Paediatric and Adult Immunizations

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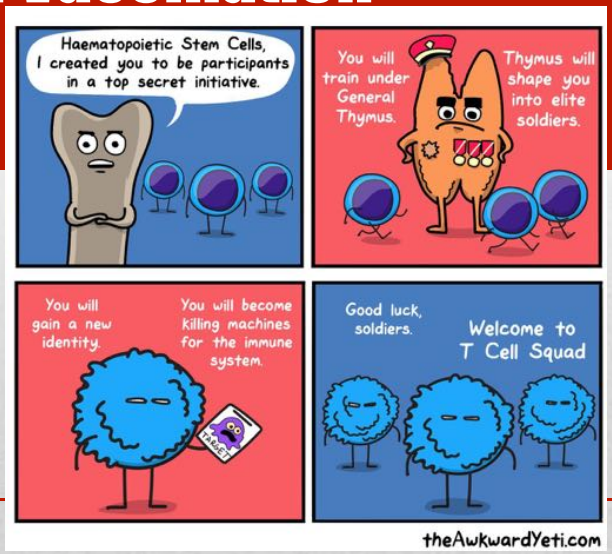
Module 7

1. Principals of Immunity and Vaccination
2. Getting to know Vaccines
3. Immunization Procedures
4. Case Studies
5. Barriers to Vaccination
6. Consent and Documentation
7. Other Vaccines
8. Reporting Adverse Events
9. Needle Stick Injury Procedure
10. Cold Chain Procedure
11. Emergency Measures

Outline

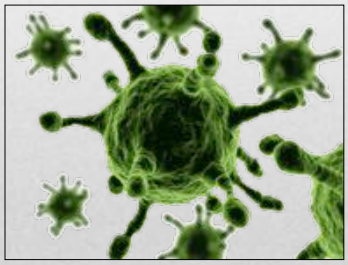
Principals of Immunity and Vaccination



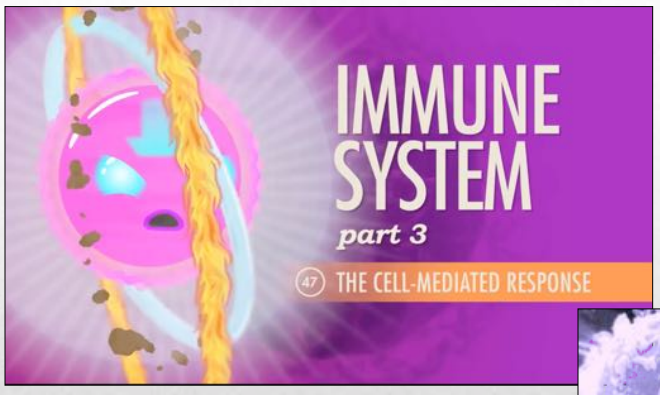
PART 1

What is the purpose of immunity?

- Recognize self from non-self
- Recognize and eliminate infectious agents such as viruses and bacteria
- Prevent infection in the future



Principles: Immunity



- https://www.youtube.com/watch?v=GIJK3dwCWCw
- https://www.youtube.com/watch?v=2DFN4IBZ3rI
- https://www.youtube.com/watch?v=rd2cf5hValM

Immunology 101

Getting to Know Vaccines

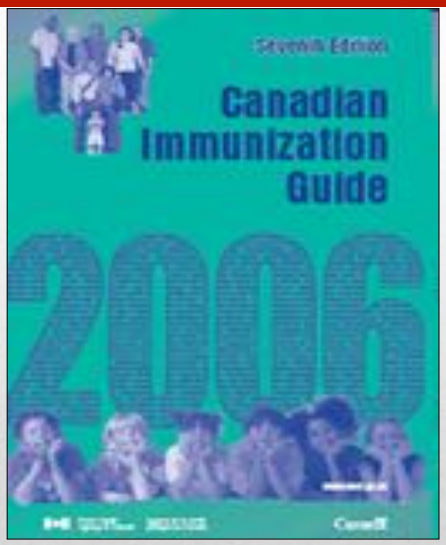
PART 2

Live vs DEAD

- Induce immunity by actively replicating within the host
- Vaccine strains are weakened so that infection is either not apparent or very mild *(attenuated)*
- Mimics natural infection
- Leads to T and B cell activation
- Contraindicated in patient with immunodeficiency
- Together or 4 weeks apart

- Contain killed *(inactivated)* bacteria or virus
- Activate innate responses at their site of injection
- Need to be injected into well vascularised muscle to be effective
- Most always require multiple doses
- May require periodic supplemental doses to increase (boost) antibody levels

Types of Immunizing Products



Now lets review the online guide...

http://www.phac-aspc.gc.ca/publicat/cig-gci/p03-01-eng.php

Canadian Immunization Guide

(T)Clostridium tetani
- Direct-contact
- 99% efficacy

(ap)Bordetella pertussis
- Airborne-contact & direct-contact
- 80%-85% efficacy

(IPV)Poliovirus
- Faecal-oral contact
- 100% efficacy

(d)C. Diphtheriae
- Direct-contact & airborne-contact
- 97% efficacy

Haemophilus influenzae Type B
- Airborne-contact & direct-contact
- 95%-100% efficacy

Routine:
4-dose schedule at 2, 4, 6 & 18 months. The series should start no earlier than 6 weeks of age.

Tdap-IPV-Hib
(Pediacel)

(T)Clostridium tetani
- Direct-contact
- 99% efficacy

(d)C. Diphtheriae
- Direct-contact & airborne-contact
- 97% efficacy

(ap)Bordetella pertussis
- Airborne-contact & direct-contact
- 80%-85% efficacy

(IPV)Poliovirus
- Faecal-oral contact
- 100% efficacy

Routine: **1 dose (4y-6y)**

Tdap-IPV
(Adacel-Polio)

(T)Clostridium tetani
- Direct-contact
- 99% efficacy

(d)C. Diphtheriae
- Direct-contact & airborne contact
- 97% efficacy

(ap)Bordetella pertussis
- Airborne-contact & direct-contact
- 80%-85% efficacy

Routine: 1 dose 14y-16 y (10y after the 4-6y booster)

Tdap
(Adacel)

(T)Clostridium tetani
- Direct-contact
- 99% efficacy

(d)C. Diphtheriae
- Direct-contact & airborne-contact
- 97% efficacy

Routine: 1 dose Q10y

Td
(Td Adsorbed)

Streptococcus pneumoniae
• Airborne-contact & direct-contact
• 89%-97% efficacy

SE: redness, swelling, soreness

Routine: 3-dose schedule at 2 & 4 months and 12 months of age for all low risk children < 2 years of age.

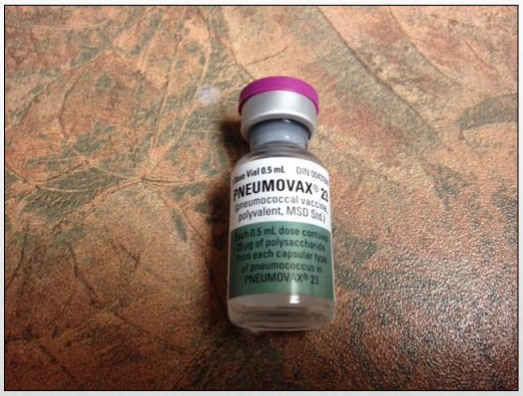
High Risk Criteria:

Pneumococcal Conjugate
(Prevnar)

Polysaccharide format:
Streptococcus pneumoniae
• Airborne-contact & direct-contact
• 50%-80% efficacy among elderly and specific groups

Routine: 65y and booster 5 y later

High risk Criteria:
• 2y-64y



Pneumococcal Polysaccharide 23
(Pneumovax 23)

Rotavirus
- Faecal-oral contact
- 85%-98% efficacy

Routine: 2-dose schedule at 2 and 4 months. 2 doses at least 4 weeks apart must be completed by 24 weeks of age.

Live

Rotavirus
(Rotarix)

N. Meningitidis
- Airborne-contact & direct-contact
- 97% efficacy

Routine: Children aged 1 year old should receive a single dose

High Risk Criteria:
- 2 to 4 doses 2m apart

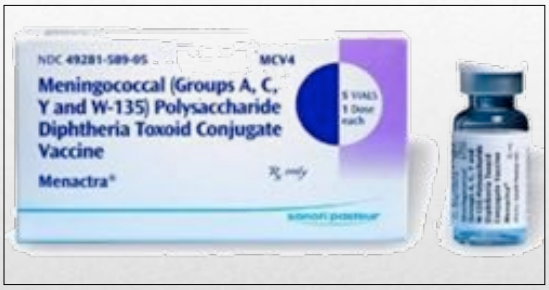
Meningococcal Conjugate C
(Menjugate)

N. Meningitidis
• Airborne-contact & direct-contact
• 80%-85% efficacy within 3-4 years of vaccination

SE: redness, swelling, soreness at injection site

Routine: Students in grade 7 are eligible to receive a single dose of Men-C-ACYW.

High Risk Criteria:



Meningococcal Conjugate ACYW-135
(Menactra)

Measles virus
• Airborne-contact
• 100% efficacy

Mumps virus
• Airborne-contact & direct-contact
• 76%-95% efficacy

Rubella virus
• Airborne-contact
• 97% efficacy

Routine: The 1st dose of MMR should be given on or after the 1st birthday The 2nd dose should be given as MMRV at 4-6 years of age.

SE: pain, redness at injection site, low-grade fever and rash

Live

Outbreak of Mumps in SLZ in 2017

Measles, Mumps, Rubella
(MMRII, Priorix)

Varicella zoster
- Airborne-contact
- 94.4%-98.3% efficacy

SE: pain, swelling, redness at injection site, low-grade fever and varicella like rash (3%-5% of vaccines)

Routine: Children 15 months of age should receive the 1st dose. The 2nd dose should be given as MMRV at 4-6 years of age.

Live

Varicella

(Varivax III, Varilrix)

Measles virus
- Airborne-contact
- 100% efficacy

Mumps virus
- Airborne-contact & direct-contact
- 76%-95% efficacy

Rubella virus
- Airborne-contact
- 97% efficacy

Varicella zoster
- Airborne-contact
- 94.4%-98.3% efficacy

Routine: given at 4-6 years of age.

