

Influenza Immunization Program 2023-2024



Introduction

- This PowerPoint is a tool for health care professionals to use as a self-learning tool in conjunction with annual influenza immunization orientation.
- There is no requirement by the Alberta Health Services (AHS) Province-wide Immunization Program to formally submit proof of completion to AHS. However, use may differ locally and therefore staff should follow instructions given at a local level for formal submission of the self-test.
- Operational questions will NOT be addressed during this presentation (i.e. vaccine distribution specifics).

Introduction cont'd

- Always use the online resources for the most up to date information.
- For more detailed information it is important for staff to refer to other program resources found on the AHS Influenza Immunization webpage such as:
 - AHS Vaccine Biological pages and/or Vaccine Product Monographs
 - AHS Vaccine Storage and Handling e-learning modules and Standard
 - Guidelines for the reporting of adverse events following immunization
 - Reporting requirements and data collection guidelines
 - Alberta Immunization Policy: Alberta Outreach Immunization Program

Influenza Disease Learning Objectives

The influenza immunizer will be able to:

- recognize the symptoms of influenza
- describe self-care and prevention strategies for influenza

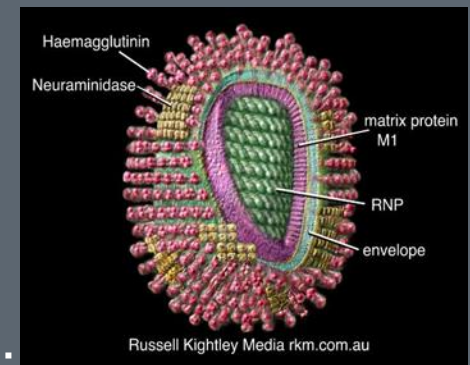
What is influenza?

Influenza, commonly known as “the flu”, is a highly contagious infection of the airways caused by influenza viruses. It is often referred to as “seasonal” influenza because these viruses circulate annually in the winter season in the northern hemisphere.

The timing and duration of influenza season varies – in Canada influenza activity begins to increase over the fall and peaks in the winter months. Outbreaks can happen as early as September, but typically start in October with most activity peaking in January or later. Late season outbreaks occurring in April and even May have also been reported. The influenza season in Canada can last from a few weeks to many months, and more than one influenza strain typically circulates each season.

A, B and C influenza viruses

- *Influenza A and B* viruses cause seasonal epidemics, while *type C* viruses cause mild respiratory illness.
- Influenza A viruses are classified into different strains or subtypes based on two proteins or antigens on the virus surface: hemagglutinin (H) and neuraminidase (N)
 - e.g., H1N1 and H3N2
- Influenza B viruses can be classified into two antigenically distinct lineages: Yamagata and Victoria like viruses.
- Influenza A and B strains are included in each year's influenza vaccine.
- The vaccine does not protect against influenza C viruses.



Influenza Types – A and B

Type A (Seasonal, Avian, Swine influenza)	Type B (Seasonal influenza)
Can cause significant disease	Generally causes milder disease but may also cause severe disease
Infects humans and other species (e.g. birds: H5N1)	Limited to humans
Can cause epidemics and pandemics (worldwide epidemics)	Generally causes milder epidemics

How strains change each year

- Small changes in influenza viruses occur continually
 - New virus strains may not be recognized by the body's existing influenza antibodies within the immune system
- A person infected with a specific influenza virus strain develops antibodies against that specific strain
- In most years, some or all of the virus strains in the influenza vaccine are updated based on a review by the World Health Organization (WHO) to align with the changes in the circulating influenza viruses
- Annual influenza immunization is recommended to protect against infection from these changing influenza viruses

Signs and symptoms of influenza












- Sudden onset
- Typically starts with a headache, chills and cough, followed rapidly by fever, loss of appetite, muscle aches and fatigue, runny nose, sneezing, watery eyes and throat irritation
- Nausea, vomiting and diarrhea may also occur, especially in children
- Fever may not be prominent in children under 5 years of age and adults 65 years of age and older



Communicable Disease Control – Provincial Population & Public Health

<https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-flu-cold.pdf>

Comparison of COVID-19, influenza, common cold, and gastrointestinal (GI) illness

	COVID-19	Influenza (Flu)	Cold	GI Illness (Stomach "Bug")
Caused by	SARS-CoV-2 virus	Influenza A or Influenza B viruses	Many different kinds of viruses such as rhinovirus or adenovirus	Norovirus (or Rotavirus like viruses) is the most common, but there are many causes of stomach upset
Symptoms appear quickly	Sometimes	Yes	No. Symptoms appear gradually	Yes
Prevention	Getting the COVID-19 vaccine provides protection from the SARS-CoV-2 virus (also known as COVID-19)	Getting the influenza vaccine every year protects against the strains of the virus going around that season	Cannot be prevented by immunization	Cannot be prevented by immunization
Symptoms				
 Fever	Common	Common	Rare	Sometimes
 Fatigue	Common	Common	Sometimes	Sometimes
 Cough	Common	Common	Common	No
 Sneezing	Rare	Sometimes	Common	No
 Aches and pains	Common	Common	Sometimes	Common
 Runny or stuffy nose	Rare	Common	Common	No
 Sore throat	Sometimes	Common	Common	No
 Diarrhea	Common	Sometimes (especially for children)	Rare	Common
 Headache	Common	Common	Rare	Sometimes
 Shortness of breath	Sometimes	Sometimes	No	No
 Loss of smell or taste	Sometimes	No	No	No

SOURCE: HEALTH CANADA, CENTRE FOR DISEASE CONTROL AND PREVENTION

ahs.ca/covid



The myth of the “stomach flu”

- Many people use the term "stomach flu" to describe illnesses with nausea, vomiting, or diarrhea. These symptoms can be caused by many different viruses, bacteria, or even parasites
- While vomiting, diarrhea, and nausea can sometimes occur when people have influenza (particularly children), these problems are not the main symptoms of influenza
- Influenza is a respiratory disease - not a stomach or intestinal disease

How serious is influenza?

