



British Columbia Pandemic Influenza Preparedness Plan

**Managing Pandemic Influenza
A Guide for BC Local Governments**

Annotated Annex

October 2005 Edition

Managing Pandemic Influenza – A Guide for BC Local Governments –

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Acronyms

BC	British Columbia
BCAS	BC Ambulance Service
BCCDC	British Columbia Centre for Disease Control
BCERMS	British Columbia Emergency Response Management System
CCG	Central Coordination Group
CMHA	Canadian Mental Health Association
CRC	Canadian Red Cross
DFA	Disaster Financial Assistance
EOC	Emergency Operations Centre
ESS	Emergency Social Services
FNESS	First Nations' Emergency Services
GIS	Geographical Information System
HRVA	Hazard, Risk and Vulnerability Analysis
ICS	Incident Command System
JEPP	Joint Emergency Preparedness Program
MBO	Management by Objectives
MHO	Medical Health Officer
MOH	Ministry of Health
MOT	Ministry of Transportation
NESS	National Emergency Stockpile System
PAB	Public Affairs Bureau, Province of British Columbia
PECC	Provincial Emergency Coordination Centre
PEP	Provincial Emergency Program
PHAC	Public Health Agency of Canada
PHO	Provincial Health Officer
PIRC	Provincial Integrated Recovery Council
PREOC	Provincial Regional Emergency Operations Centre
PSEPC	Public Safety and Emergency Preparedness Canada
PSSG	Ministry of Public Safety and Solicitor General
UBCM	Union of British Columbia Municipalities
WCB	Workers' Compensation Board
WHO	World Health Organization

Anti-Viral Medications

Anti-viral medicines can be utilized to treat infected persons and may reduce the duration of illness by one or two days. Two recently licensed anti-influenza drugs, *oseltamavir* and *zanamavir*, reduce the harmful actions of the neuraminidase protein on the surface of the influenza virus, and are effective against both influenza A and B.

They are effective for 70 to 90 percent of patients when administered within 48 hours of the onset of infection. The drug would need to be taken for the duration of the incubation period, usually 7 days.

In some cases, the judicious application of anti-viral treatments could reduce the number of hospitalized patients. It is unknown what effect anti-virals may have in cases of severe disease and the potential for mortality. It is possible for the virus causing concern to develop a resistance to anti-viral medications.

The manufacture of anti-viral drugs takes several months and their availability cannot be assured at the time of a pandemic when international demand will be high.

National and provincial stockpiles will provide a limited supply in the early stages of a pandemic. The provincial health authorities control the supply and availability. It is likely that the Ministry of Health will distribute anti-virals to priority groups, such as health care workers and other essential workforce groups. Local governments should discuss with the health authority the potential use of anti-viral drugs by essential service workers who may be in close contact with infected persons.

Avian Influenza

Avian influenza normally infects waterfowl and can be transmitted to commercial poultry, particularly chickens and turkeys, by migrating birds, most notably wild ducks. The disease occurs throughout the world and was first identified in Italy more than 100 years ago.

There are 15 known subtypes of the avian influenza virus. The one called H5N1 is of particular concern at present because it adapts rapidly and can mutate to infect humans with a particularly virulent and deadly strain.

The total number of laboratory-confirmed cases reported to the World Health Organization as of October 10, 2005, amounts to 117 in four countries: Indonesia, Viet Nam, Cambodia, and Thailand. These cases include 60 deaths to date.

For an overview of the current concern for avian influenza, see the WHO website at:
www.who.int/mediacentre/factsheets/fs272/en/

For more information on the current status of avian influenza in the world, regularly monitor the World Health Organization website at:
www.who.int/csr/disease/avian_influenza/country/en/index.html

BC Ambulance Service

The BC Ambulance Service is coordinated through the Ministry of Health. During the pre-pandemic planning period, the Ambulance Service collaborates with health authorities in developing regional and local preparedness plans, including attending planning meetings with local governments and participating in exercises.

The Ambulance Service will also prepare its own organization for a pandemic, including contingency plans for replacing staff members who become ill, increasing staff levels to

assist with significant increases in ambulance service call volumes, and working with volunteers to establish additional human resource capacity.

In a pandemic situation, the BC Ambulance Services will engage in a number of activities, including:

- Transport patients to care facilities in both traditional and non-traditional settings
- Facilitate inter-facility patient transfers as may be required
- Liaise closely with Health Authorities to receive information about bed availability in respective communities
- Monitor capacity to deliver ambulance services within normal operational expectations
- Activate staffing contingency plans as necessary

BC Ambulance Service representatives may be available to attend inter-agency EOCs.

The Ambulance Service will not transport the dead. Local governments should work with funeral directors to consider the range of resources for this function. Refer to “Mass Fatalities” for more information.

BC Centre for Disease Control

The BC Centre for Disease Control (BCCDC) supports British Columbia’s comprehensive program of communicable disease and environmental health prevention and control. From its main facility on 12th Avenue in Vancouver, the BCCDC partners with the province's health authorities, Medical Health Officers and the Provincial Health Officer.

In consideration of pandemic influenza, the BCCDC works with the Provincial Health Officer, the Ministry of Health, and other key partners to develop, test and refine the provincial pandemic plan.

In the pre-pandemic phase, the BCCDC will engage in such activities as refining the vaccine priority groups according to the epidemiology of the influenza virus circulating at the time, establishing allotments of vaccine and anti-viral medications based on need, and developing protocols for immunization and anti-viral distribution.

During a pandemic, the BCCDC bears responsibility for preventing undue vaccine wastage and hoarding, as well as the equitable distribution of anti-viral medications. It will communicate the immunization protocols and priorities via the news media. The BCCDC will collect and share updated information on vaccine coverage, and the overall number of cases and deaths related to the pandemic.

In the aftermath of a pandemic wave where immunization played a role, the BCCDC will work with the Ministry of Health to evaluate the vaccine coverage by targeted risk group and the effectiveness of delivery of vaccine to the public. The organization will assess the

effectiveness of the vaccine program in reducing the number of severe cases and mortality.

You can learn more about the BC Centre for Disease Control from their website at:
www.bccdc.org/

BC Emergency Response Management System (BCERMS)

The British Columbia Emergency Response Management System (BCERMS) is a comprehensive management scheme that ensures a coordinated and organized provincial response and recovery to any and all emergency incidents. The broad spectrum of components of the BCERMS includes operations and control management, qualifications, technology, training, and publications.

The Province of British Columbia’s Emergency Response Management System has repeatedly demonstrated its capability to help organize response and recovery in a wide variety of disaster or emergency events. All emergency response plans developed by Ministries, Crown Agencies, regional and local governments are required to be consistent with this established BC standard.

Under BCERMS, the Ministry of Health and the independent health authorities throughout the province will establish a collaborative emergency response structure to manage the delivery of health care. The Provincial Emergency Program will activate the Provincial Emergency Coordination Centre (PECC) and Provincial Regional Emergency Operations Centres (PREOCs) to support local government emergency operations. Refer to “Structure for Emergency Response” for more information.

Form more information on BCERMS, see the *BCERMS Overview* document available through the PEP website at:
www.pep.bc.ca

Business Continuity

The term “business continuity” for local governments refers to the capability to continue delivering public services during and following an emergency or disaster. In essence, business continuity means an organization has backup capacity of facilities, equipment, utilities, information and data, and human resources required to deliver services when primary resources have been impaired.

Public Safety and Emergency Preparedness Canada (PSEPC) offers a self-help advice guide for business continuity for business and institutions that may interest local governments.

You can access this information at:
www.ocipep.gc.ca/info_pro/self_help_ad/general/busi_cont_e.asp

Also discuss business continuity planning with the Municipal Insurance Association if your community is a member. Contacts may be found at:

www.miabc.org/

For local governments and commercial business operations, the SARS crisis in 2003 presents some interesting lessons related to business continuity, summarized below from reports prepared by the City of Toronto.

1. Expect employees to be absent due to a number of reasons. They may be ordered into quarantine by public health officials, home taking care of sick family members, or ill themselves. Make sure at least two people know how to do the same job for critical functions.
2. Develop a clear policy of supporting an employee ordered into quarantine to keep the disease from spreading through the workplace.
3. Reduce the introduction of the influenza virus to the workplace by visitors, such as customers, sales people, suppliers, and service technicians. Develop policies about who should be allowed access and under what conditions.
4. Consider separating essential staff from potential exposure by providing bunks and food (see “Sequester”).
5. Develop policies and infrastructure that allow employees to work from home.
6. Set aside a contingency fund to help the business over a period of low income, or establish access to a line of credit.
7. Check medical and disability insurance policies to ensure coverage for situations such as pandemic influenza, including employee time if ordered into quarantine.
8. Keep employees informed on the number of internal cases and deaths, and how workers can protect themselves and their families.
9. Establish and train an “infection control team” to clean surfaces regularly.
10. Curtail the delivery of some services, i.e., building inspection, so staff can be re-assigned to other duties to ensure continuity of essential services.

Call Centres

Local government emergency plans usually take into account the need for call centre services during both response and recovery. A pandemic influenza disaster would be no different.

There may be a number of call centres active in your community at the time of a pandemic, each performing a specific function:

- Health Services call centre to provide medical care information.

- Local Government – to provide information about local government services i.e. Home delivery of drugs, food, business closures travel restrictions etc.
- Provincial government at PEP offices or PREOC.

The local government should manage a call centre to serve three purposes:

- To receive and route requests for assistance from residents impacted by the pandemic. Such requests should be communicated to the Operations Section of the EOC for action, and such requests should be coordinated with the health authority representative.
- To provide basic non-medical information about the pandemic situation, including the latest information about closures, the number of cases in the community, and services being offered in both response and recovery.
- To provide information links to medical care call centres, such as those operated by health service organizations in your region.

Call centre personnel at both the local government EOC and at health institutions should coordinate information and services to callers in order to provide consistent messages and assistance.

Case Fatality Rate

This term refers to the proportion of all influenza cases that results in death among a given population.

Children

The high infection and mortality rate of a pandemic influenza event would likely result in many children that require support due to the death or illness of their parents or guardians.

The BC Ministry of Children and Family Development has responsibility for unattended and orphan children. Ministry resources are expected to be overwhelmed and therefore the Ministry may call upon local authorities and numerous non-government agencies to provide assistance in the care and shelter of children in need of care and who have not been infected.

Cleaning the Workplace

The transmission of viral and other infections can be reduced by effective cleaning of environmental surfaces. Workers can infect themselves with the influenza virus after handling objects from a room where an infected person has been, then touching their eyes, noses, or mouths.

Influenza viruses can survive on soft, porous surfaces for 8 to 12 hours, and on hard surfaces for 24 to 48 hours.

The most frequent source of infection from the inanimate environment is contaminated equipment. Horizontal surfaces have a higher potential to hold virus particles than vertical surfaces or ceilings. Enhanced cleaning and disinfection of common touch surfaces (handrails, door knobs, sink/toilets, computer keyboards, telephones) are required.

Simple cleaning with a detergent is sufficient, according to Health Canada guidelines, although some sources advise to disinfect with 5% solution of bleach.

For more information on cleaning and disinfections, consult your health authority and view the document available from Health Canada entitled, *Infection Control Guidelines - Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*.

Clinical Illness

Clinical illness means an influenza case that results in some measurable economic impact, such as the loss of at least one-half day of work or a visit to a physician's office. Also called "clinical attack rate."

Closure of Facilities

The Medical Health Officer has the authority under the *Communicable Disease Regulations* of the *Health Act* of BC to institute community-based infection control measures, including closure of community facilities.




Section 18 – "A medical health officer may order a publicly or privately operated school, public swimming pool, bathing beach, theatre, recreation hall or any other public gathering place to be closed for the purpose of controlling the spread of a communicable disease."

Examples of public gatherings include:

- Transportation (ground, rail and air)
- Childcare
- Schools
- Retail settings
- Workplaces
- Places of worship
- Funerals
- Community events (cultural/sporting)

There are no firm guidelines in Canada that can be used to determine when to close specific facilities, or when to remove the closure order. However, the Vancouver Coastal

Health Authority developed the decision matrix shown below to assist in identifying facilities that may be closed in an influenza pandemic.

