Notification Timeline:

From Lab to Public Health[1]: 1-2 business days

Practitioner/Institution to Public Health:

Deceased: Within 24 hours via Notification Form.

From Public Health to Ministry of Health:

Individual case reporting of deaths: Within 1-2 business days.

Outbreaks: Initial report within 1 business day.
Updates as necessary.
Final report within 30 days of completing the investigation.

Public Health Follow-up Timeline: No follow-up required

Public Health Purpose for Notification of Influenza

- Timely analysis of mortality caused by common strains of the influenza virus;
- To take timely and evidence informed actions on outbreaks in high risk settings; and
- To inform the public and medical community in Saskatchewan about influenza.

Table 1. Surveillance Case Definitions[2] (Public Health Agency of Canada, May 2008)

Confirmed Case	Clinical illness[a] with laboratory confirmation of infection: • detection of influenza virus RNA[b] **OR** • isolation of influenza virus from an appropriate clinical specimen **OR** • demonstration of influenza virus antigen in an appropriate clinical specimen **OR** • significant rise (e.g., 4 fold or greater) in influenza IgG titre between acute and convalescent sera.

[1] Local public health is encouraged to collaborate with their partners in ERs and hospitals to ensure all roles and responsibilities are well understood and agreed upon, specifically the timely reporting to public health upon reporting deaths associated with influenza.

[2] Surveillance case definitions ensure uniform reporting to allow comparability of surveillance data. The definition is not intended to be used for clinical or laboratory diagnosis or management of cases.

[a]Clinical illness defined as influenza-like illness (ILI) is characterized as abrupt onset of respiratory illness with fever and cough and with one or more of the following:

- sore throat;
- arthralgia;
- myalgia;
- prostration that could be due to influenza virus.

In children under 5, gastrointestinal symptoms may also be present. In patients under 5, or 65 and older, fever may not be prominent.

Note: Illness associated with *novel influenza* viruses may present with other symptoms

[b]This includes detection of at lease one specific gene target by a validated point of care (POC) nucleic acid amplification test (NAAT) that has been deemed acceptable to provide a final result (i.e. does not require confirmatory testing). As of December 2022, the only POC tests in Saskatchewan deemed acceptable to provide final results are the Abbott ID NOW and the Cepheid GeneXpert.

Table 2. Other definitions

Deceased	• A confirmed influenza case whose death resulted from a clinically compatible illness, unless there is a clear alternative cause of death identified (e.g., trauma, poisoning, drug overdose). • A death can be attributed to Influenza when Influenza was a contributing or underlying cause of death.

Epidemiology and Occurrence

The occurrence and epidemiology of seasonal influenza varies by year. Generally, it occurs in the winter months between October and March. It has a more severe manifestation in those with Risk Factors. Refer to the Saskatchewan Community Respiratory Illness Surveillance Program for current information.

Additional Background Information

Causative Agent

Three strains of human influenza virus exist: they are type A, B, and C. Influenza types A and B are associated with *seasonal* epidemics. Emergence of *novel*, completely new subtypes (antigenic shift) occurs at irregular intervals and occurs only with type A viruses. They are responsible for pandemics and result from the unpredictable reassortment and/or recombination of genetic material from human, swine, or avian Influenza A viruses. Minor antigenic changes also occur frequently in both Influenza A and B viruses and is known as antigenic drift. These “drifted” viruses are responsible for yearly epidemics and regional outbreaks.

Symptoms
Acute upper respiratory tract infection (URTI) characterized by *abrupt onset* of fever and chills; headache; malaise; myalgia; prostration; sore throat and cough (Taubenberger, 2008). Abdominal pain, nausea, and vomiting may also be present. Refer to Case Definition and ILI for details.

Reservoir/Source
Primarily humans. Birds and mammalian reservoirs such as swine are likely sources of new human subtypes thought to emerge through genetic re-assortment.

Incubation Period
Usually 1-3 days.

Period of Communicability
Contagious from 24 hours before the onset of symptoms to 3-5 days after peak symptoms appear.