- While the majority of those who become ill will recover within a week or 10 days, it is estimated that influenza causes about 12,200 hospitalizations and 3,500 deaths in Canada each year. Influenza is among the top ten leading causes of death in Canada.
- Some individuals are at higher risk of developing complications from influenza, including:
 - Residents of Long-Term Care facilities
 - Seniors
 - Infants and young children
 - Adults and children with existing chronic health conditions
 - Pregnant women
 - Indigenous peoples
- Complications can include pneumonia (bacterial and viral), ear and sinus infections, dehydration, and worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes.

How serious is influenza?

The Centers for Disease Control and Prevention (US) conducted a study to assess the effectiveness of influenza vaccine in decreasing influenza related deaths in children (6 months to 17 years of age)

- Between July 2010 and June 2014, 358 children died from infection with influenza; researchers were able to confirm the vaccine status of 291 of these children:
 - ❖ Of the 291 children, 74% were unimmunized
 - ❖ The study concluded that influenza vaccination was associated with reduced risk of laboratory-confirmed influenza-associated pediatric death
 - ❖ Increasing influenza vaccination could prevent influenza-associated deaths among children and adolescents

Flannery B, Reynolds SB, Blanton L, et. al. [Influenza Vaccine Effectiveness Against Pediatric Deaths](#). *Pediatrics*. 2017. DOI: 10.1542/peds.2016-4244).

How serious is influenza?

- The virus is spread mainly from person to person when those with influenza cough or sneeze (droplet spread)
 - The droplets are propelled about 3 feet through the air
- People may also become infected by touching an object or a surface that has the influenza virus on it and then touching their mouth, eyes or nose

Influenza incubation

- Individuals with influenza are infectious 1 day before symptoms develop and up to 5 days after becoming ill
 - The period when an infected person is contagious depends on the age and health of the person
 - Young children and people with weakened immune systems may be contagious for longer than a week
- The time period from exposure to development of symptoms is about 1 to 3 days, with an average of about 2 days

Influenza infectivity

- People infected with influenza can spread the disease to others before they know they are ill, and while they are ill.
- Some people can be infected but have no symptoms:
 - These individuals can still spread the virus to others.
- This is important information for those caring for others, such as parents and all health care workers.
- In one published study, 59% of health care workers tested had evidence of recent influenza infection but could not recall having symptoms.

Health Care Workers

- Health care workers (HCWs) who have direct patient or client contact should consider it an essential component of their standard of care to receive influenza immunization to protect themselves and their patients.
- This should be considered part of their responsibility to provide the highest standard of care.
- Four cluster randomized controlled trials done in long-term care settings demonstrated that HCWs that are immunized against influenza is associated with a substantial decrease in influenza like illness and all cause mortality in the residents.

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Treatment of influenza

- Treatment recommendations for non-complicated cases include:
 - rest
 - analgesics
 - fluids
 - time



Self care during influenza season

- Get the influenza vaccine every fall.
- Cover your cough with a tissue, or cough or sneeze into your upper sleeve, not your hands. Then, clean your hands, and do so every time you cough or sneeze.
- Wash your hands well, and often.
- Avoid touching your eyes, nose, or mouth. Germs are often spread when a person touches something that is contaminated with germs and then touches their eyes, nose, or mouth.
- Clean and disinfect high touch areas.
- Exercise. Drink plenty of water. Eat well and do not smoke.
- Avoid crowds when influenza season hits your area.



Influenza prevention hand washing

- ❖ Wet hands with water.
- ❖ Use regular soap – antibacterial soap is not necessary.
- ❖ Rub hands vigorously for at least 20 seconds covering all surfaces (Sing Happy Birthday !!).
- ❖ Rinse your hands under running water.
- ❖ Dry hands with clean or disposable towel.



Self care at work

- Frequently wipe down your keyboard, mouse and phone (for example with low level disinfectants not with antibacterial wipes).
- If you are ill, stay home from work so you do not spread illness to others. Children who are ill should stay home from school and daycare.
- Use hand hygiene frequently, especially after using copy machines, fax machines, someone else's computer or phone, or after sneezing or other contact with your own secretions.
- Wash your hands before eating or drinking during breaks.



Cover your Cough

Cover your mouth & nose
with a tissue when you
cough or sneeze,



or, cough or sneeze
into your upper sleeve,
not your hands.



Put your used tissue
in the waste basket.



Influenza Disease Knowledge Check

Review Questions Section 1

1. During which time period are individuals who have been infected with influenza contagious?
2. Which individuals are at highest risk of developing complications from influenza?

Note: Answers can be found at the end of the PowerPoint.

Influenza Vaccine Learning Objectives

The influenza immunizer will be able to:

- describe the influenza immunization program within Alberta
- identify the target client population for this program
- administer influenza vaccine in accordance with local protocols.

Influenza vaccine development

- Each February, the World Health Organization (WHO) provides a recommendation on the strains to be included in the influenza vaccine for the northern hemisphere
- Two influenza "A" viruses and one (trivalent vaccine) or two (quadrivalent vaccine) influenza "B" viruses are selected based on the characteristics of the current circulating influenza virus strains
- A new vaccine is reformulated each year to protect against new influenza infections
- Each vaccine lot is tested on healthy individuals to ensure the vaccine is safe and effective

Influenza vaccine development (cont'd)

- There is currently one trivalent inactivated influenza vaccine (TIV) licensed for use in Canada; it is adjuvanted
- There are currently eight quadrivalent influenza vaccines licensed for use in Canada
 - Six are quadrivalent inactivated influenza vaccines (QIV)
 - One is a live attenuated influenza vaccine (QLAIV)
 - One is a recombinant protein vaccine (RIV)

Influenza vaccine development (cont'd)

- For the 2023-2024 influenza immunization program:
 - Quadrivalent inactivated influenza vaccine is the provincially funded vaccine available to Albertans 6 months of age and older (operationally, this vaccine will be offered to individuals up to and including 64 years of age):
 - Fluzone[®] or FluLaval Tetra[®]
 - High-dose quadrivalent inactivated vaccine will be available to individuals who are 65 years of age and older.
 - Fluzone[®] High-Dose

High-Dose Quadrivalent Vaccine - Fluzone® High-Dose

When Fluzone® High-Dose is not available for persons 65 years of age and older on their presentation to an influenza immunization clinic:

- Advise that Fluzone® High Dose is available and the client can access it through another provider
- If the client is not wanting to access Fluzone® High-Dose from another provider, an alternate quadrivalent vaccine may be offered

How does inactivated influenza vaccine work?

