case of need. The incomplete results for Providence Health are shown in table 16 below. VGH, LGH and Richmond hospital survey results are pending. Surveys should be repeated periodically to keep values current.

Table 16

STAFFING CAPACITY AT PROVIDENCE HEALTH CARE

Patient Care Area	RN/RPN Staffing					LPN Staffing					PCA Staffing				
	D8	D12	E	N8	N12	D8	D12	E	N8	N12	D8	D12	E	N8	N12
MSJ-ER	1	5													
MSJ-PACU															
MSJ-SDC															
MSJ-1S	2	3	1	-	3	-	-	-	-	-	1	-	-	-	-
MSJ-ICU															
MSJ-3E															
MSJ-3W															
MSJ-4E															
MSJ-4W															
SPH-ER															
SPH-GI	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPH-OP	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPH-2E	2	4	1	-	3										
SPH-2N	1	3			3										
SPH-PACU															
SPH-CCR															
SPH-ICU	-	11	-	-	11	-	-	-	-	-	-	-	-	-	-
SPH-CCU															
SPH-3MC	-	7	-	-	7	-	-	-	-	-	-	-	-	-	-
SPH-3SCN	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-
SPH-4NW															
SPH-5A															
SPH-5B															
SPH-6B															
SPH-7A															
SPH-7B															
SPH-7C															
SPH-7D															
SPH-8A															
SPH-8C															
SPH-8D															
SPH-9C/D															
SPH-10A															
SPH-10B															
SPH-10C															
SPH-10D															
Totals	19	35	2	0	29	0	0	0	0	0	1	0	0	0	0

MSJ=Mt. St. Joseph; SPH=Saint Paul's Hospital;

D8 / D12 = 8 / 12 hour day shift; N8 / N12 = 8 / 12 hour night shift; E = emergency

Bulk Purchases and Stockpiling

Plan for Critical Equipment and Supplies

A pandemic will likely result in shortages of medications, medical supplies, and operational supplies. Since multiple jurisdictions including other countries will potentially be affected by these shortages, our response plans should not rely heavily on outside assistance in terms of the provision of supplies and equipment. Some of the issues directly affecting Canadian supplies will be:

- *Interrupted transportation lines* — Canadian supplies travel long distances by truck, train and aircraft. Supplies are often obtained from the U.S. and other nations. Difficulties at border crossings may substantially affect supply lines. In addition, a loss of up to 30% of workers, drivers, and other transportation staff may affect the production and delivery of supplies.
- *Lack of inventory* — In an effort to reduce costs, most health regions have moved to “just-in-time” inventory systems that keep minimal supplies on hand.
- *Embargoes* — The majority of medical supplies are not produced in Canada. The Public Health Agency of Canada has made a major effort to establish a domestic infrastructure for the manufacturing of influenza vaccine and has encouraged manufacture of some antibiotics in Canada. However, in many cases, supplies are provided by only one or two manufacturers worldwide, or the essential ingredients or components come from a single source. In past pandemics and health crises other nations have banned the export of critical vaccines, medications and supplies.

Recommendations for the use of vaccine and antivirals during a limited supply situation are provided in chapter 9. Other resources such as the Infectious Diseases Society of America (IDSA) Guidelines list medications considered to be critical in the treatment of influenza and pneumonia. These guidelines should be distributed to and reviewed by health care facilities during the interpandemic period, since availability of supplies will affect the management of patients and resources, including medications, within the facility.

Stockpiling

VCH needs to review the possibility of rotating stockpiles of critical supplies for health care facilities within their own health service delivery areas. Institutions may specifically wish to keep some older equipment such as beds, which need little maintenance and have no specific “shelf life”. Appropriate assessment should be made of the maintenance and training required to ensure the safety and effectiveness of older equipment, and the training needed by staff to use unfamiliar equipment, etc.

The stockpiling of antiviral drugs is happening at the provincial level, however, the need for and feasibility of stockpiling critical medications for the management of patients with influenza and secondary pneumonia should be addressed further at the regional level. In addition, the region will have to discuss the need to 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 infection.

7.5 — RESIDENTIAL CARE FACILITIES

Bed, Ventilator and Staffing Capacity

Residential care facilities were surveyed to assess their bed capacities and staff pools that may be drawn upon in a pandemic emergency. The results are listed in Tables 17 - 21. A total of 6698 beds are known to be available at VCH residential care facilities, and there are an additional 145 beds equipped with oxygen and 104 with suction. Furthermore, most facilities reported some capacity to increase staffing in case of need.

Table 17

NUMBER OF BEDS AT RESIDENTIAL CARE FACILITIES IN RICHMOND HSDA

Richmond Facilities	Number of Beds of Type:				Comments (additional staff and bed space)
	Regular	Oxygen	Suction	Extra	
Rosewood Manor	121	0	0	1	Casual staff available (if funding allows); 2 portable suctions
Richmond Lions Manor	132	0	0	0	Casual staff available with conditions
Minoru Residence	250	4	?	0	Seasonally variable availability of casual/overtime staff
Fraserview	89	0	0	13	13 privately paid staff may be available
Pinegrove Place	75	0	0	0	Ability to add additional staff if funding is available
Courtyard Gardens	?	?	?	?	Did not respond
TOTAL	417	4	0	14	

Table 18

NUMBER OF BEDS AT RESIDENTIAL CARE FACILITIES IN THE NORTH SHORE HSDA

North Shore Facilities	Number of Beds of Type:				Comments (additional staff and bed space)
	Regular	Oxygen	Suction	Extra	
Evergreen	282	38	38		Some casual staff 5-6 short-term extra care aids Fair to good Ability to add staff, increase length of shifts Yes, with adequate notice Ability to increase staff
Cedarview	90	0	0	0	
Kiwanis	192	0	0		
Capilano	215	0	0		
West Vancouver	75	0	1 port.		
Lynn Valley	129	0	0		
Inglewood Lodge	231	42	4 port.	4	
85United Lodge	22	0	0		
TOTAL	1,236	80	43	4	

Table 19**NUMBER OF BEDS AT RESIDENTIAL CARE FACILITIES IN VANCOUVER HSDA**

Vancouver Facilities	Number of Beds of Type:				Comments (additional staff and bed space)
	Regular	Oxygen	Suction	Extra	
Adanac	72	-	-	-	Casual pool, many staff at more than one facility
Amherst	74	-	-	-	Can use dining / activity rooms for beds space
Arbutus	159	-	-	-	
Banfield	198	-	-	-	
Blenheim	94	-	-	-	
Braddan	51	-	-	-	
Brock Farni	150	-	-	-	
Broadway Pentecostal	115	-	-	-	
Central City Lodge	100	-	-	-	
Columbus Residence	76	-	-	-	
Dogwood Lodge	113	-	-	-	
Fairhaven	99	-	-	-	
False Creek	24	-	-	-	
Finnish	64	-	-	-	
George Pearson	120	10	22	-	15 available ventilators
German Cdn Home	144	-	-	-	
Haro Park Centre	154	-	-	-	
Holy Family	142	-	-	8	
Icelandic Care Home	64	-	-	-	To close June 2005
Kopernik Lodge	85	-	-	-	
Lakeview Care Ctr	165	-	-	-	
Little Mountain Place	117	-	-	-	
Louis Brier	218	-	-	-	
MSJ	125	36	36	some	
May's Place	6	-	-	-	
Pt. Grey Private Hosp	47	-	-	-	
Purdy	150	-	-	-	
Renfrew Care Ctr	88	-	-	-	
Royal Arch Masonic	151	-	-	-	
Royal Ascot Care Ctr	78	-	-	-	

Vancouver Facilities	Number of Beds of Type:				Comments (additional staff and bed space)
	Regular	Oxygen	Suction	Extra	
St. James Cottage	10	-	-	-	
St. Jude's Anglican	53	-	-	-	
St Vincent's-Langara	221	12	-	60	No physical extra beds just space, few extra RN
SUCCESS	103	-	-	-	
Three Links Care Ctr	90	-	-	-	
Villa Carital	76	-	-	-	
Villa Cathay	150	-	-	-	
Windermere Care Ctr	192	-	-	-	
Yaletown House	130	-	-	-	
Youville Residence	84	-	-	2	
Mental Health Facilities	388	-	-	-	Casual pool: 60 for Coast Foundation, 20 for MPA
TOTAL	4,740	58	58	70	

Table 20

NUMBER OF BEDS AT RESIDENTIAL CARE FACILITIES IN THE POWELL RIVER, SEA-T0-SKY AND SUNSHINE COAST - COASTAL HSDA

Powell River and Sunshine Coast Facilities	Number of Beds of Type:				Comments (additional staff and bed space)
	Regular	Oxygen	Suction	Extra	
Evergreen	75				Casual nurse aides
Olive Devaud	81		1 port.		Yes
Christenson Village	80				50 complex care beds, 30 dementia care beds
Shorncliffe	61				Problematic
Totem Lodge	50	3 port.	2 port.		Casual staff
Hilltop House	61				RN's, LPN's LTCA's (casual staff shared)
TOTAL	408	3	3	0	

Table 21

NUMBER OF BEDS AND STAFF AT RESIDENTIAL CARE FACILITIES AT PROVIDENCE HEALTH

a). Number of Beds

Patient Care Area	Beds With Oxygen			Beds Without Oxygen			Ventilated Beds			Comments
	Availability			Availability			Availability			
	Now Funded	in 72 Hours	in 7 Days	Now Funded	in 72 Hours	in 7 Days	Now Funded	in 72 Hours	in 7 Days	
BF-3				75	0	0				
BF-4				75	0	0				
HF-RB1				37	0	4				4 isolation rooms
HF-RB2				38	0	4				
HF-EC1				71	0	0				
HF-EC2				71	0	0				
L-ASP	4	0	0	67	2	0				
L-BIR	4	0	0	71	0	0				
L-CDR	4	0	0	71	0	0				
MSJ-2E				75	6	0				
MSJ-2W	25	11	0	0	4	0				
YOU-2				21	0	0				
YOU-3				21	0	0				
YOU-4				21	0	0				
YOU-5				21	0	0				
Total	37	11	0	735	12	8	0	0	0	

Table 21 continued

b). Number of Staff

Patient Care Area	RN/RPN Staffing					LPN Staffing					PCA Staffing				
	D8	D12	E	N8	N12	D8	D12	E	N8	N12	D8	D12	E	N8	N12
BF-3	3	-	2	2	-	-	-	-	-	-	11	-	6	2	-
BF-4	3	-	2	2	-	-	-	-	-	-	11	-	6	2	-
HF-RB1	6	-	4	2	-	-	-	-	-	-					
HF-RB2															
HF-EC1	4	-	4	1	-	-	-	-	-	-	-	24	-	-	-
HF-EC2															
L-ASP															
L-BIR															
L-CDR															
MSJ-2E															
MSJ-2W															
YOU-2															
YOU-3															
YOU-4															
YOU-5															
Total	16	0	12	7	0	0	0	0	0	0	22	24	12	4	0

BF= Brock Fahrni; HF=Holy Family Hospital; L=Langara; MSJ= Mt. St. Joseph; YOU=Youville

Bulk Purchases and Stockpiling

See note in acute care setting for planning and assumptions.

7.6 — ALTERNATE CARE FACILITIES

Alternate care facilities (ACF) are intended to augment services provided by traditional medical care facilities to patients affected by pandemic influenza. These facilities should be located in close proximity to an emergency department (ED) of a hospital. Alternate care facilities will be considered as secondary sites. ACF can provide care beyond basic first aid but are not intended for patients who are self-sufficient and are able to take care of daily personal needs. However, ambulatory patients may be sent to the ACF for care. ACFs will assist residential and home care institutions, social services and hospitals. Planning for alternate care facilities in the pre-pandemic period should consider the following

- Facility location
- Criteria for opening facility for operation
- Criteria for patients
- Moving patients to facility
- Authority to open facility
- Staffing of facility

Criteria for Selection of Alternate Care Facilities

Facilities selected, as ACF's, must fulfill a number of requirements. ACF's should be located in a well-known geographic location, close to a hospital and major roads, be wheelchair accessible, have several entrances and exits, and have adequate parking space. The building must be structurally sound, have large rooms on the ground floor, and have toilet and shower facilities and food preparation and service facilities. It should be preferably gas-heated and equipped with a power generator. The facility must comply with the regulations of the Canadian Securities Administrators (CSA).

The layout should include areas allocated for registration, triage, treatment areas, ambulatory and non-ambulatory services, secured areas, food areas and a supply pharmacy. Examples of inventory needs include, cots, bedding, food, water, intravenous supplies, medications, biohazard supplies, clothing, specimen and trash bags, urinary health supplies, linens and patient gowns, janitorial and logistical supplies and respiratory supplies.

All alternate care facilities need an Emergency Operations Center for incoming information and coordination with other response resources. The choice of location should depend on safety considerations and the capacity to install and operate a variety of communications equipment.

Table 22 outlines the main issues considered in choosing alternate care facilities and lists potential ACF sites that have been selected for VCH.

Table 22

ISSUES TO BE CONSIDERED WHEN CHOOSING ALTERNATE CARE FACILITIES

Items to be Considered when Choosing a Site	Facility Strengths	WECC	Presbyterian Church	Century Plaza	Wall Centre	Aquatic Centre
LOCATION						
Proximity to Hospital		2km	200 m	100 m	200 m	2km
Easy to Find by Public		Yes	No	Yes	Yes	Yes
Adequate External Facilities	Public accessibility (public transport, parking, directions) off-loading, traffic control, assistants for elderly, stretchers and wheelchairs, etc.	Yes	No	Yes	Yes	No
FACILITY						
Adequate Internal Space	washrooms and sinks: number male/female; amenities, function	Yes	Yes	Yes	Yes	Yes
	kitchen: refrigeration, dishes, dishwashing capability, food preparation areas etc.	?	?	Yes	Yes	?
	secure space for administration/patient records	Yes	?	Yes	Yes	?
	space for reception, waiting, patient care, patient/family education,	Yes	?	Yes	Yes	?
	counselling/support, and any other services defined by the planning process	Yes	?	Yes	Yes	?
	secure storage capacity for pharmacy and other supplies	Yes	?	Yes	Yes	?
	mortuary space	Yes	?	Yes	Yes	?
Adequacy of Critical Support Systems	ventilation system (adequate air flow, air conditioning, heat)	Yes	?	Yes	Yes	?
	physical plant/ building engineering	Yes	?	Yes	Yes	?
	electricity (power for lighting, sterilizers, refrigeration, food services)	Yes	?	Yes	Yes	?
	Electricity - lots of outlets, backup power	Yes	?	Yes	Yes	?
	natural gas supply (for heating or electricity or cooking)	Yes	?	Yes	Yes	?
	water supply	Yes	?	Yes	Yes	?
	Food preparation and / or storage area	Yes	?	Yes	Yes	?
Arrangements for Essential Support Services for In-patient Care	sanitation (toilets, showers or washing facilities)	Yes	?	Yes	Yes	?
	security					
	communications capability					
	maintenance					
	laundry					
	environmental / cleaning services					
	sterilization services (trained and experienced personnel using certified equipment should perform sterilization of equipment. Appropriate arrangements for sterilization services, (e.g. with a hospital) may be required.)					
	pharmaceutical services					
	medical waste disposal/storage					
	mortuary / funeral services					
	food services					
	facilities for staff lodging and eating					

Identify Triggers for Implementation of an Alternate Care (AC) Site

Since it is likely that the pandemic will not start in Canada, the first trigger for the consideration of establishment of AC sites may be reports of the severity and epidemiology of the pandemic from other countries. This will likely be the first indicator of what to expect when the pandemic reaches Canada in terms of demand on traditional health care services.

It will be important to monitor the availability of resources in local acute care facilities and project when capacity may be exceeded (especially if there will be free-standing sites). Therefore, potential triggers include:

- The proportion of emergency room visits attributable to influenza
- The proportion of influenza cases requiring hospitalization
- The capacity of the hospital to accommodate influenza cases
- The proportion of cases who normally live with high-risk individuals or who have no support at home and cannot care for themselves.

Other triggers may include reports from sentinel physician or walk-in clinics that they cannot accommodate all patients requesting appointments for influenza-like-illness. An increase in ambulance re-routings due to full emergency rooms may serve as another trigger for further implementation of plans for AC sites.

Planning for Triage in Alternate Sites

In order to reduce demand on hospital emergency departments and potentially on family physicians and walk-in clinics, it may be necessary to perform triage at AC sites during the pandemic. The use of such a system will require a significant public awareness campaign since ill people will tend to seek services at their usual health care providers.

The “Clinical Care Guidelines and Tools” included in this chapter provide recommendations on the assessment and management of influenza and non-influenza patients during a pandemic, including algorithms for triage of adults and children based on their clinical presentation and risk factors or co-morbidities. The guidelines for initial assessment and management assist healthcare staff, as well as volunteers with minimal expertise, to rapidly evaluate the needs of each individual and to triage patients efficiently in a crisis situation (i.e., to decide when patients can be treated as outpatients, or if they need to be redirected or admitted to a hospital).

Designation of NT sites as triage centres specifically for influenza-like-illness has the added advantage of potential reduction of exposure of other patients to influenza, consistent application of current recommendations through the use of patient care protocols and control over the utilization of other services, such as laboratory testing and chest x-rays. Non-traditional triage sites may be established at public health clinics, health units, specifically identified walk-in clinics or triage centres adjacent to or associated with acute care institutions.

Triage sites will need to be organized to provide streamlined and efficient service. Table 23 is provided for planning purposes and suggests how a site might be organized.

Table 23
TRIAGE PROCESSES

Area	Service	Training Required
Registration Area	Register in-coming patients	Trained non-medical workers
Waiting Area	Awaiting Primary Assessment	Medical professionals with trained non-medical workers
Primary Assessment Area	Vital signs Chest auscultation & assessment	Trained non-medical Medical Professional (Physician or Nurse)
Secondary Assessment Area	On-Site Lab Tests Secondary Assessment	Trained non-medical workers Physician
Advanced First Aid & Transfer Area	Service to patients who arrive in distress includes oxygen, suction, etc. while they await transfer to emergency department	Advanced First Aid
Education Area	Education resources and advice	Trained non-medical workers
Discharge Area	Follow up or transfer	Trained non-medical workers

The Infection Control and Occupational Health Guidelines (Chapter 4 in the plan) lists some guidelines for the set up of triage and preliminary treatment sites including:

- If possible, separate those with influenza-like illness (ILI) and those without ILI by minimizing time spent in waiting rooms, providing separate entrances and waiting areas for patients with ILI, placing patients with ILI directly into a single room and separating patients as quickly as possible by placing ILI patients in an area of the waiting room separated from non-ILI patients by at least one meter.
- Remove magazines and toys from the waiting rooms.
- Clean equipment and surfaces in examination and treatment rooms potentially contaminated by coughing patients as frequently as possible, preferably after each patient.

7.7 — SUPPLEMENTARY INFORMATION

Additional Details for the Evaluation of Bed Availability

The following information complements the data in Table 10. In the surveys of Vancouver General and UBC hospitals, respondents have provided potentially important information on resource availability in the comment boxes. In the future, some of this information may be summarized and coded further. The following list (with minor editing) provides a record of the information for future processing.

In summary, the limiting factors most commonly identified are staffing and availability of physical space. Many wards indicated that conference rooms, physiotherapy gyms, or offices could accommodate additional beds. However, this would be contingent upon the availability of additional beds, and possibly also of portable oxygen and suction equipment. It is not clear that hospitals would have enough surplus beds and equipment to allow all of their wards to fully utilize such additional space.

Many of the respondents provide detailed plans for increasing the availability of beds in their wards. It may not be necessary for regional planning to address emergency bed availability at this level of detail. Nonetheless, this is important practical information and some system should be in place to ensure these implementation details remain available and up-to-date within the hospital wards.

List of Comments

Perioperative Care: Currently has a dedicated Perioperative Care Centre team, delivering preoperative care to scheduled, emergency and inpatients (M-F 0600-2000). Also provides preoperative and post-operative care to day care patients. If this area requires ventilated bays, then will require Critical Care staff within the space. Also this space can be used from 2000-0600 M-F, as well as weekends.

Day Bed: Currently have 20 open style bays with a variety of stretchers or lounge chairs. They are open 0700-1900 M-F.

Medical Day Care: Currently have 20 open style bays with a variety of stretchers, lounge chairs or beds. Staffing consists of 3.5 nurses working M-F 0830-1630.

Preadmission Centre: This is an outpatient clinic with 11 separate exam rooms. There is no oxygen in any of the rooms, but with portable oxygen they could accommodate stable patients.

Endoscopy UBC: VGH [sic?] Endoscopy has 3 procedure rooms for upper and lower endoscopy. In addition, there is a 4 bay pre- and post-procedure area and 2 Bronchoscopy procedure rooms. In total there are 5 procedure rooms shared between Endoscopy and Bronchoscopy.

Endoscopy VGH: VGH Endoscopy has 3 procedure rooms for upper and lower endoscopy. In addition, there is a 4 bay pre- and post-procedure area and 2 Bronchoscopy procedure rooms. In total there are 5 procedure rooms shared between Endoscopy and Bronchoscopy. [Note: Comment sections for Endoscopy UBC and Endoscopy VGH were filled out identically. It should be verified that this was not done in error.]

ICU at VGH: Availability of ventilators is the limiting factor.

Ward 1A UBCH: Staffing is the paramount limitation. May have some difficulty with having enough beds to put in all of this space. All beds have a bed head with piped-in oxygen.

Ward 1D UBCH: Could convert a physio room to a patient room and also converts a dining room to a patient room, thereby creating an additional 8 beds. Principal limiting factor is staffing. They

would probably also need additional mechanical lifts and dynamaps. All of their beds have an oxygen supply.

ACE – T11A: Limiting factor is physical space. At this time, every bed head is occupied. They do not admit patients for elective surgery. They believe that they could also use the T11B conference room to house an additional 4 patients, who do not require oxygen, suction or any other intervention typically located on a bed head. Note that this space would be shared with T11A in terms of creating additional capacity.

GTU – WCC3: Principal limiting factor is physical space, because at this time every bed head is occupied. They do not admit patients for elective surgery. They believe that they could use the WCC3 conference room to house an additional 4 patients who do not require oxygen, suction, or any other intervention typically located on a bed head. In addition, if they had time they may be able to use some of the OT/PT activity space for an additional 2-4 patients who also do not require oxygen, suction or any other intervention typically located on a bed head.

T7A & T10D: Would need to relocate physiotherapy equipment that currently serves as a gym on T7A. They could put 2 beds into this space. They could also turn T7 conference room into 4-bed patient care area. However, they would need to have portable oxygen supply, portable suction equipment and additional staffing.

T7B Recon Ortho: There is only capacity for 22 beds (with oxygen) on T7B. They could turn the T7 conference room into 4-bed patient care area. However, they would need to have portable oxygen supply, portable suction equipment and additional staffing.

Burns and Plastics: It is mostly trauma on BPU. They could also put stretchers with portable O₂ and suction into the Conference Room (3) and Patient Lounge (8-10) and OT/PT Room (4), Shower Room (1-has o₂ and suction) and Burn Bath Room (O₂ and suction as well- 3) for a total of 34-36 beds. The furniture would have to be moved out

TSCU: Staffing is the limiting factor because these are high acuity beds with limited excess staff in this area. To make the 8 beds the Emergency HUB unit would need to be closed, as it currently occupies 4 beds within TSCU. To obtain additional ventilated beds would require ventilator-trained nurses, ventilator equipment and RT support.

T10A/B: Their maximum capacity with oxygen is 32 beds. With cancellation of surgeries and through discharges they anticipate that beds would convert to ER beds with a total number of 12 within 72 hrs. By day 7 anticipate that 12 patients would be "on service" and the remainder of the beds (20) would be for Emergency admissions. This plan would be contingent upon the ability to staff. They could also accommodate patients in conference room and 2 quiet rooms. To use the conference rooms they would require mattresses or beds, potentially portable oxygen and additional staffing (2 RN's would be required, as there is no call system in place).

T7A/T10D Ortho Trauma: They would require extra staffing. To achieve 26 beds they would need to relocate equipment in a 2-bed room that currently serves as a physiotherapy gym. They could also make the T7B conference room into a patient room for another 4 beds. The principal limiting factor is space. There are only 22 physical beds on T7B. They could also convert 1 Tub/Shower room into an additional room.

HP B2: In the event of a pandemic, their plan is to decant the PDU to house other patients. The current staff would go to the hemo-unit to care for our patients there. There are two offices that could hold at least one bed each and the 2 training rooms might hold an extra bed each. Hot water is limited to a few sinks in the entire unit, 4 BR - one designated staff, 1 each in training rooms, 1 in hallway for patient use. There is limited call bell system. There is no piped-in O₂ or suction in this unit.

JPPAR: On days they have 16 RNs starting at staggered shift times and are funded to run 25 beds. On evenings, they have 9 RNs and as the patients are discharged, they go down to 7 beds for nights

and have 4 to 5 RNs. The principal limitation lies in finding staff for the 29 beds on a 24-hour basis. They could operate ventilators at any of the bed heads, but it would be very crowded around 12 of them in what they call the Bays. The issue is how many ventilators could be acquired and staffing for the 29 ventilated beds

AMU Tower 4: The limiting factor is physical space, because at this time every bed head is occupied. They do not admit patients for elective surgery. They believe that they could use the T4B conference room to house an additional 4 patients who do not require oxygen, suction or any other intervention typically located on a bed head.

7.8 — FORMS AND TOOLS

Form 7.1	Emergency Ventilator Capacity Considerations Worksheet
Form 7.2	Inventory of Ventilators Worksheet
Form 7.3	Initial Assessment (Triage) for Adults (≥ 18 years)
Form 7.4	Initial Assessment (Triage) for Children (< 18 years)
Form 7.5	Secondary Assessment for Adults (≥ 18 years)
Form 7.6	Secondary Assessment for Children (< 18 years)
Form 7.7	Alternate Care Site Assessment Checklist

Form 7.1 Emergency Ventilator Capacity Considerations Worksheet

[illegible]

Form 7.2 Inventory of ventilators worksheet

[illegible]

Form 7.3 Initial Assessment (Triage) for Adults (≥ 18 years)**Identification**

Health Care Number:		
Name: _____		
Surname/Family Name		First Name
Age _____ (yrs)	DOB _____/_____/_____ DD MM YYYY	
DATE OF CONSULTATION _____/_____/_____ DD MM YYYY		

Risk Assessment For Complications Of InfluenzaDoes this patient fall into a "high risk group" for complications of influenza? **Y/N**

High-Risk Groups	Tick All Relevant
Women in the second or third trimester of pregnancy	
Chronic cardiac disease (hypertension is not enough)	
Chronic pulmonary disease - asthma	
Chronic pulmonary disease - COPD or emphysema	
Chronic pulmonary disease - other than asthma, COPD or emphysema	
Chronic renal disease	
Non insulin dependent diabetes mellitus	
Insulin requiring diabetes mellitus	
Receiving immunosuppressive therapy, AIDS patients	
Neoplastic disease	
Hepatic disease	
Resident of nursing home	
Resident of other chronic care facility	
≥ 65 year old	

Details of vaccination	Yes	No	N/A	Batch Number	Date Given DD/MM/YYYY	Tick if given >14 days ago
INFLUENZA vaccine within the last 12 months?					/ /	
PNEUMOCOCCAL vaccine within the last 5 years?					/ /	

Details of Antivirals within last 3 Months?	Yes	No	N/A	Date Commenced DD/MM/YYYY	Date Ceased DD/MM/YYYY	Tick if Still Taking	Dose
AMANTADINE				/ /	/ /		
RIMANTADINE				/ /	/ /		
ZANAMAVIR				/ /	/ /		
OSELTAMAVIR				/ /	/ /		

Symptoms (adults \geq 18 years)**Date and time of onset of first symptoms:**

Clinical features on history	YES	NO	N/A	DETAILS (e.g. Date of onset, symptoms that predominate)
In contact with someone with influenza in the last 3 days?				
Fever				
Chills				
Aching muscles and joints				
Stiffness				
Headache				
Fatigue				
Runny/stuffy nose				
Cough				
Sore throat, hoarseness				
Purulent sputum				
Thoracic pain when taking a deep breath				
Retrosternal soreness (tracheitis)				
Breathlessness				

Clinical features on history	YES	NO	N/A	DETAILS (e.g. Date of onset, symptoms that predominate)
Anorexia				
Vomiting				
Diarrhea				
Confusion, drowsiness				
Rash				

Examination Findings (adults \geq 18 years):

Date: ____ / ____ / ____ **Time:** ____ : ____

DD MM YYYY HH MM

Vital Signs:

Description	Threshold for Indication of Secondary Assessment	Values for this Patient
Temperature	$\leq 35^{\circ}\text{C}$ or $\geq 39^{\circ}\text{C}$	
Respiratory Rate	$\geq 24/\text{minute}$ (or $< 9/\text{minute}$)	
Heart rate	$\geq 100/\text{minute}$	
Blood pressure	≤ 100 mmHg Systolic	
Altered mental status	New confusion	
Function	New inability to function independently	
Skin colour	Cyanosis (bluish colour)	
Oxygen saturation*	$\leq 90\%$ on room air	

* Some primary or secondary triage centres may be able to perform pulse oximetry

Provisional Diagnosis

Please Tick All That Apply

	Yes	No
Influenza		
Suspected		
Recent contact (could be incubating)		
Unlikely but at risk of complications and not immunized		
Unlikely but at risk and immunized		
Unlikely (recovered from documented influenza)		
Other		
Pregnant		
Breastfeeding		

Note: If secondary assessment is required, and patients are sent to another centre/ward for complementary evaluation, each individual should be provided with a summary of the symptoms and signs detected at the primary triage centre.

Form 7.4 Initial Assessment (Triage) for Children (< 18 years)**Identification**

Health Care Number:	
Name: _____ Surname/Family Name First Name	
Age _____ (yrs)	DOB _____ / _____ / _____ DD MM YYYY
DATE OF CONSULTATION _____ / _____ / _____ DD MM YYYY	

Risk Assessment For Complications Of InfluenzaDoes this patient fall into a "high risk group" for complications of influenza? **Y/N**

High-Risk Groups	Tick All Relevant
Chronic cardiac disease	
Chronic pulmonary disease - asthma	
Chronic pulmonary disease - other than asthma	
Chronic renal disease	
Diabetes mellitus	
Child with cyanotic congenital heart disease	
Receiving immunosuppressive therapy, AIDS patients	
Neoplastic disease	
Hepatic disease	
Resident of long-term care facility	
< 2 years old	

Details of vaccination	Yes	No	N/A	Batch Number	Date Given DD/MM/YYYY	Tick if given >14 days ago
INFLUENZA vaccine within the last 12 months?					/ /	
INFLUENZA vaccine within the last 12 months?					/ /	
PNEUMOCOCCAL vaccine within the last 5 years?	7-valent 23-valent				/ /	
PNEUMOCOCCAL vaccine within the last 5 years?	7-valent 23-valent				/ /	
PNEUMOCOCCAL vaccine within the last 5 years?	7-valent 23-valent				/ /	
PNEUMOCOCCAL vaccine within the last 5 years?	7-valent 23-valent				/ /	
PNEUMOCOCCAL vaccine within the last 5 years?	7-valent 23-valent				/ /	

Details of Antivirals within last 3 Months?	Yes	No	N/A	Date Commenced DD/MM/YYYY	Date Ceased DD/MM/YYYY	Tick if Still Taking	Dose
AMANTADINE				/ /	/ /		
RIMANTADINE				/ /	/ /		
ZANAMAVIR				/ /	/ /		
OSELTAMAVIR				/ /	/ /		

Symptoms (children < 18 years)**Date and time of onset of first symptoms:**

Clinical features on history	YES	NO	N/A	DETAILS (e.g. Date of onset, symptoms that predominate)
In contact with someone with influenza in the last 3 days?				
Fever				
Chills				
Aching muscles and joints				
Stiffness				
Headache				
Fatigue				
Runny/stuffy nose				
Cough				
Sore throat, hoarseness				
Purulent sputum				
Thoracic pain when taking a deep breath				
Retrosternal soreness (tracheitis)				
Breathlessness				
Anorexia				
Vomiting				
Diarrhea				
Confusion, drowsiness				
Rash				

Examination Findings (children < 18 years):

Date: ____/____/____ **Time:** ____:____

DD MM YYYY HH MM

Vital Signs:

Primary Assessment	Results Requiring Secondary Assessment	Values for this patient
Temperature ^a	≤ 35°C or ≥ 39°C core temperature	
Respiratory rate	< 2 months = >60 breaths per minute 2-12 months = >50 breaths per minute > 12 months to 5 years = >40 breaths per minute > 5 years = > 30 breaths per minute	
Skin color and temperature (lips, hands)	Cyanosis, sudden pallor, cold legs up to the knee	
Chest signs and symptoms ^b (pain may be difficult to detect in young children)	Chest indrawing, wheezing, grunting, inquire for chest pain	
Mental status	Lethargic or unconscious, confused ^c	
Function	Unable to breastfeed or drink, persistent vomiting (>2-3 times/24 hr) ^d Inability to function independently ^c	
Neurologic symptoms and signs	Convulsions, full fontanel, stiff neck, photophobia	
Oxygen saturation ^e	≤ 90% on room air	
Signs of dehydration	Sunken eyes, no saliva, doughy skin	

^a Temperature ≥ 39° C in adolescents is a warning sign and needs further assessment.

^b Children with ARI and chest pain should always have medical evaluation, since it may be a sign of pneumonia (chest pain on inspiration). It may also appear as retrosternal pain (tracheal/bronchial pain) or as a pleuritic pain.

^c A deterioration of consciousness and functional status, lack of interest in playing and inappropriate sleepiness should be further investigated.

^d Vomiting (>2-3 times/24 hr.), particularly if the children are not feeding or drinking well, requires secondary assessment.

^e Determination of blood gases by pulse oximetry as sign of respiratory failure.

Provisional Diagnosis

Please Tick All That Apply

	Yes	No
Influenza		
Suspected		
Recent contact (could be incubating)		
Unlikely but at risk of complications and not immunized		
Unlikely but at risk and immunized		
Unlikely (recovered from documented influenza)		

Form 7.5 Secondary Assessment for Adults (≥ 18 years)**Identification**

Health Care Number:		
Name: _____		
Surname/Family Name		First Name
Age _____ (yrs)	DOB _____/_____/_____ DD MM YYYY	
DATE OF CONSULTATION _____/_____/_____ DD MM YYYY		

Risk Assessment for Complications of Influenza

- Does this patient fall into a "high risk group" for complications of influenza? **Y/N**
- Which symptoms and/or signs were found at the primary triage centre that required secondary assessment?

*Note: When the secondary assessment has to be completed in a different setting, a new clinical evaluation of the patient, to confirm the diagnosis done at the primary triage centre, should always precede the laboratory studies mentioned below. **NOT ALL THE TESTS MENTIONED UNDERNEATH WILL BE NEEDED FOR ALL PATIENTS AND CLINICAL JUDGEMENT SHOULD ALWAYS PRECEDE ANY PROCEDURE, PARTICULARLY IF RESOURCES ARE SCARCE.***

The primary assessment forms, or part of these forms, may be repeated here.

Investigations in Adults (≥ 18 years)

Complementary laboratory studies	Results requiring supervision of patient or admission	Results for this patient
CBC (core battery, if appropriate)	Hgb ≤ 80 g/L	Hgb:
	WBC $\leq 2,500$ or $\geq 12,000$ cells/ L	WBC:
	Bands $\geq 15\%$	Bands:
	Platelets $\leq 50,000$ / L	Platelets:
Electrolytes	Na ≤ 125 meq/L or ≥ 148 meq/L	Na:
	K ≤ 3 meq/L or ≥ 5.5 meq/L	K:
BUN, creatinine	BUN ≥ 10.7 mmol/L	BUN:
	Creatinine ≥ 150 μ mol/L	Creatinine:
Glucose	≤ 3 mmol/L or ≥ 13.9 mmol/L	Glucose:
CPK (only in patients with severe muscle)	CKMB $\geq 50\%$	CKMB:
	Total CK $\geq 1,000$ U/L	Total CK:
Blood gases, O ₂ saturation ^a	Blood gases pO ₂ ≤ 60 room air PH < 7.35	PO ₂ : PH:
	O ₂ saturation $\leq 90\%$ on room air	O ₂ saturation:
Chest x-ray (CXR) ^b	Abnormal, consistent with pneumonia Pleural effusion	
EKG	Evidence of ischemia, new arrhythmia	

^aSome primary or secondary triage centres may be able to perform pulse oximetry.

^bUNDER OPTIMAL CIRCUMSTANCES, BLOOD WORK AND CXR SHOULD BE DONE FOR ALL PATIENTS BEFORE ADMISSION. IF RESOURCES ARE RESTRICTED, HOWEVER, PRIORITY SHOULD BE GIVEN TO PATIENTS WITH CO-MORBIDITY OR IF COMPLICATIONS OF THE DISEASE ARE SUSPECTED (I.E., PNEUMONIA, ETC.). PATIENTS WITH NORMAL GASES IN BLOOD AND WITH CLEAR LUNGS DURING AUSCULTATION DO NOT NEED CXR. SIMILARLY, WHEN THE CLINICAL DIAGNOSIS OF PNEUMONIA IS UNQUESTIONABLE AND THE RESOURCES ARE SCARCE, NO CXR NEED TO BE TAKEN, UNLESS THERE IS SUSPICION OF A COMPLICATION OF THE PNEUMONIA (I.E., EMPIEMA).

Provisional Diagnosis

Please Tick All That Apply

	Yes	No
Influenza		
Suspected		
Recent contact (could be incubating)		
Unlikely but at risk of complications and not immunized		
Unlikely but at risk and immunized		
Unlikely (recovered from documented influenza)		
Pneumonia, confirmed (C) / suspected (S) / unlikely (U)	C / S / U	
Viral		
Bacterial		
Other		
Pregnant		
Breastfeeding		

Bacterial Pneumonia

Confirmed (by chest radiograph), suspected, unlikely.

Influenza Viral Pneumonitis

Confirmed (by chest radiograph and oxygen transfer), suspected (by oxygen transfer), unlikely.

Admission

Yes:

- Suspected Flu ward
- Confirmed Flu ward
- General Ward
- Observation
- ICU Admission
- CCU Admission

If not admitted:

Sent to:

- Home care with self-care
- Health worker/Volunteer contacted
- Alternate Care Site: Hotel, School, Community Centre, etc.

Provide copy of:

- Assessment sheet
- Instruction sheet
- Contact names/numbers (if get more breathless/deteriorate)

Form 7.6 Secondary Assessment for Children (< 18 years)**Identification**

Health Care Number:		
Name: _____ Surname/Family Name First Name		
Age _____ (yrs)	DOB ____/____/____ DD MM YYYY	
DATE OF CONSULTATION ____/____/____ DD MM YYYY		

Risk Assessment for Complications of Influenza

- Does this patient fall into a "high risk group" for complications of influenza? **Y/N**
- Which symptoms and/or signs were found at the primary triage centre that required secondary assessment?

*When the secondary assessment has to be completed in a different setting, a new clinical evaluation of the child, to confirm the diagnosis done at the primary triage centre, should always precede the laboratory studies mentioned below. **NOT ALL THE TESTS MENTIONED UNDERNEATH WILL BE NEEDED FOR ALL PATIENTS, AND CLINICAL JUDGEMENT SHOULD ALWAYS PRECEDE ANY PROCEDURE, PARTICULARLY IF RESOURCES ARE SCARCE.***

As with adults, part of the primary assessment forms may be repeated here.

Investigations in Children (< 18 years)

SECONDARY ASSESSMENT TESTS

Complementary laboratory studies	Results requiring supervision or admission (check age appropriate values)	Results for this patient
CBC (core battery, if appropriate) ^a	Hgb ^b ≤8.0 g/dL WBC ^c ≤2,500 or ≥12,000 cells/l Bands ^d >15% Platelets ^e ≤50,000/l	Hgb: WBC: Bands: Platelets:
Electrolytes	Na ^f ≤ 125 meq/L or 148 meq/L K ^f ≤3 meq/L or ≥5.5 meq/L	Na: K:
BUN, creatinine	BUN ^f ≥ 10.7 mmol/L Creatinine ^f ≥ 150 µmol/L	BUN: Cr:
Glucose ^f	≤3mmol/L or ≥13.9 mmol/L	Glucose:
CPK ^f (only in patients with severe muscle pain)	CKMB > 50% Total CK >1 000 U/L	CKMB: Total CK:
Blood gases, O2 saturation	Blood gases pO ₂ ≤ 60% on room air O2 saturation ≤90% room air PH <7.35	pO ₂ : O2 saturation: PH:
Chest x-ray ^a	Abnormal, consistent with pneumonia Pleural effusion	CXR:

Legend:

a) Under optimal circumstances, blood work and CXR should be obtained for all patients before admission. When resources are restricted, priority should be given to patients with co-morbidity or suspected complications (i.e., pneumonia, etc.). Similarly, when the clinical diagnosis of pneumonia is definite and resources are scarce, no CXR is needed, unless there is suspicion of a complication of the pneumonia (i.e., empyema). When antibiotics are limited, CXR may be indicated to confirm pneumonia before prescribing any drug and, if pneumonia is suspected but the resources for CXR are in short supply, antibiotics may be prescribed without radiological confirmation.

b) Values of hemoglobin for young children are age-related. Normal values for different ages are shown in Table 6:

Table 6

HEMOGLOBIN LEVELS FOR CHILDREN <18 YEARS

Age	Hemoglobin g/dL	Reference values (SI) mmol/l
1-3 days	14.5 - 22.5	2.25 - 3.49
2 months	9.0 - 14.0	1.40 - 2.17
6 - 12 years	11.5 - 15.5	1.78 - 2.40
12 - 18 years (M)	13.0 - 16.0	2.02 - 2.48
12 - 18 years (F)	12.0 - 16.0	1.86 - 2.48

c) Values of WBC for young children are age-related. Normal values for different ages are:

Table 7

WBC VALUES FOR CHILDREN <18 YEARS

Age	Cells/ μ L (limits)	Reference values (SI) 10^9 cells/L
Birth	9,000 - 30,000	9.0 - 30.0
24 h	9,400 - 34,000	9.4 - 34.0
1 month	5,000 - 19,500	5.0 - 19.5
1-3 years	6,000 - 17,500	6.0 - 17.5
4-7 years	5,500 - 15,500	5.5 - 15.5
8-13 years	4,500 - 13,500	4.5 - 13.5
> 13 years	4,500 - 11,000	4.5 - 11.0

d) In a typical acute bacterial infection, the ratio bands/segmented neutrophils may increase up to 16-17%²²⁸. Mean values of bands in normal individuals are 12.4 % (range 9.5-15.3%).

e) Normal values for children older than one week are the same as for adults.

f) Values normal for infants/children:

Table 8

NORMAL VALUES FOR CHILDREN <18 YEARS

Analyte	Age ranges	Normal Values
Sodium (Na)	Infants Children Thereafter	139 - 146 mmol/L 138 - 145 mmol/L 136 - 146 mmol/L
Potassium (K)	< 2 months 2 -12 months > 12 months	3.0 - 7.0 mmol/L 3.5 - 6.0 mmol/L 3.5 - 5.0 mmol/L
BUN	Infant/child Thereafter	1.8 - 6.4 mmol urea/L 2.5 - 6.4 mmol urea/L
Creatinine	Infant Child Adolescent	18 – 35 μ mol/L 27 – 62 μ mol/L 44 – 88 μ mol/L
Glucose	Child	3.3 - 5.5 mmol/L

Provisional Diagnosis

Please Tick All That Apply

	Yes	No
Influenza		
Suspected		
Recent contact (could be incubating)		
Unlikely but at risk of complications and not immunized		
Unlikely but at risk and immunized		
Unlikely (recovered from documented influenza)		
Pneumonia, confirmed (C) / suspected (S) / unlikely (U)	C / S / U	
Viral		
Bacterial		
Other		
Pregnant		
Breastfeeding		

Bacterial Pneumonia

Confirmed (by chest radiograph), suspected, unlikely.

