Section Three

PREPAREDNESS

3.1 Introduction

3.1.1 Background

This document, the *Preparedness Section of the Canadian Pandemic Influenza Plan*, addresses prevention and preparedness activities during the inter-pandemic period. It is based on the deliberations of a number of pandemic influenza working groups, as well as the input of other stakeholder groups and organizations.

The national working groups and sub-committees, addressed specific issues in the Plan and developed the guidelines and reference documents annexed in the Plan. The current working groups include Surveillance, Vaccines, Antiviral Drugs, Public Health Measures, Communications and Health Services. Each annexed document has been created to address specific issues related to the overall goal of minimizing serious illness and overall deaths, and secondly, minimizing societal disruption among Canadians as a result of an influenza pandemic. The annexes were based on the data available and prevailing beliefs and approaches to pandemic planning at the time they were written; they may be updated separately as needed to ensure that they remain current and realistic.

The purpose of this section of the Plan is to provide information and guidelines that can be used in the development of plans for federal, provincial and territorial (F/P/T) and local management of an influenza pandemic.

3.1.2 Populations under Federal Jurisdiction

Across Canada, various federal departments and agencies provide a varied range of health services to a number of "populations". These "populations" (e.g., First Nations reserves, large military bases, federal prisons) could potentially cause a unprecedented increase in demand for health services in local health regions during a pandemic. Advanced planning is required to ensure that all P/Ts and regions in close proximity to these populations in addition to the appropriate federal authorities have agreed upon roles and responsibilities in the event of a pandemic.

The current status, outstanding issues and next steps for coordinated planning for First Nations communities will be addressed in Annex B (which is currently being revised). Federal level discussions have been initiated to ensure that the needs of other populations under federal jurisdiction are also addressed within the context of a co-ordinated pandemic response. These activities should not preclude discussions at the P/T and local level where many of the issues may have already been raised.

3.2 Components of the Preparedness Section

To date, the components of the Pandemic Influenza Plan have included surveillance, vaccine programs, the use of antivirals, health services, emergency services, public health measures and communications. Each of these components have been addressed in this section in terms of current status, including outstanding issues, and planning principles and assumptions. A list of potential planning activities has also been included.

It has been recommended that in order to make the Plan more comprehensive and similar in scope to other emergency plans, a component focusing on psycho-social issues should be added. It is anticipated that this new component will be developed and incorporated into future versions of this plan. In the interim, provincial/territorial and local planners are encouraged to think about the psycho-social implications of pandemic influenza when developing their own plans both in terms of preparedness and response activities.

3.2.1 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.

Laboratory surveillance involves the isolation of influenza viruses for analysis of antigenic and genetic properties. This activity is essential for monitoring the antigenic drift and shift of influenza viruses circulating among humans. Because the signs and symptoms of influenza are similar to those caused by other respiratory pathogens, laboratory testing must be conducted to definitively diagnose influenza. Rapid identification of a novel influenza virus and timely tracking of virus activity throughout the duration of the pandemic is critical to the success of a pandemic response. Prompt identification of a novel strain increases lead time for the development of a vaccine and implementation of prevention and control measures.

The collection of epidemiologic data regarding influenza-like illness (ILI) and influenza related hospitalizations and deaths is essential for determining the extent and severity of influenza epidemics and is particularly important during epidemics or pandemics associated with a newly recognized influenza variant. Epidemiologic data will help guide prevention and control strategies (e.g., the prioritization of limited vaccine supplies).

The objectives of Influenza surveillance are:

- to provide data on currently circulating strains and facilitate comparison with vaccine composition and vaccine recommendations,
- to describe the affected population thereby facilitating identification of high risk groups and comparisons between other populations or other influenza seasons,
- to detect unusual events including unusual or new strains, unusual outcomes/syndromes, or unusual distribution or severity of the disease within the population,
- to inform the pandemic response during a pandemic by tracking occurrence and progression of the pandemic through the population (by WHO phase).

3.2.1.1 Current Status

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.

On an ongoing basis, the national Respiratory Infections Surveillance Committee (previously known as the Surveillance Working Group) assesses the surveillance system, considers global influenza activity and makes recommendations to ensure preparedness for an influenza pandemic. One recommendation included the maintenance of national surveillance throughout the year to detect the arrival of novel influenza strains outside of the typical influenza season in Canada. This was implemented in 2003, when year-round surveillance began through the Fluwatch program, including the sentinel physicians network and the provincial and territorial Fluwatch representatives, in addition to the already year-round laboratory reporting through the Respiratory Virus Detections System. Thus year-round influenza surveillance presently consists of weekly reporting during the typical influenza season (October through April) and biweekly reporting during the typical "off season" (i.e., May to September).

As a result of the SARS outbreaks in early 2003, 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 also 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. In addition, there is a need to enhance laboratory-based surveillance including laboratory testing capacity and standardization of testing protocols. Once developed by the sub-group on Laboratory Testing, these will be shared with all appropriate laboratories. The Sub-group on Laboratory Testing has developed laboratory guidelines for pandemic planning and preparedness (Annex C).

The need to implement new initiatives, timing and feasibility will remain on the agenda of the Respiratory Infections Surveillance Committee. Recommendations from this group will be distributed through P/T representatives and will identify action items for the CIDPC and initiatives that should be considered for support by P/T and local governments.

The need for development of special study protocols that can be activated at the time of a pandemic (e.g., surveillance of returning travelers from areas affected by the pandemic virus) has been recognized by the committee and currently remains an outstanding issue.

At the federal level, regular environmental scanning for the detection of potentially significant influenza-like illness is conducted using official information sources for influenza surveillance (e.g., WHO and international government influenza surveillance programs) as well as unconfirmed reports from early warning systems (e.g., ProMed and other media scanning software such as the Global Public Health Intelligence Network (GPHIN). However, the sustainability of these systems, investigation and dissemination of information from these systems, and the streamlining of these processes to maximize efficiency, remains an outstanding issue.

3.2.1.2 Planning Principles and Assumptions

Since surveillance data will drive the pandemic response it is important that physicians and other health care workers are educated and updated on an ongoing basis about the importance of ILI surveillance and their role in the system. Surveillance systems must be established in advance of a pandemic as there will be little time to augment capacity at the time of a pandemic. At the time of a pandemic, surveillance and laboratory testing capacity will be reduced (e.g., due to staff absenteeism and supply shortages) as compared to pre-pandemic periods, and only streamlined, resource efficient systems will continue to function. Special study protocols if required, (e.g., to determine epidemiology or to investigate reported vaccine-associated adverse events) at the time of a pandemic must be developed and pre-tested in the pre-pandemic period, recognizing that refinements may be necessary at the time of a pandemic.

