



QUICK QUERIES

Topical Questions, Sound Answers



Coming Soon to an Office Near You: Pandemic Influenza



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Influenza virus is a regular, though unwelcome, visitor to physician offices, emergency departments and hospitals every winter. While clinicians are familiar with the burden the annual respiratory season places on the health-care system in inter-pandemic years, they may not be aware of efforts around the world to prepare for the next influenza pandemic, which is assumed to be inevitable.

▶ *What impact could an influenza pandemic have in Canada?*

From 4.5 to 10.6 million citizens (15% to 35% of the population) would become clinically ill in an influenza pandemic. Approximately 2.1 million to 5 million would require outpatient care, 34,000 to 138,000 Canadians would require hospitalization and between 11,000 and 58,000 would die.¹



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Once a pandemic virus begins in another part of the world, it is expected to arrive in Canada within about three months (global travel could shorten this). The first peak of illness occurs two to four months later and the peak of mortality would occur within a month of the peak in illness.

Provincial governments, regional and local health authorities, health-care institutions and other entities have, are in the process of developing contingency plans that detail local strategies to guide action that mirror, in most instances, the national plan. The plan addresses areas, such as: surveillance, immunization, antivirals, infection control, health services in institutions and nontraditional sites, resource management, communications and emergency preparedness.

► **What causes a pandemic?**

Influenza viruses are continually changing the antigens (haemagglutinin or H, and neuraminidase or N) that they presented to the human immune system (antigenic drift). The resulting subtypes are sufficiently different that each year, epidemics occur and annual immunization to confer protection against the predicted strains is necessary.

When an influenza virus acquires a novel H or N protein, either because of exchange of genetic material between influenza viruses or accumulation of point mutations, this is called "antigenic shift." Most or all of the world's population would have no pre-existing immunity to a strain with such a major change. If this virus is capable of being transmitted to and between humans, the potential for spread of infection within months to many countries (*i.e.*, a pandemic) exists. Global influenza pandemics occurred three times in the last century following major changes in the H component and caused substantial morbidity and mortality (1918 to 1919 "Spanish," 1957 "Asian" and 1968 "Hong Kong" influenzae).

► **Should we invest resources in a disaster that may only happen every 25 years?**

The overall goal of any emergency response plan is to minimize morbidity, mortality and social disruption. Although it is unlikely that we can halt the spread of the next pandemic once it reaches Canada, it should be possible to minimize the consequences by anticipating the activities and human and material resources needed for the challenge in advance.

The World Health Organization also notes that preparing for the next influenza pandemic will provide benefits now, as improvements in infrastructure can have immediate and lasting benefits, and can also mitigate the effect of other epidemics or infectious disease threats. Promoting influenza immunization, practising infection prevention and control and familiarizing oneself with ongoing surveillance efforts (Fluwatch) will improve our response to inter-pandemic influenza. When the pandemic comes, physicians will likely be called upon to work not only in acute care, but in nontraditional care settings, in training nontraditional site personnel, to assist in planning and allocating scarce resources and to stop activities that are considered nonurgent and replace them with activities that address the most pressing needs at the time.

References

1. Public Health Agency of Canada, 2004: Canadian Pandemic Influenza Plan. http://www.phac.aspc.gc.ca/influenza/pandemicplan_e.html.

Resources

1. Public Health Agency of Canada Fluwatch surveillance system <www.phac.aspc.gc.ca/fluwatch/index.html>
2. World Health Organization <www.who.int/csr/disease/influenza/pandemic/en/>

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