Nova Scotia Health System Pandemic Influenza Plan

Chapter 6:
Influenza Vaccine Strategy

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Background

Immunization is the most effective means to reduce the morbidity and mortality associated with influenza. Each year, Nova Scotia conducts an influenza vaccination program in which vaccine is provided at no cost for those in priority groups as identified by the National Advisory Committee on Immunization, that is, those at high risk for influenza-related complications, those capable of transmitting influenza to individuals at high risk for complications, and those who provide essential community services (Public Health Agency of Canada 2005). Approximately 300,000 people were vaccinated through this program in the 2005–2006 influenza season (Nova Scotia Office of the Chief Medical Officer of Health 2006).

The pandemic vaccine strategy will build upon the interpandemic vaccination program, as well as previous experience with mass vaccination clinics for communicable disease outbreaks.

Objectives

The objectives of the Pandemic Vaccine Program are

1. to provide a safe and effective vaccine to all Nova Scotians
2. to allocate, distribute, and administer vaccine as rapidly as possible
3. to monitor the safety and effectiveness of vaccine programs
4. to limit morbidity and mortality
5. to limit societal disruption.

Planning Assumptions

- When available, vaccine will be the principal means for the prevention of pandemic influenza for the population.
- The pandemic vaccine will be administered by injection.
- The pandemic vaccine will require two doses administered one month apart to develop adequate immunity to the novel virus.
- The initial vaccine supply will not be sufficient to immunize the whole population; however, the end goal is to vaccinate the entire population.

- Early on, people will be vaccinated in stages. Priority groups who will receive vaccine first will be set nationally.
- Communication regarding eligibility for the pandemic vaccine is critical.
- The Nova Scotia Department of Health Promotion and Protection and Public Health Services in the district health authorities will control the allocation and distribution of pandemic vaccine.
- The vaccine will require storage, handling, and transport at +2° C to +8°C.
- District health authorities will be responsible for coordinating staff to administer the vaccine.
- Vaccine delivery to the general public will be through mass vaccination clinics.

Vaccine Supply

The Government of Canada has contracted a domestic vaccine supplier, GlaxoSmithKline (GSK), to produce pandemic influenza vaccine for all Canadians. Once the pandemic virus is identified, it will take approximately two to three months to produce the seed strain necessary to manufacture the vaccine. The first batch of vaccine should be available about two months later for safety and efficacy testing. Once production is under way, GSK can produce and distribute approximately eight million doses of vaccine a month.

The vaccine doses allotted to Nova Scotia will be sent to the Department of Health Promotion and Protection and then distributed to Public Health Services in the district health authorities.

The vaccine supply will be monitored through the Biological Inventory Management System.

Use of the Vaccine Stockpile

Priority Groups

The goal of the vaccine strategy is to immunize the entire population. However, vaccine supply will be limited initially, and the population will be vaccinated in stages, with nationally agreed-upon priority groups receiving vaccine first (Annex 6-A). These priority groups will be reassessed once epidemiologic data on the pandemic virus are available to ensure that they are consistent with the overall goal of the pandemic response. The priority groups will be reviewed by the national Pandemic Influenza Committee, and national guidelines will be distributed to the provinces and territories.

Storage and Distribution

The vaccine will be stored and distributed by the Department of Health Promotion and Protection. Vaccine will be distributed equitably to the main Public Health Services office in each shared service area. The district health authorities are responsible for storage and distribution beyond that point.

Security

Security for the vaccine stockpile during storage in the provincial depot and in the depots in the district health authorities, during transportation, and in clinics will be provided by the RCMP and municipal police forces. Plans are being developed with the RCMP and the Department of Justice.

Mass Vaccination Clinics

Public Health Services in the district health authorities will conduct mass vaccination clinics to deliver vaccine to the general public. Organizations employing health-care providers may be required to vaccinate their own staff; however, vaccine management and distribution will continue to be the responsibility of Public Health Services.

Annexes 6-B to 6-F provide detailed guidelines and tools for planning and conducting mass influenza immunization clinics.

Vaccine Coverage

Vaccine coverage will be monitored through the Application for Disease Notification System (ANDS) until Panorama (Infoway) is functional.

Adverse Events Monitoring

In Nova Scotia, an adverse event following immunization is a notifiable condition under the Health Protection Act.

Adverse events following immunization are monitored by the Canadian Adverse Events Following Immunization Surveillance System through the Public Health Agency of Canada (Adverse Events Following Immunization Reporting Form, Immunization & Vaccines, Public Health Agency of Canada). This is a voluntary reporting system.

