

Health Response to Pandemics

BC Centre for Disease Control

Key Points

- Influenza returns every season
 - Major cause of illness and death every year
 - Another pandemic of influenza is likely
- Main impact on health care utilization and societal function
- Technology is improved compared to previous pandemics
 - Detection, vaccines, anti-virals, supportive care
 - Can minimize impact if capacity and efficiency is strengthened
- Every influenza season is an opportunity to rehearse
 - We can improve effectiveness and efficiency of interventions
- Best approach is to enhance inter-pandemic prevention and control measures
 - Reap the benefits annually; sustainable investment

The most important way to prepare for the next pandemic is to optimize the use of prevention and control measures between pandemics

History of Pandemic Preparedness Activities in BC

- 1999
 - Convened multi-sectoral meeting to increase awareness
 - Satellite broadcast from CDC, Atlanta
 - BC Pandemic Influenza Advisory Committee established
 - Pandemic Influenza Coordinator
 - Developed Pandemic Influenza Video
 - Established electronic communications and alert network to communicate routine and alert influenza bulletins

- 2003
 - First version of BC Pandemic Influenza Plan issued electronically
 - SARS as a natural rehearsal

- 2004
 - BC Pandemic Influenza Implementation Committee established
 - Avian influenza outbreak in Fraser Valley as a natural rehearsal



BC Centre for Disease Control

British Columbia Pandemic Influenza Preparedness Plan

**Guidelines for Planning,
Response and Recovery**

(INTERIM) 2003

“Hope for the Best – Prepare for the Worst”

- Surveillance
- Public Health Measures
 - Isolation/Quarantine
- Vaccine
- Antivirals
- Clinical Care
- Communication
- Emergency Response

Chapters, Annexes, and Appendices

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Surveillance

Lessons from SARS

- Early detection and isolation of patient zero of SARS in Vancouver
- Importance of baseline preparedness, strong lines of communication, public health alerts and periodic infection control audits in mitigating outbreaks
- SARS a good example of successful early intervention

Public Health Measures

Public health measures

- Contact reducing
 - Isolation (cases); Quarantine (contacts)
 - Public closures
 - Travel restrictions
- Transmission reducing
 - General: personal protective equipment
 - Specific: vaccines, antivirals

Can we stop a pandemic of influenza like we stopped SARS through isolation and quarantine?

Isolation and Quarantine

- Isolation works if people don't shed virus before they are ill
 - With influenza, you shed virus before you are ill
 - Can reduce spread but not stop it
- We rarely use quarantine in public health
 - Works if people shed virus before they are ill
 - With influenza, you shed virus before you are ill
 - BUT
 - Incubation period is very short with influenza (1-3 days)
 - Takes longer to identify contacts
 - Individual contact tracing not feasible with influenza

Vaccines

Pandemic Vaccine Issues

■ Technology

- Dependence on embryonated hens' eggs
- Inactivated vaccine, parenteral administration

■ Logistics

- Vaccine supply & timelines
 - At least six months to develop a vaccine using current technology
 - Pandemic identification, seed strain isolation, hen maturation, egg adaptation
 - Prioritization
- Vaccine security
 - Canadian manufacturing capacity critical
- Vaccine safety and efficacy trials
 - Entirely new vaccine with expedited need
- Vaccine administration
 - 3-6 times the number currently vaccinated yearly
 - Mass immunization capacity

Potential vaccine solutions

- Logistics
 - **Security of supply**
 - Availability of hens' eggs real-time
 - Multiple manufacturers (national vaccine purchase process)
 - Domestic manufacturer (pandemic contract)
 - **Vaccine safety and efficacy**
 - Advanced protocols and regulatory liaison
 - **Vaccine administration**
 - Annual uptake
 - Enhanced vaccine promotion and utilization inter-pandemic period
 - Ontario program and enhanced uptake by at-risk groups

Antivirals

Anti-viral Drugs

- Stop gap measure until vaccine available
- Minimize serious illness and death
- Minimize societal disruption
- Limited Supply
- Priority List

Antivirals

Drug	Treatment (interpandemic)	Prevention (interpandemic)	Side effects
Amantadine	1 tablet twice a day X 5d	1 tablet once a day X 6 wk	CNS; requires careful dose titration with age/kidney disease; resistance an issue
Oseltamivir (Tamiflu™)	1 capsule twice a day X 5d	1 capsule once a day X 6 wk	GI 1-2d; relieved with food
Zanamivir (Relenza™)	2 puffs twice a day X 5d	1 puff once a day X 6 wk	GI; Airway reactivity

- Prevention: 70-90% effective
- Treatment:
 - Start within 48 hours of symptom onset
 - Shorten duration of illness 1-2 days
 - Reduce complications:
 - 55% reduction LRTI; 34% reduction LRTI requiring abx; 59% reduction hosplzn

Clinical Care

Clinical Care

- A big challenge
 - Limited bed and resource capacity
 - Nurses will be in great demand
 - Volunteers and retired professionals
 - Alternate care sites
 - Fever clinics
 - Mechanisms for distributing antivirals
 - Treatment and prevention
 - Ventilators and other supplies
 - Need clinical champions for advocacy

Health suggestions for businesses:

- Stay informed
 - Link with local health unit about local preparedness planning and how you can tie in
- Keep your workforce informed
 - Communication mechanisms established and rehearsed
- Link with other local organizations and establish preparedness committees
- Advocate and facilitate annual influenza vaccine
 - Publicly funded for high risk persons
 - Provide for employees as occupational health benefit?
- Advocate healthy lifestyle
 - Quit smoking now
- Emphasize handwashing and personal hygiene and facilitate this
 - Handwashing stations, covering nose/mouth when coughing, disposal of used tissues, staying home if ill
- Consider contingencies
 - Identify essential employees
 - Build redundancy and back-up if absent because of illness or grief
 - Plan for disruptions
 - Basic supplies at home if ill several days
 - Telecommuting options
 - Review sick leave and medical leave policies
- Antiviral stockpile and distribution options