Influenza Viral Pneumonitis

Confirmed (by chest radiograph and oxygen transfer), suspected (by oxygen transfer), unlikely.

Admission**Yes:**

- Suspected Flu ward
- Confirmed Flu ward
- General Ward
- Observation
- ICU Admission
- CCU Admission

If not admitted:**Sent to:**

- Home care with self-care
- Health worker/Volunteer contacted
- Not Traditional care centre: hotel, school, community centre, etc.

Provide copy of:

- Assessment sheet
- Instruction sheet
- Contact names/numbers (if get more breathless/deteriorate)

Form 7.7 Alternate Care Site Assessment Checklist**Pandemic Influenza Response Planning****Alternate Care Facility Assessment Checklist****Face Page**

Page 1 of 3

Alternate care facilities (ACF) are intended to augment services provided by traditional medical care facilities to patients affected by pandemic influenza. These facilities should be located in close proximity to an emergency department (ED) of a hospital. Alternate care facilities will be considered secondary sites. ACF's can provide care beyond basic first aid but are not intended for patients who are self-sufficient and are able to take care of daily personal needs. However, ambulatory patients may be sent to the ACF for care. ACF's will assist residential and home care institutions, social services and hospitals.

Facility name:	
Address:	
Contact name:	
Position title:	
Telephone #:	
Fax #:	
E-mail address:	

	Yes	No
Memorandum of Understanding (MoU) negotiated?		
Signed copy of MoU appended?		
Facility complies with CSA regulations?		

Criteria for Selection of Alternate Care Facilities (ACF's)

- ACF's should be located in a well-known geographic location, close to a hospital and major roads, be wheelchair accessible, have several entrances and exits and have adequate parking space.
- The building must be structurally sound, have large rooms on the ground floor, have toilet and shower facilities and food preparation and service facilities.
- The building should be (preferably) gas-heated and equipped with a power generator.
- The facility must comply with the regulations of the Canadian Securities Administrators (CSA).
- The layout should include areas to be allocated for registration, triage, treatment, ambulatory and non-ambulatory services, secured areas, food areas and pharmacy.
- Examples of inventory needs include cots, bedding, food, water, intravenous supplies, medications, biohazard supplies, clothing, specimen and trash bags, urinary health supplies, linens and patient gowns, janitorial and logistical supplies and respiratory supplies.
- All alternate care facilities need an Emergency Operations Centre for incoming information and co-ordination with other response resources. The choice of location should depend on safety considerations and the capacity to install and operate a variety of communications equipment.

Pandemic Influenza Response Planning
Alternate Care Facility Assessment
Facility Assessment Checklist
Page 2 of 3

Location:			
Proximity to Hospital:			
	Yes	No	Comments
Easily located by public?			
External Facilities:			
Parking?			
Proximity to transit?			
Off-loading facilities? Ramps?			
Internal Facilities:			
Washroom facilities: (M/F), sinks			
Kitchen: food prep area? Dishes? Dishwashing capability? Refrigeration?			
Secure space for patient records/admin?			
Adequate space for reception, waiting, patient care, patient/family education?			
Area for counselling & support services?			
Secure storage for pharmacy? Medical supplies?			
Mortuary space?			
Critical Support Systems:			
Adequate ventilation, heat, air conditioning, air flow?			
Power for lighting, sterilizers, refrigeration, food services?			
Back-up power?			
Adequate electrical outlets?			
Sanitation: adequate toilet bathing/shower and laundry facilities?			

**Pandemic Influenza
Alternate Care Facility
Facility Assessment
Essential Support Services Checklist**
Page 3 of 3

Essential Support Services: Advance planning for provision of essential services to alternate care sites should consider the necessity to provide the following essential support services. Questions to consider: what facilities are available in-house? how will external services be supplied? by whom? what agreements can be negotiated now?			
	Yes	No	Comments
Security			
Communication Capability			
Building maintenance			
Laundry			
Environmental cleaning services			
Sterilization services			
Pharmaceutical services			
Medical waste disposal/storage			
Food services			
Facilities for staff lodging/eating			

Facility Assessment Checklist completed by:

Name:

Date:

7.9 – NEXT STEPS

Sections to be Completed

The following sections remain to be completed:

7.3 – Human Resources Management:

This section is not completed.

7.4 – Acute Care Facilities:

Requires completion of data fields for bed capacity, personnel, and stockpiling of supplies.

7.6 – Alternate Care Facilities:

Sites need to be identified and/or confirmed.

Updating Surveyed Information

The inventory of hospital beds and potential staff counts shown in the tables of this chapter should be periodically updated, as details concerning resources will change over time. Therefore, it may be helpful to establish a system for conducting recurrent surveys that are designed to efficiently collect updates from health care facilities on the availability of bed, staff and space for a pandemic response.

Such a system should take into consideration a number of issues. In order to obtain accurate data, it is important to minimize the time and effort required by health care workers to submit information. The responses from the current survey revealed that there may have been some confusion on the part of respondents as to whether total or incremental figures should be provided for the number of available beds when given 72 hours or 7 days notice. Therefore, the survey questions should be reviewed and revised if necessary in order to eliminate any ambiguity in interpretations of the questions. It may also be useful to include a summary of the previous reports by the respondents and ask for updates of any changes in the periodic surveys.

One option for a periodic survey system is an electronic method. This would entail submitting survey information through filling out a form on a secure web server. Menus could be provided, which would make such a form easy to complete. Furthermore, this would minimize the possibility of ambiguity in the information collected. In addition, data from these electronic forms could be automatically summarized and stored in a database. The computing department could set up such a system relatively easily.

Estimates of Resources

In planning of health care resources for a pandemic influenza response, reference should be made to changes in health impact estimates in Chapter 2. Changes in the expected rate of morbidity will affect magnitude of requirements for health care resources. It may be useful to find or develop methods to make projections of the size of resources required in a pandemic, based on the health impact estimates. Then, the estimates of expected health care resources could be presented in this chapter in the form of tables. These numbers would serve as comparisons for estimates of actual health care resources. If there are any significant discrepancies, ways to bridge the gaps could be further explored.

Chapter 8

HUMAN RESOURCES

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CHAPTER SUMMARY

During a pandemic, shortages of personnel can be expected to limit the ability of institutions to respond to a significant increase in patient volume. Health care professionals may need to be moved from vaccination clinics to hospitals or between hospitals and alternate care facilities. The plan addresses the need for a regional approach to the redeployment of personnel. It points to the need for a human resources management team to take on responsibility to identify current health care workers, recruit additional professionals and volunteers and to manage the training and assignment of workers.

Providing health care services in a pandemic will present challenges to health care workers related to the scarcity of resources, scope of practice, liability and workplace safety. Since both front-line health care workers and the public are expected to experience acute stress during a pandemic, providing a psychosocial response plan and access to mental health services is included as part of the plan.

8.1 — HUMAN RESOURCES MANAGEMENT

Planning Assumptions

Current disaster plans primarily address multi-casualty, short-term, localized emergency situations. In a pandemic the impact is virtually worldwide and the duration of the emergency will be longer. Since most regions will be affected simultaneously, the sharing and exchange of resources may not be possible between regions.

For the purposes of resource planning for pandemic influenza the following assumptions have been made.

- a) **It is unlikely that there will be a “Declaration of Emergency”.**
Our plan does not assume that a National or Provincial Emergency would be declared, as this is unlikely to occur in the event of a pandemic.
- b) **The health care system may be overwhelmed.**
There will be an increase in physician visits, hospitalizations and deaths putting the health care system under extreme stress. Canadian institutions are presently running at or close to maximal bed capacity and budget cutbacks and staff shortages have meant that we have already reduced elective admissions. Increasing or even maintaining existing bed capacity requires committed human resources. During a pandemic, shortages of personnel, supplies and equipment can be expected to limit the ability of institutions to respond to a significant increase in patient volume.
- c) **The best use of resources will be achieved through system-wide prioritization.**
A pandemic will require a regional prioritization of needs and resources, across the health care system, not just a review of resources at a single institution. For example, in terms of human resources, health care professionals may need to be moved from vaccination clinics to hospitals, or from one hospital to another. Beds, ventilators and other equipment may need to be moved to alternate care sites. This still requires a review of logistical, ethical, and practical issues throughout the region.
- d) **There will be limited transfer of resources.**
The global nature of the crisis will mean that resources from other regions cannot be depended upon for meeting additional requirements during a pandemic.
- e) **The usual supply lines will be disrupted.**
The demand for medications, medical/surgical and other supplies will increase substantially around the world and across the country. Suppliers may experience difficulties responding to increased demand due to staff shortages, raw material shortages and transportation disruptions. Because most medications, equipment and supplies are produced outside of Canada, there will be barriers to obtaining supplies, which include embargoes on medications, cross-border issues and transportation problems resulting from staff shortages.

Planning For Optimal Use of Health Care Workers

The work involved in identifying current health care workers who could be re-located within an institution and recruiting additional health care professionals, other health care workers and volunteers who could offset some of the increased demands on health care workers is currently under review.

1) **Appoint a human resource management team**

Identifying current health care workers; recruiting additional professionals, non-professionals and volunteers; and managing the training, assignment and support of health care workers to various locations and tasks will be some of the most important pandemic preparedness tasks. Establishment of a team or subcommittee that could take on these responsibilities in each jurisdiction is an important step. A combination of professionals with expertise in human resource issues, pandemic planning, health care administration, infection control, occupational health and safety, and volunteer organizations would be desirable for this planning team or subcommittee.

2) Placement of personnel

During a pandemic, health care workers may need to be reallocated from their usual roles and settings. For example, trained health care professionals may be required to expand their role to include the supervision of volunteers and other staff in the acute care settings, affiliated clinics and non-traditional sites.

While it is likely that all health care workers will be needed at their usual acute care facility, consideration should be given to the source of staff for other sites including:

- Triage Sites – community triage sites: at clinics, non-traditional sites, attached to an existing hospital.
- Non-Traditional Sites – including emergency care centres, emergency hospitals, support hotels, nursing stations, etc.
- Vaccination Clinics –clinics in acute care sites, etc.

It is important to recognize that the expertise needed for the clinical management of influenza patients predominantly resides within the health care facilities. Positioning some staff at these sites may offset the demands on the health care facilities and ultimately lead to the optimal use of human resources.

3) Review scopes of practice

Even in acute care settings, delegation of tasks and authority will, by necessity, change during a pandemic. A shortage of staff and increase in the number of patients may necessitate cancellations of surgery, tests and other procedures. Staff may be reassigned from their usual roles to make best use of their skills. Retired and foreign-trained personnel may be asked to step in.

- Establish a process, in conjunction with existing emergency plans, to assess the work needed and skills required for each task. Regions need to look at the process of intake, reception, triage, clinical care, clean up, etc. and assess additional workers or sources of workers who already have the skills to be slotted into these jobs.
- Review the recommendations on patient assessment and management in the Clinical Management Guidelines in this chapter that will indicate the needs for various skills at various points in patient care and determine who may provide those during a pandemic.
- Communicate with health care professionals about pandemic needs.

4) Recruit professional staff for the pandemic response

Within facilities, consideration should be given to reassigning medical and nursing personnel with administrative, research and educational assignments to clinical duties. Alternate sources of HCW would include, but are not limited to:

- retired physicians or nurses (need to be assurance that work during a pandemic would not affect their pension plans)
- physicians or nurses currently not working in clinical health care (i.e., working in education, administration, research, private industry)
- trainees (i.e., medical students and nursing students)
- registered nursing assistants
- patient care assistants
- emergency medical technicians
- veterinarians
- pharmacists
- therapists (respiratory, occupational and physiotherapists)
- technicians (laboratory, radiography)
- health care aides

8.2 — MANAGEMENT OF PUBLIC HEALTH CARE RESOURCES

Expanding Surge Capacity

Estimates of impact on BC residents during next pandemic are 1,800,000 clinically ill, 610,000 requiring hospital care, and 6,800 dead from related complications. There will be surge capacity required throughout the health system and social services departments; public health response will be critical to mitigating the impact of pandemic influenza. An effective response must allow for maximizing the capacity of public health personnel from varied backgrounds to respond quickly, including medical health officers, environmental health officers, public health nurses, and infection control officers. Support staff will also be required.

Increased pressure for adequate staffing will arise from the fact that a significant proportion of personnel will be taken out of the workforce due to illness and/or family needs. Several interdependent issues require further consideration in planning pandemic human resource requirements, including licensing, delegation, liability, and organizational infrastructure.

Licensing and Delegation

Increased workload will necessitate hiring staff to work under the authority of Medical Health Officers (MHO's). Professionals who have recently retired or moved to BC from other jurisdictions will be an important source of staff. However, without a current license to practice, there is potential delay, while respective licensing bodies process applications for (re) licensure. Public Health Nurses and Environmental Health Officers (EHO's) routinely work under delegated function, and the capacity of MHO's to delegate will increase the ability of current and newly hired staff to respond quickly. Provincial legislation also allows for "emergency officers" to be appointed as part of emergency response. As for all work of MHO's, the following will apply during an emergency:

- The MHO has immunity when operating within the scope of the Health Act. MHO's are appointed by Regional Health Authority Boards and have immunity through Order in Council (OIC) appointment from the Lieutenant Governor in Council. An MHO has a specific geographic area of responsibility (Health Service Delivery Area), but can act in any part of the Health Authority.
- MHO's have coverage for liability/negligence through the public employee's Health Care Protection Program (HCPP).
- The delegation of a medical act to persons other than physicians may be appropriate in certain circumstances in the interests of good patient (population) care and efficient use of health care resources (College of Physicians and Surgeons of BC). However, certain medical acts under the authority of the OIC cannot be delegated, and additional staff may require OIC for duration of response.

Liability

HCPP provides liability coverage for salaried employees. Contracted professional staff is normally required to purchase liability insurance privately.

Table 2

RESERVE POOLS OF HEALTH CARE PERSONNEL TO BE CONTACTED IN ORDER TO EXPAND SURGE CAPACITY

INSTITUTION/ORGANIZATION	DEPARTMENT/TRAINING	CONTACT INFORMATION
Canadian Institute for Public Health Inspectors (CIPHI)	<ul style="list-style-type: none"> Public health inspectors 	president@ciph.ca 604-714-5683 CIPHI: P.O. Box 75264 15180 North Bluff RD, White Rock, BC, V4B 5L4 1-888-245-8180
British Columbia Institute of Technology (BCIT)	<ul style="list-style-type: none"> Environmental Health Nursing 	
University of British Columbia (UBC)	<ul style="list-style-type: none"> Nursing Health Care and Epidemiology 	Nursing: Marion Clauson, clauson@nursing.ubc.ca
Langara College	<ul style="list-style-type: none"> Nursing 	
Vancouver Coastal Health (VCH)	<ul style="list-style-type: none"> Employee engagement Casual employees/nursing Physicians Planning (epidemiologists) Epidemiologists 	
Pension Plan of British Columbia	<ul style="list-style-type: none"> Recently retired nurses, physicians, EHO's, epidemiologists 	

8.3 — SOCIAL AND PSYCHOLOGICAL SERVICES FOR HEALTH CARE PROVIDERS

In the event of influenza pandemic, first responders will include medical and health care personnel. First responders generally have hardiness and a culture that offers some protective factors to them as a group. They tend to minimize stress and psychological reactions or symptoms. This is positive during the actual response and allows them to get their job done, but at a cost

Disaster workers, including both those involved in rescue efforts immediately following the disaster and those involved in longer term relief work, are at very high risk of adverse emotional effects because they do not tend to seek help. This includes acute care staff and health care workers in community health centres, community mental health centres and program staff who provide supportive services.

In the event of pandemic influenza the impact on community health staff will be significant. Community Health & Mental Health Centres will likely be seen as alternatives to overwhelmed hospitals and ill people will seek assistance there. Staff will be coping with a potential 30 – 40% drop in staffing, business continuity pressures, fear of becoming ill themselves, fear for their families, resistance to coming to work and fear of the public now at their door. Other concerns are:

- They may themselves be primary victims of the pandemic with the same burdens as other primary victims
- They are repeatedly exposed to grisly experiences (e.g., recovering bodies) and the powerful emotions and harrowing tales of victims.
- Their tasks may be physically exhausting or dangerous in terms of exposure.
- Their demands may lead to lack of sleep and chronic fatigue.
- They face a variety of role stresses, including perceived inability to ever do “enough”. Even if the limits of what they can do are imposed by reality or by organization or bureaucratic constraints beyond their control (e.g., lack of supplies, lack of personnel), they may blame themselves.
- They may feel guilt over access to resources that the primary victims do not have.
- They may identify with the victims.
- They may feel guilt over the need to “triage” their own efforts and those of others or may blame themselves when rescue efforts have failed.
- They are exposed to the anger and apparent lack of gratitude of some victims.

In addition to post-traumatic responses much like those of the primary victims of the pandemic, staff may express anger, rage, despair, feelings of powerlessness, guilt, terror or longing for a safe haven. These feelings may be distressing and may make the worker feel that there is something wrong with them. Their sense of humor may wear thin, or they may use ‘black humor’ as a way of coping.

Tolerance for others’ failings is reduced and the anger of other relief workers or victims may feel like a personal attack. Belief in God or other religious beliefs may be threatened by a feeling of “How could God let this happen?” After a prolonged period of time on the job, evidence of “burn-out” may appear.

Health professionals’ identity may depend on a self-image of themselves as strong and resilient. Allowing them to “feel” their emotions about the situations to which they are exposed may challenge their self-respect or make them feel like they are letting down co-workers. In addition, many professional health care workers may have been exposed to previous traumatic situations and new experiences may activate unresolved feelings from past traumatic events.

Symptoms of “Burnout” Among Workers

- Excessive tiredness
- “Loss of spirit”
- Inability to concentrate
- Somatic symptoms (e.g. headaches, gastrointestinal disturbances)
- Sleep difficulties

- Grandiose beliefs about own importance; e.g. engaging in heroic but reckless behaviours, ostensibly in the interests of helping others; neglecting own safety and physical needs; e.g. showing “macho” style of not needing sleep, not needing breaks.
- Cynicism
- Inefficiency
- Mistrust of co-workers or supervisors
- Excessive use of alcohol, excessive caffeine consumption and smoking

Health care responders are not prepared ahead of time either for their own reactions or to deal with the reactions of primary victims. Providing psychosocial assistance to these workers and providing them with adequate shelter or respite, food and rest is a very high priority in a disaster. If disaster responders or health care workers are unable to function efficiently, they cannot help anyone else.¹

Critical Incident Stress Prevention During the Pandemic Phase

The outline presented in point-form in this section can be used to guide actions for stress prevention among health care workers during the pandemic period (WHO pandemic phase 6; see Chapter 1 of this manual for explanation of pandemic phases).

During the Initial Response Phase of the Influenza Pandemic

GOAL: *Connect, Protect, Triage & Direct*

- **Connect:** provide workers with as much factual information as possible about the disaster conditions via radio or in person at the scene using communications, runners, etc.
- **Connect:** If necessary, try to obtain information for workers about the location and well being of their family members, significant social supports and pets where appropriate.
- **Protect:** Ensure three aspects of care are offered
 - a) Safe place for recovery
 - b) Management of physical functions (sleep, eat, bathroom)
 - c) Management of intrusive thoughts/ images
- **Triage & Direct:** Early identification and intervention of stress reactions may prevent worker burnout. Review lists of physical, cognitive, emotional stress symptoms; multiple symptoms in each category indicate that worker effectiveness is diminishing

During the Extended Response Phase of the Influenza Pandemic

GOAL: *Monitoring and Ongoing Assessment*

- Ask workers what they need and how they are coping (e.g., How are you doing?) Assess whether workers’ verbal responses, their appearance and level of functioning match. Workers may say they are doing fine but may exhibit multiple stress symptoms.
- Try to rotate workers between low-stress and high-stress assignments.
- Limit workers’ time in high-stress assignments, e.g., triage or morgue, to one hour at a time if possible, Provide breaks, rotation to less stressful assignments, and support services.
- Follow 2 hours of duty with 15-30 minute rest period as much as possible; order rest periods if necessary.
- Ask workers to take rest periods if their effectiveness is diminishing due to fatigue or stress; order them to do so if necessary.
- Observe for signs of shock, fatigue or distress, e.g., Crying, shock-like staring, inappropriate verbal responses. Provide rest and support services.

¹ Adapted from: COPING WITH DISASTERS, A guidebook to psychosocial intervention by John H. Ehrenreich, Ph.D., October 2001, and Sharon McQuaide, M.S.W., Ph.D., Clinical Consultant

Rest Periods

GOAL: *Rest, Relief, and Ventilation*

- During rest periods, try to provide workers with a staff rest area, including:
 - a) Bathroom facilities
 - b) A quiet place to sit or lie down alone, away from the scene
 - c) Food and beverages
 - d) Shelter from weather
 - e) Dry clothes
 - f) An opportunity to talk about their feelings to co-workers, a chaplain or mental health staff
- Build the preceding opportunities into every worker's schedule.

Critical Incident Stress Management Interventions (CISM)

GOAL: *Restoration, Integration, and Recovery*

CISM intervention may include (explained in detail below):

- a) On-the-scene support
- b) One on One intervention
- c) Defusing (group)
- d) Debriefing (group)
- e) Briefings (group)

Note: CISM facilitators may include trained staff members from:

- a) Pastoral Care
- b) Social Work
- c) Occupational Therapy
- d) Psychology
- e) Medicine
- f) Nursing
- Ideally, the CISM Team includes peer support persons and mental health professionals
- The number of facilitators depends on the type of intervention (group or individual)
- In the event of an extensive Residence trauma, outside CISM facilities may be required. Help may be available through the Employee Assistance Program and the Inter-hospital CISM Facilitator

A) On-the-scene Support

Immediate Stabilization Response: *Protect, Connect, Triage, Direct*

- Must not interfere with the primary tasks at hand unless it is evident that a staff member is showing signs of distress interfering with their duties
- Interventions must be brief, 1-15 minutes, and focus only on immediate concerns using a common sense approach
- Listen carefully and avoid loaded questions
- Must coordinate activity with the person in charge of the site
- Stabilize and protect personnel from additional stress
- Mobilize range of resources
- Normalize the experience
- Restore to adaptive function as soon as possible

B) One-on-one Intervention**Immediate Stabilization Response and Ongoing Response**

- Assist individual to return to cognitive state to establish some sense of safety and structure “What happened?”
- Allow for ventilation in a structured manner, “How are you?”
- Normalize common stress reactions
- Assess ability to return to work, allow 15-30 minutes quiet time before return

C) Defusing (group)**Immediate and Post-impact Response (1-24 hours) (30-45 min)**

- Only people properly trained in defusing should be employed
- More immediate, shorter and less structured than a debriefing
- Aimed at the core-working group most seriously affected by the event and working together on the same task.
- Remember that fatigue will be a major factor for staff involved. Do not conduct a defusing if members are too exhausted to discuss the event.

Goals:

- 1) Rapid reduction in the intense reaction to the event
- 2) Normalization of the experience so staff can return to duties
- 3) Re-enforce social network of group to avoid staff from isolating themselves and move towards helping each other
- 4) Restore cognitive process disrupted by event
- 5) Provide common narrative of the event
- 6) Provide practical information for stress survival
- 7) Affirm value of personnel
- 8) Assess need for further intervention and resources

Conduct the session as follows (Mitchell, Everly, 2001)

- a) Introduction - Purpose and ground rules
- b) Exploration - Conversational, broad range of questions from clarification of event, reactions and signs and symptoms of stress
- c) Information
- d) Re-entry - Summarization of information in-group, normalization of experience, review of questions raised and stress survival strategies. Assess referral needs

D) Defusing (group)**Post-impact Mass Disaster Response (3-4 Weeks) (90 min – 2 hours)**

- Only people trained in debriefing should be employed
- Seven phases to the group process
- Aimed at the working groups affected by the event, maintain homogeneous groups where possible (core group versus vicarious group)
- After personnel have been released from their duties, will not likely return for at least two – three weeks and after they have had time to re-connect with family and friends

Goals:

- 1) Mitigate impact of event (primary, secondary or tertiary experience)
- 2) Facilitate identification for individuals who might be in need of additional services
- 3) Goals #5-7 in defusing
- 4) Examine personal learning from event
- 5) Identify staff and /or residents or visitors who may attend the session(s), and arrange the date, time, and location of the session(s)
- 6) Conduct the session in comfortable environment, and place seating to facilitate eye contact between the participants. Order low stimulant beverages or foods.
- 7) Record the attendance and initiate the session. Allow an hour per session
- 8) Distribute any appropriate literature available
- 9) Regroup after the session to discuss and share ideas and concerns about the session
- 10) Identify and recommend follow-up staff members at risk of further stress reactions

Conduct the sessions according to Mitchell and Everly (2001)

Chapter 9

PUBLIC HEALTH MEASURES

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CHAPTER SUMMARY

For the purposes of this plan, the term Public Health Measures refers to traditional public health interventions such as quarantine, isolation, contact tracing and reducing social distance, and does not include specific interventions such as administration of vaccines and antivirals. Evidence for the effectiveness of public health measures in the control of pandemic influenza is scarce, and is derived largely from experience with SARS. However, the clinical and epidemiologic features of influenza infections are very different from those of SARS, and measures that helped control SARS are not likely to be effective for pandemic influenza. Other evidence for effectiveness of public health measures is derived from mathematical modeling, and mathematical modeling results are now beginning to be used for planning. At this time, however, much of the decision making is based on expert opinion and therefore must be continually updated as more information becomes available.

Public health measures may include isolation of cases, quarantine of contacts or groups of contacts and measures to reduce social distance. Such measures may be voluntary or involuntary and may occur at the individual or community level. For example, during the pandemic, public messaging will focus on staying home when sick, avoiding unnecessary travel to areas where pandemic activity is high and personal hygiene, particularly hand-washing. Community level interventions may include cancellation of public gatherings and temporary closure of schools. Given the limited scientific evidence for such measures, the feasibility, acceptability and ethics of each measure must be carefully considered.

This chapter details the potential public health measures that may be considered during a pandemic. The chapter also provides a risk-based framework for decision making around public health measures. Potential means of increasing public health resources during a pandemic is also provided. Finally, materials developed for public messaging are included. This chapter, in particular, will need to be re-visited and refined during the pre-pandemic period to ensure that all new scientific information is incorporated in the plan.

9.1 — PUBLIC EDUCATION

Public health measures activities in the area of public education are coordinated with the communications working group. The actual mechanism of dissemination of public health information is the responsibility of communications personnel. The public health measures subcommittee provides content for the educational materials disseminated by communications.

Leaflets

Leaflets and information sheets have been prepared to inform the public and media about what to expect and what actions to take at various stages of the pandemic. Ready to use templates are included in the Forms and Tools section at the end of this chapter.

Translations

To serve the multicultural community of Vancouver Coastal Health (VCH), information leaflets and brochures will be translated into Chinese, Punjabi, and Spanish. Prior to the onset of the pandemic, periodic updates to the public education information material will be made. Translations will be delayed until the pandemic is confirmed, to ensure that the translated information is current. The office of Cross Cultural Health and Diversity is responsible for translations. Contact information is:

Regional Coordinator Language Services
Cross Cultural Health & Diversity
Department of Employee Engagement
Employee Learning & Development
#1033-601 West Broadway
Vancouver BC, V5Z 4C2
Phone: 604-875-4111 ext. 61628
Fax: 604-875-4761

Foreign Language Press Releases

Public health information in foreign languages will be distributed to ethnic radio. The Cross Cultural Health and Diversity Office will distribute to community television and newspapers. See previous section for details.

9.2 — MANAGEMENT OF CASES

The *Quarantine Act and Regulations* helps protect Canadians from dangerous and infectious diseases. Under this Act, Public Health Quarantine Officers or Medical Health Officers may ask a person to be placed on quarantine or isolation in order to protect the public. Quarantine is the word used for persons who may develop influenza after being exposed to it. Isolation is the word used when someone is sick with influenza and is separated from others either at home or in a health care facility. Guidelines for People on Home Isolation and People on Home Quarantine can be found in the forms and tools section of this chapter.

Rapid Isolation of Cases to Reduce Risk of Transmission

In the interpandemic and pandemic alert periods, any ill individual seeking medical care who is suspected, or known, to be infected by a novel virus, or who belongs to one of the high-risk groups (see chapter 9), should be placed on airborne precautions until the diagnosis is confirmed, or the period of communicability is over. During the pandemic alert period, it may be necessary to consider placing individuals with suspected or confirmed novel influenza virus on segregated units to prevent transmission of the disease. During the pandemic period, patients should be isolated for the entire period of communicability for the virus subtype or until symptoms are resolved. If there is no information on the period of communicability for the pandemic viral subtype, patients should be placed on airborne precautions for a minimum of 7 days from the onset of illness.

Management of High-risk Groups

Definition of High-risk Groups

In chapter 10 a definition for high-risk groups is provided based on definitions used for annual influenza campaigns. Creating a plan for provision of services for Long Term Care (LTC) residents throughout the region is the responsibility of VCH Public Health Measures Subcommittee (PHMS).

Long-term Care Residents

Older adults are an especially vulnerable population in the influenza pandemic. Care for LTC patients will primarily be delivered on-site at the LTC facility. During a pandemic it may not be feasible to transfer residents to hospitals, which are expected to operate at maximum capacity.

9.3 — MANAGEMENT OF CONTACTS OF CASES

Reducing Risk of Transmission from Contacts

The main strategies for reducing disease transmission from **contacts** of ill individuals are contact tracing and the provision of support for self-quarantine, self-monitoring, self-isolation and carrying out basic personal protective measures. Contact tracing is likely to be the most effective during the pandemic alert and early pandemic phases. Once the pandemic is established in the community, individual contact tracing is no longer feasible or of value. New evidence is emerging for the potential value of contact tracing of groups as may occur with the introduction of pandemic influenza into a school or work setting. During interpandemic and pandemic alert periods, contacts of severe or unusual cases should be considered for priority vaccination and antiviral prophylaxis (see chapter 10). Contacts should also be immunized against the annual influenza strain. As the first wave of the pandemic is ending, voluntary confinement or quarantine for **three days** after the last contact with an ill individual should be suggested to healthy contacts.

9.4 — MANAGEMENT AT THE COMMUNITY LEVEL

Cancellation of Public Gatherings and Closure of Schools

Increasing social distance is a general strategy aimed at reducing the risk of disease transmission in the community. During the early pandemic period, minimizing occasions for public gatherings can be considered as a means of reducing influenza transmission.

The Medical Health Officer has the authority under the Communicable Disease Regulations of the Health Act to institute community-based infection control measures such as:

- Closure of community facilities (e.g. schools, community centers)
- Cancellation of group events

Medical Health Officers should develop a predetermined strategy for closing public gatherings. If public gatherings are restricted, they should be restricted early enough to affect disease transmission. The strategy should include (but is not limited to):

- The definition of what constitutes a public gathering
- Specifying the time period within the pandemic strategy to implement the strategy
- Applicability and consistency across jurisdictions
- Availability and priority use of vaccine and antivirals
- Considerations as to whether school aged children are included in the high priority for immunization or antivirals in the early pandemic period.

The Public Health Agency of Canada has not yet published guidelines for closures of schools, cancellation of public events and mass gatherings, and issuing travel advisories or restrictions. These guidelines are expected to be in the next version of the Canadian Pandemic Influenza Plan. School cancellations are likely to be most effective when imposed early, well before the peak of pandemic activity in the community. Implementation of such early closures will require advance coordination with school and education officials.

Restriction of any activity has far reaching economic and social implications. For example, closure of schools affects working parents with consequences for child-care needs, employment standards and labor relations. Therefore, decisions must be based on the expected level of effectiveness of the measure balanced with the degree of disruption it is likely to cause.

Some issues to be considered in the decision-making process include:

- Epidemiology of the pandemic
 - high-risk groups
 - high-risk settings
 - severity of disease
- Experience of disease transmission in similar settings
- Probable effectiveness of public health measures
- Loss of work force and ensuing complications due to closures
- Necessity for maintenance of essential services

In order to minimize disruption due to closures, guidelines on how to conduct a “safe” meeting using telecommunications aids (speaker phones, notebook computers replacing face to face meetings) have to be provided to planners, employers, and personnel departments.

The decision matrix in Figure 1 was developed as a tool to aid Medical Health Officers in the decision-making process. Extended activities in crowded conditions are of highest concern due to the high intensity and long duration of exposure. These are indicated at the upper left corner of the

matrix. Proceeding toward the lower left, the risk of disease transmission and thus the urgency of cancellation decreases. The matrix can be used in conjunction with the list of institutions and bodies, representing “public gatherings” in Table 1 to guide decisions on cancellations or closings of institutions, venues or events. Both the decision making process and the criteria for closures may need to be modified according to prevailing conditions experienced during the pandemic.

Figure 1

DECISION MATRIX FOR MEASURES TO INCREASE SOCIAL DISTANCE.

Not all activities are identified. Those listed are examples and reference points to aid in applying the matrix.




		EXPOSURE INTENSITY		
		High <i>Very crowded; Impossible to manage</i>	Intermediate	Low
EXPOSURE DURATION	Prolonged Duration > 4 hrs	<ul style="list-style-type: none"> Child day care Elementary & high schools Post-secondary Institution (including dormitories) 	<ul style="list-style-type: none"> Closed workplaces 	
	Intermediate Duration > 1 hr	<ul style="list-style-type: none"> Entertainment venues Sporting venues (participants and spectators) Special events (e.g. Olympics 2010) 	<ul style="list-style-type: none"> Day tours via buses, boats Weddings, funerals Business conventions, trade shows 	<ul style="list-style-type: none"> Restaurants Shopping malls
	Short Duration < 1 hr	<ul style="list-style-type: none"> Public transit during rush hour Retail stores during major sale events 	<ul style="list-style-type: none"> Public waiting areas and lines (e.g. banks, store check out lines) 	
		PRIORITY FOR CANCELLATION / RESTICTION CONSIDERATION AT FIRST CONFIRMATION OF LOCAL CASES		
		CANCELLATION / MODIFICATION OF EVENT / ACTIVITY SHOULD BE CONSIDERED AS LOCAL CIRCUMSTANCES EVOLVE		
		BAN CANCELLATION UNLIKELY TO BE OF VALUE – PUBLIC ADVISED MEANS OF PERSONAL PROTECTION		

Table 1

INSTITUTIONS, SCHOOLS, BUSINESSES AND PUBLIC SERVICE BODIES TO BE
CONSIDERED FOR CLOSINGS AND CANCELLATIONS

Post-secondary Institutions	Schools	Public Service Bodies	Venues and Events
University of BC Langara College Capilano College	Vancouver School Board Richmond School Board North Vancouver School Board West Vancouver School Board Central Coast School Division Howe Sound School District Powell River School District Daycares and Preschools	TransLink BC Ferries Vancouver Parks Board City Hall Fire Authority Police Ambulance Hospitals LTCF Assisted Living, Reserves Vancouver International Airport Borders Ports (shipping and cruise)	Tourism Convention Centres Sporting Venues Entertainment Venues Trade Shows Fundraiser Events Religious Gatherings Cultural Events Weddings and Funerals

Travel Advisories and Restrictions

Travel advisories have two objectives. First, advising travelers to affected areas of the health risks may protect the traveler. Second, screening travelers who may be at risk of transmitting influenza may prevent introduction of pandemic influenza to an unaffected community. As with other public health measures, evidence for the effectiveness of travel advisories in a pandemic is limited.

However, general public health messages aimed at travelers may be of benefit. In the interpandemic period, public health messages advising that ill persons should avoid travel can be reinforced. Self-reporting of symptoms should also be promoted. During the pandemic, travel to unaffected areas during a self-monitoring period should be discouraged. Health Alert Notices to travelers returning from affected areas can be distributed at airports with information on what to do if influenza-like symptoms develop. Recommendations about travel advisories will need to be re-examined when recommendations from the Canadian Pandemic Influenza Plan are published.

General Infection Control Strategies to Prevent Disease Transmission

In addition to reducing risk of disease transmission through travel advisories/restrictions and reduction of social distance, other community-level disease control measures can also be implemented, particularly during the pandemic period. These may include setting up hand-hygiene stations at specific locations and increased frequency of cleaning of surfaces in public areas.

Detailed descriptions of strategies that can be used in various settings are located throughout the VCH Pandemic Influenza Plan. Chapter 4, Infection and Environment Control provides an overview of infection prevention and environmental control guidelines for various settings. Implementation of these strategies will largely be guided by evolving evidence and expert opinion.

Isolated Communities

VCH does serve some isolated communities. Isolated communities which are unaffected by pandemic influenza may consider entry screening to prevent or delay introduction of pandemic influenza to the community.

Olympics 2010

The 2010 Winter Olympic games will take place entirely within the boundaries of Vancouver Coastal Health. Planning for pandemic influenza will need to be incorporated into Olympic planning.

9.5 — MANAGEMENT OF PUBLIC HEALTH CARE RESOURCES

Expanding Surge Capacity

Estimates of impact on BC residents during next pandemic are 1,800,000 clinically ill, 610,000 requiring hospital care, and 6,800 dead from related complications. There will be surge capacity required throughout the health system and social services departments; public health response will be critical to mitigating the impact of pandemic influenza. An effective response must allow for maximizing the capacity of public health personnel from varied backgrounds to respond quickly, including medical health officers, environmental health officers, public health nurses, and infection control officers. Support staff will also be required. Increased pressure for adequate staffing will arise from the fact that a significant proportion of personnel will be taken out of the workforce due to illness and/or family needs. Several interdependent issues require further consideration in planning pandemic human resource requirements, including licensing, delegation, liability, and organizational infrastructure.

Licensing and Delegation

Increased workload will necessitate hiring staff to work under the authority of Medical Health Officers (MHO's). Professionals who have recently retired or moved to BC from other jurisdictions will be an important source of staff. However, without a current license to practice, there is potential delay, while respective licensing bodies process applications for (re) licensure. Public Health Nurses and Environmental Health Officers (EHO's) routinely work under delegated function, and the capacity of MHOs to delegate will increase the ability of current and newly hired staff to respond quickly. Provincial legislation also allows for "emergency officers" to be appointed as part of emergency response. As for all work of MHOs, the following will apply during an emergency:

- The MHO has immunity when operating within the scope of the Health Act. MHOs are appointed by Regional Health Authority Boards and have immunity through Order in Council (OIC) appointment from the Lieutenant Governor in Council. An MHO has a specific geographic area of responsibility (Health Service Delivery Area), but can act in any part of the Health Authority.
- MHOs have coverage for liability/negligence through the public employee's Health Care Protection Program (HCPP).
- The delegation of a medical act to persons other than physicians may be appropriate in certain circumstances in the interests of good patient (population) care and efficient use of health care resources (College of Physicians and Surgeons of BC). However, certain medical acts under the authority of the OIC cannot be delegated, and additional staff may require OIC for duration of response.

Liability

HCPP provides liability coverage for salaried employees. Contracted professional staff is normally required to purchase liability insurance privately.

Table 2

RESERVE POOLS OF HEALTH CARE PERSONNEL TO BE CONTACTED IN ORDER TO EXPAND SURGE CAPACITY

INSTITUTION/ORGANIZATION	DEPARTMENT TRAINING	CONTACT INFORMATION
Canadian Institute for Public Health Inspectors (CIPHI)	<ul style="list-style-type: none"> Public health inspectors 	president@ciphi.ca 604-714-5683 CIPHI: P.O. Box 75264 15180 North Bluff RD, White Rock, BC, V4B 5L4 1-888-245-8180
British Columbia Institute of Technology (BCIT)	<ul style="list-style-type: none"> Environmental Health Nursing 	
University of British Columbia (UBC)	<ul style="list-style-type: none"> Nursing Health Care and Epidemiology 	Nursing: Marion Clauson, clauson@nursing.ubc.ca
Langara College	<ul style="list-style-type: none"> Nursing 	
Vancouver Coastal Health (VCH)	<ul style="list-style-type: none"> Employee engagement Casual employees/nursing Physicians Planning (epidemiologists) Epidemiologists 	
Pension Plan of British Columbia	<ul style="list-style-type: none"> Recently retired nurses, physicians, EHOs, epidemiologists 	

9.6 — VCH GOALS AND TASKS

Public health measures will require evaluation of the strategy in action. This will provide the opportunity to gather much needed information on the effectiveness of various public health measures in dealing with the influenza pandemic. In this section, information is gathered to support decision-making on what public health actions to take as the epidemiology of the pandemic evolves.

Public health measures for VCH have been devised based on the goals outlined by the World Health Organization. The WHO list of public health activities has been adapted to VCH priorities and is shown in Table 3. In Table 4, the information presented is similar, but organized as a task worksheet. In Figure 2, VCH tasks are shown within the 2005 WHO pandemic influenza timeline.