Live

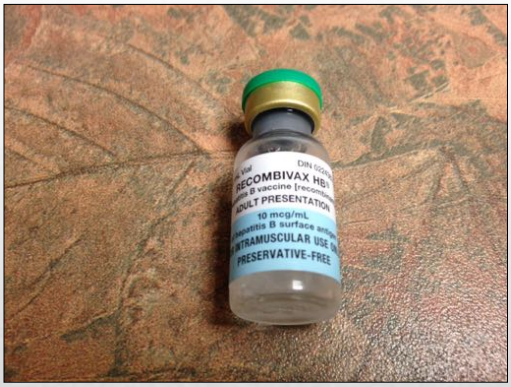
Measles, Mumps, Rubella, Varicella

(ProQuad, Priorix-Tetra)

Hepatitis B Virus
- *Direct*-contact
- 95%-100% efficacy pre-exposure

SE: irritability, headache, fatigue, pain/redness at injection site

Routine: 2-dose* schedule for grade 7 students give 4-6 months apart depending on the product used



Hepatitis B
(Recombivax)

1. Infants born to HBV-positive carrier mothers:
   - premature infants weighing <2,000 grams at birth (4 doses)
   - premature infants weighing ≥2,000 grams at birth and full/post term infants (3 doses)
2. Children <7 years old whose families have immigrated from countries of high prevalence for HBV and who may be exposed to HBV carriers through their extended families (3 doses)
3. Household and sexual contacts of chronic carriers and acute cases (3 doses)
4. History of a sexually transmitted disease (3 doses)
5. **Intravenous drug use** (3 doses)
6. **Liver disease** (chronic), including hepatitis B and C (3 doses)
7. Awaiting liver transplants (2nd and 3rd doses only)
8. Men who have sex with men (3 doses)
9. **Multiple sex partners** (3 doses)
10. Needle stick injuries in a non-health care setting (3 doses)
11. On renal dialysis or those with diseases requiring frequent receipt of blood products (e.g., haemophilia) (2nd and 3rd doses only)

Hepatitis B (High Risk Criteria)

Influenza A virus,
Influenza B virus
• Airborne-contact
• 30% efficacy against influenza-like illness (80% efficacy against laboratory confirmed influenza)

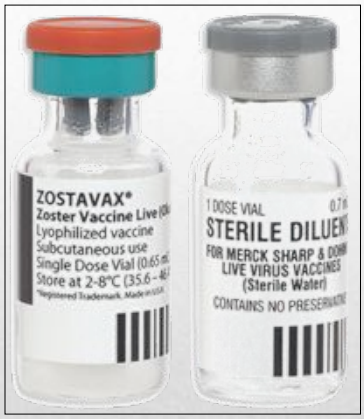
<u>Routine:</u> Age 6m-9y should received 2 doses 4w apart for initial dose then annually prior to flu season

Influenza
(Fluviral vs Fluzone)

Herpes zoster
• Direct-contact & rarely airborne-contact
• 51% efficacy
• 65.5% preventing PHN

SE: pain, swelling, redness to injection site

<u>Routine:</u> 65y-70y OHIP
May have 50y + (no-OHIP)



Live

Shingles
(Zostavax)

Human papillomavirus
• Direct-contact
• 99% protection with 3 dose series

Routine:
• Healthy males/ females 9-14 yrs 2 doses (0m and 6m)
• Healthy males/ females >15yrs 3 doses (0m, 2m, 6m)

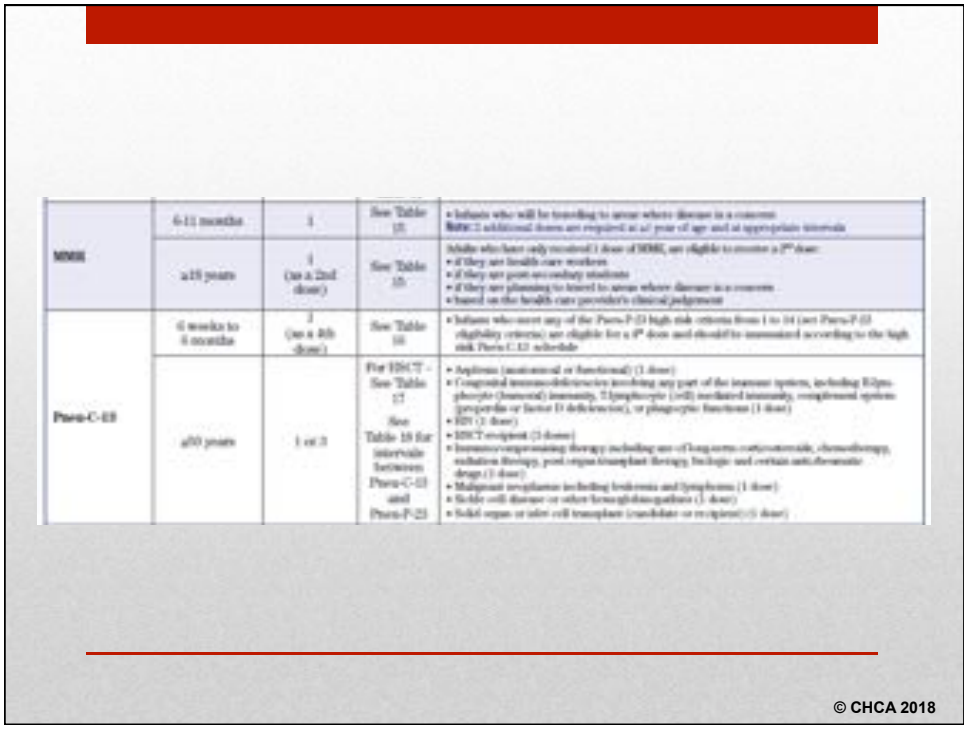
Human papillomavirus

(Gardisil)

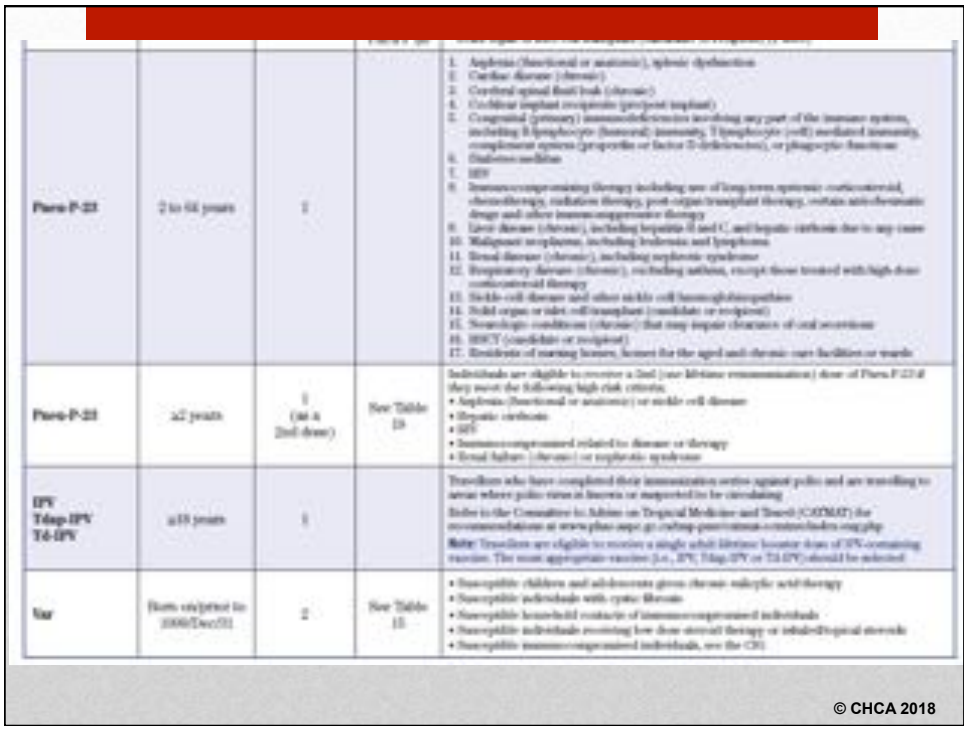
Table 3: High Risk Vaccine Programs
High risk individuals should also be immunized according to the routine or applicable catch-up schedules (see pages 1 to 3)

Publicly Funded Vaccines	Publicly Funded Age Groups	# of Eligible Doses	Vaccine Intervals	High Risk Eligibility Criteria
Hib	all years	1 or 3	For HSCT - See Table 9	• Asplenia (functional or anatomic) (1 dose) • Bone marrow or solid organ transplant recipients (3 doses) • Cochlear implant recipients (pre/post implant) (1 dose) • Hematopoietic stem cell transplant (HSCT) recipients (3 doses) • Immunocompromised individuals related to disease or therapy (3 doses) • Lung transplant recipients (3 dose) • Primary antibody deficiencies (3 dose) Note: High-risk children 2 to 4 years of age who require DTaP-IPV and Hib may receive DTaP-IPV-Hib instead of Hib
DTaP-IPV-Hib	1-4 years			
HA	≥1 year	2	See Table 5	• Intravenous drug use • Liver disease (chronic), including hepatitis B and C • Men who have sex with men
HB	≥0 years	2 to 4 (+ boosters if required)	See Table 7	• Children <7 years old whose families have immigrated from countries of high prevalence for HBV and who may be exposed to HBV carriers through their extended families (3 doses) • Household and sexual contacts of chronic carriers and acute cases (3 doses) • History of a sexually transmitted disease (3 doses) • Infants born to HBV-positive carrier mothers: - premature infants weighing <2,000 grams at birth (4 doses); - premature infants weighing ≥2,000 grams at birth and full-post term infants (3 doses) • Intravenous drug use (3 doses) • Liver disease (chronic), including hepatitis C (3 doses) • Awaiting liver transplants (2nd and 3rd doses only) • Men who have sex with men (3 doses) • Multiple sex partners (3 doses) • Needle stick injuries in a non-health care setting (3 doses) • On renal dialysis or those with diseases requiring frequent receipt of blood products (e.g., hemophilia) (2nd and 3rd doses only)
HPV-4	Males 9 to 26 years	2 to 3	See Tables 10 and 11	• Men who have sex with men
4CMenB	2 months to 17 years	2 to 4	See Table 13	• Acquired complement deficiencies (e.g., receiving eculizumab) • Asplenia (functional or anatomic) • Cochlear implant recipients (pre/post implant) • Complement, properdin, factor D or primary antibody deficiencies • HIV
Men-C-ACYW	0 months to 10 years	2 to 4 + boosters	See Table 14	
Men-P-ACYW	≥56 years	1	See Table 14	

