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Communicable Disease Control Manual

Chapter 2: Immunization

Appendix C - Contraindications and Precautions for Immunization

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1. Definitions

A contraindication is a condition in a recipient that increases the risk for a serious adverse event. In general, a vaccine should not be administered when a contraindication is present.

In Canada, the only contraindication applicable to all vaccines is a history of an anaphylactic reaction to a previous dose of vaccine or to a vaccine component. Severe immunosuppression and pregnancy are contraindications to live vaccines only.

A precaution is a condition in a recipient that might increase the risk for a serious adverse reaction or might compromise the ability of the vaccine to produce immunity. When a precaution is present, further assessment and a risk-benefit analysis may be necessary.

Table 1: General Contraindications and Precautions for Vaccine Administration

Issue of Concern	Type of vaccine ^A	
	Inactivated	Live
History of anaphylactic reaction to a previous dose of the vaccine or any of its antigens	Contraindication	Contraindication
History of anaphylactic reaction to a vaccine component	Contraindication if the specific vaccine contains that particular component	
Severely immunocompromised ^B	Precaution	Contraindication
Pregnancy ^B	HPV	Contraindication
Severe bleeding disorder ^B	Precaution	Precaution
Recent administration of blood product containing antibodies ^C	None	Precaution
Recent administration of live virus vaccine ^D	None	Precaution
History of Guillain-Barré syndrome (GBS) that occurred within 8 weeks of receipt of influenza vaccine or a tetanus-containing vaccine and for which no other cause is identified	Influenza vaccine Tetanus-containing vaccines	Live attenuated influenza vaccine

Adapted from [Canadian Immunization Guide, Part 2, Vaccine Safety, Contraindications, Precautions and Concerns](#).

^A This table refers to general health conditions, and is not an all-inclusive list. Refer to [Part 4 – Biological Products](#) for contraindications and precautions specific to each biological product.

^B Further information regarding each condition and associated precaution or contraindication can be found in [Part 2 – Immunization of Special Populations](#).

^C Specific information regarding recent administration of blood product containing antibodies is available in [Part 4 – Biological Products](#).

^D Parenteral live virus vaccines must be administered on the same day or separated by a minimum interval of 4 weeks. Live oral and live intranasal vaccines can be given concomitantly with, or any time before or after any other live vaccine, regardless of the route of administration of the other vaccine.

2. Assessment for Contraindications and Precautions

Assess every client for the presence of contraindications and precautions prior to any immunization.

Assess the following factors before administering any vaccine:

- history of anaphylactic reaction to any antigens or components contained in the vaccine
- adverse events previously experienced following receipt of the same vaccine
- past and current state of health, specifically any condition that may affect the immune system.

Include the following factors if administering a live vaccine:

- history of receipt of immune globulin, blood transfusion or blood product in the past year (not necessary for live oral and live intranasal vaccines)
- receipt of a live parenteral vaccine in previous 4 weeks (not necessary for live oral and live intranasal vaccines)
- pregnancy, or planning a pregnancy in the next month.

If administering a live vaccine to an infant under 12 months of age, assess for a family history of congenital immunodeficiency which may have been manifested as overwhelming infection following natural infection, dermatitis, chronic diarrhea and failure to thrive. The most severe immunodeficiencies (e.g., severe combined immunodeficiency syndrome) are usually diagnosed by 6 months of age.

Assess for history of Guillain-Barré syndrome (GBS). GBS that occurs within 8 weeks of a dose of influenza vaccine or a tetanus-containing vaccine and for which no other cause is identified is a contraindication to further doses of the associated vaccine. Refer to [Part 2 – Immunization of Special Populations, Individuals with Neurologic Disorders](#).

If, after consideration of these factors, a clear decision cannot be reached, seek direction from a designated regional immunization expert. The family physician may also be consulted if there are questions pertaining to the health status of the individual. If further consultation is required contact the Communicable Diseases and Immunization Service (BCCDC), phone 604-707-2548.