Table 3

POTENTIAL PUBLIC HEALTH MEASURES FOR VARIOUS PHASES OF PANDEMIC INFLUENZA

ACTIONS	PANDEMIC ALERT PERIOD			PANDEMIC PERIOD
	PHASE 3	PHASE 4	PHASE 5	PHASE 6
PUBLIC EDUCATION				
Information to populations at risk on risk, and risk avoidance	x	x	x	x
Information to health professionals on the isolation of a novel virus capable of infecting humans	x			
Information to at-risk persons on prompt self-diagnosis	x	x	x	x
Respiratory, hand and environmental hygiene practices	x	x	x	x
Information on what to expect in next phase	x			
Establish links with businesses, schools and other public institutions for future dissemination of information on pandemic influenza	x			
Public/health professional information on human infection		x		
Public/health professional information on person-to-person transmission			x	
Information for travelers			x	
Information previously aimed at contacts will now be incorporated into general public health messaging				x
Information to public/health professionals that pandemic is declared				X*
Self-care				X*
Self-isolation				X*
Reporting of illness				X*
When and where to present for medical treatment				X*
Availability of limited resources				X*
Possibility of school closures				X*
Employers' responsibility to allow time-off for caring for children who are not at school				X*
Measures to increase social distance				X*
NOVEL VIRUS ALERT IN CANADA				
PUBLIC HEALTH MANagements OF ILL INDIVIDUALS				
Airborne precautions for those known or suspected of	x	x	x	x

	PANDEMIC ALERT PERIOD			PANDEMIC PERIOD
ACTIONS	PHASE 3	PHASE 4	PHASE 5	PHASE 6
infection by a novel or pandemic influenza virus.				
Airborne precautions for at-risk persons seeking care	x	x	x	x
Closing of affected hospital wards or institutions to visitors (i.e. routine protocol for influenza outbreaks for all affected institutions)			x	
PUBLIC HEALTH MANAGEMENT OF CONTACTS				
Individual contact tracing and follow-up	x	x	x	
Self-health monitoring of contacts	x	x	x	x
Provide information to contacts of cases on personal protective measures, symptoms, what to do if they develop ILI and reporting	x	x	x	
Consider advising contact to defer travel to unaffected areas for duration of monitoring	x	x		
Consider antiviral prophylaxis of contacts in severe and unusual cases	x	x		
Vaccination with annual influenza vaccine	x	x		
Voluntary confinement of healthy contacts for three days after last			x	
Antiviral prophylaxis of contacts			x	X*
Advise contacts to avoid travel to unaffected areas				X*
Consider re-introducing individual contact tracing				
COMMUNITY-BASED DISEASE CONTROL STRATEGIES				
Reinforce general public health messages to stay at home with respiratory illness	x			
Isolated communities	x			
Recommend that ill persons avoid travel (especially if from affected area)	x	x	x	
Advise to avoid high-risk areas (e.g. affected poultry farm)	x			
Inform travelers to high-risk areas	x			
Advise to self-report symptoms if returning from affected area	x			
Advise public to stay at home if they have respiratory symptoms	x	x		
Entry screening for isolated communities	x	x	x	x
Advise contacts to avoid travel to unaffected areas for 3-4 days after last contact (with human cases and affected poultry)	x	x		
Consider school closures based on epidemiology			x	X*
Consider restriction/cancellation of mass gatherings			x	X*
Voluntary confinement of people with respiratory symptoms			x	
Recommend to defer non-essential travel to affected areas			x	
Health Alert Notices (returning travelers: what to do if they get ILI) to be distributed at the airport			x	
Recommend to avoid contact with high-risk environments			x	
Daily self-check for fever for travelers from affected area			x	
Exit screening from affected areas within Canada			x	
Trigger: Arrival of one or more confirmed cases in province: Strengthen recommendations to stay home from public				X*

ACTIONS	PANDEMIC ALERT PERIOD			PANDEMIC PERIOD
	PHASE 3	PHASE 4	PHASE 5	PHASE 6
events/locations (i.e. self-isolate) if symptomatic				
Trigger: Arrival of one or more confirmed cases in VCH: Consider school closures especially if pandemic strain is known to be affecting school-aged children				X*
Use mathematical modeling for decision making				X*
Trigger: community setting transmission Hand sanitizing stations in specific settings and recommend increased frequency of cleaning surfaces in public settings				X*
TRAVEL AND BORDER-RELATED MEASURES				
Recommend that ill persons avoid travel	x	x	x	X*
Recommend to defer non-essential travel to affected areas				X*
Avoid contact with high-risk environments				X*
High-alert notices to travelers to and from affected areas				X*
Daily self-check for travelers to / from affected area				X*
Exit screening of travelers from affected areas (health declarations, temperature screening, widespread messaging)				X*

* These public health measures are *to be considered*, especially early in the pandemic period. The decision to implement will be based on national and provincial guidelines, feasibility and public acceptance.

Table 4**VCH TASK WORKSHEET BASED ON WHO GUIDELINES**

PHASE	FOCUS	FEDERAL ACTIONS	RESPONSE LEVEL	PHMS TO DO LIST
Pandemic Alert Period: Phase 3 Novel virus identified in a human	Information preparation	Review of existing public materials on influenza and influenza pandemics	F, P/T, L	VCH may have different special audiences (i.e. language), which need to be identified. VCH may assume responsibility for this task. (Otherwise F and P responsibility).
		Review/update educational materials on all aspects of influenza: for health care professionals, other special audiences and the general public	P/T, L	Review of existing materials and develop the content for HCW and special audiences
Pandemic Alert Period: Phase 4 Human infection confirmed (i.e. 2 or more human cases)	Resource assessment and preparation	Review staffing requirements for implementation of a pandemic response including mass immunization clinics, control measures, and public education	F, P/T, L	PHMS to link with Emergency Services to identify what control measures are needed. Then PHMS will estimate staffing/resources.
		Consider delaying introduction of public health programs that may not be adequately resourced if situation evolves into a pandemic or other alternatives such as contracting out	P/T, L	Health Services decides which health activities are postponed-
		Preparation of educational material for public inquiry phone-line staff	F, P/T, L	Communications will have a phone line/staff for public health messages: PHMS will review content/standardization of messages
Pandemic Alert Period: Phase 5 Larger clusters of Human to human transmission	Preparation of educational materials and public health resources	Review national recommendations for public health management of cases and other control measures and modify if necessary	F, P/T, lead PIC	
		Ensure adequate resources are available to implement recommended public health measures including isolation of cases	P/T, L	Alternate care sites not just for health care delivery but quarantine/isolation

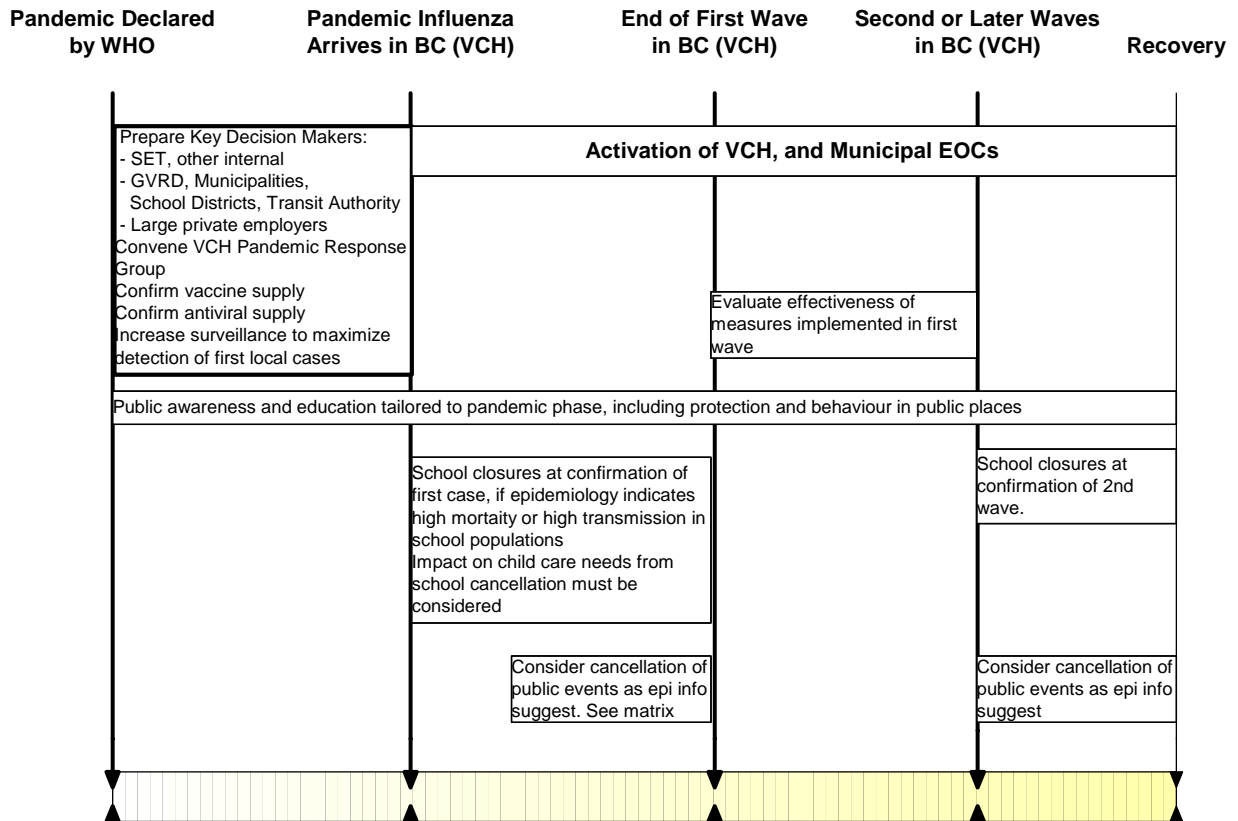
PHASE	FOCUS	FEDERAL ACTIONS	RESPONSE LEVEL	PHMS TO DO LIST
		Prepare/revise educational and guidance materials for public health partners (specifically provincial/territorial and local health departments who will be on the front lines with respect to prevention and control measures),. Documents for the general public should emphasize infection control in homes, schools, places of work	F, P/T	Content of public health education material: infection control appendix (Annex 1) has all messages - need to include definitions/explanations of isolation/quarantine/closures - prepare key messages about control measures and identify key audiences
Pandemic Period: Phase 6	Implementation of public health response	Evaluate interventions and revise recommendations as necessary	F, P/T, L	Update information for public and health care professionals
		Integrate national recommendations for isolation into practice at the local level	P/T, L	Update information for public and health care professionals
		Implement use of mandatory isolation orders if necessary	F, P/T, L	Identify specific persons/groups responsible for decision making and initiating the Pan Flu implementation (i.e. emergency operations)
		Review/update/disseminate national recommendations regarding containment strategies (i.e. cancellation of public gatherings, school closures)	P/T, L	Identify decisions to be made and develop guidelines
		Identify decisions to be made and develop guidelines	F, P/T, L	Develop mechanism for evaluating effectiveness of isolation/quarantine measures
		Participate in strategy for tracking recovered, presumably immune cases	P/T, L	Develop criteria/guidelines for: release from isolation, fit for work, partial fit for work. Link with surveillance group for data Identify and develop decision tree for different scenarios
		Development/updating of educational materials for the public and health care providers as the pandemic evolves	F, P/T, L (lead PIC)	Development/updating of educational materials for the public and health care providers as the pandemic evolves

F Federal
P/T Provincial/Territorial
L Local
PHMS Public Health Measures Subcommittee

PIC Practitioners of Infection Control

Figure 2

VCH PUBLIC HEALTH MEASURES TASKS WITHIN WHO TIMELINE



EOC Emergency Operations Centre
 SET Senior Executive Team

9.7 — FORMS AND TOOLS

Tool 9.1	Sick Passenger Protocol
Tool 9.2	Novel Influenza Update
Tool 9.3	Pandemic Influenza in Canada
Tool 9.4	Pandemic Influenza in Vancouver Coastal Health
Tool 9.5	Pandemic Influenza Fact Sheet
Tool 9.6	How To Stay Healthy During The Pandemic Influenza
Tool 9.7	Hand Hygiene Procedures
Tool 9.8	People on Home Isolation
Tool 9.9	People on Quarantine
Tool 9.10	Infection Control Guidelines for Pandemic Influenza Management

Tool 9.1 Sick Passenger Protocol

In case of a report of a sick passenger on a conveyance arriving in Canada, Health Canada's *Sick Passenger Protocol* should be followed to ensure the health and safety of Canadians. This protocol is standard in the larger airports receiving international traffic. However, in smaller ports of entry local protocols may vary.

- 1) The captain of an airplane arriving on an international flight is obliged by International Health Regulations to make notification to authorities on the ground that there is a sick passenger on board.
- 2) If the passenger's presenting symptoms are in keeping with a communicable or infectious illness, the Airport Authority will notify the:
 - Quarantine Officer* who will assess in person or by telephone consultation, or
 - Canadian Border Security Agency personnel acting as an extension of Quarantine Officers in remote places, will contact, via 24 / 7 telephone access, the Quarantine Officer or Public Health Agency of Canada Duty Officer.
- 3) Quarantine Officers will advise Canadian Border Security, ambulance and airport personnel of appropriate personal protective precautions to be taken.
- 4) Quarantine Officers assess ill travellers in person or by information relayed in telephone consultation and advise whether hospitalization or detention is required.
- 5) The sick passengers are transported to hospital when necessary.
- 6) In situations when the *Quarantine Act* does not apply and there is a sick passenger on board, airport authorities arrange for emergency medical care for the individual.
- 7) The transfer of sick passengers from an airplane normally takes precedence over the deplaning of the other passengers.

Airport Authorities or Canadian Border Security staff should not call local Public Health Units unless it is part of the local emergency protocol.

*The *Quarantine Act and Regulations* helps protect Canadians from dangerous and infectious diseases. Under this Act, Public Health Quarantine Officers have the authority to ask a person suspected of having an infectious disease to undergo a medical examination and to detain that person if necessary.

Tool 9.2 Novel Influenza Update

A Novel Influenza Virus has been identified. The World Health Organization has confirmed that the number of human cases of infection with this novel influenza virus has increased. Countries where this novel influenza virus has infected humans include: _____. The activities, which appear to increase risk of infection, are: _____.

Travelers to the following countries _____ are advised to avoid the following activities _____.

Travellers who return from areas or countries with cases of infection with the novel influenza virus and within # days develop:

FEVER likely with one or more of the following conditions:

- cough
- chills
- muscle aches

should immediately contact their local health care provider and inform them of their symptoms and recent travels.

For more information

Vancouver Coastal Health Authority: www.vch.ca

BC Center for Disease Control: www.bccdc.org

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

Tool 9.3 Pandemic Influenza in Canada

A new subtype of influenza has been causing outbreaks in _____. People do not have immunity against this new influenza and it has spread rapidly throughout the world. Health Canada has confirmed that this new influenza virus has now infected people in Canada. There are ## human cases in ## provinces. This is a severe form of influenza.

Influenza is spread from person to person in respiratory droplets of coughs and sneezes. It can also be spread when a person touches respiratory droplets of another person or an object (such as a doorknob) and then touches their own mouth or nose before washing their hands. The virus enters through the nose or mouth and into the throat and lungs and begins to multiply.

If you have the following

- Fever of 38 °C or higher AND a cough; AND
- You have recently traveled to areas in Canada or other countries where people have this new influenza OR you have been in close contact with someone who has influenza

Immediately call

- BC Nurse Line 604 215 4700 or 1-866-215-4700
- VCH Influenza Line 604 875-4252, press 3

Note: if you have shortness of breath or difficulty breathing, call 911 or go to the nearest emergency room.

Currently there is no vaccine available for this new subtype influenza. Antiviral medications are available for those who become ill and for those who are known to have been contacts of people with influenza. Antibiotics are not indicated for influenza.

If you are feeling unwell but have not been in contact with influenza or traveled to the countries or parts of Canada where influenza has been identified stay at home. Rest and drink plenty of fluids. Acetaminophen may provide comfort for fevers and aches. Never give children ASA (aspirin).

Protect yourself by frequently washing your hands with soap and water and avoiding groups/crowds of people. Postpone travel to areas where influenza is known to be infecting people. Wearing a facemask will not stop the spread of influenza in the community.

If you have more questions, please contact your **family physician**, or the **BC Nurse Line** (24 hours per day, 7 days a week) or from the VCH Influenza Line. If symptoms are severe and need immediate action, call 911 (Ambulance, Paramedics) or go to the closest emergency department.

Vancouver Coastal Health
BC Center for Disease Control
Public Health Agency of Canada

www.vch.ca
www.bccdc.ca
www.phac-aspc.gc.ca/influenza/pandemic_e.html

Tool 9.4 Pandemic Influenza in Vancouver Coastal Health

A new subtype of influenza has been causing outbreaks in _____. People do not have immunity against this new influenza and it has spread rapidly throughout the world. Cases of this influenza have now been confirmed in our health region. There have been ____ human cases in Vancouver/Richmond/North Shore/Coast Garibaldi. This is a severe form of influenza.

Influenza is spread from person to person in respiratory droplets of coughs and sneezes. It can also be spread when a person touches respiratory droplets of another person or an object (such as a doorknob) and then touches their own mouth or nose before washing their hands. The virus enters through the nose or mouth and into the throat and lungs and begins to multiply.

If you have the following

- Fever of 38 °C or higher **AND** a cough

Immediately call

- BC Nurse Line 604 215 4700 or 1-866-215-4700
- VCH Influenza Line 604 875-4252, press 3

Note: if you have shortness of breath or difficulty breathing, call 911 or go to the nearest emergency room.

If you are well enough, you will be given information about

- Staying at home while you are ill
- When and how to get medical help if your symptoms worsen

How to protect your family from influenza (covering your mouth and nose when you are coughing/sneezing and washing your hands frequently are the best ways of protecting others)

Currently there is no vaccine available for this new subtype influenza. Antiviral medications are available for those who become ill and for those who are known to have been contacts of people with influenza. Antibiotics are not indicated for influenza.

Protect yourself and others by frequently washing your hands with soap and water and avoiding groups/crowds of people. Postpone travel to areas where influenza is known to be infecting people. Wearing a facemask will not stop the spread of influenza in the community.

If you have more questions, please contact your family doctor or your local public health office. Further information is also available at:

Vancouver Coastal Health
BC Center for Disease Control
Public Health Agency of Canada

www.vch.ca
www.bccdc.ca
www.phac-aspc.gc.ca/influenza/pandemic_e.html

Tool 9.5 Pandemic Influenza Fact Sheet

What is influenza?

Influenza or the “flu” is a highly contagious viral infection of the respiratory tract. It is not what some people call 'stomach flu' that causes abdominal upset and diarrhea.. There are different types of influenza virus, A and B and C. Only **type A causes pandemics in humans**.

What is pandemic influenza?

Pandemic influenza is a global outbreak of severe influenza affecting many people in many countries. Unlike the usual influenza virus that infects people each winter, pandemic influenza may strike at anytime of the year causing much more sickness and death than seasonal influenza.

What causes pandemic influenza?

Pandemics are caused by subtypes of the influenza A virus. It may be a new subtype or a subtype that has not circulated among humans for a long time. Certain things need to take place for a pandemic to occur. For example, the subtype has to be able to cause serious illness in humans who have little or no immunity to that specific subtype and it has to be easily transmitted from person to person.

When will the next pandemic happen?

Many scientists believe that it is only a matter of time until the next influenza pandemic occurs. What they don't know is whether it will occur in the near future, or in several years. The three pandemics of the twentieth century were in 1918 (Spanish flu), 1957 (Asian flu) and 1968 (Hong Kong flu). Past influenza pandemics have led to high levels of illness, death, social disruption, and economic loss. Pandemics can affect communities in “waves”, such that after the first peak, there is a reduction of illness, followed by one or more additional peaks of influenza.

How many people will be affected by the next pandemic?

All segments of Canadian society will be affected by pandemic influenza. It is estimated that 4.5 to 10.6 million Canadians may become ill during the next pandemic and 11,000 to 58,000 may die. These estimates are based on experiences from the 1957 and 1968 pandemics. With so many ill, every Canadian will be affected by the pandemic either through being ill, having to take care of someone who is ill, losing loved ones to influenza, or having to carry the burden of responsibility at work due to a reduced workforce.

How is influenza spread?

It is spread from person to person in respiratory droplets of coughs and sneezes. It can also be spread when a person touches respiratory droplets of another person or an object and then touches their own eyes, mouth or nose before washing their hands. The virus may enter through the eyes or more commonly through the nose or mouth and into the throat and lungs where it begins to multiply. The time from when a person is first exposed to the flu virus to when symptoms begin is one to three days.

How long is the influenza virus infectious/contagious?

A person with the flu is contagious 24 hours before they become sick and for 5 days after becoming sick. Some children may be contagious for longer than a week. The virus can live for up to 2 days on hard surfaces such as doorknobs, handrails, toys, cups, utensils, telephones. It can live on the hands for up to 5 minutes.

How do I know if I have influenza?

You may have the flu if you have a sudden onset of a respiratory illness with a cough, fever, headache, muscle pain, a runny nose, sore throat, and body aches. Sometimes, but not very often, children with influenza can have nausea, vomiting or diarrhea. Sometimes adults over 65 and children under 5 may not have a fever when sick with the flu. Although colds and other viruses may cause similar symptoms, influenza weakens a person much more than other viruses. Most healthy people will feel better in about five to seven days but symptoms may last for 2-3 weeks. Complications of influenza, such as pneumonia, can be more severe for the elderly, infants or people with chronic health problems.

What can I do to protect my family and myself?

You can protect yourself from getting the flu by washing your hands frequently and avoiding close contact with people who may be sick with the flu. Healthy eating, adequate sleep and physical activity are essential to your well-being. Practicing good personal hygiene will also help to protect you from getting and spreading the flu, e.g. use disposable, single-use tissues for wiping noses; cover your nose and mouth when sneezing and coughing; hand wash after coughing, sneezing or using tissues; keep hands away from the eyes, nose and mouth. It is recommended that people at high risk of getting influenza and its complications and their caregivers receive an annual influenza vaccine. These groups include: people 65 years old and older, children 6-23 months of age, people in nursing homes, long-term care facilities and other institutions, people with chronic medical conditions such as heart or lung disease, diabetes or those with a weakened immune system health care workers, essential service workers and healthy people living in the same house as high risk people who either cannot be vaccinated or may respond inadequately to vaccination.

Will there be a vaccine against the pandemic influenza?

Research and development of new influenza vaccines is ongoing. Development of new vaccines and testing them for effectiveness and safety takes time. Once the pandemic influenza strain is identified, the first lots of pandemic influenza vaccines are expected to be available in 6-9 months. Therefore, vaccine may not be available during the first “wave” of the pandemic. When vaccines first become available, they may be in short supply. Our Canadian influenza experts have identified high-risk groups who will receive the vaccine first as it becomes available.

Will there be medications to prevent or cure pandemic influenza?

Two different influenza antiviral medications (amantadine and oseltamivir) are approved in Canada for the treatment and/or prevention of influenza. Both work against influenza A viruses. It is important that antiviral medications are used in the correct manner, because incorrect use may lead to drug resistance. Antiviral medications are also expected to be in short supply during a pandemic. Therefore, like vaccines, they will be given according to the high-risk groups. Canadian and Provincial governments are stockpiling some antiviral medications.

SYMPTOMS	FLU (INFLUENZA)	COLD (RHINO VIRUS)
Fever	Usual, sudden onset 38°-40°C and lasts 3-4 days	Rare
Headache	Usual and can be severe	Rare
Aches and pains	Usual and can be severe	Rare
Fatigue and weakness	Usual and can last 2-3 weeks or more	Sometimes, but mild
Extreme Fatigue	Usual, early onset can be severe	Rare
Nausea, vomiting	In children < 5 years old	Rare
Runny, stuffy nose	Rare	Usual
Sneezing	Rare	Usual
Sore throat	Rare	Usual
Chest discomfort	Usual and can be severe	Sometimes, but mild to moderate
Complications	Respiratory failure; can worsen a current chronic condition; can be life-threatening	Congestion or earache
Prevention	Influenza vaccine; frequent hand-washing, cover your cough	Frequent hand-washing, cover your cough

Tool 9.6 How to Stay Healthy During the Pandemic Influenza

Personal Health

- Eat, rest well and exercise in moderation
- Wash your hands frequently with warm water and soap
- Cover your nose and mouth when coughing or sneezing
- Don't smoke
- Minimize visitors to your home
- Check up on friends and family who live alone
- Watch for regular influenza updates from your Public Health Department
- Get the influenza vaccine when available
- It is recommended that people at high risk of getting influenza and its complications and their caregivers receive an annual influenza vaccine

Washing hands is one of the most important ways to prevent the spread of the influenza

Stay away from crowds

- Stock up on basic items, such as food stuffs, personal hygiene supplies, medications and cleaning supplies
- Shop at smaller stores with smaller line-ups
- Shop at off peak hours and find out which stores stay open late/24 hours
- If possible phone ahead your grocery order for quick pick up
- Order groceries over the phone/on line for delivery
- Arrange to pay bills at ATMs, on line or over the phone
- Cancel or postpone family gatherings, outings or trips.

If you cannot avoid crowds, minimize the amount of time you spend around people

Stay healthy at work

- Work from home or arrange to work flex hours if possible
- Wash your hands frequently with warm water and soap
- Use waterless sanitizing gel to clean hands if soap & water are not available
- Clean objects and hard surfaces that are handled by many people with a disinfectant
- Keep your office door closed
- Use stairs instead of crowded elevators
- Cancel non-essential meetings: use teleconferencing/video conferencing/emails/fax

If you feel unwell, stay home, rest and drink plenty of fluids

Tool 9.7 Hand Hygiene Procedures

Description on Hand Hygiene Using Non-antimicrobial Soap and Antimicrobial Soap and Water (see attached poster)

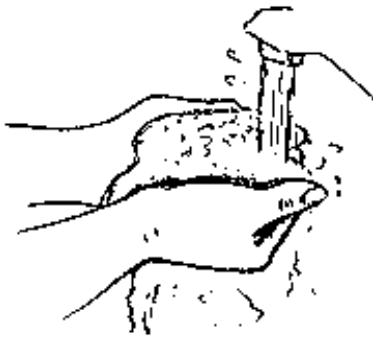
- Remove jewelry before hand washing.
- Rinse hands under warm running water.
 - RATIONALE: This allows for suspension and washing away of the loosened microorganisms.
- Lather with soap and, using friction, cover all surfaces of the hands and fingers.
- RATIONALE: The minimum duration for this step is 10 seconds; more time may be required if hands are visibly soiled.
- The influenza virus is readily inactivated by regular soap, hand wash or hand hygiene products. Frequently missed areas are thumbs, under nails, backs of fingers and hands.
- Rinse under warm running water.
 - RATIONALE: Washes off microorganisms and residual hand washing agent.
- Dry hands thoroughly with a single-use towel.
 - RATIONALE: Drying achieves a further reduction in the number of microorganisms. Avoid re-useable towels because of the potential for microbial contamination.
- Turn off faucet without re-contaminating hands (e.g. use single use towel).
 - RATIONALE: Avoids re-contamination of the hands.
- Keep fingernails short and avoid the use of fingernail polish or artificial nails.
 - RATIONALE: Chipped nail polish may increase bacterial load. Artificial nails including wraps, acrylics or tips increase bacterial load. Nail polish and artificial nails impede visualization of soil under nails.

(Adapted from the Canadian Influenza Plan, Annex F, pages 195-196)

Hand Hygiene with an Alcohol-based Hand Sanitizer (see attached poster on page 27)

Hand Hygiene with Soap and Water

**1. Remove jewelry.
Wet hands with warm
water**



2. Add soap to palms



**3. Rub hands together
to create a lather**



**4. Cover all surfaces
of the hands and
fingers**



**5. Clean knuckles,
back of hands and
fingers**



**6. Clean the space
between the thumb
and index finger**



**7. Work the finger
tips into the palms to
clean under the nails**



**8. Rinse well under
warm running water**



**9. Dry with a single-
use towel and then
use towel to turn off
the tap**



Minimum wash time 10-20 seconds.

Hand Hygiene with Alcohol-based Hand Sanitizer

1. Remove jewelry. Apply enough product to open palms.**



2. Rub hands together palms to palms



3. Rub in between and around fingers



4. Cover all surfaces of the hands and fingers



5. Rub backs of hands and fingers. Rub each thumb.



6. Rub fingertips of each hand in opposite palm



7. Keep rubbing until hands are dry.

****The volume required to be effective varies from product to product. Enough product to keep hands moist for 15 seconds should be applied.**

Do not use these products with water. Do not use paper towels to dry hands.

Note: Wash hands with soap and water if hands are visibly dirty or contaminated with blood or other body fluids. Certain manufacturers recommend washing hands with soap and water after 5-10 applications of gel.

Tool 9.8 People on Home Isolation

What is home isolation?

A person may be placed on isolation if they have an infectious illness such as influenza. In order to protect the public, Public Health Quarantine Officers can place people on isolation to prevent influenza from spreading to others. Isolation means staying at home, not going outside, not going to work, school or other public places and not meeting with other people. While at home, the person who is sick should stay isolated or away from other household members as much as possible.

Why am I on home isolation?

You are on home isolation to prevent spreading influenza to other people. It also gives you time to recover from influenza. The influenza virus is contagious for 24 hours before symptoms start and for about 7 days after the symptoms start.

How long do I have to stay on home isolation?

You will likely be on home isolation for about seven days or until symptoms disappear. Instructions on how long to remain on isolation will be provided by the Public Health Quarantine Officer or through the Vancouver Coastal Health (VCH) Influenza phone line.

What can I do to prevent the spread of influenza while under home isolation?

- The sick person should stay in one room with the door closed to separate themselves from healthy family members.
- Wash hard surfaces and items handled by the isolated person thoroughly with soap and hot water and a disinfectant such as a 10% bleach solution (made up of one part bleach and nine parts water).
- Discourage any visits from people who do not live in the house.
- All household members, including the sick person, should wash their hands frequently using soap and water or an alcohol based hand gel.
- Keep personal items, such as towels, separate from the rest of the family.
- Do not share eating utensils or drinks.
- Dishes and laundry should be washed with warm water and soap as usual

Is my family safe?

Household members should stay away from the isolated person as much as possible and try to keep a 1 meter (3 feet) distance when contact with other members of the household is unavoidable. All household members and the isolated person should wash their hands often, using soap and warm water. Healthy household members should remain on quarantine until at least three days after the symptoms in the sick person go away. (See Tool 8.9 Persons on Quarantine).

For more information contact:

You can refer to the Self Care Chapter 5 in the VCH Pandemic Influenza Plan or the BC Health Files for more information. You may seek advice from your family physician, the BC Nurse Line or from the VCH Influenza Line.

If symptoms are severe and need immediate action, call 911 (Ambulance, Paramedics) or go to the closest emergency department

BC Nurse Line:	604 215 4700 or 1-866-215-4700
VCH Influenza Line:	604 875 4252, press 3
VCH Information Line:	604 XXX XXXX

Tool 9.9 People on Quarantine

What is quarantine?

A person may be placed on quarantine if they have been in contact or exposed to person with an infectious illness such as influenza. This is because a person with influenza is infectious for 24 hours before they know they are sick. In order to protect the public, Public Health Quarantine Officers can place people on quarantine to prevent influenza from spreading to others. Quarantine means staying at home or in a designated building for 3 days from last exposure until the Public Health Quarantine Officer is sure that the person is not infected with the flu. Quarantine means not going outside, not going to work, school or other public places and not meeting with other people unless given permission by the Public Health Quarantine Officer.

Why am I on quarantine?

You have been identified as being in contact with someone who has influenza or have recently been in an area with high rate of influenza. You may have been exposed to the influenza virus and may spread it to other people. Although you feel well today, you may become ill in a few days. Persons having influenza can spread the virus even when they are still feeling well.

How long do I have to stay on quarantine?

You must stay on quarantine for at least 3 days or until a Public Health Quarantine Officer tells you that it is safe for you to be off quarantine. While on quarantine, someone from public health may call you to see how you are doing and will ask you questions about having fever, chills, aches or a cough. While on quarantine you must stay inside and not go to work or school or visit anyone until you are off quarantine. It is advised that you do not have visitors while on quarantine.

What will happen if I develop symptoms of influenza while in quarantine?

If the person on quarantine becomes ill with influenza, notify the Quarantine Officer via the Vancouver Coastal Health (VCH) Influenza phone line. If you have influenza please refer to Self Care chapter 5 in the VCH Pandemic Influenza Plan or the BC Health Files on managing pandemic influenza. You may seek advice from your family physician, the BC Nurse Line (24 hours per day, 7 days a week) or from the VCH Influenza Line. If symptoms are severe and need immediate action, call 911 (Ambulance, Paramedics) or go to the closest emergency department.

Is my family safe?

If you are on home quarantine, you and your family should take certain steps for protection. Your family should stay at least 1 meter away from you. All of you should wash your hands frequently with warm water and soap. Items handled by the person on quarantine should be washed thoroughly with soap and hot water or a disinfectant such as a 10% bleach solution (made up of one part bleach and nine parts water).

For more information contact:

BC Nurse Line	604 215 4700 or 1-866-215-4700
VCH Influenza Line	604 875 4252, press 3
VCH Information Line	604 XXX XXXX

Tool 9.10 Infection Control Guidelines for Pandemic Influenza Management

During influenza pandemic, adherence to infection control practices is extremely important to prevent transmission of influenza. Detailed descriptions of infection prevention and environmental control guidelines that can be used in traditional and non-traditional health care settings can be found in Chapter 4, Infection and Environment Control. These guidelines are based on published guidelines from the Public Health Agency of Health Canada and the Canadian Pandemic Influenza Plan.

MODE OF TRANSMISSION

Influenza is transmitted by:

- Droplet contact of the oral, nasal or possibly conjunctival mucous membranes with the oropharyngeal secretions of an infected individual
- Indirect contact from hands and articles freshly soiled with discharges of the nose and throat of an acutely ill individual
- Droplet transmission from the respiratory tract of an infected individual
- Possibly by the airborne route (controversial) during aerosolizing procedures

Period of Communicability

24 hours before onset of symptoms

- 3-5 days after onset of symptoms (may be longer in children and some adults)

***Note:** Influenza A and B can survive on hard surfaces for 24-48 hours, softer (porous) surfaces for 8-12 hours and on the hands for up to 5 minutes.*

Incubation Period

- 1-3 days

ROUTINE PRACTICES AND ADDITIONAL PRECAUTIONS TO PREVENT THE TRANSMISSION OF INFLUENZA

During the interpandemic years, Health Canada guidelines recommend routine practices for the care of all patients with the addition of droplet and contact precautions for adults presenting with acute respiratory illness and pediatric patients. Children and adults, who have the physical and cognitive abilities, should be encouraged to practice good hand hygiene and good personal hygiene.

Routine practices are the infection prevention and control practices used in the routine care of all patients at all times in all health care settings. Routine practices outline the importance of hand hygiene; the need to use gloves, masks/eye protection/face shields, and gown when splashes or sprays of blood, body fluids, secretions or excretions are possible; the cleaning of patient-care equipment, the environment; soiled linen; waste disposal; patient placement; and precautions to reduce the possibility of Health Care Worker (HCW) exposure to blood borne pathogens and other infectious pathogens.

Additional precautions are required when routine practices are not sufficient to prevent transmission. They are based on the mode of transmission and have been designed to meet the specific needs of the institutions. In addition to routine precautions, contact and droplet precautions may be required in certain situations to prevent transmission of influenza.

Droplet precautions include: the use of personal protective equipment, such as mask, goggles/face shield when providing care, placing the patient in a private room or cohorting the patient with another patient with influenza. Droplet precautions with a particulate respirator (N95 mask) should be practiced during any procedure that may result in aerosolization, e.g., respiratory intubations, bronchoscopy, and cardio-pulmonary arrest management.

Contact precautions include: wearing gloves and gowns when providing care to the patient and when in contact with frequently touched environmental surfaces or objects that may be contaminated, placing the patient in a private room or cohorting the patient with another patient with influenza.

Patient Placement

If possible, patients with influenza or influenza like symptoms should be separated from those without. In order of preference ill patients should be:

- Placed in a single room
- Cohorted in a semi-private room
- Cohorted in a ward room
- Have dedicated bathrooms
- Separated by at least one meter in other locations (avoid crowding)

Mask use during an Influenza Pandemic*

(*Refers to surgical masks, not special masks or respirators)

There is a lack of evidence that the use of masks has prevented the transmission of influenza during previous pandemics.

Masks should be worn by HCW's as outlined in routine practices when splashes or sprays of blood, body fluids, secretions or excretions to the mucous membranes of the mouth are possible or as described under contact. A particulate respirator (N95 mask) is required for organisms spread by the airborne route, e.g. TB, measles, chickenpox, or during aerosolizing procedures with a patient suspected or known to have an organisms spread by droplet transmission

Masks may be useful in the early phase in the acute care hospital during face-to-face contact with coughing individuals, especially when immunization and antivirals are not yet available. The use of masks may not be practical or helpful when transmission is widespread in a facility and in the community.

Resources for Infection Control and Prevention

- Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/99vol25/25s4/index.html>
- Infection Control Guidelines for Hand Washing, Cleaning, Disinfection and Sterilization in Health Care <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98pdf/cdr24s8e.pdf>
- Canadian Pandemic Influenza Plan: <http://www.hc-sc.gc.ca/pphb-dgspsp/cpip-pclcpi/>
- British Columbia Pandemic Influenza Preparedness Plan, Guidelines for Planning, Response and Recovery: <http://www.bccdc.org/content.php?item=150>

9.8 — NEXT STEPS

- 1) Public health human resources management strategies will need to be refined. VCH Human Resources has been contacted and a committee looking at human resources throughout the health care system has been suggested. This will take place during the next revision of the plan.
- 2) Recommendations regarding which public health measures should be implemented, considered, and not used will be refined with the publication of the next version of the Canadian Pandemic Influenza Plan, in which public health measures are specifically addressed.
- 3) Additional evidence from mathematical modeling will be used to continually update recommendations of this section.

Chapter 10

VACCINES AND ANTIVIRALS

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CHAPTER SUMMARY

Administering vaccines and antivirals during the influenza pandemic is the most direct method for minimizing morbidity and mortality. The National Advisory Committee on Immunization (NACI) produces annual recommendations on the use of the yearly influenza vaccine and defines priority groups for immunizations. NACI will also provide recommendations on the pandemic vaccine. The Canadian Influenza Plan urges jurisdictions to comply with the national recommendations, in order to facilitate equitable access to vaccine, which may be in short supply.

Depending on availability, vaccine may be restricted to priority groups or be offered to the general public. In order to avoid overwhelming the health care system, immunization of the general public will be carried out at mass vaccination clinics rather than in traditional health care facilities. This chapter describes the number of mass vaccination clinics and staff, and amount of equipment and supplies required to meet immunization targets. If available, antiviral medications will be distributed through occupational health and doctors' offices.

Secondary pneumococcal infection can be a cause of serious illness in some patients with influenza. Pneumococcal vaccine is provided at no charge to all infants in BC born after July, 2003 and to designated high risk groups, including seniors and those with compromised immune systems.

10.1 — ROLES AND RESPONSIBILITIES FOR VACCINE AND ANTIVIRALS

Roles and responsibilities for the organization and management of the VCH vaccine and antivirals program is outlined in Table 1. The main areas of action include personnel issues, preparation for mass vaccination clinics, vaccine safety, antiviral issues and the management and coordination of staff functions.

Table 1
ROLES AND RESPONSIBILITIES

ACTION	LEAD PERSON REGIONAL	LEAD PERSON HSDA	STATUS COMMENTS
Personnel - General			
Identify key vaccination clinic decision-makers and infrastructure.	Director of CDC	Director of VCH Community	
Identify and review existing regional and local emergency plans.	Regional Director of Emergency Management	Emergency Management personnel	
Identify provincial/regional chains of command for actions, decisions, and communications.	Chief Medical Health Officer (MHO)	MHO	
Determine the number of people in your Region/HSD who are in the HCW priority group for vaccine.	CDC - MHO	MHO	
Preparations for Vaccination Clinics			
Determine staff and first responders who should get vaccinated first.	CDC - MHO	MHO and Employee Health Services	
Consult with municipalities to identify vaccination clinic sites/ and secure storage areas for vaccine.	Regional Director of Emerg. Management	Emergency Management personnel	
Establish/adopt plans for clinic operations.	Director of CDC	Director of VCH Community	
Determine personnel and other resource needs for mass clinics.	Director of CDC	Director of VCH Community	
Establish a list of alternate vaccine administrators (i.e. retired health care providers)	V.P. of Employee Engagement	Employee Engagement personnel	
Plan staff training/educational materials for traditional and non-traditional providers i.e. LPN's.	Director of CDC	Educators	
Determine vaccine transport within the HSDA.	Director of Logistics	Logistics	
Consult with RCMP/Police re: vaccine security.	Director of Risk Management	Risk Management	
Identify strategies and personnel for crowd control at clinic sites.	Facilities	Facilities	
Establish methods to account for vaccines received and vaccines wasted.	Director of Logistics	Logistics	
Establish a process for monitoring vaccine coverage, and further ordering of product.	Director of CDC	Director of VCH Community	
Establish a protocol for biomedical waste management and disposal.	Director of Logistics	Logistics	

ACTION	LEAD PERSON REGIONAL	LEAD PERSON HSDA	STATUS COMMENTS
Vaccine Safety Issues			
Identify, designate and train traditional and non-traditional personnel within the region to administer vaccine and epinephrine.	CDC MHO and Educators	Educators	
Establish a strategy to conduct follow-up of adverse events.	CDC MHO	MHO	
Determine procedures for reporting vaccine use/adverse events to BCCDC.	CDC MHO	MHO	
Anti-viral Issues			
Determine the number of HCW priority group for anti-virals.	CDC MHO	MHO	
Establish a process for monitoring anti-viral coverage, and further ordering of product	CDC MHO	MHO	
Management/Coordination of Staff Functions			
Identify clinic directors	Director of CDC	Director of VCH Community	
Identify medical (physicians/nurses) screeners		Director of VCH Community	
Identify vaccine administrators		Director of VCH Community	
Identify others (volunteers)	Director of Volunteers	Volunteer Coordinator	
Identify security and crowd management	Facilities	Facilities	

10.2 — VCH ANTIVIRAL PROGRAM

As it is highly likely that pandemic influenza will reach the region before a vaccine becomes available, antivirals are expected to be the only initial virus-specific intervention available. Antiviral medication will be administered on a prioritized basis as described below.