- Both humoral and cell-mediated responses play a role in immunity
- Administration of inactivated influenza vaccine results in the production of circulating IgG antibodies to the viral haemagglutinin as well as a cytotoxic T lymphocyte response
- Humoral antibody levels, which correlate with vaccine protection, are generally achieved 2 weeks after immunization and immunity usually lasts less than 1 year
 - Initial antibody response may be lower in the elderly and the immune-compromised

Vaccine strains for 2023-2024

The strains that will be included in the 2023-2024 influenza vaccine for the Northern hemisphere are:

- A/Victoria/4897/2022(H1N1)pdm09-like virus
- A/Darwin/9/2021(H3N2)-like virus
- B/Austria/1359417/2021 (B/Victoria lineage)-like virus
- B/Phuket/3073/2013 (B/Yamagata lineage)-like virus

Facts about inactivated influenza vaccine (QIV)

- An inactivated (killed) vaccine cannot cause influenza disease in the vaccine recipient
- The virus is grown in hens' eggs, inactivated, broken apart and highly purified
- In addition to the antigen, the Fluzone[®] and FluLaval[®] Tetra vaccine may contain:
 - Thimerosal (preservative in multi-dose vials)
 - Trace residual amounts of egg proteins, formaldehyde, sodium phosphate-buffered isotonic sodium chloride solution, Triton[®] X-100, sodium deoxycholate, ethanol, sucrose, α -tocopheryl hydrogen succinate and polysorbate 80
- Check the product monograph as ingredients vary with specific inactivated influenza vaccines

Influenza Vaccine Knowledge Check

Review Questions Section 2: Part A

1. Which strains of influenza virus are included in the 2023-2024 influenza vaccine for the northern hemisphere?
 - a) Why are these strains chosen?
2. Why is it necessary to get an influenza immunization each year to be protected?
3. Can you get influenza disease from the influenza vaccine? Explain.

Note: Answers can be found at the end of the PowerPoint

Universal Influenza Immunization Program

Alberta Health (AH) funds a Universal Influenza Immunization Program.

All people 6 months of age and older who live, work, go to school or are visiting in Alberta are eligible for vaccine at no charge



Influenza Immunization Program in Alberta

The 2023-2024 Influenza Immunization Program will:

- Continue to be offered universally in Alberta
- Focus on increasing influenza immunization rates for the following groups, many of whom are most at risk for morbidity and mortality due to influenza disease:
 - Residents and staff in Long Term Care and Supportive Living facilities
 - Homebound clients
 - Individuals with unstable housing or who are marginalized
 - Health Care Workers

Individuals with booked public health immunization appointments will be offered influenza vaccine starting in early October.

Program will begin in October

- Immunizers participating in Outreach can begin to immunize individuals as soon as influenza vaccine is available – anticipated October 2, 2023
 - Universal program for all Albertans to begin on October 16, 2023 – includes on and off-site immunization services
-

Influenza Immunization Program in Alberta

- As in previous years, immunization partners (e.g., physicians, pharmacists, private health agencies, occupational health services) will play an essential role in achieving the AH immunization targets:
 - ❖ Residents of Congregate Care facilities – 80%
 - ❖ Adults 65 years of age and older – 80%
 - ❖ Children 6 to 59 months of age – 80%
 - ❖ Covenant and AHS HCW – 80%
 - ❖ Individuals in high-risk populations – 80%

Provincially funded influenza vaccines for 2023-2024

	Fluzone® (QIV) (Sanofi Pasteur)	FluLaval® Tetra (QIV) (GlaxoSmithKline)
Dosage/Route	0.5 mL	0.5 mL
Packaging	Single Dose: Pre-filled, single dose syringe (luer lock needles not included) Multi-dose: 5 mL	Multi-dose: 5 mL
Eligibility	Individuals who live, work, go to school or are visiting in Alberta	Individuals who live, work, go to school or are visiting in Alberta
Indication	6 months ¹ of age up and older	6 months ¹ of age up and older
Ingredients²	formaldehyde, sodium phosphate buffered isotonic sodium chloride solution, Triton® X-100, propagated in embryonated chicken eggs. Thimerosal free (single dose formulation only).	egg proteins, sodium deoxycholate, ethanol, formaldehyde, sucrose, α-tocopheryl hydrogen succinate, polysorbate 80, thimerosal.
Schedule	1 or 2 doses ³	1 or 2 doses ³

¹Children must be 6 calendar months of age; do not compress this age by using 28-day months

²Refer to vaccine product monograph for a complete listing of the ingredients

³Children less than 9 years of age require 2 doses given at a minimum of 4 weeks apart if they have never received seasonal influenza vaccine.