		Exposure Intensity		
		High (very crowded, impossible to manage)	Intermediate	Low
Exposure Duration	Prolonged Duration (> 4 hours)	<ul style="list-style-type: none"> • Child day care • Elementary & high schools • Post-secondary institution (including dormitories) 	<ul style="list-style-type: none"> • Enclosed workplaces 	<ul style="list-style-type: none"> •
	Intermediate Duration (1 to 4 hours)	<ul style="list-style-type: none"> • Entertainment venues • Sporting venues (participants and spectators) • Special events (e.g., 2010 Olympics) 	<ul style="list-style-type: none"> • Day tours via buses, boats • Weddings, funerals • Business conventions, trade shows 	<ul style="list-style-type: none"> • Restaurants • Shopping malls
	Short Duration (< 1 hour)	<ul style="list-style-type: none"> • Public transit during rush hour • Retail stores during major sales events 	<ul style="list-style-type: none"> • Public waiting areas and lines (e.g., banks, store check out lines) 	<ul style="list-style-type: none"> •
<p> Priority for cancellation / restriction consideration at first confirmation of local cases</p> <p> Cancellation / modification of event / activity considered as local circumstances evolve</p> <p> Ban / cancellation unlikely to be of value – Advise public on means of personal protection</p> <p>(From Vancouver Coastal Health Authority Pandemic Influenza Plan – March 2005)</p>				

Extended activities in crowded conditions pose the greatest risk due to the high intensity and long duration of exposure. These are indicated in the upper left corner of the matrix. Activities in other boxes, proceeding toward the lower right, present lower risks of disease transmission.

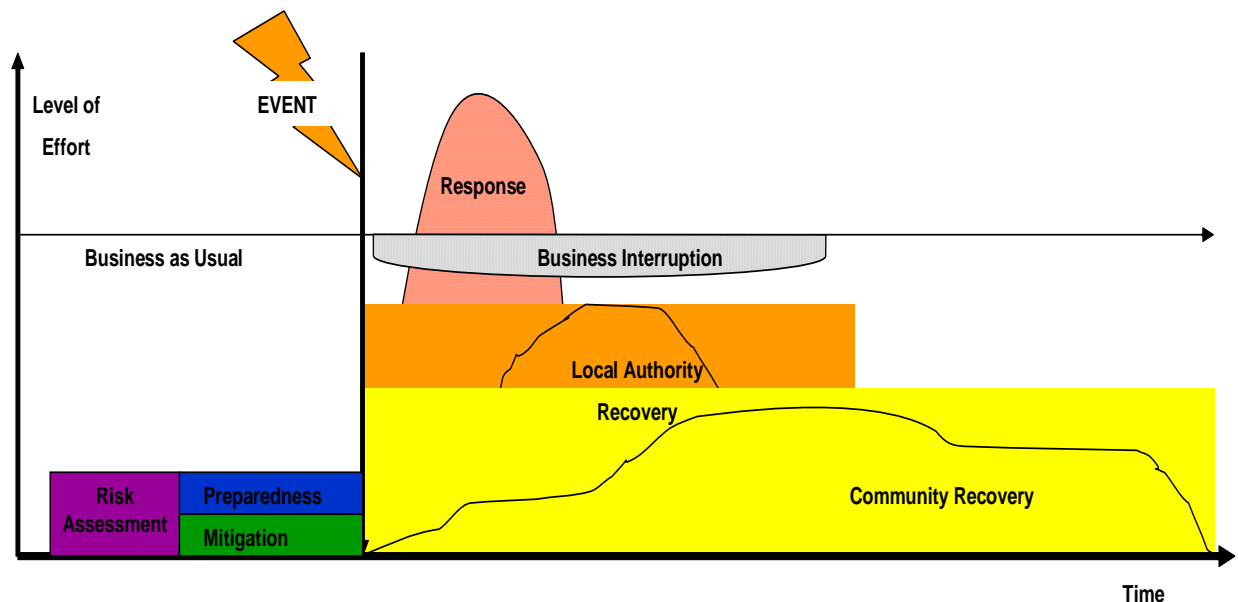
The decision-making process and the criteria for closures may need to be modified once the prevailing conditions can be determined at the time of the pandemic. The severity of the pandemic strain and the stage of the pandemic, as it unfolds globally, will be considered when making this determination.

Note that the closure of a facility does not prevent individuals or small groups of employees from entering and using the building, as long as the principles of “exposure intensity” and “exposure duration” are observed.

For more information on facility closures, refer to the *Canada Pandemic Plan Annex F*.

Comprehensive Emergency Management

Actions to manage pandemic influenza are best understood in the context of *Comprehensive Emergency Management*, which includes all of the concepts shown in the following figure.



Conceptual Timeline Showing Comprehensive Emergency Management

Comprehensive Emergency Management includes the full complement of all activities that address the risks of major emergencies and disaster. Briefly, these elements include the following:

Risk Assessment – A risk assessment represents an understanding of the hazards that threaten a community, the most vulnerable elements, and the likelihood of specific consequences if hazards are realized. This understanding can be greatly enhanced through a Hazard, Risk, and Vulnerability Assessment (HRVA).

Preparedness – Preparedness means developing action plans, gathering the equipment and facilities implied in the plans, training the right people in the plan and with the equipment, and exercising all of the elements with rigorous tests. Effective preparedness depends on a sound understanding of risks. Communities of any size or location can benefit from preparing for 1) Response, 2) Business Continuity, 3) Local Authority Recovery, and 4) Community Recovery.

Mitigation – This is the "ounce of prevention" side of the risk picture. Good mitigation programs implement cost-effective measures that reduce the likelihood of an adverse event, or reduce the consequences should an emergency occur, or both. As with preparedness, which may proceed concurrently, mitigation depends on a good understanding of the hazards and vulnerability factors that contribute to community risk.

Response – Coordinated response programs include all actions taken during an emergency event to save lives, protect property, and limit damage to the environment.

Response activities among BC local authorities typically involve two levels: 1) Site Response, where first responders and others address the immediate task of eliminating hazards or moving people out of harm's way, and 2) Site Support, including activities at an Emergency Operations Centre (EOC) that provide resources, information, and direction to sites. If residents have been evacuated, re-entry efforts to return evacuees are considered response activities.

Business Interruption Losses – This category includes efforts to continue delivering public services during an emergency, and interrupted revenues suffered by the local authority that may not be immediately obvious, including lost income from public facilities. These effects may arise from other impacts, such as damage to public works and facilities, or the commitment of key local authority personnel to emergency response.

Local Authority Recovery – While a local authority is responding to an emergency, it faces the all-important challenge of internal recovery, including two aspects that must occur at the same time: 1) Restoration of damaged infrastructure, and 2) Continuation of public services, also known as "business continuity." Like response, local authority recovery begins immediately after the event and may involve reconstruction of such critical infrastructure as municipal services, roads, public buildings, and dikes.

Community Recovery – The final element of Comprehensive Emergency Management considers recovery among community members, including individuals and families, business owners, farm owners, non-profit organizations, and community groups. In recovery, a rural or urban community and its inhabitants consciously and collectively act to limit losses and reduce suffering. This includes attention to the psycho-social viability and economic health of the community and its inhabitants.

Coroner Services

The Coroners Service of British Columbia is responsible for the investigation of all unnatural, sudden and unexpected, unexplained or unattended deaths. The Coroner is responsible for ascertaining the facts surrounding a death and must determine the identity of the deceased and how, when, where, and by what means the deceased died. The death is then classified as natural, accidental, suicide, homicide or undetermined.

The Coroner Service is organized into 5 regions and employs approximately 90 Community Coroners and 17 full service Coroners. Both a Coroner and a physician have the authority to issue a "Medical Certificate of Death." Coroners are Order-In-Council appointments, and the appointment of additional temporary coroners would require Cabinet approval.

During an influenza epidemic, the Chief Coroner in collaboration with the Provincial Health Officer would act to waive current processing requirements to allow rapid processing and burial.

In a mass fatality event, many persons might not have received medical care before death, and therefore a physician would not have been available to issue a medical certificate of death. Under the authority of a provincial emergency declaration the Chief Coroner may direct:

- Changes to the documentation and processing of the process to facilitate a rapid burial, where there is a reasonable presumptive cause of death and no identification issues.
- Authorize the use of mass graves
- Introduce special measures for the processing of unidentified bodies
- Direct the establishment of community body collection locations (temporary morgues)
- Burial of bodies without embalming using body bags only
- Burial of unclaimed bodies
- Waiver of autopsies
- The taking of body fluid samples is not considered an autopsies and does not need next-of-kin permission

Disaster Financial Assistance

Local government staff members need an in-depth understanding of the *Emergency Program Act*, the *Compensation and Financial Assistance Regulation*, and the provincial local authority Disaster Financial Assistance eligibility guidelines so they can structure their actions to maximize access to financial assistance.

For more information on financial assistance during and following pandemic flu, refer to the *Compensation and Disaster Financial Assistance Regulation*, accessible through the PEP website (www.pep.bc.ca) under the Disaster Financial Assistance tab. Or contact the Recovery Office at PEP at:

BC Provincial Emergency Program
PO Box 9201 Stn. Prov. Govt.
Victoria BC V8W 9J1
Telephone: (250) 952-5505
Toll Free: 1-888 257-4777

Effects of Pandemic

The effects of pandemic influenza depend directly on the nature of the virus that causes the illness. Some expected effects of an influenza outbreak include:

Health Effects

- Sudden onset of symptoms, including cough, fever, aching bones and joints, and severe weakness
- Complications include the potential for pneumonia and dehydration
- Death can ensue quickly in some cases where the virus infection causes pneumonia, or over a longer term due to complications.

Community Effects

- Traditional health service facilities will be overwhelmed with demands for care.

- Illness among local government employees may mean an interruption of critical community services, such as water supply, waste disposal, sanitation, and maintenance of infrastructure.
- Fatalities will overwhelm funeral and burial services.
- Orders to close schools, businesses, entertainment venues and churches will disrupt community life.
- Shortages will appear for essential goods, including food and medications.

Social Effects

- Fear of close proximity to people will isolate many in a community; normal information channels will be closed.
- Stress and psychological trauma among survivors from dealing with illness or death among family members, interruption of critical community services, loss of employment, and financial losses.
- Historically families have self quarantined, particularly their young children during a contagious disease out breaks.
- Many urban families can be expected to move their children, etc. from urban high population areas to rural low population density areas. They can stay with family or friends.
- Self imposed isolation will impact business and the economy for a period which will likely extend beyond the announced end of the pandemic.
- Large numbers of staff, particularly those not designated as mission critical by their employer, may choose to stay at home.
- There will be a very heavy demand from staff to work from home.
- Volunteer services may be limited by a lack of willing volunteers.
- Employment activities that require face-to-face interaction may cease.

Economic Effects

- Some companies will go out of business, especially small to mid-size enterprises.
- Many community residents will face temporary loss of jobs.
- Reduced cash flow within the community.
- Adverse ripple effects in the world-wide investment community.

Emergency Information Strategy

See “Information Strategy.”

Emergency Operations Centre

An Emergency Operations Centre (EOC) is a pre-designated facility established by a local authority, jurisdiction or agency to coordinate site support during response.

During a pandemic, an EOC may need to be activated throughout each wave to support emergency site operations, such as neighbourhood teams, and other community services, such as a Call Centre.

Between pandemic waves, the EOC may have minimal representation, perhaps an EOC Director on-call.

Emergency Program Act

The *BC Emergency Program Act* and regulations clearly establish the responsibilities for all local authorities in the province, including Councils for municipalities and Boards for regional districts serving electoral areas.

The *Local Authority Emergency Management Regulation*, 1995, specifies the emergency planning activities that are essential for local authorities to undertake. Key concepts include the following:

- A local authority is at all times responsible for the direction and control of the local authority's emergency response.
- A local authority must prepare or cause to be prepared local emergency plans respecting preparation for, response to and recovery from emergencies and disasters. (Section 1.1.6)
- A local authority, that is the board of a regional district, must ensure that it has one local emergency plan that applies, or 2 or more local emergency plans that in the aggregate apply to all of the electoral areas within the regional district.
- A local authority that is a municipal council or the board of a regional district must establish and maintain an emergency management organization to develop and implement emergency plans and other preparedness, response and recovery measures for emergencies and disasters.
- If the local authority is a municipal council, the municipal council must establish and maintain an emergency management organization with responsibility for the whole of the municipality, and
- If the local authority is the board of a regional district, the board of the regional district must establish and maintain
 - (i) One emergency management organization with responsibility for all of the electoral areas within the regional district, or
 - (ii) Two or more emergency management organizations that in the aggregate have responsibility for all of the electoral areas within the regional district.

Emergency Social Services

Emergency Social Services (ESS) teams provide short-term (generally 72 hours) non-medical care to preserve the emotional and physical well-being of those affected by an emergency.

In a pandemic situation, ESS volunteers may be asked to assist at community facilities designated for non-traditional health care, or to monitor members of the community in their homes to address non-medical needs.

Employee Health Policies

Local government policies should be reviewed and revised to address the following potential questions that may arise during a pandemic:

Bereavement – Will staff be allowed personal leave following death in the family? How about an unmarried partner or personal friend? Does leave include pay? If so, for how long?

Care of Family Members – Will staff be allowed personal leave to care for a family member? How about another household member, such as a roommate? Does leave include pay? For how long?