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. Targeted studies may include serologic studies of immunity to the virus in different populations.

Studies of the etiologic agents responsible for secondary complications of influenza and their susceptibility to antimicrobial drugs will also be important, especially in times of short supply. In addition, surveillance data and targeted studies will be useful in assessing the impact of the pandemic on the health care system, as well as social and economic impact.

3.2.2 Vaccine Programs

Vaccination of susceptible individuals is the primary means to prevent disease and death from influenza during an epidemic or pandemic. The National Advisory Committee on Immunization (NACI) produces annual recommendations on the use of influenza vaccine in persons who are most at risk for influenza or those who could spread influenza to persons at greatest risk. These interpandemic recommendations are published annually in the Canada Communicable Disease Report. In the event of a pandemic, the Pandemic Influenza Committee, which includes representation from NACI, will provide recommendations to

F/P/T immunization programs on the use of the pandemic vaccine and priority groups for immunization. Efforts should be made to encourage all jurisdictions to adopt the national recommendations on priority groups at the time of a pandemic in order to facilitate equitable access and consistent messaging.

The objectives of the Pandemic Vaccine Program are:

- to provide a safe and effective vaccine program to all Canadians as soon as possible;
- to allocate, distribute and administer vaccine as rapidly as possible to the appropriate groups of people;
- to monitor safety and effectiveness of vaccination programs.

3.2.2.1 Current Status

The annual influenza vaccine available in Canada is a trivalent vaccine, composed of two influenza A subtypes and one influenza B subtype. The vaccines contain 15 micrograms of hemagglutinin antigen for each constituent strain. For adults and older children previously exposed to viruses similar to those present in the vaccine, a single dose is normally recommended. In children (under the age of nine years) lacking such previous exposure, two doses are recommended.

Currently, Canada uses approximately 10 million doses of trivalent influenza vaccine a year (equivalent to 30 million monovalent doses of 15 micrograms), delivered predominantly through publicly-funded programs with established vaccine delivery infrastructures. Provinces and territories vary in their target populations for annual influenza programs, with the majority providing vaccines to NACI recommended high risk groups. Some provinces and territories have expanded their programs to include populations not currently identified as high risk groups (e.g., the Ontario "universal" program) and have experience in conducting large influenza vaccination campaigns.

The vaccine typically becomes available in October of each year and is currently provided by two suppliers. Annual influenza immunizations are administered in a variety of setting across Canada, including physicians' offices, public health clinics at schools or other community settings, workplace clinics, and other settings including pharmacies.

The Canadian approach to vaccine procurement and supply contingency planning includes the development of domestic infrastructure, a standby supply of fertilized hens eggs ready to convert into vaccines, the phasing in of new technologies, and further security of supply through multiple suppliers. Confirmatory study (clinical trial) protocols will be developed in order to ensure the most expeditious product licensure process while ensuring safety at the time of a pandemic.

The Vaccines Working Group has made recommendations regarding the priority groups for immunization in the event of a pandemic. These recommendations are discussed in Annex D. In addition, guidelines for planning a mass immunization campaign have been developed by P/T and local jurisdictions and can be adapted for use during a pandemic (e.g., Mass Immunization Campaigns: A 'How To' Guide, Capital Health Region of Alberta, April 2000 and Guidelines to Planning a Mass Immunization Campaign, Waterloo Region Community Health Department, Ontario, January 2001). The Vaccine working group will also develop guidelines for the monitoring of vaccine usage during a pandemic and identify issues around vaccine associated adverse event tracking and liability issues.

With respect to vaccine associated adverse events, the CIDPC maintains a vaccine associated adverse events surveillance system (VAAESS). Reports of adverse events associated with influenza vaccination are monitored through reports from P/T Ministries of Health (approximately 95%), with some being reported by health care professionals and by manufacturers direct to Health Canada (approximately 5%). The reporting is based mainly on voluntary notifications by clinicians and public health nurses. Data on hospitalizations in children possibly associated with vaccination are provided by the network of children's hospitals in Canada that participate in the Immunization Monitoring Program - Active (IMPACT). In addition, acute flaccid paralysis (including Guillain Barré Syndrome) is monitored by the Canadian Paediatric Surveillance Program.

Outstanding issues with respect to vaccine programs include the dose in micrograms required to achieve a protective response to a novel strain in a naive host, whether one or two doses of vaccine will be required, and timing of vaccine availability in conjunction with onset of pandemic activity in Canada. This information is unlikely to be available until the pandemic has begun. Continued international vaccine research efforts are a priority, including clinical studies to evaluate influenza vaccines containing novel subtypes (e.g., H5N3 vaccines) in immunologically naive populations, and the development and evaluation of new vaccine technologies (e.g., non-egg based production technologies, recombinant vaccines and adjuvant vaccines) to increase the capacity to produce an effective pandemic vaccine, reduce the lead time for vaccine production and increase the capacity to vaccinate larger populations.

Another outstanding issue is the development of a plan for equitable distribution of vaccine to provinces and territories. This plan would need to provide clear direction regarding the management of vaccine programs for populations under federal jurisdiction (First Nations, RCMP, Armed Forces & federal penitentiary inmates).

3.2.2.2 Planning Principles and Assumptions

Currently the vaccines available in Canada are inactivated vaccines, manufactured in fertilized hens eggs. This production system is dependent on egg availability, and is characterized by stringent time requirements for identification of vaccine candidate strains, preparation of seed lots, testing and licensing, manufacturing and distribution. Manufacturers require approximately 56 days from seed strain availability to production of the first lot of vaccine for testing. Delays in the production of pandemic vaccine seed strains may occur, as highlighted by the difficulties encountered in trying to produce a vaccine against the H5N1 virus involved in the 1997 Hong Kong outbreak. As a consequence, vaccine may not be available when the first wave of the pandemic strikes Canada.

At the time of a pandemic, it is assumed that monovalent vaccines containing only the pandemic strain will be used. The dosage and schedule of the pandemic vaccine required to induce immunity in different populations must be determined through clinical testing. Where possible, clinical testing with vaccines for novel virus subtypes should be performed in the interpandemic period and confirmatory trial for the specific pandemic vaccine will be carried out at the time of a pandemic. This testing will probably be undertaken outside of Canada through international studies.