During a pandemic, two classes of antivirals may be considered for treatment and prophylaxis; these are M2 ion channel inhibitors (cyclic amines or Amantadine) and neuraminidase inhibitors (zanamivir and oseltamivir). Neuraminidase inhibitors are preferred for the treatment of pandemic influenza because emergence of resistance during treatment is less likely than with amantadine. Also, neuraminidase inhibitors have fewer side effects and a simpler dosing schedule. Since there is no experience with the use of antivirals in a pandemic, research in outbreaks during the inter-pandemic period is used to develop an antiviral strategy. The effectiveness of antiviral drugs in a pandemic, particularly their effectiveness in reducing mortality in cases of severe disease (including viral pneumonia) is not known. If treatment with antiviral drugs is as effective in a pandemic as during seasonal influenza, early treatment (within 48 hours of onset of illness) should shorten illness by around one day, may ameliorate symptoms and should reduce hospitalizations. The WHO interim guidelines on clinical management of humans infected by influenza A (H5N1) indicates that a neuraminidase inhibitor such as oseltamivir should be used to treat infections with influenza A (H5N1) as early in the clinical course as possible. The potential uses of antivirals in a pandemic include:

1. Interpandemic and pandemic alert periods (Phases 1, 2, and 3): Antivirals may be used in occupational groups exposed to animal hosts for a novel virus for personal protection and to prevent the establishment and evolution of novel influenza viruses in people.
2. Pandemic alert period (Phases 4 and 5): At the onset of the pandemic when isolated cases and small confined outbreaks are occurring, antiviral drugs may have a role in trying to contain the infection or delay or slow its spread. If this strategy is employed, it is likely to be a short-term strategy.
3. Pandemic period (Phase 6): Antiviral medications may be used, depending on availability, according to the priority groups as described below.

Priority Groups for Antivirals

The Antivirals Working Group of the Canadian Pandemic Influenza Committee determined priority groups for antiviral administration. These priority groups are tentative and will be updated as more information about the pandemic virus becomes available.

In decreasing priority:

1. Treatment of people hospitalized for influenza
2. Treatment of ill health care and emergency services workers
3. Treatment of ill high-risk people* in the community
4. Prophylaxis of health care workers
5. Control of outbreaks in high-risk residents of institutions (nursing homes and other chronic care facilities)
6. Prophylaxis of essential care workers (police, fire, correctional services, armed forces, key emergency response decision makers, funeral service, utilities, telecommunications, public transport and transportation of essential goods)
7. Prophylaxis of high-risk people hospitalized for illnesses other than influenza
8. Prophylaxis of high-risk people in the community

***Note:** definition of high-risk persons may change based on the epidemiology of the pandemic strain. Currently, the following people are considered to be at high risk for the complications of influenza.

- Adults and children with chronic cardiac or pulmonary disorders (including bronchopulmonary dysplasia, cystic fibrosis, and asthma) severe enough to require regular medical follow-up or hospital care
- People of any age who are residents of nursing homes and other chronic care facilities.
- People ≥ 65 years of age
- Children aged 6-23 months of age (note that Oseltamivir Phosphate is not licensed for children under 1 year of age)
- Adults and children with chronic conditions, such as diabetes mellitus and other metabolic diseases, cancer, immunodeficiency, immunosuppression (due to underlying disease and/or therapy), renal disease, anemia, and hemoglobinopathy.
- Children and adolescents (aged 6 months to 18 years) with conditions treated for long periods with acetylsalicylic acid.

Antiviral Medications for Influenza: Information for Health Care Providers

M2 Ion Channel Inhibitors (Amantadine and Rimatidine)

Only amantadine is licensed in Canada. Amantadine hydrochloride is an antiviral agent that interferes with the replication cycle of influenza A virus through the blocking of ion channels of the cell membrane. It is not effective against influenza B.

Indications: During seasonal influenza outbreaks, amantadine is used for both prophylaxis and treatment of influenza. Due to concerns about emergence of resistance, the Canadian plan recommends that amantadine be used **only for prophylaxis during a pandemic**.

Contraindications: Known hypersensitivity to the drug. There are no studies on the safety and efficacy of amantadine in children under 1 year of age. Amantadine is not recommended for use in pregnant and lactating women unless the benefits clearly outweigh the risks.

Precautions: Amantadine is eliminated from plasma wholly by renal tubular secretion and glomerular filtration; the liver does not metabolize it. Therefore, in people with **reduced renal function, particularly the elderly**, toxic levels can occur if the dosage is not reduced.

Recommended prophylactic dosages by age and renal function are shown in Table 2. In patients with dialysis-dependent renal failure, the half-life of amantadine is 200 ± 36 hours. It should be noted that the calculated creatinine clearance is reasonably accurate for those with a creatinine clearance >40 mL/min and those with a stable serum creatinine level and muscle mass. However, the calculation becomes less accurate when these conditions are not met. In particular, elderly persons with renal impairment and low muscle mass may have a serum creatinine in the normal range and an estimated creatinine clearance that is higher than the true value. Physicians who prescribe amantadine must be familiar with the limitations of formulas to estimate creatinine clearance, and make clinical decisions regarding dosage adjustments based on these considerations. Amantadine dosage should be reduced in people with a **seizure disorder** in order to avoid the risk of increased frequency of seizures, and these individuals should be closely observed.

Dose: Amantadine dosage recommendations for prophylaxis of influenza A infection are presented in Table 2. Any adjustments for renal function should be made in addition to adjustments for age. Particular caution should be paid to dosages in those > 65 years of age, among whom some degree of renal impairment is common. Dosages may be adjusted according to calculated or laboratory-confirmed creatinine clearance. In care facilities for the elderly, serum creatinine levels measured up to 12 months previously can be safely used to estimate creatinine clearance. It should be noted that although table 1 presents the recommended dosage schedule for amantadine prophylaxis, a few studies suggest that a prophylactic dose of 100 mg daily in those 10 to 64 years of age and in children weighing > 20 kg who have normal renal function may be as effective as the recommended dose of 200 mg daily.

An alternative, once daily dosage regimen for persons > 65 years of age, based on renal function, is shown in Table 3. This new dosage regimen is based on pharmacokinetic modeling, which suggests that it should be as effective and safe as the standard regimen presented in Table 2.

Table 2**RECOMMENDED AMANTADINE HYDROCHLORIDE PROPHYLACTIC DOSAGE BY AGE AND RENAL STATUS**

Creatinine Clearance mL/min/1.73m²	Dosage		
	1 to 9 Years^a	10 to 64 Years	Over 65 Years
NO RENAL IMPAIRMENT			
NA	5 mg/kg once daily, or divided, twice daily, total daily dose not to exceed 150 mg	200 mg once daily, or divided twice daily ^c	100 mg once daily ^c
RENAL IMPAIRMENT PRESENT			
≥ 80 mL/min	NA	100 mg twice daily	100 mg once daily
60-79 mL/min	NA	Alternating daily doses of 200 mg and 100 mg	Alternating daily doses of 100 mg and 50 mg
40-59 mL/min	NA	100 mg once daily	100 mg every 2 days
30-39 mL/min	NA	200 mg twice weekly	100 mg twice weekly
20-29 mL/min	NA	100 mg three times / week	50 mg three times / week
10-19 mL/min	NA	Alternating weekly doses of 200 mg and 100 mg	Alternating weekly doses of 100 mg and 50 mg

^a Use in children < 1 year of age has not been evaluated adequately

^b Reduction of dosage to 100 mg/day is recommended for people with a seizure disorder, because they may be at risk of more frequent seizures when the dosage is 200 mg/day

^c For children who are > 10 years of age but who weigh < 40 kg, a dosage of 5 mg/kg/day is advised regardless of age.

Length of administration: Amantadine was given for 10 days in studies of post exposure prophylaxis of household contacts of index cases with influenza. Amantadine has been given for up to 16 weeks in pre-exposure prophylaxis studies.

Potential Side Effects: In otherwise healthy young adults, given amantadine prophylactically, 5 to 10% report **difficulty concentrating, insomnia, light-headedness, and irritability**. These side effects are usually mild and cease shortly after the prophylaxis is stopped; however, they can be more frequent in the older population unless the dose is reduced.

Serious side effects (e.g. marked behavioural changes, delirium, hallucinations, agitation, seizures) have been associated with high plasma drug concentrations. These have been observed most often in persons who have renal insufficiency, seizure disorders, or certain psychiatric disorders, and among elderly persons who have been taking amantadine as prophylaxis at a dose of 200 mg/day. Lowering the dosage among these persons is effective in reducing the severity of such side effects.

Drug interactions: Drug interactions have been noted during concurrent administration of amantadine with triamterene and hydrochlorothiazide, trimethoprim-sulphamethoxazole, quinine, and quinidine. The patient's age, weight, renal function, comorbid conditions, current medications as well as the indications for amantadine use should all be considered prior to initiating this medication. Individuals who are given amantadine should be carefully monitored for side effects.

Table 3

PROPOSED ONCE DAILY DOSING SCHEDULE FOR AMANTADINE SOLUTION (10mg/mL)
IN PERSONS > 65 YEARS^a

Creatinine Clearance	Initial dose (day 1)	Subsequent doses (starting day 2)
80 mL/min or greater	100 mg	100 mg/day (10 mL)
60-79 mL/min	100 mg	75 mg/day (7.5 mL)
40-59 mL/min	100 mg	50 mg/day (5 mL)
20-39 mL/min	100 mg	25 mg/day (2.5 mL)
10-19 mL/min	100 mg	^b

^a Table reproduced with permission of McGeer *et al* and the *Canadian Journal of Infectious Diseases*. Daily dosing increments set at 2.5 mL to permit the use of medicine

^b No daily dose; if outbreak continues, repeat 100 mg dose every 7 days during the outbreak.

Neuraminidase Inhibitors - Oseltamivir Phosphate(Tamiflu®)

These are selective inhibitors of influenza virus neuraminidase enzymes. They are effective against both Influenza A and Influenza B viruses

Indications:

Prophylaxis - Oseltamivir is licensed for prophylaxis of both Influenza A and Influenza B in adults and adolescents ≥ 13 years of age.

Treatment - Oseltamivir is licensed for treatment of both Influenza A and Influenza B in adults, adolescents and children aged ≥ 1 year of age.

Contraindications - Known hypersensitivity to any component of the drug. Oseltamivir should not be used in children under 1 year of age. There is insufficient data to evaluate the safety of Oseltamivir in pregnancy. Lactating women who are nursing children under one year of age should not use Oseltamivir. Oseltamivir is converted to oseltamivir carboxylate by esterases located predominantly in the liver. The safety and efficacy of oseltamivir in those with hepatic impairment has not been established

Precautions: No dose adjustment is necessary with a creatinine clearance above 30 mL/min. A recent serum creatinine or creatinine clearance result based on a 24-hour urine collection is not required before starting oseltamivir prophylaxis, unless there is reason to suspect significant renal impairment. For those with a creatinine clearance of 10-30 mL/min, the dosage of oseltamivir should be reduced to 75 mg every other day, or 30 mg of suspension every day orally. No dosing recommendation is available for patients with a creatinine clearance of < 10 mL/min and those undergoing hemodialysis and peritoneal dialysis.

Dose :

Prophylaxis - For post-exposure prophylaxis, the dose is 75 mg o.d.

Treatment - In adults and adolescents ≥ 13 years of age, 75 mg b.i.d

In children (≥ 1 year to < 13 years): Oral suspension

Weight:	< 15 kg:	30 mg b.i.d.
	> 15 kg to 23 kg:	45 mg b.i.d.
	> 23 kg to 40 kg:	60 mg b.i.d.
	> 40 kg:	75 mg b.i.d

Length of administration:

Prophylaxis - For post-exposure prophylaxis, therapy should begin within 48 hours of exposure to the index case, and continue for at least 7 days. If the *index case* is a child or elderly person and exposure is ongoing, therapy may continue for up to 14 days, since viral shedding may occur in these individuals for up to 14 days after the onset of influenza illness. In a pandemic, prophylaxis may need to be continued for longer if exposure is ongoing.

Treatment - Therapy should begin within 48 hours of symptom onset and should be continued for 5 days even if symptoms have resolved.

Side effects: The most common adverse events reported in oseltamivir prevention studies using doses of 75 mg once daily are headache, fatigue, nausea, cough, diarrhea, vomiting, abdominal pain, insomnia, and vertigo. However, the difference in incidence between oseltamivir and placebo was $\geq 1\%$ only for headache, nausea, vomiting, and abdominal pain.

Drug Interactions: Co-administration of probenecid results in a two-fold increase in exposure to oseltamivir carboxylate, the active metabolite of oseltamivir, as a result of increased active tubular secretion in the kidney.

Antiviral Medications: Information for the Public

OSELTAMIVIR (Tamiflu®)

Why is this medicine prescribed?

Oseltamivir (Tamiflu®) is provided for you because:

- You have been exposed to a novel strain of influenza
- You are a contact of an individual infected with a novel strain influenza
- You may be exposed to pandemic strain influenza in your work place
- You are providing care to individuals who may be infected with pandemic strain influenza
- You have been infected with a novel/pandemic strain influenza.

Oseltamivir can be used to prevent influenza in people who have been or may be exposed to the influenza virus. Oseltamivir can also be used to treat people who have already been infected with the influenza virus.

How is this medicine taken?

Oseltamivir can be taken with or without food. You should take all the pills prescribed to you, even if you are feeling better.

What precautions should be taken before taking this medication?

You should not take this medication if you have had a serious allergic reaction to any components of the drug. You should tell your doctor if you are or may be pregnant, are nursing a child under one year of age, or have liver problems. Oseltamivir should not be given to children under 1 year of age.

What drug(s) may interact with Oseltamivir?

Drug interactions with Oseltamivir are unlikely. However, you should inform your health care provider of other medications you are taking.

What side effects can Oseltamivir cause?

- Nausea
- Vomiting
- Abdominal Pain
- Headache

If you experience any unexpected or serious symptoms while taking this medication, inform your doctor or nurse.

AMANTADINE (Symmetrel®)**Why is this medicine prescribed?****AMANTADINE (Symmetrel®) is provided for you because**

- You have been exposed to a novel strain of influenza
- You are a contact of an individual infected with a novel strain influenza
- You may be exposed to pandemic strain influenza in your work place
- You are providing care to individuals who may be infected with pandemic strain influenza

Amantadine is used to prevent influenza in people who have been or may be exposed to the influenza virus.

How is this medicine taken?

Amantadine can be taken with or without food. You should take all the pills prescribed to you, even if you are feeling better.

What precautions should be taken before taking this medication?

You should not take this medication if you have had a serious allergic reaction to any components of the drug. You should tell your doctor if you are or may be pregnant, are nursing a child under one year of age, or have kidney, liver, or heart problems, eczema, seizures or psychiatric illness.

Amantadine should not be given to children under 1 year of age.

What drug(s) may interact with Amantadine?

Medications taken for Parkinson's disease, or epilepsy may interact with Amantadine. Inform your provider if you are taking any medications.

What side effects can Amantadine cause?

- Nausea
- Dizziness
- Insomnia
- Confusion
- Anxiety/depression

If you experience any unexpected or serious symptoms while taking this medication, inform your doctor or nurse.

Adverse Drug Reaction Reporting:

In a pandemic, antiviral medications may be used for longer periods than indicated for prophylaxis during seasonal influenza epidemics. Therefore, monitoring of adverse drug reactions will become particularly important.

Suspected adverse reactions to either antiviral medication should be reported through the Canadian Adverse Drug Reaction Monitoring Program. These reports should be made by the provider of the antiviral medication, when an adverse reaction occurs after the administration of a drug. Since the provider may not know if the reaction is a **result** of the medication, these reactions are referred to as suspected adverse drug reactions. Suspected adverse drug reactions should be reported by the medication provider if the adverse reaction is:

- **unexpected**, regardless of its severity (not consistent with product information or labeling);
- **serious** *, whether expected or not;
- in an individual for whom the medication was recently licensed (in the last five years)

*A serious adverse reaction is one which requires inpatient hospitalization or prolongation of existing hospitalization, causes congenital malformation, results in persistent or significant disability or incapacity, is life-threatening or results in death. Adverse reactions that require significant medical intervention to prevent one of these outcomes are also considered to be serious.

The adverse drug reaction reporting form can be found on the Health Canada website at:

<http://www.phac-aspc.gc.ca/dird-dimr/pdf/hc4229e.pdf>

Issues Under Consideration

The federal, provincial and territorial governments control the supply and distribution of available anti-influenza drugs during a pandemic. The federal government has committed resources to stockpiling Oseltamivir. The number of doses that will be allocated to British Columbia is yet to be determined. Depending on the adequacy of the federal supply, additional provincial stockpiling may need to be considered

10.3 — VCH PANDEMIC VACCINE PROGRAM

The main objectives of the pandemic vaccine initiative, as defined by the Canadian Influenza Plan, are to provide the public, as rapidly as possible, with a safe and effective vaccine. This entails **allocating, distributing and administering the vaccine** to appropriate groups and to monitor the safety and effectiveness of the program. At the regional and local levels, the administration of vaccines involves establishing and operating **mass vaccination clinics** for the immunization of the entire population, or alternatively of **priority subgroups**, as vaccine availability dictates. This section describes the procedures and requirements for operating mass vaccination clinics at VCH. The VCH vaccine plan is based on local population estimates, incorporating population immunization targets set forth in the Canadian Pandemic Influenza Preparedness Plan. Estimates for the number of clinic sessions, clinic sites, staff and supplies required for the immunization campaign, as well as the formulas employed to compute them, are presented in detail to facilitate updates of key quantities as parameters change.

Increasing vaccine uptake is one of the regional and local pre-pandemic responsibilities identified by the British Columbia Pandemic Influenza Preparedness Plan. Therefore, prior to a detailed discussion of mass vaccination clinics, a brief outline of ongoing VCH activities supporting increased vaccine uptake is provided.

Vaccine Priority Groups

If vaccine supply is adequate, the Canadian Pandemic Influenza Preparedness plan indicates that plans should aim to immunize the entire population in 4 months. In the more likely event of a vaccine shortage, vaccine will be distributed on a prioritized basis. Estimates of the number of people in each priority group in VCH are provided in Table 4. Priority groups as well as the definitions of high-risk groups will need to be re-examined and potentially re-defined as information about epidemiology of the pandemic virus becomes available. At this time, the anticipated priority groups for vaccination are

Group 1:

Health care workers, paramedics/ambulance attendants and public health workers in

- acute care hospitals
- long term care facilities/nursing homes
- private physician's offices
- home care and other community care facilities
- public health offices
- ambulance and paramedic services
- pharmacies
- laboratories

Group 2:

Essential service providers

- police
- fire-fighters
- the armed forces
- key emergency response decision makers
- utility workers
- funeral service/mortuary personnel
- people who are employed in public transportation and the transportation of essential goods (such as food)

Group 3:

Persons at high-risk of severe or fatal outcomes following influenza infection

- Adults and children with chronic cardiac or pulmonary disorders (including bronchopulmonary dysplasia, cystic fibrosis, and asthma) severe enough to require regular medical follow-up or hospital care
- People of any age who are residents of nursing homes and other chronic care facilities
- People ≥ 65 years of age
- Children aged 6-23 months of age (current vaccines are not recommended for children under 6 months of age)
- Adults and children with chronic conditions, such as diabetes mellitus and other metabolic diseases, cancer, immunodeficiency, immunosuppression (due to underlying disease and/or therapy), renal disease, anemia, and haemoglobinopathy.
- Children and adolescents (aged 6 months to 18 years) with conditions treated for long periods with acetylsalicylic acid.

Group 4:

Healthy adults

Group 5:

Children 24 months to 18 years of age

Increasing Vaccine Uptake

To support the maintenance of a high level of production capacity for manufacturing adequate supplies of vaccine for the next influenza pandemic, the British Columbia Influenza Plan lists **increasing vaccine uptake** among the regional and local interpandemic activities. Nationwide, provinces and territories vary with respect to their immunization target populations. Most jurisdictions have influenza vaccination programs in place for high-risk groups while some provinces and territories have expanded their campaigns to the general public. Vancouver Coastal Health conducts a **yearly influenza campaign** primarily targeting high-risk groups but also promoting influenza vaccinations for the wider public. VCH has implemented a Health Care Worker influenza vaccination policy. Health care workers (HCW) who are not vaccinated can be excluded from the workplace in the event of an influenza outbreak. Vaccine is provided on-site for this group. Long Term Care Facilities (LTCF) are given an influenza binder of information which is updated annually. LTCFs are provided with in-services on the benefits of resident and staff influenza immunization. VCH runs yearly **community clinics** to facilitate vaccination of high-risk groups. At the beginning of the influenza season a press conference is held to promote influenza vaccination. Medical Health Officers are engaged in media interviews, which further promote immunization against influenza.

Pneumococcal Vaccine

Pneumococcal infections are caused by bacteria and can cause serious **secondary infections in people with influenza**. These bacteria cause different infections, including infections of the brain (meningitis) bloodstream (bacteremia) lungs (pneumonia) or middle ear (otitis media). The bacteria are spread from the nose and throat of one person to another through close direct contact like kissing, coughing or sneezing or through saliva when people share food, cups, water bottles, straws or toothbrushes. Since 2003, **pneumococcal conjugate vaccine has been provided free to all infants starting at two months of age** in British Columbia. **Pneumococcal polysaccharide vaccine is recommended for and is provided free to adults who are at high risk** of getting serious infections. These groups include:

- Those 65 years of age or older
- Residents of residential care facilities
- People aged 2 to 64 years with:
 - Asplenia
 - Sickle-cell disease
 - Any condition associated with a weakened immune system, such as HIV disease, haematopoietic stem cell transplantation, solid organ transplantation or certain cancers (e.g., leukemia, lymphoma, Hodgkin's Disease, multiple myeloma)
 - Conditions requiring ongoing high dose oral corticosteroid use (e.g., 2mg/kg of prednisone or a maximum daily dose of 20mg for more than two weeks)
 - Chronic heart or lung disease (except asthma)
 - Chronic kidney disease
 - Chronic liver disease, including cirrhosis, chronic hepatitis B, chronic hepatitis C
 - Diabetes mellitus
 - Alcoholism
 - Chronic cerebral spinal fluid leak
 - A cochlear implant

Possible Vaccine Reactions

Vaccine side effects are usually mild and include a slight fever or soreness or redness where the needle was given. With any vaccine or drug, there is the possibility of a shock-like allergic reaction (anaphylaxis). This can include hives, swelling around the throat, wheezy breathing or swelling of some part of the body. If this happens, particularly any difficulty in breathing, immediately go to your doctor or hospital emergency department. It is suggested that people stay in the clinic for at least 15 minutes after receiving any type of immunization.

Report serious reactions to your local public health nurse or family doctor.

NOTE: Acetaminophen (e.g., Tylenol®) is recommended if there is fever or pain following immunization. Acetylsalicylic Acid (ASA or Aspirin®) is NOT recommended for children or teenagers.

Warning: Consult with the public health nurse or your family doctor before receiving the vaccine if you or your child has a moderate or severe acute illness, with or without fever, or a history of shock-like allergic reaction (anaphylaxis) to a previous dose of ANY pneumococcal vaccine, to any component of the vaccine or to latex.

Influenza Vaccine: Influenza vaccine is recommended for people at high risk of getting influenza and pneumococcal infections and for people who already get pneumococcal vaccine. It is safe to get both vaccines at the same time. The vaccines are injected into different places using different needles. The number and severity of side effects is not increased when pneumococcal vaccine is given at the same time as influenza vaccine.

For more information about pneumococcal vaccine contact the BC NurseLine to speak to a registered nurse, available 24 hours every day or visit: <http://www.bchealthguide.org/healthfiles/hfile62b.stm>

Mass Vaccination Clinics

Once the vaccine for the pandemic influenza strain becomes available, mass vaccination clinics will be established to efficiently handle the large number of people expected to seek vaccination. An overview of the details of setting up and managing mass vaccination clinics is given in the Supplementary Information section of this chapter. Implementation of the vaccine plan during the pandemic has to take into account the size of the current population, availability of the vaccine and antiviral medications and the epidemiology of the disease. With a number of variables, it is important that data are on hand to produce accurate estimates that reflect prevailing conditions. Thus, the aim of the following sections is to present relevant data to facilitate future calculations of quantities needed for decision-making.

Table 4

ESTIMATED NUMBERS OF INDIVIDUALS IN PRIORITY GROUPS FOR VACCINATION IN VCH

a). Number Health Care Workers in VCH

Institution	Medical Staff	Total
Vancouver Acute ^a (VGH/UBC)		9,268
Vancouver Community		1200
Vancouver Residential Care		7296
Providence Health ^b		5,570
Brock Fahmi	143	
Holy Family Hospital	325	
Langara	191	
Mt.St. Joseph's	806	
Youville	101	
St. Paul's	4,004	
Richmond ^a		2300
Richmond Acute Care	1052	
Richmond Long Term Care Facilities	848	
Richmond Community	400	
North Shore ^a		4177
North Shore Acute Care	1913	
North Shore Long Term Care Facilities	1664	
North Shore Community	600	
Coast Garibaldi ^a		1301
Coast Garibaldi Acute	649	
Coast Garibaldi Long Term Care Facilities	502	
Coast Garibaldi Community	150	
BC Children's, BC Women's, Sunnyhill ^b		4,700
Total		35812

b) Number of Essential Service Providers in VCH

Service Provider	Number
Paramedics VCH	718
Fire Departments	1425
Vancouver	800
Richmond	225
North Shore/Coast Garibaldi	400
Police	
Vancouver	1400
Richmond	171
North Shore/Coast Garibaldi	162
Emergency Service Committees (Municipal/Local Government)	
Funeral service/mortuary personnel	
Personnel who work with institutionalized populations (jails, group homes)	
Public transit workers (will need to define on an HSDA basis)	
Workers who transport essential goods	
Utility workers (water, natural gas, propane, electricity, sewage, waste)	
Essential communications personnel	
TOTAL	3876

c). Number of High Priority Individuals for Vaccination Among the General Population

Location	Age Group: ≤ 1 to 19 Years				Age Group: 20 to 64 Years				Age Group: ≥ 65 Years			
	High Risk		Other		High Risk		Other		High Risk		Other	
	Estimate		Estimate		Estimate		Estimate		Estimate		Estimate	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
VCH	12,385	22,705	183,707	194,027	99,845	178,294	534,881	613,331	53,969	74,207	60,715	80,953
Richmond	2,315	4,244	34,335	36,264	16,564	29,578	88,733	101,747	8,678	11,932	9,763	13,017
Vancouver	6,406	11,745	95,025	100,364	59,087	105,512	316,536	362,961	29,829	41,015	33,557	44,743
NS	2,461	4,512	36,509	38,560	16,698	29,818	89,453	102,572	10,992	15,115	12,366	16,489
CG	1,203	2,205	17,837	18,839	7,496	13,387	40,160	46,050	4,470	6,146	5,028	6,704

Mass Vaccination Clinics: Number of Clinics Needed

Tables 5 a to h describe the number of mass immunization clinics that are expected to be operating in the Vancouver Coastal HSDA under various assumptions regarding vaccine availability, number of doses of vaccine required and mass immunization clinic capacity. Most of the region can set up clinics to immunize 2500 individuals within an 8-hour shift, or 3750 within a 12-hour shift. Coast Garibaldi is an exception with an estimated capacity of immunizing 1000 people during an 8-hour shift. If there is a vaccine shortage, immunization will be carried out based on priority groups.

Table 5

NUMBERS OF MASS VACCINATION CLINICS OPERATED BY VCH PROVIDED THERE IS NO SHORTAGE OF VACCINE NS = North Shore, CS = Coast Garibaldi

a). ASSUMPTIONS

Number of vaccine doses / person: Two

Vaccine availability: No shortage

Mass immunization target: 100% of population in 4 months (17 weeks)

Clinic capacity: 2500 doses / day and 8-hour shifts

Location	Population	Number of Doses	Total Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	2,068,644	827	49	7
Richmond	177,916	355,832	107	8	1
Vancouver	584,299	1,168,598	351	27	4
NS / CG	272,107	544,214	163	13	2

^a Note that these values may be imprecise due to round-off error. For purposes of planning weekly number of clinics should be used.

b). ASSUMPTIONS

Number of vaccine doses / person: Two

Vaccine availability: No shortage

Mass immunization target: 100% of population in (4 months) 17 weeks

*Clinic capacity: Vancouver, Richmond, NS: 2500 doses / day and 8-hour shifts
Coast Garibaldi: 1000 doses / day and 8 hour shifts*

Location	Population	Total Number of Doses	Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	2,068,644	929	55	8
Richmond	177,916	355,832	142	8	1
Vancouver	584,299	1,168,598	467	27	4
NS	187,280	374,560	150	9	1
CG	84,827	169,564	170	10	1

^a Note that these values may be imprecise due to round-off error. For purposes of planning weekly number of clinics should be used.

Table 5 continued**c). ASSUMPTIONS***Number of vaccine doses / person: One**Vaccine availability: No shortage**Mass immunization target: 100% of population in 17 weeks**Clinic capacity: 2500 doses / day and 8-hour shifts*

Location	Population	Total Number of Doses	Total Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	1,034,322	414	24	3
Richmond	177,916	177,916	71	4	<1
Vancouver	584,299	584,299	234	14	2
NS / CG	272,107	272,107	109	6	<1

^a Note that these values may be imprecise due to round-off error. For purposes of planning weekly number of clinics should be used.

d). ASSUMPTIONS*Number of vaccine doses / person: One**Vaccine availability: No shortage**Mass immunization target: 100% of population in 4 months (17 weeks)*

Clinic capacity: Vancouver, Richmond, NS: 2500 doses / day and 8-hour shifts
Coast Garibaldi: 1000 doses / day and 8 hour shifts

Location	Population	Total Number of Doses	Total Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	1,034,322	465	27	4
Richmond	177,916	177,916	71	4	<1
Vancouver	584,299	584,299	234	14	2
NS	187,280	187,280	75	4	<1
CG	84,827	84,827	85	5	<1

^a Note that these values may be imprecise due to round-off error. For purposes of planning weekly number of clinics should be used.

Table 5 continued**e). ASSUMPTIONS***Number of vaccine doses / person: Two**Vaccine availability: No shortage**Mass immunization target: 100% of population in four months (17 weeks)**Clinic capacity: 3750 doses / day and 12-hour shifts*

Location	Population	Total Number of Doses	Total Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	2,068,644	552	32	5
Richmond	177,916	355,832	95	6	<1
Vancouver	584,299	1,168,598	312	18	3
NS / CG	272,107	544,214	145	9	1

^a Note: that these values may be imprecise due to round-off error. For purposes of planning weekly number of clinics should be used

f). ASSUMPTIONS*Number of vaccine doses / person: Two**Vaccine availability: No shortage**Mass immunization target: 100% of population in 17 weeks*

Clinic capacity: Vancouver, Richmond, NS: 3750 doses / day and 12-hour shifts
Coast Garibaldi: 1500 doses / day and 12- hour shifts

Location	Population	Total Number of Doses	Total Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	2,068,644	620	36	5
Richmond	177,916	355,832	95	6	<1
Vancouver	584,299	1,168,598	312	18	3
NS	187,280	374,560	100	6	<1
CG	84,827	169,654	113	7	1

^a Note that these values may be imprecise due to round-off error. For purposes of planning weekly number of clinics should be used

Table 5 continued**g). ASSUMPTIONS***Number of vaccine doses / person: One**Vaccine availability: No shortage**Mass immunization target: 100% of population in 4 months(17 weeks)**Clinic capacity: 3750 doses / day and 12-hour shifts*

Location	Population	Total Number of Doses	Total Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	1,034,322	276	16	2
Richmond	177,916	177,916	47	3	< 1
Vancouver	584,299	584,299	156	9	1
NS / CG	272,107	272,107	73	4	1

^aNote that these values may be inaccurate due to round-off error. For purposes of planning weekly numbers of clinics should be used

h). ASSUMPTIONS*Number of vaccine doses / person: One**Vaccine availability: No shortage**Mass immunization target: 100% of population in 17 weeks*

Clinic capacity: Vancouver, Richmond, NS: 3750 doses / day and 12-hour shifts
Coast Garibaldi: 1500 doses / day and 12- hour shifts

Location	Population	Total Number of Doses	Number of Clinics	Number of Clinics / Week	Number of Clinics / Day ^a
VCH	1,034,322	1,034,322	310	18	3
Richmond	177,916	177,916	47	3	< 1
Vancouver	584,299	584,299	156	9	1
NS	187,280	187,280	50	3	< 1
CG	84,827	84,824	57	3	< 1

^aNote that these values may be imprecise due to round-off error. For purposes of planning weekly numbers of clinics should be used.

Mass Vaccination Clinics: Staff

Number of Staff: Additional staff will be required to operate mass vaccination clinics. Potential sources of additional immunizers include health care students, recently retired health care workers, allied health professionals and emergency response personnel. Private physicians may also choose to provide influenza vaccine, but they are not likely to be involved in mass clinics. Table 6 lists the number of private physicians in practice in VCH. Table 7 provides current estimates of these potential sources of immunizers. Some estimates could not be obtained but are listed as they should be considered when additional immunizers are sought. The number of staff required for each clinic is provided in Table 8.

Table 6

ESTIMATES OF CURRENTLY PRACTICING VCH HEALTH CARE PROFESSIONALS

b) Physicians Registered with the College of Physicians and Surgeons of BC

HSDA	Number
Vancouver	2,663
Richmond	258
North Vancouver	206
West Vancouver	105
Coast/Garibaldi	49
Total for VCH	3361

Table 7

ESTIMATES OF POTENTIAL POOLS OF ADJUNCT HEALTH CARE WORKERS

b). Medical Students

University or College	Number
UBC - Faculty of Medicine	584
UBC - School of Nursing	600
UBC - School of Rehabilitation Sciences	175
Langara College of Nursing	300
UVic - School of Nursing (Langara Campus)	140
Vancouver Community College: LPN program	48
Vancouver Community College: Home Support	40
TOTAL	1887

c). Allied Health Professionals

Health Professional	Number
Physiotherapists	700 ^a
Occupational Therapists	400
Environmental Health Officer	75
Dentists	1000
Pharmacists	
TOTAL	

^a Rough estimate to be verified

d). Essential Service Providers

Service Provider	Number
Paramedics VCH	718
Fire Departments	1425
Vancouver	800
Richmond	225
North Shore/Coast Garibaldi	400
Police	
Vancouver	1400
Richmond	171
North Shore/Coast Garibaldi	162
TOTAL	3876

Table 8

STAFF REQUIRED FOR MASS VACCINATION CLINICS SUBDIVIDED BY FUNCTIONAL AREA

Functional Area	Number
Clinical Staff	
Registration	1
Pre-intervention Patient Holding/ Waiting	2
Intervention	16
Medical Care and holding	1
Subtotal	20
Volunteer Staff	
Registration	4
Patient Flow	1
Intervention	2
Post-intervention holding	1
Subtotal	8
Logistic Staff	
General Administration/ Finance	1
Medical Supply/General Supply	1
Receiving	
Transportation	1
Cleaners	1
Subtotal	4
Security Staff	
Parking and traffic control	1
Crowd control	1
Facility security	2
Subtotal	4
TOTAL	36

Staff Rotations

The number of staff required to run a single mass vaccination clinic session of either 12 hours or 8 hours is shown in table 9. A 12 hour-shift corresponds to 11 paid hours while an 8 hour-shift corresponds to 7.2 paid hours. These numbers multiplied by the total number of clinic sites provide the total staff requirement for a health area.

Table 9
STAFF ROTATIONS

Staff Required (Number)	Number of Staff / 12 Hours	Number of Staff / 8 Hours
Team Leader (1)	2.23	1.46
Nurses (20)	44.66	29.23
Volunteers (8)	17.86	11.69
Clerical (2)	4.47	2.92
Security (2)	4.47	2.92

Training

In order to maximize personnel for vaccine administration, the local health authority will need to rapidly train and deploy local personnel such as retired nurses and physicians, midwives, pharmacists, lab technicians, veterinarians, and paramedics.

Rapid training for vaccine administration can be conducted in large groups in a school gymnasium or cafeteria, through use of training videos, hand-outs, and overheads, followed by live demonstrations on trainees, and practice vaccinations by trainees on each other.

An integral component to influenza vaccination training is the ability to screen for contraindications, identify symptoms of illness and possibly influenza, and educate vaccine recipients on reporting adverse events. In some clinics, different personnel may perform these different functions.

Certification in Action:

In the event of a pandemic we need to do what is reasonable. Immunization certification would be waived and we proceed with whomever has been taught to give injections within the scope of their practice.

Staff Orientation and Job Action Sheets

There are certain aspects of the clinical operation such as human resources policies and documents, patient registration and intervention records, and treatment protocols for acute vaccine reactions that are determined ahead of time.

It must be recognized that specific training will be developed on very short notice with very limited training time, so both trainers and staff may well be learning on the job. Orientation and training material should be presented in a lecture format, with written manuals containing this information available in work and rest areas for easy staff reference.

The objective of orientation and training is to ensure staff are provided with information on the disease, vaccine and adverse events. They also need information on when and where they will be working, how to perform their job safely, where their supplies and resources are located and whom to contact for assistance. Education and training will be ongoing as new information is obtained.

See below for more detailed information pertaining the orientation and training of the following groups:

- Clinical staff
- Volunteer staff
- Logistic staff
- Security staff
- Others

The key clinic coordination personnel should be provided their relevant section to set up the necessary program. Job action sheets for clinical staff, volunteers and “others” are found in Forms and Tools section.

Mass Vaccination Clinics: Clinic Sites

During the period of mass immunization, community centres and schools will not be operating as usual. It is assumed that normal operations, programs and services will be suspended and facilities will be available for holding mass vaccination clinics. The list of sites selected for holding mass vaccination clinics is shown in Table 10.

A site selected for holding mass clinics must meet specific space requirements and it must have adequate capacity to handle the expected traffic flow. For most sites, the target for immunizations is 2500 individuals/day for 17 weeks. This target assumes that a day consists of an 8 hour shift. Capacity can be increased by running clinics for 12 hour shifts. For remote communities with lower population densities in the Coast Garibaldi region, the daily target is set instead at 1000 vaccinations/day. In all cases, the facility should be set up as a mass clinic with designated areas assigned to specific activities as follows:

- **Reception Area** - The reception area is in the designated “lobby” area to “meet and greet” clients. The reception area is supervised by VCH security at all times.
- **Orientation and Registration Area** – probably the largest room where clients are provided with information about the vaccine, fill out any required documents, see medical staff as needed and wait for immunization.
- **Immunization Area** – smaller area where immunizations are administered.
- **Post-immunization Area** – room where patients can wait for 15 minutes to be monitored by health staff for emergencies, ideally with an exit door monitored by security staff.
- **Washrooms and Kitchen** – washrooms should be available for both public and staff use.
- **Administration Space** – a room for filing, ordering of supplies and for meetings for supervisory staff, equipped with telephones and computers.
- **Storage Space** – a room that can be locked and that can accommodate bulk supplies and 1 or 2 large refrigerators (provided by VCH) for storing vaccines, ideally located in such a way as to facilitate daily deliveries.

Table 10
POTENTIAL SITES FOR MASS VACCINATION CLINICS

a). Vancouver

Facility and Suitability Rating	Address	Phone
VANCOUVER - COMMUNITY HEALTH AREA ONE		
1 Roundhouse (could take up to lines of 1000)	181 Roundhouse Mews	604-713-1800
2 West End	870 Denman St	604-257-8333
3 Coal Harbour (small centre)	480 Broughton St	604-718-8222
4 The Gathering Place (set clientele)	609 Helmcken St	604-665-2391
VANCOUVER - COMMUNITY HEALTH AREA DOWNTOWN EASTSIDE		
1 Ray Cam Cooperative	920 E. Hastings St	604-257-6949
2 Carnegie (may not participate)	401 Main St	604-665-3345
2 Strathcona (Clients may not go to other centre in this area)	601 Keefer St	604-718-1838
VANCOUVER - COMMUNITY HEALTH AREA TWO		
1 Britannia North	1661 Napier St	604-718-5800
2 Trout Lake North	3350 Victoria Dr	604-257-6955
3 Thunderbird 3 North	2311 Cassiar St	604-713-1818
4 Hastings	3096 East Hastings St	604-718-6222
VANCOUVER - COMMUNITY HEALTH AREA THREE		
1 Collingwood House (to confirm –not city-owned)	5388 Joyce St	604-435-0323
2 Killarney	6260 Killarney St	604-718-8200
3 Renfrew Park	2929 E 22 nd Ave	604-257-8388
VANCOUVER - COMMUNITY HEALTH AREA FOUR		
1 Kerrisdale	5851 West Boulevard	604-257-8100
2 Dunbar	4747 Dunbar St	604-222-6060
3 Kitsilano	2690 Larch St	604-257-6976
4 West Point Grey	4397 W. 2 nd Ave	604-257-8140
VANCOUVER - COMMUNITY HEALTH AREA FIVE		
1 Mt. Pleasant (RC moving to Kingsway)	3161 Ontario St	604-713-1888
2 Riley Park	50 E 30 Ave	604-257-8545
3 False Creek	1318 Cartwright St	604-257-8195
4 Douglas Park	810 W. 22 nd Ave	604-257-8130
VANCOUVER - COMMUNITY HEALTH AREA SIX		
1 Kensington	5175 Dunfries St	604-718-6200
2 Sunset	404 E. 51 st Ave	604-718-6505
3 Marpole Oakridge	990 W. 59 th Ave	604-257-8180
4 Champlain Heights	3350 Macquinna Dr	604-718-6575

Table 10

b). North Shore, Coast Garibaldi, Richmond and PSHA

Facility and Suitability Rating	Address	Phone
RICHMOND		
1 South Arm Community Centre – under evaluation		
2 Cambie Community Centre – under evaluation		
3 Thompson Community Centre – under evaluation		
4 Hamilton Reception Centre – under evaluation		
5 Sea Island Reception Centre – under evaluation		
6 Steveston Reception Centre – under evaluation		
7 Richmond Library – under evaluation		
NORTH SHORE		
1 Harry Jerome Centre		
2 West Vancouver Senior's Centre		
COAST GARIBALDI – POWELL RIVER HEALTH AREA		
1 School gym, legion, senior centres, malls, arena, health units physicians offices, recreation complexes, store fronts – under evaluation		
COAST GARIBALDI – SUNSHINE COAST HEALTH AREA		
1 See entry for Powell River		
COAST GARIBALDI – SEA TO SKY HEALTH AREA		
1 See entry for Powell River		
PROVINCIAL HEALTH SERVICES AUTHORITY		
1 Children's Hospital Ambulatory Clinic	4500 Oak St	604-875-2000

Mass Vaccination Clinics: Clinic Supplies

The list of medical and general supplies needed for mass vaccination clinics is given in Table 11. The total requirement for each item depends on whether or not the item will be re-used at each clinic shift. For items that are re-usable such as computers and furniture, the total requirements will depend on the number of clinics taking place simultaneously.