Mode of Transmission
- Respiratory droplets - Breathing droplets that have been sneezed or coughed into the air by someone with influenza, or having the droplets land on the surface of your eye.
- Direct and indirect contact with infected respiratory secretions - Shaking hands with an infected person or touching a contaminated surface, and then touching your own eyes, nose or mouth.

Risk Factors
Risk factors are associated with individual susceptibility and settings that create opportunities for acquisition or transmission to others. This includes:
- Individuals with the following medical conditions:
  - Cardiac Disease;
  - Diabetes mellitus;
  - Lung disease including asthma;
  - Cancer;
  - Renal disease;
  - Immunocompromised related to underlying disease or treatment;
  - Transplant candidates or recipients;
  - Neurological conditions that impede the clearance of respiratory secretions
- Individuals that are morbidly obese;

- Pregnant women;
- Children under the age of 5;
- Adults 65 years of age and older;
- Children in childcare;
- Individuals in long term care facilities, homeless shelters or crowded living conditions or communal settings;
- Individuals that use alcohol, tobacco or other drugs; and
- Indigenous individuals.

Specimen Collection and Transport

The recommended specimens for diagnosis of influenza are nasopharyngeal specimens collected on a flocked swab or a vigorous throat swab taken within the first 48 hours of infection. Refer to Roy Romanow Provincial Laboratory (RRPL) Compendium of Tests at https://rrpl-testviewer.ehealthsask.ca/. The specimen should reach the lab in 24 hours.

Each specimen is tested by a nucleic acid amplification test (NAAT).
If a novel strain or avian Influenza is suspected, the lab should be notified as they may add further NAAT testing specific to novel or avian Influenza A viruses.

All specimens are tested by PCR within 24 hours of receipt.

Lab Reports and Interpretation

Table 4. Interpretation of Test Results

Results from NAAT/RT-PCR are reported as:	Interpretation as per Case Definition	Test Details:
Positive	Confirmed	Influenza A (or B) virus detected
Presumptive positive	Does not meet case definition	Testing will be repeated at a reference lab (i.e. RRPL or NML).
Indeterminate	Does not meet case definition	Virus is detected below the limit of detection of the assay. Recommend collection of new specimen for repeat testing.
Invalid	Does not meet case definition	Specimen failed Quality Control or exhibited non-specific amplification. Recommend recollection of new specimen for repeat testing.
Negative	Not a Case	No Influenza A (or B) virus detected.

Source: RRPL December 6, 2022

Treatment/Supportive Therapy

Treatment for clinical management is at the discretion of the primary care provider. The following serves as a reference for the public health investigator:

- *Supportive care for symptoms is all that is indicated for most cases of influenza.*
- *An appropriate antiviral may be effective in reducing the duration of the illness when initiated by the attending physician within 48 hrs of the onset of signs and symptoms.*
- *Antiviral treatment is recommended as soon as possible for outpatients and hospitalized patients who are suspected (cases under investigation), probable, or confirmed cases of human infection with novel influenza A (including avian or swine influenza) viruses associated with severe human disease* (CDC, March 2022
- *Refer to Association of Medical Microbiology and Infectious Disease Canada (AMMI) guidelines on the use of antivirals (http://www.ammi.ca/guidelines/).*
- *Antibiotic therapy is not indicated unless bacterial complications arise.*
- *Because of the association with Reye's syndrome, salicylates (e.g., Aspirin) should be avoided in children with influenza.*

Public Health Investigation

I. Case

NOTE – Investigation and reporting is required of all deceased cases.

History

Refer to Attachment – Notification of Influenza Death

II. Contacts/Contact Investigation

Contact tracing is not required.

III. Environment

Child Care Centres/Institutional Control Measures

- Child care centres – refer to the Saskatchewan Ministry of Health Infection Control Manual for Child Care Facilities.[3]
- Health care facilities – refer to organization's infection control manual.