Light-Duty Jobs – If an employee has been ill and wants to return to work as soon as possible, can light-duty jobs be assigned until he or she regains full strength?

Overtime – Will staff be paid overtime if they are required for response or recovery during a pandemic? How about salaried managers?

Quarantine – Will an employee receive pay if he or she is ordered into quarantine following possible exposure to influenza? For how long?

Sick Leave – Will existing sick leave policies be extended if required for an employee suffering complications from influenza?

Temporary Staff – What policies apply to temporary staff working longer than one year?

Vaccination – What policies are used to identify priority employees for vaccination? Will vaccination include family members of critical employees?

Wages Upon Facility Closure – Will staff be paid if local government facilities are closed by order of the Medical Health Officer? What if closure is caused by another reason, such as lack of suitable staff or utility failure?

Employee Re-assignment

A pre-pandemic agreement with the employee unions could allow for the re-assignment of staff members to other emergency support duties, such as call centre services or home support phone contact. In another example, public works staff could be re-assigned to assist with the preparation of burial sites in the event of mass fatalities.

Local governments should consider existing staff reduction plans for implementation during the pandemic waves, such as offering limited bus services by following a Sunday or holiday schedule. Local governments may already have plans in place for operating

essential services during labour disputes. These plans may be adjusted to meet needs during a pandemic.

Local governments should discuss the potential for employee re-assignment with their Occupational Health and Safety Committee and union representatives to ensure a clear understanding of the risks and emergency operational needs. Consider adding a clause to union agreements where members are permitted to work in other functions outside their job descriptions during community emergencies, such as pandemic influenza.

Epidemiology

Epidemiology is defined as “the study of the patterns, causes, and control of disease in groups of people.”

Essential Services

If influenza reaches local government workers delivering essential public services, entire communities may suffer. Identifying essential services is an important step in anticipating such effects and taking steps to protect these important functions.

Examples of essential services for local government include the following:

- Governance, including the continuity of government decision-making and policies
- Fire Services
- Police Services
- Refuse Collection and Disposal
- Sewer System Maintenance
- Tax Collection
- Traffic Light Maintenance
- Water System Maintenance

There are likely other services considered essential, depending on the government mandate in your jurisdiction.

Perhaps of some interest to local governments in identifying essential services is the list of “Critical Infrastructure Sectors” identified by Public Safety and Emergency Preparedness Canada (PSEPC) in the 2004 report for the National Strategy for Critical Infrastructure Protection. The table below summarizes the critical infrastructure sectors and samples from a national perspective.

Sector	Sample Sub-Sectors
1. Energy and Utilities	Electrical power (generation, transmission, nuclear) Natural gas Oil production and transmission systems
2. Communications and Information Technology	Telecommunications (phone, fax, cable, satellites) Broadcasting systems Software Hardware Networks (internet)
3. Finance	Banking Securities Payments System
4. Health Care	Hospitals Health-care facilities Blood-supply facilities Laboratories Pharmaceuticals
5. Food	Food safety Agriculture and food industry Food distribution
6. Water	Drinking water Wastewater management
7. Transportation	Air Rail Marine Surface
8. Safety	Chemical, biological, radiological, and nuclear safety Hazardous materials Search and rescue Emergency services (police, fire, ambulance and others) Dams ⁴
9. Government	Government facilities Government services (for example meteorological services) Government information networks Government assets Key national symbols (cultural institutions and national sites and monuments)
10. Manufacturing	Chemical industry Defence industrial base

PSEPC notes the complex interdependencies among these infrastructures and the potential for cascading effects for communities. In identifying essential services, a local government should keep these interactions in mind, especially in identifying utilities and outside suppliers that enable local delivery of essential public services.

Local governments should consider meeting with key industry and commercial corporations who are essential service providers, such as suppliers of electrical power, natural gas, and tele-communications, to review and coordinate continued services during a pandemic. Discuss such meetings with the PEP regional office to help coordinate with other local governments in the region.

Facilities in Support of Health Measures

Local governments may be asked to assist health authorities in health care and other organizations during a pandemic by finding and arranging non-traditional facilities. The range of facilities may include the following:

- Alternate health care facilities
- Burial sites
- Cremation facilities
- Food and water storage and distribution
- Incarceration centres for holding suspected carriers
- Mass fatality collection area
- Mass immunization clinics
- Quarantine facilities
- Refrigeration for deceased bodies
- Storage of vaccine and anti-virals, including security

Discuss such potential needs with the health authority in your region to determine categories and potential options.

Federal Government Role in Pandemic

A review of current pandemic response and preparedness plans indicates that the federal government is responsible for acquisition and distribution of vaccine to the provinces, territories, and First Nations.

A National Pandemic Influenza Committee, with representation from provincial, territorial, and federal governments will coordinate influenza response on a national level, coordinated through Health Canada.

Refer also to “Health Canada” in this Annotated Index.

First Nations

Like other local governments, First Nations will benefit from enacting specific measures to control the spread of influenza within communities, and from taking steps to care for those affected outside of traditional health facilities.

Health Canada is responsible for providing emergency health care for First Nations and Inuit communities. First Nations will receive separate supplies of vaccine directly from federal government.

Where on-reserve facilities are inadequate to accommodate mass immunization, mass care, or quarantine requirements, First Nations are encouraged to collaborate with adjacent local governments through a unified EOC.

First Nations in BC can also access assistance with emergency planning for pandemic influenza through the First Nations Emergency Social Services (FNESS). FNESS provides assistance to BC First Nations' communities to develop emergency plans. Emergency Preparedness planning helps to identify possible hazards, assigns responsibilities for various aspects of an emergency response and outlines procedures for the community to follow before and during an emergency event. Refer to the following website for more information:

www.fness.bc.ca/

Emergency planning for First Nations should consider the principles identified in the final report prepared by Community Health Associates of BC, entitled “It’s Our Community: Are We Prepared for Health Emergencies?” published in May, 2005. For a copy, refer to the website at:

www.cha-bc.org

See also the Annex B of the *Canadian Pandemic Influenza Plan*, entitled “Annex B – Pandemic Influenza Planning Considerations in On-reserve First Nations Communities.” The document is available from the Public Health Authority of Canada through their website at:

www.phac-aspc.gc.ca/cpip-pclcpi/index.html

Funding Pandemic Management

The costs of preparedness, response, and recovery may be a concern for local governments. There are several programs that can assist in funding efforts to manage pandemic risks.

Pre-Event Funding

Local governments may incur costs in assessing the risks of pandemic and in working with others to coordinate response and recovery plans. Two grant sources are available to assist with the costs of pandemic planning.

Joint Emergency Preparedness Program (JEPP) – The Joint Emergency Preparedness Program (JEPP) enables the federal government to contribute to or undertake jointly with the provinces and territories, projects to ensure a relatively uniform level of emergency preparedness and response across Canada. For further details refer to the website at:

[www.pep.bc.ca/ funding programs](http://www.pep.bc.ca/funding_programs).

Emergency Planning Grants – The Union of BC Municipalities (UBCM) will continue to administer funds provided by the Provincial Emergency Program (PEP) through 2006. The grants are available to all regional districts and municipalities for use in developing integrated emergency plans, and for exercises related to those plans. Refer to the UBCM website for details at:

www.civicnet.bc.ca/

Then go to Services and Surveys > Local Government Program Services > Programs > Emergency Planning

Post-Event Funding

During and following a pandemic event, local governments may qualify for eligible funds to assist with response and recovery costs.

Disaster Financial Assistance (DFA) – The Emergency Program Act (1996) authorizes the Lt. Governor in Council (Cabinet) or the Minister of Public Safety and Solicitor General to designate a disaster or emergency event as eligible for DFA. The Minister has delegated this authority to the Executive Director of the Provincial Emergency Program. It is likely that the Executive Director of PEP will designate a major pandemic influenza event as an eligible disaster.

DFA was primarily designed to compensate for incremental operational costs of dealing with an emergency, costs of restoring public works to pre-disaster condition, costs to individuals, small businesses, farms and charities, or repairing basic essential personal property resulting from a natural disaster.

The *Compensation and Disaster Financial Assistance Regulation* (1995) provides for financial assistance to local governments, individuals, small businesses, farms and charities impacted by disaster. This Regulation anticipates financial assistance in two categories:

Response – PEP is permitted under the *Compensation and Disaster Financial Assistance Regulation* to assist a local government with 100 percent of eligible response costs, provided the costs are suitably documented. For example, a local government may receive financial assistance for paid overtime of local government staff while responding to a pandemic emergency, with the submission of approved time sheets. On the other hand, a local government will not receive assistance for

ineligible costs, such as base salaries or wages for regular staff, or expenditure claims that are not supported by documentation.

Recovery – Recovery from a pandemic situation may involve efforts to assist individuals, institutions, and businesses in returning to pre-pandemic conditions. Local governments may receive 80 percent of eligible recovery costs for such expenses as staff overtime and facility rental on the amount of accepted claim that exceeds \$1,000 per event.

Local Government Financial Responsibility

Local authority finance and emergency program staff should have an in-depth understanding of the *Emergency Program Act*, the *Compensation and Disaster Financial Assistance Regulation*, and the provincial DFA eligibility guidelines so they can structure emergency management processes to maximize access to financial assistance.

See the Provincial *Community Disaster Financial Assistance Guidelines* for a list of eligible expenditures for both response and recovery and tips on maximizing financial assistance. Note that the local government (usually through the EOC) must seek pre-approval of large response expenditures that are not clearly eligible by submitting an “Expense Authorization Form” to the PREOC Director for signature.

Gross Attack Rate

The gross attack rate refers to that portion of a population that becomes clinically ill from influenza. Clinical illness means an influenza case that results in some measurable economic impact, such as the loss of at least one-half day of work or a visit to a physician’s office. Also called “clinical attack rate.”

Hand Washing

Hands can play a significant role in acquiring influenza and in transmitting the virus from one person to another. Hands may pick up virus particles by simply contacting objects and surfaces.

Local governments should enforce strict adherence to hand washing procedures among employees during an influenza outbreak. Good hand washing procedures are more likely to prevent infections than excessive cleaning and disinfection.

For guidance on hand washing in the workplace, consult your Health Authority and review Health Canada’s *Infection Control Guidelines - Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*.

Hazard, Risk and Vulnerability Assessment

The process of preparing for pandemic influenza would benefit from a full understanding of the hazards, risks and vulnerabilities in a community. Local governments can develop optimum guidance for an all-hazards approach to emergency preparedness by knowing what might happen, where disasters may strike, and the potential magnitude of events. A Hazard, Risk, and Vulnerability Assessment (HRVA) represents a vital first step in the emergency planning process.

Refer to the PEP website for more information on conducting an HRVA for your community.

See also “Health Effects.”

Health Act of BC

The Health Act regulates the control of communicable diseases to protect the public from health hazards. It also provides an important mandate and set of powers for the Medical Health Officers in British Columbia.

Under the Health Act, a Medical Health Officer (MHO) has the authority to order and institute a number community based infection control measures:

- Close community facilities, e.g. schools, community centres, and convention centres
- Close businesses, e.g., entertainment and sports facilities
- Cancel group events, e.g., meetings, churches
- Restrict travel and the movement of people
- Screen travelers at ports of entry
- Order the isolation and/or the quarantine of individuals or groups

You can view the Health Act through the BC Government website at:

www.qp.gov.bc.ca/statreg/stat/H/96179_01.htm

Health Authorities in BC

Health authorities in British Columbia are independent corporations and do not report directly to the Ministry of Health. Each of the five regional health authorities has its own Chief Executive Officer, Chief Medical Health Officer (MHO), and operational structure.