Table 11
SUPPLIES NEEDED FOR MASS VACCIANTION CLINICS

a). Clinic Supplies

Items	Number of Items / Clinic Session	Reusable or Disposable
Ampules of epinephrine 1:1000 SQ (1 / nurse)	20	reusable
Ampules of diphenhydramine 50 mg IM (1 / nurse)	20	reusable
Tuberculin syringes with 5/8" needles (for epinephrine)	100	reusable
Adult airways	2	reusable
Pediatric airways	2	reusable
Portable O ₂ with masks and tubing	1	reusable
Tourniquet	20	reusable
BP cuff and stethoscope	2	reusable
Flashlight	4	reusable
Cots/Mats	10	reusable
Blankets	10	reusable
Pillows	10	reusable
Hard-sided coolers	10	reusable
Refrigerator	1	reusable
Vaccine	3,000	disposable
3 cc syringes 1", 25 gauge needles	3,000	disposable
Alcohol wipes	6,000	disposable
Vaccine information sheets	3,000	disposable
Sharps containers (300 syringe capacity)	20	disposable
Latex-free gloves (1 small, 2 medium 1 large)	4	disposable
Antibacterial handwashing solutions (bottles)	20	disposable
Q-tips	4,000	disposable
Rectangle Band-aids	2,000	disposable
Adhesive tape (rolls)	10	disposable
Emesis bags	20	disposable
Spray bottle of bleach solution	1	disposable

Table 11 continued

b). General Supplies

Items	Number of Items / Clinic	Total Number of Items for All Clinics
Signage	pending	reusable
Tables	16	reusable
Chairs	500	reusable
Portable partitions	pending	reusable
Stapler/staples	4	reusable
Scissors	4	reusable
Clipboards	20	reusable
File boxes	5	reusable
Telephone (fixed and mobile)	10	reusable
ID badges for staff (Colour coded T-shirts)	33	reusable
Water and cups	2,500	disposable
Pads of paper	5	disposable
Pens, pencils	100	disposable
Rubber bands	pending	disposable
Tape	20	disposable
Post-it notes	pending	disposable
Paper towels (rolls)	10	disposable
Kleenex tissue (boxes)	20	disposable
Table pads and clean paper to cover table for work site	20	disposable
Garbage containers and trash bags	25	disposable
Canteen supplies (i.e. juice, cookies)	pending	disposable

c). Public Announcement Systems and Bullhorns

Items	Number of Items / Clinic Session	Total Number of Items for All Clinics
Computers	pending	reusable
Printers	pending	reusable
Photocopier Paper (perhaps already in facility)	pending	reusable
Video Camera (for orientation & training as necessary)	1	reusable
VCR/TV (for orientation & training as necessary)	1	reusable
Two-way hand-held radios or messaging devices	2	reusable

10.4 — SUPPLEMENTARY INFORMATION

Guidelines For Operating Influenza Pandemic Mass Vaccination Clinics

Clinic Site and Organization

Schools, community centres and sports complexes are ideal locations for the rapid establishment of vaccination clinics. They are familiar local landmarks, well situated for walking, handicap and bus access, and have parking lots. Other important amenities include:

- A defined receiving area (the main lobby)
- A central command area with public address system (the school office)
- Long corridors for traffic flow
- Numerous classrooms and washrooms
- A staff kitchen with refrigerator and plenty of tables and chairs.

Procedural Flow and Clinic Layout

Refer to figures 1 and 2.

Reception

To facilitate the flow of clinic traffic, the clinic must be set up with large, clear signs and arrows. There must also be adequate security staff that act as "hallway monitors" and direct the crowds. Community members are greeted at the main lobby, and then directed to an orientation and registration room.

Orientation and Registration

During the orientation and registration stage, vaccine recipients are briefed on the following:

- Information on completing the registration material and consent forms
- Information about the vaccine's risks and benefits
- Contraindications to the vaccine
- Possible adverse events and reporting mechanisms.

Following the briefing, time is allowed for recipients to complete the required paperwork and ask questions of available medical staff.

Screening

Individuals who are identified with contraindications to the vaccine are screened out and possibly offered anti-virals.

Post Vaccination

Following vaccination, all individuals are required to stay at the vaccination clinic for 15 minutes, to monitor any adverse events that may require immediate attention.

Emergencies

Each vaccination clinic must be prepared to handle emergencies (i.e. anaphylaxis).

Job Descriptions for Mass Vaccination Clinic Staff

The local health authority assigns a clinic director to each clinic, who is responsible for overseeing clinic operations, security issues, supervision of medical and non-medical staff, and reporting to the local health authority.

Clinical Staff Responsibilities

Registration

The initial patient registration area should be supervised by a nurse so that arriving patients identified by the screeners to be exhibiting overt signs of illness can be quickly assessed and forwarded to the Medical Care and holding area for more definitive assessment

Pre-Vaccination Holding Area

It would be beneficial to have clinical staff in this area to address questions patients may have while reading the literature they have been provided at the registration stage

Vaccination Area

To immunize 2500 persons/day/during an 8 hour shift would require: 1 nurse leader; 20 nurses for screening, medical assessment, addressing questions, immunizing and medical management of adverse events; 2 clerical – 1 to maintain supplies at stations, and 1 to collect data; and finally a minimum of 2 security people.

Post-Vaccination Holding Area

A nurse should be available to assess and hold patients exhibiting overt signs of illness and treat acute adverse reactions to the immunization.

Volunteer Staff Responsibilities

Registration and Screening

One greeter and 4 volunteers who register clients will be required for this area. The total number will be dependent upon whether registration and screening is to be done individually or in groups and the complexity of the intake forms and screening requirements. The screeners need to be able to provide a patient flow rate equal to the rate the intervention teams can process.

Patient Flow

Two staff positioned at critical locations in the flow will act as greeters, provide directions, ensure smooth flow of patients between locations etc.

Vaccination and Post-vaccination Holding Area

Each vaccination team requires one to two volunteers to assist with supplies (including medication packaging as required), waste management, patient care and escorting (as required).

Logistics Staff Responsibilities

General Administration/ Finance

There will be a requirement for staff to administer staff schedules and log sheets, maintain a clinic ledger and cash float, collate clinic statistics, file patient intervention records, administer a central

registry for incoming and outgoing correspondence; the size of this group will depend upon the clinic capacity

Medical Supplies

Consider using a pharmacist or nurse for medical supply management.

General Supplies

Staff looking after medical supplies can likely manage the general supplies as well.

Receiving

One volunteer person can be assigned to this task but augmentation may be required during the set-up and teardown phases.

Transportation

There may be a requirement for a driver and vehicle for general supplies and local purchases

Cleaners

The facility cleaners should be contracted to maintain the state of cleanliness for the clinic, respond to spills and accidents, and handle non-medical waste.

Biomedical waste

Staff for garbage pickup and disposal is required.

Security Staff Responsibilities

Security personnel requirements will be dependent upon the existing threat and nature of the facility. Qualified security personnel or the police should assess these requirements.

Parking and traffic control

This is facility dependent.

Crowd Control

Crowd control includes access control and assisting with uncooperative persons.

Facility Security

Consider the need for 24/7 operations since vaccine could be considered very valuable

Mass Vaccination Clinic Supports

Record Keeping

A system for registering each vaccinee must be implemented for provincial/territorial record keeping. The development of a common record-keeping system (to be used as a template by any jurisdiction) is currently under consideration by the Public Health Agency of Canada's Centre for Emergency Preparedness and Response. This record may also serve for purposes of international travel.

Security and Crowd Control

Because of the potential for public panic, some individuals may arrive at a vaccination clinic with a sense of urgency, entitlement, or anger. It is essential that local police forces be aware of all clinic locations, times, and dates. It is also essential that security guards be deployed at the clinic to guard the vaccinee, direct traffic flow, and control any difficult situations that may arise 24/7.

Media and Publicity

The success of any vaccination clinic will depend in large part on the extent to which the local community is aware of the clinic's location, hours of operation, and what to expect at the clinic. Each clinic director must work closely with their local health offices in releasing clinic details to the public.

Media releases must disclose the date, time, and location of each clinic, as well as instructions on how to get there by public transportation, who shall attend (alphabetically by family name, by postal code, etc.) and what to take with them (identification, health cards, etc.). Information should also be provided for those requiring special transportation, shut-ins, travelers and the homeless. Basic information on contraindications might also be announced.

Media notices must be translated into foreign languages. Community volunteers may also strategically distribute foreign-language information posters.

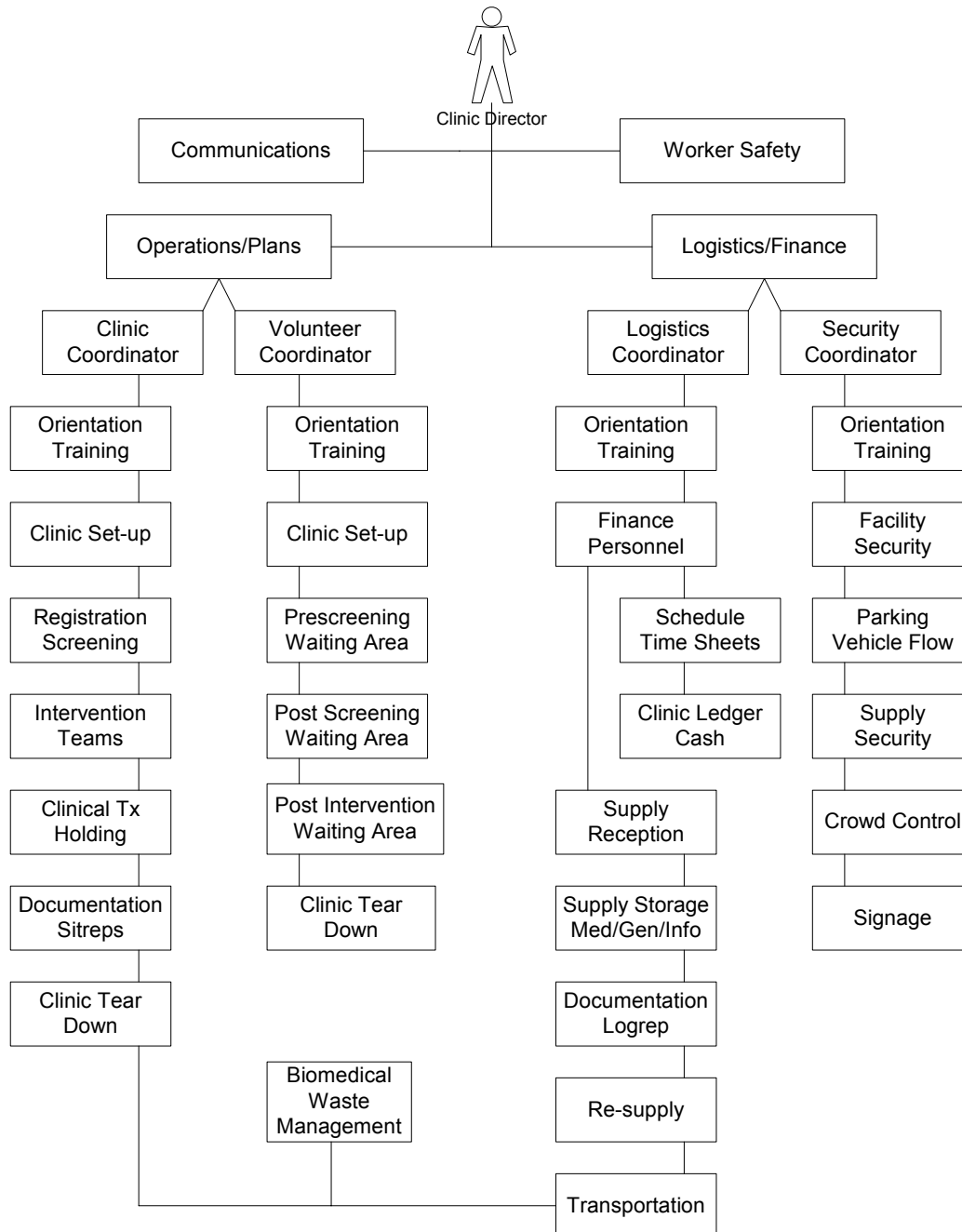
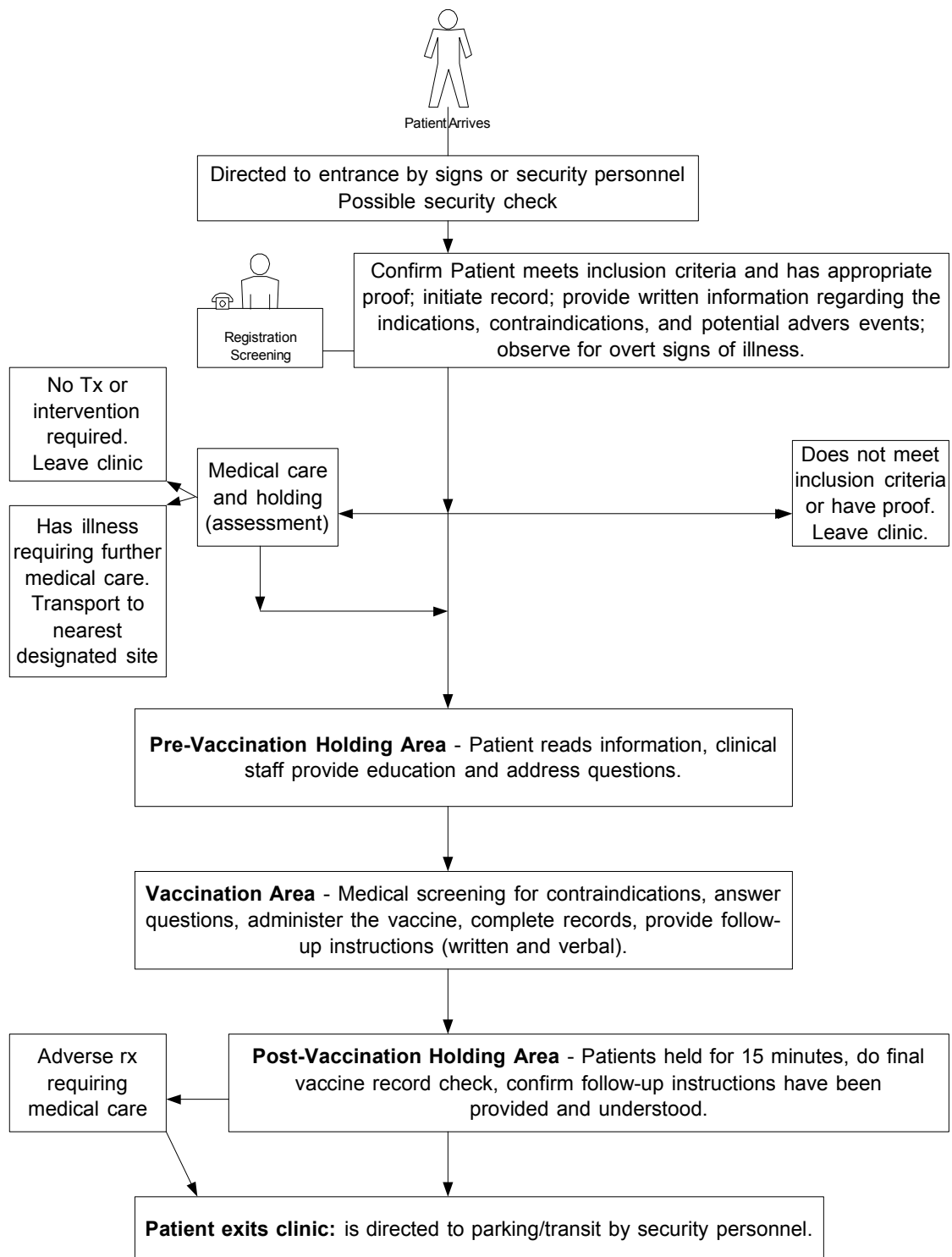
Figure 1**CLINIC OPERATIONS: PERSONNEL ROLES AND RESPONSIBILITIES**

Figure 2
PATIENT FLOW



Formulas for Estimates of the Required Numbers of Mass Vaccination Clinic Sites (Table 5)

Population Size (P)

Estimated from PEOPLES 28

Number of Doses of Vaccine (D)

P*1 or P*2 - for one or two doses respectively depending on the number of doses needed for full protection

Number of Clinics Required to Immunize 100% of the population in four months (17 weeks)

D / 2500 - for areas that can immunize 2500 / day

D / 1000 - for areas that can immunize 1000 / day

D / 3750 - for areas that can immunize 3750/ day

D / 1500 - for areas that can immunize 1500 / day

Number of Clinics / Weeks (CW)

C / (number of weeks in 4 months) = C / 17

Number of Clinics / Day (CD)

C / (number of days in 4 months) = C / 119

10.5 — FORMS AND TOOLS

- Form 10.1** Staff Requirements for Mass Clinics
- Form 10.2** Clinic Set-up Job Activity Sheet
- Form 10.3** Staff Orientation and Job Action Sheet for Volunteers
- Form 10.4** Staff Orientation and Job Action Sheet for Other Staff

Form 10.1 Staff Requirements for Mass Clinics

Clinic Site: _____
 Location: _____
 Facility Name: _____
 Contact person: _____
 Opening Date/ Time: _____

Key Positions

	Name	Telephone
Clinic Director	_____	_____
Clinical Coordinator	_____	_____
Volunteer Coordinator	_____	_____
Logistics/ Admin Coordinator	_____	_____
Security Coordinator	_____	_____

Staff Required by Functional area (details of functional areas follow)

Functional Area	Number (Suggested #)
Clinical -	
Registration	_____ (1)
Pre-intervention Patient Holding/ Waiting	_____ (2)
Intervention	_____ (16)
Medical Care and holding	_____ (1)
Subtotal	_____ (20)
Volunteer -	
Registration	_____ (4)
Patient Flow	_____ (1)
Intervention	_____ (2)
Post-intervention holding	_____ (1)
Subtotal	_____ (8)
Logistic -	
General Administration/ Finance	_____ (1)
Medical Supply/General Supply	_____ (1)
Receiving	_____
Transportation	_____ (1)
Cleaners	_____ (1)
Subtotal	_____ (4)
Security -	
Parking and traffic control	_____ (1)
Crowd control	_____ (1)
Facility security	_____ (2)
Subtotal	_____ (4)
Total	_____ (36)

Form 10.2 Clinic Set-up Job Activity Sheet

Clinic Site: _____

Facility Name: _____ Location: _____

Dates Clinic Operational: _____ Hours: _____

The clinic director with the assistance of the clinical coordinator, volunteer coordinator, logistics coordinator, and security coordinator are to supervise the set-up.

- Prepare a diagram of the proposed clinic set-up and patient flow to work from
- Request non-clinical and/or volunteer staff that are readily available to do the main set-up, clinical staff availability for set-up may be limited by their need for orientation and training, ensure staff know when and where they are to report.
- Request equipment and supplies as soon as possible; indicate when and where they can be delivered
- Organize a bio-hazardous waste pick-up service
- Request the necessary communications links, especially telephone and Internet access
- Establish the Clinic Coordination and Staff sign-in area
- Establish logistics/ secure supply storage area to receive and distribute supplies
- Ensure cold chain will be maintained throughout the clinic
- Set-up Staff Orientation area (and immunization as required)
- Conduct Staff Orientation and Training as necessary
- Facility security, signage, and crowd management need to be established concurrently
- Set up remaining clinic areas in accordance with planned patient flow
- The CD Nurse specialist/delegate will supervise the final set-up of the patient care/ treatment areas
- Arrange for cleaning of site during the day and at the end

Form 10.3 *Staff Orientation and Job Action Sheet for Clinical*

- Determine the number of clinical staff requiring orientation.
- Establish a schedule for orientation and training – including what, when, where, who and by whom (see details below).
- Determine and request the necessary training materials
- Conduct the orientation and training
- Assess if the training standard has been achieved
- Provide staff immunization or chemoprophylaxis as required
- Confirm work schedules with staff

What should be included in the training?

- Human resources briefing including staff procedures
- Brief summary of influenza disease
- Infection control principles
- Ongoing security requirements
- Explanation of the public health response strategy
- Orientation to the clinic area (walk through or from diagram), including patient flow, functions to be conducted in each area, key personnel in each functional area
- Action in the event of a fire, power failure, or other emergency (facility may already have a plan in place that can be modified for the clinic)
- Work responsibilities – dependent upon the necessary medical intervention (the most current recommendation to have been determined by the health authority)
- Training on the medical intervention – review of patient handouts, documentation procedures, intervention indications (including the inclusion criteria to receive the vaccine) and contraindications, adverse effects, follow-up requirements, and practicing the technique (as necessary), assessment of knowledge and skill
- Medical care and holding staff should also know the anaphylaxis protocol
- Staff immunization/ chemoprophylaxis if required prior to exposure to clients
- Resources available for staff.

When? (As soon as possible)

- Orientation and training facilities are available and ready
- Orientation and training staff are prepared
- Clinic staff are available

Where?

- Preferably in the facility where the clinic is to be established

Who needs training?

- All clinical staff

By Whom?

- Clinic Director
- Clinical Coordinator (CD Nurse Specialist/Educator) prepare and deliver the orientation and training (these team leaders must be available at the earliest time possible, and ideally each team leader will only have to train their own team)

Form 10.4 Staff Orientation and Job Action sheet for Volunteers

- Determine the number of volunteer staff requiring orientation.
- Establish a schedule for orientation and training – including what, when, where, who and by whom (see details below)
- Determine and request the necessary training materials
- Ensure volunteer staff are informed about the orientation and training schedule
- Conduct the orientation and training
- Assess if the training standard has been achieved
- Provide staff immunization as required
- Confirm work schedules with staff

What training?

- Human resources briefing including staff procedures
- Brief summary of influenza disease
- Infection control principles
- Ongoing security requirements
- Explanation of the public health response strategy
- Orientation to the clinic area (walk through or from diagram), including patient flow, functions to be conducted in each area, key personnel in each functional area
- Action in the event of a fire, power failure, or other emergency (facility may already have a plan in place that can be modified for the clinic)
- Work responsibilities – dependent upon the functional area of employment
- Registration/ administrative screeners need to know registration and documentation procedures, the inclusion criteria for receiving the medical intervention, the required proof that they meet the inclusion criteria, how to deal with uncooperative patients/ conflict resolution procedures, and overt signs of illness; cross train as patient flow staff
- Patient flow staff need to know the clinic layout very well, and should be cross trained to replace registration/ administrative screeners
- Intervention team assistants need to know the basic intervention procedures, necessary documentation procedures, handling precautions for medical supplies and waste, and re-supply procedures
- Holding staff need to know post vaccine procedures, how to recognize acute adverse reactions, action in the event acute adverse reaction, necessary follow-up procedures, documentation procedures
- General duty staff will be briefed as duties arise, should be made available as soon as possible to commence set up of facility
- Volunteer immunization/ chemoprophylaxis if required prior to exposure to clients

When? (As soon as possible)

- Orientation and training facilities are available and ready
- Orientation and training staff are prepared
- Volunteer staff are available

Where?

- Preferably in the facility where the clinic is to be established

Who needs training?

- Registration and screening volunteers
- Patient flow volunteers
- General duty volunteers
- Security personnel

By Whom?

- Volunteer Coordinator
- Security Coordinator
- Additional trainers as necessary

Chapter 11

COMMUNICATIONS

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CHAPTER SUMMARY

Regional responsibilities in the pre-pandemic period include the development and testing of regional and local communication networks and the definition of communication roles and responsibilities at the regional, local and facility levels. During the pandemic phases, responsibilities are to provide clear direction to health care providers to ensure continued provision of essential health services and to provide regular, timely information updates about pandemic response to provincial officials and to the public and media at the community level. In the post-pandemic period, the main responsibilities are to determine when facilities will resume normal operations and inform the public. Furthermore, the public and media should be informed about local and regional outcomes of the pandemic.

11.1 — INTRODUCTION

Clear communication before, during and after a pandemic will facilitate implementation of the pandemic response, allow healthcare workers to function most effectively, and address fears and concerns among the public.

Objectives

The overall objectives of the communications plan are to:

- Provide clear, accurate messaging to internal and external stakeholders during all pandemic phases;
- Ensure timely communications by a variety of means appropriate to the target audiences;
- Incorporate risk communication principles in all messaging.

Internal Stakeholders – Objectives

Communication to staff and other health care workers involved in the pandemic response must:

- Allow staff to understand their role in the pandemic response;
- Ensure staff know how to protect themselves, their families and their patients or clients;
- Provide accurate information regarding the pandemic;
- Address concerns in a timely manner.

External Stakeholders – Objectives

Communication to external stakeholders, including the public and the media must:

- Provide instructions for cases, contacts and family members regarding prevention and treatment;
- Clearly describe the VCH planned pandemic response at each stage;
- Tell the public what to expect next.

11.2 — KEY SPOKESPERSONS

Communication Lead

The Vice President, Communications & Community Engagement, as primary communication lead, is responsible for communications execution in conjunction with the Chief Medical Health Officer, and for liaison with and updating the Board and Senior Executive Team. The Director, Media and Issues Management will coordinate all information released to the media; ensure key messaging is consistent with the Chief Medical Health Officer or designate; recommend appropriate response strategies; approve all written, electronic, or photographic information for media use; and act as official spokesperson as needed.

Primary: Vice President Communications & Community Engagement Secondary: Director Media and Issues Management
--

Key Spokespersons

As per the media relations/spokesperson policy, the official spokesperson during a pandemic is the Chief Executive Officer or designate. In the case of a pandemic or influenza outbreak, the Chief Medical Health Officer will be the primary designate for speaking to and answering media queries.

Primary:	1.	Chief Medical Health Officer (Dr. John Blatherwick) 604-675-3804
	2.	Director Media and Issues Management (Clay Adams) 604-708-5282 All media queries forwarded to Director
Secondary:	1.	Medical Health Officer Designate (Dr. Patricia Daly) 604-675-3924
	2.	Medical Health Officer On-Call (available 24/7) 604-527-4893
	3.	Media Relations Officer (Viviana Zanocco or designate) 604-708-5282

11.3 — INTERNAL STAKEHOLDERS

Internal stakeholders are groups who work, train, volunteer or reside in Vancouver Coastal Health facilities or provide services on behalf of Vancouver Coastal Health in the community.

Staff includes those who are paid directly by VCH as well as those funded from elsewhere (or unfunded) who provide service. This latter group includes physicians, contracted staff, volunteers and students.

INTERNAL STAKEHOLDER	PRIMARY VEHICLES OF COMMUNICATION	LEAD RESPONSIBILITY
VCH Board		VP Communications
VCH Senior Executive Team		VP Communications
VCH Staff <ul style="list-style-type: none"> • Physicians • Nurses • Pharmacy services • Emergency department • Community staff • Other facility staff • Volunteers 	<ul style="list-style-type: none"> • E-mail • Fax • Intranet site • Newsletter (“Current”) • Bulletin boards 	VCH Communications and Community Engagement (Communications)
Providence Health Care	<ul style="list-style-type: none"> • E-mail • Intranet site • Providence communications network 	<ul style="list-style-type: none"> • Communications • Office of the Chief Medical Health Officer (CDC)
Students	<ul style="list-style-type: none"> • E-mail • Intranet site • Newsletter • Bulletin boards 	<ul style="list-style-type: none"> • Supervisors • Educational Institutions
Contracted Staff	ValueIn	Contracting agencies
Medical Advisory Committees of Hospitals		Chairs
Patients and residents	<ul style="list-style-type: none"> • Newsletter • Posters • Leaflets 	<ul style="list-style-type: none"> • Communications • Site managers

11.4 — EXTERNAL STAKEHOLDERS

External stakeholders include customers and clients, partners, government, non-governmental organizations, industry, media and the general public.

STAKEHOLDER GROUP	MEMBERS	LEAD RESPONSIBILITY
Public		Key Spokespersons
Governments	Municipalities	VCH Communications
	First Nations Communities	VCH Communications
	Provincial Government -BCCDC -Provincial Health Officer -Ministry of Health	Office of the Chief Medical Health Officer, Communicable Disease Control (CDC)
	Federal Government -Quarantine Officers -Public Health Agency of Canada	CDC BCCDC
	International Governments	Public Health Agency of Canada
External health authorities and groups	Provincial Health Services Authority -BC Children's and Women's Health Centre -BC Cancer Agency	CDC
	Other Regional Health Authorities	CDC Communications
	BC NurseLine	CDC
	BC Bedline	CDC
	BC Ambulance Services	CDC
	Physicians	CDC
	Dentists	CDC
	Pharmacists	CDC
	Private Laboratories	CDC
	Other private health professionals	CDC
	Health Unions -BCNU -HEU -CUPE	Employee Engagement CDC
Community Agencies and Groups	School boards and schools	Medical Health Officers (MHOs)
	Post-secondary institutions	MHOs
	Daycares	Licensing Officers
	Community Centres	MHOs
	Ethnic Community Organizations	Communications
Other Service Organizations	BC Transit	CDC
	BC Ferries	CDC
Private Industry	Medical Equipment Suppliers	Purchasing
	Pharmaceutical Company	CDC

STAKEHOLDER GROUP	MEMBERS	LEAD RESPONSIBILITY
	Representatives	
	Vancouver Airport Authority	Richmond MHO
	Other large industry	
Media	TV	Communications
	Radio	Communications
	Print Media	Communications

11.5 — VEHICLES OF COMMUNICATION

Internet Website

For external audiences:
www.vch.ca

Information on influenza and the VCH Pandemic Influenza Plan will be posted on the Public Health Page.

When a pandemic is declared, an information portal will be available on the home page.

Information on the site will include:

- Up-to-date pandemic information
- Pandemic plan information, including availability of vaccine and eligible groups for vaccination
- Information for travellers returning from or travelling to pandemic areas (coordinated with Health Canada)
- Information on seeking medical care during the pandemic
- Information on prevention and self-care
- Links to other sites including:
 - **BCCDC:** www.bccdc.org
 - **Public Health Agency of Canada:** www.phac-aspc.gc.ca
 - **U.S. Centers for Disease Control:** www.cdc.gov
 - **World Health Organization:** www.who.int

Intranet Site

For internal audiences:
www.vcha.ca

The intranet site will contain information for staff, including staff bulletins, policies and procedures and question and answer documents.

Toll-free Hotline for External Audiences
1.888.875.4334

The toll-free hotline for the public has pre-recorded messages that can be updated as needed. During the pandemic, it will be staffed by trained personnel at a central location to answer questions from the public.

Toll-free Hotline for Employees
1.877.822.4646

Pre-recorded information for staff; important for staff calling from home or without access to e-mail.

Other

Fax and E-mail Distribution Lists

- 1) Maintained by VCH Communications and Community Engagement:
 - Government officials
 - VCH Physicians
 - HSDA & facility reception areas
 - ER Departments
 - Pharmacy Services

- 2) Maintained by the Office of the Chief Medical Health Officer, Communicable Disease Control:
 - VCH Physician network
 - (Richmond and North Shore/Coast Garibaldi Physician network – maintained by HSDA MHOs)
 - BCCDC
 - Ministry of Health
 - BC NurseLine
 - BC BedLine
 - BC Ambulance Services

Media Materials

Developed and maintained by VCH Communications and will include:

- Public Service Announcements for radio (CKNW, News 1130) and television (BCTV News, CBC, CTV and City TV)
- Press kits and bulletins
- Press conferences to be held when:
 - Pandemic influenza arrives in the region
 - Important recommendations/interventions for the public are required such as availability of vaccine, implementation of public health measures to control the spread of the virus, etc.

Other material will be developed as required and may include:

VEHICLE	AUDIENCE
Question and Answer documents	Public Healthcare providers
Surveillance bulletins	Healthcare providers
Canned presentations/Slide sets	VCH staff and other healthcare providers
Posters	Public
Video conferencing	Internal stakeholders, remote sites
Symposia and conferences	Healthcare providers
Brochures and pamphlets	All stakeholders

11.6 — KEY MESSAGES

Key messages will be developed in partnership with the Ministry of Health and BCCDC, and will be coordinated with messages from the Public Health Agency of Canada and the World Health Organization. As information will have the propensity to change quickly, VCH messaging should focus on strategies in place to address the pandemic, reassure the public and what the public can do to protect themselves; e.g., handwashing. Given the uncertainty, actual key messages will be developed at the time and should also incorporate the following:

For the Public:

- Where pandemic has been declared and details that can be provided
- For updated information, please do not call local health units, instead reinforce that regular updates will be posted to the VCH website at www.vch.ca or by calling our Vancouver Coastal Health Influenza Line at 604 875-4252, press 3
- Details as they become available
- Information on where to get influenza vaccine when available and eligible groups
- Individuals with flu and flu-like symptoms should stay home – instructions on when to seek medical care
- Provide information on special or temporary pandemic clinics if required; i.e., local schools or community centres

For Staff:

- In the event of an emergency or pandemic situation, please call the Staff Information Hotline at 1.877.822.4646 for regular updates
- If urgent staff clinics are to be erected, list time, location, necessary documentation needed for influenza shots
- Instructions in the event of staff illness or illness among family members

For Physicians:

- Epidemiology of the pandemic
- Infection control recommendations for office settings
- Patient management
- Reporting
- Eligibility criteria for influenza vaccinations and antiviral medication

11.7 — RISK COMMUNICATION

Public perception of risk, and the associated response to that perception, is an important factor in considering communication strategies for a pandemic. There are several features about a pandemic that will elevate public perception of risk:

- 1) **Fear of the unknown:** The pandemic will be caused by a new viral subtype previously unknown to most of the population, and initially little information may be available about the nature of the virus.
- 2) **Dreaded outcome:** High morbidity and mortality may be associated with a pandemic strain.
- 3) **Involuntary – not under one's control:** It may be very difficult to prevent exposure to a pandemic virus; few prevention tools will be available initially.
- 4) **Inequitable:** The pandemic strain may affect vulnerable members of the population, such as children, to a greater degree; inequitable access to antivirals and vaccine.

There are several important principles of risk communication that can be employed to address the perception of risk and the concerns of the public. These include:

- Providing knowledge to the public for good decision making; ensuring information is timely and accurate and explaining recommendations.
- Building trust; use a trustworthy spokesperson who is empathetic, competent and honest.
- Engaging stakeholders to resolve conflicts or concerns; identify moral or ethical issues, such as distribution of limited antivirals and vaccine, and allow stakeholder feedback regarding these decisions. Allow the public and health professionals to ask questions, and provide timely answers.

Risk communication is most effective when it focuses on what is **being done** rather than on what is not being done.

Risk Perception Factors

The following outlines a number of risk perception factors and suggested communications strategies for addressing these factors. (*Adapted from:* Covello VT et al. Journal of Urban Health: Bulletin of the New York Academy of Medicine 2001;78(2):382-391)

- 1) **Voluntariness:** Involuntary risks perceived to be greater than voluntary risks. Public perception that nothing can be done to stop the introduction and spread of the pandemic will increase risk perception.

Strategies:

- Emphasize actions being taken by public health to delay the introduction and spread of the pandemic into the region.
- Emphasize what people can do to protect themselves; e.g., hand washing, avoiding traveling to affected areas, etc.

- 2) **Controllability:** Risks perceived to be under control of others are perceived to be greater. If the pandemic starts in another country that is felt to have inadequate control measures, this may increase fear.

Strategies:

- Inform public of international and national cooperation in managing the pandemic.
- Avoid stigmatization of those returning from pandemic regions or associated with ethnic groups from affected regions.

- 3) **Familiarity:** Risks that are unfamiliar are perceived to be greater. If the pandemic virus is a new, unknown virus about which there is little scientific knowledge, risk will be perceived as greater.

Strategies:

- Provide reliable, scientific information about new viral subtypes to health professionals during the pandemic alert phase.
- Provide accurate, complete information about the nature of the pandemic to the public.
- At all stages, discuss openly what is expected at the next stages of the pandemic.

- 4) **Equity:** Risks perceived as unevenly distributed are perceived to be greater than those shared equitably. If the pandemic affects some areas or populations more severely than others, this may increase anxiety.

Strategies:

- Emphasize that control measures, including antiviral medication and vaccine, will be deployed first to populations at greatest risk.

- 5) **Benefits:** Risks with questionable benefits are less readily accepted.

Strategies:

- Clarify the expected benefits of all control strategies, including public health measures that may be restrictive or difficult.

- 6) **Understanding:** Unknown risks are perceived to be greater. A new subtype about which little is known will be seen as a greater risk, at least until it is more fully understood.

Strategies:

- Provide accurate, timely information with frequent updates as more is known.

- 7) **Dread:** Risks that evoke fear, due to severe outcome, are perceived to be greater than those which do not cause fear.

Strategies:

- Provide reliable indicators of morbidity and mortality, with appropriate interpretation. Include incidence of mild, asymptomatic illness.

- 8) **Trust in institutions:** Risks associated with trusted organizations are perceived to be lesser.

Strategies:

- Maintain trust in public institutions by being as open as possible.

- 9) **Reversibility:** Risks thought to be irreversible are perceived to be greater.

Strategies:

- If appropriate, emphasize recovery rate from illness.

- 10) **Personal stake:** Risks perceived to place one personally at risk are perceived to be greater.

Strategies:

- Provide guidelines and strategies for personal protection. Outline what people can do to protect themselves rather than what they can't do or what is not available.

- 11) **Ethical issues:** Risks perceived as ethically objectionable are perceived to be greater. Because antivirals will be in limited supply and there will be a hierarchy for receiving vaccine, these decisions may be seen as ethically objectionable.

Strategies:

- Provide rationale for recommendations for antiviral use and vaccine, including ethical framework.
- Allow stakeholder input into these decisions, if possible. Permit and participate in public dialogue of these decisions; e.g., contribute Op-Ed pieces to newspapers.

- 12) **Human vs. natural origin:** Risks generated by human actions perceived to be greater. Human actions that result in spread of the pandemic, such as travellers returning from pandemic areas who import the virus, may contribute to this perception.

Strategies:

- Avoid stigmatization of ethnic groups associated with countries of origin.
- Communicate strategies to avoid inadvertent human spread; e.g., laboratory biocontainment, information provided to travellers returning from pandemic areas.

- 13) **Victim identity:** Risks that produce identifiable victims are perceived to be greater. Media stories identifying “victims” of pandemic influenza may contribute to fears.

Strategies:

- Maintain confidentiality of all cases at all times.

- 14) **Catastrophic potential:** Risks that produce fatalities and illness groups spatially and temporally are perceived as greater than risks that have random, scattered effects. Knowing that a pandemic occurs in waves, and that future waves are expected, may contribute to the perception of risk.

Strategies:

- Communicate strategies that are planned to interrupt the pandemic spread, such as rapid deployment of vaccine.

11.8 — COMMUNICATION – PHASE-SPECIFIC

Phase	Messages and Strategies	Responsibility
Interpandemic		
Phase 1 -No new subtypes in humans -Subtypes that have caused human illness may be present in animals, but human risk low	Promote annual influenza immunization campaign Strategies: -Press conference to launch campaign; include external stakeholders -Paid ads in community newspapers with dates and locations of public clinics -VCH Website: Eligibility groups; scheduled clinics, Q and A documents -Articles in staff newsletter “Current” -Letters, policy binder and promotional materials to all residential care facilities -Letters to all physicians -Intranet: Staff immunization policy -Information in staff pay stubs -Posters, incentives and on-site champions within VCH facilities Key Message: Building capacity for a pandemic	Communications CDC Employee Engagement
Phase 2 -No new subtypes in humans -Circulating animal subtype poses substantial human risk	Advise physicians and other stakeholders; promote preparedness Strategies: -Provide updates in “Physicians’ Update” -Promote VCH Pandemic Plan and post on website -Encourage stakeholder pandemic planning Key Message: No human cases, we are preparing	CDC and MHOs Communications CDC and Disaster Planning
Pandemic Alert		
Phase 3 -Human infections with new subtype -No spread or rare spread to close contacts	Promote annual influenza immunization campaign; Provide regular updates to physicians and key stakeholders Strategies: -“Physicians’ Updates” -Information in Outlook Public Folders	CDC and MHOs

	for public health nurses -Updates on Intranet site Key Message: Goal is to prevent pandemic	
Phase 4 -Small clusters (<25 cases) but localized	Advise physicians, Emergency Departments, other clinics of surveillance criteria Strategies: -Fax distribution -Hospital internal communications Key Message: Goal is to prevent pandemic	CDC and MHOs
Phase 5 -Larger clusters (25-50) but localized; not fully transmissible	Increase awareness among staff, other healthcare professionals, public; promote active planning Strategies: -Inservices to VCH staff and physicians -Activate VCH toll-free hotline for employees, if necessary -Active toll-free line for public information, if necessary -Update VCH web site -Information columns/inserts for local newspapers Key Message: Goal is to prevent pandemic; we are on alert and prepared for arrival	CDC } Communications MHOs, Communications
Pandemic Period		
Phase 6 -Sustained transmission in general population	Communication of important information to delay pandemic arrival and/or mitigate effects until vaccine available. Strategies: -Coordinate communication with federal and provincial counterparts -Press Conference and press briefings outlining the VCH pandemic plan -Include stakeholders (e.g. First Responders) in release -Fax to all physicians, clinics and Emergency Departments in the region with appropriate information -Inservices for health professionals and	Communications and CDC, working within the framework of the EOC; Scope and timing of communications activities determined by pandemic spread, and will increase with arrival of pandemic strain locally.

