Influenza & Influenza Vaccine for Health Care Workers

2021-2022 Season

York Region

LEARNING OBJECTIVES

To gain an understanding of:

- Influenza **Virus** and the **Disease**:
  - Transmission, symptoms, diagnosis, and treatment

- Influenza **Vaccine**
  - Components, types available, effectiveness, benefits and side effects, how this season is different

INFLUENZA VIRUS & DISEASE

York Region

DISEASE FACTS

Influenza, commonly known as ‘the flu’

- Respiratory illness caused primarily by influenza A or B viruses
- Ranges in severity, from mild to a more severe illness.
    - Most people will recover in seven to 10 days; severe illness can occur. Some individuals are at a greater risk of influenza-related complications, such as pneumonia, and hospitalization.
- Adults may transmit the virus to others from 24 hours before symptom onset to five days after.
    - Children and those with compromised immune system may transmit the virus for longer.

MODES OF TRANSMISSION

- **Respiratory Droplet Transmission**
  - Contaminated respiratory droplets are generated when a sick person coughs or sneezes or talks
  - Droplets can travel up to two metres in distance
  - Droplets need to be inhaled by nearby individuals or land on their mouth, eyes or nose to transmit the virus

- **Contact Transmission**
  - Respiratory droplets can also contaminate surfaces or objects
  - The flu virus can survive up to 48 hours on hard, non-porous surfaces such as stainless steel
  - If an individual touches a surface or object contaminated with the flu virus and then touches their mouth, nose or eyes the virus can be transmitted

WHO IS CONSIDERED HIGH RISK FOR FLU-RELATED COMPLICATIONS?

- All pregnant women
- People who are residents of nursing homes or other chronic care facilities
- People ≥ 65 years of age
- All children 6 months to 4 years of age
- Indigenous people
- Adults or children 6 months of age and over with chronic health conditions

FLU – DISEASE DISTRIBUTION

Globally

- 1 billion cases of influenza around the world annually, resulting in 290,000 to 650,000 deaths

In Canada

- 23,000 laboratory-confirmed cases of influenza annually
- Influenza is estimated to be responsible for:
    - 12,200 hospitalizations
    - 3,500 deaths

COMPARISON OF COMMON SYMPTOMS OF FLU, COLD AND COVID-19

Symptoms	Cold	Flu	COVID-19
Fever	Rare	Common. Starts suddenly and lasts 3 to 4 days. High (102°F-104°F or 39°C – 40°C). Chills also common.	A temperature of 37.8 degree Celsius or higher and/or chills
Cough	Sometimes, mild to moderate	Common. Can become severe.	Common. Including a barking cough or croup (continuous, more than usual).
General aches and pains	Sometimes, mild	Common, often severe	For adults over 18 years of age: joint pain
Muscle aches	Sometimes, usually mild	Often, can be severe	Common for adults over 18 years of age.
Feeling tired and weak	Sometimes, mild	Common, may last 2 to 3 weeks or more	Common for adults over 18 years of age.
Fatigue (extreme tiredness)	Unusual	Common, starts early	Common for adults over 18 years of age.
Sneezing	Common	Sometimes	N/A
Chest Discomfort	Sometimes. Mild to moderate.	Common. Can become severe.	Common. Shortness of breath (out of breath, unable to breathe deeply).
Other characteristics	N/A	N/A	Decrease or loss of taste or smell. For children under 18 years of age: nausea, vomiting, and/or diarrhea.

