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- BCCDC Immunization Courses
  
  [http://www.bccdc.ca/health-professionals/education-development/immunization-courses](http://www.bccdc.ca/health-professionals/education-development/immunization-courses)

  

- Saskatchewan Immunization Manual
  
  [https://www.ehealthsask.ca/services/Manuals/Pages/SIM.aspx](https://www.ehealthsask.ca/services/Manuals/Pages/SIM.aspx)

- Saskatchewan Publicly Funded Influenza Immunization Policy
  
  [https://www.ehealthsask.ca/services/Manuals](https://www.ehealthsask.ca/services/Manuals)

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This Reference Guide is an accompaniment to the Learning Module slides for Influenza Immunizers available [www.4flu.ca](http://www.4flu.ca).
Introduction

The Influenza program is implemented in accordance with the Saskatchewan Influenza Immunization Policy (SIIP). All residents 6 months of age and older are eligible to receive publicly funded influenza vaccine. The administration of publicly funded vaccine commences Oct 21, 2019.

The influenza program objective is to prevent influenza disease and/or reduce complications and deaths among Saskatchewan residents through vaccination.

To achieve this objective, Population and Public Health works in concert with multiple immunization partners in the delivery of seasonal influenza vaccine.

Section One – Influenza Disease

What is Influenza?

- Influenza, or “the flu”, is a highly contagious respiratory infection caused by influenza A or B viruses.
- In Canada, influenza generally occurs in the late fall and winter months every year.
- Influenza is ranked among the top 10 infectious diseases affecting the Canadian population (NACI, page 9).

Symptoms of Influenza

- Influenza has a sudden onset of fever, chills, cough, muscle aches, headache, fatigue, and a runny or stuffy nose.
- Although nausea, vomiting and diarrhea may also occur, especially in children, influenza is not “stomach flu”. It is a respiratory disease.

Severity

- Influenza occurs globally with an estimated attack rate of 5-10% in adults and 20-30% in children.
- Every year between 10-20% of Canadians become infected with influenza.
- Some people will not develop symptoms even though they have been infected.
- Those who do become ill will usually recover within a 7-10 days.
- Some – especially those 65 years of age and older, children from birth to 59 months of age, those with chronic health conditions and pregnant women 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.
- Every year about 3,500 Canadians will die from influenza.
- Even healthy people can develop serious complications and die from influenza.

A study published in the journal Pediatrics in 2017, found that “flu vaccination reduced the risk of flu-associated death by half (51%) among children with underlying high-risk medical conditions and by nearly two-thirds (65%) among healthy children.”
Spread and Communicability
- Influenza virus is easily spread from one person to another by coughing, sneezing or talking.
- It can also spread by touching something that has become infected with nose or throat secretions from someone who is sick and then touching your eyes, mouth or nose before washing your hands.
- The virus can survive on surfaces for up to 9 hours.
- Adults can spread the virus from the day before symptom onset to ~ 5 days after symptoms begin.
- Children can spread the virus to others for 10 days or more.
- A person can transmit the virus to others even if no symptoms are present.

Prevention
- Get the influenza vaccine every fall.
- Wash your hands often with soap and water, scrubbing for at least 15 seconds before rinsing under running water and drying with a clean or disposable towel.
- Stay home if you are ill.
- Cough and sneeze into your sleeve or a tissue (then wash your hands after you throw the tissue away).
- Avoid touching your eyes, nose, or mouth – your hands or fingers may have touched something infectious before.
- Regularly clean surfaces such as your keyboard, mouse, and phone with disinfectants.
- Maintain a healthy lifestyle: exercise, eat well, limit intake of sugar, caffeine, and alcohol, stay well hydrated, get adequate rest and sleep, do not smoke, and keep your immunizations up to date.

Section Two – Influenza Vaccine

Facts about the Influenza Vaccine
- Choosing the annual influenza vaccine strains is the responsibility of the World Health Organization (WHO).
- Because influenza viruses change frequently, a new vaccine formulation is considered each year.
- Each vaccine lot is tested on healthy individuals to ensure the vaccine is safe and effective.
- Even when vaccine strains remain the same, re-immunization is needed for optimal protection because immunity wanes over the year.

Effectiveness of Influenza Vaccine
- The vaccine takes about two weeks to become effective; however, there may be some protection afforded before that time.
- Vaccine effectiveness varies depending on the:
  - Age of the recipient
  - Immune response of the person being immunized, and
  - Match between the vaccine strains and the influenza strains circulating in the community.
- While vaccine effectiveness can vary, recent studies show that flu vaccination reduces the risk of flu illness by between 40% and 60% among the overall population during seasons when most circulating flu viruses are well-matched to the flu vaccine.
• When the vaccine does not provide complete protection, it will still lessen the length and severity of illness.

• Vaccine efficacy in the elderly is about half of that in healthy adults, however it does reduce the incidence of pneumonia, hospitalizations and deaths in this age group. High Dose vaccine provides superior protection in the elderly compared to standard dose especially in influenza A (H3N2) dominant season (NACI 2019-20 pages 19 and 46). Some previous studies suggest the efficacy is increased by 22-24% compared to standard dose (NACI 2018-19, page 30).