The Canadian Pediatric Society operates the Immunization Monitoring Program ACTive (IMPACT), a pediatric hospital–based national active surveillance network. This system also monitors vaccine-associated adverse events, as well as vaccine failures and selected vaccine-preventable pediatric diseases (Immunization Monitoring Program, ACTive). The IWK Health Centre is part of this program.

Mandatory Vaccination

In Nova Scotia, immunization of the general public is not required by law; however, it is strongly recommended as it is an important aspect of maintaining health.

Vaccination is also not mandatory for health-care workers; however, it is strongly recommended that health-care workers are vaccinated against influenza in order to protect their patients.

Under the Health Protection Act, the Minister of Health Promotion and Protection may declare a public health emergency. During a public health emergency, the Chief Medical Officer of Health is granted the authority to establish *voluntary* immunization programs.

Roles and Responsibilities

(Outstanding issues are italicized)

World Health Organization

- Provide global guidance regarding the pandemic to the Public Health Agency of Canada.

Federal (Public Health Agency of Canada)

- Secure a supply of the pandemic influenza vaccine.
- Arrange for the purchase and licensing of pandemic vaccine and distribution to the provinces and territories.

- Allocate pandemic influenza vaccine on an equitable basis to the provinces and territories based on the recommendations of the Pandemic Influenza Committee.
- Make pandemic influenza vaccine available for specific populations (e.g., military, RCMP, First Nations, and others) and coordinate with the provinces and territories in the distribution and administration of influenza vaccine to those specific populations.
- Through the Pandemic Influenza Committee and the National Advisory Committee on Immunization, make recommendations on vaccine composition, dosage, priority groups to receive vaccine, and standards or acceptable rates for adverse reactions to pandemic influenza vaccine.

Provincial (Department of Health Promotion and Protection)

- Promote annual influenza immunization.
- *Improve overall vaccine storage and distribution capacity—ongoing* (Department of Health Promotion and Protection).
- *Arrange for security during storage and transportation as well as in district health authority clinics—ongoing* (Department of Health Promotion and Protection, RCMP, Department of Justice).
- *Develop provincial guidelines for mass vaccination clinics* (Department of Health Promotion and Protection).
- *Stockpile supplies and equipment for mass vaccination clinics* (Department of Health).
- During an influenza pandemic,
  - allocate and distribute vaccine to the district health authorities
  - monitor vaccine use, coverage rate, and adverse reactions

District (Public Health Services)

- Improve uptake of the annual influenza vaccine.
- Determine local vaccine requirements based on population and priority groups.
- Determine local storage for the vaccine.
- Arrange for sites and staffing for mass immunization clinics. Train vaccine providers.
- Develop plans to vaccinate hard-to-reach populations, e.g., those with language or cultural barriers, the homeless, and those with mental illness.
- During an influenza pandemic,
  - store vaccine locally and distribute to mass immunization clinics
  - administer vaccine
  - monitor vaccine use, coverage rates, and adverse reactions; report to Department of Health Promotion and Protection

Activities by Pandemic Phase

Canadian Pandemic Phase		Activities
Interpandemic Period		
1.0	No new virus subtype is present in humans. Subtype that has caused human infection may be present in animals outside Canada. Risk to humans is low.	□ Refer to the *Nova Scotia Immunization Manual*. □ Refer to the *Guide to Influenza Control for Long-Term Care Facilities*.
1.1	No new virus subtype is present in humans. Subtype that has caused human infection is present in animals inside Canada. Risk to humans is low.	□ As for Phase 1.0.
2.0	No new virus subtype is present in humans. Animal influenza virus subtype that poses substantial risk to humans is circulating in animals outside Canada.	□ As for Phase 1.0.
2.1	No new virus subtype is present in humans. Animal influenza virus subtype that poses substantial risk to humans is circulating in animals inside Canada.	□ As for Phase 1.0.
Pandemic Alert Period		
3.0	New virus subtype is present in humans outside Canada (single cases). No or rare instances of human-to-human spread.	□ As for Phase 1.0.
3.1	New virus subtype is present in humans inside Canada (single cases). No or rare instances of human-to-human spread.	□ As for Phase 1.0.

Canadian Pandemic Phase		Activities
Pandemic Alert Period Cont'd		
4.0	New virus subtype is present in humans outside Canada (small clusters). Limited human-to-human spread.	□ As for Phase 1.0. □ Review priority group enumeration
4.1	New virus subtype is present in humans inside Canada (single cases; no clusters). Limited human-to-human spread.	□ As for Phase 1.0.
4.2	New virus subtype is present in humans inside Canada (small localized clusters). Limited human-to-human spread	□ As for Phase 1.0.
5.0	New virus subtype is present in humans outside Canada (large clusters). Localized human-to-human spread	□ As for Phase 1.0.
5.1	New virus subtype is present in humans inside Canada (single cases; no clusters).	□ As for Phase 1.0.
5.2	New virus subtype is present in humans inside Canada (large clusters). Localized human-to-human spread.	□ As for Phase 1.0.