Provincially funded influenza vaccines cont'd

	Fluzone® (QIV) High-Dose (Sanofi Pasteur)
Dosage/Route	0.7 mL
Packaging	Single Dose: Pre-filled, single dose syringe (luer lock needles not included)
Eligibility	Individuals who live, work, go to school or are visiting in Alberta
Indication	65 years of age and older
Ingredients¹	formaldehyde, egg protein, sodium phosphate buffered isotonic sodium chloride solution, Triton® X-100. Thimerosal free.
Schedule	1 dose

¹Refer to vaccine product monograph for a complete listing of the ingredients

Influenza vaccine dosing for specific ages

6 months up to & including 8 years of age

- 2 doses if never previously immunized with seasonal influenza vaccine (spaced 4 weeks apart – minimum interval)
- 1 dose only if previously immunized with seasonal influenza vaccine

9 years of age and older

- 1 dose

Note :

- CAR T-cell therapy recipients without a prior history of HSCT who received influenza vaccine pre-CAR T-cell therapy are eligible to restart their influenza vaccine series, beginning at least 3 months post-CAR T-cell therapy. Consultation with their physician is not necessary as long as a clearance letter has been received to proceed with inactivated vaccines.
- For HSCT recipients who had their post-HSCT vaccine series interrupted by CAR T-cell therapy, see the following HSCT guidance: Principles of Immunization in Hematopoietic Stem Cell Transplant Recipients and Solid Organ Transplant Recipients
 - Immunization for Adult HSCT Recipients
 - Immunization for Child HSCT Recipients

Return visit for children who need a second dose

- Indicate date to return for second dose of vaccine on the Influenza Client Immunization Record and Care After Immunization form and provide to the parent or guardian of the client
- See local protocol for indicating location for second dose of vaccine

Co-administration with COVID-19 vaccine

- For co -administration with COVID-19 vaccines, refer to the “Administration With Other Products” section in the relevant COVID-19 vaccine biological page.

Thimerosal

- Multi-dose vials of vaccine contain a preservative called thimerosal (ethylmercury)
- Ethylmercury is not the same compound as methylmercury
 - Methylmercury is a known neurotoxin in high concentrations or with prolonged exposure
- Ethylmercury is eliminated much more quickly and is less likely to reach toxic levels in the blood than methylmercury
- Studies have found there is no association between immunization with thimerosal-containing vaccines and neurodevelopmental outcomes, including autism-spectrum disorders
- Additional information regarding thimerosal is available at <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/07vol33/acs-06/index-eng.php>

This statement has been archived by NACI, as it is not being updated, the information remains relevant.

Pregnancy and breastfeeding

“NACI recommends the inclusion of all pregnant women, at any stage of pregnancy... [among high priority recipients of influenza vaccine] due to:

- the risk of influenza associated morbidity in pregnant women*
- evidence of adverse neonatal outcomes associated with maternal respiratory hospitalization or influenza during pregnancy*
- evidence that vaccination of pregnant women protects their newborns from influenza and influenza-related hospitalization, and*
- evidence that infants born during influenza season to vaccinated women are less likely to be premature, small for gestational age, and low birth weight.”*

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Pregnancy and breastfeeding (cont'd)

- Inactivated influenza vaccines are safe for pregnant women at **all** stages of pregnancy
- Inactivated influenza vaccines are safe for breastfeeding mothers



Influenza vaccine given in pregnancy is beneficial

A study was completed in Utah and Idaho looking at women who delivered from December 2005 to March 2014.

On admittance to Intermountain hospital facilities, labouring women were asked about their influenza immunization status. Babies' records were then assessed for their first six months of life.

Although maternal immunization rates were not high, the following reduction risks were found in infants born to mothers who reported influenza immunization:

- 64% decrease for influenza like illness
- 70% decrease in laboratory confirmed influenza
- 81% decrease in influenza hospitalizations in their first 6 months of life

Shakib JH, Korgenski K, Presson AP, Sheng X, Varner MW, Pavia AT and Byington CL. Influenza in infants born to women vaccinated during pregnancy. *Pediatrics*. 2016 Jun; 137(6).

Reactions to inactivated influenza vaccine

Most people do not have a reaction to QIV; however, some reactions that may occur are outlined below. These reactions generally start 6 to 12 hours after immunization and can last for 1 to 2 days.

Common Reactions

- Injection site pain, tenderness, redness, swelling
- Irritability, abnormal crying, malaise, fatigue, anorexia, myalgia, headache, fever, dizziness, gastrointestinal symptoms, arthralgia, sore throat, runny nose

Uncommon

- Lymphadenopathy, dizziness, cough, rash, upper respiratory tract infection, injection site pruritus

Reactions to inactivated influenza vaccine

Rare Reactions

- Immediate, allergic-type responses such as hives, angioedema, allergic asthma, systemic anaphylaxis
- Guillain-Barré Syndrome (GBS)
- Oculorespiratory Syndrome (ORS)

Guillain-Barré Syndrome (GBS)

- GBS is an illness that affects the nervous system
 - It is rare; general risk is about 2 cases per 100,000 person years
 - It is characterized by loss of reflexes and symmetric paralysis usually beginning in the legs
 - It results in complete or near complete recovery in most cases
- It is thought that GBS may be triggered by an infection
 - The infection that most commonly precedes GBS is caused by *Campylobacter jejuni* bacteria
 - Other respiratory or intestinal illnesses and other triggers may also precede an episode of GBS, including Cytomegalovirus, Epstein-Barr virus and *Mycoplasma pneumoniae*

Guillain-Barré Syndrome (GBS) (cont'd)

- In 1976, the “swine flu” vaccine was associated with an increased risk of GBS – this has not been found with influenza vaccines administered after the swine influenza vaccine program according to the US Institute of Medicine
- Absolute risk of GBS after immunization is about 1 excess case per 1 million vaccinees above background rate of 10 - 20 cases/million
- Risk of GBS associated with **influenza infection** is much greater than that associated with immunization

It is recommended that, as a precaution, you DO NOT provide influenza immunization to people who have been diagnosed with GBS within 6 weeks of previous influenza immunization.

Oculorespiratory Syndrome (ORS)

In 2000-2001, Health Canada received increased reports of unusual symptoms following influenza immunization. These symptoms were subsequently described as *Oculorespiratory Syndrome (ORS)*.