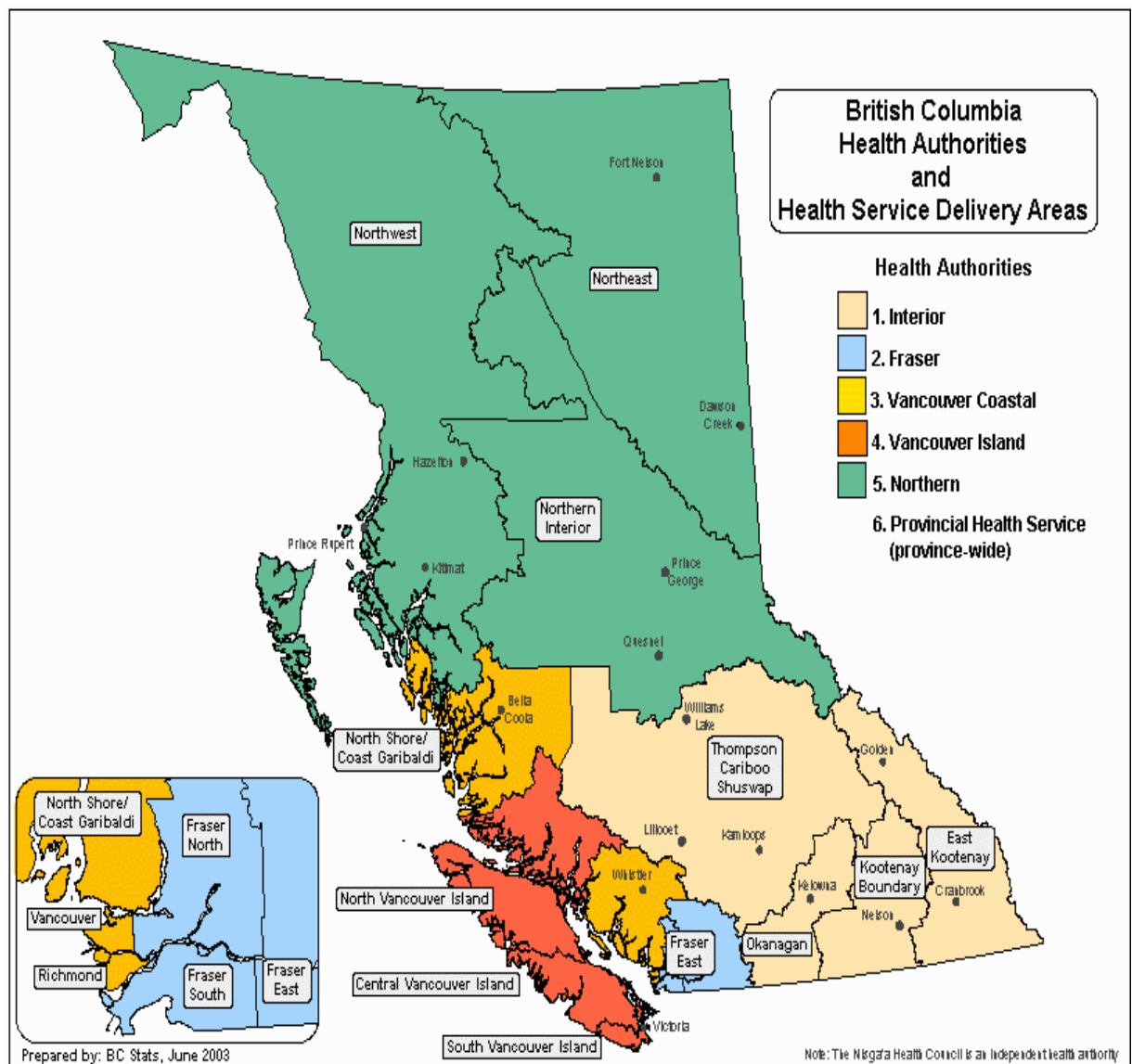
The five health authorities are:

- Northern Health Authority
- Interior Health Authority
- Fraser Health Authority
- Vancouver Coastal Health Authority
- Vancouver Island Health Authority

A sixth health authority is the Provincial Health Service, with province-wide coverage.

Health authorities were created under the Health Authorities Act to plan, organize, and deliver a range of facility and community-based health services to either a designated geographic region or to target populations.

Refer to the following map showing health authority boundaries.



The Chief Medical Health Officer in each health region is responsible for preparing and maintaining a *Pandemic Influenza Contingency Plan*. This plan includes the expected roles of local governments.

The role of the health authority in each region is to provide services that meet the priority health needs of member communities. They manage the threats and response to the health side of the picture, including:

- Provide information on the number of cases, hospitalizations and deaths from influenza
- Deliver vaccines and anti-viral drugs
- Establish and maintain communications in their regions.
- Provide leadership in the distribution of emergency public information

Local governments are responsible for providing specific support to health authorities in certain non-health services, including emergency services, upon request.

Local governments should meet with regional and local health authorities to review their respective plans and to ensure that procedures are in place for such actions as sharing information and filling resource requirements in a timely manner.

Health Canada

Health Canada provides nationwide coordination for the influenza response. This organization is responsible for national surveillance, in cooperation with the World Health Organization and other nations. A National Pandemic Influenza Committee with representation from provincial, territorial and the federal governments will coordinate a national influenza response.

Health Canada also obtains and distributes vaccines, and develops national guidelines for dispensing anti-viral medications to protect health.

Health Canada public health bulletins are available at:

www.hc-sc.gc.ca

Health Impacts

To plan for pandemics, local governments are interested in several forecasts:

To manage internal operations:

- How many employees will be ill at any one time?
- How many will be hospitalized?
- How many employees will likely die?

To assist the community:

- How many community residents will become ill over what time period?
- How many people may require ESS support in self care?
- How many may die?

The answers to these and related questions are unknowable before the pandemic virus can be identified and its effects studied. There are too many variables related to the nature of the virus to predict gross attack rates and case fatality rates with confidence.

However, it is possible to develop a range of credible scenarios to assist planning.

Work with the health authority for your jurisdiction to develop scenarios that will predict the health and community impacts of a mild, moderate and a severe outbreak, by altering assumptions in the above categories. Consider the number of potential waves of influenza attack and the length of each wave in weeks.

Note that your local health authority is interested in similar questions related to the operation of health facilities. It would be useful to adopt the same set of assumptions for the mild, moderate, and severe scenarios.

Home Health Care Services

Home health care services required by thousands of families in a pandemic wave will likely exceed the capability of health professionals. The local government may be called upon to assist in providing volunteers. The local government would manage these services in collaboration with the health authority. A key provision of applying volunteers in these services is that there would be no requirement for face-to-face contact.

Each local authority in collaboration with Health Authorities should develop a Volunteer Management Plan, specific to a pandemic hazard. See the topic “Volunteers” in this Annotated Index.

Refer also to “Quarantine” for ideas on how volunteers might be used to monitor compliance with at-home quarantine orders.

Immunization

Using an influenza vaccine is a proven method for reducing the gross attack rate during an outbreak. However, a new vaccine specific to a novel influenza virus will take some time to develop, test and manufacture, perhaps four to six months and maybe longer.

Canada has limited capability to manufacture the vaccine in sufficient quantities to immunize everyone. In addition, there will likely be world-wide competition for supplies, at least during the initial wave. A vaccine may be available during the second wave. Some strains of the virus may require two doses of the vaccine, given one month apart.

Federal Government Responsibilities

- Obtain a suitable supply of vaccine.
- Distribute the vaccine to provinces, territories, and First Nations.

- In case of a national shortage, the National Pandemic Influenza Committee has set priorities for which groups of the population will receive the vaccine. See Priority Groups.”
- Establish immunization standards and priorities.

Provincial Ministry of Health Responsibilities

- Maintain provincial vaccine depots.
- Distribute vaccine to regional health authorities.
- Establish provincial immunization standards and procedures.

Regional Health Authorities and Local Health Units

- Implement immunization plan for the health authority.
- Order and distribute vaccine.
- Arrange sites, dates, times and staffing to administer vaccine.
- Administer vaccine.
- Monitor progress and problems with immunization.
- Request immunization support of local authorities as necessary.

Industry and Commerce

Refer to “Private Sector Preparedness.”

Infection Countermeasures

The application of infection countermeasures is common practice within health care settings. Infection control outside of health facilities, such as in local government workplaces, would also help control the spread of infection. These procedures may be as simple as regular cleaning of surfaces and ensuring that staff members frequently wash their hands.

Local governments should develop infection countermeasure plans specific to their places of work. In order to develop countermeasure guidelines, the local government should have a clear understanding of how the virus is transmitted to and among its workers. Consult your health authority and refer to “Transmission, Means of” in this Index.

Elements of an Infection Countermeasures Plan

Facility Cleaning – Develop a cleaning plan, including procedures for surface cleaning, in consultation with health authority. Cleaning should address handrails, door knobs, counter tops, sinks and water taps, computer key boards, and telephones, among other surfaces that may be touched by many people. Assign cleaning duties to specific staff members and provide the required training and equipment.

Personal Hygiene – Educate staff members on hand washing, cough etiquette, and using disposable tissues. Provide water basins and running water at convenient

locations, and waterless alcohol-based sanitizers where water basins are not possible. Post instructions for hand washing in all workplaces, bathrooms, and eating areas. Monitor to ensure compliance.

Stay-Home Policy – Wherever possible, allow employees to work from home even if they are not ill. Establish a clear policy that workers showing any signs of illness are to avoid the workplace for the duration of the illness. The local government should also consider a policy that employees will not report to the workplace if any person with whom they reside is infected due to the high chance of spreading the infection.

Limit Face-to-Face Contact – The most effective counter measure for influenza infections is to increase social distance (reduce face-to-face contact). As a consequence, local governments may choose to temporarily suspend some services, such as building inspection, issuance of permits, or low priority activities requiring face-to-face contact. Restrict public access to building areas or facilities that provide essential services, for example water treatment and delivery systems, police and fire dispatch centres, and Emergency Operations Centres.

Sequester – The limitation of face-to-face contact is a proven method of reducing the chance of disease transmission. Local governments should consider the extraordinary option of sequestering groups of essential service staff, when an infection within a particular group could impact essential public safety services. Plan to provide space, bedding, food, water, medications, and communications either at the workplace or nearby hotel or motel.

Collaboration is the key to success in infection countermeasures. Local governments should work in partnership with local health authorities, drawing upon their subject matter expertise, to develop sound and simple infection countermeasures. Engage union personnel in the planning process, as well as representative employees from every essential service area and critical infrastructure facility.

Refer to the *Canadian Pandemic Influenza Plan, Appendix F*, for more details on infection countermeasures. The Plan is available through the website for the Public Health Agency of Canada at:
www.phac-aspc.gc.ca

Influenza

The term influenza refers to a family of highly contagious viruses that cause illness by attacking the respiratory tract. In humans, the illness is characterized by sudden onset fever, cough, sore throat, malaise, and general aches.

In children, influenza may also cause nausea, vomiting, or diarrhoea. In very young children, fever may not be prominent. Older persons often experience fever and sometimes chills, but these symptoms may not be prominent.

There are three subtypes of influenza: A, B and C. Two proteins found on the surface of an influenza virus are used to identify and label subtypes and strains of influenza.

Hemagglutinin (H) refers to a protein on the surface of an influenza virus that helps the virus attach to body cells in the respiratory tract. There are 15 known types of hemagglutinin, and each is labelled 1 through 15.

Neuraminidase (N) is another protein on the influenza virus. This protein helps the virus leave one cell in order to spread and infect other cells.

These two proteins are often abbreviated as H and N in identifying a specific virus. Subtypes of influenza A virus known to infect humans, for example, include H1N1, H2N2, H3N2 and, more recently, H5N1. The threat of pandemic influenza is related to the introduction of a new subtype of influenza A in the human population.

Information Strategy

The *BC Pandemic Influenza Preparedness Plan* requires that each regional health authority develop a “communications plan” or information strategy. The local government should meet with the health authority and review the current health Communication Plan to ensure the strategy addresses the needs of the local government.

The information strategy should be all-encompassing and include the following elements:

- The strategy must encompass pre-event, event and post-event phases.
- The strategy needs to be developed in collaboration with other provincial and community stakeholders.
- The strategy needs to be multi-faceted (broadcast media, print media, publications, etc.).
- The strategy needs to focus on both internal employees and the general public.
- Review what pre-event publications will be available for distribution to the public.
- Review likely content and methodology for informing the public of risk and mitigation options.
- In partnership with regional HA, distribute self-help guidelines to businesses and the public.

During the event, local authorities should regularly report to the public on:

- Number of new and cumulative cases in the local community
- Number of businesses closed and number that remain open
- Reports on progress of disease from Health Authority
- Date immunizations are expected to begin
- Working with the Health Authority, ensure that self-help guidelines are distributed to businesses and public.

Specifically, local governments should attend to the following points in an information strategy:

Audience – The information strategy should focus on both internal employees and on the general public, including businesses. Publications should be developed for specific audiences, such as the news media, the general public, health care workers, schools, and essential service employees.

Content – Messages should inform staff and the public of the risks of pandemic influenza, and the options available to them to reduce the risk. The strategy must address steps people can and should take before a pandemic wave arrives, during an outbreak, and between waves. Messages should address many issues of interest to the public, including the inevitable spread to all countries, if there is a shortage of vaccines and antiviral drugs, justification for the selection of priority groups for protection, and how individuals can protect themselves.

Methods Information Release – The strategy should anticipate a multi-faceted program to release information, considering such options as radio and television, newspapers and newsletters, posted information, publications of handouts, and websites. Discuss with the health authority the types of pre-event publications currently available for distribution to the public.

There are several steps in sharing public information that local governments can take to support their health counterparts:

- Distribute self-help guidelines to businesses and the public. A health authority will be able to provide both posters and publications. For example, publications and posters on how an individual should wash their hands are available.
- Alert neighbourhood emergency programs, neighbourhood-watch, or other community-based response organizations.