High Risk Vaccine Program



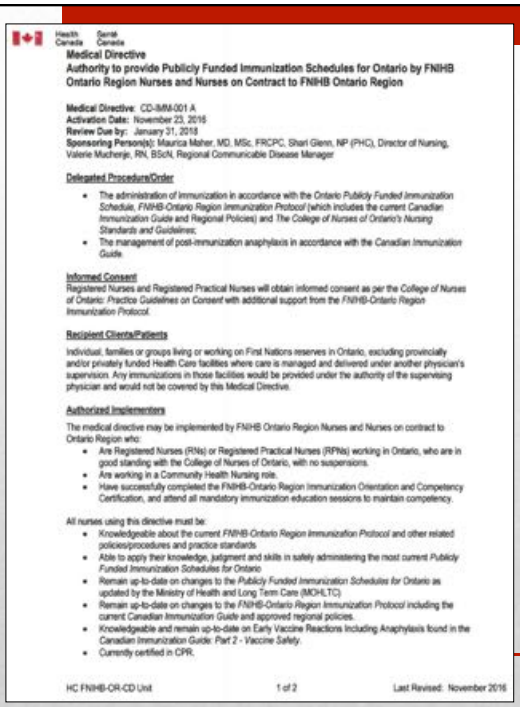
MMR	6-11 months	1	See Table 15	• Infants who will be travelling to areas where disease is a concern **Note:** 2 additional doses are required at ≥1 year of age and at appropriate intervals
	≥15 years	1 (as a 2nd dose)	See Table 15	Adults who have only received 1 dose of MMR, are eligible to receive a 2nd dose: • if they are health care workers • if they are post-secondary students • if they are planning to travel to areas where disease is a concern • based on the health care provider's clinical judgement
Pneu-C-13	6 weeks to 6 months	3 (as a 4th dose)	See Table 10	• Infants who meet any of the Pneu-P-23 high risk criteria from 1 to 14 (see Pneu-P-23 eligibility criteria) are eligible for a 4th dose and should be immunized according to the high risk Pneu-C-13 schedule
	≥6 years	1 or 3	For HSCT - See Table 17 See Table 10 for intervals between Pneu-C-13 and Pneu-P-23	• Asplenia (anatomical or functional) (1 dose) • Congenital immunodeficiencies involving any part of the immune system, including B-lymphocyte (humoral) immunity, T-lymphocyte (cell) mediated immunity, complement system (properdin or factor D deficiencies), or phagocytic functions (1 dose) • HIV (1 dose) • HSCT recipient (3 doses) • Immunocompromising therapy including use of long-term systemic corticosteroid, chemotherapy, radiation therapy, post-organ transplant therapy, biologic and certain anti-rheumatic drugs (1 dose) • Malignant neoplasms including leukemia and lymphoma (1 dose) • Sickle cell disease or other hemoglobinopathies (1 dose) • Solid organ or islet cell transplant (candidate or recipient) (1 dose)



Pneu-P-23	2 to 64 years	1		1. Asplenia (functional or anatomic), sphenic dysfunction 2. Cardiac disease (chronic) 3. Cerebral spinal fluid leak (chronic) 4. Cochlear implant recipients (pre/post implant) 5. Congenital (primary) immunodeficiencies involving any part of the immune system, including B-lymphocyte (humoral) immunity, T-lymphocyte (cell) mediated immunity, complement system (properdin or factor D deficiencies), or phagocytic functions 6. Diabetes mellitus 7. HIV 8. Immunocompromising therapy including use of long-term systemic corticosteroid, chemotherapy, radiation therapy, post-organ transplant therapy, certain anti-rheumatic drugs and other immunosuppressive therapy 9. Liver disease (chronic), including hepatitis B and C, and hepatic cirrhosis due to any cause 10. Malignant neoplasms, including leukemia and lymphoma 11. Renal disease (chronic), including nephrotic syndrome 12. Respiratory disease (chronic), excluding asthma, except those treated with high-dose corticosteroid therapy 13. Sickle cell disease and other sickle cell hemoglobinopathies 14. Solid organ or islet cell transplant (candidate or recipient) 15. Neurologic conditions (chronic) that may impair clearance of oral secretions 16. HSCT (candidate or recipient) 17. Residents of nursing homes, homes for the aged and chronic care facilities or wards
Pneu-P-23	≥2 years	1 (as a 2nd dose)	See Table 10	Individuals are eligible to receive a 2nd (yet lifetime contraindication) dose of Pneu-P-23 if they meet the following high risk criteria: • Asplenia (functional or anatomic) or sickle cell disease • Hepatic cirrhosis • HIV • Immunocompromised related to disease or therapy • Renal failure (chronic) or nephrotic syndrome
IPV T-dap-IPV T-d-IPV	≥18 years	1		Travellers who have completed their immunization series against polio and are travelling to areas where polio virus is known or suspected to be circulating Refer to the Committee to Advise on Tropical Medicine and Travel (CATMAT) for recommendations at www.phac-aspc.gc.ca/tmp-pmv/mmat-vmtmc/index-eng.php **Note:** Travellers are eligible to receive a single adult lifetime booster dose of IPV-containing vaccine. The most appropriate vaccine (i.e., IPV, T-dap-IPV or T-d-IPV) should be selected
Var	Born on/prior to 1/1/1960/Dec/31	2	See Table 15	• Susceptible children and adolescents given chronic salicylic acid therapy • Susceptible individuals with cystic fibrosis • Susceptible household contacts of immunocompromised individuals • Susceptible individuals receiving low dose steroid therapy or inhaled/topical steroids • Susceptible immunocompromised individuals, see the CIG

Immunization Procedures

PART 3



Health Canada / Santé Canada

Medical Directive

Authority to provide Publicly Funded Immunization Schedules for Ontario by FNIHB Ontario Region Nurses and Nurses on Contract to FNIHB Ontario Region

Medical Directive: CD-IMM-001 A
Activation Date: November 23, 2016
Review Due by: January 31, 2018
Sponsoring Person(s): Maurica Maher, MD, MSc, FRCPC, Shari Glenn, NP (PHC), Director of Nursing, Valerie Mucherje, RN, BScN, Regional Communicable Disease Manager

Delegated Procedure/Order

- The administration of immunization in accordance with the *Ontario Publicly Funded Immunization Schedule, FNIHB-Ontario Region Immunization Protocol* (which includes the current *Canadian Immunization Guide* and Regional Policies) and *The College of Nurses of Ontario's Nursing Standards and Guidelines*;
- The management of post-immunization anaphylaxis in accordance with the *Canadian Immunization Guide*.

Informed Consent

Registered Nurses and Registered Practical Nurses will obtain informed consent as per the *College of Nurses of Ontario: Practice Guidelines on Consent* with additional support from the *FNIHB-Ontario Region Immunization Protocol*.

Recipient Clients/Patients

Individual, families or groups living or working on First Nations reserves in Ontario, excluding provincially and/or privately funded Health Care facilities where care is managed and delivered under another physician's supervision. Any immunizations in those facilities would be provided under the authority of the supervising physician and would not be covered by this Medical Directive.

Authorized Implementers

The medical directive may be implemented by FNIHB Ontario Region Nurses and Nurses on contract to Ontario Region who:

- Are Registered Nurses (RNs) or Registered Practical Nurses (RPNs) working in Ontario, who are in good standing with the College of Nurses of Ontario, with no suspensions.
- Are working in a Community Health Nursing role.
- Have successfully completed the FNIHB-Ontario Region Immunization Orientation and Competency Certification, and attend all mandatory immunization education sessions to maintain competency.

All nurses using this directive must be:

- Knowledgeable about the current *FNIHB-Ontario Region Immunization Protocol* and other related policies/procedures and practice standards
- Able to apply their knowledge, judgment and skills in safely administering the most current *Publicly Funded Immunization Schedules for Ontario*
- Remain up-to-date on changes to the *Publicly Funded Immunization Schedules for Ontario* as updated by the Ministry of Health and Long Term Care (MOHLTC)
- Remain up-to-date on changes to the *FNIHB-Ontario Region Immunization Protocol* including the current *Canadian Immunization Guide* and approved regional policies.
- Knowledgeable and remain up-to-date on Early Vaccine Reactions including Anaphylaxis found in the *Canadian Immunization Guide: Part 2 - Vaccine Safety*.
- Currently certified in CPR.

HC FNIHB-OR-CD Unit 1 of 2 Last Revised: November 2016

Medical Directive:

- Is given in advance by physicians/ordering authorizers to enable an implementer to decide to perform the ordered procedure(s) under specific conditions without a direct assessment by the physician or authorizer at the time.

