

UPDATE ON 2013 – 2014 INFLUENZA VACCINES

The 2013 – 2014 influenza vaccine contains three influenza virus strains as recommended by the World Health Organization for the northern hemisphere: an A(H1N1) virus; an A(H3N2) virus; and a B/Massachusetts/2/2012-like virus. The vaccine is available as trivalent inactivated vaccine (TIV) with or without adjuvant for intramuscular or intradermal administration or live attenuated influenza vaccine (LAIV) for intranasal administration.¹ The National Advisory Committee on Immunization (NACI) has posted the following recommendations for dosage and route of administration of the influenza vaccines available in Canada.¹

Age group	TIV without adjuvant * IM	MF59—adjuvanted TIV (Flud®) IM	TIV for intradermal use (Intanza®)	LAIV (FluMist®)**	Number of doses required
6–23 months	0.5 ml	---	---	---	1 or 2***
2–8 years	0.5 ml	---	---	0.2 ml (0.1 mL per nostril)	1 or 2***
9–17 years	0.5 ml	---	---	0.2 ml (0.1 mL per nostril)	1
18–59 years	0.5 ml	---	0.1 mL (9µg/strain)****	0.2 ml (0.1 mL per nostril)	1
60–64 years	0.5 ml	---	0.1 mL (15µg/strain)	---	1
≥65 years	0.5 ml	0.5 ml	0.1 mL (15µg/strain)	---	1

TIV—Trivalent inactivated vaccine

LAIV = Live attenuated influenza vaccine

IM = Intramuscular

* Influvac® ≥ 18 years, Fluviral® ≥ 6 months, Agriflu® ≥ 6 months, Vaxigrip® ≥ 6 months

** Unless contraindicated, NACI recommends the use of LAIV as the preferred product for healthy children and adolescents 2–17 years of age. If LAIV is not available, TIV should be used as it is safe, efficacious and effective in this group.

*** Children 6 months to less than 9 years of age who have never received the seasonal influenza vaccine require two doses of influenza vaccine, with a minimum interval of four weeks between doses. Eligible children <9 years of age who have properly received seasonal influenza vaccine in the past should receive one dose per influenza vaccination season thereafter.

**** For adults with immune compromising conditions, the 15µg formulation should be considered to improve response.

Novel delivery systems

Intradermal and intranasal delivery systems are now available as options to the usual intramuscular administration of influenza vaccine¹:

- **Intanza® – Intradermal**

This product has been shown to elicit an immune response that is comparable to intramuscular TIV, with or without adjuvant. The skin is a potent immune organ and contains a larger number of antigen-presenting dendritic cells than muscle. Influenza antigen administered by the intradermal route has a high likelihood of being processed by local dendritic cells. Thus, the vaccine is thought to stimulate both cell-mediated immunity and antibody production.

Intanza produces more frequent and more extensive erythema, swelling, induration and pruritis than the IM vaccine. These reactions are generally mild and resolve spontaneously in a few days. Systemic reactions are similar to IM except that myalgia is less frequent with Intanza.

- **FluMist® – Intranasal**

This product contains the live attenuated influenza vaccine which has shown higher efficacy in children than the trivalent inactivated vaccine. Each dose of 0.2ml contains 10 fluorescent focus units (FFU) of virus propagated in pathogen-free eggs (so can't be used in an egg allergy). The flu strains are cold-adapted and temperature sensitive so they replicate in the nasal mucosa rather than the lower respiratory tract. Since they are attenuated they do not produce classic influenza-like illness.

The intranasal administration is thought to result in an immune response that mimics that induced by natural infection with the development of both mucosal and systemic immunity. Local mucosal antibodies protect the upper respiratory tract and may be more important than serum antibodies. The most common side effects are nasal congestion and runny nose.

Why choose one vaccine over another?²

TIV without adjuvant: It is widely available and funded by SaskHealth. Agriflu® comes packaged as a single dose and therefore does not contain thimerosal. The other brands are multi-dose and do contain thimerosal as a preservative. (Influvac® is also available in a thimerosal-free formulation but it is not publicly funded.)

TIV with adjuvant - Flud®: the adjuvant improves the immune response to the vaccine therefore it is recommended for people 65 years of age and older in a long term care facility or those with underlying health problems. It is thimerosal-free and covered by SaskHealth.

Intanza®: Intradermal administration is less painful than IM and the delivery system is easier for the health care worker. It is not covered by SaskHealth.

FluMist®: It is a patient-friendly delivery system, especially for children. It is not suitable for children under 2 years of age because of the risk of wheezing. Because it is a live virus, it should not be used in pregnant women or in the immunocompromised. It is not covered by SaskHealth.

Prepared by Dorothy Sanderson BSP. Reviewed by Karen Jensen MSc, BSP and Carmen Bell BSP.

References:

- 1) National Advisory Committee for Immunization (NACI) 2013–2014 flu season recommendations.
- 2) Government of Saskatchewan-Influenza Immunization in Saskatchewan