The federal and provincial governments are expected to produce, print, and distribute public information material required in multiple languages. Local governments would only produce and distribute publications specific to their individual community needs.

It is important to note that effective risk communication and factual information are essential in building confidence in government authorities, and may help reduce public anxiety, social disruption, and economic impacts. Local governments should meet with their health authorities and review the current Health Information Strategy to offer support in specific areas.

In summary, health authorities in BC have responsibility for developing a public education and information strategy for pandemic influenza. They are required to develop this strategy in collaboration with the BC Public Affairs Bureau, the Provincial Emergency Program, and local governments. When a pandemic situation arises, health authorities will begin a continuous process of public information.

Local governments should therefore contact their respective health authorities and other community stakeholders to participate in developing a coordinated information strategy.

Isolation

Isolation refers to the act of removing persons with confirmed influenza cases from possible contact with persons who have not been exposed.

Local Authority

Local authorities are defined by the BC Emergency Program Act to include:

- For a municipality, the municipal council
- For an electoral area in a regional district, the board of the regional district

Every local authority in BC has a legislated responsibility to develop and maintain an “emergency program.” Preparing for a pandemic is just one component of a comprehensive community emergency plan.

In planning for pandemic influenza, local authorities and other local governments are expected to:

- Set priorities for maintaining public safety and other essential public services (fire, police, waste management, water and utilities)
- Support regional health authorities in providing information to the public
- Act in support of Medical Health Officer directives respecting limitation of face-to-face contact, such as closing schools, businesses, and other public gatherings.
- Support regional health authorities in establishing alternative care sites for the delivery of health care, alternative transportation, and mass immunization efforts.

Masks

The *Canada Pandemic Influenza Plan* warns that masks are not a practical means of minimizing influenza transmission during a pandemic once the virus has entered a community. Discuss the use of masks with your health authority representatives.

Mass Fatalities

The mortality rate during a future pandemic can only be estimated after the virus causing the disease has been identified and studied. However, it is reasonable to presume that the number of deaths may overwhelm the capability of health institutions and funeral services to process, document, and bury the dead.

In situations of mass fatality, local governments may be expected to play a role in collecting, transporting, processing, and burying the dead. Although such actions will

most likely fall to family members and friends of the deceased, experience from past pandemics suggests that bodies may not be claimed for a number of reasons.

Homeless persons, indigent persons, and travelers in transit who die of the disease and cannot immediately be identified may require special handling. The Coroner may waive current procedures in order to temporarily bury these persons. Ministry of Social Services pays for burial or cremation of indigent and/or un-claimed bodies, through negotiated standing agreements with the funeral industry for the burial of indigent persons. Refer to See the *Ministry of Social Services Policy Manual*, “10.19 - SUPPLEMENTS - Burial or Cremation” for burial and transportation rates.

Currently, when a person dies at home, a doctor may be called. However, in most cases the body is transported to the nearest hospital where a doctor issues a Medical Death Certificate. The body is then often taken to a funeral home. During a pandemic, it is unlikely the health facilities will allow this type of processing simply because of time requirements. Bodies may be found dead at home and transported to a funeral home or mass fatalities collection facility.

The Medical Health Officer (MHO) has the authority under the Health Act to order rapid burial of the dead where public health objectives may be served. The MHO also has the authority to order burial of un-embalmed bodies.

Transporting Bodies

Local governments may be involved in transporting those who die from influenza to a collection area or to a funeral home. Special infections control measures are not required for such handling because the body is not contagious after death.

Death Registration & Certificates

If a person dies in British Columbia, the death must be registered with the Vital Statistics Agency. The Chief Executive Officer has been delegated authority to appoint Vital Statistics Registrars. (refer to Section 33 of the Vital Statistics Act for statutory authority). Vital Statistics Registrars have the authority to register deaths, issue burial or cremation certificates, and issue death certificates. Persons designated as Vital Statistics Registrars currently include:

- 413 funeral directors
- 114 Government Agencies
- 18 Aboriginal Persons
- 224 other persons

In the event of a province wide mass fatality event the Chief Executive Officer can quickly appoint additional Vital Stats Registrars, such as Coroners or police officers, and develop and distribute pre-printed simplified forms.

Documentation associated with fatalities in British Columbia includes the following:

- Medical Certificate of Death – Issued by either a physician or coroner, this form can be issued remotely by phone call to coroner in special circumstances. In practice, physicians issue certificates for persons who have received health care services. In a pandemic event, where body collection areas have been established, a coroner may be required to issue multiple certificates.
- Registration of Death – This registration form is completed and signed by a person appointed as a Vital Statistics Registrar. In the vast majority of cases, this is a funeral director. The information to complete the document is generally obtained from the family. When a family member is not available, assistance from the coroner or police may be required. A check of the deceased person birth records can also be used to gather information.
- Burial Permit and Recognition of Registration of Death – A funeral director or other person acting in accordance with his/her or appointment as a Vital Statistics Registrar issues this document.
- Death Certificate – A funeral director or any other person acting in accordance with his/her or appointment as a Vital Statistics Registrar also issues the Death Certificate.

Death registration forms are currently forwarded to the Vital Statistics Agency by facsimile or mail, and the data is entered into a provincial data base. The Vital Statistics Agency currently provides a database program to facilitate the completion of forms, and is developing a web based death registration system. Delays in data entry of forms by the Vital Stats Agency would not delay a rapid burial process.

Un-identified bodies

Bodies that can not be identified before burial are currently entered into the Vital Statistics data base as “John Doe,” noting the date and place of death. The collection of multiple John Doe bodies at a pandemic body collection area would necessitate the assignment of John Doe #1, John Doe #2 designations for a specific time and date. Provided that a specific or police number is linked to each body there should be no delay in processing the registration of death.

The Coroner, supported by the police, is responsible for gathering and retaining evidence for later identification. Such evidence includes but is not be limited to, full body x-rays, dental records, photographs, fingerprints, and DNA samples. Unidentified bodies are buried and not cremated.

Funeral Services Industry

The Funeral Services Association of BC maintains a master list and data on the capacity of each funeral home. There are 135 funeral homes operating in the province, with a morgue capacity of 700 bodies. Funeral home services currently process between 25,000 and 30,000 deaths per year, of which about 7,500 are reviewed by the Coroner Service. Local governments should develop and maintain a master list of funeral homes within their jurisdiction.

Cemeteries and Crematoriums

There are over 700 cemeteries within BC, and about 120 of these cemeteries are currently active. The majority are municipal cemeteries, with only a few private cemeteries located in the larger cities.

According to the Cemetery and Crematorium Association of BC, there are currently 46 licensed crematoriums in BC. Some have more than one “retort units” (ovens). On average, a retort unit can process 4 bodies in a 24-hour period, and some can manage 8 bodies in 24 hours. Crematorium operators typically provide services to funeral directors, and do not deal directly with the public. All crematorium facilities are licensed by Consumer services.

Religious and Ethnic Issues

Local governments should learn about funeral, burial and cremation requirements among the community residents, including all religious and ethnic groups. For example, Muslims, Sikhs, Hindus, and Jews are allowed to wash and dress the bodies at a funeral home. Muslims and Jews prefer to bury their dead within 24 hours, although this is seldom possible in Canada due to paper work requirements.

EOC Response Objectives

Public health and social decorum demand that the dead be properly cared for, and local governments may be required to exercise this social responsibility. There is a reasonable expectation that local governments will support the burial of mass numbers of dead where families refuse or cannot take responsibility for burial.

The local government EOC may be expected to implement some or all of the following objectives, in support of the Coroner:

- Establish at least one mass fatality collection area, where bodies may be processed and temporarily stored prior to burial or cremation.
- Transport unclaimed bodies to an authorized collection area.
- Provide refrigeration trucks (each can hold 25 to 30 bodies) for use at collection areas and by local medical facility morgues. NOTE: bodies must be frozen, not just cooled. Trucks with metal linings can be cleaned after use; wood linings can present problems in this regard. Utilization of arena(s) and or curling rinks should be considered a last resort.
- Collaborate with funeral homes in the handling, storage, and burial of multiple bodies. Assist with finding and acquiring body bags, chemicals, and caskets. Pay for the burial or cremation of unclaimed or unidentified bodies.

- Under the direction of the Coroner, allow for and/or arrange mass burials in municipal cemeteries.
- Seek financial assistance for the costs of mass burials or cremations. Burial is consider a public health response issue and is eligible for 100 percent cost recovery from PEP through the Disaster Financial Assistance program. The eligible cost per body would like be the amount already established by the province for the burial of the destitute. The local government EOC should seek pre-authorization for burial costs through the PREOC.

Mass Fatality Plan

Every local government should have a mass fatality plan that addresses pandemic influenza, as well as other relevant hazards. Such plans should be developed in collaboration with:

- Coroner
- Medical Health Officers
- Local health care facilities
- Funeral services representatives
- Local religious and ethnic groups

Plans need to include a review of death documentation requirements and regulations that may inhibit rapid processing. Local governments should develop and maintain a master list of funeral homes within their jurisdiction.

See also “Coroner Services” in this Index.

Medical Health Officer

Each health authority has a Chief Medical Health Officer and a number of other Medical Health Officers working within the region. Medical Health Officers provide the primary health interface with a local government.

Under the *Health Act*, the Chief Medical Health Officer has the authority to enact community-based control measures that he/she believes are important in controlling the spread of influenza and minimizing its impact (i.e., the prohibition of public gatherings). Additional powers of the Medical Health Officer at the time of a pandemic include:

- Activate vaccine distribution and delivery, and seek assistance from local governments for vaccine and anti-viral storage.
- Partner with local governments and First Nations to ensure and effective emergency response organization.
- Direct the delivery of self care, outpatient care, and hospitalized care.
- Train alternative care-givers.
- Identify and activate alternate care sites.

- Direct alternate transportation or the closure of transportation or travel routes and means.

Medical Health Offices can also order persons to be detained for quarantine under the Health Act. There is a draft agreement among the Ministry of Health, health authorities, and all police services in the province with respect to support of quarantine orders.

As a point of interest, the Provincial Health Officer does not direct the actions of Medical Health Officers in the province. Medical Health Officers are authorized under the Health Act to proceed independently, including the authority to order the closure of buildings.

Ministry of Health

Under the Emergency Program Management Regulation, the British Columbia Ministry of Health is responsible for determining the provincial government response to disease and epidemics. The Ministry developed the *British Columbia Pandemic Influenza Consequence Management Plan (Interim 2004)* in partnership with the BC Public Affairs Bureau (PAB) and the Provincial Emergency Program (PEP).

Duties under the plan are assigned to the Provincial Health Officer, working with the BC Centre for Disease Control and Medical Health Officers in the regional health authorities.

You can access the *British Columbia Pandemic Influenza Consequence Management Plan (Interim 2004)* through the PEP website at:

www.pep.bc.ca/hazard_plans/PI_Consequence_Management_Plan_2004-03.pdf

Mitigation

Mitigation includes activities taken to eliminate or reduce the probability of an event, or to reduce its severity or consequences prior to a disaster or emergency.

Members of a local government Pandemic Planning Committee may identify ways to reduce the potential for impact from a future epidemic, such as cross training employees to ensure essential services have backup personnel.

Some recommended strategies for mitigating a pandemic influenza outbreak include:

- Separate staff from public.
- Develop infection control plan.
- Vaccinate staff, develop hygienic habits.
- Duplicate personnel capabilities.
- Develop backup suppliers.
- Develop contingency funds.

Morbidity

Morbidity is a medical term referring to “illness.” The morbidity of a certain virus indicates the number of people who become ill.

Mortality Rate

The proportion of individuals in a population that die in a given period of time, often expressed as the number per 1,000, 10,000, 100,000, ... individuals in a population per year.

Novel Influenza Virus

Three or four times a century, a radical change occurs in the genetic material of the influenza “A” virus and a novel virus sub-type will suddenly appear. Because it is a radically different strain, the immunity that people have developed against influenza throughout their lives may not protect them. Everyone is, therefore, susceptible to infection and will be at greater risk of developing severe complications like pneumonia.

In such a situation, the virus may spread rapidly around the world, and an influenza pandemic may result.

Outbreak

The term “outbreak” refers to an increase in disease activity above expected levels. This observed activity is also called an epidemic.

Pandemics, History of

Pandemic influenza involves the spread of a new strain of the influenza “A” virus for which there is no immediate effective vaccine. A worldwide pandemic is characteristically highly contagious and virulent, with high rates of illness and death, as well significant social and economic disruption.

These types of events have occurred many times before in human history, and scientists have chronicled their frequency and consequences using available historical records.