	<p>healthcare staff; outline their responsibilities in the pandemic plan</p> <ul style="list-style-type: none"> -Hold briefings with key stakeholders including local politicians, Parks Boards and School Boards -Brief union representatives -Provide regular Staff Information Bulletins for posting on Intranet and bulletin boards -Post signage as appropriate at entrances of VCH facilities -Develop, update and distribute Question and Answer documents for staff and the public -Hold regular meetings/conference calls with Communications, MHOs and CDC to update messaging -Populate VCH web site with information about the pandemic, timely updates, and personal protective information. -Purchase newspaper, radio, transit and other ad space to highlight strategies to avoid spread/personal protection e.g. covering up when coughing, hand washing; self diagnosis; when to seek medical attention -Provide information material through schools, daycares, community centres in multiple languages -Activate toll-free line for the public; train staff to answer public questions -Allow public feedback and questions via the VCH website “feedback”; address rumors and concerns promptly, with press releases if necessary <p>Key message: Outline what we are doing to control the pandemic</p>	
Post pandemic Period		
	<ul style="list-style-type: none"> -Return to interpandemic communications strategies <p>Key message: Lessons learned</p>	

11.9 — FORMS AND TOOLS

- Tool 11.1** List of Municipalities and Contact Information
- Tool 11.2** List of Bands and Contact Information
- Tool 11.3** “Cover Your Cough” Poster for Healthcare Settings
- Tool 11.4** “Cover Your Cough” Poster for Community Settings

Refer to Chapter 9 - **Public Health Measures** for the following communication tools:

- Tool 9.5** Pandemic Influenza Fact Sheet
- Tool 9.6** How to Stay Healthy During the Pandemic Influenza
- Tool 9.7** Hand Hygiene Procedures
- Tool 9.8** Persons on Home Isolation
- Tool 9.9** Persons on Quarantine
- Tool 9.10** Infection Control Guidelines for Pandemic Influenza Management

Tool 11.1 List of Municipalities and Contact Information

Bowen Island Municipality

Phone: 604-947-4255

Fax: 604-947-0193

Town of Gibsons

Phone: 604-886-2274

Fax: 604-886-9735

Village of Lion's Bay

Phone: 604-921-9333

Fax: 604-921-6643

City of North Vancouver

Communications phone: 604-990-2459

Fax: 604-987-9626

District of Powell River

Phone: 604-485-6291

Fax: 604-485-2913

City of Richmond

Phone: 604-276-4371

Fax: 604-276-4222

District of Sechelt

Phone: 604- 885-1986

Fax: 604-888-7591

District of West Vancouver

Phone: 604-925-7000

Town of Whistler

Phone: 604-932-5535

Fax: 604-935-8179

City of Vancouver

Phone: 604-873-7011

Tool 11.2 List of Bands and Contact Information

Heiltsuk Band

PO Box 880, 222 Wabalisa Street
Waglisla, BC V0T 1Z0
Phone: 250-957-2381
Fax: 250-957-2544

Kitasoo Band Council

General Delivery
Klemtu, BC V0T 1L0
Phone: 250-839-1255
Fax: 250-839-1256

Musqueam Indian Band

6735 Salish Drive
Vancouver, BC V6N 4C4
Phone: 604-263-3261
Fax: 604-263-4212

Nuxalk Nation

PO Box 65
Bella Coola, BC V0T 1C0
Phone: 250-799-5613 or 1-877-799-5959
Fax: 250-799-5426

Qayqayt First Nation

105-3680 Rae Avenue
Vancouver, BC V5R 2P5
Phone: 604-451-0531
Fax: 604-451-9231

Sechelt Indian Nation

PO Box 740
Sechelt, BC V0N 3A0
Phone: 604-885-2273 or 1-866-885-2275
Fax: 604-885-3490

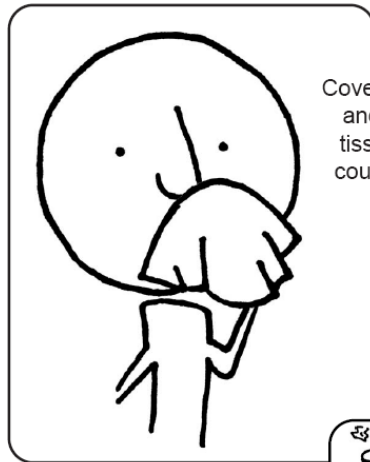
Squamish Nation

PO Box 86131
320 Seymour Blvd
North Vancouver, BC V7L 4J5
Phone: 604-980-4553
Fax: 604-980-4523

Tool 11.3 “Cover Your Cough” Poster for Acute Health Care Settings

Stop the spread of germs that make you and others sick!

Cover your Cough



Cover your mouth
and nose with a
tissue when you
cough or sneeze
or

cough or sneeze into
your upper sleeve,
not your hands.



Put your used tissue in
the waste basket.



You may be asked to
put on a surgical mask
to protect others.



**Clean
your
Hands**
after coughing or sneezing.



Wash with
soap and water

or
clean with
alcohol-based
hand cleaner.



Minnesota Department of Health
717 SE Delaware Street
Minneapolis, MN 55414
612-676-5414 or 1-877-676-5414
www.health.state.mn.us



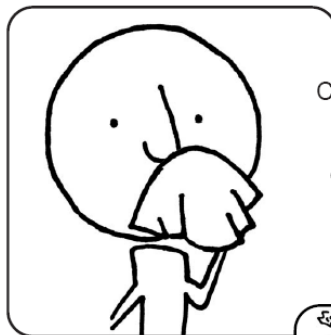
Minnesota
Antibiotic
Resistance
Collaborative



Tool 11.4 “Cover Your Cough” Poster for Community Settings

Stop the spread of germs that make you and others sick!

Cover your Cough



Cover your mouth
and nose with a
tissue when you
cough or sneeze

or
cough or sneeze into
your upper sleeve,
not your hands.

Put your used tissue in
the waste basket.



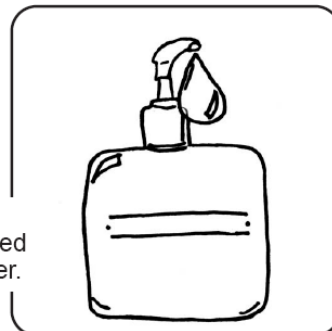
Clean your Hands

after coughing or sneezing.



Wash hands
with soap and
warm water

or
clean with
alcohol-based
hand cleaner.



Minnesota Department of Health
717 SE Delaware Street
Minneapolis, MN 55414
612-676-5414 or 1-877-676-5414
www.health.state.mn.us



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INFECTION CONTROL AND EPIDEMIOLOGY, INC.

Chapter 12

HANDLING AND DISPOSAL OF THE DECEASED

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CHAPTER SUMMARY

The mortality rate in past natural epidemics or pandemics has been estimated to be about 15% to 20%. Thus, in an outbreak, an increase in the number of deaths would be expected and plans must be in place to ensure that good public health practices are followed from death to disposal.

The number of deaths resulting from the influenza pandemic could easily overwhelm local morgues and funeral homes. An important task in pandemic preparation is the estimation of regular capacity and a prediction of the need for additional resources and space in temporary morgues. Furthermore, contact has to be established with funeral businesses whose services would be called upon in the event of a pandemic. This chapter is intended as a resource for contact information for funeral homes and potential sites for temporary morgues.

The handling of infected bodies is a further issue under consideration and those in contact with deceased influenza patients will be vaccinated. Efforts to secure supplies of body bags and means of transportation are presently underway. Possibilities and limitations for the disposal of the deceased in a culturally sensitive manner under the emergency conditions of the pandemic is a question to be explored in planning.

12.1 — ROLES AND RESPONSIBILITIES

Table 1 outlines federal, provincial and regional responsibilities for the handling and disposal of the deceased before, during and following the pandemic. Form 11.1 found at the end of this chapter, is an Interpandemic period (pre-pandemic) planning checklist, which can be used as a worksheet for the delegation of responsibilities and identification of the associated individuals or bodies.

Table 1

FEDERAL, PROVINCIAL, AND REGIONAL RESPONSIBILITIES FOR HANDLING AND DISPOSAL OF THE DECEASED IN THE INTER PANDEMIC, PANDEMIC ALERT, PANDEMIC AND POST-PANDEMIC PERIODS

Federal	Provincial	Regional
Interpandemic and Pandemic Alert Periods		
	<ul style="list-style-type: none"> Identify source for body bags, in case large numbers are needed Ministry of Health (MOH) Emergency Management personnel provide regions with training support for identified funeral home personnel/and temporary morgue facilities on the handling and disposal of infected bodies and disinfection guidelines 	<ul style="list-style-type: none"> Identify available morgue space. Identify temporary morgue space. Determine local capacity (bodies per day) of existing crematoriums. Identify mechanism to distribute body bags in the event of shortages Identify method of transportation for bodies to funeral homes or other temporary morgue facilities from private homes or health care facilities Provide funeral homes/other temporary morgue facilities with training on handling and disposal of infected bodies and disinfection guidelines
Pandemic Period in Canada		
	<ul style="list-style-type: none"> Distribute supplies of body bags to regions. 	<ul style="list-style-type: none"> Ensure identified individuals at funeral homes/temporary morgue facilities and coroners are vaccinated Ensure other temporary morgue facilities are ready to receive the bodies. Ensure identified individuals at funeral homes/temporary morgue facilities and coroners have infection control standards and apply them correctly
Post-pandemic Period		
<ul style="list-style-type: none"> Review and revise handling and disposal of the deceased 	<ul style="list-style-type: none"> Evaluate handling and disposal of the deceased Estimate costs associated with handling and disposal of the deceased 	<ul style="list-style-type: none"> Evaluate handling and disposal of the deceased Estimate costs associated with handling and disposal of the deceased

12.2 — STANDARD PROCESS FOR MANAGING THE DECEASED

Table 2

CORPSE MANAGEMENT

STEPS	REQUIREMENTS	LIMITING FACTORS	PLANNING FOR POSSIBLE SOLUTIONS/EXPEDITING STEPS
Death pronounced	<ul style="list-style-type: none"> Person legally authorized to perform this task 	<ul style="list-style-type: none"> If death occurs in the home then one of these authorized persons will need to be contacted Availability of people able to do this task 	<ul style="list-style-type: none"> Provide public education re: how to access an authorized person Consider planning an on call system 24/7 specifically for this task
Death Certified	<ul style="list-style-type: none"> Person legally authorized to perform this task 	<ul style="list-style-type: none"> Legally, may not necessarily be the same person that pronounced death 	<ul style="list-style-type: none"> Consider collecting corpses and having one authorized person perform this task en masse to improve efficiency
Body wrapped	<ul style="list-style-type: none"> Person(s) trained to perform this task Body bags 	<ul style="list-style-type: none"> Supply of human and physical (body bags) resources If death occurs in the home: the availability of these requirements 	<ul style="list-style-type: none"> Consider developing a rotating 6 month inventory of body bags, given their shelf life Consider training or expanding the role of current funeral home staff to include this task Provide this service in the home in conjunction with pronouncement and transportation to morgue
Transportation to the morgue	<ul style="list-style-type: none"> In hospital: trained staff and stretcher Outside hospital: informed person(s), stretcher and vehicle suitable for this purpose 	<ul style="list-style-type: none"> Availability of human and physical resources 	<ul style="list-style-type: none"> In hospital consider training additional staff working within the facility Consider keeping old stretchers in storage instead of discarding Look for alternate suppliers of equipment that could be used as stretchers in an emergency e.g. trolley manufacturers Outside hospital: provide public education or specific instructions re: where to take corpses if the family must transport
Steps	Requirements	Limiting Factors	Planning for possible solutions/expediting steps

STEPS	REQUIREMENTS	LIMITING FACTORS	PLANNING FOR POSSIBLE SOLUTIONS/EXPEDITING STEPS
Morgue storage	<ul style="list-style-type: none"> • A suitable facility that can be maintained at +4 to +8 ° Celsius 	<ul style="list-style-type: none"> • Capacity of such facilities 	<ul style="list-style-type: none"> • Identify and plan for possible temporary morgue sites
Autopsy if required/requested	<ul style="list-style-type: none"> • Person qualified to perform autopsy and suitable facility with equipment 	<ul style="list-style-type: none"> • Availability of human and physical resources • May be legally required in some circumstances 	<ul style="list-style-type: none"> • Ensure that physicians and families are aware that an autopsy is not required for confirmation of influenza as a cause of death
1.Cremation♣	<ul style="list-style-type: none"> • Suitable vehicle for transportation from morgue to crematorium • Availability of cremation service • A cremation certificate 	<ul style="list-style-type: none"> • Capacity of crematorium/speed of process • Availability of coroner or equivalent official to issue certificate 	<ul style="list-style-type: none"> • Identify alternate vehicles that could be used for mass transport • Examine the capacity and surge capacity of crematoriums within the jurisdiction • Discuss and plan appropriate storage options if the crematoriums become backlogged • Discuss and plan expedited cremation certificate completion processes
2.Embalming♣♣	<ul style="list-style-type: none"> • Suitable vehicle for transportation from morgue • Trained person • Embalming equipment • Suitable location 	<ul style="list-style-type: none"> • Availability of human and physical resources • Capacity of facility and speed of process 	<ul style="list-style-type: none"> • Consult with service provided regarding the availability of supplies and potential need to stockpile or develop a rotating 6 month inventory of essential equipment /supplies • Discuss capacity and potential alternate sources of human resources to perform this task (e.g. retired workers or students in training programs) • Consider “recruiting” workers that would be willing to provide this service in an emergency
3. Funeral Service	<ul style="list-style-type: none"> • Appropriate location(s), casket (if not cremated), 	<ul style="list-style-type: none"> • Availability of caskets 	<ul style="list-style-type: none"> • Contact suppliers to determine lead time for casket manufacturing and
Steps	Requirements	Limiting Factors	Planning for possible solutions/expediting steps
Funeral Service (continued)	Funeral director	<ul style="list-style-type: none"> • Availability of location for service 	<ul style="list-style-type: none"> • discuss possibilities for rotating 6 month

STEPS	REQUIREMENTS	LIMITING FACTORS	PLANNING FOR POSSIBLE SOLUTIONS/EXPEDITING STEPS
		and visitation	inventory <ul style="list-style-type: none"> Consult with the Funeral Services Association of Canada (FSAC) to determine surge capacity and possibly the need for additional sites (e.g. use of churches etc. for visitation)
3a. Transportation to a temporary burial site	<ul style="list-style-type: none"> Suitable vehicle and driver 	<ul style="list-style-type: none"> Availability of human and physical resources 	<ul style="list-style-type: none"> Identify alternate vehicles that could be used for this purpose Consider use of volunteer drivers
3b. Temporary storage	<ul style="list-style-type: none"> Access to and space in a temporary storage area 	<ul style="list-style-type: none"> Temporary storage capacity and accessibility (e.g. ice rinks, curling rinks, cold storage lockers or refrigerated trucks) 	<ul style="list-style-type: none"> Expand capacity by increasing temporary storage sites
3c. Burial	<ul style="list-style-type: none"> Grave digger, space at cemetery 	<ul style="list-style-type: none"> Availability of grave diggers and cemetery space Extreme cold and heavy snow fall 	<ul style="list-style-type: none"> Identify sources of supplementary workers

♣ cremated bodies are not usually embalmed; families may choose to have a funeral service followed by cremation or to have the body cremated first and a memorial service later.

♣♣ bodies to be buried may be embalmed and may need to be stored in a temporary vault prior to burial

12.3 — FACILITIES FOR DISPOSAL OF THE DECEASED

Funeral Homes

In a pandemic, each funeral home could expect to have to handle about six months work within a 6 to 8 week period. That may not be a problem in some communities, but funeral homes in larger cities may not be able to cope with the increased demand. An interpandemic assessment revealed that the funeral homes operating in the Vancouver Coastal Health region have a very limited capacity to handle an excess of bodies. Therefore temporary morgues will need to be used to augment funeral home capacity. A list of funeral homes that can provide services is shown in Table 3.

Table 3

IDENTIFICATION OF FUNERAL HOMES WITHIN VANCOUVER COASTAL HEALTH

Funeral Homes	Area Covered	Contact Address	Telephone Number As of October 15,2006	Body Capacity	Number of Personnel Requiring Vaccination
Armstrong Roselawn Funeral Chapel	Vancouver	304 Dunlevy Ave. Vancouver, BC, V6A 3A6	604 254 7466	8	5
Bell Funeral Chapel	Vancouver	2746 E Hastings Vancouver, BC, V5K 1Z9	604 253 4554	3-4	3
First Memorial Funeral Services Ltd	Vancouver	602 Kingsway Vancouver, BC, V5T 3K4	604 876 5585	4	9
Glenhaven Memorial Chapel Ltd	Vancouver	1835 E Hastings St. Vancouver, BC, V5L 1T3	604 255 5444	25	17
Hamilton-Harron Funeral Centre	Vancouver	5390 Fraser St. Vancouver, BC, V5W 2Z1	604 325 7441	10	11
Kearney Funeral Services Ltd.	Vancouver	1096 West Broadway Vancouver, BC, V6H 1E6	604 736 0268	16	10
Mount Pleasant Funeral Home	Vancouver	306 E 11 th Ave. Vancouver, BC, V5T 2C8	604 876 2161	4	5
Vancouver Memorial Services & Crematorium ♦	Vancouver	5505 Fraser St. Vancouver, BC, V5W 2Z3	604 325 8251	12	7
Walkey & Co. Funeral Directors	Vancouver	235 Commercial St. Vancouver, BC, V5L 4X1	604 738 0006	3	2
Schara Tzedek Cemetery Board	Vancouver	3476 Oak St. Vancouver, BC,	604 733 2277 604 603 7164 (Head Office – New Westminster)	4	10-15

Funeral Homes	Area Covered	Contact Address	Telephone Number As of April 13 th /2005	Body Capacity	Number of Personnel Requiring Vaccination
Richmond Funeral Home	Richmond	8420 Cambie Road Richmond, BC, V6X 1K1	604 273 3748	12	10
First Memorial Funeral Services	North Vancouver	1505 Lillooet Road North Vancouver, BC, V7J 2J1	604 980 3451	0	10
Hollyburn Funeral Home Ltd.	West Vancouver	1807 Marine Drive West Vancouver, BC, V7V 1J7	604 922 1221	5	5
Loving Memories Funeral Services	Squamish	38121 2 nd Avenue PO Box 2450 Squamish, BC, V0N 3G0	604 892 3683	10	4
Squamish Funeral Chapel & Mount Garibaldi Crematorium ♦	Squamish	40440 Tantalus Way, Garibaldi Highlands, Squamish, BC, V0N 1T0	604 898 5121	12-15	5
Devlin Funeral Home & Crematorium ♦	Gibsons	579 Seaview Road Box 648 Gibsons, BC, V0N 1V0	604 886 9551	10	5
Stubberfield Funeral Home	Powell River	7221 Duncan Street Powell River, BC, V8A 1W4	604 485 4112	12	3
Funeral Service Association of BC	NA	www.bcfunerals.com	1 800 665 3899	NA	NA

♦ Most crematoriums can handle about one body every 4 hours but could run 24 hours to cope with increased demand. Cremations have fewer resource requirements than burials and, where acceptable, this may be an expedient and efficient way of managing large numbers of corpses during a pandemic.

Hospital Morgue Facilities

Since it is expected that most fatal influenza cases will seek medical services prior to death, hospitals, nursing homes and other institutions (including non-traditional sites) must plan for more rapid processing of corpses. A list of hospital morgue facilities that can provide services is shown in Table 4.

Table 4

IDENTIFICATION OF MORGUE FACILITIES WITHIN VANCOUVER COASTAL HEALTH

HOSPITAL MORGUE	AREA COVERED	CONTACT ADDRESS	TELEPHONE NUMBER	BODY CAPACITY
St. Paul's Hospital	Vancouver	1081 Burrard Street Vancouver, BC, V6Z 1Y6	604 682 2344	17 (30-40 if in body bags)
Mount St. Joseph's Hospital	Vancouver	3080 Prince Edward Vancouver, BC, V5T 3N4	604 874 1141	5 – 6 (stretchers) 25 - 30 (body bags)

HOSPITAL MORGUE	AREA COVERED	CONTACT ADDRESS	TELEPHONE NUMBER	BODY CAPACITY
Vancouver General Hospital	Vancouver	855 W 12 th Ave Vancouver, BC, V5Z 1M9	604 875 4111	40 (100 if in body bags)
Children's & Women's Health Centre Of British Columbia	Vancouver	4500 Oak Street Vancouver, BC, V6H 3N1	604 875 2345	TBD
University of British Columbia Hospital	Vancouver	2211 Westbrook Mall Vancouver, BC, V6T 2B5	604 822 7121	TBD
Richmond Hospital	Richmond	7000 Westminster Hwy Richmond, BC, V6X 1A2	604 278 9711	16-20
Lions Gate Hospital	North Shore	231 E 15 th Ave North Vancouver, BC, V7L 2L7	604 988 3131	24
St. Mary's Hospital	Sechelt	5544 Sunshine Coast Hwy, Sechelt, British Columbia, V0N 3A0	604 885 2224	2

Temporary Morgue Facilities

Additional temporary cold storage facilities may be required during a pandemic, for the storage of corpses prior to their transfer to funeral homes. A temporary morgue must be maintained at +4 to +8 ° Celsius. However, corpses will begin to decompose in a few days when stored at this temperature. If the body is not going to be cremated, plans to expedite the embalming process should be developed since in the case of a pandemic, bodies may have to be stored for an extended period of time. In jurisdictions where a timely burial is not possible due to the lack of facilities or frozen ground, corpses may need to be stored for the duration of the pandemic wave (6 to 8 weeks).

The types of temporary morgue facilities to be considered may include refrigerated trucks, cold storage lockers, ice arenas and curling rinks. Use of local businesses for the storage of human remains is not recommended and should only be considered as a last resort. The post-pandemic implications of storing human remains at these sites can be very serious, and may result in negative impacts on business with ensuing liabilities.

12.4 — OTHER TECHNICAL CONSIDERATIONS

Autopsies

Many deaths in a pandemic would not require autopsies since autopsies are not indicated for the confirmation of influenza as the cause of death. However, for the purpose of public health surveillance (e.g. confirmation of the first cases at the start of the pandemic), respiratory tract specimens or lung tissues 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.

Death Registration

Death registration is a provincial/territorial (P/T) responsibility, and each P/T has its own laws, regulations, and practices of pronouncing and certifying a death. In British Columbia, physicians and coroners are legally responsible for completing all **Medical Certifications of Death**, which form part of the complete death registration. The completed certification of death must be made available to the appropriate funeral director, who requires it to obtain a burial permit.

Under the Vital Statistics Act, the coroner or physician is required **within 48 hours of death** to complete a **Medical Certification of Death** for each death that occurs in British Columbia and make the certificate available to the funeral director. The funeral director then completes the Vital Statistics **“Registration of Death”** form and forwards it along with the **“Medical Certification of Death”** form to the Vital Statistics District Registrar. Most funeral directors hold “district registrar” appointments and therefore all transactions regarding death registration are usually done through a funeral home. Once the **“Medical Certification of Death”** and **“Registration of Death”** forms are completed, a **“Burial Permit”** (required for burial or cremation) is then issued along with the requested number of original **“Death Certificates”** that were ordered by the legal representative of the deceased (see Tool 11.1 List of Legal Representatives). A “Death Certificate” from the Director of Vital Statistics, is different from the “Medical Certification of Death”.

In the pandemic situation, with the increased number of deaths, each jurisdiction must have a body collection plan in place to ensure that there is no unnecessary delay in moving a body to the (temporary/permanent) morgue. If the person’s death does not meet any of the criteria for needing to be reported to a coroner, then the person could be moved to a holding area soon after being pronounced dead (if in fact there is physician willing to make the pronouncement). Then, presumably, on a daily basis, a physician could be designated to complete the **Medical Certification of Death** form. (See Tool 11.2 regarding the circumstances a medical practitioner can complete a medical certification of death.). Further information can also be accessed via this website. http://www.qp.gov.bc.ca/statreg/stat/C/96072_01.htm#section9

NOTE – Death Pronouncement. In British Columbia, there is no legal requirement for the pronouncement of death, however, the College of Physician’s & Surgeons states that physicians have an “ethical responsibility” to pronounce the death, providing the death is not a reportable death under the Coroners Act. (See Tool 11.2 Deaths to be Reported)
In the case of a “planned or anticipated death”, a physician or registered nurse may pronounce the death, however, only a physician or coroner can register a death.

Infection Control

The Infection and Environmental Control Chapter 4 in the Vancouver Coastal Health Pandemic Influenza Plan, provides general recommendations on infection control for health care facilities and non-traditional sites during a pandemic. However, specific infection control measures are not required for the handling of persons who died from influenza, as the body is not contagious after death. Funeral homes should take routine infection control precautions with deaths from influenza. Additional training in the routine infection control practices and additional precautions is available through the Funeral Service Association of Canada (FSAC) at <http://www.fsac.ca/>.

Visitations could be a concern in terms of influenza transmission amongst attendees, particularly in smaller communities although families requesting cremation of their deceased relative are much less likely to request a visitation, thus reducing the risk of spreading influenza through public gatherings. It is the responsibility of the Medical Health Officer to place restrictions on the type and size of public gatherings if deemed necessary to reduce the spread of disease. This may apply to funerals and religious services. Medical Health Officers will plan in advance for how such restrictions will be enacted, and enforced, and for consistency and equitability of the application of any bans.

Transportation

No special vehicle or driver license is needed for transportation of a corpse. Therefore, there are no restrictions on families transporting bodies of family members if they have a death certificate.

Transportation of bodies from their place of death to their place of burial in northern and isolated communities may become an issue, especially if this requires air transport.

Supply Management

The Funeral Service Association of Canada (FSAC) is recommending to funeral directors that they not order excessive amounts of supplies such as embalming fluids, body bags, etc. but that they have enough on hand in a rotating inventory to handle the first wave of the pandemic (e.g. enough for six months of normal operation). Fluids can be stored for years, but body bags and other supplies have a limited shelf life. A supply list for temporary morgues will be accessible through FSAC. Cremations generally require fewer supplies since embalming is not required.

A list of current suppliers and contact numbers is provided in Tool 11.3.

Families having multiple deaths are unlikely to be able to afford multiple higher-end products or arrangements. Funeral homes could quickly run out of lower-cost items (e.g. inexpensive caskets such as cloth and some wooden caskets) and should be prepared to provide alternatives.

12.5 — SOCIAL/RELIGIOUS CONSIDERATIONS

Special Populations

A number of religious and ethnic groups have specific directives about how bodies are managed after death. First Nations, Inuit, persons of Jewish, Hindu, and Muslim faiths, all have specific directives for the treatment of bodies and for funerals. The wishes of the family will provide guidance, however, if no family is available local religious or ethnic communities can be contacted for information. For example, in the case of First Nations peoples, mechanisms currently exist to communicate with band councils for this purpose (established to deal with archaeological issues) and medical examiners should contact the band council of the individual where this is possible. For more information on the death and burial practices among all religions in Canada, please refer to the following website at

http://www.forces.gc.ca/hr/religions/engraph/religions_toc_e.asp?flag=No

As a result of these special requirements, some religious groups maintain facilities such as small morgues, crematoria, and other facilities, which are generally operated by volunteers. Religious leaders should be involved in planning for funeral management, bereavement counseling, and communications, particularly in ethnic communities with large numbers of people who do not speak the official languages.

Northern and Isolated Communities

Northern and isolated communities face particular issues in dealing with large numbers of fatalities. The following issues make the preparation, storage and burial/disposal of large numbers of corpses very challenging in such communities.

- The lack of funeral service personnel and other resources
- The extreme cold weather and heavy snowfalls in winter result in difficulties with burials, and in difficulties with the transportation of corpses.
- In remote areas where families live vast distances apart, corpses may have to be transported a long way for burial/disposal. This may be challenging for areas with few plane flights and no road access or poor road surface conditions. The large distances also pose a challenge for the transportation of funeral directors and funeral supplies.
- Frozen ground, boggy land and other geographical features also pose a challenge to transportation and burial.

12.6 — FORMS AND TOOLS

Form 11.1 Roles and Responsibilities Checklist

Tool 11.1 The Legal Representative of the Deceased

Tool 11.2 Coroner’s Act – Section 9 Deaths to be Reported

Tool 11.3 List of Current Suppliers

Form 11.1 Roles and Responsibilities Checklist

Action	Lead Person Regional	Lead Person HSDA	Status/Comments
Identify funeral homes and their capacity.			
Identify temporary morgue facilities and their capacity.			
Identify transportation to funeral homes/temporary morgue facilities.			
Identify mechanism to distribute body bags to funeral homes/temporary morgue facilities.			
Identify mechanism to distribute body bags to medical facilities in the event of shortages			
Identify mechanism to vaccinate individuals who have been identified to handle and dispose of the deceased			
Identify an individual at the region and HSDA to review and update list of funeral homes/temporary morgue facilities and designated coroners as needed or at least annually			

Tool 11.1 The Legal Representative of the Deceased

Cremation, Interment and Funeral Services Act – Part 5

Control of disposition of human remains or cremated remains

5 (1) Subject to this section and section 8 (3) (b) (i) [*requirement for authorization before funeral services or disposition*], the right of a person to control the disposition of the human remains or cremated remains vests in, and devolves on, the following persons in order of priority:

- (a) The personal representative named in the will of the deceased;
 - (b) The spouse of the deceased;
 - (c) An adult child of the deceased;
 - (d) An adult grandchild of the deceased;
 - (e) If the deceased was a minor, a person who was a legal guardian of the person of the deceased at the date of death;
 - (f) A parent of the deceased;
 - (g) An adult sibling of the deceased;
 - (h) An adult nephew or niece of the deceased;
 - (i) An adult next of kin of the deceased, determined on the basis provided by sections 89 and 90 of the *Estate Administration Act*;
 - (j) The minister under the *Employment and Assistance Act* or, if the official administrator under the *Estate Administration Act* is administering the estate of the deceased under that Act, the official administrator;
 - (k) An adult person having a personal or kinship relationship with the deceased, other than those referred to in paragraphs (b) to (d) and (f) to (i).
- (2) If the person at the top of the order of priority set out in subsection (1) is unavailable or unwilling to give instructions, the right to give instructions passes to the person who is next in priority.
- (3) If, under subsection (1), the right to control the disposition of human remains or cremated remains passes to persons of equal rank, the order of priority
- (a) Is determined in accordance with an agreement between or among them, or
 - (b) In the absence of an agreement referred to in paragraph (a), begins with the eldest of the persons and descends in order of age.

Tool 11.2 Deaths to be Reported

Coroner's Act – Section 9

1. A person must immediately notify a coroner or a peace officer of the facts and circumstances relating to a death if he or she has reason to believe that a person has died
 - a. As a result of violence, misadventure, negligence, misconduct, malpractice or suicide,
 - b. By unfair means,
 - c. During pregnancy or following pregnancy in circumstances that might reasonably be attributable to pregnancy,
 - d. Suddenly and unexpectedly,
 - e. From disease, sickness or unknown cause, for which the person was not treated by a medical practitioner,
 - f. From any cause, other than disease, under circumstances that may require investigation, or
 - g. In a correctional centre or penitentiary or a police prison or lockup.
2. The person in charge of an institution must immediately give notice to the coroner of the death of a person who dies
 - a. While a resident of or an in-patient in
 - (i) [Repealed 1999-39-6.]
 - (ii) a place for the examination, diagnosis, treatment or rehabilitation of mentally disordered persons to which the *Mental Health Act* applies, or
 - (iii) a public or private hospital to which the person was transferred from a place referred to in subparagraph (ii), or
 - b. While the person is, whether or not on the premises or in actual custody,
 - (i) a patient of a place referred to in paragraph (a) (ii), or
 - (ii) committed to a correctional centre or penitentiary or a police prison or lockup.
3. If a person dies while detained by or in the actual custody of a peace officer, the peace officer must immediately notify the coroner.
4. A peace officer who is notified under subsection (1) must notify a coroner.

Tool 11.3 List of Current Suppliers

Embalming Supplies - Including body bags, disposable & reusable protective apparel, masks, gloves, disinfectants, germicidal soaps, etc.

H.S. Eckels and Company, Rexdale, Ontario

Head Office: 1.800.265.8350

BC Representative: 250.769.3353

Dodge Chemical Co. (Canada) Ltd., Mississauga, Ontario

Head Office: 1.800.263.0862

BC Representative: 250.889.2645

Embalmers Supply Co. of Canada (ESCO), Rexdale, Ontario

Head Office: 1.800.387.7474

BC Representative: 604.942.4191

Body Bags and Shroud Kits

The Stevens Company Limited, 8188 Swenson Way, Delta, B.C.

Tel: 604.634.3088 / Toll: 800.565.8444

Fax: 604.585.0193 [Email: stevens@stevens.ca](mailto:stevens@stevens.ca)

Source Medical Corporation, 8590 Baxter Place, Burnaby, B.C.

Customer Service: 877.878.7778

VCH Representative: 780.453.3921

Casket Manufacturers and Suppliers

Batesville Canada

Telephone: 604.523.4940 – Vancouver Service Centre

Telephone: 1.800.268.6161 – Head Office, Oakville, Ontario

Classic Casket Distributors – Burnaby, BC

Telephone: 1.800.676.5646

Imperial Evergreen Casket Corporation – Burnaby, BC

Telephone: 1.604.420.6343

Vancouver Casket Ltd. – Burnaby, BC

Telephone: 1.604.431.0893

Eastern Canada Casket Manufacturers and Suppliers-

Alton Caskets	Telephone: 1.800.265.1929
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J.I. Astley & Associates	Telephone: 1.800.263.4616
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Colonial Caskets Limited	Telephone: 1.204.632.9771
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Northern Casket (1976) Ltd.	Telephone: 1.705.324.6164
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Victoriaville Funeral Supplies, Inc.	Telephone: 1.800.752.4093
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12.7 – NEXT STEPS

- Explore funeral home protocols in terms of surge capacity with regard to body capacity and cremations.
- Determine what changes can be made within northern and isolated communities to meet increased demand during a pandemic as transportation of bodies from their place of death to their place of burial in may become an issue.
- Further discuss any limitations for the disposal of the deceased in a culturally sensitive manner under the emergency conditions of the pandemic.
- Address the status of temporary morgue sites within each municipality based on local availability and requirements.

Chapter 13

PRIVATE SECTOR

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CHAPTER SUMMARY

The effects of influenza pandemic in Vancouver Coastal Health will not only affect the health services delivery system but also have effects on public services and the private sector.

Preparedness is the key to an effective response and to mitigating the impacts of a pandemic. The private sector has an important role to play in pandemic influenza preparedness and response.

Business continuity planning will enable businesses and other organizations to identify steps to take to minimize the effects of a pandemic.

A *Pandemic Response Planning Checklist for Businesses* is available at:

http://www.vch.ca/pandemic/docs/business_checklist.pdf

Businesses are also referred to *Influenza Pandemic: Continuity Planning Guide for Canadian Business*, March, 2006, available from Canadian Manufacturers and Exporters at:

http://www.cme-mec.ca/pdf/CME_Pandemic_Guide.pdf

and to *Managing Pandemic Influenza, A Guide for BC Industry and Commerce*, February, 2006 available at:

http://www.health.gov.bc.ca/cpa/publications/pandemic_guide.pdf

Chapter 14

LOCAL GOVERNMENT

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CHAPTER SUMMARY

Municipalities and Regional Districts within a Health Authority should develop management guidelines and procedures for health emergencies to enable local governments, working in conjunction with the Health Authorities, to maintain the continuity of essential services and support to residents. The Health Authority, through the Medical Health Officer (MHO), will take the lead in providing advice and counsel to local government's emergency services.

In the face of a pandemic influenza outbreak, the municipality in consultation with the local Health Authority will activate the necessary contingency plans and set priorities for continuity of local government. These priorities include maintenance of public safety services such as Fire and Police; operation of essential public works and municipal services such as water treatment-delivery, waste management, garbage disposal, and utilities; providing information and advice to the public through regular announcements; closure of public buildings where it is deemed to be in the best interests of public safety and to minimize the spread of infection; establishing alternative care facilities and triage centres as requested by the local Health Authority to facilitate the immunization of the public and provide healthcare in non-traditional settings; activating a committee of local business persons charged with the task of activating their mutual aid pacts to assist one another in maintaining a level of service to the community, particularly those services involving access to pharmaceuticals, retail food purchases, gasoline and other essential commodities. This chapter was adapted from the British Columbia Influenza Plan, Annex G: Municipal/Local Government Planning Considerations.

14.1 — LOCAL GOVERNMENT EMERGENCY OPERATIONS CENTRES (EOC)

Establishment of a Municipal Emergency Operations Centre (EOC)

Upon notification from the local Health Authority of a Pandemic Alert, where preparations to respond to an influenza pandemic need to be implemented, the municipal or local government will activate the EOC at the appropriate level. Staff representing the Health Authority (Medical Health Officer or Designate) will report to the EOC to provide a briefing of the situation. The Medical Health Officer will take the lead role in providing advice and direction to local government.

As the situation escalates (Pandemic Imminent), the functions of the EOC will need to become more aggressive in responding to the seriousness of the situation and communication links between the Health Authority and local government will become necessary.

Health Authority Administrative Control Structure

The Health Authority, through the Medical Health Officer, will provide advice and counsel to local government on all health emergency issues. In addition, the Medical Health Officer will take whatever steps are reasonably possible to suppress the disease and protect the public as described in the Health Act. The Health Authority will attempt to provide staff to the local government Emergency Operations Centre(s), whenever possible. In the event of staff resource shortages, Regional staff will be accessed through the Health Authority Emergency Operations Centre.

14.2 — HEALTH AUTHORITY

The Medical Health Officer will take the lead in providing advice and counsel to local government. In addition, the Medical Health Officer shall take whatever steps are reasonably possible to suppress the disease and protect the public as described in the Health Act.

Pre-Pandemic Responsibilities

- Evaluate adequacy of existing local infrastructure to respond to an influenza pandemic.
- Work in conjunction with health service providers, employers, and municipalities to improve annual influenza vaccination levels
- Review current plans for mass vaccination campaigns
- Determine availability of alternate sites for triage centres, treatment centres
- Identify facilities/resources with sufficient refrigerated storage to serve as temporary morgues
- Devise a plan for distribution and administration of vaccine to public.
- Educate staff about the nature and significance of pandemic influenza and the local response.
- Work with local private and volunteer organizations to develop and synchronize local response to a pandemic influenza.
- Coordinate pandemic influenza planning with municipal/Regional District partners.
- Establish a list of public buildings and review the benefits and disadvantages of closure of those public facilities in the interest of public health, in conjunction with the local Emergency Response agencies.

When a Novel Influenza Strain is Identified

Upon identification of a novel influenza strain, the Health Authority will be responsible for monitoring reports from public health agencies, such as the WHO and the CDC. The Health Authority shall notify the appropriate local government agencies of alert of any alerts.

Responsibilities Upon Confirmation of a Pandemic

- Report to or send designate to Municipal EOC to provide a briefing and receive status reports from partner agencies
- Be prepared to respond to media inquiries regarding the outbreak
- Activate emergency plans, as required
- Plan for implementation of alternate care sites
- Plan for implementation of counseling/psychiatric support services
- Continued on the next page
- Implement health education campaign with emphasis on following: hand washing, stay home rather than be exposed to/spread the influenza virus, check on family, friends living alone, vaccination clinic locations, signs, symptoms, vaccine safety and storage
- Review list of alternate care facilities with municipal planners and Emergency Social Services
- Attend EOC briefings and provide regular updates to the local Government.

Responsibilities Upon Confirmation of a Pandemic in Canada

- Activate Health Authority Pandemic Plan.
- Report to Municipal EOC to provide a briefing and receive status reports from partner agencies.
- Increase public information effort designed to keep ill persons at home.
- If medical/health mutual aid system is overwhelmed, request assistance from Province but anticipate that assistance from others may be limited.

- Implement alternate care sites, as necessary to respond to overwhelming caseload.
- Attend EOC briefings and provide regular updates to the municipality.

Post Pandemic Responsibilities

The Health Authority shall ensure that all safety and health issues have been identified and resolved. Response plans should also be reviewed and recommendations made based on lessons learned.

14.3 — LOCAL GOVERNMENT EMERGENCY SERVICES LEADERS

Pre-Pandemic Responsibilities

- Establish plans and procedures to support Health Authority initiatives to prepare for a pandemic.
- Develop a program, in conjunction with the Health Authority, to facilitate routine, annual influenza vaccination of staff.
- Establish a list of public buildings and review the benefits and disadvantages of closure of those public facilities in the interest of public health, in conjunction with the Health Authority.
- Ensure that areas of responsibility essential for maintenance of government have been backed up so that appropriate designated personnel can take over management in case of absence due to illness.
- Review mutual aid agreements with neighboring communities to share personnel capable of managing and maintaining essential services.
- Review and confirm availability of facilities for alternate care, triage, cremation, refrigeration, with Health Authority and Coroners Services.
- Arrange and facilitate a meeting with the local Chamber of Commerce and local business leaders regarding the need for mutual aid support between businesses.