At this time, it is assumed that in a pandemic caused by a novel virus subtype, all persons will lack previous exposure and will likely require two doses of vaccine. It is unknown whether two 7.5 microgram doses or two 15 microgram doses or higher dosage will be needed. It is also unknown whether it might be possible to given an initial immunization with a generic vaccine

of the correct H type and then give a second dose with the specific antigen. If that is possible, domestic vaccine production and immunization could begin before Canada has the specific strain. Adjuvants could potentially enhance the immunogenicity of influenza vaccines and reduce the amount of antigen required; further research on adjuvanted vaccines is required.

During a pandemic, embargos on vaccine must be anticipated, as countries with production capacity are likely to see such an event as a national health emergency or a threat to national security. Canada has invested in a domestic supplier to offset this possibility. However it will not be known whether this supplier will be able to produce enough vaccine for the entire target population in a timely manner, until vaccine production with the novel strain commences. The possibility of multiple suppliers should be considered in the planning process.

When vaccine becomes available, initial supplies will not be sufficient to immunize the whole population and prioritization for vaccine administration will be necessary. The F/P/T governments will control the allocation and distribution of influenza vaccine during a pandemic and will implement specific recommendations regarding priority groups for immunization. Priority groups have been proposed in Annex D; however, these may change when more is known about the epidemiology the pandemic. It is assumed that with a two-dose program, completion of the second dose should be carried out as soon as possible to effect immunity and this should not wait until every priority group has received a first dose. This strategy will require extensive planning involving tracking and recall mechanisms.

In a pandemic, the current aim is to vaccinate the whole Canadian population over a period of four months on a continuous prioritized basis after receipt of the pandemic seed strain . This would require a minimum of 32 million monovalent doses (8 million doses per month). Vaccine clinical trials at the time of a pandemic will be needed to determine the amount of vaccine antigens per dose and the number of doses required to optimize immunity in various age groups. If two doses are needed to achieve protection, either the goal of immunizing the entire population over four months would have to be reassessed or the required quantities would need to be doubled to 16 million doses per month. Vaccine recommendations may not be finalized until pandemic activity has commenced. These recommendations will be distributed as national guidelines as soon as possible, with the expectation that they will be followed in order to ensure a consistent and equitable program.

For vaccine program planning purposes it is important to be prepared to immunize 100% of the population; however the actual proportion of the population that will voluntarily seek vaccination will depend on public perception of risk and severity of the disease. Therefore the demand, manifest as clinic attendance, will likely vary between jurisdictions and within each jurisdiction as the pandemic evolves. Previous experience with outbreak related immunization clinics indicates that it would be prudent to prepare for an initial demand of 75% of the target population. It is recommended that planning activities also focus on delivering a two-dose program to ensure that the public health response is ready to deal with this possibility.

In a pandemic, while immunization activities would be expected to greatly increase, reporting of vaccine associated adverse events through normal channels could be delayed due to reallocation of human resources or staff absenteeism. In this situation, information on potential vaccine associated adverse events must still be communicated in a timely manner from the local to P/T public health authorities and on to the Division of Immunization and Respiratory Diseases, CIDPC. CIDPC may need to contact other government departments (e.g., Biologics and Therapeutic Products Directorate, Public Works and Government Services Canada for the location for alternative suppliers) and stakeholders. Therefore there is a need to establish a plan to monitor vaccine safety and ensure timely communication of any potential vaccine associated adverse events during the pandemic. Specific targeted studies

and surveillance activities may be required if an adverse event suspected to be due to the new vaccine is detected.

Clinical trial protocols should be developed in advance of a pandemic and should be updated as needed based on available knowledge on influenza vaccines and changing technologies. Phase 3 clinical trials for vaccine efficacy may not be performed prior to the implementation of vaccine programs at the time of a pandemic. Estimation of vaccine effectiveness may need to be carried out by studying pre-determined target populations during the pandemic. Health Canada will coordinate studies on vaccine effectiveness with P/Ts, researchers and vaccine manufacturers.

In the inter-pandemic period consideration should also be given to improving pneumococcal vaccination coverage levels in NACI recommended "high-risk" groups. *Streptococcus pneumoniae* is a common cause of secondary bacterial pneumonia. The incidence and severity of secondary bacterial pneumonia during the pandemic may be reduced if there is a high level of immunity to the most common serotypes of *Streptococcus pneumoniae* in the high-risk groups.

3.2.3 Antivirals

Vaccines, when available, will be the primary public health intervention during a pandemic. However, vaccine may not be available as soon as required at the start of the pandemic and two doses of vaccine may be necessary to achieve an adequate immune response. Antivirals (anti-influenza drugs) are effective for both treatment and prophylaxis and may have a role as an adjunctive strategy to vaccination for the management of pandemic influenza. Antivirals will likely be the only virus-specific intervention during the initial pandemic response. Protection afforded by antivirals is virtually immediate and does not interfere with the response to inactivated influenza vaccines.

Two classes of antiviral drugs are currently available in Canada and have a role in the prevention and treatment of influenza infection: M2 ion channel inhibitors (cyclic amines) and neuraminidase inhibitors. M2 ion channel inhibitors interfere with the replication cycle of influenza A but are not effective against influenza B. Amantadine and rimantadine are examples of M2 ion channel inhibitors. Zanamivir and oseltamivir are examples of neuraminidase inhibitors. These drugs interfere with replication of both influenza A and B viruses, are well tolerated, and have been used effectively for the prophylaxis and treatment of influenza A and B infections.

Amantadine is approximately 70-90% effective in preventing illness from influenza A infection. When administered within two days of illness onset, it can reduce the duration of uncomplicated influenza A illness by approximately one day but it has not been shown to reduce the complications of influenza. Resistance to Amantadine has been shown to develop rapidly when this drug is used for treatment purposes.

When administered within two days of illness onset, zanamivir and oseltamivir can reduce the duration of uncomplicated influenza A and B illness by approximately one day. Current evidence suggests that the development of resistance during treatment of influenza is less likely with neuraminidase inhibitors than with amantadine. Recent community studies suggest that both neuraminidase inhibitors are similarly effective in preventing febrile laboratory-confirmed influenza illness. Further evidence is needed on the effectiveness of neuraminidase inhibitors in reducing complications of influenza. See Annex E for additional details on these antiviral drugs.

The objectives of the antivirals initiative are:

- to recommend a strategy for the use of antivirals during a pandemic
- to address issues around the security of supply of antivirals;
- to monitor drug resistance during the pandemic;
- to facilitate planning to ensure the distribution of available antiviral drugs to appropriate groups of people during the pandemic.

3.2.3.1 Current Status

Only amantadine is licensed in Canada for both prophylaxis and treatment of influenza A infections. Rimantadine is not currently licensed in Canada and both zanamivir and oseltamivir are licensed for treatment purposes only. Neuraminidase inhibitors are much more expensive than amantadine at this time.