3. Severe Allergy to Vaccine Components

Allergic reactions may be caused by:

- Vaccine antigen
- Residual animal protein
- Antimicrobial agents (e.g, neomycin or polymyxin)
- Preservatives
- Stabilizers
- Or other vaccine components

Refer to [Part 4 – Biological Products](#) or individual product inserts for complete list of components of each biological product.

No vaccine approved for use in Canada contains penicillin or penicillin derivatives.

3.1 Anaphylactic Reaction to Eggs

In Canada, there are several vaccines manufactured by processes involving hens' eggs or their derivatives, such as chick cell cultures. These manufacturing processes may result in some vaccines containing trace amounts of residual egg and chicken protein. Hypersensitivity reactions occurring following receipt of these vaccines varies considerably in relation to the amount of residual egg and chicken protein in the vaccine.

Individuals with a history of an anaphylactic reaction to eggs should generally not receive RabAvert® or yellow fever vaccines. However, for post-exposure purposes, an anaphylactic allergy to eggs is not a contraindication to RabAvert® vaccine if another rabies vaccine is unavailable.

MMR or MMRV vaccines: Egg allergy is **not** a contraindication to MMR or MMRV vaccines. Individuals with a history of anaphylactic hypersensitivity to eggs can receive MMR or MMRV vaccine. The trace amount of egg protein in these vaccines is insufficient to cause an allergic reaction.

Influenza vaccines: Egg allergic individuals (including those who have experienced anaphylaxis following egg ingestion) can be immunized with inactivated or live attenuated influenza vaccine in any setting attended by immunization service providers who are following standard vaccine administration practices.

Prior egg ingestion is not a prerequisite for immunization with an egg protein-containing vaccine. Atopic diseases following egg consumption are not a contraindication to immunization with an egg protein-containing vaccine.

For more information, refer to the [Canadian Immunization Guide, Part 2: Vaccine Safety, Anaphylactic Hypersensitivity to Egg and Egg-related Antigens](#).

4. Latex Allergy

Assess clients for a previous anaphylactic reaction to latex when the biological product vial stopper or needle shield contains latex.

Latex is sap from the commercial rubber tree. Latex is processed to form natural rubber latex and dry natural rubber. Both products contain the same plant impurities (plant proteins and peptides) found in natural latex that are believed to trigger allergic reactions.

Dry natural rubber is used in some syringe plungers, vial stoppers, and needle shields.

It is possible the allergenic proteins could be introduced into the product being administered during immunization and cause an anaphylactic reaction.

Synthetic rubber and synthetic latex do not contain natural rubber or natural latex and, therefore, do not contain the impurities linked to allergic or anaphylactic reactions.

The most common type of latex sensitivity is contact-type allergy, usually as a result of prolonged contact with latex-containing gloves. Contact dermatitis is **not** a contraindication to immunization with a vaccine containing latex in its container (vial or syringe).

While injection procedure associated latex allergies among patients with diabetes mellitus have been described, allergic reactions (including anaphylaxis) after vaccination are rare.

If a person reports an anaphylactic allergy to latex, do not administer vaccines supplied in vials or syringes that contain natural rubber. Refer to [Supporting Documents - Latex Content in Vaccines](#) and the product monograph to determine whether the product being administered has any latex content.

5. Conditions that are not Contraindications to Immunization

Antibiotics and Antivirals:

- Antibiotics and antivirals have no effect on response to inactivated vaccines or most live vaccines in Canada.
- Exceptions:
 - Varicella vaccine and herpes zoster vaccine may have reduced effectiveness if given concurrently with antivirals active against varicella zoster virus such as acyclovir, valacyclovir, or famciclovir. People taking long-term antiviral therapy should discontinue these drugs, if possible, at least 24 hours before administration of varicella or herpes zoster vaccine and should not restart antiviral therapy until 14 days after vaccination.
 - LAIV should not be administered until 48 hours after antiviral agents active against influenza (e.g., oseltamivir and zanamivir) are stopped, and antiviral agents should not be administered until at least 14 days after the receipt of LAIV unless medically indicated. If antiviral agents are administered within this time frame, revaccination should take place at least 48 hours after the antivirals are stopped.
 - Live oral typhoid vaccine should be delayed until at least 24 hours after antibiotics active against *Salmonella typhi*.