• Although vaccine efficacy may be lower in certain populations (e.g. the elderly or those who are immunocompromised), immunization remains an important source of disease protection in these vulnerable groups.

Seasonal Influenza Vaccine Composition for 2019 – 2020

For everyone over 6 months of age, quadrivalent influenza vaccine is available:

- Fluzone®
- FluLaval Tetra®

** Fluzone® and FluLaval Tetra® can be used interchangeably.

Both quadrivalent influenza vaccines contain the following strains:

- A/Brisbane/02/2018 (H1N1)pdm09-like virus
- A/Kansas/14/2017 (H3N2)-like virus
- B/Colorado/06/2017-like virus (B/Victoria/2/87/ lineage)
- B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage) *

For persons 65 years of age and older in Long Term Care (LTC), trivalent influenza vaccine is available:

- Fluzone® High Dose

The trivalent influenza vaccine contains the following strains:

- A/Brisbane/02/2018 (H1N1)pdm09-like virus
- A/Kansas/14/2017 (H3N2)-like virus
- B/Colorado/06/2017-like virus (B/Victoria/2/87/ lineage)

These products:
- Are inactivated vaccines. Influenza viruses are grown in chicken egg cells and then “inactivated” (killed) during the manufacturing process. The resulting inactivated vaccine cannot cause influenza.
- May be given at the same time as, or at any time before or after, the administration of other vaccines (live or inactivated).

Refer to Table 1 for vaccine specific information.
Table 1: 2019/20 Provincially Funded Vaccines

<table>
<thead>
<tr>
<th>APPENDIX 1: 2019-20 Publicly Funded Influenza Vaccines</th>
<th>FLUZONE® Quadrivalent (SP) QIV split virion</th>
<th>FLUZONE® High Dose (SP) TIV split virion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Everyone ≥ 6 months</td>
<td>LTC residents ≥ 65 years</td>
</tr>
<tr>
<td>Dose</td>
<td>0.5 mL IM</td>
<td>0.5 mL IM</td>
</tr>
<tr>
<td>Components</td>
<td>Latex, antibiotic and gelatin free and contains all surface antigens of this year’s influenza A and B viral strains, formaldehyde, sodium phosphate-buffered, isotonic sodium chloride solution, and Triton® X-100, and may contain traces of egg protein (ovalbumin), sodium deoxycholate, ethanol, formaldehyde and sucrose.</td>
<td>Latex, antibiotic, thimerosal and gelatin free and contains all surface antigens of this year’s influenza A and B viral strains, formaldehyde, sodium phosphate-buffered, isotonic sodium chloride solution, and Triton® X-100, and may contain traces of egg protein.</td>
</tr>
<tr>
<td>Preservative</td>
<td>Thimerosal in multidose vials</td>
<td>No preservatives</td>
</tr>
<tr>
<td>Normal and Expected Reactions</td>
<td>Pain (60%), redness (2%), and swelling (9%) at the injection site.</td>
<td>The most common reactions occurring after vaccine administration are injection site pain (11%-57%), erythema (7%-30%) and edema (6%-21%).</td>
</tr>
<tr>
<td>Mild to moderate reactions generally last 1-4 days.</td>
<td>Headache (22%), fever (2%), tiredness (22%), muscle aches (26%), and shivering (9%).</td>
<td>The most common systemic reactions observed after vaccine administration are asthenia (2%-18%), headache (2%-10%) and myalgia (2%-9%).</td>
</tr>
<tr>
<td>Presentation</td>
<td>5 mL multidose vial containing 10 doses of 0.5 mL</td>
<td>5 mL multidose vial containing 10 doses of 0.5 mL</td>
</tr>
<tr>
<td>Contraindications</td>
<td>Persons with a history of a severe allergic or anaphylactic reaction to a previous influenza vaccine or any component of an influenza vaccine should discuss their situation with a public health nurse or their physician.</td>
<td>The most common reactions occurring after vaccine administration are injection site pain (36%), erythema (13%) and edema (5%).</td>
</tr>
<tr>
<td>Instructions for Administration</td>
<td>Do not administer vaccine from a vial that has been opened for ≥28 days or has expired.</td>
<td>The most common systemic reactions observed after vaccine administration includes myalgia (21%), malaise (18%) and (2%-18%), headache (17%).</td>
</tr>
<tr>
<td>To get 10 doses out of a vial, GSK recommends that each 0.5 mL dose is withdrawn into a 1 mL syringe equipped with a needle gauge not larger than a 23G.</td>
<td>Vaccine may be administered from a MDV that has been opened up to the expiry date indicated on the vial.</td>
<td>Nothing specific for this vaccine.</td>
</tr>
<tr>
<td>Special Instructions –</td>
<td>Gently shake pre-filled syringe or vial before administration</td>
<td>Date vials when opened.</td>
</tr>
<tr>
<td></td>
<td>Do not freeze or use if vaccine has been frozen.</td>
<td>Store 2°C-8°C.</td>
</tr>
<tr>
<td></td>
<td>Protect from light.</td>
<td>Pre-drawing is not recommended.</td>
</tr>
<tr>
<td></td>
<td>The Ministry recommends that vaccines be administered directly from the fridge or cooler and not warmed to room temperature prior to administration.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Table from the Saskatchewan Influenza Immunization Policy 2019 - 20: Appendix 1: 2019-2020 Publicly Funded Influenza Vaccines (p.18)

NOTE: Thimerosal free vaccine is available for those who self-identify as having a diagnosed thimerosal allergy. Contact your local Public Health office if requiring thimerosal free vaccine.