DIAGNOSIS AND TREATMENT

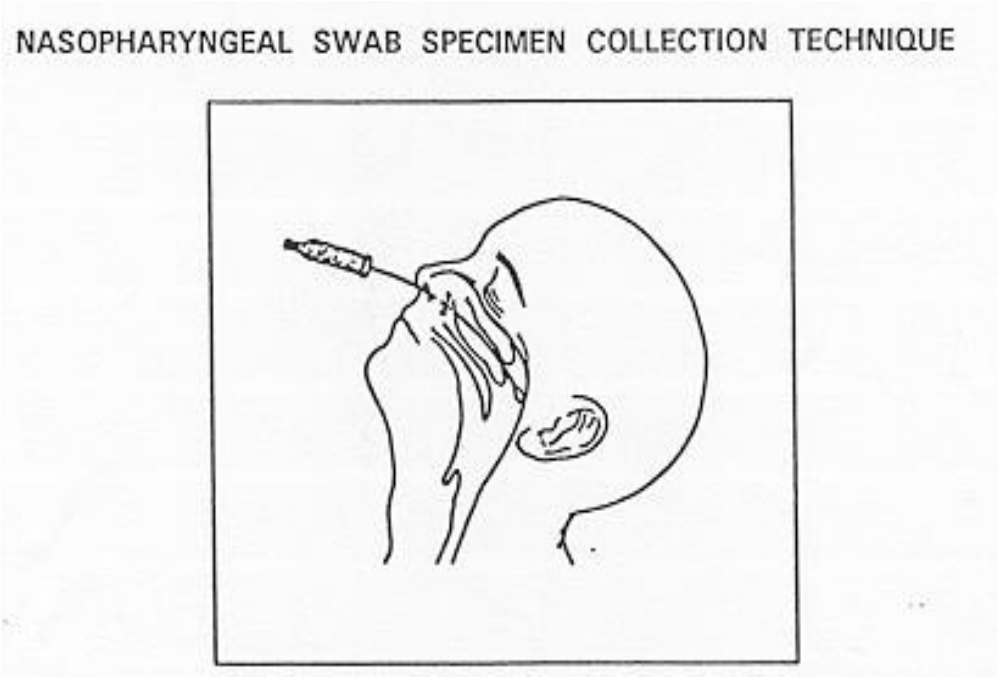
Public Health Ontario uses a testing eligibility criteria for influenza and other seasonal respiratory viruses. Eligibility criteria is based on patient setting and can be found on Public Health Ontario Laboratory services.

Influenza antiviral medications are recommended for treatment of some individuals such as, those at high risk for complications and/or those with moderate to severe illness, when influenza is circulating in the community.

- Prompt treatment (administered within 48 hours of symptoms onset) decreases the duration of influenza symptoms and may help prevent the complication of influenza.

CONFIRMING DIAGNOSIS

- Nasopharyngeal (NP) Swab
  - Should be obtained from the most severe and most recently ill patients/residents (i.e., during the first 4 days of their illness and before the use of antivirals)



RESPIRATORY VIRUS TESTING ELIGIBILITY AT PHO LABORATORY

Patient Setting[1]	Testing Available By Request
Hospitalized (all inpatients)[2]	SARS-CoV-2 and MRVP[4,5,6] *OR* FLUVID[3,4] followed by MRVP[4,5,6] *(Both combinations will provide testing for the same viruses.)*
Remote communities	SARS-CoV-2 and MRVP[4,5,6] *OR* FLUVID[3,4] followed by MRVP *(Both combinations will provide testing for the same viruses.)*
Public health unit declared respiratory infection outbreaks (including institutional outbreaks [e.g. long-term care homes, correctional facilities, congregate living settings] and school/daycare outbreaks.)	*Up to 4 outbreak specimens[7]:* Influenza rapid testing[8] (will be done if PCR testing is delayed >24 hours) SARS-CoV-2 and MRVP[4,5,6] *OR* FLUVID[3,4] followed by MRVP[4,5,6] Additional specimens will be tested for SARS-CoV-2 only.[7]
Institutions (non-outbreak) (e.g. long-term care homes, correctional facilities, congregate living settings)[11]	SARS-CoV-2 and MRVP[4,5,6] *OR* FLUVID[3,4] followed by MRVP[4,5,6]
Emergency Department; paediatric patients (<18 years old)[12]	SARS-CoV-2 and MRVP[4,5,6] *OR* FLUVID[3,4] followed by MRVP[4,5,6]
Emergency Department; adult patients	SARS-CoV-2[9]
Ambulatory/outpatient settings, assessment centres, including ambulatory influenza high risk patients	SARS-CoV-2[9]
Not specified on requisition	SARS-CoV-2[1,9]

FLUVID detects: influ A, influ B, SARS-CoV-2 (COVID-19), RSV A/B

MRVP detects: infl A (H3 subtype, H1 pdm09 subtype), influ B, RSV A/B, parainfl 1-4, adenovirus, enterovirus, seasonal human coronavirus, rhinovirus, human metapneumovirus; does not detect SARS-CoV-2.