Responsibilities During a Pandemic

- Advise Chief Elected Official and Council
- Activate the EOC
- Provide a briefing to all EOC members
- Consider obtaining declaration of state of emergency, if necessary
- Be prepared to respond to media inquiries regarding the outbreak
- Post information on appropriate websites
- Implementation of mass clinics. Also, security arrangements for facilities to be used for mass clinics and health care.
- Implement alternate care sites, as necessary, to respond to overwhelming caseload
- Ensure transportation available to those individuals unable to transport themselves to access treatment and/or immunization
- All areas will implement plans for procedures to address supply and personnel shortfalls
- Plan with Health Authority for the implementation of Victim Assistance Centre to provide social service and mental health assistance
- Implementation of volunteer support services registry
- Arrange for the local Chamber of Commerce to meet with businesses to ensure continuity of services
- Working with the Health Authority, ensure that self-help guidelines are distributed to businesses and public
- Meet with representatives of local businesses to ensure essential businesses remain open
- Confirm arrangements with local funeral directors for burial plots, cremation, and refrigeration. Also, determine availability of burial plots and assign staff/crews to assist local funeral homes with tasks associated with burial and/or cremation.
- Alert neighbourhood-watch or other community based response organizations.
- Consult with the Health Authority on the need to close public buildings and cancel public events

- Consult with the Health Authority on the need for control of movement of people and commodities in and out of the community
- Increase public information effort designed to keep ill persons at home
- If police, fire, ambulance mutual aid is overwhelmed, request military assistance from Provincial level

Post Pandemic Responsibilities

- Provide coordinated support services for persons impacted by the pandemic influenza through the Victim Assistance Centre
- Review, evaluate and assess impact of Municipal pandemic response
- Monitor and redistribute resources, as appropriate

14.4 — POLICE SERVICE/RCMP

Pre-Pandemic Responsibilities

- Work with Health Authority and local Emergency Services Agencies to develop contingency plans for pandemic influenza
- Encourage agency personnel to receive annual influenza vaccine
- Establish a registry of former and retired personnel and suitable volunteers
- Ensure all essential positions are backed up with an alternate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning

Responsibilities During a Pandemic

- Designate to report to Municipal EOC
- Implement contingency plans
- Cease non-essential services
- Apprise EOC of critical gaps in ability to provide essential services
- Enforce any travel restrictions in and out of the community
- Control traffic to facilitate movement of emergency vehicles
- Provision of security for mass vaccination clinics
- Provision of security for vaccine

Post Pandemic Responsibilities

- Assess ability to resume normal provision of emergency essential services
- Report results of assessment to EOC
- Review and revise plans, as necessary

14.5 — COMMUNITY EMERGENCY SOCIAL SERVICES

Pre-Pandemic Responsibilities

- Work with Health Authority and local Emergency Services Agencies to develop contingency plans for pandemic influenza
- Encourage agency personnel to receive annual influenza vaccine
- Establish a registry of former and retired personnel and suitable volunteers
- Ensure all essential positions are backed up with an alternate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning
- Consider supplemental role to assist BCAS and Police and security services

Responsibilities During a Pandemic

- Designate to report to Municipal EOC.
- Review contingency plans for pandemic influenza
- Implement Victim Assistance Centre to provide social service and mental health assistance
- Implement contingency plans
- Implement alternate care sites, as necessary, to respond to overwhelming caseload in consultation with Health Authority
- Apprise EOC of critical gaps in ability to provide essential social services
- Determine support needed for orphaned children and the need for grieving and counseling services

Post Pandemic Responsibilities

- Assess ability to resume normal provision of social services
- Report results of assessment to EOC
- Assist in the implementation of a Victim Assistance Centre
- Review and revise plans, as necessary

14.6 — EMERGENCY HEALTH SERVICES (EHS)

Pre-Pandemic Responsibilities

- Establish plans and procedures to support Health Authority initiatives in a pandemic influenza
- Work with Health Authority to improve routine annual vaccination of staff, EHS personnel
- Establish a registry of former and retired personnel and suitable volunteers
- Ensure all essential positions are backed up with an alternate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning

Responsibilities During a Pandemic

- Designate to report to Municipal EOC,
- Activate emergency response plans
- Implement staff health education campaign
- Provide regular updates to staff
- Monitor status of alternate treatment sites, personnel and equipment
- Cease non-essential services
- Apprise EOC of critical gaps in ability to provide emergency medical services

Post Pandemic Responsibilities

- Assess ability to resume normal provision of emergency essential services
- Report results of assessment to EOC
- Review and revise plans, as necessary

14.7 — FIRE DEPARTMENTS

Pre-Pandemic Responsibilities

- Work with Health Authority and local Emergency Services Agencies to develop contingency plans for pandemic influenza
- Encourage agency personnel to receive annual influenza vaccine
- Establish a registry of former and retired personnel and suitable volunteers
- Ensure all essential positions are backed up with an alternate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning

Responsibilities During a Pandemic

- Designate to report to Municipal EOC
- Implement contingency plans
- Cease non-essential services
- Apprise EOC of critical gaps in ability to provide emergency services

Post Pandemic Responsibilities

- Assess ability to resume normal provision of essential services
- Report results of assessment to EOC
- Review and revise plans, as necessary

14.8 — LOCAL NON-GOVERNMENT ORGANIZATIONS (NGOS)

Pre-Pandemic Responsibilities

- Work to increase routine annual influenza vaccination coverage among employees and clients
- Develop contingency plans for response
- Establish and maintain contact with Health Authority and/or Local Government Emergency Services Agencies
- Identify essential staff and develop contingency plans for operations under prolonged staff shortages and/or shortages of resources
- Local chamber of commerce to establish committee to ensure essential retail operations continue to operate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning
- Consider ability to provide assistance to health services or other overwhelmed agencies

Responsibilities During a Pandemic

- Monitor appropriate information sources for updated information
- Consider implementing a telecommuting system so more people can stay at home
- Implement health education plan through appropriate workplace health and safety programs
- Implement contingency plans
- Be prepared to make arrangements to rotate hours/days of operation, rotation (loan) of service staff

Post Pandemic Responsibilities

- Assess ability to resume normal organizational function
- Report results of assessment to organization director
- Review and revise plans, as necessary

14.9 — LOCAL GOVERNMENT COMMUNICATION/PUBLIC INFORMATION

Pre-Pandemic Responsibilities

- Work with Health Authority and local Emergency Services Agencies to develop contingency communications templates and plans for pandemic influenza
- Encourage agency personnel to receive annual influenza vaccine
- Raise public awareness of pandemic influenza, importance of handwashing, vaccination, self-care
- Ensure all essential positions are backed up with an alternate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning
- Develop tools and networks for effective and efficient communication to mitigate the effects of pandemic influenza

Responsibilities During a Pandemic

- Designate to report to Municipal EOC
- Prepare media briefings in conjunction with local Health Authority
- Liaise with Health Authority to coordinate distribution of self-help information to general public
- Activation of Declaration of Local State of Emergency Notification Procedure, when necessary
- Implement plans to establish a 1-800 line and updates on municipal websites.
- Ensure websites, phone lines, etc. are kept current
- Media given regular up-to-date information. Also, monitor media to ensure correct information is being reported.
- Activation of Declaration of Local State of Emergency Notification Procedure, when necessary
- Liaise with Health Authority to coordinate distribution of self-help information to general public
- Apprise EOC of critical gaps in ability to provide communications updates

Post Pandemic Responsibilities

- Assess ability to resume normal provision of services
- Report results of assessment to EOC
- Review and revise plans, as necessary

14.10 — MUNICIPAL ENGINEERING/PUBLIC WORKS

Pre-Pandemic Responsibilities

- Work with Health Authority and local Emergency Services Agencies to develop contingency plans for pandemic influenza
- Encourage agency personnel to receive annual influenza vaccine
- Ensure all essential positions are backed up with an alternate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning

Responsibilities During a Pandemic

- Designate to report to Municipal EOC
- Be prepared to arrange for access and control of designated facilities to be used by the Health Authority
- Implement contingency plans
- Apprise EOC of critical gaps in ability to provide essential engineering services
- Arrange access and control of designated facilities to be used by Health Authority for:
 - Mass Clinics
 - Alternate care facilities
 - Triage centres
 - Storage facilities
 - Alternate morgue locations
 - Victim Assistance Centre
 - Others as required

Post Pandemic Responsibilities

- Assess ability to resume normal provision of engineering services
- Report results of assessment to EOC
- Review and revise plans, as necessary

14.11 — UTILITIES COMPANIES

Pre-Pandemic Responsibilities

- Work with Health Authority and local Emergency Services Agency to develop contingency plans for pandemic influenza
- Encourage agency personnel to receive annual influenza vaccine
- Ensure all essential positions are backed up with an alternate
- Review current emergency plans and extract all relevant sections that may be used for pandemic planning

Responsibilities During a Pandemic

- Designate to report to Municipal EOC
- Provide updates as to staffing and resources
- Implement contingency plans
- Apprise EOC of critical gaps in ability to provide essential utility services

Post Pandemic Responsibilities

- Assess ability to resume normal provision of utility services
- Report results of assessment to EOC
- Review and revise plans, as necessary

Chapter 15

GLOSSARY, REFERENCES & CONTACT LISTS

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15.1 – GLOSSARY

A

ACF — Alternate Care Facilities

ACIP — Advisory Committee on Immunization Practices (American)

AEOC — Area Emergency Operations Centre (See EOC)

AI — Avian Influenza (see definition below)

ALC — Alternate Level of Care

Acute — Short term, intense symptomatology or pathology, as distinct from chronic. Many diseases have an acute phase and a chronic phase.

Acute Care — Services provided by physicians and other health professionals and staff in the community and in hospitals, including emergency, general medical and surgical, psychiatric, obstetric and diagnostic services.

Airborne precautions — Precautions taken to prevent and control the spread of infection for organisms spread by airborne transmission

Airborne transmission — Refers to dissemination of microorganisms by aerosolization. Organisms are contained in droplet nuclei (small airborne particles, <5 microns in size, that result from evaporation of large droplets) or in dust particles containing skin cell slough/debris that remain suspended in the air for long periods of time. Such microorganisms are widely dispersed by air currents.

All hazards approach — An emergency system or plan that can be used during any emergency or disaster.

Antiseptic — A chemical that either inhibits the growth of microorganisms or destroys them. This term refers to agents used on living tissue.

Avian Influenza (AI) — An infection of poultry caused either by any influenza A virus which has an intravenous pathogenicity index (IVPI) in 6—week old chickens greater than 1.2 or by an influenza A virus of H5 or H7 subtype.

B

BC or B.C. — British Columbia

BCAS — British Columbia Ambulance Service

BCCDC — British Columbia Centre for Disease Control

BCCS — British Columbia Coroners Service

BCERMS — British Columbia Emergency Response Management System

BCPIAC — British Columbia Pandemic Influenza Advisory Committee

BCPIWG — British Columbia Pandemic Influenza Working Group

BiPAP — Bi Positive Airway Pressure

Bed (Institutional Bed) — In any institution a “bed” includes infrastructure support, including staffing, which is required to care for the patient in that “bed”. Therefore the requirements for a “bed” in an intensive care unit, for example, include all the support required for a patient to be cared for at that level.

Bi Positive Airway Pressure (BiPAP) — This is a form of mechanical ventilation by which gases are moved into the lungs by means of a mechanical device that assists respiration by augmenting or replacing the patient's own respiratory effort. BiPAP provides two levels of pressure (higher pressure on inhalation, lesser on exhalation). Also, see CPAP.

Biomedical Waste — Waste that is generated by human or animal health care facilities, medical or veterinary settings, health care teaching establishments, laboratories, and facilities involved in the production of vaccine.

C

CCG — Central Coordination Group
CERP — Centre for Emergency Preparedness and Response
CIPHI — Canadian Institute of Public Health Inspectors
CMOH — Chief Medical Officer of Health
CPAP — Continuous Positive Airway Pressure (See definition below)
CPIP — Canadian Pandemic Influenza Plan
CSA — Canadian Securities Administrators

Cleaning — The physical removal of foreign material, e.g., dust, soil, organic material such as blood, secretions, excretions and microorganisms. Physical cleaning removes rather than kills microorganisms. It is accomplished with water, detergents and mechanical action. In certain settings (e.g., central service or dietetics), the terms decontamination and sanitation may be used for this process. Cleaning reduces or eliminates the reservoirs of potential pathogenic organisms. Cleaning agents are the most common chemicals used in housekeeping activity.

Clinic Session — the number of full shifts (8 or 12 hour) of clinic operation, conducted either at one or several different mass vaccination clinic sites

Cohort — A group of people. In the case of infection, a group of people who have been exposed to or infected with the same organism.

Cohort Staffing — The practice of assigning specific personnel to care only for patients/residents known to be exposed to, or infected with, the same organism. Such personnel would not participate in the care of patients/residents who have not been exposed to, or infected with, the organism.

Command Staff — The command staff consists of the Information Officer, Risk/Safety Officer and Liaison Officer

Communications Unit — An organizational unit in the Logistics section in an Emergency Operations Centre (see EOC) responsible for providing communications services.

Contact Precautions — Precautions taken to prevent and control the spread of infection for organisms spread by contact transmission.

Contact transmission — Transmission of infection through direct physical contact) and/or indirect contact via an intermediate object such as contaminated instruments, door handles, etc.

Continuous Positive Airway Pressure — Positive pressure oxygen delivery system using a specially designed nasal mask.

Critical Resources — Material, personnel and finances in short supply and needed by more than one incident management team or for high priority assignments

Cross resistance — The development of pathogen strains that not only withstand the effects of a given antimicrobial agent, but other chemically related agents as well.

D

DND — Department of National Defense

Documentation Unit — Unit within the planning section responsible for collecting, recording and safeguarding all documents relevant to the incident.

Droplet precautions — Precautions taken to prevent and control the spread of infections for organisms spread by droplet transmission.

Droplet Transmission — Transmission of infection via large droplets, greater than or equal to 5 microns in size, generated from the respiratory tract during coughing or sneezing, or during procedures such as suctioning or bronchoscopy. These droplets are propelled a short distance (approx. 1 metre/3 feet or less) through the air and can come in contact with the eyes, nose or mouth of another person, thus infecting them.

E

ECC — Emergency Coordination Centre (See definition below)
ED — Emergency Department
EFA — Emergency Financial Assistance
EHO — Environmental Health Officer
EHS — Emergency Health Services (See definition below)
EM — Emergency Management
EOC — Emergency Operations Centre (See definition below)
ER — Emergency Room
ESS — Emergency Social Services

Emergency Coordination Centre (ECC) — Located at the PEP headquarters, the ECC receives and disseminates information from multiple sources regarding emergency situations. The 24-hour ECC also serves as the “incident message centre” for the PECC

Emergency Health Services — A Commission established in 1974 to oversee the delivery of all emergency health services in BC. BC Ambulance Services works under the EHS Commission (see BCAS).

Emergency Operations Centre (EOC) — A pre-designated facility established by a local authority, jurisdiction or agency to coordinate the site response and support in an emergency.

Emergency Social Services — Provides short-term services (generally 72 hours) to preserve the emotional and physical well being of evacuees and response workers in emergency situations.

Epidemic — An outbreak of infection that spreads rapidly and affects many individuals in a given area or population at the same time.

Epidemiology — A branch of medical science dealing with the transmission and control of disease, including the study of epidemics and epidemic diseases.

F

FHA — Fraser Health Authority

F/P/T/L — Federal/Provincial/Territorial/Local

Flu — A common, slang term for influenza infection, although it is often mistakenly used in reference to gastrointestinal and other types of clinical illness

H

HA —Health Authority (See definition below)

HABCERMS — Health Authority British Columbia Emergency Response Management System

HCW — Health Care Worker (See definition below)

HEICS — Hospital Emergency Incident Command System

HERT — Health Emergency Response Team

HLTHSVC — Ministry of Health Services (see MOHS)

HPAI — Highly Pathogenic Avian Influenza

HSDA — Health Service Delivery Area (See definition below)

HSEP — Health Services and Emergency Planning

H1N1 — Influenza A subtype. A strain of this subtype caused the 1918-1919 influenza pandemic. This subtype continues to circulate in humans and is regularly included in annual human influenza vaccines.

H2N2 — Influenza A subtype. A strain of this subtype caused the 1957-58 influenza pandemic. This subtype continues to circulate in humans.

H3N2 — Influenza A subtype. A strain of this subtype caused the 1968-1969 influenza pandemic. This subtype continues to circulate in humans and is regularly included in annual human influenza vaccines. Of the three influenza viruses that currently circulate in humans (A/H1N1, A/H3N2, B), this type causes the greatest annual morbidity and mortality.

H5N1 — Influenza A subtype, currently avian only. A strain of this subtype infected both poultry and humans in 1997 in Hong Kong. Of 18 people infected, 6 died. This subtype has continued to cause poultry outbreaks and sporadic human infections. Of most significance, a strain of this subtype caused widespread poultry outbreaks in several Asian countries in 2004—2005. It has infected several dozen humans, many of who died. Human infection is primarily through direct poultry contact, although there is concern that this subtype could mutate or reassort to become the next pandemic strain. (See www.who.int for current information.)

H7N3 — Influenza A subtype, currently avian only. A strain of this subtype caused a widespread poultry outbreak in the Fraser Valley of BC in spring 2004. Two humans became infected during this outbreak. Illness was mild and resolved quickly.

H7N7 — influenza A subtype, currently avian only. A strain of this subtype caused a widespread poultry outbreak in the Netherlands in early 2003. Eighty-nine humans became infected during this outbreak. Illness was mostly mild and resolved quickly, although there was one case of serious illness resulting in death.

Hand hygiene/ Hand washing/ Hand antisepsis — The process of removing soil and transient microorganisms from the hands. Hand hygiene is a general term that applies to hand washing or hand antisepsis. Hand washing refers to washing hands with soap and water. Hand antisepsis refers to hand washing with an antiseptic hand wash.

Health Act — A BC provincial statute that mandates MHOs and regulates matters of communicable disease control and sanitation for the purpose of protection of the public from health hazards.

Health Authority (HA) — A health services organization created pursuant to the Health Authorities Act, for the purpose of planning, organizing and delivering a range of facility and community-based health services to either a designated geographic region, or target populations.

Health Authority British Columbia Emergency Response Management System — Emergency response management system used by some health authorities in BC.

Health Care Workers (HCW) — Health Care Workers are professionals, including trainees and retirees, nonprofessionals and volunteers involved in direct patient care and/or those working/volunteering in designated health care facilities or services. During an influenza pandemic, HCWs are those whose functions are essential to the provision of patient care, and who may have the potential for acquiring or transmitting infectious agents during the course of their work. This group would also include public health professionals during a pandemic.

HealthGuide (BC) — The BC HealthGuide includes BC HealthGuide Online (information on more than 3,000 common health topics), the BC NurseLine (health information and advice through a toll free telephone line), the BC HealthFiles (a series of one page fact sheets on health and safety), and the BC HealthGuide (a handbook with advice and information on more than 190 common health concerns).

Health Service Delivery Area (HSDA) — A geographic area/division of a Health Authority responsible for delivering specified health services.

Health Status — The state of health of an individual or a population

Hemagglutinin — A protein on the surface of the influenza virus that helps the virus attach to the respiratory tract. Used to identify and label influenza subtypes and strains

Highly Pathogenic Avian Influenza — A highly contagious disease of poultry caused by avian influenza virus and resulting in significant mortality.

High Risk Groups — Those groups in which epidemiologic evidence indicates there is an increased risk of contracting a disease.

I

ICS — Incident Command System
IEPC — Interagency Emergency Preparedness Council
IHA — Interior Health Authority
ILI — Influenza like illness
IM — Intramuscular
IO — Information Officer

Immunize — To make immune, as in making able to resist a particular disease, most often through administration of a vaccine delivered by a needle.

Incident Action Plan — Contains objectives reflecting the overall incident strategy and specified tactical actions and supporting information for the next operational period (see Operational Period).

Incident Command System — A standardized on-scene emergency management concept specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries.

Infection — Condition in which organisms multiply within the body and cause a response from the host's immune defenses. Infection may or may not lead to clinical disease

Influenza — A highly contagious infection of the respiratory tract (nose, throat, bronchial tubes, lungs) caused by the influenza virus. The illness is characterized by sudden onset, fever, cough, sore throat, malaise and general aches, and also by nausea/vomiting and diarrhea in children. In the very young, fever may not be prominent. In geriatric age groups, persons often experience fever or feverishness with chills, but these symptoms may not be prominent. Influenza viruses cause annual influenza epidemics and occasional worldwide influenza pandemics

Influenza Virus — There are three types of influenza viruses: A, B and C. Subcategories of influenza (subtypes) are based on the configuration of two proteins on the virus surface—hemagglutinin (H) and neuraminidase (N). Subtypes of influenza A virus known to readily infect humans include H1N1, H2N2, H3N2. Avian influenza A viruses (H5N1, H7N7, H7N3, H9N2) have also recently been shown to infect humans, although they do not do so readily. The threat of pandemic influenza is related to the introduction of a new subtype of influenza A into the human population.

Influenza Like Illness (ILI) — Acute onset of respiratory illness with fever and cough and one or more of sore throat, arthralgia, myalgia or prostration, which could be due to influenza.

Influenza type A — A category of influenza virus characterized by specific internal proteins. Influenza A viruses are further subgrouped according to variations in their two surface proteins, hemagglutinin (H) and neuraminidase (N) (e.g., H1N1, H3N2). Influenza A viruses infect animals as well as humans and causes annual influenza epidemics and occasional influenza pandemics.

Influenza type B — A category of influenza virus characterized by specific internal proteins. Influenza B viruses infect only humans, cause less severe clinical illness than type A, and spread in regional rather than pandemic outbreaks

Influenza type C — A category of influenza virus characterized by specific internal proteins. Influenza C viruses do not cause significant clinical illness.

Inpatient — An individual who receives health care services while admitted in a health care facility overnight or longer.

iPHIS — Integrated Public Health Information System. iPHIS is a web-based software suite of customized health information management tools. It offers client level tools for daily case

management and health surveillance data for regional/provincial/national data reporting. See http://www.ciphs.ca/ciphs_application.html for more information

Isolation — Isolation means the separation, for the period of communicability of the disease, of an infected person or animal from others in a place and under conditions to prevent the conveyance of the infectious agent to those others.

J

JBCRT — Joint Biological Chemical Response Team

L

LHA — Local Health Area

LPAI — Low Pathogenicity Avian Influenza (See definition below)

LPN — Licensed Practical Nurse (See definition below)

LTCF — Long Term Care Facility

Low Pathogenicity Avian Influenza — A generally mild disease of poultry caused by avian influenza virus, resulting in respiratory symptoms and a drop in egg production, but little or no mortality.

Licensed Practical Nurse (LPN) — A nursing school graduate who has been licensed by a provincial/territorial body; occasional synonym: licensed vocational nurse (LVN).

M

MD — Doctor of Medicine

MEP — Municipal Emergency Plan

Mg — Milligram

MHO — Medical Health Officer

MOHS — Ministry of Health Services

MOHS — Ministry of Health Services (see definition below).

MOU — Memorandum of Understanding

MROC — Ministry Regional Operations Centre (see definition below)

MD (Doctor of Medicine) — An individual holding a doctoral degree in medicine.

Mean (statistical) — Commonly referred to as the “average”, the mean of a set of quantities is the sum of the quantities, divided by the number of quantities summed

Median (statistical) — The value such that for a series of ranked quantities, one half are above the median, and one half are below

Ministry of Health Services (MOHS) — The Ministry that supports British Columbians in their efforts to maintain and improve their health

Mode (statistical) — The most frequently occurring number in a series of numbers

Morbidity — Illness; Departure from a state of well being, either physiologic or psychological

Morbidity Rate — The number of cases of an illness (morbidity) in a population divided by the total population at risk for that illness

Mortality — Death

Mortality Rate — The number of people who die during a specific time period divided by the total population

Ministry Regional Operations Centre (MROC) — An Operations Centre established and operated by a ministry to coordinate the ministry’s emergency response in that region. Structure and function is similar to PREOC

Mutation — A permanent, transmissible change in the genetic material of a cell.

N

NACI — National Advisory Committee on Immunization

NBC — Nuclear, Biological, Chemical

NESS — National Emergency Stockpile System

NHA — Northern Health Authority

NML — National Microbiology Laboratory

NML4 — National Microbial Laboratory Level 4 (see definition below)

National Microbial Laboratory Level 4 — a level of security denoting the ability to work with exotic and dangerous agents that usually produce very serious and often fatal human and animal diseases. These agents are transmitted readily from person to person or from animal to human (and vice versa) through the air or casual contact. Researchers must follow the same strict entry and exit protocols as level 3. In addition, they wear positive air pressure protective suits connected to filtered airlines. The suits are chemically treated after each session and always remain in the secured area of the laboratory. Both levels 3 and 4 containment laboratories are specially constructed using "box-within-a-box" negative air pressure zone principles. In addition, specific building materials and techniques have been used to ensure all systems and surfaces are sealed.

Non-Traditional Health Care Settings — Settings predetermined for operation prior to an influenza pandemic and operational only when influenza pandemic is declared by the World Health Organization.

Non-Traditional Site — A site (for pandemic influenza planning) that is not a currently established health care site, or that is a site that usually offers a different type or level of care. During influenza pandemic, it is expected that non-traditional sites will be needed to provide care for influenza patients and will focus on monitoring, care and support of these patients.

Novel virus — a new, unusually virulent strain of virus arising from a mutation, which endows the virus with the capacity to be easily transmitted from one person to another

O

OCIPEP — Office of Critical Infrastructure and Protection and Emergency Preparedness

OHS — Occupational Health and Safety (see definition below)

OHSAH — Occupational Health and Safety Agency for Healthcare in BC Operational Period.
(see definition below)

Occupational Health and Safety — promotes occupational health and safety and protection of workers and other persons present at workplaces from work-related risks to their health, safety, and well being.

Occupational Health and Safety Agency for Healthcare in BC Operational Period — period of time scheduled for the execution of a given set of operational actions as specified in the action plan. Operational periods can be various lengths, although usually they are not longer than 24 hours.

Opportunistic Infections — **infection** in an immune compromised person caused by an organism that does not usually cause disease in healthy people. Many of these organisms are widely carried in the population in a latent state, and only cause disease when given the opportunity of a damaged/compromised immune system.

Oseltamivir — anti-viral drug effective against influenza A and B viruses that inhibits the neuraminidase protein, effectively trapping the influenza virus within the host cell and preventing it from infecting new cells. This can help in preventing infection (prophylaxis) or in reducing the duration and severity of illness once infected. It is effective if treatment is started within 48 hours of symptom onset. In Canada and the USA, oseltamivir is sold under the brand name Tamiflu.

Outbreak — An increase in disease activity above expected levels. Also known as an epidemic. The latter term has more serious connotations.

Outpatient — An individual who receives health care services without being admitted to a health care facility.

P

PAB — Public Affairs Bureau (see definition below)
PCA — Personal Care Aide
PCR — Polymerase Chain Reaction (see definition below)
PECC — Provincial Emergency Coordination Centre (see definition below)
PEP — Provincial Emergency Program (Ministry of Public Safety and Solicitor General)
PHAC — Public Health Agency of Canada
PHI — Public Health Inspector
PHIS — Public Health Information System. Now renamed iPHIS (see iPHIS).
PHM — Public Health Measures
PHN — Public Health Nurse
PHO — Provincial Health Officer (see definition below)
PHSA — Provincial Health Services Authority (see definition below)
PI — Pandemic Influenza
PIC — Pandemic Influenza Committee (see definition below)
PPE — Personal Protective Equipment (see definition below)
PREOC — Provincial Regional Emergency Operations Centre
PSSB — (Ministry of) Public Safety and Solicitor General
PT or P/T — Provincial and Territorial representation
PYLL — Potential Years of Life Lost (see definition below)
PYLLP/T or PYLLPT — Potential Years of Life Lost Provincial/Territorial

Palliative — treatment, which provides symptomatic relief, but is not a cure.

Pandemic — **epidemic** disease of widespread prevalence around the globe.

Pandemic Influenza Committee — National committee (FPT) supported by the federal government to develop pandemic influenza preparedness and response guidelines and to make recommendations to PHAC.

Parenteral — method of administering medicine or nutrition through a means other than by the mouth. Intravenous (into the vein), intramuscular (into the muscle), and intradermal (into the skin) administration are all parenteral.

Pathogen — disease-producing microorganism or material.

Pathogenesis — natural evolution of a disease process in the body without intervention (i.e., without treatment); description of the development of a particular disease, especially the events, reactions and mechanisms involved at the cellular level.

Pathogenicity — The ability or degree to which something can cause disease. A synonym is 'virulence'.

Pediatric — Relating to the medical specialty concerned with the development, care and treatment of children from birth through adolescence.

Personal Protective Equipment — attire used by the workers to protect against airborne or droplet exposure and against exposure to blood and body fluids. PPE generally includes masks, eye goggles, face shields, gloves, gowns and foot-covers.

Polymerase Chain Reaction — test that can detect and/or DNA fragments of viruses or other organisms in blood or tissue. PCR works by repeatedly copying genetic material using heat cycling, and enzymes similar to those used by cells.

Potential Years of Life Lost — rate per 1000 population is the ratio of the total years of life lost between ages 0 and 75 due to a specific cause to the total population. The cause of death selected is the underlying cause of death, which is the cause that initiated the sequence of events leading to death.

Preventive Care — comprehensive type of care emphasizing priorities for prevention, early detection and early treatment of conditions, generally including routine physical examinations, immunization, and well-person care.

Preventive Medicine — Taking measures for anticipation, prevention, detection, and early treatment of disease.

Primary care — first level of care, and usually the first point of contact, that people have with the health care system. Primary care involves the provision of integrated, accessible health care services by clinicians who are responsible for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community. It includes advice on health promotion and disease prevention, assessments of one's health, diagnosis and treatment of episodic and chronic conditions, and supportive and rehabilitative care.

Prophylaxis — prevention of or protective treatment for disease.

Provincial Emergency Coordination Centre — Emergency Operations Centre established and operated at the provincial central coordination level to direct and coordinate the provincial government's overall emergency or disaster response and recovery efforts. Located at the Provincial Emergency Program (PEP) headquarters in Victoria.

Provincial Health Officer — The senior medical health officer for British Columbia.

Provincial Health Services Authority — oversees health agencies delivering services for the entire province including BCCDC, BC Cancer Agency, Children's and Women's Health Centre of BC, Riverview Hospital and other provincial health service agencies (www.phsa.ca).

Provincial Regional Emergency Operations Centre — Emergency Operations Centre established and operated at the regional level by provincial agencies to coordinate provincial emergency response efforts.

Public Affairs Bureau — organization within the government of British Columbia that is responsible for managing formal communication between government and the public.

Public Health — Discipline of protecting and improving community health by means of preventive medicine, health education, communicable disease control, and the application of social and sanitary measures.

Q

QTMH — Quarantine, Travel and Migration Health

Qualitative — relating to, or expressed in relative or subjective terms impossible to precisely quantify.

Quantitative — relating to, or expressed in terms of quantity.

Quarantine — the limitation of freedom of movement of a susceptible person or domestic animal, suspected of being or known to have been exposed to a communicable disease, for a period of time equal to the longest usual incubation period of that disease from the last date of exposure.

R

RCMP — Royal Canadian Mounted Police

REOC — Regional Emergency Operations Centre

RHA — Regional Health Authority

RN — Registered Nurse (see definition below)

RPN — Registered Practical Nurse or Registered Psychiatric Nurse

Record — paper or electronic document that contains or is designed to contain a set of facts related to some occurrence, transaction, or the like.

Regional Emergency Operations Centre — used by Health Authorities HA's to manage health sites and services.

Registered Nurse — graduates from a college or university program of nursing education and has been licensed by the state.

Resistance — development of strains of a pathogen that are able to withstand the effects of an antimicrobial agent.

Respiratory Tract — structures contained in the respiratory system, including the nasopharynx, oropharynx, laryngopharynx, larynx, trachea, bronchi, bronchioles, and lungs.

Rimantadine — antiviral agent indicated in adults for the treatment of illness due to influenza and for prophylaxis following exposure to influenza type A viruses. It has no effect against influenza type B viruses.

Risk Management — process of making and carrying out decisions that will minimize the adverse effects of injuries, accidental losses and/or liability upon the organization.

Routine Practices — infection prevention and control practices used in the routine care of all patients at all times in all health care settings. Routine practices outline the importance of hand washing; the need to use gloves, masks/eye protection/face shields and gown when splashes or sprays of blood, body fluids, secretions or excretions are possible; the cleaning of patient-care equipment, the environment, soiled linen; waste disposal; patient placement; and precautions to reduce the possibility of HCW exposure to blood borne pathogens.

S

SEOC — Site Emergency Operations Centre

SQ — Subcutaneous (see definition below)

Strain — variation of the influenza virus within a given subtype (e.g., influenza A/Panama/H3N2, influenza A/Fujian/H3N2). New strains appear every few years and are responsible for yearly influenza outbreaks of influenza.

Subacute Care — comprehensive, cost-effective inpatient level of care for patients who: a) have had an acute event resulting from injury, illness or exacerbation of a disease process, b) have a determined course of treatment and, c) though stable, require diagnostics or invasive procedures but not intensive procedures requiring an acute level of care. Typically short term, subacute care is designed to return patients to the community or transition them to a lower level of care. Subacute care is offered in a variety of physical settings. The philosophy of subacute care is to ensure that patients are receiving the most appropriate services at the most appropriate phase of their illness while ensuring quality, cost-effective outcomes.

Subcutaneous — beneath the skin. A route of immunization delivery.

Surge capacity — a health care system's ability to rapidly expand beyond normal services to meet the increased demand for qualified personnel, medical care, and public health in the event of large-scale public health emergencies or disasters

Subtype — classification of the influenza type A viruses based on the surface proteins hemagglutinin (H) and neuraminidase (N) (see Influenza Virus).

Symptoms — any perceptible, subjective change in the body or its functions that indicates disease or phases of disease, as reported by the patient.

T

Tamiflu — name under which oseltamivir is marketed in Canada and the USA (see Oseltamivir).

Toxicity — extent, quality, or degree of being poisonous or harmful to the body.

Toxin — harmful or poisonous agent.

Triage — system 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.

U

UBC — University of British Columbia

UVIC — University of Victoria

USA — United States of America

V

VAAE — Vaccine Associated Adverse Events

VAER — Vaccine Adverse Events Reporting

VCHA — Vancouver Coastal Health Authority

VIHA — Vancouver Island Health Authority

Vaccination — act of administering a vaccine.

Vaccine — substance that contains antigenic components from an infectious organism. By stimulating an immune response (but not causing disease), it protects against subsequent infection by that organism.

Virology — study of viruses and viral disease.

Virus — group of infectious agents characterized by their inability to reproduce outside of a living host cell. Viruses may subvert the host cells' normal functions, causing the cell to behave in a manner determined by the virus.

Volunteers (Pandemic) — volunteer is a person registered with a government agency or government designated agency, which carries out unpaid activities, occasionally or regularly, to help prepare for and respond to a pandemic influenza outbreak. A volunteer is one who offers their service of their own free will, without promise of financial gain, and without economic or political pressure or coercion.

W

WCB — Workers' Compensation Board

WG — Working Group

WHMIS — Workplace Hazardous Materials Information System (see definition below)

WHO — World Health Organization

Wild Type — naturally occurring strain of virus that exists in the population.

Workplace Hazardous Materials Information System — Canadian legislation covering the use of hazardous materials in the workplace. This includes assessment, signage, labeling, material safety data sheets and worker training. WHMIS closely parallels the U.S. OSHA Hazcom Standard. Most of the content of WHMIS is incorporated into Canada's Hazardous Products Act and the Hazardous Materials Information Review Act, which are administered by Health Canada. Certain provincial laws may also apply. The Labour Branch of Human Resources Development Canada or the provincial/territorial OHS agencies perform enforcement of WHMIS.

World Health Organization — specialized agency of the United Nations generally concerned with health and health care.

Z

Zanamivir — anti-viral drug effective against influenza A and B viruses that inhibits the neuraminidase protein, effectively trapping the influenza virus within the host cell and preventing it from infecting new cells. This can help in preventing infection (prophylaxis) or in reducing the duration and severity of illness once infected. It is effective if treatment is started within 48 hours of symptom onset. Zanamivir is sold under the brand name Relenza.

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<http://www.emsa.ca.gov/dms2/heics3.htm>
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15.3 – CONTACT LIST

Daycares

Contact through the Chief Medical Health Officer at:

Chief Medical Health Officer

Vancouver Coastal Health

#800-601 West Broadway

Vancouver, BC, V5Z 4C2

Phone: 604-714-5684

Fax: 604-731-2756

Federal Quarantine Service

24 hour federal quarantine service in British Columbia:

604-317-17120

General office number for the federal quarantine service in British Columbia:

604-666-2499

Language Services

Regional Coordinator Language Services

Cross Cultural Health & Diversity

Department of Employee Engagement

Employee Learning & Development

#1033-601 West Broadway

Vancouver BC, V5Z 4C2

Phone: 604-875-4111 ext. 61628

Fax: 604-875-4761

On Call Medical Health Officer Emergency Number

Fraser Health Authority	604-527-4806
Interior Health Authority	866-851-7311
Northern Health Authority	250-565-2000
Vancouver Coastal Health Authority	604-527-4893
Vancouver Island Health Authority	800-204-6166

Other Emergency Numbers

Vancouver International Airport, Operations Supervisor (24/7)
604-276-6188

Vancouver International Airport, Emergency Manager
604-276-6563

BC Ambulance Service, Manager of Emergency Preparedness
250-953-3316 or 250-953-3243

Health Canada Quarantine Office (24/7)
604-317-1720

Poison Control
800-567-8911

Provincial Emergency Program (PEP) for chemical, radiological and nuclear emergencies
800-663-3456

Provincial Emergency Program (Victoria)
250-952-4854

Emergency Preparedness
250-952-1700

Non-Communicable Disease Epid. (Victoria)
250-952-1464

Director General, Ministry of Health (Victoria)
250-952-1731

Executive Director, Public Health Protection (Victoria)
250-952-3335

Canadian Blood Service (24 Hour on Call)
604-876-7219

Medical Health Officers

Interior Health Authority, Kootenay Boundary HSDA and East Kootenay HSDA
250-505-7242

Vancouver Coastal Health Authority, Vancouver HSDA
604-730-7602

Vancouver Island Health Authority, Victoria
250--519-7066

Vancouver Coastal Health Authority, Vancouver HSDA
604-714-5608

Northern Health Authority, Northern Interior HSDA (Pr. George)
250-565-7424

CDC Vancouver Coastal Health Authority, Vancouver/Richmond HSDA
604-714-5686

Vancouver Island Health Authority Central, North Island HSDA (Cumberland)
250-336-3212

Fraser Health Authority, Assoc. MHO, South Fraser HSDA (Surrey)
604-572-2607

Fraser Health Authority
604-572-2621
Interior Health Authority, Thompson / Okanagan HSDA
250-862-4092
Fraser Health Authority, South Fraser HSDA (Surrey)
604-572-2667
Provincial Health Officer (Victoria)
250-952-1318
Fraser Health Authority, Fraser Valley HSDA (Abbotsford)
604-556-5070
Fraser Health Authority, Simon Fraser HSDA (Burnaby)
604-918-7444
Vancouver Coastal Health Authority, Richmond HSDA
604-244-5129
Vancouver Coastal Health Authority, Vice President, Health Services Integration
604-875-5269
Vancouver Coastal Health Authority, North Shore/Coast Garibaldi HSDA (Gibson's)
604-886-5620
Northern Health Authority, Northern Interior HSDA (Prince George)
250-565-7461
Vancouver Coastal Health Authority, North Shore/Coast Garibaldi HSDA (North Vancouver)
604-983-6701
Fraser Health Authority, Simon Fraser HSDA (Maple Ridge)
604-476-7055
Interior Health Authority, Thompson / Cariboo HSDA
250-851-7300
Vancouver Island Health Authority, Central/North Island HSDA (Nanaimo)
250-740-6988
Vancouver Island Health Authority, Capital HSDA (Victoria)
250-519-7066
Vancouver Coastal Health Authority, Authority Richmond HSDA (Richmond)
250-952-1351

Media Contacts

BC Centre for Disease Control
604-877-2240
Public Affairs Bureau
Communications Director
Health Planning/Health Services
BC Ministry of Health
250-952-1423

BC Centre for Disease Control

Main Switchboard
604-660-0584

Physician On-Call for CD Issues

604-312-9220

Microbiologist On-Call

604-661-7033

Lab Services

604-661-7033

Director

604 660-5357

Director, Epid. Services

604-660-3008

Medical Director, Env. Health

604-660-1409

Director, Laboratory Services

604-660-6032

Chief Executive Officer

604-660-6060

BC University and College Emergency Planners

Director, Safety & Security, BC Institute of Technology,

504-451-6875

A/Manager, College Safety, Camosun College

250-370-4043

Director of Buildings & Grounds, Capilano College

604-984-4962

Assistant Manager, Facilities Services, College of New Caledonia, Prince George, BC

250-561-2131

Health & Safety Coordinator, Douglas College, New Westminster, BC

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Manager Safety, Security & Parking, Kwantlen College

604-599-2401

Building Services Manager, Langara College

604-323-5247

Director of Admin. & Special Projects, Pearson College, Victoria, BC

250-391-2406

Emergency Preparedness Coordinator, Malaspina University College, Nanaimo, BC

250-740-6281

Facilities Technologist, North Island College, Courtenay, BC

250-334-5000

Reddy Northwest Community College, Terrace, BC

250-638-5426

Emergency Planner, Simon Fraser University

604-268-6740

Manager Community Safety, Trinity Western University

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Emergency Preparedness Coordinator, University of British Columbia

604-822-1237

Manager, Safety & Security, University College of the Fraser Valley

604-864-4603

Special Advisor, University of Victoria

250-721-6469

Director of Facilities, Vancouver Community College

604-443-8304

Points of Contact for VCH School Districts

School District 38, Richmond	604-668-6081
School District 39, Vancouver	604-713-5100
School District 44, North Vancouver	604-903-3446
School District 45, West Vancouver / Bowen Island	604-981-1032
School District 46, Sunshine Coast	604-886-8811
School District 47, Powell River	604-414-2600
School District 48, Howe Sound	604-892-5228
School District 49, Central Coast	250-982-2691

Outside of BC Contacts

Health Canada (Ottawa)	
Director of Immunization and Respiratory Infections	613-957-1340
National Microbiology Lab (Winnipeg)	
Director of the Viral Diseases Division	204-789-2022

Pandemic Influenza In-Service



Communicable Disease Control

Contents

- What is Pandemic Influenza?
- Public Health Strategy
- Infection Control Principles
- Basic Immunology
- Pandemic Vaccine
- Cold Chain Principles
- Routine Precautions
- Sharps Disposal
- Contraindications
- How to give an IM injection
- Adverse Reactions
- Anaphylaxis Protocol
- Documentation
- Clinic Mock-up

What is Influenza?

- **Influenza**-acute onset of respiratory illness with fever (>38) and cough with one or more of the following- sore throat, joint pain, muscle aches, headache, malaise.
 - Severe illness lasting 7 to 10 days
 - In patients 65 and older, fever may not be present.
 - Other symptoms in the elderly may include change in behavior, chest congestion, decrease in appetite

About Influenza

Mode of transmission

- Direct, Indirect, Droplet

Period of Communicability

- 24 hours before onset
- 3-5 days after onset
- Hard surfaces 24-48 hours
- Porous surfaces 8-12 hours
- Hands 5 minutes

Incubation

- 1-3 days



Annual Influenza

- Seasonal epidemics of flu strain A , B and C
- Winter activity
- Northern hemisphere Oct-April
- Southern hemisphere May –Sept
- Occurs abruptly
- Peaks within 2-3 weeks
- Lasts 8-12 weeks

Impact of Influenza

Each year:

- 5 million Canadians (1 in 6) are infected
- 50,000 will be hospitalized
- 4,500 will die (mostly elderly)
- 1.5 million work-days will be lost
- In BC about 1,400 people die from the flu and pneumonia

Why do we get Pandemics?

Viruses change

- **drift**-minor change, occurs each year
- **shift**-major change, new subtype e.g. the bird flu

Asian Bird Flu, H5N1: spreads rapidly and kills quickly among poultry

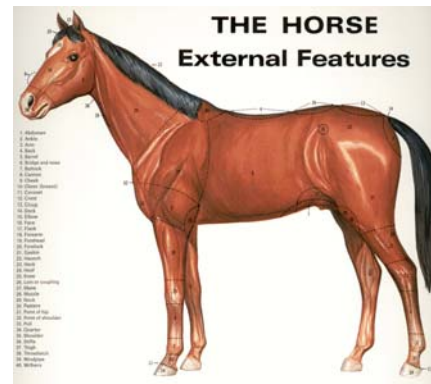
May be spread by wild birds through fecal-oral route (droppings) or by inhaling virus

Influenza Viruses

Types A, B and C
affect all humans

Types A can infect:

- Birds
- Pigs
- Horses
- Whales and seals

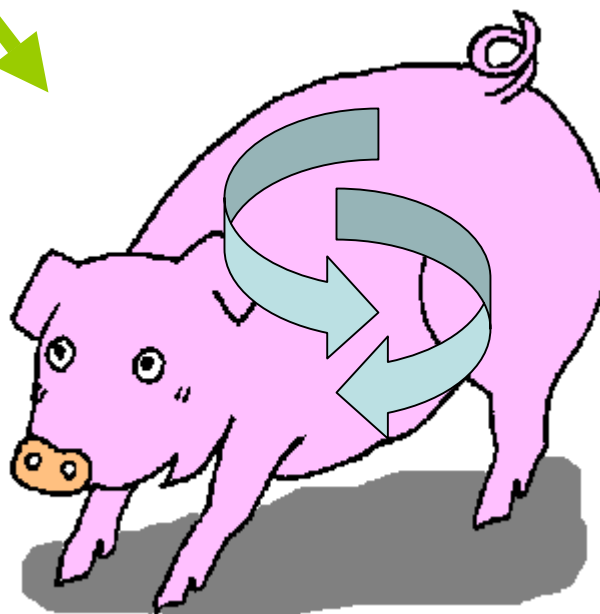
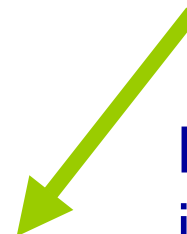




Avian
influenza



Human
influenza



Recipe for a Pandemic

- Bird flu virus can mix with human flu virus and create new subtype of virus
- The world would have little or no immunity to this new virus
- If this virus replicates in humans and causes serious disease..... AND
- If this virus can be spread from person to person efficiently, then it may cause a....