FYI: There will be no live attenuated influenza vaccine (LAIV) in Canada for this season; therefore no FluMist® (nasal spray) publicly funded or available for purchase. (from Canadian Immunization Guide - Chapter on Influenza and Statement on Seasonal Influenza Vaccine for 2019-2020, May 2019; for more information: www.drugshortagescanada.ca)
Influenza Immunization Reference Guide

Recommendation for Children < 9 years old

The first time that children under 9 years of age receive the seasonal influenza immunization, a 2-dose schedule is recommended to achieve protection.

Because children 6-23 months of age are less likely to have had prior priming exposure to an influenza virus, it is more important to ensure that a 2-dose schedule is followed for previously unvaccinated children in this age group.

(NACI)

- The first dose “primes” the immune system; the second dose provides immune protection.
- Children who only get one dose, but need two doses, can have reduced or no protection from a single dose of flu vaccine. (CDC August 2016)

Scenarios:

- #1: 5 year old client presents for influenza immunization and has had no previous doses of influenza vaccine.
  - Give the flu vaccine today and 2nd dose in min. 4 weeks. Only needs 1 dose/year in future years
- #2: 20 month old client presents for influenza immunization and had one dose previously on March 28, 2018.
  - Give the flu vaccine today and this is considered their 2nd dose. Only needs 1 dose/year in future years.
- #3: 10 year old client presents for influenza immunization and has had no previous doses of influenza vaccine.
  - Give one dose today and no booster doses needed as not < 9 years old.
- #4: 7 month old client presents for influenza immunization and had one dose of influenza at 6 months of age (>4 weeks ago).
  - Give 2nd dose of influenza today. Only needs 1 dose/year in future years.

Recommended Vaccine Recipients

Influenza vaccine is recommended for all individuals aged 6 months and older. Children must be 6 calendar months of age; no exceptions. The vaccine is licensed for infants 6 months of age and older.

Particular focus should be paid to those at high risk of influenza-related complications or hospitalization, people capable of transmitting influenza to those at high risk, and others as indicated in Table 2.

Pregnant women, at any stage of pregnancy, should be immunized with the influenza vaccine. The risk of influenza-related hospitalization increases with length of gestation. Vaccinating pregnant women protects them and their newborns from influenza and influenza-related hospitalization. Influenza vaccine is safe at all stages of pregnancy and for breastfeeding women.
Publicly funded influenza vaccines may be administered to people who are six months of age and older who do not have vaccine contraindications. In particular, the following people are highly recommended to receive the influenza vaccine to reduce the incidence and burden of influenza disease and related health complications:

- All HCWs, health care students, emergency response workers, visitors and volunteers who, through their activities, are capable of transmitting influenza to those at high-risk of influenza complications in independent practices, facilities, residences and community settings.
- Adults (including pregnant women) and children ≥6 months with a chronic health condition including but not limited to:
  - cardiac or pulmonary disorders (including bronchopulmonary dysplasia, cystic fibrosis & asthma);
  - diabetes mellitus and other metabolic diseases;
  - cancer and other immune-compromising conditions (due to underlying disease, therapy or both);
  - renal disease;
  - anemia or hemoglobinopathies;
  - neurologic or neurodevelopmental conditions (includes neuromuscular, neurovascular, neurodegenerative, neurodevelopmental disorders and seizure disorders (and for children include febrile seizures and isolated developmental delay) but excludes migraine and psychiatric conditions without neurological conditions
  - morbid obesity (adult BMI ≥ 40, child BMI assessed as ≥ 95th percentile adjusted for sex and age)
- Children and adolescents with the following conditions:
  - Those undergoing treatment for long periods with acetylsalicylic acid, because of the potential increase of Reye syndrome associated with influenza.
- People of any age who are residents of nursing homes, long-term care facilities and other chronic care facilities.
- People ≥ 65 years of age.
- All children six to 59 months of age (younger than five years).
- Indigenous peoples.
- Visitors to health care facilities and other patient care locations.
- Household and close contacts of individuals at high-risk of influenza-related complications whether or not the individual at high-risk has been immunized.
- Household and close contacts of infants less than six months of age.
- Members of households who are expecting a newborn during the influenza season.
- Those providing regular child care to children ≤ 59 months of age, whether in or out of the home.
- Those who provide services within closed or relatively closed settings to persons at high-risk.
- People who provide essential community services (e.g., provincial corrections staff who have direct contact with inmates).
- People in direct contact during culling operations with poultry infected with avian influenza.
- People working with live or dead poultry or swine.
- Health sciences students (human and animal health).
- Travellers - Influenza occurs year-round in the tropics. In temperate northern and southern countries, influenza activity peaks generally during the winter season (November to March in the Northern Hemisphere and April to October in the Southern Hemisphere).