Publicly Funded Immunization Schedules for Ontario – December 2016

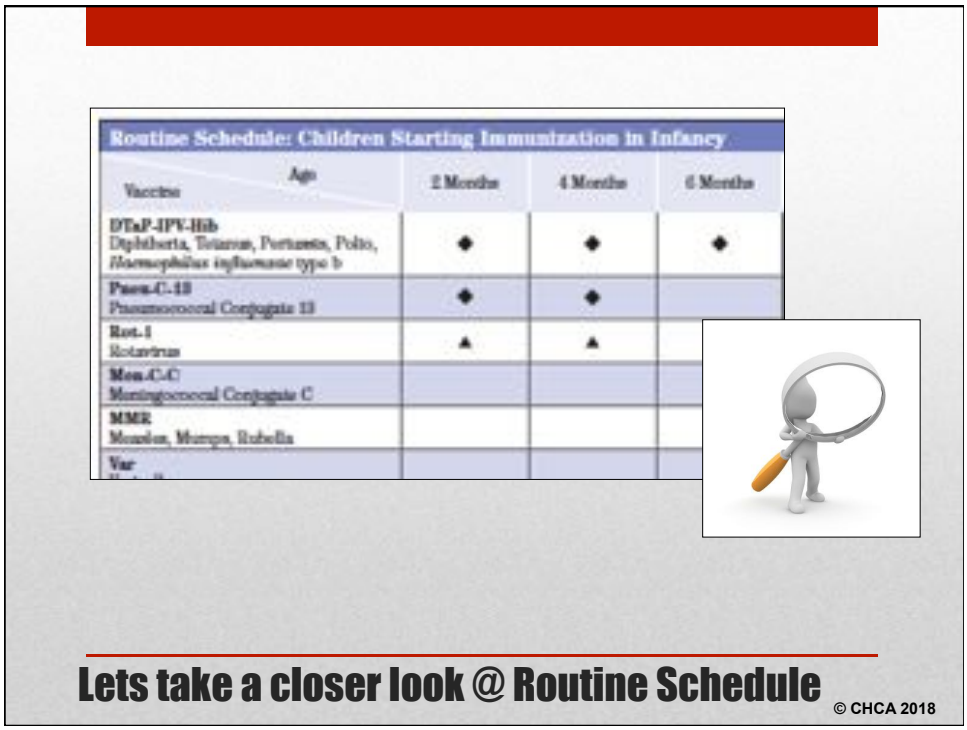
Publicly funded vaccines may be provided only to eligible individuals and must be free of charge

Routine Schedule: Children Starting Immunization in Infancy

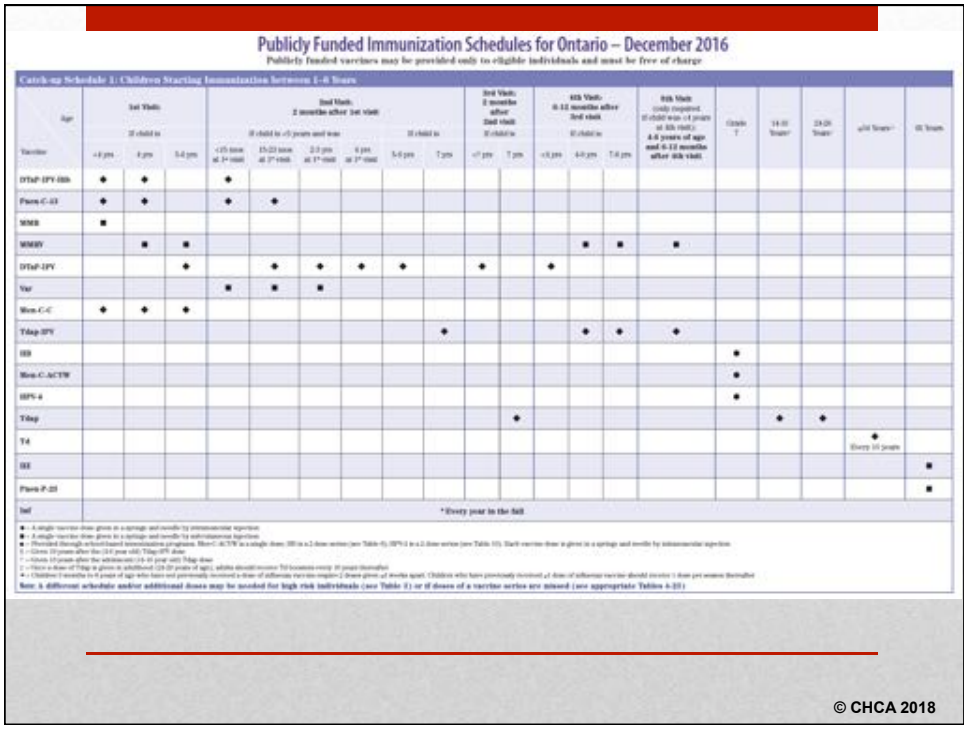
Age / Vaccine	2 Months	4 Months	6 Months	12 Months	15 Months	18 Months	4-6 Years*	Grade 7	14-16 Years*	24-26 Years *	≥54 Years *	65 Years
DTaP-IPV-Hib Diphtheria, Tetanus, Pertussis, Polio, *Haemophilus influenzae* type b	◆	◆	◆			◆						
Pneu-C-13 Pneumococcal Conjugate 13	◆	◆		◆								
Rot-1 Rotavirus	▲	▲										
Men-C-C Meningococcal Conjugate C				◆								
MMR Measles, Mumps, Rubella				■								
Var Varicella					■							
MMRV Measles, Mumps, Rubella, Varicella							■					
Tdap-IPV Tetanus, diphtheria, pertussis, Polio							◆					
HB Hepatitis B								●				
Men-C-ACYW Meningococcal Conjugate ACYW-135								●				
HPV-4 Human Papillomavirus								●				
Tdap Tetanus, diphtheria, pertussis									◆	◆		
Td (booster) Tetanus, diphtheria											◆ Every 10 years	
HZ Herpes Zoster												■
Pneu-P-23 Pneumococcal Polysaccharide 23												■
Inf Influenza				* Every year in the fall								

◆ - A single vaccine dose given in a syringe and needle by intramuscular injection
■ - A single vaccine dose given in a syringe and needle by subcutaneous injection
▲ - A single vaccine dose given in an oral applicator by mouth
● - Provided through school-based immunization programs. Men-C-ACYW is a single dose, HB is a 2 dose series (see Table 1), HPV-4 is a 2 dose series (see Table 10). Each vaccine dose is given in a syringe and needle by intramuscular injection
* - Preferably given at 4 years of age
1 - Given 10 years after the (4-6 year old) Tdap-IPV dose
2 - Given 10 years after the adolescent (14-16 year old) Tdap dose
3 - Once a dose of Tdap is given in adulthood (24-26 years of age), adults should receive Td boosters every 10 years thereafter
4 - Children 6 months to 8 years of age who have not previously received a dose of influenza vaccine require 2 doses given ≥4 weeks apart. Children who have previously received ≥1 dose of influenza vaccine should receive 1 dose per season thereafter

Note: A different schedule and/or additional doses may be needed for high risk individuals (see Table 3) or if doses of a vaccine series are missed (see appropriate Tables 4-13).



Lets take a closer look @ Routine Schedule


Publicly Funded Immunization Schedules for Ontario – December 2016
Publicly funded vaccines may be provided only to eligible individuals and must be free of charge
Catch-up Schedule 1: Children Starting Immunization between 1–6 Years
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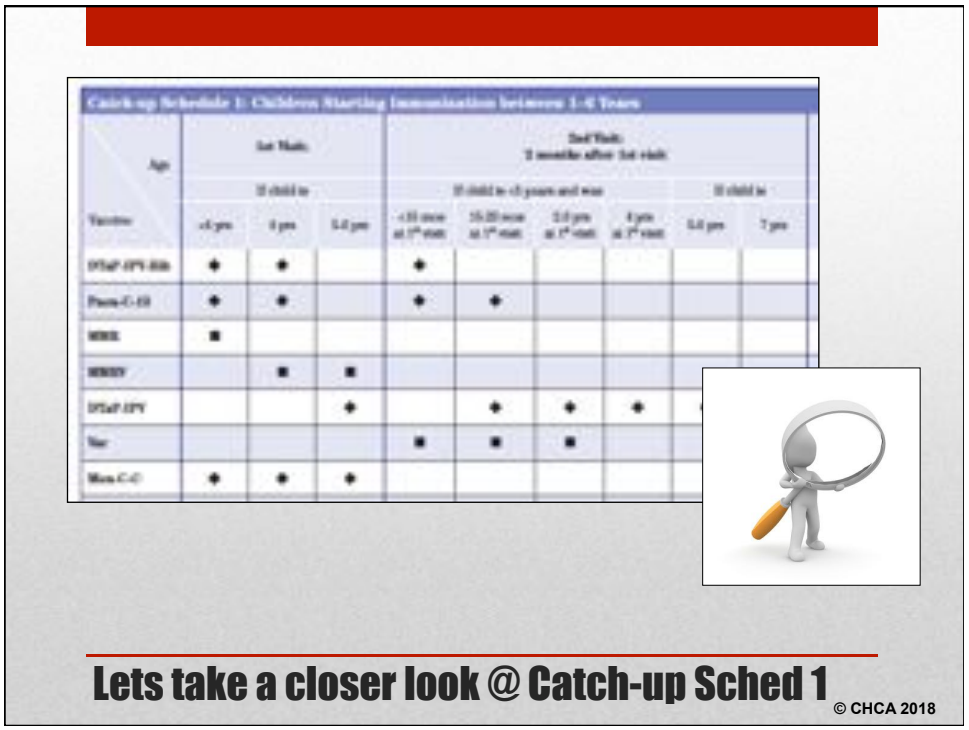
Lets take a closer look @ Catch-up Sched 1
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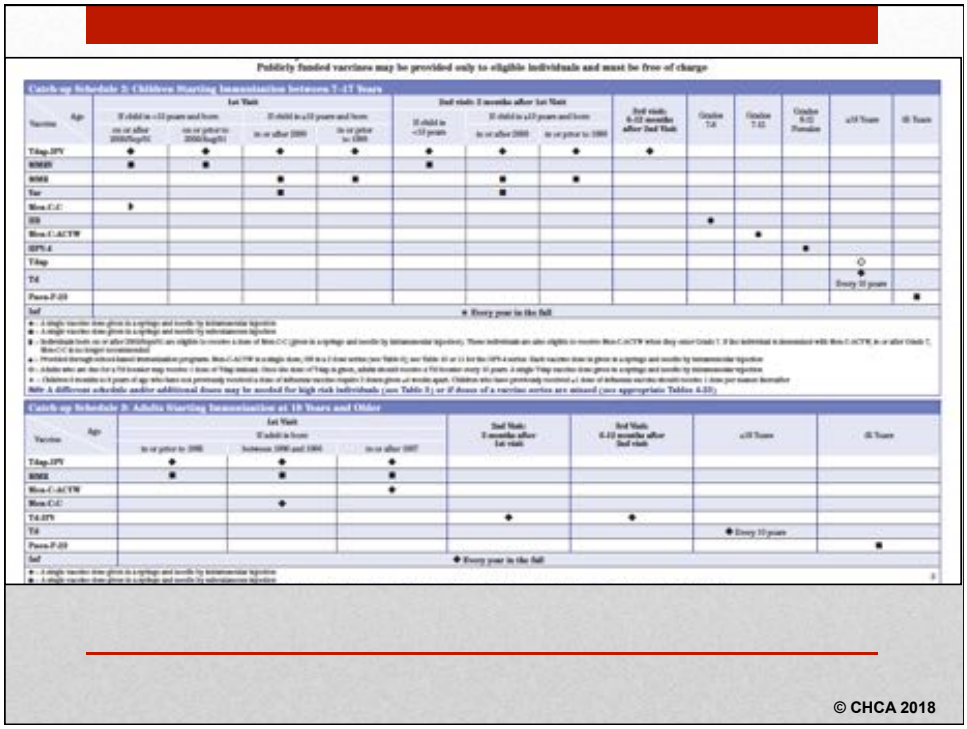