The national Antivirals Working Group has developed strategic options on the use of antivirals during a pandemic, including identification of priority groups. Security of supply is an issue that needs to be addressed as the existing supply of antivirals is very limited in Canada and globally and is primarily distributed within the private sector. It is expected that global supplies of antivirals will be consumed very rapidly at the start of a pandemic. Antivirals are prescribed by individual physicians on a first come first served basis. Prioritization of supplies and distribution and diversion of any available antivirals for public health use during a pandemic remains to be addressed. Other outstanding issues include the development of a protocol for monitoring of drug resistance during the pandemic.

3.2.3.2 Planning Principles and Assumptions

An effective intervention with antivirals will require:

- a secure supply;
- a well planned distribution and monitoring system under the direction of F/P/T governments in collaboration with suppliers;
- ability to target priority groups;
- the availability of rapid diagnostic tests;
- enhanced surveillance for the detection of the virus, resistance of the virus to antivirals and drug associated adverse events;
- clinical guidelines for the appropriate use of antivirals;
- study protocols to further assess the effectiveness of antivirals for treatment and prophylaxis during a pandemic; and
- effective communication and education materials on antivirals for health care workers and the public.

Many of these issues are currently being addressed by the Antivirals working group.

Antiviral interventions will need to target specific populations, given that anticipated supply will be lower than anticipated demand. The PIC will make recommendations and provide advice concerning the identification and prioritization of individuals and groups of people to receive antiviral drugs for treatment and prophylaxis during the pandemic. Guidelines for the use of antivirals at times of short supply (priority groups) are being developed (see Annex E). It is

important that any antiviral response strategy be flexible given that the epidemiology (i.e., age-specific morbidity and mortality rates) of the pandemic and the availability of vaccine will only become evident once the pandemic has started. The timing of the use of antivirals during a pandemic should be guided by local surveillance data.

Suggested priority groups at this time will be in line with the overall goal of reducing morbidity and mortality. The role of antivirals in minimizing societal disruption is as yet unknown because current clinical evidence is limited and has yet to establish whether antivirals slow down or decrease viral transmission. Therefore, it may be most efficient to treat those patients who present within 48 hours of onset of influenza symptoms, with priority given to the severely ill and those with risk factors for severe complications.

During a pandemic, antiviral strategies should utilize all anti-influenza drugs available to Canadians and be adaptable to changing disease epidemiology and vaccine availability. It is recommended that amantadine be used for prophylaxis and the neuraminidase inhibitors be reserved for treatment of cases. This recommendation is based on the efficacy of these two types of drugs, which is approximately equal for treatment of cases, and the desire to minimize the development of amantidine resistance during the pandemic.

3.2.4 Health Services Emergency Planning

During the pandemic there will be a marked increase in demand for people (health care workers and others) to care for the sick and appropriate locations and equipment, to facilitate the provision of health care. Communities and health care organizations will need to have plans in place that will address what will be done when the health care system is overwhelmed and care must be provided by persons, both health care workers and volunteers, doing work which is not normally part of their daily activities and potentially in settings not usually used for health care.

The objectives of health services emergency planning are:

- to identify issues that will require multi-level collaborative planning during the interpandemic period;
- to facilitate awareness of the potential impact of a pandemic on the health care system;
- to prepare resources and guidelines that may be adapted during a pandemic.

3.2.4.1 Current Status

Outbreaks of influenza occur annually in Canada. The morbidity and mortality during any given influenza season is largely dependent on the circulating strain(s) of influenza virus, and the susceptibility of the population. Those normally at high risk of influenza complications are the elderly, persons with chronic cardiac or respiratory conditions and the immunocompromised.

The spectrum of illness seen with influenza is extremely broad, ranging from asymptomatic infection to death, frequently due to secondary bacterial pneumonia or exacerbation of an underlying chronic condition. Many institutions in Canada are presently running at maximal or near maximal bed capacity. At the peak of the demand for health care during annual influenza seasons it is difficult for many facilities to manage the increased demand for beds and the demand for emergency room care. A report by the Manitoba Centre for Health Policy and Evaluation showed that the total number of hospital admissions and ambulatory visits

provided by the Winnipeg health care system increased only slightly (5% to 7%) during severe influenza seasons, however, the number of patients presenting with influenza-like illnesses increased substantially (approximately 70% for admissions, and 35% to 40% for physician visits). This indicates that there is an overall maximum of services which can be provided, which does increase somewhat in response to need, but also that the patient mix changes in response to the need for influenza care. (http://www.umanitoba.ca/centres/mchp/reports/reports_97-00/seasonal.htm) The scarcity of health resources will be exacerbated during a pandemic and may exceed the capacity of the current health care setting to cope.

Health services guidelines have been developed by the various PIC working groups to assist acute and chronic care institutions, health care planners, clinicians, and other stakeholders with planning for and coping with large numbers of influenza cases, some of whom may have severe disease or life-threatening complications. These documents are included as annexes to this plan for ease of use, and can be broadly classified into the following categories: clinical, infection control, resource management, and non-traditional settings and workers, which correspond to the main responsibilities of each of the working groups. The documents provide options, worksheets and guidelines to facilitate planning for a consistent and comprehensive response within the health sector.

These working groups will also be looking attraining and education modules for health care workers, volunteers and the public, and aftercare/recovery planning issues.

3.2.4.2 Planning Principles and Assumptions

Due to the broad scope of these planning activities this section has been sub-divided to correspond to the sub-groups that have been working on the different aspects of this component. Where relevant, documents or tools in the Annex will be referenced.

i) **Infection Prevention and Control**

The incubation period for influenza usually ranges from one to three days. Influenza is spread from person-to-person by inhalation of small particle aerosols, by large droplet infection, by direct contact , or by contact with articles recently contaminated by nasopharyngeal secretions. Contact with respiratory secretions and large droplets, appears to account for most transmissions of influenza. The importance of the airborne route in influenza transmission is uncertain. Influenza is highly contagious; it can spread quickly in settings where large groups of people are gathered together, for example, among institutionalized populations.

The period of communicability for influenza virus is during the 24 hours before the onset of symptoms, and during the most symptomatic period, usually three to five days from clinical onset in adults and up to seven days in young children. In adults, the amount of viral particles shed for instance, while sneezing or coughing, is related to the severity of illness and temperature elevation. For those receiving antiviral therapy, the duration when virus particle are shed is likely to be shorter.

Survival of the influenza virus, outside the body, varies with temperature and humidity. It generally survives 24-48 hours on hard, non-porous surfaces, 8-12 hours on cloth, paper and tissue, and five minutes on hands. Survival of the virus is enhanced under conditions of low humidity and in the cold.