Source: Table from the Saskatchewan Influenza Immunization Policy 2019-2020, page 8.


Influenza Immunization Reference Guide

Contraindications to Inactivated Influenza Vaccine

All individuals must be screened for contraindications prior to immunization.

**Inactivated influenza vaccine is contraindicated in:**
- Infants under 6 months of age.
- Those who have experienced an anaphylactic reaction to a previous dose or to any of the components within that vaccine (with the exception of egg*). Refer to Table 1 for vaccine components.
- Those experiencing a serious acute illness**.
- Individuals who have developed Guillain Barré Syndrome (GBS) within 6 weeks of a previous dose of influenza vaccine.
- People who have had severe Oculorespiratory Syndrome (ORS) after influenza immunization should be assessed further prior to immunizing.

* NACI 2017/18 states that inactivated influenza vaccine may be administered to individuals with severe egg allergies (including anaphylaxis) in any setting with no restrictions.

**Defer if person has a serious acute illness. However, vaccine can be safely given to those with mild acute illness (with or without fever), those recovering from illness, or those taking antibiotics.

Section Three – Vaccine Administration

Informed Consent Process

**Action 1: Identify Client; Determine Authority to Provide and/or Ability to Give Informed Consent**
- Confirm identity with a minimum of 2 identifiers (name, DOB, HSN)
- Confirm client/parent/guardian is capable of informed decision making regarding consent based on age.
- Confirm consent signed for children under 12 years of age.

**Action 2: Review Standard Fact Sheet Information**
- Disease being prevented.
- Benefits of vaccination.
- Risks of not getting the vaccine.
- Potential side effects of the vaccine (common and expected; and rare or unusual, such as anaphylaxis and the importance of the 15 minute wait).

**Action 3: Verify client has not received influenza vaccine in the current seasonal influenza season (since Oct 21 2019)**
- Check eHR Viewer or Panorama to determine appropriate interval for 2nd dose influenza for Children <9 years of age.

Refer to Chapter 3 in SIM [http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter3.pdf].
Action 4: Assess for contraindications
- Screen client for:
  - Age-must be >6 months of age.
  - History of allergies-has no allergies to components of vaccine.
  - Present health status-no evidence of serious acute illness.
  - Previous reactions to influenza vaccine - has had no previous anaphylactic reaction to influenza vaccine; GBS or ORS.

Action 5: Confirm Consent
- Confirm that person providing consent understands the information presented.
- Answer any additional questions.
- Verify the client is ready to proceed.

Action 5: Document

Population and Public Health Immunizers
- Complete local Immunization screening/registration/consent form.
- Offer all clients a Ministry of Health Record of Influenza Immunization wallet card, stamping it with the date the vaccine was administered.
- Document in Panorama for:
  - Influenza vaccine administered to all persons born in 2001 (up to and including 17 years of age) or later.
  - All other vaccines regardless of age. Including deferrals, risk factors or contraindications.

Partner Immunizers
- Are required by the Saskatchewan Ministry of Health to account for and report on vaccine utilization including wastage.
- In order to continue receiving provincially funded influenza vaccine, community providers must:
  - Account for all doses administered to individual clients and staff;
  - Record eligibility category for individuals immunized;
  - Complete all data collection forms distributed by local Population and Public Health or accessed from: www.4flu.ca
- All forms will be included in packages with the vaccine allotments.
- Additional doses of vaccine will be provided upon receipt of completed forms.

Influenza Vaccine Forms Submission
- Influenza immunization forms must be completed and reported weekly.

All Other Vaccines Forms Submission
- Weekly or monthly reporting as per agency standard of practice.

It is the professional and legal responsibility of the immunization provider to obtain valid informed consent prior to immunization.
Vaccine Preparation

Ensure the “10” rights of immunization:
1. Right product
2. Right client
3. Right dose
4. Right time
5. Right route
6. Right reason
7. Right documentation
8. Right education
9. Right evaluation
10. Right to refuse

Multidose Vials

- Remove only one vial from the refrigerator or insulated vaccine cooler at a time.
- Do not warm to room temperature prior to administration.
- Protect from light. Keep the vial in the original box.
- Read the vaccine label and check the expiry date.
- Do not administer products beyond the expiry date. Communicate with other staff when vials are nearing expiry dates to prioritize their use.
- Date multi-dose vials upon opening. The first day that the stopper is punctured is considered “day 1”.
  - FluLaval Tetra® - Do not administer vaccine from a vial that has been opened for ≥ 28 days.
  - Fluzone® - May be used until the expiry date indicated on the vial.
- Visually inspect the vaccine. Do not use if discolored, if extraneous particulate matter is noticed or if the vial is defective.
  - FluLaval Tetra® appears as opalescent translucent to off-white suspension, that may sediment slightly.
  - Fluzone® appears as clear to slightly opalescent in colour.
- Determine the site of injection based on the client’s age, muscle mass at the injection site, and medical history.
- Select appropriate syringe and needle.
  - 3 cc syringe with 25 gauge, 1” safety engineered needle tip; recommend using a 1.5” need tip for persons weighing ~>200 lbs.
  - For children, to reduce pain associated with injection, you may consider changing the needle tip after withdrawing product from a multidose vial.
- Cleanse rubber stopper with 70% isopropyl alcohol and allow to dry.
- Gently shake the vial prior to withdrawing each 0.5 mL dose.
- Do not combine partial doses from different vials to make a full dose.
- Draw up vaccine immediately prior to administration.
- While showing the vaccine to client, state vaccine name and expiry date (show and tell). This acts as the final check ensuring the “right” vaccine is being administered.