IV. Epidemic Measures

- Child care centre (CCC) control measures:
  - Educate as per Prevention Measures.
  - Children with influenza or influenza-like illness should not attend until the child has been without fever (without the use of fever reducing medications) for 24 hours (Centers for Disease Control, July 2009).
  - seasonal influenza vaccine should be offered annually to everyone six months of age and older who does not have contraindications to the vaccine, irrespective of previous seasons' influenza vaccination status.
- Institutional control measures:
  - Educate as per Prevention Measures.
  - Persons in the community with influenza or influenza-like illness should not visit until 24 hours afebrile without use of fever-reducing medications and other symptoms improving for 48 hours. Exceptional circumstances should be discussed with facility manager and MHO.
  - Every effort should be made to control influenza outbreaks within institutions to optimize the protection of the patients, staff and the community. The use of antivirals has been used to control outbreaks in Special Care Homes. Refer to Use of Oseltamivir for the Management of Influenza Outbreaks in Special Care Homes.
  - Refer to the Outbreaks section of the manual for additional details about managing an outbreak in a Special Care Home.
    NOTE: The MHO is the only designated Public Health Official legislated to declare and/or end an outbreak.

V. Pandemic Measures

See local, provincial, national pandemic plans.

[3] http://publications.gov.sk.ca/documents/11/96181-infection-control-manual-child-care-centres.pdf.

Prevention Measures

Immunization

- Refer to the National Advisory Committee on Immunization Statement on Influenza Vaccination for the current season at http://www.phac-aspc.gc.ca/naci-ccni/index-eng.php.
- Eligible persons should be immunized annually because of declining immunity and change in virus variants.
- Refer to Saskatchewan Ministry of Health's Seasonal Influenza Program for recommendations on risk groups, dosages and schedules.
- Adults do not benefit from multiple doses in the same year; re-immunization may be considered in outbreak situations or for high-risk travellers; discuss with the MHO.
- Encourage immunization of health care workers. Lower mortality in long-term care facilities has been demonstrated in institutions where health care workers are immunized than in those where they were not.
- Administration of influenza vaccine to international travellers should be considered – refer to Saskatchewan International Travel Manual.

Education

- Educate the public about the disease: transmission, symptoms, and preventive measures especially hand hygiene and cough etiquette.

Surveillance

The province-wide community respiratory illness surveillance program (CRISP) contributes to the national FluWatch program in Canada. FluWatch is Canada's national surveillance system that monitors the spread of the flu and other flu-like illnesses on an ongoing basis. The national program is part of international surveillance by World Health Organization (WHO).

Refer to Section 2-220 Community Respiratory Illness Surveillance Program for details.

Revisions

Date	Change
September 2023	• Simplified to focus on seasonal influenza. • Removed severe reporting and investigation. • Removed reference to novel influenza, a new chapter will be created to focus on novel in the future. • Changed deceased definition to align with COVID deceased definition. • Created a combined COVID/Influenza notification of fatal outcome form and linked within the chapter. • Removed Influenza Data Collection Worksheet • Removed Severe Influenza in Panorama process • Removed Management of Contact to Human Cases of Highly Pathogenic Avian Influenza – this is being embedded into the new influenza, avian chapter (still under development).
December 2022	• Added reference to point of care tests to the case definition. • Updated to incorporate a link to contact management for individuals exposed to novel influenza associated with highly pathogenic avian influenza. • Added treatment details for novel influenza (including avian influenza). • Removed the details from the Surveillance section and created a link to Section 2-220 (CRISP) where details are provided.
November 2018	• Updated to incorporate severe and novel case definitions • Incorporated the purpose for notification of cases to public health • Updated to align with Panorama configuration • Incorporated an Epidemiology and Occurrence as a placeholder • Rearranged and updated the style into the new format of the Manual. • Incorporated details of Influenza Surveillance Program within and added an attachment with further details.