Publicly funded vaccines may be provided only to eligible individuals and must be free of charge

Catch-up Schedule 2: Children Starting Immunization between 7–17 Years

Vaccine / Age	1st Visit: If child is <13 years and born on or after 2008/Sep/01	1st Visit: If child is <13 years and born on or prior to 2008/Aug/31	1st Visit: If child is ≥13 years and born in or after 2000	1st Visit: If child is ≥13 years and born in or prior to 1999	2nd visit: 2 months after 1st Visit: If child is <13 years	2nd visit: 2 months after 1st Visit: If child is ≥13 years and born in or after 2000	2nd visit: 2 months after 1st Visit: If child is ≥13 years and born in or prior to 1999	3rd visit: 6–12 months after 2nd Visit	Grade 7/8	Grade 7–12	Grade 9–12 Females	≥18 Years	65 Years
Tdap-IPV	◆	◆	◆	◆	◆	◆	◆	◆						
MMRV	■	■			■									
MMR			■	■		■	■							
Var			■			■								
Men-C-C	◗													
HB									■					
Men-C-ACYW										■				
HPV-4											■			
Tdap													◇	
Td													◆ Every 10 years	
Pneu-P-23														■
Inf	● Every year in the fall													

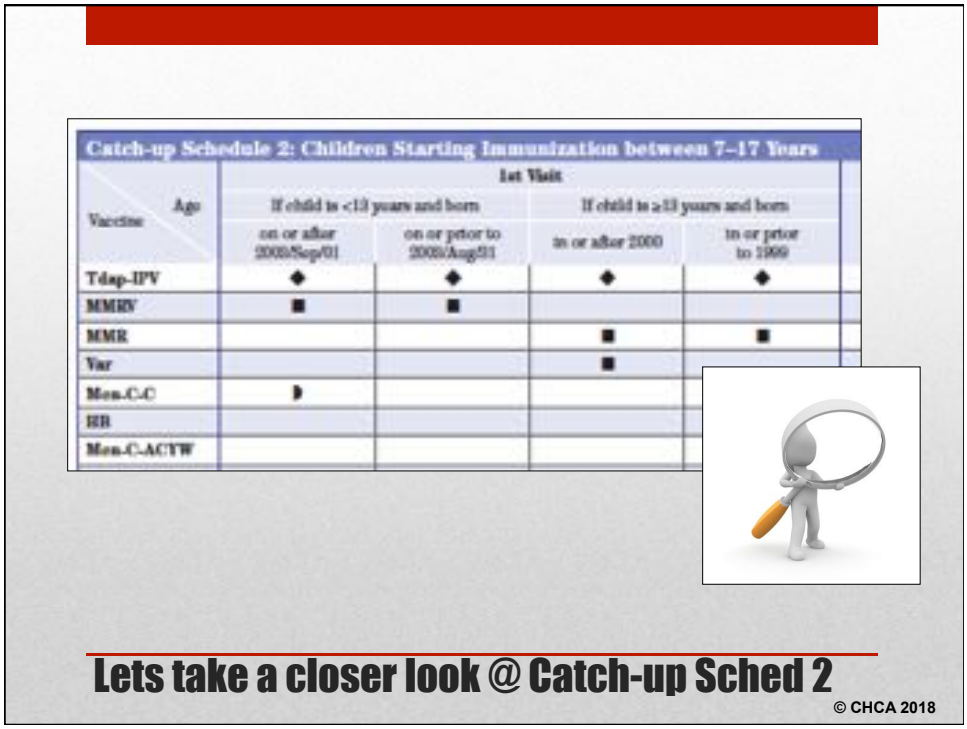
● - A single vaccine dose given in a syringe and needle by intramuscular injection
■ - A single vaccine dose given in a syringe and needle by subcutaneous injection
◗ - Individuals born on or after 2003/Sep/01 are eligible to receive a dose of Men-C-C given in a syringe and needle by intramuscular injection. These individuals are also eligible to receive Men-C-ACYW when they enter Grade 7. If the individual is determined with Men-C-ACYW, in or after Grade 7, Men-C-C is no longer recommended
▲ - Provided through school-based immunization programs. Men-C-ACYW is a single dose, HPV is a 2-dose series (see Table 3); see Table 4A or 4B for HPV-4 series. Each vaccine dose is given in a syringe and needle by intramuscular injection
◇ - Adults who are due for a Td booster may receive 1 dose of Tdap instead. Once the dose of Tdap is given, adults should receive a Td booster every 10 years. A single Tdap vaccine dose given in a syringe and needle by intramuscular injection
◆ - Children 6 months to 8 years of age who have not previously received a dose of influenza vaccine require 2 doses given ≥4 weeks apart. Children who have previously received ≥1 dose of influenza vaccine should receive 1 dose per season thereafter

Note: A different schedule and/or additional doses may be needed for high risk individuals (see Table 3) or if doses of a vaccine series are missed (see appropriate Tables 4-10).

Catch-up Schedule 3: Adults Starting Immunization at 18 Years and Older

Vaccine / Age	1st Visit: If adult is born in or prior to 1966	1st Visit: If adult is born between 1967 and 1991	1st Visit: If adult is born in or after 1992	2nd Visit: 2 months after 1st visit	3rd Visit: 6–12 months after 2nd visit	≥18 Years	65 Years
Tdap-IPV	◆	◆	◆				
MMR	■	■	■				
Men-C-ACYW			◆				
Men-C-C		◆					
T4-IPV				◆	◆		
Td						◆ Every 10 years	
Pneu-P-23							■
Inf	◆ Every year in the fall						

● - A single vaccine dose given in a syringe and needle by intramuscular injection
■ - A single vaccine dose given in a syringe and needle by subcutaneous injection



Catch-up Schedule 2: Children Starting Immunization between 7–17 Years

Vaccine / Age	1st Visit: If child is <13 years and born on or after 2008/Sep/01	1st Visit: If child is <13 years and born on or prior to 2008/Aug/31	1st Visit: If child is ≥13 years and born in or after 2000	1st Visit: If child is ≥13 years and born in or prior to 1999
Tdap-IPV	◆	◆	◆	◆
MMRV	■	■		
MMR			■	■
Var			■	
Men-C-C	◗			
HB				
Men-C-ACYW				

Lets take a closer look @ Catch-up Sched 2

"Interruption of a series of vaccinations for any reason does not require starting the series over again, regardless of the interval elapsed."

General Principle

Case Studies

PART 4

- Nipin is 6 months old and attends the clinic for her well child visit with her mother. According to her chart she is up to date with her immunizations. Which immunizations would you provide at this visit?

- Which vaccines would you review with the family for her next visit?

Case Study #1

- Ricky, 12 months, is brought in for his well child visit with his parents. You notice that he missed his 4 and 6 month well child visits and immunizations.
- What does Ricky require for his immunization catch-up?

- Which vaccines would you review with the family for his next visit?

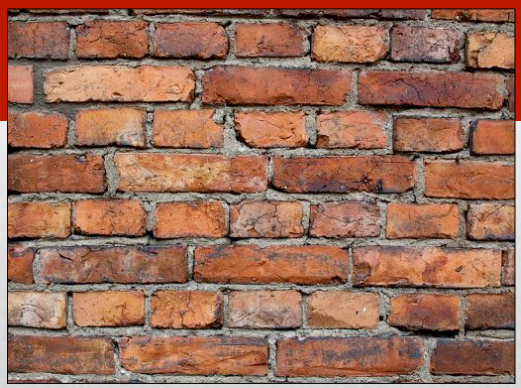
Case Study #2

- Ruby, 65 years of age attends the clinic today for a periodic health exam. She said she was watching an episode of Dr. Oz and he talked about vaccines for adults. She would like to know what she could receive.
- What immunizations would you discuss with her given her age?

What else would you want to ask her?

Case Study #3

Barriers to Vaccination



PART 5

- Immunization service should be responsive to the needs of vaccine recipient.
- When feasible, providers should schedule immunization appointments in conjunction with appointments for other health services.

Barriers to Immunization

- **Are vaccines safe?**
  - At least 10 years of research to be approved by Health Canada
  - Vaccines used in Canada are safe and effective.
  - Furthermore, vaccines are readily monitored
- **Will vaccines make me sick?**
  - No
- **What is found in vaccines?**
  - Dead or weakened viruses or bacteria
  - Adjuvants which help the body's immune system respond better to the vaccine
  - Additives (Gelatin) and preservatives which help to maintain the quality and effectiveness of the vaccine

https://www.youtube.com/watch?v=QgpfNScEd3M

Anti-vaccine movement

Comparison of Effects of Diseases and Vaccines

Effects of disease*		Side effects of vaccine
Pre-vaccine incidence	Post-vaccine incidence	
Diphtheria Symptoms result from local infection of the respiratory tract (which may lead to breathing difficulties) or of the skin or mucosal surfaces, or from dissemination of diphtheria toxin, which damages the heart and central nervous system. The case fatality was about 5% to 10%, with highest death rates occurring in the very young and the elderly.		DTaP/IPV/Hib vaccine: serious adverse events following immunization are rare. The most common adverse reactions are redness, swelling and pain at the injection site. Systemic reactions such as fever and irritability are less common. Redness and swelling greater than 3.5 cm diameter, with minimal pain, are more common in children receiving the fifth consecutive dose of vaccine at 4 to 6 years of age, and have been reported in up to 16% of children. In older persons receiving the Td booster, injection site reactions are reported by about 10% of recipients.
5-year period: 1925-1929 Avg. annual rate: 84.2 Peak annual no: 9,010 cases	5-year period: 2000-2004 Avg. annual rate: 0 Peak annual no: 1 case	