Date	Scope	Estimated Severity
1173	Europe	Unknown
1510	Europe	Serious
1557	Europe	Serious
1580	Europe	Serious
1732	Global	Low

1742	Europe	Moderate
1761	N. America, Europe	Moderate
1767	N. America, Europe	Moderate
1775	Europe	Moderate
1800	Europe, China	Moderate
1830	Global	Low
1836	Europe, Australia	High
1847	Europe, Brazil, Caribbean	High
1850	N. S. Americas	Mild
1857	Europe, Americas	Mild
1873	N. America, Europe	Mild
1889	Global	Severe, 250,000 deaths
1918	Global	15 to 25 million deaths
1946	Global	Mild
1957	Global	Major
1968	Global	Major
1977	Global	Mild
2005	Viet Nam	???

Source: Laurie Garrett, *The Coming Plague*, pp. 634-635

In the last century, there were three influenza pandemics:

- The Spanish Flu, in 1918-19 (most severe: 40-50 million dead)
- The Asian Flu, in 1957-58
- The Hong Kong Flu in 1968-69

Health experts warn that pandemic influenza strikes about three times a century, with the last event in 1968 when the Hong Kong Flu sickened millions and caused thousands of deaths worldwide. The current concern for the H5N1 virus in Asia highlights the near-term potential for an influenza pandemic, although the virus has not yet acquired the ability to be easily transmitted among humans.

Based on past events and our knowledge of the causes, medical experts predict that the world is overdue for a severe influenza pandemic. We do not know when it might occur, but all of the factors contributing to the risk are in place.

Period of Communicability

This term refers to the time a person who is ill with influenza can infect others. The period of communicability for influenza ranges from 24 hours before the onset of symptoms to 3-5 days after the onset of symptoms (may be longer in children and some adults).

Planning Committee

Medical Health Officers have responsibility for establishing Pandemic Influenza Preparedness Work Groups and may already have engaged local authorities and others in the process.

This includes liaison with local partners (e.g., emergency responders, hospitals, mortuary services) in advance of a pandemic to facilitate a coordinated response when pandemic influenza strikes.

In addition, some municipalities and regional districts have agreed to integrate their respective emergency management organizations.

In some geographic areas, there are a number of essential services that are delivered on a regional basis, for example: Solid waste, water and sewer services in the GVRD. This sharing of responsibility for the delivery of some essential services will require the development of integrated pandemic plans.

Policy Group

The British Columbia Emergency Response Management System (BCERMS) identifies the Policy Group as elected officials and/or agency executive(s) of the local authority. For a municipality, the local authority is identified in the BC Emergency Program Act as the municipal council. For an electoral area in a regional district, the local authority is the board of the regional district.

Policy Group members do not attend the EOC; they meet separately to determine specific and binding policies in response to the situation at hand.

Ports of Entry

Federal government is responsible for all entry into Canada. Under federal legislation, persons arriving at a port of entry into Canada may be screened by a “Quarantine Officer” and either turned away or placed in a federal quarantine facility.

During the SARS outbreak, the Canadian federal government did not have sufficient federal resources to screen arrivals at the various airports. They asked for and received provincial assistance in British Columbia, and provincial health care workers were appointed as Quarantine Officers according to the federal legislation. They screened arriving passengers. The Vancouver Coastal Health Authority identified a recently closed hospital as a possible quarantine site and arrangements were completed with the RCMP for the provision of security.

Each local government that has a port of entry within their jurisdiction should collaborate with both federal and provincial officials to develop response policies and procedures for port-of-entry screening and quarantine facilities.

Preparedness

Preparedness means developing action plans, gathering the equipment and facilities implied in the plans, training the right people in the plan and with the equipment, and exercising all of the elements with rigorous tests.

Effective preparedness depends on a sound understanding of risks.

The Medical Health Officer is responsible for the development of a *Pandemic Influenza Consequence Plan*. It is therefore critically important that local governments collaborate with their respective health authorities in the development of coordinated preparedness plans. In particular, municipalities and regional districts should develop consequence management guidelines to maintain the continuity of essential services and to support residents.

The development of a preparedness plan for pandemic influenza is only one component of a local government all-hazard emergency response and recovery plan.

Priority Groups for Vaccine, Anti-Virals

Influenza vaccine will become available in lots and supply may be limited during the early stages of the pandemic. Therefore, local governments need to identify priorities for vaccination ahead of time.

The federal Pandemic Influenza Committee, reporting directly to the federal, provincial and territorial Ministers of Health, has identified the types of individuals and groups to receive priority for the influenza vaccine when it is available. Suggested guidelines for the use of influenza vaccine in times of short supply have been developed to provide guidance to the Committee during the planning process.

Every local government is expected to determine their own priorities, considering the categories shown in the table below.

Local Government Category	Number of Persons
Fire-fighters (include volunteer fire fighters)	
Local government Emergency Operation Centre members	
Personnel who work with institutionalized populations	
Police / RCMP	
Transporters of essential goods (e.g., food, heating fuels)	
Public works (e.g., water delivery, solid waste disposal)	
Other essential service workers	
Additional Suggestions (For consideration)	Number of Persons
Clergy	

Elected members of council or board	
ESS staff and volunteers	
Funeral service / mortuary personnel	
Meals on wheels	
Neighbourhood program volunteers	
Search and rescue volunteers	
Soup kitchens	
Other	

Local governments are encouraged to adapt the list shown above to better represent the essential service workers in your community. Consider that the objectives of prioritizing vaccine include minimizing societal disruption by maintaining the essential services upon which everyone depends. Discuss this list with your health authority and be prepared to justify your selections.

Essential service workers are those who maintain key community services. The ability to mount an effective pandemic response may be highly dependent on these persons being in place to maintain essential services (see “Essential Services” for examples). Note that several worker groups in deemed essential services may be outside the local government organization.

For essential services delivered on a regional basis, such as water collection and sewer systems, the regional district or other entity with legislated responsibility will identify priority personnel. For essential services delivered throughout the province, such as hydro-electric power, the individual corporations will identify personnel for priority immunization.

These priorities may be reassessed when epidemiologic data on the specific pandemic virus become available.

Private Sector Preparedness

It is common practice for major private sector businesses to develop Business Continuity Plans for implementation during an emergency or disaster.

Some essential service utilities, such as suppliers of electrical power, natural gas, telecommunication services, ferry services, food distribution, and financial services, are regulated private sector services. These companies have a legislated responsibility to develop and maintain emergency preparedness plans that ensure the continuation of the essential services they deliver.

Where such services are delivered to multiple jurisdictions, local governments in partnership with PEP and health authorities should to work with each sector to promote adequate pandemic planning.

Provincial Emergency Program (PEP)

The Provincial Emergency Program maintains the BC emergency management structure for implementation among provincial agencies. PEP will manage a provincial integrated response to pandemic, focused on consequence management, in support of health authorities and local governments.

PEP helped develop and is a signatory of the BC Pandemic Consequence Management Plan. Under this plan, PEP is responsible for:

- Establish and coordinate staffing of the PECC and PREOC(s), and provide support.
- Coordinate the preparation of provincial pandemic response directives.
- Provide overall direction for finance at the PECC and PREOC level.

PEP also manages the provincial Emergency Coordination Centre (ECC), located at the PEP headquarters in Victoria. The ECC receives and disseminates information from multiple sources regarding emergency situations. The 24-hour Emergency Coordination Centre also serves as the “incident message centre” for the Provincial Emergency Coordination Centre when it is activated.

See the PEP website for more information at:
www.pep.bc.ca/

Provincial Health Officer

Under provincial legislation, the Provincial Health Officer (PHO) has the authority to lead the Ministry of Health and other stakeholders in planning for pandemic influenza and implementing BC’s preparedness plan. The Provincial Health Officer decides when it is time to activate provincial pandemic plans.

Under BC’s *Health Act*, the local Medical Health Officer has the authority to enact measures to control the spread of influenza, such as the closure of public buildings and cancelling public gatherings. These responsibilities will remain under the discretion of the Medical Health Officer in each health authority. The Public Health Officer’s role is one of guidance at the time of pandemic.

For the roles of the Provincial Health Officer before, during, and following a pandemic event, refer to the BC Centre for Disease Control’s *British Columbia Pandemic Influenza Preparedness Plan*.

Provincial Regional Emergency Operations Centre (PREOC)

A Provincial Regional Emergency Operations Centre manages activities at the provincial regional coordination Level, and coordinates the joint efforts of provincial agencies and non-government agencies.

Public Education

See “Information Strategy.”

Public Health Agency of Canada (PHAC)

The Public Health Agency of Canada is a public service organization under the leadership of Canada’s Chief Public Health Officer, who reports to the federal Minister of Health. A separate organization, Health Canada, also reports to the Minister of Health.

PHAC focuses on chronic diseases, like cancer and heart disease, injury prevention, and response to public health emergencies and infectious disease outbreaks. The Public Health Agency of Canada works closely with provinces and territories to promote health among Canadians and to improve the national health care system.

For more information on the Public Health Agency of Canada, see their website at:
www.phac-aspc.gc.ca/new_e.html

Quarantine

The term “quarantine” refers to separating persons who may have been exposed to the virus from others who have not.

A Medical Health Officer (MHO) has the authority under the *Communicable Diseases Regulations* of the *BC Health Act* to institute community-based infection control measures, including the mandatory quarantine of persons suspected of carrying a disease.

Some key terms relating to quarantine include the following:

Mandatory Quarantine – Mandatory quarantine can be an order by the Medical Health Officer for either the quarantine of persons in a government facility or ordering persons to remain within their own residence.

Quarantine Facilities – Persons who are suspected of carrying a disease and who arrive at a Canadian port of entry would likely be quarantined in a public facility, which could be any facility from a hospital to a hotel.

Residential Quarantine – This allows for the Medical Health Officer to order persons to remain within their residence and avoid face-to-face contact until such

time as it can be confirmed that they are free of infection. The management of residential quarantine orders is labour intensive. There must be a process to confirm that the persons in the residence are, in fact, adhering to the quarantine order.

Self Quarantine – When a wide-spread epidemic occurs within the general population, many individuals and families will choose to self quarantine by remaining at home and away from school and work. They will also avoid social contacts such as groups. Self quarantine is an effective way to reduce individual and family risk.

Health authorities would likely request the assistance of local governments in arranging for quarantine facilities and providing essential services for incarcerated persons. The support of local governments would also be required for the management of residential quarantine activities.

Recovery

Local governments play a leadership role in recovery following any disaster, and will want to coordinate psycho-social and economic recovery between the waves of pandemic influenza. There are two aspects to recovery from pandemic influenza: 1) Local government, and 2) Community.

Local Government Recovery

Recovery internal to the local government organization will likely require efforts to support the emotional needs of surviving employees, replacing workers lost through serious illness or death, re-training new personnel, and recovering essential records. Personnel costs for pension pay outs, death benefits, and re-staffing may have a significant impact on the organization.

Community Recovery

Community recovery includes all actions devoted to assisting individuals, families, businesses, farms, and non-profit organizations regain social and financial stability following a disaster. Local governments will likely facilitate recovery organizations in a collaborative effort to help community members. In a serious pandemic, where many suffer prolonged illness and the death toll mounts, the general public will likely be emotionally traumatized, as well as financially challenged. A potentially large number of grieving families will require both social and financial support.

Community recovery includes financial assistance. Immediate hardship grants may assist families that can not meet their financial needs due to lost wages. Longer term financial assistance may be available through the provincial government's Disaster Financial Assistance program, depending on a decision to do so.

Impacts on small businesses ordered to close during the pandemic will be substantial. The effect on tourism from SARS is an excellent example of long term economic impact on small businesses from an epidemic. It may be both necessary and beneficial for all levels of government to consider financial assistance that would help businesses cope with pandemic impacts.

For more information on community recovery, refer to PEP's *Community Disaster Recovery – Local Authority Guidelines*, located on the PEP website at:
www.pep.bc.ca

References

Documents

Barry, John. 2004. *The Great Influenza – The Epic Story of the Deadliest Plague in History*. Penguin Group, New York, New York. ISBN 0-670-89473-7.

BC Centre for Disease Control. 2004. *British Columbia Pandemic Influenza Preparedness Plan (Interim 2003) Guidelines for Planning, Response and Recovery*. December.

BC Provincial Emergency Program, Ministry of Health Services, and Public Affairs Bureau. 2004. *BC Pandemic Influenza Consequence Management Plan (Interim)*. March.

Cooper, Sherry and Donald Coxe. 2005. *Special Report: An Investor's Guide to Avian Flu*. BMO Nesbitt Burns Research. August,

F/P/T Network for Emergency Preparedness and Response. 2004. *National Framework for Health Emergency Management - Guideline for Program Development*. Prepared for the Conference of F/P/T Ministers of Health by the F/P/T Network on Emergency Preparedness and Response. Printed January 28.