During the next pandemic it will be imperative to keep health care workers as healthy as possible. Occupational health issues which need to be considered include: vaccination of

health care workers, use of personal protective equipment, work exclusion/fitness to work criteria, and work reassignments (see Annex F).

The institutional infection control guidelines (Annex F) contain sections for both acute and long-term care institutions. The issues addressed include: immunization, hand hygiene, use of personal protective equipment (masks, gloves, gowns), patient isolation/accommodation, restriction of visitors, staff cohorting, environmental cleaning, and education for staff, patients and visitors.

The community infection control guideline (Annex F) contains sections pertaining to the general public, health care workers providing services in the community, as well as office-based medical and non-medical health care providers (public health clinics, physicians' offices, dental offices, physiotherapy clinics, and alternative health care providers). The issues addressed include: hand hygiene, the use of personal protective equipment (masks and gloves), cohorting persons with influenza-like illness (ILI), as well as temporary closure of schools, day cares and large, "non-essential" businesses.

ii) Clinical Management of Influenza

The last two influenza pandemics occurred in 1957–1958 and 1968–1969. Therefore, the majority of currently practicing clinicians would have little or no experience with pandemic influenza disease and may not be aware of its potential variant presentation. The clinical guidelines that have been developed (Annex G) provide recommendations on the triage of pediatric and adult patients and on the management of patients within Long-Term Care Facilities (LTCF). Clinical Management of Influenza forms have been developed in order to assist health care staff with case management (Annex G). One form contains sections on investigations which should be considered, treatment recommendations, as well as information pertaining to the selection of patients (children and adults) for hospital admission and for admission to intensive care. Standardized admission and primary care forms, with a triage component, have also been developed to help to ensure consistency and minimize paper work (Annex G).

During a pandemic, it will be essential to inform both the public and health professionals about the symptoms and treatment of influenza, as well as when to seek advice and refer (see Annex G). Fact sheets regarding the clinical features of influenza and secondary complications have been developed to assist health care providers with diagnosis, and the general public with self-treatment (Annex G). These fact sheets include information pertaining to children, adults and the elderly. Any educational materials require advanced preparation in addition to an efficient and timely distribution plan.

iii) Resource Management

Although the impact of a pandemic is unpredictable, for planning purposes it is advisable to expect a major disruption in critical community services. The health care system's response to this situation will be crucial. Regional, local and institutional planners will need to assess their health resource utilization and their health system capacity to cope during severe influenza epidemics and compare this to the estimated capacity required to response to a pandemic for their catchment area. The FluAid software using a U.S. model for estimating the health impact of a pandemic may be considered for resource planning purposes (http://www2.cdc.gov/od/fluaid/default.htm). In the U.S. model, however, health outcome was based on health care seeking behaviour or treatment received. It is expected that the treatment received in Canada for a person similarly ill with

flu may be quite different based on differences in the health care systems, practice patterns and health care seeking behavior. The model further assumed that health care was available for all persons seeking care, consistent with the U.S. demand-driven health economy.

It is expected that a substantial proportion of the work force may not be able to work for some period of time during the pandemic due to illness in themselves or in their family members. Health care workers are likely to be at higher risk of illness due to their exposures. During the 1957–1958 pandemic, the United Kingdom experienced an estimated 20% absenteeism rate in the general population and one-third of the staff in one hospital was ill during the peak of the pandemic.

Although in the majority of instances influenza is an acute, self-limiting upper-respiratory infection, complications do occur. In influenza epidemics and pandemics the overall attack rate is relatively high and occurs during a few weeks in any one location. Consequently, even a low frequency of complications result in marked increases in rates of hospitalizations. It is important to consider that while the waves of the pandemic tend to last for six to eight weeks in any locality, the demand on the health care system will not be at a constant rate during this period as the number of new cases seeking health services is likely to increase, peak, and then decline. The next pandemic wave may closely follow the first wave leaving little time for recovery. Resource needs will need to be reassessed continuously during this potentially overwhelming situation. It will be a challenge for acute care facilities to manage high ward census, high intensive care unit census, and high emergency department volumes in the face of reduced availability of health care workers and limited respiratory support equipment (see Annex H). Advanced consideration should be given to the management of adult and pediatric patients with respiratory distress when oximeters, ventilators, and other respiratory support equipment must be rationed.

Each facility needs to evaluate its human resources. As health care and hospital workers encompass a vast number of different individuals and occupations, a list of health care workers has been developed to assist with planning (Annex H). Emergency reallocation of staff and maintenance of staffing levels will be essential. Health care worker training and continuing education to encourage workers to maintain their skills, incentives to maintain training, and on-going communication are all important and should be planned for during the pre-pandemic period. During the pandemic, child care, emotional support and grief counseling needs to be addressed to facilitate maintenance of adequate staffing levels.

Elective medical and surgical admissions will need to be prioritized and possibly cancelled to meet some of the increased demands. A checklist of issues that should be considered during this prioritization process has been developed for Acute Care facilities (Annex H). Each institution will also need to evaluate their bed and ventilator capacity. A worksheet has been developed to assist facilities with determining their potential surge capacity (Annex H).

Pandemic influenza historically has been associated with excess mortality. It will be essential for jurisdictions to include a corpse management plan as part of their pandemic plan. Guidelines for the management of mass fatalities (Annex I) have been developed to assist with this process. Issues which are addressed include morgue capacity, corpse storage, transportation, management, burial/cremation, and grief counseling.

Planning needs to be undertaken by all orders of government and health service institutions throughout the country to anticipate and put into place strategies to meet a greatly increased demand for services in conjunction with staff shortages.

Recommendations on how to manage scare resources during an immunization pandemic are included in Annex H.

iv) **Non Traditional Workers: Health Care Workers and Volunteers**

Communities and health care organizations need to have strategies in place that will address what will be done when health care facilities are overwhelmed and medical care must be provided in non-traditional settings. Temporary hospitals and outpatient clinics may need to be set up to provide care. Guidelines for the provision of care in non-traditional settings have been developed to assist with this task (Annex J). The issues addressed include: administrative options for non-traditional hospitals, potential resources and sites, critical characteristics and support services needed, type of work done within the sites, and liability protection.

Guidelines have also been developed addressing the potential sources of additional labour during a pandemic, volunteer recruitment and screening, liability and personal insurance of workers, temporary licensing of workers, roles and responsibilities, and training programs (Annex J).