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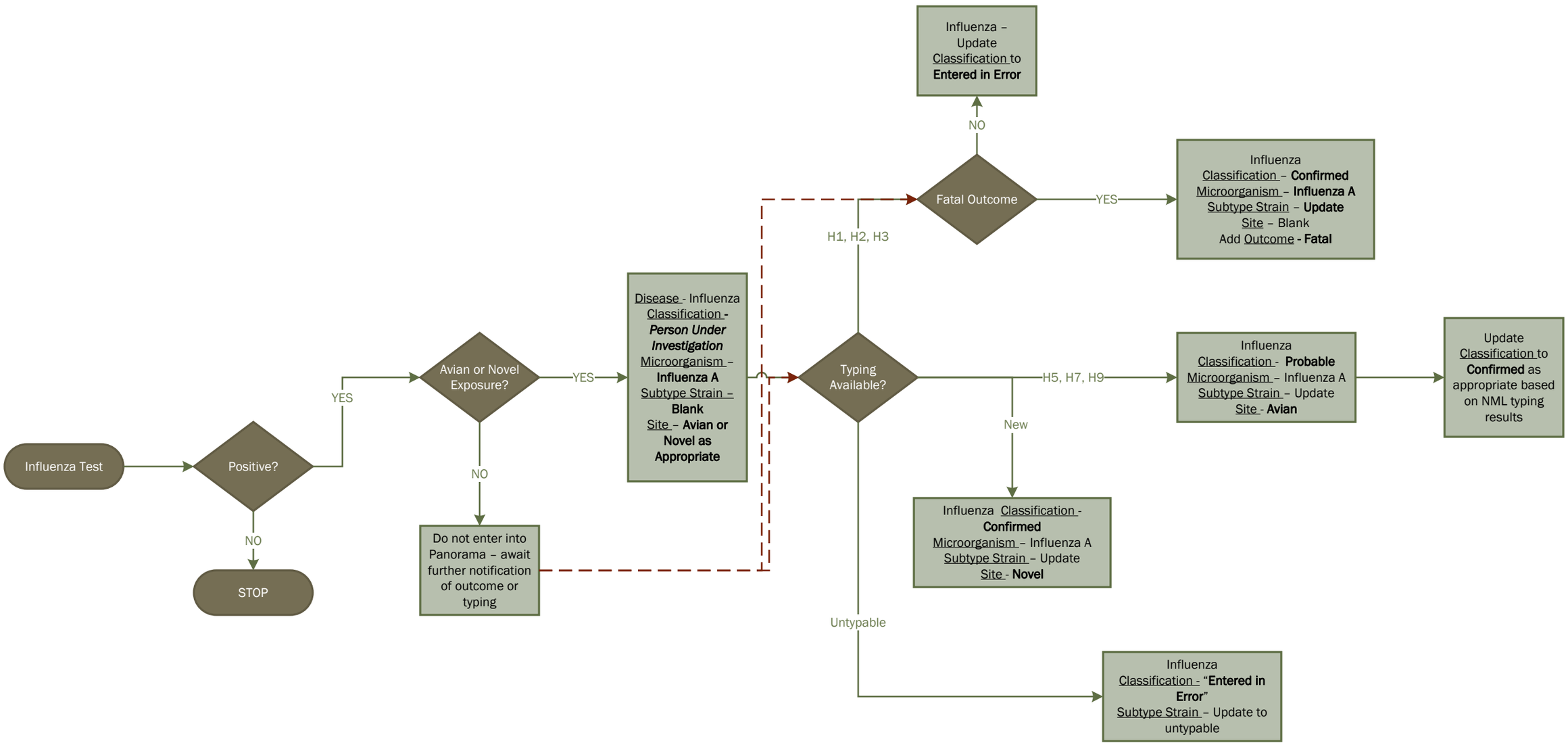
Influenza Test
Positive?
NO
STOP
YES
Avian or Novel Exposure?
NO
Do not enter into Panorama – await further notification of outcome or typing
YES
Disease - Influenza
Classification - Person Under Investigation
Microorganism – Influenza A
Subtype Strain – Blank
Site – Avian or Novel as Appropriate
Typing Available?
H1, H2, H3
Fatal Outcome
NO
Influenza – Update Classification to Entered in Error
YES
Influenza Classification – Confirmed
Microorganism – Influenza A
Subtype Strain – Update
Site – Blank
Add Outcome - Fatal
H5, H7, H9
Influenza Classification - Probable
Microorganism – Influenza A
Subtype Strain – Update
Site - Avian
Update Classification to Confirmed as appropriate based on NML typing results
New
Influenza Classification - Confirmed
Microorganism – Influenza A
Subtype Strain – Update
Site - Novel
Untypable
Influenza Classification - "Entered in Error"
Subtype Strain – Update to untypable