Garrett, Laurie. 1994. *The Coming Plague – Newly Emerging Diseases in a World Out of Balance*. Penguin Books, New York, New York.

Government of Alberta. 2003. *Alberta's Plan for Pandemic Influenza*. November.

Health Canada. 1998. *Infection Control Guidelines - Hand Washing, Cleaning, Disinfection and Sterilization in Health Care*. Canada Communicable Disease Report. Volume 24S8. ISSN 1188-4169. December.

Health Canada. 2004. *Canadian Pandemic Influenza Plan*. Her Majesty the Queen in Right of Canada, Cat. No. H39-4/26-2004E, ISBN 0-662-36113-X. www.hc-sc.gc.ca/pphb-dgsp/cpip-pclcpi/.

Iezzoni, Lynette. 1999. *Influenza 1918: The Worst Epidemic in American History*. TV Books, L.L.C., New York, New York.

- Kolata, Gina. 1999. *Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus that Caused It*. Farrar, Straus and Giroux, New York.
- Laws and Statutes of British Columbia. 2004. *Coroners Act*, [RSBC 1996] Chapter 72. Queen's Printer, Victoria, British Columbia, Canada.
- Laws and Statutes of British Columbia. 2004. *Emergency Program Act* [RSBC 1996] Chapter 111. Queen's Printer, Victoria, British Columbia, Canada.
- Laws and Statutes of British Columbia. 2004. *Health Act* [RSBC 1996] CHAPTER 179. Queen's Printer, Victoria, British Columbia, Canada.
- Laws and Statutes of British Columbia. 2005. *Compensation and Disaster Financial Assistance Regulation*, B.C. Reg. 124/95 O.C. 310/95, Deposited March 31, 1995, includes amendments up to B. C. Reg. 85/2005, March 18, 2005. Queen's Printer, Victoria, British Columbia, Canada.
- Laws and Statutes of British Columbia. 2005. *Health Act Communicable Disease Regulation*, B.C. Reg. 4/83, O.C. 6/83, Filed January 11, 1983, includes amendments up to B.C. Reg. 182/2005, March 31, 2005. Queen's Printer, Victoria, British Columbia, Canada.
- Laws and Statutes of British Columbia. 2005. *Local Authority Emergency Management Regulation*, B.C. Reg. 380/95, O.C. 1075/95, Deposited September 8, 1995. Queen's Printer, Victoria, British Columbia, Canada.
- Meltzer MI, Shoemaker HA, Kohnanski M, Crosby R. 2000. *FluAid 2.0: A Manual to Aid State and Local-level Public Health Officials Plan, Prepare and Practice for the Next Influenza Pandemic (Beta test version)*. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.
- O'Keefe, Betty and Ian MacDonald. 2004. *Dr. Fred and the Spanish Lady: Fighting the Killer Flu*. Heritage House Publishing. ISBN 1-894384-71-7.
- Pearces 2 Consulting Corporation. 2005. *A Century of Hazardous Events in British Columbia: 1905 to 2005*. March.
- Pettigrew, Eileen. 1983. *The Silent Enemy: Canada and the Deadly Flu of 1918*. Western Producer Prairie Books, Saskatoon, Saskatchewan, ISBN 0-88833-104-5.
- Provincial Emergency Program and the Inter-Agency Emergency Preparedness Council. 2000. *BC Emergency Response Management System (BCERMS) Overview (Interim)*. September.
- Public Health Agency of Canada. 2003. *Learning from SARS - Renewal of Public Health in Canada -- A report of the National Advisory Committee on SARS and Public Health*. October. www.phac-aspc.gc.ca/publicat/sars-sras/naylor/index.html

Public Safety and Emergency Preparedness Canada. 2004. *Government of Canada Position Paper on a National Strategy for Critical Infrastructure Protection*. November.

Ryan, Frank. 1997. *Virus X – Tracking the New Killer Plagues*. Little, Brown, and Company (Canada), Limited.

Skowronski, Danuta M., H. Grant Stiver, and Allison McGeer. 2004. “Preparing for the next influenza Pandemic - What Every Clinician Should Know.” *Royal College Outlook*, Volume 1, Issue 3, Fall.

World Health Organization (WHO). 2005. *WHO Global Influenza Preparedness Plan*. Department of Communicable Disease Surveillance and Response, Global Influenza Programme WHO/CDS/CSR/GIP/2005.5.

World Health Organization. 2005. *Responding to the Avian Influenza Pandemic Threat - Recommended Strategic Actions*. Communicable Disease Surveillance and Response Global Influenza Programme. WHO/CDS/CSR/GIP/2005.8.

Websites

Atlanta Centre for Disease Control Influenza Information
www.cdc.gov/nip/flu/default.htm

British Columbia Centre for Disease Control
www.bccdc.org/

British Columbia Provincial Emergency Program
www.pep.bc.ca/.

FluAid
www2.cdc.gov/od/fluaid/default.htm

FluNet (WHO)
<http://oms2.b3e.jussieu.fr/flunet/activity.html>

FluWatch (Health Canada)
www.hc-sc.gc.ca/pphb-dgsp/fluwatch/index.html

Influenza (General and Panflu information)
www.hc-sc.gc.ca/pphb-dgsp/publicat/info/influ_e.html

Nurseline (BC Ministries of Health)
www.bchealthguide.org/kbaltindex.asp

Response

Coordinated response programs include all actions taken during an emergency event to save lives, protect property, and limit damage to the environment. Response activities among BC local authorities typically involve two levels:

- 1) Site Response, where first responders and others address the immediate task of eliminating hazards or moving people out of harm's way, and
- 2) Site Support, including activities at an Emergency Operations Centre (EOC) that provide resources, information, and direction to sites. If residents have been evacuated, re-entry efforts to return evacuees are considered response activities.

The province of British Columbia has adopted the BC Emergency Response Management System and expect local government emergency services to comply with BCERMS (see “BCERMS” for more information).

In a pandemic influenza response, the site level will likely represent neighbourhood or community areas where specific community care activities are underway, such as the actions of Emergency Social Services and Search and Rescue teams who monitor and support those who are sick at home.

The site support level will require the local government to activate an EOC as and when required to coordinate support to sites. Action plans developed by the EOC during a pandemic wave may include the following objectives:

- Monitor the needs among community residents at home.
- Provide information on the current status of the situation to the general public
- At the direction of MHO, close of public buildings where it is deemed to be in the best interests of public safety and to minimize the spread of infection.
- Work with Health Authority to establish alternative care facilities and triage centres to facilitate the immunization of the public and provide healthcare in non-traditional settings.
- Support health authority with other requests for resources, including facilities, building services, and volunteers.
- Support local businesses in maintaining community services, particularly those involving access to pharmaceuticals, retail food purchases, gasoline and other commerce deemed necessary

Note that a wide-spread pandemic will likely affect neighbouring jurisdictions and reduce the availability of mutual-aid resources.

Safe Service Delivery

Some public services expose local government workers to public contact, increasing the chance they would be exposed to the influenza virus.

Each local government department should explore options for continuing service delivery while controlling direct public contact. Some examples of delivering services while reducing employee exposure include:

- Accept telephone enquiries only
- Hold meetings by conference call
- Post maps and notices via the local government web site
- Post notices on boards outside public facilities
- Allow tele-commuting (work from home using telephone and email) for selected staff and managers

SARS

The acronym SARS stands for “Severe Acute Respiratory Syndrome,” an illness caused by a coronavirus that developed in China in late 2002 and spread to different parts of the world over several weeks. SARS eventually affected about 8,500 persons and caused more than 900 fatalities.

SARS hit Canada in 2003. By August of that year, Canada reported 438 probable and suspected SARS cases, including 44 deaths. The majority of SARS cases and all deaths occurred in the greater Toronto area in Ontario, with additional cases reported in the Vancouver metropolitan area of British Columbia.

Response to the SARS outbreak put more than 25,000 residents of greater Toronto in quarantine. In addition to the psycho-social effects of SARS on health care workers, patients, and families, economic losses in Canada were substantial for such a relatively moderate event. Tourism alone sustained a loss of about \$350 million as compared with usual seasonal activity. Reduction in airport activity resulted in another \$220 million loss, and retail sales dropped \$380 million.

The SARS impact on tourism and related industries is an example of the long-term economic impact that may affect a community hit by pandemic influenza.

See also *Learning from SARS: Renewal of Public Health in Canada*, available through the Public Health Agency of Canada website at:

www.phac-aspc.gc.ca/publicat/sars-sras/naylor/index.html

Schools

The Ministry of Education and the independent school boards (both public and private) will implement the closure of schools, as determined by internal policy or through an order of the Medical Health Officer. Every school is expected to have a disease control plan.

Sequester Workforce

The limitation of face-to-face contact is a proven method of reducing the risk of infection. Local authorities should consider the extraordinary option of sequestering essential service staff groups when an infection within a particular group could impact essential public safety services.

“Sequester” means reducing to a minimum any interaction by essential workers with other persons, including family members, with the intent of halting any potential to acquire the virus. Workforce sequester would only be considered when an infection within a particular group could impact essential public safety services.

As an example, one commercial bank in Ontario set apart their information technology staff during the SARS outbreak by providing sleeping accommodations and food at the workplace. Sequestered workers did not return to their families until the danger passed. Sequester may also be accomplished through arrangements with a nearby hotel or motel.

While sequester would reduce the risk of infection, it may be difficult to gain cooperation from the workforce. Family concerns may limit voluntary participation. It may be advisable, therefore, to provide families of essential workers with special care, such as contracted home support services or anti-viral medications to encourage voluntary cooperation. Consider the organization of workforce rotations for extended duration events.

Spanish Flu

Much has been written recently on the severe pandemic influenza that circled the world over several years beginning in 1918. Scientists remain unclear on how and where the 1918 pandemic began, but it was most certainly not in Spain. Known by various names in various countries, it became known as the Spanish Flu in North America when newspapers in Spain, then a neutral country in the conflicts of World War I, reported the presence of the disease.

In Canada, the 1918 Influenza first arrived with the return of Canadian troops from Europe in the late spring and early summer of that year. The first major outbreak among civilians occurred in September of 1918, when 400 students at Victoriaville College, Quebec, quickly became ill. Similar events occurred in St. John’s, Newfoundland, and on the Labrador coast in September and October, as well as in Halifax, Nova Scotia.

The disease spread from the Maritime Provinces across central Canada following the rail lines, attacking Toronto and Winnipeg by the first week of October. Residents of Regina, Saskatchewan, began dying on October 6, about the same time the illness hit Calgary, Alberta.

British Columbia also reported its first case of the killer influenza in the first week of October, attesting to the rapid spread of the disease even in an era without jet air travel.

Vancouver’s first case was reported on October 5, and the illness also appeared in Prince Rupert, Victoria, and Kamloops within the week. Most communities suffered thousands of illnesses and hundreds of fatalities throughout October and into November of 1918. Vancouver and Victoria did not lift their ban on public gatherings until November 18.

Although no one kept careful records of the number of influenza-related cases or deaths at the time, historians estimate that between 30,000 and 50,000 Canadians died from the pandemic. This includes about 4,400 British Columbians.

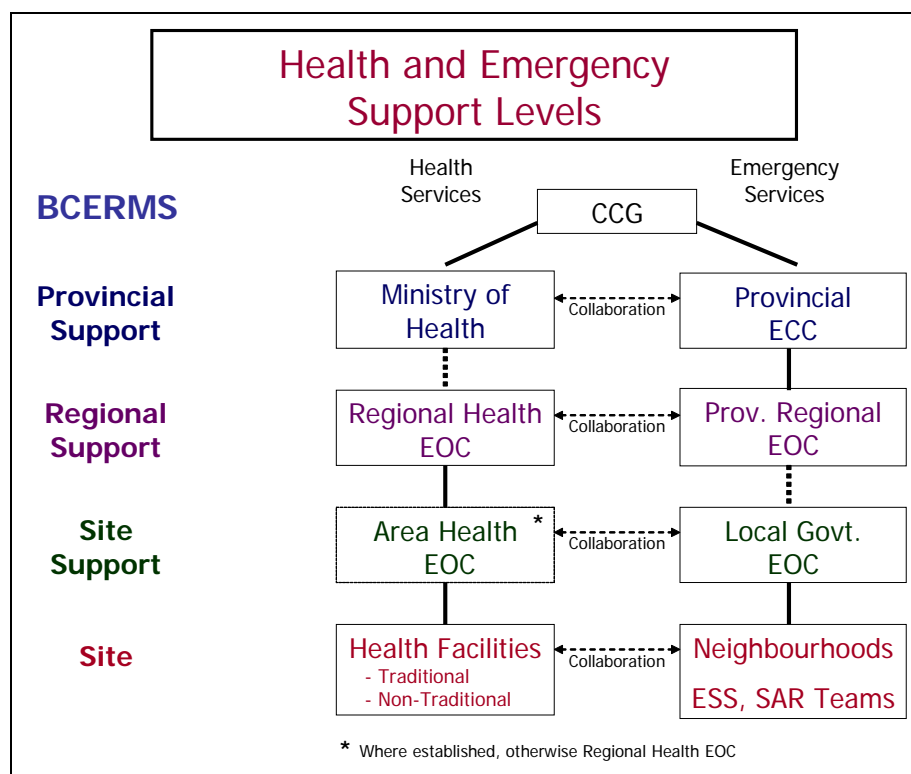
Refer to “References” in this Index for some sources of interest, particularly *The Silent Enemy*, by Eileen Pettigrew, and *Dr. Fred and the Spanish Lady*, by Betty O’Keefe and Ian MacDonald.