3.2.5 Emergency Services

Emergency services personnel should be engaged in all levels of pandemic planning. While it is expected that health authorities will lead the pandemic response in terms of surveillance, vaccine usage, use of antivirals and public health measures, and emergency service providers will play a critical role in coordinating the overall emergency response. The deployment of these services will be staged in accordance with the Canadian Pandemic Phases and will depend on the severity and impact of the pandemic.

The objectives of emergency service planning are:

- to encourage collaboration between emergency service personnel and public health authorities to ensure that the planned pandemic response will be coordinated;
- to facilitate a continuous state of "readiness" through ongoing education, testing and revision of response plans.

3.2.5.1 Current Status

Emergency service authorities have been involved in the development of P/T pandemic plans. At Health Canada, the Centre for Infectious Disease Prevention and Control and the Centre for Emergency Preparedness and Response have worked together to ensure that the expertise contributed by each area is reflected in the development of this comprehensive plan.

3.2.5.2 Planning Principles and Assumptions

Public Health authorities will need to work with those in the emergency service field in their jurisdiction in addition to other key stakeholders. The formation of a multi-disciplinary committee with clear authority and ability to coordinate pandemic planning and response in the P/T is essential. Roles and responsibilities during each pandemic phase need to be

assigned to individuals and organizations during the interpandemic period with mechanisms in place to compensate for staff turnover and attrition.

Each of the P/Ts have their own emergency preparedness legislation that deals comprehensively with emergency management issues within their boundaries. All planning will need to take the applicable legislation into consideration.

Response plans will need to be tested, likely in the form of emergency exercises involving all partners, on an ongoing basis.

3.2.6 Public Health Measures

There are certain decisions that will need to be made at each level of government as the threat of the pandemic emerges. Local public health officials will be asked about what measures can be taken by the public and within the community in order to prevent or control pandemic influenza in their jurisdiction. These decisions will range from population-based recommendations, for example whether to cancel public gatherings or close schools, to individual measures like whether members of the public should where masks. The effectiveness of these types of measures for the control of disease within a population have not, for the most part, been systematically evaluated. In addition, the potential impact of these measures will vary based on the phase of the pandemic in the particular community and the availability of other interventions such as vaccines and antivirals. The purpose and effectiveness of these measures may also be different in isolated communities compared to large urban centres.

The implications of these potential measures which range from local school closures to quarantine recommendations for ports of entry into Canada, must be recognized by all potential stakeholders and discussed during the interpandemic period.

The objectives of public health measures planning are:

- to make recommendations regarding public health measures such as quarantine, cancellation of public gatherings, and school closures,
- to foster development of a common approach within Canada and also, if possible, between the U.S. and Canada especially on issues for which there is a lack of scientific evidence to guide decision-making
- to encourage planning at all levels of government that will raise awareness regarding potential impact of these measures so that necessary partnerships and consultations with external stakeholders and take place during the interpandemic period.

3.2.6.1 Current Status

The Public Health Measures Working Group was formed in November 2002 after a list of outstanding issues, classified for convenience as “public health measures”, was generated based on feedback from working group members and other reviewers of the draft. This new working group is currently refining the list of issues that need to be addressed and actively seeking literature and expert opinion on these issues. A guideline document will be developed once this consultation and review process has been completed and there is consensus on recommendations.

3.2.6.2 Planning Principles and Assumptions

The Public Health Measures Working Group will be making recommendations to facilitate a consistent and optimal response to public health communicable disease control issues during a pandemic. Since there is a lack of scientific data on the effectiveness of these types of disease control measures, especially in conjunction with other influenza control measures, it is unlikely that the benefits of these measures will be quantifiable, especially in advance of the population being exposed to the pandemic virus. Therefore, in the absence of any conclusive data, the group will be making recommendations for the purpose of facilitating consistency between jurisdictions, which is considered to be valuable during the response phase.

P/T and local level planners are encouraged to explore the feasibility and implications of these types of control measures within their jurisdictions and to educate stakeholders (e.g., school boards, local business owners such as theatre owners etc.), should it become advisable to implement these types of restrictive measures during a pandemic.

3.2.7 Communications

During a pandemic two main messages will need to be expressed: what the ministry or other organization is doing and what the public can do. As the pandemic evolves the number of organizations that will become involved with the media on this issue will be enormous; there will be financial issues, human resource issues, social issues — issues affecting every area of society. Due to this broad scope it will be virtually impossible to have any "control" over the information. The focus instead should be on information management. Information management has three components: meeting the demand for information, acknowledging the limits of government capacity to solve every problem, and using consistent and complementary messages. Unlike other types of emergencies where the media coverage is much shorter, the information demands during a pandemic will be sustained over a long period, resulting in tremendous information demands. Sustaining public confidence over many months will be a huge challenge that will be based in part on consistency.

All key audiences (external, internal and international) must receive consistent, comprehensive and relevant information in a timely manner during any type of emergency. Planning activities are aimed at ensuring uniform and consistent messaging across Canada.

The objectives of communication planning are to:

- ensure that Canada's health partners are prepared to respond to enormous public communications challenges
- identify specific activities to promote consistent, coordinated and effective public communications
- describe options to ensure that the public communications demands of various scenarios are met clarify what activities should occur during the specific phases of the pandemic
- clarify what activities should occur during the specific phases of the pandemic

3.2.7.1 Current Status

Provincial/Territorial/Local

Most communication activities around influenza take place immediately preceding, and during, the typical influenza season from October to May each year. P/Ts produce materials to promote immunization each fall which are specific to the program they are offering in their jurisdiction. Most communication materials and strategies targeting the general public, media, health care workers and other community organizations (considered to be "external" key audiences) are geared at promoting immunization and reducing unnecessary hospital visits. These materials are developed at the P/T and local level with minimal federal input. To date, there has not been a centrally coordinated education campaign regarding pandemic influenza which targets the external key audiences.

F/P/T

A secure website has been set-up to facilitate pandemic planning and sharing of key resources among recognized stakeholders. The role of this website as a communication tool will likely be expanded during the pandemic.

Communication with "internal key audiences", mainly government decision makers and policy advisors, occurs at all levels of government. With respect to pandemic planning, the Pandemic Influenza Committee, which includes P/T representation, reports through the Advisory Committee on Population Health and Health Security to the Conference of Deputy Ministers. In addition, in February 2002 the role of Chief, Crisis Communications was established by Health Canada. This office is working on an "all-hazards approach" which is establishing protocols for F/P/T interaction. One initiative was the creation of a network of F/P/T communications contacts. This network was mobilized in during in response to the SARS outbreak and continues as a key component in communication planning for pandemic influenza and other health emergencies.

