



INFO SHEET

PANDEMIC CHARACTERISTICS AND RESPONSE MEASURES

The legislative mandate of the College of Licensed Practical Nurses of Alberta (CLPNA) is to serve and protect the public by ensuring its members deliver safe, competent and ethical nursing care. An Info Sheet informs membership on relevant nursing topics or the CLPNA's processes.

This document is linked to other documents that direct expectations of professional behavior and requirements for practice:

[Expectations and Obligations during Emergencies](#)

PANDEMIC CHARACTERISTICS

Defining Pandemic

Where epidemic is defined as an outbreak of an infectious disease in a given area or population, the Public Health Agency of Canada defines pandemic as "a worldwide outbreak of a specific disease which affects a large proportion of the population".¹ In both situations (an epidemic or a pandemic) the number of infected cases is in excess of what is typically expected in a given area or population.

The definition of pandemic does *not* specify a particular type of disease; however, influenza is the most common type of communicable disease that can lead to pandemics based on historical evidence.² Pandemic influenza occurs when humans become susceptible to a new influenza A virus, in which they have little or no immunity against, and progresses to a worldwide spread. A pandemic influenza differs from seasonal influenza in potential lethal impact.³ Although seasonal influenza virus strains do change, vaccines are available ahead of time to help people develop antibodies and protect them from anticipated influenza virus strains contained in the vaccines. Virus strains arising from pandemic influenza cannot be predicted ahead of time to produce vaccines.⁴ Depending on the severity of the pandemic influenza, significant hospitalization and deaths can occur.

Pandemic Influenza Phases

The World Health Organization outlines four phases of pandemic influenza based on global averages of infected cases over time:⁵

- Interpandemic phase – the period between influenza pandemics
- Alert phase – the identification of a new influenza subtype in humans
- Pandemic phase – the global spread of influenza caused by the new subtype
- Transition phase – de-escalation of spread of influenza and reduction of global response activities

The pandemic phase consisting of outbreaks and transmission of the influenza virus may last 12 to 18 months.⁶ The effects of pandemic influenza may also occur in two or more waves with transmission of the virus escalating, de-escalating, and escalating again.

Transmission

Pandemic influenza virus is expected to behave like seasonal influenza in many ways including incubation period, period of communicability, and modes of transmission.⁷ Droplet transmission from coughing or sneezing and direct or indirect contact transmission with an infected person or contaminated surfaces are main modes of transmission for the virus.⁸ However, transmission from an asymptomatic individual is possible.

RESPONSE MEASURES

Antivirals and Vaccines

Antivirals are medications used to treat influenza at the start of a pandemic, particularly when vaccines are initially unavailable to prevent transmission.⁹ In 2004, Canada created the National Antiviral Stockpile (NAS) to ensure that there will be equitable access and adequate supply of antivirals across the country. Each



province maintains a portion of the NAS and works collaboratively with the federal government and their own regional health authority(ies) in the administration and distribution of antivirals. In Alberta, Alberta Health will be responsible for distributing the antivirals from the provincial stockpile. Alberta Health Services (AHS) and First Nations and Inuit Health Branch (FNIHB) of Health Canada then take over in the delivery and administration of antivirals to Albertans. Antivirals from the NAS will be free of charge with a prescription during a pandemic influenza.¹⁰

A new pandemic influenza virus could be resistant to existing antivirals.¹¹ This makes antiviral and vaccine production challenging, especially when they can only be developed once the virus has been determined.¹² However, vaccines remain one of the most effective ways for preventing pandemic influenza transmission, particularly for children.¹³ Like with antivirals, vaccine distribution is a collaborative effort between federal and provincial jurisdictions.¹⁴ Alberta Health will provide policy guidelines and will determine vaccine allocation within the province according to national recommendations. AHS and FNIHB will be responsible for the administration of vaccines to Albertans. Vaccines will be available in stages for everyone who wants to be immunized, and prioritization of the initial supply to Albertans will be based on factors such as disease and vaccine characteristics, ethical considerations, vaccine supply, as well as operational and/or geographical considerations. These considerations from the provincial government align with federal goals to minimize serious illness and overall death in the Canadian population and to minimize societal disruption.¹⁵

Personal Protective Measures

Protective measures such as social distancing, hand hygiene, personal protective equipment and respiratory etiquette are commonly practiced to prevent transmission.¹⁶ Social distancing reduces the

opportunities for transmission by minimizing close contact among persons in public spaces. Points to consider under social distancing include:

- Avoiding crowded places during a pandemic
- Staying home when sick
- Not sharing personal items that contact bodily fluids (e.g. drinks)
- Visiting someone with influenza like symptoms only if necessary. If visiting, stand more than one meter away from them whenever possible