Canadian Pandemic Phase		Activities
Pandemic Period		
6.0	New virus subtype is present in humans outside Canada (in the general population). Sustained human-to-human spread.	□ Reassess priority groups based on available epidemiological data. □ Activate storage, security and distribution plans. □ Carry out ongoing education campaigns for priority groups and the general public.
6.1	Pandemic virus subtype is present in humans inside Canada (single cases; no clusters).	□ As for Phase 6.0.
6.2	Pandemic virus subtype is present in humans inside Canada (localized or widespread activity). Sustained human-to-human spread.	□ Take delivery of vaccine at the provincial depot. □ Ensure that vaccine is stored and transferred appropriately and safely. □ Distribute vaccine to district health authorities based on, initially, priority group enumeration and then on a per capita basis. □ Monitor vaccine use in each district health authority in order to transfer supply from one district health authority to another if necessary. □ Monitor vaccine coverage. □ Monitor adverse events following immunization. □ Carry out ongoing education campaigns for priority groups and the general public.

Annex 6-A: Recommended Priority Groups for Pandemic Vaccination

Once epidemiologic data on the specific pandemic virus are available, the priority groups will be reassessed and possibly altered to ensure that they are consistent with the overall goal of the pandemic response.

Group 1: Health-Care Workers, Public Health Responders, and Key Health Decision Makers

Rationale

The health-care and public health sectors will be the first line of defence in a pandemic. Maintaining the health service response and the vaccine program is central to the implementation of the response plan in order to reduce morbidity and mortality. Members of this group may be considered in the following work settings for vaccine program planning:

- acute care hospitals
- long-term care facilities and nursing homes
- private physician offices
- home care and other community care facilities
- public health offices
- ambulance and paramedic services
- pharmacies
- laboratories

Group 2: Pandemic Societal Responders and Key Societal Decision Makers

Rationale

The ability to mount an effective pandemic response may be highly dependent on individuals in the groups listed below being in place to maintain key community services. While those individuals that are essential to the response or to maintaining key community services may vary among jurisdictions, they are likely to include the following:

- police
- firefighters

- armed forces
- key emergency response decision makers (e.g., elected officials, essential government workers, disaster services personnel)
- utility workers (e.g., water, gas, electricity, essential communications systems)
- funeral service and mortuary personnel
- people who work with institutionalized populations (e.g., corrections)
- persons who are employed in public transportation and the transportation of essential goods (e.g., food)
- key government employees (e.g., ministers, mayors)

Group 3: Persons at High Risk of Severe or Fatal Outcomes Following Influenza Infection

Rationale

To meet the goal of reducing morbidity and mortality, persons most likely to experience severe outcomes should be vaccinated. For planning purposes, this priority group has been based on the high-risk groups identified by the National Advisory Committee on Immunization for annual vaccine recommendations. Additional groups have also been included, based on evidence indicating an elevated risk (e.g., during the annual epidemics, young infants experiencing rates of hospitalization similar to the elderly).

Prioritization of the following subgroups within Group 3 would depend on the epidemiology of influenza disease at the time of a pandemic:

A. Persons in nursing homes, long-term care facilities, and homes for the elderly

B. Persons with high-risk medical conditions living independently in the community

C. Persons over 65 years of age living independently and not included in 3A and 3B

D. Children, 6 months to 23 months of age (current vaccines are not recommended for children under 6 months of age)

E. Pregnant women

Currently, NACI does not consider pregnant women as a high-risk group in its recommendations for annual influenza vaccination. However, pregnant women have been at elevated risk during past pandemics.

Group 4: Healthy Adults (Adults aged 18–64 Years Who Do Not Fall into Groups 1–3)

Rationale

This group is at lower risk of developing severe outcomes from influenza during annual epidemics, but comprises the majority of the workforce and represents the most significant segment of the population from the perspective of economic impact. Vaccination of healthy adults would reduce the demand for medical services and allow individuals to continue normal daily activities. Simultaneous absences of large numbers of individuals from their places of employment, even for non-essential personnel, could produce major societal disruption. Medical facilities could also be overwhelmed by health-care demands, even for outpatient services. This might compromise the care of those with complications.