Federal

Federal communications on influenza currently focus on the dissemination of surveillance data, through FluWatch bulletins, which are directed to public health professionals but available to the public through the Health Canada website. These bulletins are produced on a weekly basis throughout the influenza season. Information regarding international influenza activity is disseminated by CIDPC, mainly through email or website postings, to key stakeholders as necessary. As well, fact sheets on influenza, including influenza vaccines, are posted on the Health Canada Website. Health Canada also communicate with "international key audiences" including the WHO and PAHO regarding influenza activity within and outside of Canada.

For emergency situations Health Canada does have a public information line which can be set up for "around -the-clock" coverage. Other communication issues are also being addressed as part of the "all-hazards approach" to crisis communications.

3.2.7.2 Planning Principles and Assumptions

The Communications annex for the CPIP (Annex K) makes references to strategic considerations, target audiences, and recommended notification and public communication activities for consideration when planning for pandemic influenza.

It is important to ensure that all participants in the F/P/T communications network have identified fully trained back-up personnel that can step in if the original member is not available. When planning for this type of event, where the onset is unknown, succession training must be considered an ongoing activity.

The identification of spokesperson(s) and establishment of new, or evaluation of current distribution mechanisms (e.g., a toll-free phone number) also should occur during the inter-pandemic period. Templates for fact sheets, briefing notes and media communications may also be prepared in advance.

All governments should prepare to conduct their communications and public relations activities in a manner designed to retain public confidence, minimize disruption and anxiety.

Health Canada Communications would coordinate and facilitate Canada's response to pandemic influenza, with partners at the federal, provincial and local levels. Partners have varying roles and responsibilities, and coordination is crucial to ensure that messages are accurate and consistent and that jurisdictional boundaries are respected.

The development of the "all-hazards" communications plan is underway and would become a key part of communications planning for pandemic influenza. Health Canada would work with provincial and territorial ministries of health to develop key messages and mechanisms to communicate these messages to target audiences.

Health Canada Communications would identify departmental spokespersons and provide media training where necessary. All levels of government should agree to key messages and the role of spokespersons at all levels.

3.3 Planning and Preparedness Checklists

Planning and response activities can be broadly divided into four categories: prevention, preparedness, response/implementation and post-event recovery/after care. In the pre-pandemic period activities will focus on prevention and preparedness. Implementation of the response activities occur once an alert for a pandemic has been issued. Recovery and evaluation activities occur in the post-pandemic period. Front end investment of resources in prevention and preparedness activities will facilitate effective management of the pandemic and mitigation of negative outcomes.

In order to manage an emergency effectively it is essential to have comprehensive response plans in place. With respect to pandemic planning, the existence of these plans needs to be communicated to all potential stakeholders. Copies should be distributed to organizations and individuals that would be involved in the pandemic response and if possible advance testing of these plans should be coordinated with a mechanism to provide feedback to improve or update the plans.

This section of the document includes checklists specifically for influenza pandemic planning. This section is designed to facilitate P/T and local planning, possibly through the adaptation of existing emergency response plans.

To facilitate consistency the response plan will use the WHO pandemic phases to document the progression of the pandemic and need for specific actions in Canada. Most other countries have used this same approach.

3.3.1 Pandemic Planning Checklists

Planning for a pandemic involves consideration of what activities are necessary for optimal management of each stage of the pandemic. In this part of the document, activities have been listed and grouped according to the following components of the Plan:

- Surveillance
- Vaccine Programs
- Antivirals
- Health Services Emergency Planning and Response
- Communications

(At time of publication a list corresponding to the Public Health Measures component had not yet been developed.)

These lists have been developed to facilitate planning at the P/T and local levels and essential reflect planning activities that should be undertaken in the inter-pandemic period (i.e., Phase 0, Level 0). Actions corresponding to the other WHO Phases (starting with Phase 0, Level 1) are addressed in the response section of the Plan. Many of these activities and corresponding federal activities/responsibilities have been discussed and addressed by the various pandemic planning working groups. For further information on roles and responsibilities refer to the introduction/background section of the Plan.

Documents that have been developed by the working groups will be annexed in this preparedness section of the Plan or distributed as they become available. This is a preliminary

list of planning activities (aimed at P/T and local planners) that will need to be reviewed on a regular basis and updated as planning activities are completed. These planning activities should occur during the inter-pandemic period, recognizing that when novel strains are detected or pandemic activity starts plans will need to be reviewed and adapted as necessary.

3.3.1.1 Surveillance Checklist

- Improve disease based surveillance, in collaboration with Health Canada's Centre for Disease Prevention and Control (CIDPC). Includes improvements to the current system and consideration of enhancements (e.g., emergency room surveillance and real-time influenza mortality surveillance)
- Improve virologic surveillance capability by ensuring at least one laboratory within the P/T has the capability to isolate and subtype influenza virus.
- Establish link with avian/swine influenza surveillance contacts within P/Ts.
- Develop protocols/guidelines for prioritization of laboratory services during times of high service demand and staff and supply shortages.
- Develop/improve communication mechanisms for the rapid and timely exchange of surveillance information between P/Ts, CIDPC and local stakeholders.
- Together with public health response consider how recovered cases, who are presumably immune to the novel virus, can be identified by occupation (e.g., health care provider or essential service worker) and location, thus facilitating development of a "list" of immune workers that may be strategically deployed.
- Consider how special studies, identified in collaboration with CIDPC, may be activated in your jurisdiction.
- Determine what information needs to be collected and how this will be done, to facilitate evaluation of surveillance activities in the post-pandemic period (including socio-economic evaluations).

3.3.1.2 Vaccine Programs Checklist

- Enhance annual influenza vaccination coverage rates in NACI recommended "high-risk" groups, particularly groups with low coverage levels.
- Increase annual influenza vaccination coverage rates among health care and essential services workers.
- Increase pneumococcal vaccination coverage levels in NACI recommended "high-risk" groups (to reduce the incidence and severity of secondary bacterial pneumonia).
- Consider P/T modifications or refinements of nationally-defined priority target groups depending on local circumstances. For example, there may be specific groups of people in selected P/T whose absence due to influenza illness could pose serious consequences in terms of public safety or disruption of essential community services (e.g., nuclear power plant operators, air-traffic controllers at major airports, workers who operate major telecommunications or electrical grids).
- Modify/refine other aspect of the federal guidelines, as needed for P/T and local application.