Source: Public Health Ontario 2021

TREATMENT

- Antiviral treatment for influenza must be started within **48** hours (or less) of onset of symptoms for maximum effectiveness

- <u>Oseltamivir (Tamiflu)</u>
  - Effective against influenza A and B
  - Recommended drug of choice for both prophylaxis and treatment in an influenza outbreak
- <u>Zanimivir (Relenza)</u>
  - Effective against influenza A and B
  - Used when predominant circulating strain is resistant to Tamiflu

INFLUENZA PREVENTION

York Region

INFLUENZA BURDEN 2021-22 SEASON IN ONTARIO

- In the 2020/2021 influenza season, the number of laboratory-confirmed cases of influenza were very low (York Region had 0 flu cases in the 20/21 season)

- Seasonal influenza circulation in Canada has remained low since the spring of 2020

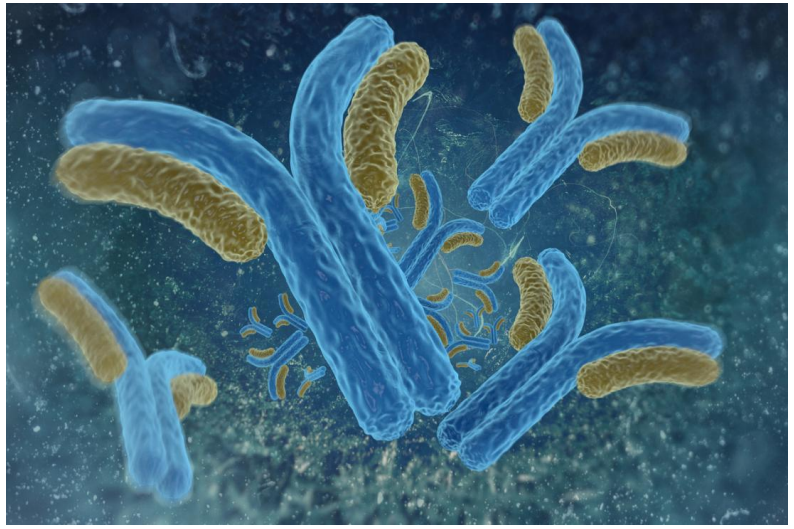
- There is potential for increased influenza activity during the 2021/2022 influenza season with the gradual relaxation of public health measures that were implemented to curb the spread of COVID-19

Source: Public Health Ontario

INFLUENZA VACCINE – HOW DOES IT WORK?

- Flu vaccine initiates the process of antibodies being developed in the body about two weeks after vaccination

- These antibodies provide protection against influenza infection



INFLUENZA VACCINE RECOMMENDATIONS

- The flu shot is available for individuals who live, work, or attend school in Ontario and is recommended for everyone six months of age and over without contraindications

- **Annual** vaccination is recommended because:
    - The body's immune response to influenza vaccination is transient and may not persist beyond a year
    - Specific strains in the vaccine are reviewed each year and are often changed to include the strains most likely to be circulating for the season

INFLUENZA VACCINE IS RECOMMENDED FOR

- All pregnant women
- Adults and children with chronic health conditions
- People of any age residing in long term care homes and other chronic care facilities
- Adults ≥ 65 years
- All children 6 to 59 months of age
- Indigenous people

VACCINATION OF HCWs AND OTHER CARE PROVIDERS

- In the absence of contraindications, HCWs and other care providers in facilities and communities should be vaccinated against influenza annually
- HCWs and care providers have the potential to transmit influenza to individuals at high risk for flu-related complications
- HCWs and care providers are at risk of acquiring influenza due to their nature of work (close contact with people who may be infected with influenza)

INFLUENZA VACCINE COMPOSITION 2021-2022

Strains included in Quadrivalent Vaccines:

- An A/Victoria/2570/2019 (H1N1)pdm09-like virus;
- An A/Hong Kong/2671/2019 (H3N2)-like virus;
- A B/Washington/02/2019 (B/Victoria lineage)-like virus;
- A B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

CELL-BASED VACCINE

- Available in Europe since 2007 and the United States since 2012
- First non-egg based influenza vaccine available in Canada
    - Authorized in November 2019
- Quadrivalent product authorized in Canada
- Made in canine kidney cells
- Standard-dose quadrivalent choice for those 2 years of age and over

Source: Public Health Ontario

UIIP VACCINES FOR 2021-2022

Age Group	QIV				QIV-HD	TIV-adj
	FluLaval Tetra	Fluzone® Quadrivalent	Flucelvax® Quad	Afluria® Tetra	Fluzone® High-Dose Quadrivlalent	Fluad®
6 months to 1 year	✓	✓				
2 to 4 years	✓	✓	✓			
5 to 64 years	✓	✓	✓	✓		
≥ 65 years	✓	✓	✓	✓	✓	✓