Always perform proper hand hygiene (Appendix A)

Do not pre-draw multiple syringes of vaccine ahead of time.
Influenza Immunization Reference Guide

Intramuscular Injections

- Ensure good visualization of the injection site area and avoid tight clothing above the injection site.
- Position the client’s limb for injection. Swab the site of injection with alcohol swab and allow to dry (less stinging).
- Select appropriate injection site:
  - 6 months to < 1 year of age: Vastus lateralis (anterolateral thigh).
  - Clients ≥1 year of age: Deltoid (provided the muscle mass is adequate).
  - Single mastectomy clients – use arm opposite the mastectomy.
  - Double mastectomy clients - use vastus lateralis.
- Coach client to relax the limb muscles prior to injection.
- Secure the injection site using the appropriate stabilization technique for the client’s age.
- Insert the needle quickly at a 90° angle.
- Inject the vaccine rapidly – DO NOT aspirate.
- Withdraw needle quickly at the same angle it was inserted and apply gentle pressure with a cotton ball at the injection site.
- Activate the safety engineered device immediately after withdrawing needle.
- Discard used syringe and needle as a single unit in sharps container.
- Empty multidose vials are to be disposed of in the sharps container.
- Reinforce the 15 minute wait period with the client or parent/guardian.

Note: if administering more than one IM injection, whenever possible use different limbs. If not feasible, injections may be administered in the same limb provided a separation of at least 2.5 cm (1 inch) is respected.

Section 4 - Reactions to Influenza Immunization

Quadrivalent Inactivated Influenza Vaccine (QIV) 
(FLuLaval Tetra and Fluzone)

Local
- Injection site pain, redness, swelling, warmth.
- Temporary limited movement of immunized limb due to discomfort.

Systemic
- Headache, fatigue, malaise, myalgia, fever, chills, sweating, arthralgia, irritability, loss of appetite.
- Note: in healthy adults there is no increase in the frequency of fever or other systemic symptoms following TIV compared with placebos.

Most people do not have any side effects following influenza immunization. Reactions that do occur are usually mild to moderate and may last for 1-4 days.
Trivalent Inactivated Influenza Vaccine (TIV)
(Fluzone High-Dose)

Local
- Injection site pain, redness, swelling, warmth.
- Temporary limited movement of immunized limb due to discomfort.

Systemic
- Myalgia, malaise, headache, possible fatigue, fever, chills, sweating, arthralgia, irritability, loss of appetite.

Rare Reactions to Influenza Vaccines

Guillain-Barré Syndrome (GBS)
- Is a rare form of paralysis thought to be immune-mediated.
- Usually temporary - most have full or near complete recovery although there is a 5% Case Fatality Rate.
- Often preceded by common infections including influenza.
- Has been associated with 1976 “swine flu” vaccine.
- Studies since 1976 have either demonstrated no association between GBS and seasonal influenza vaccine, or suggest a small increased risk of ~ 1 additional case per million persons vaccinated.
- The risk of GBS is much greater following influenza disease than following vaccine.
- Influenza immunization may have a protective effect against GBS by way of preventing influenza infection.

Oculorespiratory Syndrome (ORS)
- Defined as the onset of bilateral red eyes plus one or more respiratory symptoms (cough, wheeze, chest tightness, difficulty breathing or swallowing, hoarseness or sore throat) with or without facial swelling within 24 hours of influenza immunization.
- Most reports of ORS occurred following receipt of the 2000-2001 seasonal TIV.
- If previous ORS did not include lower respiratory tract symptoms → ok to proceed with influenza re-immunization.
- If previous ORS did include lower respiratory symptoms (i.e., wheezing, chest tightness, or difficulty breathing), do not re-immunize until expert medical consultation is obtained.

Anaphylaxis
- A potentially life-threatening allergic reaction.
- A sudden release of histamine and other inflammatory chemical mediators results in a rapid onset of cardinal clinical features involving at least two body systems (e.g. the skin, respiratory, circulatory or gastrointestinal systems).

Older adults receiving High-Dose Fluzone produced a higher rate of some systemic reactions than compared to standard-dose TIV. (NACI 2019-2020)
- Malaise, Myalgia, and Moderate to Severe Fever
- Most systemic reactions were mild and resolved within 3 days.