Case definition of ORS (**onset within 24 hours of immunization**)

- bilateral red eyes

and

- one or more of the following respiratory symptoms (cough, wheeze, chest tightness, difficulty breathing, difficulty swallowing, hoarseness, sore throat) **with or without** facial swelling

Oculorespiratory Syndrome (ORS) (cont'd)

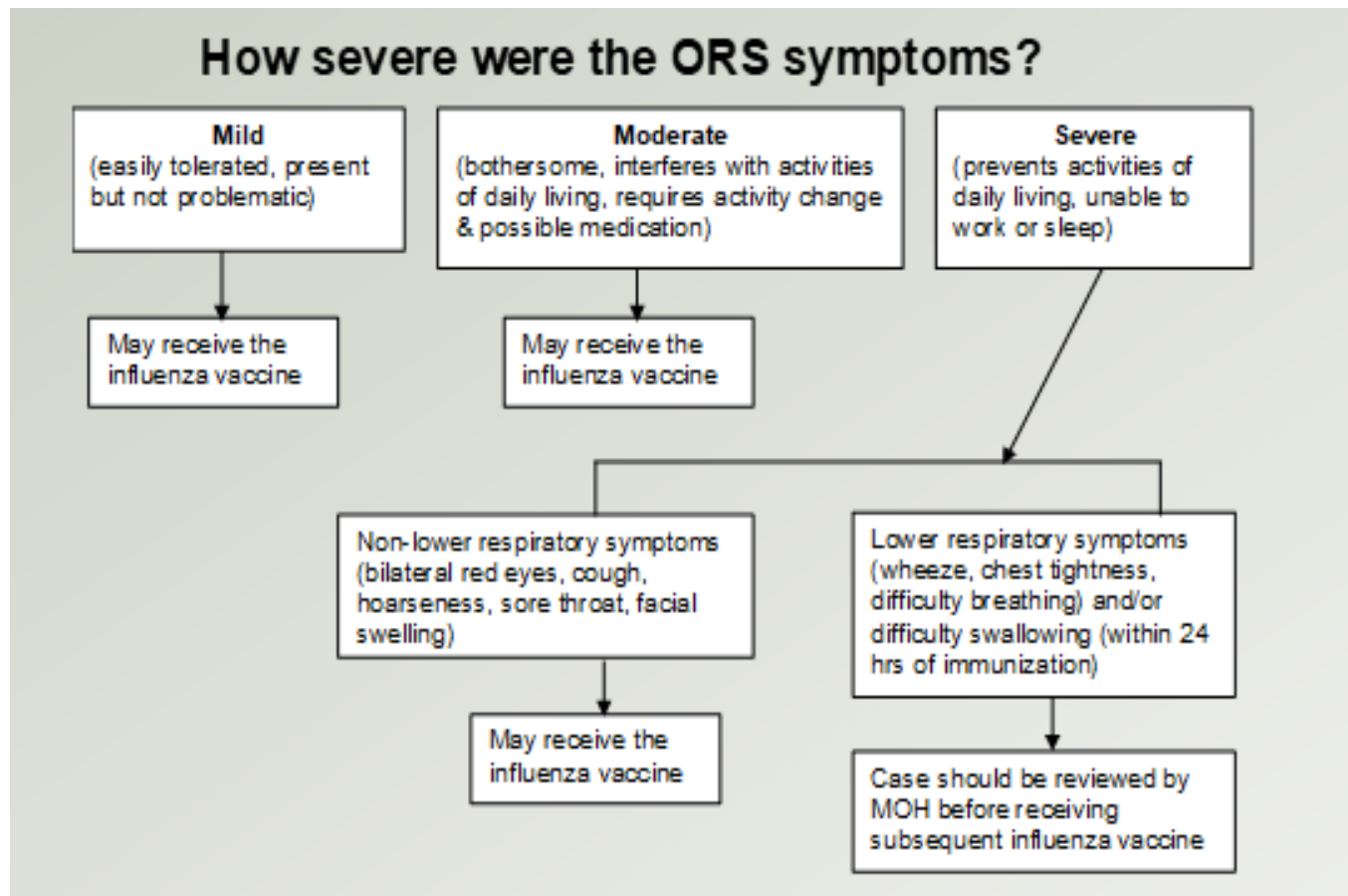
Immunization recommendations following client report of ORS are based on:

- risk/benefit assessment,
- and**
- severity of symptoms as perceived by the individual who experienced the symptoms

For immunization recommendations following client report of ORS:

Refer to Decision Making Algorithm: Influenza Vaccine for Persons with Previous ORS Symptoms

ORS Decision Flowchart



AEFI Reporting

An adverse event following immunization is defined as a serious or unexpected event temporally associated with immunization.

Local reactions are the most commonly reported event following immunization. A local reaction of pain and/or swelling is **ONLY** reportable if:

1. the onset of swelling is within 48 hours following immunization;

AND

2. swelling extends past the nearest joint

OR

3. severe pain that interferes with the normal use of the limb lasting greater than 4 days

OR

4. reaction requires hospitalization

AEFI reporting (cont'd)

Any of the following are also reportable adverse events:

- GBS
- ORS
- Anaphylaxis
- Other allergic reactions
- Any reaction outside of what is expected
- Consult with AHS Adverse Event Following Immunization (AEFI) Team at AEFI@ahs.ca or 1-855-444-2324 as soon as possible for any case where there is uncertainty as to whether a symptom following immunization is related to the immunization.
- Severe reactions (anaphylaxis and death) should be reported within 24 hours and all other reactions within 3 days to the AEFI Team. “Reportable AEFIs” are reported to Alberta Health, and in turn to the National Surveillance Program.