INFLUENZA VACCINE EFFECTIVENESS

Season	Any Flu	A	A/H1N1	A/H3N2	B	Dominant A (ON)	Circulating / TIV B (ON)
2014/15	9 (-14,27)	-13 (-45,12)	NA	-17 (-50,9)	45 (18,64)	H3N2	Yamagata / Yamagata
2015/16	46 (32,57)	44 (27,57)	43 (25,57)	NA	50 (31,63)	H1N1	Victoria (66%)/ Yamagata
2016/17	45 (31,56)	37 (20,51)	NA	37 (20,51)	73 (52,84)	H3N2	Yamagata/ Victoria
2017/18	38 (27,47)	24 (7,38)	58 (30,75)	15 (-6,32)	46 (34,56)	H3N2	Yamagata/ Victoria
2018/19	61 (53,69)	61 (52,68)	69 (60,76)	23 (-9,46)	-	H1N1/ H3N2	Victoria/ Victoria
2019/20	**58 (47,66)**	**49 (36,60)**	**44 (26,58)**	**62 (37,77)**	**69 (57,77)**	**H1N1**	**Victoria/ Victoria**

Source: Public Health Ontario

WHAT IF THE VACCINE IS NOT A GOOD MATCH?

- Vaccination is still recommended annually, particularly for people at high risk of influenza-related complications and hospitalization, since vaccinated individuals are still more likely to be protected compared to those who are unvaccinated

CONTRAINDICATIONS AND PRECAUTIONS TO FLU VACCINE

Influenza vaccination should not be given:

- If you have serious allergies (anaphylaxis) to any ingredient in the vaccine, except eggs. Your health care provider can tell you which ingredients are in the vaccine and if it is safe for you
- If you have experienced a serious allergic reaction from a previous flu shot
- If you have developed Guillain-Barre Syndrome within six weeks of a previous flu shot; contact your primary health care provider to discuss and learn more

Precautions:

Certain populations, those with severe acute illness, those with any chronic medical conditions should contact their health care provider to determine if they should get a shot, and which product is most suitable for them.

COMMON REACTIONS TO THE FLU SHOT

- Common mild and transient reactions :
    - Soreness, redness or swelling at the injection site (usually lasts less than 2 days)
    - Low grade fever and aches (can last 1-2 days)
    - The most common reactions experienced by recipients of LAIV3 are nasal congestion and runny nose, which are also reported for LAIV4
- Serious adverse events are very rare
- The mild reactions people have to the flu shot are considerably less severe than actually having the flu

IF PEOPLE GET SICK AFTER HAVING THE FLU SHOT

- They have contracted a respiratory virus that causes similar symptoms
- They were already exposed to the flu virus prior to vaccination
- They were among the % of the population where the shot was not effective
- They have contracted a different strain of flu that is circulating and not contained in the vaccine (referred to as a ‘vaccine mismatch’)

IMPORTANCE OF INFLUENZA VACCINATION THIS SEASON

- Protection against influenza (both yourself and those around you)
- Most effective way to prevent influenza related complications
- Influenza can lead to severe complications, including hospitalization and death.

SICK WITH THE FLU?

- Report your illness to your employer as per their policies and procedures and follow any applicable testing/isolation guidance
- Stay home to help prevent the spread of the flu
- Get plenty of rest and drink lots of fluids
- Seek medical attention as appropriate
- Avoid close contact with others until you feel well enough (back to usual day-to-day activities)
- Wash your hands often with soap and water or with alcohol-based hand sanitizer
- Cover your mouth when you cough or sneeze (use a tissue, then dispose of a tissue into garbage. When tissue is not available cough or sneeze into your sleeve). Make sure to wash your hands after.
- To prevent spread at home clean and disinfect surfaces and shared items frequently (phones, handles, etc.). Avoid sharing personal items such as towels.

ADDITIONAL INFORMATION

- Ontario Respiratory Virus Bulletin: http://www.publichealthontario.ca/en/ServicesAndTools/SurveillanceServices/Pages/Ontario-Respiratory-Virus-Bulletin.aspx
- Canadian Flu Watch: http://healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/flu-grippe/surveillance/index-eng.php
- National Advisory Committee on Immunization (NACI): https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/vaccines-immunization/canadian-immunization-guide-statement-seasonal-influenza-vaccine-2021-2022/naci-2021-2022-statement.pdf
- Video: The Flu – don't pass it on! https://www.youtube.com/watch?v=EKaXhK2MWrE
- PHO Focus On: Influenza Vaccines for the 2021-2022 Influenza Season (September 2021)

  https://www.publichealthontario.ca/-/media/documents/f/2020/fact-sheet-influenza-vaccine-2020-2021.pdf?la=en

THANK YOU!

Vaccine Question Line 1-877-464-9675, ext.73452

Vaccine Order Line 1-877-464-9675, ext.74033

York Region