Do not administer influenza vaccine to individuals who report GBS within 6 weeks of a previous influenza dose.
• The cardinal clinical features may include:
  o Itchy, urticarial rash (in > 90% of cases).
  o Progressive painless swelling (angioedema) about the face and mouth, which may be preceded by itchiness, tearing, nasal congestion or facial flushing.
  o Respiratory symptoms (sneezing, coughing, wheezing, labored breathing, upper airway swelling – indicated by hoarseness and/or difficulty swallowing).
  o Vascular collapse – rapidly falling BP, sweating, rapid, thready pulse, weakness, dizziness, a feeling of uneasy, restlessness, anxiety.
  o Nausea, vomiting and diarrhea.
• Although rare (~ 1 episode per 1,000,000 doses), it should be anticipated with every client.
• Pre-screening during informed consent is an important mechanism to prevent episodes.
• Ensure immediate access to epinephrine when immunizing and follow local procedure for managing anaphylaxis. For dosage refer to Table 4 in SIM Chapter 12,
• Encouraging clients to remain on-site for 15 minutes after immunization permits early recognition and initiation of life-saving treatment.
• Immunizers must be able to distinguish between anaphylaxis, fainting or an anxiety reaction.

Treatment of Anaphylaxis

1. Assess circulation, airway, breathing, mental status, skin, and body weight.

   **Promptly and simultaneously perform steps 2, 3 and 4.**

2. Call for help.

3. Position client on back or a position of comfort if respiratory distress &/or vomiting. Elevate lower extremities. Client must not stand or sit suddenly.

4. Inject epinephrine IM in the mid-anterolateral aspect of the thigh, 0.01mg/kg. Record time of dose and repeat q 5 minutes if needed.

   Epinephrine can be given a maximum of 3 times with an interval of 5 minutes between each dose.

5. When indicated at any time, perform CPR beginning with chest compressions.

   **Note:** Confirm order of steps with local agency policy and procedure.
Fainting (vasovagal syncope)

- Fainting is often triggered by a stimulus (anxiety) which causes a drop in heart rate and blood pressure reducing blood flow to the brain and leading to a loss of consciousness.
- ~25% of cases can result in brief jerking movements that resemble seizures.
- Recovery tends to occur quickly, usually within a few seconds to minutes.
- Fainting can result in head trauma if a client falls.
- If client faints - have them lie down with feet elevated. Watch for signs of an allergic reaction. Apply a damp cloth to forehead and offer juice if possible. Have the client resume a standing position in stages starting with sitting, standing and then walking.

Anxiety Reactions

- Watch for the following symptoms: fearful, pale, diaphoretic, light headed, dizzy, numbness, tingling of face and extremities, hyperventilation.
- Treatment: reassurance combined with encouragement to relax and breathe slowly.

Section Five - Reporting Adverse Events Following Immunization (AEFI)

- All immunization providers of publicly funded vaccines should report adverse reactions that meet reporting criteria to local Population & Public Health office.
- Severe reactions should be reported within 24 hours.
- Fax form to Population and Public Health office as per local procedures.

Section Six – Vaccine Management

Vaccine Storage – Refrigerator

- Vaccine must be maintained at a temperature between 2°C - 8°C.
- Store in a dedicated refrigerator.
- Place vaccines only on the upper and middle shelves – not in refrigerator doors or near the cooling units, as these areas are more susceptible to temperature fluctuations.
- Leave space between products to allow air to circulate.
- Do not keep food or drinks in vaccine refrigerators.
- Monitor and record fridge temperatures a minimum of twice per day using a minimum-maximum thermometer.
- Newly installed or repaired storage units must have 1 week of twice daily temperature recordings before using it to store vaccines.
- Minimize fridge opening.
- Keep a separate tray or container in the fridge for products that have been partially used or taken to a clinic. Use these vaccines before opening new vials or packages.
• If room allows, place full plastic water bottles or thawed ice packs on the bottom and empty shelves. This helps maintain a constant storage temperature and will delay the temperature from rising in the event of a refrigerator or power failure.

Vaccine Packing and Transport
• Insulated coolers must be large enough to store vaccines, ice/gel packs, and insulating material.
• For a listing of acceptable containers see: http://www.ehealthsask.ca/services/manuals/Documents/sim-chapter9.pdf
• Insulating materials are used as a barrier to prevent direct contact between vaccines and frozen packs. Never allow vaccines to come into direct contact with ice! Vaccine that has been frozen is immediately inactivated.
• Bubble wrap is a good insulating material. A layer of paper toweling is not sufficient as a barrier to protect contact with frozen material.
• Pack enough refrigerated or frozen packs to maintain the cold chain.
• Do not use loose or bagged ice.
• Only take vaccine stock that is anticipated to be used at that clinic.
• Keep the container closed as much as possible.

Cold Chain
• Refers to the process used to maintain optimal temperature conditions during the transport, storage and handling of vaccines.
• The optimum temperature for vaccines is between 2°C - 8°C.
• Vaccines are sensitive biological products and may become less effective or destroyed when exposed to temperatures outside this range.
• Vaccine that has been frozen is immediately inactivated!

A cold chain break is any circumstance where a vaccine is exposed to temperatures outside of the optimal 2°C - 8°C range.