Comparison of Diphtheria vs Vaccination

Effects of disease*		Side effects of vaccine
Pre-vaccine incidence	Post-vaccine incidence	
Measles Complications such as bronchopneumonia and otitis media occur in about 10%. Encephalitis occurs in 1/1,000 cases (fatal in 15% and neurologic sequelae in 25%). Subacute sclerosing panencephalitis is a rare but fatal complication. Case fatality < 0.05%. With 2-dose schedule, indigenous measles has been eliminated in Canada.		Measles vaccine is given in combination with mumps and rubella (MMR). MMR vaccine: Malaise and fever, with or without a non-infectious rash in about 5%; up to 1% of recipients may develop parotitis, about 5% have swollen glands, stiff neck or joint pains. Transient arthralgias or arthritis may occur and are more common in post-pubertal females. About 1/30,000 develop transient thrombocytopenia, 1/1 million develop encephalitis.
5-year period: 1950-1954 Avg. annual rate: 369.1 Peak annual no: 61,370 cases	5-year period: 2000-2004 Avg. annual rate: 0.2 Peak annual no: 199 cases	

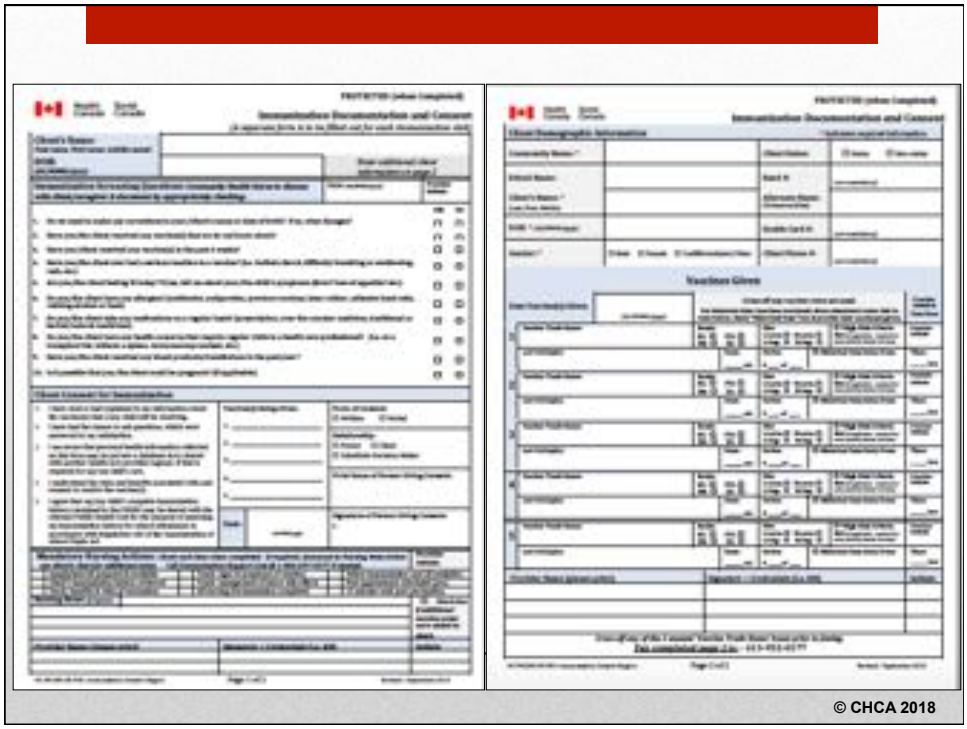
Comparison of Measles vs Vaccination

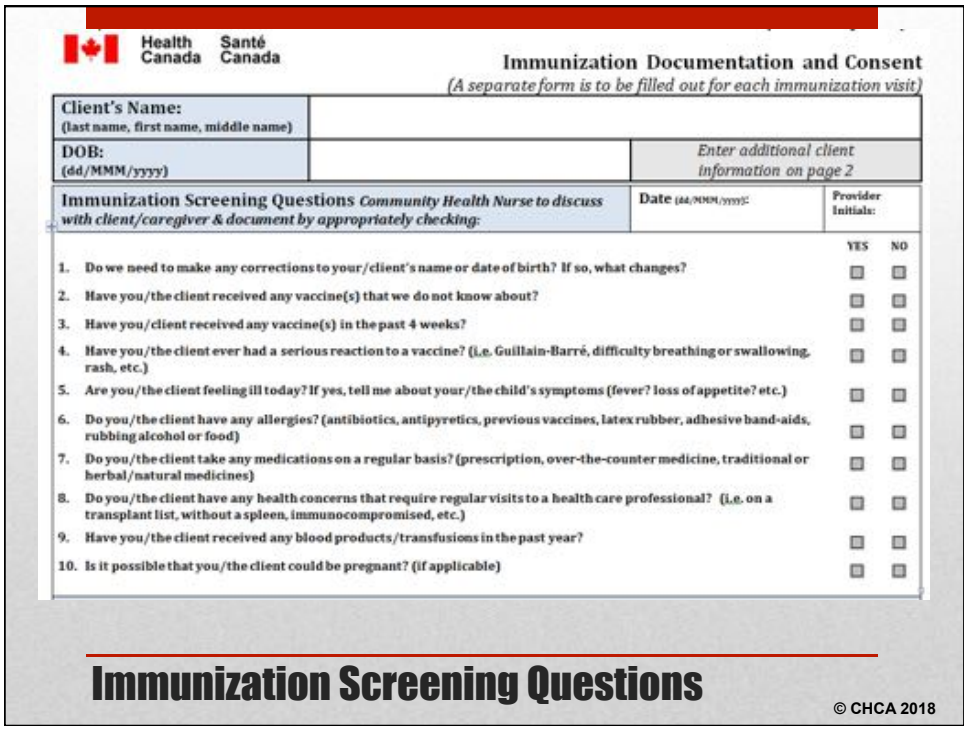
Consent and Documentation

PART 6

- To obtain informed consent for the administration of immunizations parent/ guardian or individual must be given information about:
  - the disease related to the vaccine,
  - the component of the vaccine,
  - the immune process and
  - information about the immunization schedule for the vaccine.

Informed Consent





Health Canada / Santé Canada

Immunization Documentation and Consent

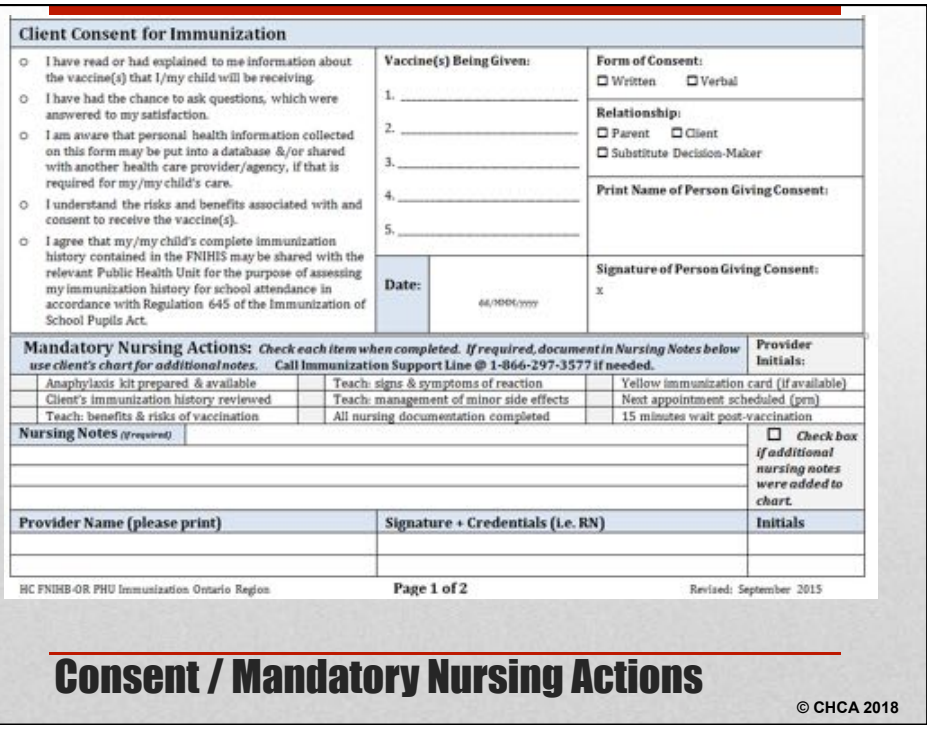
(A separate form is to be filled out for each immunization visit)

Client's Name: (last name, first name, middle name)		
DOB: (dd/MMM/yyyy)		*Enter additional client information on page 2*

Immunization Screening Questions *Community Health Nurse to discuss with client/caregiver & document by appropriately checking:*	**Date** (dd/MMM/yyyy):	**Provider Initials:**

	YES	NO
1. Do we need to make any corrections to your/client's name or date of birth? If so, what changes?	☐	☐
2. Have you/the client received any vaccine(s) that we do not know about?	☐	☐
3. Have you/client received any vaccine(s) in the past 4 weeks?	☐	☐
4. Have you/the client ever had a serious reaction to a vaccine? (i.e. Guillain-Barré, difficulty breathing or swallowing, rash, etc.)	☐	☐
5. Are you/the client feeling ill today? If yes, tell me about your/the child's symptoms (fever? loss of appetite? etc.)	☐	☐
6. Do you/the client have any allergies? (antibiotics, antipyretics, previous vaccines, latex rubber, adhesive band-aids, rubbing alcohol or food)	☐	☐
7. Do you/the client take any medications on a regular basis? (prescription, over-the-counter medicine, traditional or herbal/natural medicines)	☐	☐
8. Do you/the client have any health concerns that require regular visits to a health care professional? (i.e. on a transplant list, without a spleen, immunocompromised, etc.)	☐	☐
9. Have you/the client received any blood products/transfusions in the past year?	☐	☐
10. Is it possible that you/the client could be pregnant? (if applicable)	☐	☐

Immunization Screening Questions



Client Consent for Immunization

- I have read or had explained to me information about the vaccine(s) that I/my child will be receiving.
- I have had the chance to ask questions, which were answered to my satisfaction.
- I am aware that personal health information collected on this form may be put into a database &/or shared with another health care provider/agency, if that is required for my/my child's care.
- I understand the risks and benefits associated with and consent to receive the vaccine(s).
- I agree that my/my child's complete immunization history contained in the FNIHIS may be shared with the relevant Public Health Unit for the purpose of assessing my immunization history for school attendance in accordance with Regulation 645 of the Immunization of School Pupils Act.