Contraindications to QIV/TIV

Inactivated influenza vaccine SHOULD NOT be administered to individuals who:

- Are less than 6 calendar months of age
- Have had an anaphylactic reaction to a previous dose of influenza vaccine
- Have a known hypersensitivity to any component of the vaccine with the exception of egg
- Have been diagnosed with Guillain-Barré Syndrome within 6 weeks of a previous dose of influenza vaccine
- Have experienced **severe** Oculorespiratory Syndrome (ORS) within 24 hours of receiving influenza immunization – these individuals should be assessed by the MOH further prior to immunizing

NOTE: Fluzone® High Dose should not be administered to individuals under 65 years of age

Egg-allergic individuals

- Egg allergy is not considered a contraindication for influenza vaccine.
- Egg-allergic individuals may be immunized without a prior influenza vaccine skin test and with the full dose of vaccine, irrespective of a past severe reaction to egg.

Vaccine deferral

Vaccine may be deferred until later in the following situations:

- Individuals presenting with a serious acute febrile illness
 - Recommendations should be provided for these individuals to be immunized when their symptoms have resolved.

Vaccine does not require deferral and can safely be given to the following individuals:

- Those with mild acute illness, with or without fever
- Individuals who are recovering from illness or are taking antibiotics

Influenza Vaccine Knowledge Check

Review Questions Section 2: Part B

1. In Alberta this year, who is eligible for the influenza vaccine at no charge?
2. Is thimerosal in vaccines a threat to health? Explain.
3. Who should not be immunized with influenza vaccine?
4. What is the recommendation for people who have been diagnosed with Guillain-Barré syndrome within 6 weeks of a previous influenza immunization?
5. What is the recommendation for clients who have experienced a mild case of ORS in the past?

Note: Answers can be found at the end of the PowerPoint.

Anaphylaxis

- Anaphylaxis is a potentially life-threatening allergic reaction
- Very rare (with an estimated occurrence of about 1 per 1,000,000 doses of vaccine administered). Even so, it should be anticipated with every client
- Pre-immunization screening can prevent episodes – ask questions about possible allergy to the vaccine or any vaccine component

Anaphylaxis cont'd

- Every immunizer should be familiar with the symptoms of anaphylaxis and be ready to initiate appropriate interventions
- Most instances begin within 15 minutes after immunization
- All clients are encouraged to wait for 15 minutes after immunization
- For clients with any known anaphylactic allergies, extend this recommended wait period to 30 minutes after immunization
 - Have these clients remain within a short distance and return immediately for assessment if they feel unwell

Anaphylaxis cont'd

Alberta Health Services employees need to ensure they have completed the Anaphylaxis Management | Insite (albertahealthservices.ca) learning module.

Covenant Health employees need to ensure they have completed Covenant Health Anaphylaxis Learning Module found on CLiC.

All other providers must have Anaphylaxis Management Guidelines in place.

- Additional information available in the Canadian Immunization Guide – Vaccine Safety

Syncope post immunization

- Syncope or vasovagal syncope is often referred to as fainting
- Defined as a temporary loss of consciousness and postural tone secondary to a lack of blood flow to the brain
- Vasovagal syncope is triggered by a stimulus, either an internal trigger such as invasive procedure (immunization) or an experiential trigger, e.g., seeing trauma (injections or blood)
- When a stimulus triggers an exaggerated response, both heart rate and blood pressure drop, quickly reducing blood flow to the brain and leading to loss of consciousness



Syncope post immunization

- In about 25% of cases, reduced blood flow can result in myoclonic jerks that resemble seizures
- These movements are more common when fainting occurs soon after immunization, and disappear when consciousness is regained
- Clients fainting due to vasovagal syncope recover quickly, usually within seconds or a few minutes



Signs and symptoms of syncope

As reported by client:

- Nausea
- Dizziness, weakness
- Ringing in ears
- Spots before eyes
- Light-headed

Signs and symptoms of syncope (cont'd)

Observed Signs	
Respiratory	<ul style="list-style-type: none">• Normal• Yawning
Skin	<ul style="list-style-type: none">• Pale/Grey• Sweating
Gastrointestinal	<ul style="list-style-type: none">• Vomiting
Cardiovascular	<ul style="list-style-type: none">• Hypotension• Slow or weak pulse• Consciousness to unconsciousness
Musculoskeletal	<ul style="list-style-type: none">• Muscles relaxed• Clonic jerks of limbs and face may occur

Facts about syncope

- There is a clear incidence peak in persons 11 to 18 years of age
- 50% of all people will experience a syncopal event at least once in their life
- A study done by the Centres for Disease Control in the United States found that 78% of the post immunization syncope cases occurred in women.
- A case series study done in the United States identified that of 571 syncopal events, 63.2% occurred within 5 minutes or less of immunization and 88.8% occurred within 15 minutes or less of immunization.
- Fainting can result in head trauma if a client falls

The goal is to prevent falls!



Tips to prevent syncope

- Administer vaccine while client is seated
- Maintain a calm and confident demeanor
- Try to keep vaccine preparation out of client's line of site when possible
- Observe anxious client until anxiety has resolved after immunization
- Have clients with a history of fainting lie down prior to administering vaccine
- Clients with pre-syncopal symptoms (such as dizziness, anxiety, pallor, perspiration, trembling, or cool, clammy skin) should sit or lie down until symptoms resolve

Assisting clients after syncope

- Assist the client to lay down with feet elevated
- Ensure the client's airway is open (ABCs)
- Monitor for signs of allergic reaction
- Call for assistance if needed
- Cover the client with a blanket for warmth if available
- Wipe the client's forehead with a damp cool cloth
- May offer fluids
- Have the client resume a standing position in stages (sit, stand, walk)
- Observe the client until the symptoms have resolved

Anxiety Spells Signs and Symptoms

- **As reported by client**
 - Nausea
 - Dizziness, weakness
 - Throbbing ears
 - Headache
 - Lump in throat
 - Tingling of tongue, mouth, face or limbs
 - Uneasiness
 - Restlessness

