

Pandemic Influenza

Section 5: Surveillance

5. Surveillance

Surveillance activity not only leads to early detection of virus activity within the population but by tracking the occurrence, progression, and severity of the pandemic, it helps guide prevention and control efforts.

Surveillance is the collection, collation, and analysis of data and the timely dissemination of that information to those who need to know in order to take action.⁹ In this instance, surveillance is used to determine when, where, and what influenza viruses are circulating and the disease epidemiology. Influenza surveillance takes place in all phases of the pandemic with tracking, investigation and evaluation of both clinical and laboratory confirmed cases.

Surveillance starts locally and feeds into provincial, national, and international systems. The Department, Regional Health Authorities and the Provincial Public Health Laboratory must ensure that they have a plan and the capacity to increase surveillance activities as the novel influenza virus becomes more widespread.¹⁰

5.1 Objectives of Surveillance Program

An effective surveillance system will provide information on which to base decisions for prevention and treatment. The objectives of influenza surveillance are to:

- Provide data on currently circulating strains and facilitate comparison with vaccine composition and vaccine recommendations;
- Describe the affected population, thereby facilitating the identification of high-risk groups and comparison with other populations or with other influenza seasons;
- Detect unusual events including unusual or new strains, unusual outcomes and or syndromes, or unusual distribution or severity of the disease in the population;

- Inform the pandemic response through the early detection and tracking of the emergence, spread and impact of novel influenza viruses in the population.

The epidemiological knowledge derived from surveillance will guide the process of the health and other sectors in disease prevention, treatment and control activities. Ongoing evaluation of surveillance activities for each pandemic phase is important so that the appropriate adjustments can be made. The Department, Regional Health Authorities, Provincial Public Health Laboratory, and other health partners must collaborate on their surveillance activities to achieve these objectives.

5.2 Interpandemic Period

The Department and Regional Health Authorities in the province participate year-round in the Public Health Agency of Canada (PHAC) FluWatch program for laboratory confirmed influenza and for influenza-like illness (ILI) surveillance. Regions report the ILI activities on a weekly basis from workplace, long-term care, childcare, outpatient departments, hospital emergency settings and physicians' offices. This information provides community based data on the ILI activity within the region and on the severity of illness during the regular influenza season. The Provincial Public Health Laboratory reports all confirmed influenza cases to the Medical Officers of Health. Summary data from all sources is sent to PHAC for use in FluWatch reports.

5.3 Pandemic Alert Period

The alert period is a time of enhanced surveillance for the detection of the first appearance of the novel influenza virus strain in Canada. Surveillance activities continue as in the Interpandemic Period, with enhanced Severe Respiratory Illness (SRI) surveillance carried out in physicians' offices and hospital emergency settings. SRI is reported to the RHA, who then report to the office of the Chief Medical Officer of Health.

5.4 Pandemic Period

Surveillance activities during the Pandemic Period (Phase 6) are intended to detect the arrival of the pandemic virus in Canada (and in Newfoundland and Labrador) in order to track its occurrence and spread through communities. Surveillance activities may be modified from routine annual influenza surveillance in order to best capture the data needed to manage the outbreak and to report it in a timely manner. These activities must take into account the scarcity of human resources to conduct surveillance. Once the presence of the pandemic strain has been confirmed some disease surveillance activities may be reduced while surveillance for antiviral drug resistance and events associated with vaccine may be added.

5.5 Post-Pandemic Period

The post-pandemic phase begins when the number of cases of influenza returns to normal pre-pandemic levels. The results of applied research and epidemiologic analysis will be shared. Surveillance-related information will contribute to the knowledge of the pandemic for future planning.