Vaccine(s) Being Given:
1. _____
2. _____
3. _____
4. _____
5. _____

Form of Consent: ☐ Written ☐ Verbal

Relationship: ☐ Parent ☐ Client ☐ Substitute Decision-Maker

Print Name of Person Giving Consent:

Date: dd/MMM/yyyy

Signature of Person Giving Consent: x

Mandatory Nursing Actions: *Check each item when completed. If required, document in Nursing Notes below use client's chart for additional notes.* **Call Immunization Support Line @ 1-866-297-3577 if needed.** — **Provider Initials:**

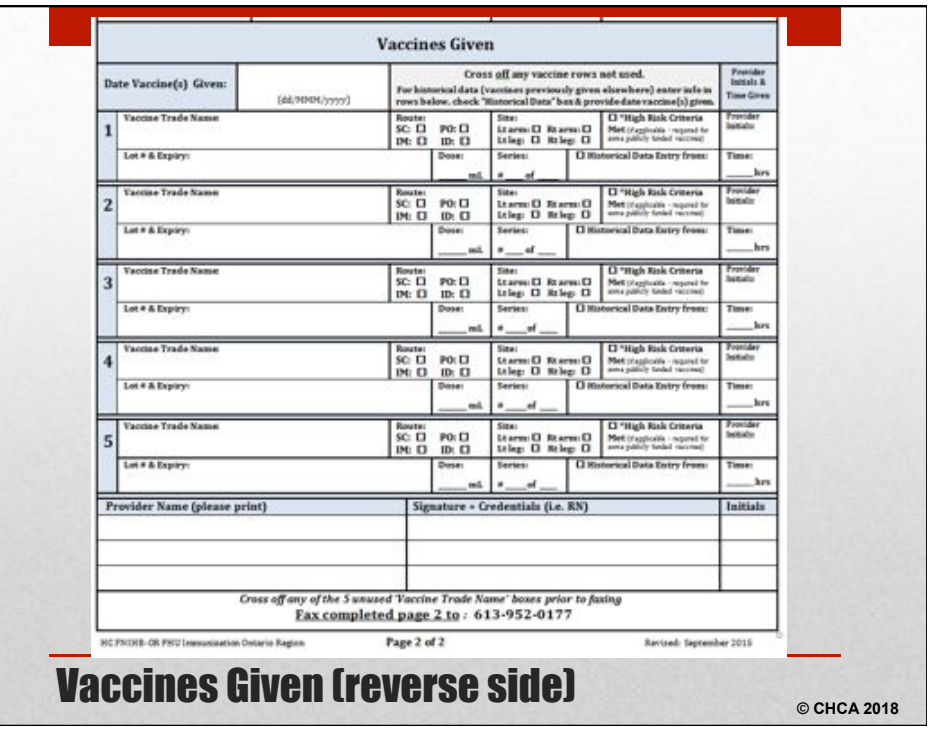
Anaphylaxis kit prepared & available	Teach: signs & symptoms of reaction	Yellow immunization card (if available)
Client's immunization history reviewed	Teach: management of minor side effects	Next appointment scheduled (prn)
Teach: benefits & risks of vaccination	All nursing documentation completed	15 minutes wait post-vaccination

Nursing Notes (If required) ☐ *Check box if additional nursing notes were added to chart.*

Provider Name (please print)	Signature + Credentials (i.e. RN)	Initials

HC FNIHB-OR PHU Immunization Ontario Region — **Page 1 of 2** — Revised: September 2015

Consent / Mandatory Nursing Actions



Vaccines Given

Date Vaccine(s) Given: (dd/MMM/yyyy) — Cross off any vaccine rows not used. For historical data (vaccines previously given elsewhere) enter info in rows below, check "Historical Data" box & provide date vaccine(s) given. — Provider Initials & Time Given

For each of rows 1–5:

Vaccine Trade Name	Route: SC: ☐ PO: ☐ IM: ☐ ID: ☐
	Site: Lt arm: ☐ Rt arm: ☐ Lt leg: ☐ Rt leg: ☐
	☐ *High Risk Criteria Met (if applicable - required for some publicly funded vaccines)
	Provider Initials
Lot # & Expiry:	Dose: ____ mL
	Series: # ___ of ___
	☐ Historical Data Entry from:
	Time: ____ hrs

Provider Name (please print)	Signature + Credentials (i.e. RN)	Initials

Cross off any of the 5 unused 'Vaccine Trade Name' boxes prior to faxing

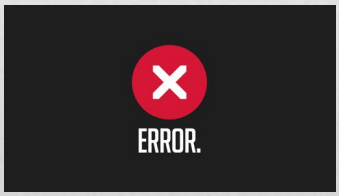
Fax completed page 2 to : 613-952-0177

HC FNIHB-OR PHU Immunization Ontario Region — **Page 2 of 2** — Revised: September 2015

Vaccines Given (reverse side)

- Errors must be documented on a med error form and reported to your NIC and/or NPC
- Errors may also be found on documentation forms that are sent in for data entry. This must be reported to the immunizing nurse (for clarification) & if warranted, the NIC or zone NPC

This system is not meant to be punitive, rather, to see where more support can be offered to nurses in the field.



Immunization Errors

Other Vaccines

PART 7

- Immune globulins are proteins extracted from blood serum
- It contains antibodies that recognize and attack specific antigens
- Non-specific immune globulins administered intramuscularly are used to prevent Measles and Hepatitis A or B
- Immune Globulins are short acting, therefore, vaccinations need to be given in addition for a long lasting effect

Principles: Immune Globulins

Clostridium perfringens Anti toxin

- Anti-toxins are antibodies that have the ability to neutralize a specific toxin.
- They are produced by injecting animals with a specific toxin.

Examples: diphtheria, gas gangrene, botulism tetanus

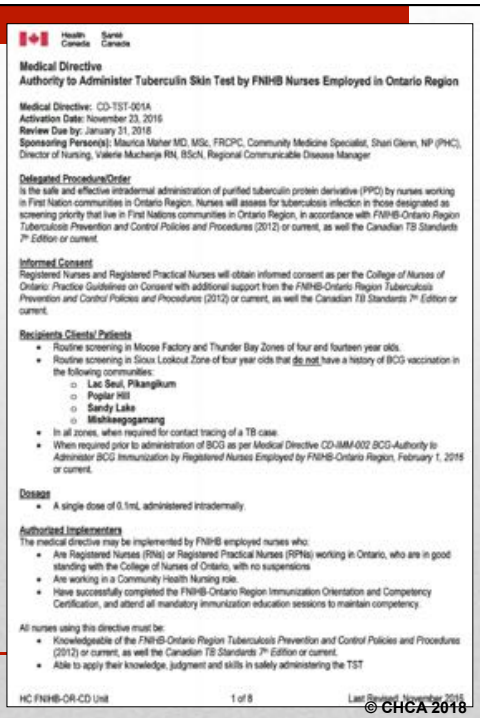
Principles: Anti-Toxins

Tuberculin Skin Test (TST)

Delegated procedure

Recipient Client/Patients:

- Contacts of active TB cases
- Routine screening of 4 and 14 year olds in TBZ and MFZ
- Routine Screening of 4 year olds with no BCG History in Lac Seul, Pikangikum, Poplar Hill, Sandy Lake and Mishkeegogamang
- When required prior to giving BCG



Health Canada / Santé Canada

Medical Directive
Authority to Administer Tuberculin Skin Test by FNIHB Nurses Employed in Ontario Region

Medical Directive: CD-TST-001A
Activation Date: November 23, 2016
Review Due by: January 31, 2018
Sponsoring Person(s): Mauricia Maher MD, MSc, FRCPC, Community Medicine Specialist, Shari Glenn, NP (PHC), Director of Nursing, Valerie Muchenje RN, BScN, Regional Communicable Disease Manager

Delegated Procedure/Order
Is the safe and effective intradermal administration of purified tuberculin protein derivative (PPD) by nurses working in First Nation communities in Ontario Region. Nurses will assess for tuberculosis infection in those designated as screening priority that live in First Nations communities in Ontario Region, in accordance with *FNIHB-Ontario Region Tuberculosis Prevention and Control Policies and Procedures* (2012) or current, as well the *Canadian TB Standards 7th Edition or current.*

Informed Consent
Registered Nurses and Registered Practical Nurses will obtain informed consent as per the *College of Nurses of Ontario: Practice Guidelines on Consent* with additional support from the *FNIHB-Ontario Region Tuberculosis Prevention and Control Policies and Procedures* (2012) or current, as well the *Canadian TB Standards 7th Edition* or current.

Recipients Clients/ Patients
- Routine screening in Moose Factory and Thunder Bay Zones of four and fourteen year olds.
- Routine screening in Sioux Lookout Zone of four year olds that do not have a history of BCG vaccination in the following communities:
  - **Lac Seul, Pikangikum**
  - **Poplar Hill**
  - **Sandy Lake**
  - **Mishkeegogamang**
- In all zones, when required for contact tracing of a TB case.
- When required prior to administration of BCG as per *Medical Directive CD-IMM-002 BCG-Authority to Administer BCG Immunization by Registered Nurses Employed by FNIHB-Ontario Region, February 1, 2016* or current.

Dosage
- A single dose of 0.1mL administered intradermally.

Authorized Implementers
The medical directive may be implemented by FNIHB employed nurses who:
- Are Registered Nurses (RNs) or Registered Practical Nurses (RPNs) working in Ontario, who are in good standing with the College of Nurses of Ontario, with no suspensions
- Are working in a Community Health Nursing role.
- Have successfully completed the FNIHB-Ontario Region Immunization Orientation and Competency Certification, and attend all mandatory immunization education sessions to maintain competency.