Anxiety Spells Signs and Symptoms (cont'd)

Observed Signs	
Respiratory	<ul style="list-style-type: none">• Normal to mild hyper-ventilation
Skin	<ul style="list-style-type: none">• Normal to flushed or pallor• Sweating
Gastrointestinal	<ul style="list-style-type: none">• Vomiting may occur• Often normal
Cardiovascular	<ul style="list-style-type: none">• Normal, possible slight hypertension• Rapid pulse• Conscious

Breath holding

- Occurs in young children when upset in as many as 5% of toddlers, typically between 6 months to 2 years of age, generally self resolving by 3 to 4 years of age
- Is considered a syncopal event
- Signs and symptoms:
 - Suddenly become quiet but still very agitated
 - Facial flushing & perioral cyanosis
 - Often ends with resumption of crying, or a brief period of unconsciousness during which time breathing resumes
- Treatment
 - Reassurance, no evidence of long-term sequela

Anaphylaxis and Syncope Knowledge Check

Review Questions Section 3

1. What is the incidence of anaphylaxis after immunization?
2. What is the percentage of people who experience jerking movements that resemble seizures after fainting?

Note: Answers can be found at the end of the power point.

Infection Prevention and Control (IPC)

IPC's mandate is to reduce the incidence of healthcare associated infections in patients, residents, and clients by:

- process and outcome surveillance
- outbreak identification and management
- consultation and education
- guideline, policy, and procedure development
- research

For more information go to the AHS IPC website at:

<https://www.albertahealthservices.ca/info/page6410.aspx>

Questions



Can too many vaccines weaken the immune system?

- Vaccines do not weaken the immune system. Rather, they harness and train it to defend, rapidly, against vaccine-preventable diseases before illness can occur. Getting an annual influenza vaccine is a good way to keep both yourself and your immune system healthy.
- Our immune systems are bombarded with constant challenges –from bacteria in food to the dust we breathe. Compared to what the immune system typically encounters and manages each day, vaccines are literally a drop in the ocean. At present, infants receiving recommended vaccines starting at two months of age come into contact with only 34 antigens – just 34 antigens among the millions handled every day by our immune systems.

Should I get the influenza vaccine if I am healthy?

- You may not be in a group that is at high risk for influenza related complications, but your patients/residents/clients may be, and members of your family may be as well.
- If you get influenza, you put people around you at high risk for serious illness. You can help ensure that they stay healthy this winter by protecting yourself.
- Even healthy people can get severe influenza that can result in hospitalization or even death.



If residents/patients get immunized, why should I?

- Can you be sure that all those you care for were immunized? What if they weren't?
- Health care providers who have direct patient contact should consider it their responsibility to provide the highest standard of care which includes annual influenza immunization.
- Getting immunized will add an extra level of certainty that you will not get influenza, and will not pass it on to others.



Can the influenza vaccine give me influenza?

- Immunization with inactivated vaccine cannot cause influenza disease because the vaccine does not contain live viruses.
- The vaccine takes about two weeks to become completely effective. If you get influenza after being immunized, you may experience milder symptoms than if you had not had the immunization.
- Many people confuse influenza with a cold or other respiratory infections, which the vaccine will not protect you against.



Should I get an influenza vaccine every year?

YES...

- Strains of the influenza virus change every year, and new vaccines are produced to counter them as soon as they are identified
- The immunization you had last year will likely not be effective against this year's virus
- Even if you have avoided getting influenza so far, it does not mean that you will not get sick this year
- By not getting the influenza immunization, you are increasing your chances of becoming ill



References

1. Alberta Health, Health and Wellness Promotion Branch, Public Health and Compliance Division. Adverse Events Following Immunization (AEFI) Policy for Alberta Immunization Providers (2023 August 21).
2. Alberta Health, Health and Wellness Promotion Branch, Public Health and Compliance Division. Alberta Immunization Policy: The Alberta Outreach Immunization Program (2023 July).
3. Alberta Health, Health and Wellness Promotion Branch, Public Health and Compliance Division. Alberta Vaccine Storage and Handling Policy for Provincially Funded Vaccine (2022 August 10).
4. Alberta Health, Public Health and Compliance Division. Influenza Vaccine, High-Dose Quadrivalent Inactivated. Alberta Immunization Policy (2023 August).
5. Alberta Health, Public Health and Compliance Division. Influenza Vaccine, Quadrivalent Inactivated. Alberta Immunization Policy (2023 August).
6. Alberta Health Services. Provincial Population & Public Health, Communicable Disease Control and Safe Healthy Environments. (May 2023). Guidelines for Outbreak Prevention and Control in Long Term Care, Designated Supported Living and Hospice Sites.
7. American Journal of Nursing. (April 2010). Recognizing and treating vasovagal syncope. *AJN*, Vol. 110, No. 4.
8. Braun, M.M, Patriarca, P.A. and Ellenberg, S.S. (March 1997). Syncope after immunization. *JAMA Pediatrics*. 151(3):255-9.
9. British Columbia Centre for Disease Control. (2009). Management of Anaphylaxis in a Non-Hospital Setting. *Communicable Disease Control Immunization Program*.
http://www.bccdc.ca/resource/gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part_3_Anaphylaxis.pdf