As healthcare professionals, exercising social distancing can be difficult. Therefore, hand hygiene is highly recommended as it is extremely protective against influenza infection.¹⁷ LPNs are reminded to wash their hands or apply hand sanitizer before and after contact with clients or with contaminated surfaces. Whenever possible, hand washing should be prioritized over hand sanitizer use because it is more effective. While there is mixed evidence or little evidence on the effectiveness of the use of facemasks or respirators and respiratory etiquette (e.g. covering nose and mouth with tissue when coughing or sneezing), their combined usage with frequent hand hygiene can be highly protective against pandemic influenza infections for high-risk populations like healthcare workers.¹⁸

LPNs can find more detailed resources on the CLPNA website. Resources cover a variety of topics including: influenza virus and symptoms, transmission precautions, hand hygiene, and communicable diseases. LPNs are encouraged to take the self-study course on infection prevention and control as part of their continuing competency requirement and to learn more about influenza and other communicable diseases.

Additionally, LPNs are encouraged to keep up to date on any public health issues by visiting both the Government of Alberta's and Alberta Health Services' websites. These resources provide information about Alberta's pandemic plan and how individuals and organizations can be prepared for a pandemic.



OTHER RESOURCES

[Government of Alberta's Pandemic Plan](#)

[Infection Prevention and Control Self-Study Course](#)

[Hand Hygiene from Alberta Health](#)

[Best Practice Guideline for Workplace Health and Safety during Pandemic Influenza](#)

[Public Health Agency of Canada](#)

[Alberta Health Services Outbreak Management](#)

REFERENCES

- ¹ "Pandemic Preparedness," Public Health Agency of Canada, accessed July 19, 2017, <http://www.phac-aspc.gc.ca/influenza/pandemic-eng.php>.
- ² Public Health Agency of Canada (PHAC), Pan-Canadian Public Health Network, *Canadian Pandemic Preparedness: Planning Guide for the Health Sector* (2015), 9-10, <http://www.phac-aspc.gc.ca/cpip-pclcpi/assets/pdf/report-rapport-2015-eng.pdf>; Alberta Health, *Alberta's Pandemic Influenza Plan* (March 2014), 14, <http://www.health.alberta.ca/documents/APIP-Pandemic-Plan-2014.pdf>.
- ³ *Canadian Pandemic Preparedness*, 11.
- ⁴ *Canadian Pandemic Preparedness*, 11-12; *Alberta's Pandemic Influenza Plan*, 37.
- ⁵ World Health Organization (WHO), *Pandemic Influenza Risk Management* (May, 2017) 12-13, http://www.who.int/influenza/preparedness/pandemic/PIRM_update_052017.pdf?ua=1.
- ⁶ *Canadian Pandemic Preparedness*, 10; *Alberta's Pandemic Influenza Plan*, 12.
- ⁷ *Canadian Pandemic Preparedness*, 29.
- ⁸ *Canadian Pandemic Preparedness*, 29; *Alberta's Pandemic Influenza Plan*, 12; WHO, *Pandemic Influenza Risk Management*, 46.
- ⁹ *Alberta's Pandemic Influenza Plan*, 35-36.
- ¹⁰ *Ibid.*
- ¹¹ *Canadian Pandemic Preparedness*, 12.
- ¹² *Alberta's Pandemic Influenza Plan*, 37-39.
- ¹³ Alberta Health, *Alberta's Pandemic Influenza Plan*; Louise Lansbury et al., "Effectiveness of 2009 pandemic influenza A(H1N1) vaccines: a systematic review and meta-analysis," *Vaccine* 35, no. 16 (2017): 1996-2006.
- ¹⁴ *Alberta's Pandemic Influenza Plan*, 37-39.
- ¹⁵ *Canadian Pandemic Preparedness*, 7.
- ¹⁶ *Canadian Pandemic Preparedness*, 41-44; *Alberta's Pandemic Influenza Plan*, 34; WHO, *Pandemic Influenza Risk Management*, 46.
- ¹⁷ Patrick Saunders-Hasting et al., "Effectiveness of personal protective measures in reducing pandemic influenza transmission: a systematic review and meta-analysis," *Epidemics*, doi: <https://doi.org/10.1016/j.epidem.2017.04.003>.
- ¹⁸ Saunders-Hasting et al., "Effectiveness personal protective measures"; Jeffrey Smith et al., "Effectiveness of N95 respirators versus surgical masks in protecting health care workers from acute respiratory infection: a systematic review and meta-analysis," *Canadian Medical Association Journal*, doi: 10.1503/cmaj.150835 .

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