Table 5.1 - Surveillance Roles and Responsibilities by Pandemic Phase

Surveillance Interpandemic Period		
Phase 1 - No new influenza subtypes have been detected in humans. A new influenza virus subtype may be present in animals, but the risk for human infection is low.		
National	Provincial	Regional
<ul style="list-style-type: none"> • Provide ongoing leadership through organization of teleconferences/meetings, providing guidance and advice as needed • Participate in the WHO Global Influenza Surveillance Network • Coordinate routine interpandemic surveillance activities via FluWatch and Canadian Integrated Outbreak Surveillance Centre (CIOSC) • Gather and disseminate P/T data with weekly reporting • Develop case definitions, minimum data elements and mechanisms for data collection and reporting during the pandemic period • Provide regular dissemination of surveillance information and specific alerts and recommendations • Ensure links to veterinary counterparts are in place 	<ul style="list-style-type: none"> • Provide provincial leadership • Coordinate provincial surveillance activities (FluWatch, CIOSC, SRI, Lab confirmed cases) • Participate in national and regional surveillance activities and reporting • Inform Regional Health Authorities of national and international plans • Align NL pandemic surveillance plan with Canadian and WHO pandemic surveillance plans • Ensure capacity to meet national standards for case definitions, minimum data elements and mechanisms for data collection and reporting during the pandemic period • Assess burden of seasonal influenza to help estimate additional needs during a pandemic • Disseminate surveillance information and specific alerts and recommendations to Regional Health Authorities • Develop continuity plans to increase capacity and training required for surveillance during the pandemic period • Link with provincial veterinarian 	<ul style="list-style-type: none"> • Provide regional leadership • Coordinate regional surveillance activities <ul style="list-style-type: none"> • Weekly FluWatch • Reporting of lab-confirmed cases • Enhanced surveillance for SRI • Inform stakeholders in region of provincial and national plans • Align regional pandemic surveillance plan with Provincial pandemic surveillance plan • Ensure capacity to meet national standards for case definitions, minimum data elements and mechanisms for data collection and reporting during the pandemic period • Assess burden of seasonal influenza to help estimate additional needs during a pandemic • Disseminate surveillance information and specific alerts and recommendations to regional stakeholders • Develop continuity plans to increase capacity and training required for surveillance during the pandemic period

Table 5.1 – Continued.

Surveillance Interpandemic Period Phase 2 – New influenza subtype in animals posing a substantial risk of human disease		
National	Provincial	Regional
<ul style="list-style-type: none"> • Continue activities of previous phase(s) 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) 	<ul style="list-style-type: none"> • Continue activities of previous phase(s)

Surveillance Pandemic Alert Period Phase 3 – New influenza subtype identified in at least one human case. No human transmission or rare cases of spread through very close contact only		
National	Provincial	Regional
<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Verify epidemiological data and current risk assessment from official sources • Review and confirm that all interpandemic surveillance activities are operating optimally • Convey current international risk assessment in a Canadian context • Provide information and national recommendations to F/P/T stakeholders 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Coordinate enhanced SRI surveillance and report any activity to PHAC • Determine best method for and coordinate mortality surveillance with funeral directors, emergency settings etc. 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Maintain enhanced SRI surveillance and report any activity to province • Advise, update and monitor partners regarding enhanced surveillance, including SRI • Identify resources and train for increased surveillance capacity

Surveillance Pandemic Alert Period Phase 4 – Localized small clusters of limited human-to-human transmission		
National	Provincial	Regional
<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Enhance current surveillance activities based on circumstances 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Disseminate information and educate regarding case definitions and SRI tools 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Implement revised case definitions and SRI tools • Enhance surveillance activities based on situation

Table 5.1 – Continued.

Surveillance Pandemic Alert Period Phase 5 – Localized larger clusters of human-to-human transmission		
National	Provincial	Regional
<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Describe and communicate clinical picture and how it varies from annual influenza • Review, confirm and disseminate the data requirements for cases, report forms etc. • Implement border-based surveillance (depending on origin of cases) coordinated by the Centre for Emergency Preparedness and Response (CEPR); include notifications to ill and well travellers 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Communicate clinical picture and how it varies from annual influenza to aid in reporting • Ensure a process is in place for Regional Health Authorities to report to province and province to PHAC • Disseminate national report forms and reporting process to PHL and Regional Health Authorities 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Communicate clinical picture of illness to clinicians and how it varies from annual influenza to aid in reporting • Ensure a process is in place for local authorities to report to region • Disseminate national report forms and reporting process to all health care workers (HCW) involved • Report to province all data as per national report forms; including cases, deaths, hospitalizations and events following administration of antiviral drugs

Surveillance Pandemic Period Phase 6 – Increased and sustained transmission in general population		
National	Provincial	Regional
<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Review epidemiology of pandemic to direct priorities • Monitor surveillance activities; compile and report outcomes 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Review epidemiology of pandemic to direct priorities • Monitor surveillance activities; compile and report outcomes including mortality surveillance 	<ul style="list-style-type: none"> • Continue activities of previous phase(s) • Implement surveillance activities for pandemic period • Review regional epidemiology to direct response • Provide timely data and report to the province

Table 5.1 – Continued.

Surveillance Post-Pandemic Period Recovery		
National	Provincial	Regional
<ul style="list-style-type: none"> • Review activities; compile and analyze reports • Evaluate response • Debrief with relevant partners • Revise pandemic plans based on review, evaluation and analysis • Return to Phase 1 	<ul style="list-style-type: none"> • Review activities; compile and analyze reports • Evaluate response • Debrief with relevant partners • Revise pandemic plans based on review, evaluation and analysis • Return to Phase 1 	<ul style="list-style-type: none"> • Review activities; compile and analyze reports • Evaluate response • Debrief with relevant partners • Revise pandemic plans based on review, evaluation and analysis • Return to Phase 1