• If a cold chain break is suspected, place implicated vaccine in a bag labeled “Cold Chain Break - DO NOT USE”
• Return bag to fridge - maintaining the quarantined product under cold chain conditions.
• Report to local Population and Public Health and complete cold chain break form as per local procedures.
• Do not discard vaccine until the Ministry of Health determines the product integrity. Depending on circumstances the Ministry of Health may allow the vaccine to be used.
Appendix A: Hand Hygiene

**THE 4 MOMENTS FOR HAND HYGIENE** protect staff, clients and families:

- **Wash In** - Clean your hands before entering a client environment. 
  *Why? To protect the client from any harmful germs carried on your hands.*

- **Before Any Procedure** – Clean your hands immediately before any procedure such as an immunization. 
  *Why? To protect the client from any harmful germs, including the client's own germs, from entering the body.*

- **After Body Fluid Exposure** – Clean your hands immediately after any exposure to body fluids. 
  *Why? To protect yourself and the healthcare environment from any harmful germs transmitted by the client.*

- **Wash Out** – Clean your hands when leaving a client environment. 
  *Why? To protect yourself and the healthcare environment from any harmful germs transmitted by the client.*

---

**BE GERM SMART!**

If you haven’t completed your hand hygiene annual review this year, or if you need a reminder . . .

Visit www.germsmart.ca
Appendix B: Land marking and Restraining for IM Injections


And California Department of Public Health http://www.eziz.org/assets/docs/IMM-720ES.pdf
Hold the child on parent’s lap or have the child stand in front of the seated parent.

1. Parent’s arms embrace the child during the process.
2. Both legs are firmly between parent’s legs.

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**Restraints/stabilization techniques for deltoid site**

| Infants 12 months and older | Infants 18 months old and older ("The pretzel hold") |

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Have parent hold the child on parent’s lap.

1. One of the child’s arms embraces the parent’s back and is held under the parent’s arm.
2. The other arm is controlled by the parent’s arm and hand. For infants, the parent can control both arms with one hand.
3. Both legs are anchored with the child’s feet held firmly between the parent’s thighs, and controlled by the parent’s other arm.
• Breath-holding spells occur in some young children when they are upset, crying hard, and reacting to injection pain. Some spells end with resumption of crying, but others end with a brief period of unconsciousness during which breathing resumes. No treatment is required beyond reassurance of the child and parents.

Table 3: Anaphylaxis versus Fainting and Anxiety

<table>
<thead>
<tr>
<th></th>
<th>ANAPHYLAXIS</th>
<th>FAINTING</th>
<th>ANXIETY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ONSET</strong></td>
<td>Usually within 15 - 30 minutes after injection</td>
<td>Sudden, occurs before, during or shortly after immunization, recovery within 1 - 2 minutes</td>
<td>Sudden, occurs before, during or shortly after immunization, recovery within 1 - 2 minutes</td>
</tr>
<tr>
<td><strong>SKIN</strong></td>
<td>Warm, flushed, blotchy areas, progressing to pallor and clamminess, pruritus and urticaria, tingling and swelling in mouth, tongue and face</td>
<td>Pallor, diaphoresis, cold and clammy</td>
<td>Pallor, diaphoresis, cold and clammy</td>
</tr>
<tr>
<td><strong>BREATHING</strong></td>
<td>Sneezing, coughing, wheezing, laboured breathing, hoarseness and difficulty swallowing due to swelling</td>
<td>Slow or normal rate, shallow, irregular or laboured</td>
<td>Hyperventilation</td>
</tr>
<tr>
<td><strong>PULSE</strong></td>
<td>Rapid and weak</td>
<td>Slow, steady</td>
<td>Rapid</td>
</tr>
<tr>
<td><strong>BLOOD PRESSURE</strong></td>
<td>Decreased systolic and diastolic; hypotension can progress to cause shock</td>
<td>Decreased systolic and diastolic</td>
<td>Normal or elevated systolic</td>
</tr>
<tr>
<td><strong>SYMPTOMS &amp; BEHAVIOUR</strong></td>
<td>Un easiness, restlessness, agitation, not all signs. symptoms will be exhibited in each person, usually one body system dominates</td>
<td>Fearful; light-headedness, dizziness, numbness and weakness, sometimes accompanied by brief clonic seizure activity</td>
<td>Fearful, light-headedness; dizziness, numbness and weakness, tingling around lips and spasms in the hands and feet associated with hyperventilation</td>
</tr>
<tr>
<td><strong>GASTRO-INTESTINAL</strong></td>
<td>Nausea and vomiting; abdominal pain, loose stools</td>
<td>Nausea</td>
<td>Nausea</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td>Loss of consciousness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


1 Refer to CIG, 2006, p. 80
### Appendix D- AEFI Reporting Criteria

5.0 APPENDICES

#### Appendix 11.1: Summary of AEFI Reporting Criteria

*The length of time between vaccine administration and onset of symptoms is an important consideration in causality assessment. Temporal criteria listed below are approximate timelines of which an applicable AEFI could occur.*