Group 5: Children, 24 Months to 18 Years of Age

Rationale

This group is at the lowest risk of developing severe outcomes from influenza during annual epidemics but plays a major role in the spread of the disease. While children's absence from school might not have the same direct economic and disruptive impact as adults' absence from work, it could indirectly have that effect if adults stay at home to care for ill children.

Annex 6-B: Vaccine Priority Groups Enumeration Tool

Estimates of Health-Care Workers

One of the groups identified as a priority group for receiving vaccine consists of health-care workers. In order to minimize morbidity and mortality, the health service response and the vaccination program need to be maintained. Immunization of health-care workers will reduce transmission to patients, staff, and families within facilities.

Health-care workers may be considered in the following work settings for the purpose of the immunization program:

- acute care hospitals
- long-term care facilities and nursing homes
- private physician offices
- home care and other community care facilities
- public health offices
- ambulance and paramedic services
- pharmacies
- laboratories

Each district health authority needs to determine its own priorities, but health-care workers may include the following:

Health-Care Providers

Nurses
Nurse practitioners
Physicians
Paramedics
Health-care aides, personal support workers
Laboratory workers
X-ray technicians
Respiratory therapists
Physiotherapists
Occupational therapists
Public health staff
Vaccinators

Health Support Staff

911 dispatchers
Kitchen staff
Housekeeping
Porters
Receptionists
In-hospital pharmacy staff
Maintenance staff
Shipping and receiving staff
Managers

Estimates of Emergency and Essential Service Workers

One of the groups identified as a priority group for receiving vaccine consists of essential service providers. An effective response to an influenza pandemic will depend on whether these persons are in place to maintain key community services.

Each municipality needs to determine its own priorities but essential service workers may include the following:

Police officers
Firefighters
Emergency response decision makers (e.g., Emergency Management Office, police chiefs, fire chiefs)
Public works and utility workers
- Water
- Wastewater
- Electricity
- Essential communications systems

Funeral service/mortuary personnel
Provincial correctional service officers
Public transit workers
Air traffic controllers
Persons involved in the transportation of essential goods (e.g., food)
Religious leaders
Personnel of key community groups (e.g., Meals on Wheels, shelters)

Estimates of Persons at High Risk of Severe or Fatal Outcomes Following Influenza Infection

One of the groups identified as a priority group for receiving vaccine is persons at high risk of morbidity and mortality following influenza infection. Prioritization of individuals within this group will depend on the epidemiology of the disease at the time of an influenza pandemic.

A. Persons in nursing homes, long-term care facilities and homes for the elderly
B. Persons with high-risk medical conditions living independently in the community
C. Persons over 65 years of age living independently and not included in 3A and 3B
D. Children, 6 months to 23 months of age (current vaccines are not recommended for children under 6 months of age)
E. Pregnant women

Vaccine Priority Groups Enumeration Tool

Please complete and return to the Chief Medical Officer of Health.

District Health Authority:_____

Completed by:_____ Date: _____

Table 6-1: Estimates of health-care providers and health support staff

Site	Estimate	
	Health-care providers	Health support staff
Priority workers		
Acute care hospitals		
Long-term care facilities		
Physician offices		
Public health offices		
EHS staff and paramedics		
Pharmacies		
Laboratories		
Non-priority workers		
Licensed homes for special care		
Mental health clinics		
Health-care students		
Volunteers at any site		
Others (e.g., dentists)		

Table 6-2: Estimates of essential service workers

Essential service worker	Estimate
Police (local/provincial)	
Firefighters (including volunteers)	
Emergency response decision makers	
Utility workers Water Wastewater Electricity	
Telecommunications	
Funeral services/mortuary personnel	
Provincial correctional service officers	
Public transit workers	
Air traffic controllers	
Persons involved in the transportation of essential goods (e.g., food)	
Religious leaders	
Personnel of key community groups (e.g., Meals on Wheels, shelters)	

Table 6-3: Estimates of high-risk persons

High-risk category	Estimate
Persons in nursing homes, long-term care facilities and homes for the elderly	
Persons with high-risk medical conditions living independently in the community	*Method for identifying this group yet to be determined*
Persons over 65 years of age living independently and not included in the above two categories	
Children, 6 months to 23 months of age (based on birth cohort)	
Pregnant women	