- Develop contingency plans for storage, distribution and administration of influenza vaccine through public health and other providers to nationally-defined high-priority target groups, including:
  - Mass immunization clinic capability within P/T,
  - Locations of clinics (e.g., central sites, pharmacies, work place),
  - Vaccine storage capability – identify current and potential contingency depots,
  - Numbers of staff needed to run immunization clinics,
  - Plans to deploy staff from other areas from within and outside public health to assist in immunization,
  - Advanced discussions with professional organizations and unions regarding tasks outside routine job descriptions during a pandemic,
  - Training plan for deployed staff, and
  - Measures to be taken to prevent distribution to persons other than those in the priority groups.
- Determine how receipt of vaccine will be recorded and how a two-dose immunization program would be implemented in terms of necessary re-call and record-keeping procedures.
- Determine the number of people within the P/T who fall within each of the priority groups for vaccination (i.e., high-risk groups, health care workers, emergency service workers, specific age groups).
- Verify capacity of suppliers for direct shipping to health districts.
- Develop plans for vaccine security:
  - During transport
  - During storage
  - At clinics
- Ensure appropriate legal authorities are in place that will allow for implementation of major elements of the proposed distribution plan. (For example, will P/T laws allow for non-licensed volunteers to administer influenza vaccine? Do P/T laws allow for "mandatory" vaccination of certain groups, if vaccination of such groups is viewed by the P/T public health officials as being "essential" for public service?)
- Co-ordinate proposed vaccine distribution plans with bordering jurisdictions.
- Enhance VAAE surveillance, in collaboration with CIDPC.
- Determine what information needs to be collected and how this will be done, to facilitate evaluation of pandemic vaccine program activities in the post-pandemic period (including socio-economic evaluations).
- Review and modify plans as needed on a periodic basis.

3.3.1.3 Antivirals Checklist

- Consider the need for and availability of antiviral drugs including mechanisms for ensuring a secure supply of antiviral drugs.
- Modify/refine guidance provided by the Antivirals working group, as needed for P/T and local application (e.g., plan how to distribute available antivirals based on priority groups).
- Determine what information needs to be collected and how this will be done, to facilitate evaluation of an antiviral response in the post-pandemic period (including socio-economic evaluations).

3.3.1.4 Health Services Emergency Planning

- Develop P/T guidelines (modify federal guidelines) for prioritizing health care needs and service delivery, accessing resources and implementing infection control measures during a pandemic.
- Ensure that liability/insurance/ temporary licensing issues for active and retired health care workers and volunteers are addressed with P/T licensing bodies. Define the extent of care that health care workers/volunteers can perform according to P/T laws and union agreements.
- Bulk purchase and stockpile extra medical supplies. Explore the options for stockpiling extra medical supplies and identify sources for additional supplies.
- Develop mechanisms for coordinating patient transport and tracking/managing beds, e.g., central bed registries, call centre and centralised ambulance dispatch.
- Develop detailed regional and facility-level plans for providing health services during a pandemic, including the type of care to be delivered at different health care settings and the triage across sites; human resource, material and financial resource needs should be identified and consideration provided for prioritizing patient care.
- Assess health care personnel capacity: estimate number of HCW by type (physician, nurses, respiratory therapists, radiology technicians, etc), and by work setting (hospital, community, LTCF, paramedical); estimate number of non-active HCW (retired)
- Determine sources from which additional HCWs and volunteers could be acquired, include Emergency Measures Organizations and NGOs (Red Cross, St. John ambulance) in pandemic planning.
- Determine the number and type of health care facilities, and estimate their capacity: hospital beds, ICU beds, swing beds, emergency department, ventilatory capacity, oxygen supply, antibiotic supply.
- Determine potential alternative sites for medical care (possible sites could include shelters, schools, gymnasiums, nursing homes, day care centres).
- Identify sources of extra supplies needed to provide medical care in these non-traditional sites.
- Determine the capacity of mortuary/burial services, as well as social and psychological services for families of victims.
- Co-ordinate clinical care and health services plans with bordering jurisdictions to avoid migration to centres of perceived enhanced services.

- Consider establishing a Health Services Emergency Preparedness and Response group to ensure adequate participation by the health care sector and volunteer organizations in planning activities.
- Develop aftercare/recovery plans/guidelines.
- Ensure that guidelines are distributed to regional/local jurisdictions.
- Determine what information needs to be collected and how this will be done, to facilitate evaluation of the impact of the pandemic on health services in the post-pandemic period (including socio-economic evaluations).
- Review and modify plans as needed on a periodic basis.

3.3.1.5 Emergency Planning and Response

- Identify the advantages of declaring a P/T emergency during a pandemic.
- Develop contingency plans to provide food, medical and other essential life-support needs for persons confined to their homes by choice or by direction from P/T/L health officials.
- Ensure communication between P/T Ministries of Health and Emergency Responders Organizations, as well as other P/T Ministries or Departments which would be impacted by a pandemic.
- Within P/T, estimate numbers of emergency services workers including police, fire, correctional, military, funeral services, utilities, telecommunications and F/P/T/L leaders (political leaders, managers of response teams) essential to pandemic response.
- Identify military personnel and voluntary organizations which would assist during a pandemic.
- Develop listing of essential community services (and corresponding personnel) whose absence would pose a serious threat to public safety or would significantly interfere with the ongoing response to the pandemic.
- Develop contingency plans for emergency back-up of such services and/or provision of replacement personnel.
  - Replacement personnel could come from lists of retired personnel and/or government or private-sector employees with relevant expertise.
  - Critical personnel in the non-health sector should also be considered as high-priority candidates for vaccination and/or chemoprophylaxis.
- Conduct environmental assessments of surge capacity of hospitals, alternate care sites, and other facilities.
- Develop aftercare/recovery plans/ guidelines.
- Determine what information needs to be collected and how this will be done, to facilitate evaluation of the emergency response in the post-pandemic period (including socio-economic evaluations).
- Conduct simulation exercise(s) .

3.3.1.6 Communications Checklist

- Refine/modify F/P/T communication plans as needed and ensure consistency with the emergency preparedness and response framework to be established by the Special Task Force to the Conference of F/P/T Ministers of Health .
- Develop scenarios extending from the main Plan and for each circumstance establish 1) communications lead 2) strategic considerations 3) draft initial response.
- Translate messages into additional languages based on local demographics.
- Develop inventories of existing communication systems (hardware and software).
- Identify gaps in the existing systems that will require additional resources.
- Develop plans and mechanisms for communicating quickly and consistently with other jurisdictions and organisations.
- Develop plans and mechanisms for communications with all relevant audiences, including media, key opinion leaders, stakeholders, employees .
- Pilot test "single-window" points of contact in involved jurisdictions and organizations to ensure names/numbers/e-mails are up-to-date and document sharing is possible.
- Develop performance measurement criteria, to facilitate evaluation of the communication activities in the post-pandemic period (including socio-economic evaluations).