Convalescence from or exposure to an infection:

- No interference with response to vaccines.
- Exceptions:
 - Convalescence from measles and varicella infection. Defer all immunization with live and inactivated vaccines until at least 4 weeks after illness onset. This is because these infections are accompanied by abnormalities of cell-mediated immunity (CMI) that may result in a suboptimal response to vaccines. However, immunization should be considered when such individuals are at high risk of disease (e.g., during an outbreak, traveling overseas) as even a less than optimal response may provide important benefit when at high risk of morbidity and mortality due to vaccine preventable infection.
- No increased risk of adverse events following immunization.

Acute illness with or without fever:

- Minor or moderate acute illness, with or without a fever, is **not** a contraindication to immunization. Minor illnesses such as teething, stomach upsets, and the common cold, with or without fever, frequently occur in young children and are **not** a contraindication to immunization. Available evidence indicates that a concurrent acute illness does not reduce vaccine efficacy or increase vaccine adverse events.
- Severe acute illness may be a reason to defer immunization. The risks and benefits of vaccinating a severely ill person need to be carefully assessed. The benefits of protection in a high risk exposure situation or when the window of opportunity is short (i.e., when travel or immunocompromise are imminent) need to be assessed against the risks that a vaccine-related adverse event (particularly fever) could complicate the management of the person. The other potential risk is that events associated with the acute illness may be misperceived as vaccine-related adverse events.

Breastfeeding

- There are no contraindications or precautions to immunization of either the lactating mother or the breastfeeding infant with vaccines that are provided as part of the BC Immunization Program. However, there may be contraindications or precautions for other vaccines (e.g., yellow fever); for more information see the [Canadian Immunization Guide, Part 3: Vaccination of Specific Populations, Immunization in Pregnancy and Breastfeeding](#).
- After immunization of either the mother or her infant, there is:
 - No reduction in maternal or infant immune response to vaccines.
 - No increase in the risk of adverse events for either the mother or her infant.

Neonatal abstinence syndrome:

- Neonatal abstinence syndrome (NAS) is a group of problems that occur in a newborn who was exposed to addictive opiate drugs while in utero.
- There are no contraindications or precautions for immunization of infants with neonatal abstinence syndrome.

History of allergy that does not involve vaccine or component of vaccine:

- It is safe to immunize people with any of the following:
 - Non-specific allergies
 - Environmental allergies
 - Family history of allergies
 - Administration of allergy shots (desensitization therapy for allergy)
 - Allergies to commonly used antibiotics
 - Exception: vaccines containing neomycin and/or polymyxin are contraindicated in individuals with a history of an anaphylactic reaction to these antibiotics.

Family history of adverse reactions to vaccines:

- Adverse reactions to vaccines are not known to be inherited.
Exception: a family history of congenital immunodeficiency. Such immunodeficiencies typically present as recurrent or overwhelming infections, dermatitis, chronic diarrhea and failure to thrive. The most severe immunodeficiencies (e.g., severe combined immunodeficiency syndrome) are usually diagnosed by 6 months of age. Older siblings may have been diagnosed with congenital immunodeficiency, or there may be a history of unexplained infant death in the family. **Note:** Assess family history of these types of events prior to administering a live vaccine to an infant under 12 months of age (e.g., rotavirus vaccine or MMR vaccine for an infant travelling to a measles endemic region). If such a history is present, live vaccines are contraindicated until child is assessed for immunodeficiency.

6. References

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