PANDEMIC

Pandemic



Virus spreads rapidly throughout the world

Previous Pandemics

- 1918-1919 Spanish Flu-the worst
 - 20-40 million deaths world wide (30,000-40,000 Canadians)
 - Greatest # of deaths-20-40 year old age group
- 1957-1958 Asian flu
 - Originated in China
 - 36% deaths in the under 65 age group
- 1968-1969 Hong Kong Flu
 - 36% deaths in the under 65 age group

The Next Pandemic in Canada:

- Clinically ill: 4 -10 million
- Hospitalization: 34,000 –138,000
- Deaths: 11,000 to 58,000
- Economic cost-
 - Health Care: 10 to 24 billion dollars

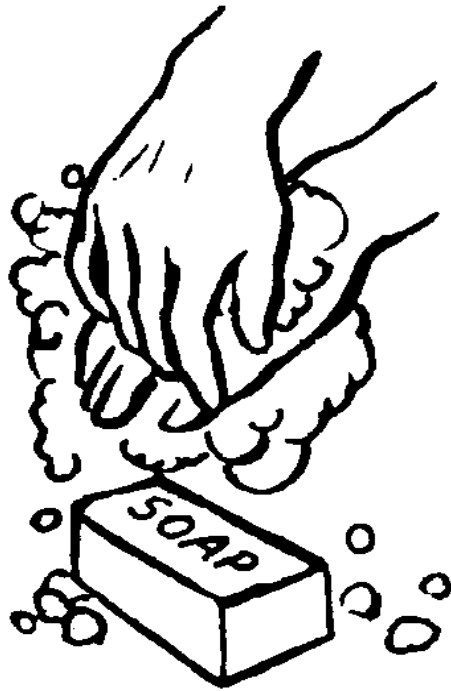
Estimates: Canadian Pandemic Influenza Plan

How to Prevent the Flu?

- Vaccination is the single most effective way to prevent the spread of influenza



How to Minimize Risk of Spreading the Flu



- Proper hand-washing
- Cover your nose and mouth when sneezing or coughing
- Stay home when you are ill
- Clean hard surfaces with 10% bleach solution

Goals of VCH Pandemic Vaccine Program

- Reduce illness and death associated with pandemic influenza in health care workers, front line workers and high risk persons
- Immunize 80% of Health Care Workers
- Reduce pressure on the health care system during the pandemic influenza season
- Decrease health care costs
- Slow the spread of pandemic influenza

Basic Immunology

- Immunity is the ability of the body to defend itself, particularly against attack by an infectious agent
- There are two types of immunity
 - Acquired (Passive)
 - Natural (Active)

TYPES OF IMMUNITY

Passive

- Natural (maternal antibodies)
- Artificial (IG)

Active

- Natural Infection
- Artificial (Vaccination)

PASSIVE IMMUNITY

MATERNAL OR ARTIFICIAL



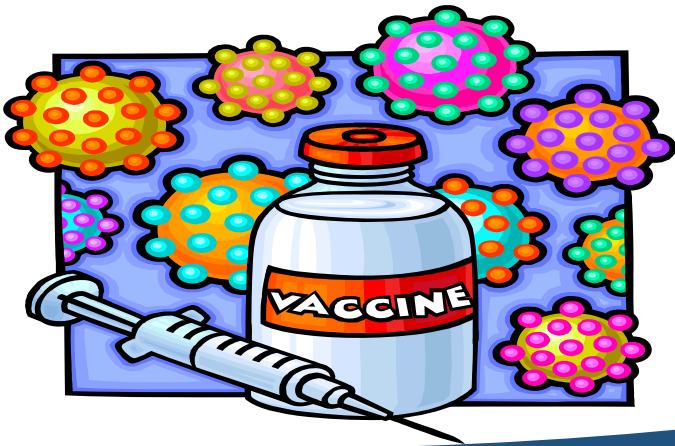
NATURAL IMMUNITY ACQUIRED THROUGH ILLNESS OR VACCINATION



- Some people believe that it's better to get a disease naturally than to be vaccinated against it.

VACCINES AND IMMUNITY

- Vaccines contain weakened or killed versions of virus or bacteria
- Vaccines interact with the immune system to produce an immune response identical to that caused by disease but does not subject the person to the disease or its complications.

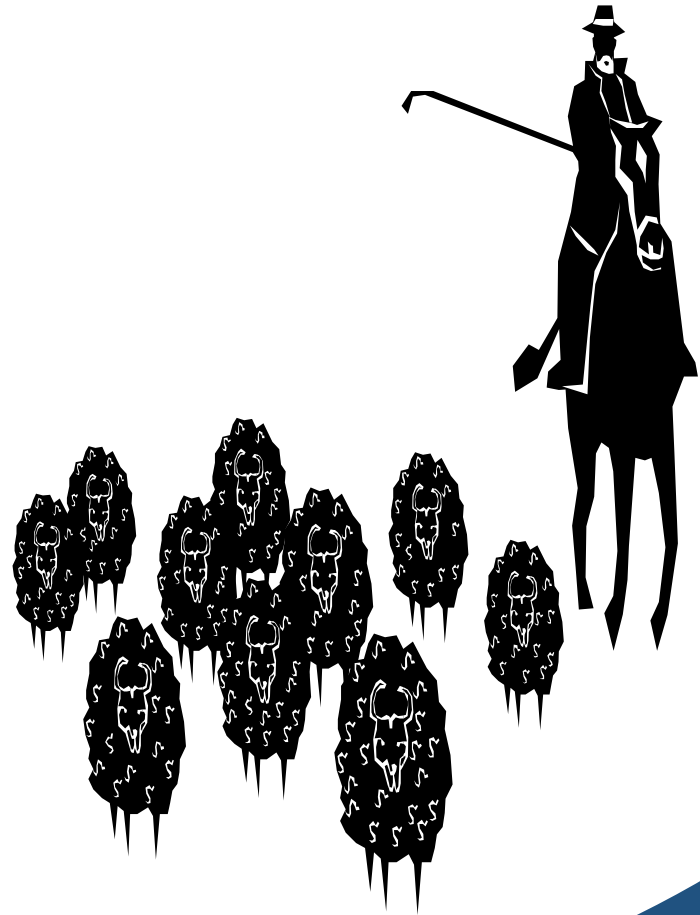


Factors Influencing Immune Response

- Presence of maternal antibody
- Nature and dose of vaccine
- Route of vaccine administration
- Presence of vaccine enhancers
- Host factors (age, genetics, nutritional factors, coexisting disease)

IMPACT OF IMMUNITY

- Individual effect: individual is protected against disease
- Collective effect; entire population, including those not immunized, is protected against disease when a critical number of people have been immunized. Known as herd immunity



Current Pandemic Vaccine

Information dependant on influenza virus

- Name of vaccine
- Components of vaccine
- Attenuated/split
- Color of solution
- How many doses needed

What is the Cold Chain?

- System of transporting and storing vaccines within the appropriate temperature range of 2°C - 8°C
- Shared task from transport → storage → administration
- If vaccine is too warm or too cold it may become inactive
- Not to be used if frozen (if exposed to temperatures less than -2°C)

What Happens if the Cold Chain Breaks?

1. Decreased effectiveness of vaccine-Lower level of protection against the disease
2. Increased rate of local adverse reactions



Guidelines for Cold Chain Break

- Store the exposed vaccines separately under appropriate conditions
- Clearly label the vaccines as exposed with **“DO NOT USE”**
- Return vaccines to the health office/centre and consult with Clinic Director for assessment/further recommendations
- Document wasted vaccines

Storage of Vaccine with Insulated Coolers

- Appropriate number of ice packs
 - test capability of coolers with thermometer to ensure required temperature maintained
- Don't freeze vaccines
 - Let ice packs sit at room temperature for a few minutes until water or sweat appears on the surface
 - Don't place vaccines directly on ice packs (cover with layer of paper/bubble wrap etc)
- Keep vaccines in original packaging
- Ensure lid tightly closed

Vaccine Storage in Refrigerators

- Dedicated vaccine fridge - ensure no food, drink, laboratory specimens or medication is stored along with vaccines
- Don't store in the fridge door as temperatures warmer
- Store on central shelves and stack with space between vaccines to keep air circulating
- Ensure temperature between **2°C to 8°C**
- Keep door shut when not in use

What are Routine Precautions?

- Interventions to reduce risk of transmission of germs or virus's from both **recognized and unrecognized** sources of infection
- Treat all blood/body fluids of every person as potentially infectious
 - blood (including dried blood)
 - all body fluids, secretions, and excretions (except sweat) regardless of whether they contain visible blood

Basic Requirements...Hand-washing

- Most effective way to prevent spread of germs from one person to another
- Key Components - soap, warm water, friction & time:

(wash for at least 15-20 seconds)
- No sink available: efficient to use an alcohol-based (60%) waterless antiseptic agent

Environmental Cleaning

- Influenza virus can live for 24-48 hours on hard surfaces
- Wash all hard surfaces with 10% bleach solution (one part bleach with nine parts water)
- Dispose all sharps and biological waste in an appropriate container

Handling of Sharps

- Never recap, purposely bend or break needles by hand
- Dispose of all needles, syringes, IV catheters and other sharp items immediately into a puncture-resistant container
- Never dump/empty sharps from one container to another

Handling of Sharps cont



- Fill container to $\frac{3}{4}$ mark only, seal it and place in designated area within work setting/regular garbage if in community

Needle Stick Injury/Blood Exposure?

- Allow wound to bleed freely, cleanse area/puncture site with warm water & soap
- If eye exposure or other mucous membranes flush with running water for 10-15 minutes
- Go directly to Emergency Department for risk assessment (preferably within 2 hours)
- Adults directed to St. Paul's/Children directed to Children's Hospital
- Report incident to Clinic Director

Routine Precautions (continued)

- Appropriate interventions **can** reduce transmission of infection although isolated incidents can't be foreseen
- Let common sense guide you – keep a barrier between your skin, mucous membranes and blood/body fluids
- Always assume that all blood/body fluids of every person are potentially infectious

Consent

- Written
- Parent or legal guardian must give consent for children
- Discuss the mature minor
- Ensure person has read and understood the Pandemic Influenza Vaccine Fact Sheet
- Allow time for questions

Contraindications and Precautions

- **Contraindication:** a condition in a recipient that greatly increases the chance of a serious adverse reaction

(e.g. History of anaphylactic reaction to a previous doses of any type of influenza vaccine and a history of anaphylactic reaction to eggs or any component of flu vaccine)

- **Precaution:** a condition in a recipient that may increase the chance of a serious adverse reaction or that may compromise the ability of the vaccine to produce immunity

(e.g. Moderate to severe illness with or without a fever, pregnancy, < 6 months of age, Hx severe ORS)

Things to Consider when Giving an Intramuscular Injection

- Drawing up vaccine
- Needle size, Land-marking site
- Proper injection technique
- Post vaccination
 - Safe disposal of sharps
 - Monitor for adverse reactions
 - Documentation

Drawing up Vaccine

- Check vial for correct product & expiry date
- Wash hands or cleanse with a sanitizer
- Remove plastic cap on vial, clean the rubber stopper with 70% isopropyl alcohol pad
- Swirl vial to ensure contents are well mixed
- Place needle on syringe and remove needle cap
- Pull back plunger to draw up 0.5 ml air into syringe
- Insert needle through rubber stopper of vial and inject all of the air into the vial

Drawing up Vaccine (continued)



- Hold vial upside down and pull back plunger on syringe to draw up 0.5 ml of vaccine into syringe
- Remove needle from vial and expel any air bubbles from syringe
- Recap the syringe
- Replace multi-dose vaccine vial back into cooler

Sites, Needle Size, and Positioning for IM injections

Infants (under 18 months)

- best site is the vastus lateralis muscle
- use a 25 gauge 7/8" – 1" needle

Children over 18 months

- site is the deltoid muscle
- use a 25 gauge 7/8" – 1" needle

Older children & Adults

- site is the deltoid muscle
- use a needle 1-1^{1/2} inch needle

How to Give an IM Injection

- Clean site with 70% isopropyl alcohol
- Insert needle at 90° angle into muscle
- (if clients muscle mass is small, grasp muscle between thumb and fore finger before and during the injection)
- Pull back on plunger, if blood appears withdraw needle and discard entire syringe/needle into sharps container
- Repeat drawing up procedure and insert into muscle, If no blood appears slowly push down on plunger to inject vaccine

How to Give an IM Injection (continued)

- Remove needle with one motion and immediately apply clean dry swab over site
- Apply pressure for 30 seconds, do not massage
- Discard used syringe and needle into sharps container



Administration of Vaccine (continued)

- After vaccine has been given:
 - ✓ Check injection site for any bruising, redness and swelling
 - ✓ Check client for any adverse events
- Document dose, route, site, lot number, expiry number of vaccine
- Inform client of follow up care and next dose if applicable

Vastus Lateralis (anterolateral thigh) Site

- When immunizing an infant, have the caregiver hold the infant in a “cuddle” or semi-recumbent position on their lap
- When immunizing an older child/adult, position client in supine, side lying, or seated position
- Divide the area from the top of the femur to the top of the knee into 3 parts.
- Imagine a horizontal median line along the outer surface of the thigh
- Landmark a site in the middle third above the horizontal line

Deltoid Site

- This site is for IM injections only
- Sit child sideways on caregivers lap. The injection arm is held close to child's body and the free arm tucked behind caregivers back
- Landmark site by imagining an upside down triangle with its base at the top of the humerus
- The point of the triangle is where the deltoid muscle starts
- The injection site is in the centre of the triangle

Adverse Vaccine Reactions

- Any event following a vaccine
- May be a true event
- May only be coincidental
- Local, systemic, anaphylaxis (allergic)
- All clients need to be monitored for 15 minutes post vaccination

Adverse Reactions (continued)

Local

- Pain, swelling, redness at site of injection
- Usually mild and self limiting
- Common with inactivated vaccines
- More common with subcutaneous injections

Systemic

- Fever, tiredness, headache
- Non specific
- May be specific to vaccine
- May be unrelated to vaccine

Anaphylaxis or Allergic Reaction

- Due to vaccine or component in vaccine
- Rare
- Risk minimized by screening clients
- Hives, swelling at site (may be itchy, red)
- Swelling of face, difficulty breathing
- Collapse

Anaphylaxis Protocol

- Call 911
- Get anaphylactic kit
- Give epinephrine 1:1000 IM according to instructions (right dose, right site)
- Give first dose of epinephrine in the opposite arm to that in which received the vaccine
- Repeat epinephrine at 10-15 minute intervals if breathing becomes more labored or level of unconsciousness decreases
- Client to be transported to ER by ambulance

Documentation

- Pandemic Influenza Vaccine Fact Sheet
 - Client information about influenza and vaccine
 - Given out at registration/screening
- Consent form
- Document administration of vaccine
- Adverse Event Form

Document Administration of Vaccine

- Dose, site, route, expiry date, lot number
- Presence of adverse events
- Give client copy of vaccine information
- Inform client when to return for next dose
- Instruct client on expected side effects and comfort measures (i.e. Tylenol)
- To call adverse events hotline if symptoms do not resolve in 2-3 days
- Make sure client has copy of Flu Vaccine Fact Sheet

How to Fill out Adverse Event Report

- First section must be filled out completely (name, address, DOB, PHN)
- How soon after vaccine given did the signs and symptoms start? Hours/days
- Information is collected nationally
- Information is used to determine whether person should receive any more similar vaccines

Mass Vaccination Clinic Layout & Client Flow

Insert Flow Diagram of clinic set-up and client flow diagrams

Questions?



Resources

- BCCDC Immunization Manual www.bccdc.org
- Vancouver Health Authority www.vch.org
- Health Canada www.phac-aspc.gc.ca
- World Health Organization www.who.org

PANDEMIC INFLUENZA IMMUNIZATION CERTIFICATION

1. Influenza viruses can change in two different ways. Explain the difference between “Drift” and “Shift” and describe what happens to produce a pandemic situation.

2. Of the following statements regarding the pandemic vaccine initiative, circle which are correct.
 - a) provide the public, as rapidly as possible, with a safe and effective vaccine program
 - b) slow the spread of pandemic influenza
 - c) reduce illness and death associated with pandemic influenza in health care workers, front line workers and high risk persons
 - d) immunize 80% of health care workers
 - e) reduce pressure on the health care system during the pandemic influenza season

3. If vaccine supply is adequate, the entire population will be immunized. In the event of a vaccine shortage, who are the vaccine priority groups during a pandemic?

4. Of the following statements regarding influenza, circle which are correct.
 - a) spreads from person to person when an infected persons coughs, sneezes or talks and the virus is sent airborne
 - b) can also be spread by indirect and droplet contact
 - c) fever is usually rare but can be high in infants and small children; headache, tiredness and weakness is mild; runny nose, sneezing and sore throat occurs often with a mild hacking cough
 - d) fever usually lasting 3-4 days; sudden onset of headache, tiredness & weakness lasting 2 or more weeks; sudden onset of extreme exhaustion which can be severe; mod to severe cough, sometimes sore throat, sneezing and runny nose
 - e) fever in people 65 years and older may not be present
 - f) other symptoms in the elderly may include a change in behaviour, chest congestion and a decrease in appetite

5. Which of the following statements regarding influenza are true/false?

T/F The incubation period for influenza virus is 1-3 days

T/F The flu vaccine doesn't work because people still get the flu

T/F Those who are pregnant and/or breastfeeding should not have a flu shot

T/F You can get influenza from the influenza vaccine

T/F The flu virus can live on hard surfaces for 24-48 hours and your hands for 5 minutes

6. List the **antigenic** components of the flu vaccine used during the pandemic influenza season?

7. List the other **compositional elements** of the flu vaccine used during the pandemic influenza season?

8. Of the following statements regarding Standard Precautions, circle which are correct.

a) gloves are required when administering flu vaccine

b) wash hands well or use a sanitizer between clients

c) to prevent accidental needle stick injury, do not recap needles

d) without putting the used needle and syringe down, immediately discard uncapped needle and attached syringe into a hard sided, labelled sharps container

e) do not empty used needles and syringes from one sharps container to another

7. List the steps would you take if you sustained a percutaneous (needlestick) injury?

8. Individuals who administer vaccines should screen every client for contraindications and precautions. A **contraindication** is a condition in a recipient that greatly increases the chance of a serious adverse reaction. A **precaution** is a condition in a recipient that may increase the chance of a serious adverse reaction, or that **may** compromise the ability of the vaccine to produce immunity. Place an '**C**' to indicate a **contraindication** or a '**P**' to indicate a **precaution** to the influenza vaccine.

___ infants less than 6 months of age

___ history of anaphylactic reaction to a previous dose of any type of influenza vaccine

___ history of anaphylactic reaction to eggs

___ history of anaphylactic reaction to any component of influenza vaccine

___ moderate to severe acute illness with or without a fever

___ history of severe ORS, for example, wheeze, chest tightness/discomfort, difficulty breathing

9. What are the common questions that should be asked before administering the **flu vaccine**:

10. Vaccines are intended to produce active immunity to specific antigens. An adverse reaction is an untoward effect caused by a vaccine that is extraneous to the vaccine's primary purpose of production of immunity.

Vaccine adverse reactions fall into three categories - local, systemic and allergic. List some of the common reactions of the **flu vaccine** under each category:

LOCAL	SYSTEMIC	ALLERGIC

Review the form that you would use to report adverse vaccine events and describe what temporal criteria means. Attach this form to the certification test.

12. Vaccine recipients should be advised to remain under supervision for at least ____ minutes after immunization, regardless of whether or not they have had the particular vaccine previously.
13. Your 65 year old client has just received a flu shot. She states that her lips are tingling, her tongue feels thick and she has a hoarse cough. Which of the following statements are true/false?

T/F She could be experiencing an anaphylactic reaction

T/F You should position her lying flat with legs elevated

T/F If epinephrine is administered, it should be given intramuscularly in all cases

T/F The correct dose of epinephrine for those (14 years +) is 0.5mls of epinephrine 1:000 IM or SC into an uninjected limb or at least 2.5 cm away from the immunization site

T/F Repeat epinephrine at 10-15 minute intervals if breathing becomes more laboured or level of unconsciousness decreases

T/F Call 911 or Ambulance after instituting all above measures

14. List the steps involved in drawing up a dose of flu vaccine?

15. For the specific age groups listed below, describe the administration route, injection site, dosage, needle size and length:

	Route	Site	Dosage	Needle Size & Length
Infants 6-35 months				
Children 3-8 years				
Children \geq 9 years and Adults				

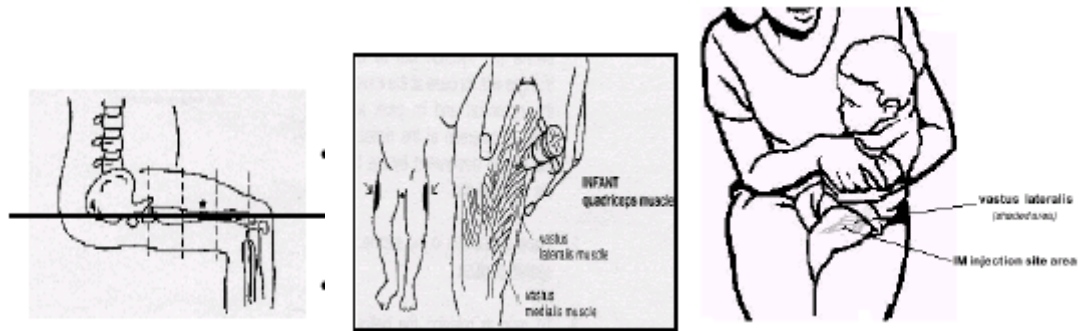
When immunizing, what is the best position for the following groups:

a) An infant

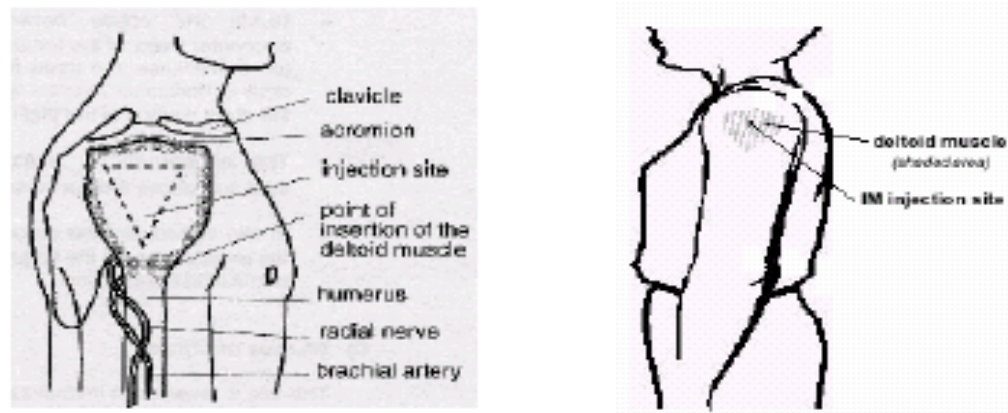
b) A child

c) An older child or adult

16. a) Looking at the pictures below, how would you define the vastus lateralis site?



b) Looking at the pictures below, how would you define the deltoid site?



17. Once you have land marked the appropriate site, list the steps on how to give an intramuscular injection?

18. a) What information should you provide to the client prior to administering flu vaccine?
- b) What information should you record after administering a flu shot during a pandemic?
19. The term '**cold chain**' refers to a system of (please circle the correct statement(s))
- a) distribution for vaccines
 - b) ensuring that vaccines arrive at their final destination with immunogenic properties intact
 - c) storage of vaccines
 - d) maintaining the temperature of vaccines between +2 to +8° Celsius
 - e) all of the above
20. Which of the following statements regarding vaccine storage are accurate? (please circle the correct statement(s))
- a.) food, beverages and laboratory specimens can be stored in the fridge/hard-sided cooler along with vaccines
 - b.) once the multidose vial is punctured, may print date of opening on label and use within 60 days providing good technique and cold chain maintained
 - c.) vaccine can be placed in the fridge door in addition to central shelves
 - d.) when using hard-sided cooler, always place vaccines on ice packs wrapped in paper/bubble packing
 - e.) temperature within the fridge/insulated cooler must be maintained between 0° C and 8° C
21. Which of the following statements are correct regarding exposures of vaccines to temperatures outside of the recommended range:
- a) Use the vaccine if it has been exposed for less than 1 hour
 - b) Contact the appropriate manufacturer to get the vaccine replaced
 - c) Discard the exposed vaccine into an appropriate container
 - d) Consult with the Clinic Director re: safety to use

PANDEMIC INFLUENZA IMMUNIZATION SKILLS CHECKLIST

Health Region: _____ Date of Completion: _____
(YYYY/MM/DD)

Name & Signature of Practice Evaluator: _____

Name & Signature of Vaccine Provider: _____

Clinic Setup:

- ☐ Demonstrates appropriate knowledge of protocol for the management of anaphylaxis, and describes emergency plan to manage anaphylactic event
- ☐ Ensures anaphylaxis kit is complete and accessible
- ☐ Sets up supplies and equipment to promote proper body mechanics and OHS standards
- ☐ Stores and handles vaccine to maintain cold chain

Performs appropriate client assessment prior to immunization:

- ☐ health status
- ☐ adverse event history

Obtains informed consent:

- ☐ Refers to appropriate Health File(s)
- ☐ Describes the nature and purpose of the vaccine(s)
- ☐ Discusses benefits and risks of receiving the vaccine
- ☐ Reviews contraindications, precautions, and adverse events related to vaccine(s) to be administered
- ☐ Discusses risks associated with not having the vaccine
- ☐ Provides aftercare instructions
- ☐ Ensures client has opportunity to ask questions

Prepares vaccine correctly:

- ☐ Cleanses hands
- ☐ Maintains sterile/aseptic technique
- ☐ Selects correct vaccine, checks expiry date, and dosage
- ☐ Selects appropriate syringe and needle size
- ☐ Draws up vaccine correctly

Demonstrates correct vaccine administration:

- ☐ Instructs parent to position and hold child appropriately
- ☐ Accurate intramuscular injection technique and site location
- ☐ Safely handles and disposes of syringe
- ☐ Assists parent to comfort child as needed

Documentation:

- ☐ Documents contraindications and reported adverse events
- ☐ Documents vaccines given on personal record and agency record
- ☐ Documents declined vaccines

PANDEMIC INFLUENZA IMMUNIZATION CERTIFICATION

is hereby granted to:

for Competence in Written and Clinical Performance



Certifier:
Granted on:

PANDEMIC INFLUENZA IMMUNIZATION CERTIFICATION

1. Influenza viruses can change in two different ways. Explain the difference between “Drift” and “Shift” and describe what happens to produce a pandemic situation.

Answer(s): Drift is a gradual, minor change, happens to both A & B viruses

Shift is a reassortment of genes, sudden change, (e.g. pandemic – bird flu virus mixing with human flu virus creating a new strain and if replicated, explosive spread) happens only in influenza A viruses.

2. Of the following statements regarding the pandemic vaccine initiative, circle which are correct.
 - a) provide the public, as rapidly as possible, with a safe and effective vaccine program
 - b) slow the spread of pandemic influenza
 - c) reduce illness and death associated with pandemic influenza in health care workers, front line workers and high risk persons
 - d) immunize 80% of health care workers
 - e) reduce pressure on the health care system during the pandemic influenza season

Answer(s): a,b,c,d,e

3. If vaccine supply is adequate, the entire population will be immunized. In the event of a vaccine shortage, who are the vaccine priority groups during a pandemic?

Answer(s):

Group 1: Healthcare workers, paramedics/ambulance attendants and public health workers. This includes acute care hospitals, long term care facilities/nursing homes, private physician's offices, home care and other community care facilities, public health offices, ambulance and paramedic services, pharmacies and laboratories

Group 2: Essential service providers such as police, fire-fighters, the armed forces, key emergency response and decision makers, utility workers, funeral service/mortuary personnel, people who are unemployed in the public transportation and the transportation of essential goods (such as food)

Group 3: Persons at high-risk of severe or fatal outcomes following influenza infection such as the following: adults and children with chronic cardiac or pulmonary disorders (including bronchopulmonary dysplasia, cystic fibrosis and asthma) severe enough to require regular medical follow-up or hospital care; people of any age who are residents of nursing homes and other chronic care facilities;

people ≥ 65 years of age; children 6-23 months of age (flu vaccine not recommended for those < 6 months); adults and children with chronic conditions, such as diabetes mellitus and other metabolic diseases, cancer, anemia and hemoglobinopathy; children and adults (aged 6 months to 18 years) with conditions treated for long periods with acetylsalicylic acid.

Group 4: Healthy Adults

Group 5: Children 24 months to 18 years of age

4. Of the following statements regarding influenza, circle which are correct.

- a) spreads from person to person when an infected person coughs, sneezes or talks and the virus is sent airborne
- b) can also be spread by indirect and droplet contact
- c) fever is usually rare but can be high in infants and small children; headache, tiredness and weakness is mild; runny nose, sneezing and sore throat occurs often with a mild hacking cough
- d) fever usually lasting 3-4 days; sudden onset of headache, tiredness & weakness lasting 2 or more weeks; sudden onset of extreme exhaustion which can be severe; moderate to severe cough, sometimes sore throat, sneezing and runny nose
- e) fever in people 65 years and older may not be present
- f) other symptoms in the elderly may include a change in behaviour, chest congestion and a decrease in appetite

Answer(s): a,b,d,e,f

5. Which of the following statements regarding influenza are true/false?

T/F The incubation period for influenza virus is 1-3 days

T/F The flu vaccine doesn't work because people still get the flu

T/F Those who are pregnant and/or breastfeeding should not have a flu shot

T/F You can get influenza from the influenza vaccine

T/F The flu virus can live on hard surfaces for 24-48 hours and your hands for 5 minutes

Answer(s): T,F,F,F,T

6. List the **antigenic** components of the flu vaccine used during the pandemic influenza season?

Answer(s): Unknown

7. List the other **compositional elements** of the flu vaccine used during the pandemic influenza season?

Answer(s): Unknown

8. Of the following statements regarding Standard Precautions, circle which are correct.

- a) gloves are required when administering flu vaccine
- b) wash hands well or use a sanitizer between clients
- c) to prevent accidental needle stick injury, do not recap needles
- d) without putting the used needle and syringe down, immediately discard uncapped needle and attached syringe into a hard sided, labelled sharps container
- e) do not empty used needles and syringes from one sharps container to another

Answer(s): b,c,d,e,

7. List the steps would you take if you sustained a percutaneous (needlestick) injury?

Answer(s): Allow the wound to bleed freely, cleanse area/puncture site with warm water & soap. Go directly to Emergency Department for risk assessment (preferably within 2 hours) Report incident immediately to supervisor.

8. Individuals who administer vaccines should screen every client for contraindications and precautions. A **contraindication** is a condition in a recipient that greatly increases the chance of a serious adverse reaction. A **precaution** is a condition in a recipient that may increase the chance of a serious adverse reaction, or that **may** compromise the ability of the vaccine to produce immunity. Place an '**C**' to indicate a **contraindication** or a '**P**' to indicate a **precaution** to the influenza vaccine.

- P infants less than 6 months of age
- C history of anaphylactic reaction to a previous dose of any type of influenza vaccine
- C history of anaphylactic reaction to eggs
- C history of anaphylactic reaction to any component of influenza vaccine
- P moderate to severe acute illness with or without a fever
- P history of severe ORS, for example, wheeze, chest tightness/discomfort, difficulty breathing

9. What are the common questions that should be asked before administering the **flu vaccine**:

Answer(s): What is your current state of health?

Do you have a history of an anaphylactic reaction to any substance?

Do you have a history of an anaphylactic reaction to eggs?

Have you previously experienced an adverse event following receipt of the same vaccine.

If an infant presents, ask the parent how old he/she is?

Always review of the risks of contracting disease and its sequelae if not immunized

10. Vaccines are intended to produce active immunity to specific antigens. An adverse reaction is an untoward effect caused by a vaccine that is extraneous to the vaccines primary purpose of production of immunity.

Vaccine adverse reactions fall into three categories - local, systemic and allergic. List some of the common reactions of the **flu vaccine** under each category:

LOCAL	SYSTEMIC	ALLERGIC
pain and redness at the injection site	loss of appetite	swelling of mouth and throat
swelling at the injection site	myalgia & malaise	hives at injection site
	headache	difficulty breathing
	fever	agitation, restlessness, tingling of lips

Review the form that you would use to report adverse vaccine events and describe what temporal criteria means.

Temporal criteria – is a timely relationship of the onset of the event, relative to the administration of the vaccine product, however, the event could have been due to an equally likely cause (e.g. headache)

Attach adverse event form

12. Vaccine recipients should be advised to remain under supervision for at least 15 minutes after immunization, regardless of whether or not they have had the particular vaccine previously.
13. Your 65-year-old client has just received a flu shot. She states that her lips are tingling, her tongue feels thick and she has a hoarse cough. Which of the following statements are true/false?
 - T/F She could be experiencing an anaphylactic reaction
 - T/F You should position her lying flat with legs elevated
 - T/F If epinephrine is administered; it should be given intramuscularly in all cases
 - T/F The correct dose of epinephrine for those (14 years +) is 0.5mls of epinephrine 1:000 IM or SC into an uninjected limb or at least 2.5 cm away from the immunization site
 - T/F Repeat epinephrine at 10-15 minute intervals if breathing becomes more laboured or level of unconsciousness decreases
 - T/F Call 911 or Ambulance after instituting all above measures

14. List the steps involved in drawing up a dose of flu vaccine?

- Check vial for correct product and expiry date
- Wash hands or cleanse with sanitizer
- Remove plastic cap on vial and clean the rubber stopper with 70% isopropyl alcohol
- Swirl vial to ensure contents are well mixed
- Place needle on syringe (tightly) and remove needle cap
- Pull back plunger to draw up appropriate amount of air into the syringe
- Insert needle through rubber stopper of vial and inject all of the air into the vial
- Hold vial upside down and pull back plunger on syringe to draw up appropriate dosage into the syringe
- Remove needle from vial and expel any air bubbles from syringe
- Recap the syringe
- Replace the date multi-dose vial back into the insulate cooler

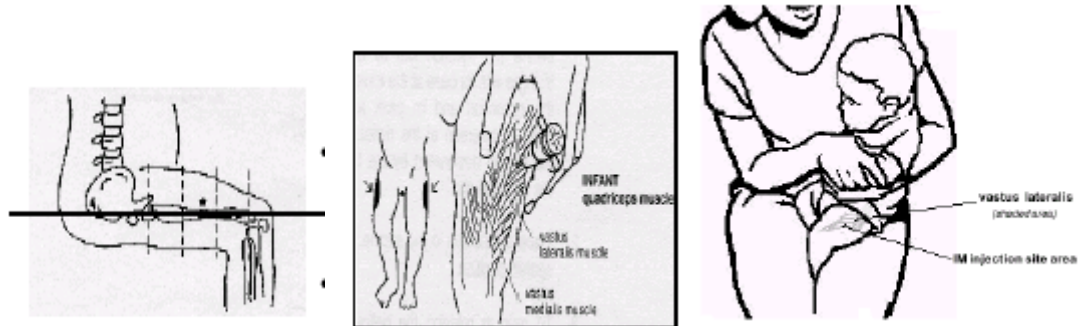
15. For the specific age groups listed below, describe the administration route, injection site, dosage, needle size and length:

	Route	Site	Dosage	Needle Size & Length
Infants 6-35 months	IM	Vastus Lateralis Muscle <18months Deltoid > 18 months	0.25 ml* *2 doses required unless previously immunized	25 gauge 7/8" - 1"
Children 3-8 years	IM	Deltoid Muscle	0.5ml* *2 doses required unless previously immunized	25 gauge 7/8" - 1"
Children ≥ 9 years and Adults	IM	Deltoid Muscle	0.5ml	25 gauge 1" 25 gauge 1" -1 ½"

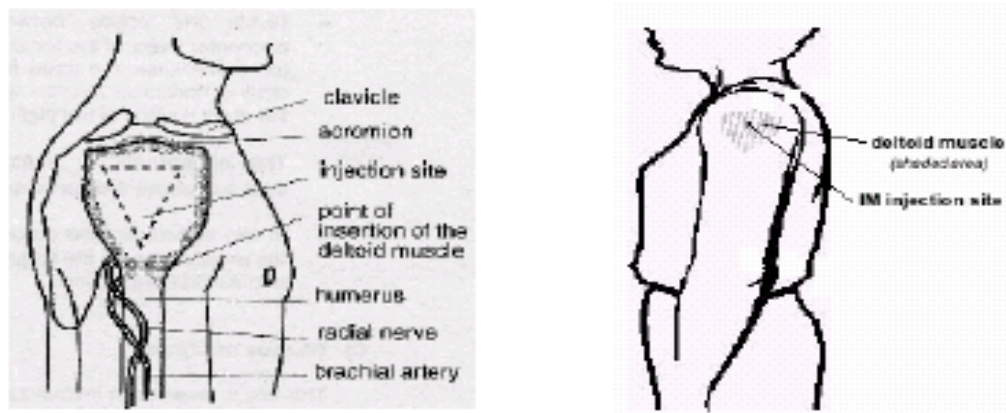
When immunizing, what is the best position for the following groups:

- An infant – "cuddle" or semi-recumbent position on the parent's lap.
- A child - sit sideways on the lap of the parent/caregiver. The injection arm should be held close to the infant's body while the other arm is tucked behind the parent's/caregiver's back.
- An older child or adult - seated with their elbow bent and their forearm resting on the arm of a chair and internally rotated.

16. a) Looking at the pictures below, how would you define the vastus lateralis site? Divide the space between the trochanter major of the femur and the top of the knee into three parts; draw a horizontal median line along the outer surface of the thigh. The injection site is in the middle third, just above the horizontal line.



- b) Looking at the pictures below, how would you define the deltoid site? Define the site by drawing a triangle with its base at the lower edge of the acromion and its peak above the insertion of the deltoid muscle. The injection site is in the center of the triangle.



17. Once you have land marked the appropriate site, list the steps on how to give an intramuscular injection?

- Cleanse the site with 70% isopropyl alcohol
- Insert the needle quickly at 90° angle into the muscle
- If client's muscle mass is small, grasp the body of muscle between thumb and fingers before and during the injection'
- Slowly pull back on plunger to aspirate. If blood appears in the syringe, withdraw the needle and, discard entire needle and syringe into sharps container
- Repeat the 'drawing up a dose of vaccine' procedure and insert the needle quickly at 90° angle into muscle. If no blood appears in the syringe after aspirating, slowly inject the dose of flu vaccine.
- Remove the needle in one swift motion and immediately apply pressure for 30 seconds. Do not massage the injection site. Discard used needle and syringe into sharps container.

18. a) What information should you provide to the client prior to administering flu vaccine?

Answer: Pandemic Influenza Vaccine Fact Sheet & a consent form

b) What information should you record after administering a flu shot during a pandemic?

Answer: dose, site, route, expiry date, lot number

Also, provide a copy of vaccine information to the client, inform them when to return for next dose, instruct on expected side effects and comfort measures (e.g. Tylenol), Call the adverse events hotline if symptoms do not resolve in 2-3 days.

A template for record keeping under consideration by the PH Agency of Canada's Centre for Emergency Preparedness and Response.

19. The term '**cold chain**' refers to a system of (please circle the correct statement(s))

- a) distribution for vaccines
- b) ensuring that vaccines arrive at their final destination with immunogenic properties intact
- c) storage of vaccines
- d) maintaining the temperature of vaccines between +2 to +8° Celsius
- e) all of the above

20. Which of the following statements regarding vaccine storage are accurate? (please circle the correct statement(s))

- a.) food, beverages and laboratory specimens can be stored in the fridge/hard-sided cooler along with vaccines
- b.) once the multidose vial is punctured, may print date of opening on label and use within 60 days providing good technique and cold chain maintained
- c.) vaccine can be placed in the fridge door in addition to central shelves
- d.) when using hard-sided cooler, always place vaccines on ice packs wrapped in paper/bubble packing
- e.) temperature within the fridge/insulated cooler must be maintained between 0° C and 8° C

21. Which of the following statements are correct regarding exposures of vaccines to temperatures outside of the recommended range:

- a) Use the vaccine if it has been exposed for less than 1 hour
- b) Contact the appropriate manufacturer to get the vaccine replaced
- c) Discard the exposed vaccine into an appropriate container
- d) Consult with the Clinic Director re: safety to use

Answer: d

PANDEMIC INFLUENZA IMMUNIZATION SKILLS CHECKLIST

Health Region: _____ Date of Completion: _____
(YYYY/MM/DD)

Name & Signature of Practice Evaluator: _____

Name & Signature of Vaccine Provider: _____

Clinic Setup:

- ☐ Demonstrates appropriate knowledge of protocol for the management of anaphylaxis, and describes emergency plan to manage anaphylactic event
- ☐ Ensures anaphylaxis kit is complete and accessible
- ☐ Sets up supplies and equipment to promote proper body mechanics and OHS standards
- ☐ Stores and handles vaccine to maintain cold chain

Performs appropriate client assessment prior to immunization:

- ☐ health status
- ☐ adverse event history

Obtains informed consent:

- ☐ Refers to appropriate Health File(s)
- ☐ Describes the nature and purpose of the vaccine(s)
- ☐ Discusses benefits and risks of receiving the vaccine
- ☐ Reviews contraindications, precautions, and adverse events related to vaccine(s) to be administered
- ☐ Discusses risks associated with not having the vaccine
- ☐ Provides aftercare instructions
- ☐ Ensures client has opportunity to ask questions

Prepares vaccine correctly:

- ☐ Cleanses hands
- ☐ Maintains sterile/aseptic technique
- ☐ Selects correct vaccine, checks expiry date, and dosage
- ☐ Selects appropriate syringe and needle size
- ☐ Draws up vaccine correctly

Demonstrates correct vaccine administration:

- ☐ Instructs parent to position and hold child appropriately
- ☐ Accurate intramuscular injection technique and site location
- ☐ Safely handles and disposes of syringe
- ☐ Assists parent to comfort child as needed

Documentation:

- ☐ Documents contraindications and reported adverse events
- ☐ Documents vaccines given on personal record and agency record
- ☐ Documents declined vaccines

PANDEMIC INFLUENZA IMMUNIZATION CERTIFICATION

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