Strain

A virus strain refers to a mutant variation of the influenza virus within a given subtype. New strains appear every few years and are responsible for yearly outbreaks of influenza among human populations.

Structure for Emergency Response

Under BCERMS, health services and emergency services are expected to work collaboratively during a pandemic situation, considering the following structure.



In this model, the health services will focus the delivery of health care through a number of traditional and non-traditional health facilities at the site level. When facilities need assistance, they will inform the health site support level at the Area Health EOC, if one has been established. When Area Health EOCs require support for health-related resources, they will seek assistance through the Regional Health EOC, managed by the respective health authority. The Ministry of Health is available to provide provincial support to the health regions to meet medical needs.

A similar structure is represented for the emergency services side of the diagram above, following the precepts of the BC Emergency Response Management System (BCERMS).

At each level, successful response to a pandemic situation will depend on good collaboration between the health side and the emergency services stream. For example, health providers may request the local government EOC to help find community facilities for use as non-traditional health care facilities.

Collaboration may take many forms. A local government EOC representative may join the Area or Regional Health EOC through the Liaison Officer. Conversely, the Health authority may send a health representative to the local government EOC. This may present a challenge in health regions serving multiple municipal and regional district EOCs. However, in a pandemic situation, it may be wise to collaborate by telephone, email, and video conference to minimize the potential for exposing personnel in both EOCs to disease.

Collaboration is also essential between the Regional Health EOC and the Provincial Regional EOC, especially in sharing situation reports and unusual resource requests. Some Regional Health EOCs may join forces with PREOCs in a single facility.

Not all health regions in BC plan to implement the same structure for the response concept of operations. The differences relate to how each of the five health regions is organized and the human resources available. The key message is this: Local governments must meet with their health counterparts to determine a suitable response organization structure.

In all respects, the relationship between the local government and the PREOC will be the same as for other types of disaster. Specifically, the local government is still expected to share situation reports and requests for non-medical resources with their designated PREOC.

It is anticipated that a catastrophic pandemic would be designated as an “emergency” under the BC Emergency Program Act. Therefore, local government may be eligible for financial assistance at 100 percent for response costs and 80 percent for recovery costs.

Symptoms

The spectrum of illness seen with influenza is broad, ranging from symptomatic infection to death, frequently due to secondary bacterial pneumonia or exacerbation of an underlying chronic condition.

Characteristic symptoms of influenza include:

- Acute onset of respiratory illness
- Fever
- Cough
- Sore throat
- Joint and muscle pain
- Extreme fatigue and prostration

Transmission, Means of

The influenza virus is designed for easy transmission among humans and infects the respiratory tract to aid this purpose. Persons infected with the virus develop a persistent cough, which generates droplets containing virus particles.

Therefore, droplet transmission from respiratory tracts of infected individuals is one of the primary means that the virus uses to find new hosts.

In addition, the influenza virus is found in the mucous membranes of the nasal cavities and around the eyes. These provide further means for virus transmission between persons.

Finally, uninfected individuals can acquire the virus by way of direct contact from hands in contact with mucous discharges from ill persons, or from surfaces where the virus has been deposited. Virus can live on the hands for five minutes. The influenza virus can live on a hard surface for 24 to 48 hours, and on non-porous surfaces, such as cloth, paper and tissue, from 8 to 12 hours.

For more information on the means of transmission, consult your health authority.

Travel Restrictions

Under the *BC Health Act*, the Medical Health Officer can “prevent the departure of persons from localities infected with epidemic”... until the danger of infection has passed. This can have the effect of essentially closing the borders of a community. The local police will be expected to assist in the enforcement of such orders, accounting for the availability of resources.

Travellers seeking to return to their homes will likely be turned back, but will not be detained.

Common sense suggests that once a Medical Health Officer orders quarantine for a given geographic area, all modes of travel would have to comply.

Vessels and Rail Cars – Lieutenant Governor can close down movements of all vessels and rail cars. This does not require an order or approval by local governments.

Airline Travel – The Federal Minister of Transport has the authority to halt airport and airline travel.

Ports of Entry – The Federal government is responsible for all entry into Canada.

During the SARS event of 2003, the Canadian federal government lacked sufficient federal resources to screen arrivals at the various airports affected. They asked for and received provincial assistance; provincial health care workers were appointed according to federal legislation as “quarantine officers” to screen arriving passengers.

At ports of entry, quarantine facilities will be required for people who fail initial screening. In the Vancouver SARS outbreak, the federal authorities requested assistance from the province and the Vancouver Coastal Health authority identified a recently closed hospital as a possible quarantine site. Arrangements were completed with the RCMP for the provision of security at this facility.

Unified Command

In the Incident Command System, Unified Command is a unified team effort that allows all agencies with jurisdictional responsibility for the incident, either geographical or functional, to manage an incident by establishing a common set of incident objectives, strategies and action plans. This is accomplished without losing or abdicating agency authority, responsibility, or accountability.

Utilities

Some essential service utilities that provide electrical power, natural gas, telecommunications, food distribution and financial services are regulated services. These companies have a legislated responsibility to develop and maintain emergency preparedness plans that insure the continuation of the essential services that they deliver.

It is common practice for major private sector businesses to have Business Continuity Plans. Currently, the degree to which these plans take into account the workforce implications of a pandemic event is not well known.

Vaccine

A vaccine stimulates the body's own immune system to generate anti-bodies and other defences against diseases such as influenza. While not 100 percent effective in all cases, a vaccine represents the strongest protection available against contracting the disease.

An effective vaccine can only be produced once the virus responsible for the pandemic has been identified and isolated. This could take between four and six months, or perhaps longer in some cases. Depending on the nature of the virus of threat, immunization may require two doses of the vaccine administered one month apart.

The federal government is responsible for acquiring and distributing the vaccine to the provinces, territories, and First Nations. A federal/provincial/territorial working committee will recommend priorities for administering the vaccine. The province will then distribute the vaccine to the health authorities within the province.

Virulence

The degree of ability of an organism to cause disease.

Virus

See "Influenza."

Volunteers

Volunteer support for both the health sector and consequence management will play a vital role in response to an influenza pandemic. Local governments, in partnership with health authorities, should clearly understand the roles and capabilities of volunteers and who has responsibility for managing these resources. A Volunteer Management Plan should also take into account risk issues related to the potential infection of volunteers.

Roles of Volunteers in Pandemic

Community volunteers may be utilized in a number of health and non-health functions, such as the following:

Traditional Health Care Facilities – Many hospitals and other health settings have well-established volunteer programs, and they would look to these community volunteers to help at the facility during a pandemic. Health volunteers would be coordinated through the Health EOC.

Non-Traditional Care Facilities – In addition to existing hospitals, health authorities are expected to establish health care facilities in non-traditional settings, such as community centres, church halls, or in tent hospitals. Volunteers

will be needed to support medical professionals in direct health care and with facility operations. These volunteers should be managed through the Health EOC.

Home Services – Home care health services are currently provided by a myriad of public organizations, private corporations, and non-profit societies throughout the province. Currently, these services are most often delivered under contract through individual health authorities. Responsibility for expanding these health services during a pandemic rests with the health authorities. It is unlikely that volunteers would be trained to work directly with these health professionals.

In a pandemic situation, home services may also be required to care for the non-life-threatening needs of influenza victims at home. Volunteers may perform a wide range of services, including home deliveries where no face-to-face contact is required. There may also be a need for volunteers to care for pets and/or commercial animals.

Community volunteers, such as Emergency Social Services or Search and Rescue teams, would relieve trained medical personnel from these tasks, possibly supplemented by other convergent volunteers or volunteer organizations, such as the Canadian Red Cross, Salvation Army, or religious groups. These volunteers should be activated and managed through local government EOCs in collaboration with health authorities.

Other Community Services – Volunteers can serve a number of other useful functions during a pandemic emergency, including:

- Call centre activities, such as taking calls from the public seeking information
- Checking on house-bound individuals to determine their needs for food, water, medications, heat, or pet care
- Quarantine compliance checks either by phone or at the door
- Home checks for the elderly and disabled either by phone or at the door
- Identification of children requiring care due to illness of parents and/or guardians
- Delivery of pandemic information and/or publications, etc.
- Collecting the dead and transporting them to mass fatality collection areas
- Register and track families and individuals that require home services

Cautions in Using Volunteers

Some cautions are important to keep in mind when planning for volunteer use during a pandemic:

Limited Numbers Available – Each wave of a pandemic is expected to last six to ten weeks. Lessons learned during the 2003 Firestorm demonstrate that volunteers have limited availability beyond a five-to-seven day period. A majority are older retired volunteers, who can quickly become exhausted. Others have full time jobs

and must take annual leave or special leave, which is usually limited to one week or two at the most.

Potential Exposure to the Virus – Volunteers should not be placed in danger of contracting the disease, especially if they would become carriers and simply return the virus to uninfected persons, such as members of their family. Tasks should be well designed to allow volunteers to avoid exposure. In addition, volunteers who contribute to essential services should be included on the priority list for vaccine and anti-viral drugs distribution.

Training as Health Care Providers – There is serious concern about the practicality of training community volunteers as alternate care providers. In most cases, volunteers will not have the background necessary to assume responsibility for administering medications, applying medical equipment, or assessing the severity of cases – even with just-in-time training.

Transportation of the Ill – Volunteers can not be expected to provide alternative transport services for those ill with the virus due to the risk of infecting their vehicles. However, this does not apply to transporting fatalities because the dead are no longer infectious to others.

Collaboration among NGOs in Response – Other community organizations, such as religious groups, would likely engage in volunteer services to their members and others in the community. A check of any phone directory will demonstrate that there may be dozens of NGO organizations delivering a very wide range of services in the community. The province wide coverage provided by the Canadian Mental Health Association is only one example. To avoid duplication and gaps, such groups should be encouraged to collaborate in the management of their volunteers through the local government EOC.

Volunteer Management Plan

Volunteer support for both in the health sector and in managing non-health emergency aspects of a pandemic will play a vital role in ameliorating impacts. Local governments and health authorities need to clearly understand both the capabilities and role of volunteers, and who has responsibility for the management of these resources.

Local governments should work with health authorities to **check these assumptions:**

It is assumed health authorities will:

- Use or expand the existing contract home care services to provide medical care to existing clients.
- Manage health volunteers serving in non-traditional health care facilities.
- Direct requests for health care volunteers to the appropriate local government.
- Use other non-government organizations, such as the Canadian Red Cross. Should they choose to do so, responsibility for training, funding, and management of volunteers will remain with the health authority or institution.

It is assumed local governments will:

- Manage Public Safety Lifeline Volunteers, including Emergency Social Services (ESS), Search and Rescue (SAR), Emergency Radio Communications, PEP Air, and Road Rescue who are organized, trained, and funded by local government. Community volunteers will not be trained as alternate health care providers.
- Find and manage volunteers, including the registration of convergent volunteers. Once registered, volunteers may be assigned to any of a number of functions or direct services, and be offered the training required to perform their tasks safely.
- Require volunteers to sign an agreement not to disclose or misuse personal information about the persons requiring care.

Waves, Pandemic Influenza

From historical research, scientists have observed that pandemic influenza typically arrives in waves. The initial wave would see a rapid increase in the number of new cases and perhaps fatalities over a period of about three to five weeks, followed by a rapid decline in the number of cases.

A second wave of cases may arrive between three and nine months after the initial wave. Additional waves are possible and spikes in cases may return periodically for years. Between the waves, the number of cases may be minimal but still cause for concern.

Workforce Protection and Backup

Local governments are obligated to ensure the health and safety of their employees, especially workers who may be predictably exposed to ill citizens. Staff should have access to the protocols and protective equipment needed to safeguard them from harm. It is also important to share information and consult with workers throughout pandemic planning and response.

World Health Organization

The World Health Organization is a special agency of the United Nations established in 1948 to help people throughout the world attain the highest possible level of health.

WHO has an active world-wide program of monitoring influenza and for alerting world partners to the earliest evidence of pandemic.

For more on the World Health Organization, see their website at:
www.who.int/en/