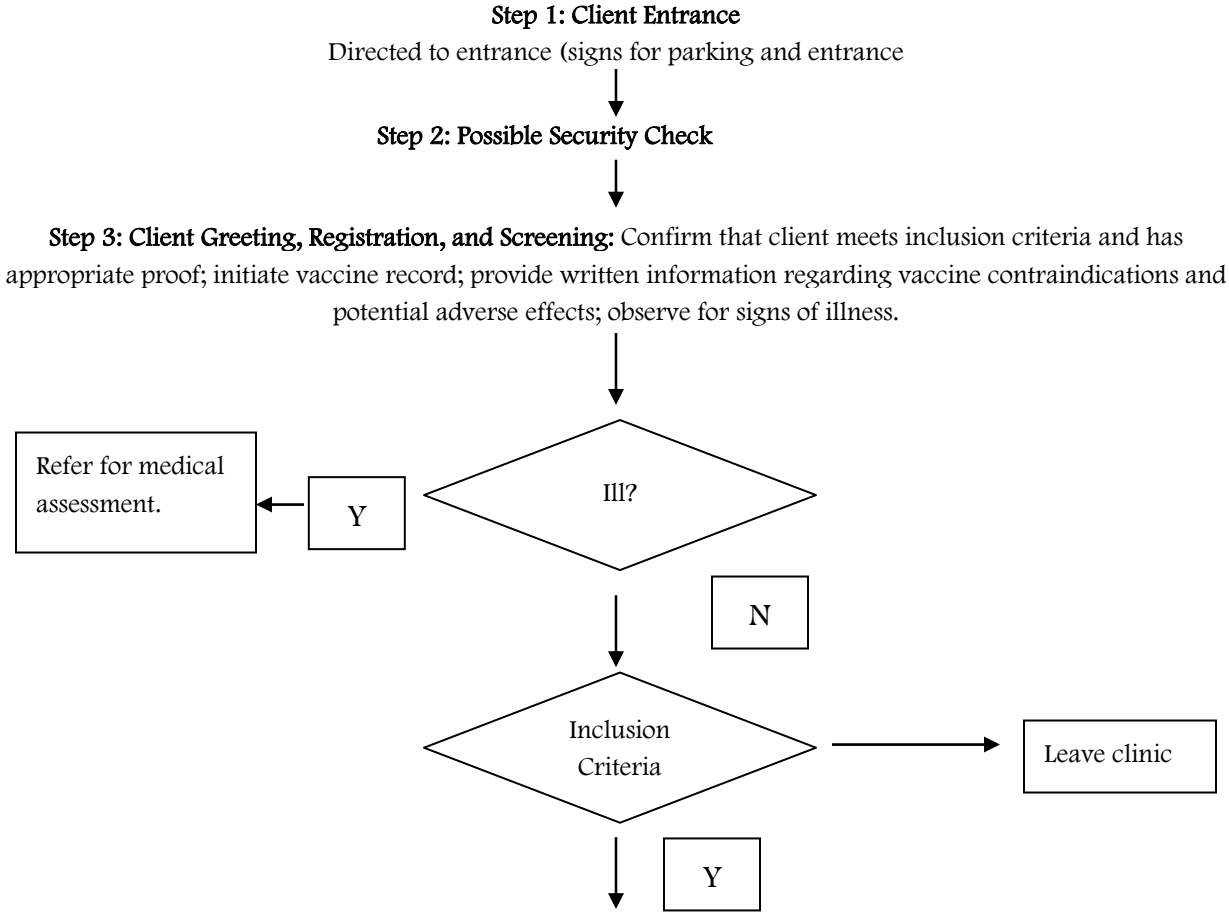
Annex 6-C: Mass Immunization Clinics

Mass Clinic Preparation

Planning for mass clinics will be based on the following expectations:

- The target population for vaccination will be expanded far beyond the typical high-risk groups to encompass the entire population.
- It is likely that vaccine shortages will exist, especially during the early phases of the pandemic. Consideration must be given to flexibility in planning for (a) severe vaccine shortages, (b) moderate vaccine shortages, and (c) no shortages.
- It is likely that a two-dose vaccine schedule will be needed. The second dose will be administered one month after the first dose.

Figure 1: Clinic/Client Operational Flow Chart



Annex 6-D: Immunization Team "In-A-Box"

The concept of a "team in a box" can be adapted to meet the needs of the population to be immunized, the size of the immunization facilities, and so on. It has been formulated to immunize 2,500 people per day during an eight-hour shift at one site.

- 1 nurse team leader
- 20 certified vaccine providers: to carry out screening, medical assessment, addressing questions, immunizing, and medical management of adverse events
- 8 volunteers: 1 greeter, 4 for registration, 2 for directing traffic flow, 1 runner
- 2 clerical staff: 1 to maintain supplies at stations, 1 to collect data
- 2 security people (minimum)

** Adapted from *BC Pandemic Influenza Preparedness Plan*.

Reference List

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