References

10. Do Bugs Need Drugs (September 2011). *Healthy Hands at Work: Being sick at work is everyone's business, Employer Handbook*. <http://www.dobugsneeddrugs.org/wp-content/uploads/employer-handbook.pdf>
11. Do Bugs Need Drugs (August 2014). *Healthy Hands at Work: Being sick at work is everyone's business, Worker Handbook*. <http://www.dobugsneeddrugs.org/wp-content/uploads/worker-handbook.pdf>
12. Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. Hamborsky J, Kroger A, Wolfe S, eds. 13th ed. Washington D.C. Public Health Foundation 2015.
13. GlaxoSmithKline Inc. (April 12, 2023) FLULAVAL TETRA 2023-2023 Quadrivalent Influenza Vaccine (Split Virion, Inactivated). *Product Monograph*.
14. Health Canada. Health Products and Food Branch Inspectorate. (April 28, 2011) *Guidelines for Temperature Control of Drug Products during Storage and Transportation (GUI-0069)*. <http://www.hc-sc.gc.ca/dhp-mps/compli-conform/gmp-bpf/docs/gui-0069-eng.php>
15. National Advisory Committee on Immunization. *Canadian immunization guide (Evergreen Edition)*. Ottawa, ON: Public Health Agency of Canada. <http://www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php>
16. National Advisory Committee on Immunization (2023). *Canadian Immunization Guide Chapter on Influenza and Statement on Seasonal Influenza Vaccine for 2023-2024*. Ottawa, ON: Public Health Agency of Canada.
17. Sanofi Pasteur Inc. (April 20, 2023). FLUZONE® Quadrivalent Influenza Virus Vaccine Quadrivalent Types A and B (Split Virion). *Product Monograph*.

References

18. Sanofi Pasteur Inc. (April 20, 2023). FLUZONE® High-Dose Quadrivalent Influenza Virus Vaccine Quadrivalent Types A and B (Spit Virion). *Product Monograph*.
19. Wieling, W., Ganzeboom, K.S. and Saul, J.P. (2004). Reflex syncope in children and adolescents. *Heart*. 90:1094-1100.

Answer Key

Influenza Disease Knowledge Check Answers Section 1

1. During which time period are individuals who have been infected with influenza contagious?

Individuals with influenza are infectious 1 day before symptoms develop and up to 5 days after becoming ill. The period when an infected person is contagious depends on the age and health of the person. Young children and people with weakened immune systems may be contagious for longer than a week.

2. Which individuals are at highest risk of developing complications from influenza?

Children 6 to 59 months of age, pregnant women, those 65 years of age and over, individuals with chronic health conditions, indigenous people and those who are morbidly obese are at higher risk of developing complications from influenza illness. Complications can include pneumonia (bacterial and viral), ear and sinus infections, dehydration, and worsening of chronic medical conditions, such as congestive heart failure, asthma or diabetes.

Answer Keys

Influenza Vaccine Knowledge Check Answers Section 2 Part A

1. Which strains of influenza virus are included in the 2023-2024 influenza vaccine for the northern hemisphere?

Strains included in the 2023-2024 vaccine include:

A/Victoria/4897/2022(H1N1)pdm09-like virus

A/Darwin/9/2021(H3N2)-like virus

B/Austria/1359417/2021-like virus

B/Phuket/3073/2013-like virus

1a. Why are these strains chosen?

Each February, the World Health Organization (WHO) makes a recommendation on the strains to be included in the influenza vaccine for the northern hemisphere. Two influenza “A” viruses and one (for trivalent vaccines) or two (for quadrivalent vaccines) influenza “B” viruses are selected based on the characteristics of the current circulating and new influenza virus strains).

Answer Key

2. Why is it necessary to get an influenza immunization each year to be protected?

A new vaccine is reformulated each year to protect against new infections. Each vaccine lot is tested on healthy individuals to ensure the vaccine is safe and effective.

3. Can you get influenza disease from the influenza vaccine? Explain.

No. QIV is an inactivated (killed) vaccine and therefore you cannot get influenza disease from the vaccine. QLAIV is a live vaccine which does not cause influenza disease in the vaccine recipient because the vaccine virus is attenuated or weakened.

Answer Key

Influenza Vaccine Knowledge Check Answers Section 2 Part B

1. In Alberta this year, who is eligible for the influenza vaccine at no charge?

Alberta Health (AH) funds a *Universal Influenza Immunization Program*, where all people 6 months of age and older who live, work, go to school or are visiting are eligible for vaccine at no charge.

2. Is Thimerosal in vaccines a threat to health? Explain.

No. Thimerosal (ethylmercury) is a preservative used in multi-dose vials of vaccine – it is not the same compound as methylmercury, which is a known neurotoxin in high concentrations, or with prolonged exposure (e.g., ingesting some types of fish). Ethylmercury is excreted from the body much faster and is less likely to reach toxic levels in the blood than methylmercury. Multi-dose vials of vaccine contain very small amounts of thimerosal. Studies have demonstrated that there is no association between immunization with thimerosal-containing vaccines and neurodevelopmental outcomes, including autism spectrum disorders.

Answer Key

3. Who should not be immunized with influenza vaccine?

- **QIV should not be administered to:**
 - children less than 6 calendar months of age
 - people with a known hypersensitivity to any component of the vaccine
 - those with a previous anaphylactic reaction to influenza vaccine
 - people who have been diagnosed with Guillain-Barré syndrome within 6 weeks of a previous influenza immunization
 - people who have had severe Oculorespiratory Syndrome (ORS) after influenza immunization - these individuals should be assessed further prior to immunizing.

Answer Key

4. What is the recommendation for people who have been diagnosed with Guillain-Barré syndrome within 6 weeks of a previous influenza immunization?

It is recommended that you do not provide influenza immunization to people who have been diagnosed with GBS within 6 weeks of previous influenza immunization.

5. What is the recommendation for clients who have experienced a mild case of ORS in the past?

They may receive the vaccine. Utilize the ORS Decision Flowchart to guide immunization decision.

Answer Key

Anaphylaxis & Syncope Knowledge Check Answers Section 3

1. What is the incidence of anaphylaxis after immunization?

- Although anaphylaxis is very rare with an incidence of about 1 per 1,000,000 doses, it should be anticipated with every client.

2. What is the percentage of people who experience jerking movements that resemble seizures after fainting?

- In about 25% of cases, reduced blood flow can result in jerking movements that resemble seizures. These movements are more common when fainting occurs soon after immunization and disappear when consciousness is regained.