<table>
<thead>
<tr>
<th>AEFI</th>
<th>Reporting Criteria</th>
<th>Inactivated</th>
<th>Live attenuated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOCAL REACTION AT INJECTION SITE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor reactions</td>
<td>Redness or swelling or pain extends past the nearest joint AND/OR</td>
<td>0-48 hours</td>
<td>0-48 hours</td>
</tr>
<tr>
<td></td>
<td>Redness or swelling or pain persists for 10 days or more</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major reactions: (e.g., Arthus reaction)</td>
<td>Onset within 48 hours of immunization AND</td>
<td>0-48 hours</td>
<td>0-48 hours</td>
</tr>
<tr>
<td></td>
<td>Swelling extends past the nearest joint</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infected abscess</td>
<td>Physician diagnosed AND</td>
<td>0-7 days</td>
<td>0-7 days</td>
</tr>
<tr>
<td></td>
<td>Material from the abscess is purulent (positive gram stain or culture) OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signs of localized inflammation (erythema, pain to touch, warmth) AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Evidence of improvement with antimicrobial therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterile abscess</td>
<td>Persists for more than 1 month, is more than 2.5 cm in diameter and/or drainage is evident AND</td>
<td>0-7 days</td>
<td>0-7 days</td>
</tr>
<tr>
<td></td>
<td>Material from the mass is non-purulent AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Absence of localized inflammation OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Failure to improve on antimicrobial therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nodule</td>
<td>Is more than 2.5 cm in diameter</td>
<td>0-7 days</td>
<td>0-7 days</td>
</tr>
<tr>
<td></td>
<td>Persists for more than 1 month</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cellulitis</td>
<td>Physician diagnosed AND</td>
<td>0-7 days</td>
<td>0-7 days</td>
</tr>
<tr>
<td></td>
<td>Characterized by at least 3 local signs or symptoms: pain or tenderness to touch, erythema, induration or swelling, warmth to touch</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SYSTEMIC EVENTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td>Fever that occurs in conjunction with another reportable event</td>
<td>0-72 hours</td>
<td>0-42 days</td>
</tr>
<tr>
<td>Rash</td>
<td>Generalized rash for which urgent medical attention is sought and believed to be related to vaccine</td>
<td>0-7 days</td>
<td>5-26 days</td>
</tr>
<tr>
<td></td>
<td>Any rash requiring hospitalization or treatment in ER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenopathy / lymphadenopathy</td>
<td>Enlargement of one or more lymph nodes, equal to or greater than 1.5 cm in diameter AND/OR</td>
<td>0-6 days</td>
<td>1-6 months</td>
</tr>
<tr>
<td></td>
<td>Draining sinus over a lymph node</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypotonic-hyposensitive episode (HHE)</td>
<td>Physician diagnosed AND</td>
<td>0-48 hours</td>
<td>0-48 hours</td>
</tr>
<tr>
<td></td>
<td>Reduced muscle tone AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyporesponsiveness AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pallor or cyanosis AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child less than 2 years of age</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Influenza Immunization Reference Guide
### AEFI Reporting Criteria

<table>
<thead>
<tr>
<th>AEFI</th>
<th>Reporting Criteria</th>
<th><em>Vaccines (temporal criteria)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Screaming/ Persistent crying</td>
<td>Continuous, unaltered crying lasting for 3 or more hours</td>
<td>Inactivated: 0-72 hours</td>
</tr>
<tr>
<td>Parotitis/ Orchitis</td>
<td>Physician diagnosed following immunization with mumps-containing vaccine</td>
<td>Live attenuated: 0-72 hours</td>
</tr>
<tr>
<td>Vomiting/ Diarrhea</td>
<td>3 or more episodes in 24-hour period AND Severe (i.e. projectile vomiting or explosive, watery diarrhoea)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Allergic Reactions

- **Anaphylaxis**: All adverse events managed as anaphylaxis at the time of occurrence (0-24 hours)

### Neurologic Events

- **Convulsion/ Seizure**: Seizures (febrile or afebrile) if they meet the temporal criteria (0-2 days)
- **Encephalopathy/ Encephalitis**: Physician diagnosed encephalopathy or encephalitis (0-15 days)
- **Meningitis**: Physician diagnosed meningitis for which no other cause was identified (2-42 days)
- **Anæsthesia/ Paraesthesia**: Physician diagnosed anaesthesia or paraesthesia lasting 24 hours or more (0-7 days)
- **Paralysis**: Physician diagnosed paralysis lasting 24 hours or more (0-15 days)
- **Guillain-Barré syndrome (GBS)**: Physician diagnosed GBS (0-6 weeks)
- **Bell’s palsy**: Physician diagnosed Bell’s palsy (0-8 weeks)
- **Subacute Sclerosing Panencephalitis (SSPE)**: Physician diagnosed SSPE

### Miscellaneous

- **Thrombocytopenia**: Physician diagnosed occurring within 30 days post-immunization (0-30 days)
- **Arthralgia/Arthritis**: Any arthralgia or arthritis that follows the receipt of rubella-containing vaccine and lasting at least 24 hours (N/A)
- **Intussusception**: Intussusception or haematochezia following receipt of rotavirus vaccine (N/A)
- **Syncope with injury**: Any syncope with injury following immunization (0-24 hours)
- **Death**: Any death of a vaccine recipient temporarily linked to immunization where no other clear cause of death can be established (within 1 month)
- **Fetal death or abnormality**: Any fetal death or abnormality that follows immunization of a pregnant woman (unknown)