All nurses using this directive must be:
- Knowledgeable of the *FNIHB-Ontario Region Tuberculosis Prevention and Control Policies and Procedures* (2012) or current, as well the *Canadian TB Standards 7th Edition* or current.
- Able to apply their knowledge, judgment and skills in safely administering the TST

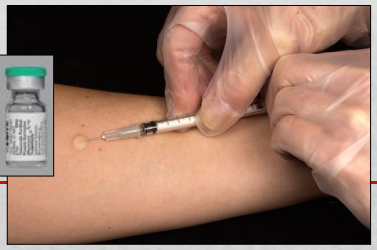
HC FNIHB-OR-CD Unit 1 of 8 Last Revised: November 2016

BCG

- *Bacillus Calmette–Guérin (BCG)* vaccine is a vaccine primarily used against tuberculosis.
- BCG is still given in some Northern Communities at Birth
- Agency nurses are **not** certified to give BCG
- Given in Right deltoid
- Can create an open sore for up to 6 weeks
- Dry dressing only. No topical antimicrobials

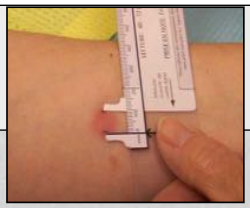
TST

- The Tuberculin Skin Test (TST) or Mantoux test is a tool for screening for tuberculosis (TB) and for tuberculosis diagnosis.
- TST is given at 4-6 years old
- Two step test
- Check at 48-72 hours
- Measure induration only
- What is the work up if positive?



BCG vs. TST

TST Reaction Size	Situation When Result is Considered Positive
0 - 4mm	In general this is considered negative and no tx is indicated Child less than 5 years and high risk of TB infection
5 - 9mm	HIV infection Contact with infectious TB within the past 2 years Fibronodular disease on chest x-ray (healed TB but not previously treated) Organ transplantation (related to immune suppressant therapy) TNF alpha inhibitors Other immunosuppressive drugs e.g. corticosteroids End-stage renal disease
≥ 10mm	TST conversion (within 2 years) Diabetes, malnutrition Silicosis Hematologic malignancies



TST interpretation

Health Canada / Santé Canada

Tuberculin Skin Test Form

Client Demographic Information * Indicates required information.

*Community Name:		
*Client's Name:		
	(Last Name, First Name, Middle Initial)	Alternate Name
*Unique Identifier: (OHIP #)		*DOB: DD-MMM-YYYY
Panorama Identifier:		*Gender: ☐ Male ☐ Female ☐ Undifferentiated
Band Number:		

Tuberculin Screening Questions (to be completed by the Community Health Nurse- look in client chart for previous TSTs or TB history)

Please answer these screening questions by checking (√) where appropriate:

	YES	NO
1. Have you/has your child had tuberculosis ?	☐	☐
2. Have you/has your child ever had a TB skin test on their forearm that caused a blister?(ie allergic reaction)	☐	☐
3. Have you/has your child ever had a TB Skin test that caused a bump equal to or greater than 10 mm(size of a dime)?	☐	☐
4. Have you/has your child had a live vaccine in the past 4 weeks? (measles, mumps, & rubella, varicella, or yellow fever)	☐	☐

If the client answers YES to ANY of the above 4 questions then they should NOT have a tuberculin skin test.

Consent for Tuberculin Skin Test (TST)

- ○ I have read or had explained to me information about the TST.
- ○ I have had the chance to ask questions, which were answered to my satisfaction.
- ○ I understand the risks and benefits associated with this test.
- ○ I am aware that personal health information collected on this form may be shared with another doctor or nurse if that is required for my care.
- ○ *I consent to having the TST done and I am aware that I am required to return for reading of the test in 48-72 hours.*

*Form of Consent: ☐ Written ☐ Verbal

*Relationship: ☐ Parent ☐ Client ☐ Substitute Decision-Maker

Print Name of Person Giving Consent:

Signature of Person Giving Consent: Date:

Relationship:

TST Documentation

*Reason for Testing (check (✓) one box only)

☐ Contact tracing ☐ Targeted Screening ☐ Other: _____

Test Specification			Test Results	
*Date of Test: DD-MMM-YYYY			*Date of Reading: DD-MMM-YYYY	
*Time of Test:	____ ____ : ____ ____		*Time of Reading:	____ ____ : ____ ____
Dose:	Route:	Site: ☐ Inner aspect of Rt forearm ☐ Inner aspect of Lt forearm ☐ Other:_____	*Induration:	_____ mm (mm measurement is mandatory for all results) *For interpretation of the results see the CHART on the back of this form*
Lot # Expiry Date:			*Check only one: ☐ Positive → **Fill out Enhanced Surveillance LTBI form** ☐ Negative ☐ Not Read	
Please note 2 step Mantoux requires a physician's order ☐ Step 1 of 2 ☐ Step 2 of 2			Follow Up: ☐ No follow up required ☐ Inform TB/ CDC Nurse / Physician	☐ Repeat TST ☐ Chest X-Ray
Print Name of Provider:	Signature of Provider:		Print Name of Provider:	Signature of Provider:

After reading and recording the test result, fax this page to the appropriate number below and place this form in the client's chart.

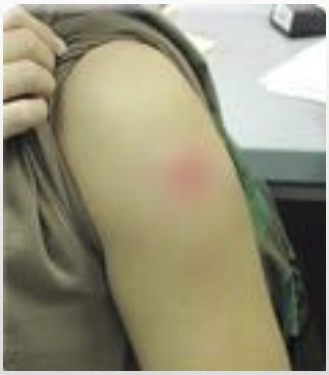
Zone	Tuberculin Skin Test Results
All Zones	FAX: 1-613-952-0177

TST Documentation Con't

Reporting Adverse Events

PART 8

- Vaccines are safe and continue to be a positive contribution to overall population health, however, there is a slight risk of adverse reactions as a result of vaccination.
- Local reactions are the most common occurrence after a vaccination
- They normally present as indurations, pain or sensitivity, redness or heat at the injection site
- These are generally self limiting and require no treatment



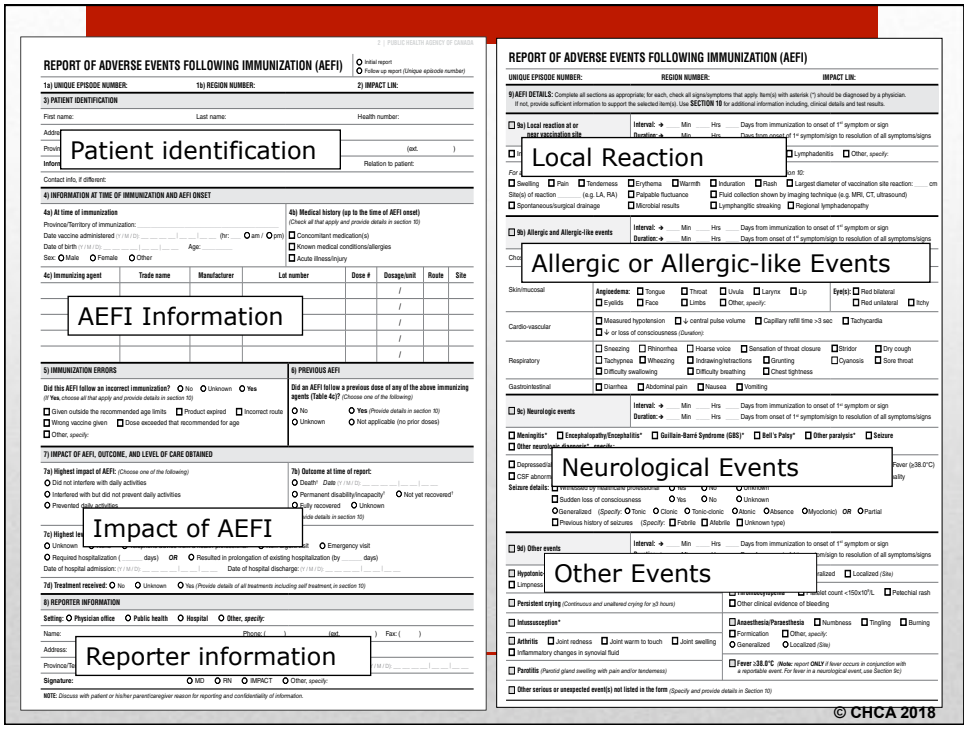
Injection site reaction

Management of Adverse Events

Adverse Events Following Immunization (AEFI) are defined as:

- any untoward medical occurrence in a vaccine which follows immunization and which does **not** necessarily have a causal relationship with the administration of the vaccine.
- adverse event may be any unfavourable and/or unintended sign, abnormal laboratory finding, symptom or disease.

Reportable Adverse Events



- REPORT if the AE has a temporal association with immunization (i.e. the event follows immunization); and
- If the AE has no other clear cause when reporting
- A causal relationship does not need to be proven, and submitting a report does not imply causality.
- Expected AE found in the vaccine's product monograph DO NOT NEED TO BE REPORTED
- If there is any doubt as to whether or not an event should be reported, a conservative approach should be taken and the event should be reported.

What AEFI should be reported?

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- Nurse who identifies AEFI notifies the Zone CD Nurse by phone immediately, once the patient is stabilized, fax of the AEFI form (within 24hrs)
- Nurse will inform the patient that the AEFI will be reported to the local public health unit and Health Canada and that they will be contacted with recommendations for future immunization.
- The Zone CD Nurse forwards copies to the Zone Medical Officer, Local PHU and the Regional Communicable Disease Coordinator
- A copy of the AEFI report with recommendation for future immunization is sent by the Zone CD Nurse within two weeks who will contact the nurse
- Nurse will review recommendations with patient

Procedure for reporting AEFI

Needle Stick Injury Procedure

PART 9

- Nurses should avoid needle stick injuries by the use of routine practices such as using the correct personal protective equipment and avoiding recapping needles.

Avoid recapping and reduce needle stick injury

Needle Stick Injuries

1. Report the injury to the NIC
2. Allow the wound to bleed freely, then wash with copious amount of soap and water
3. Complete the "Unusual Occurrence form" and forward to the Zone Nursing Office within 24 hours
4. Review the client's blood serum status (HBsAg, Anti-HBs, Hepatitis C, HIV). If blood status is unknown, obtain consent from the client to obtain the above
5. Test for Anti-HBs, Hepatitis C, HIV as soon as possible
6. Consult physician regarding need for post-exposure prophylaxis (PEP)

Needle Stick Injury Procedure

Cold Chain Procedure

PART 10

Ministry of Health and Long-Term Care (MOHLTC)

(Fund vaccines)

Local Public Health Unit

(Store and Dispense vaccines)

First Nation Community

(Provide vaccines)

Vaccine Supply in Ontario

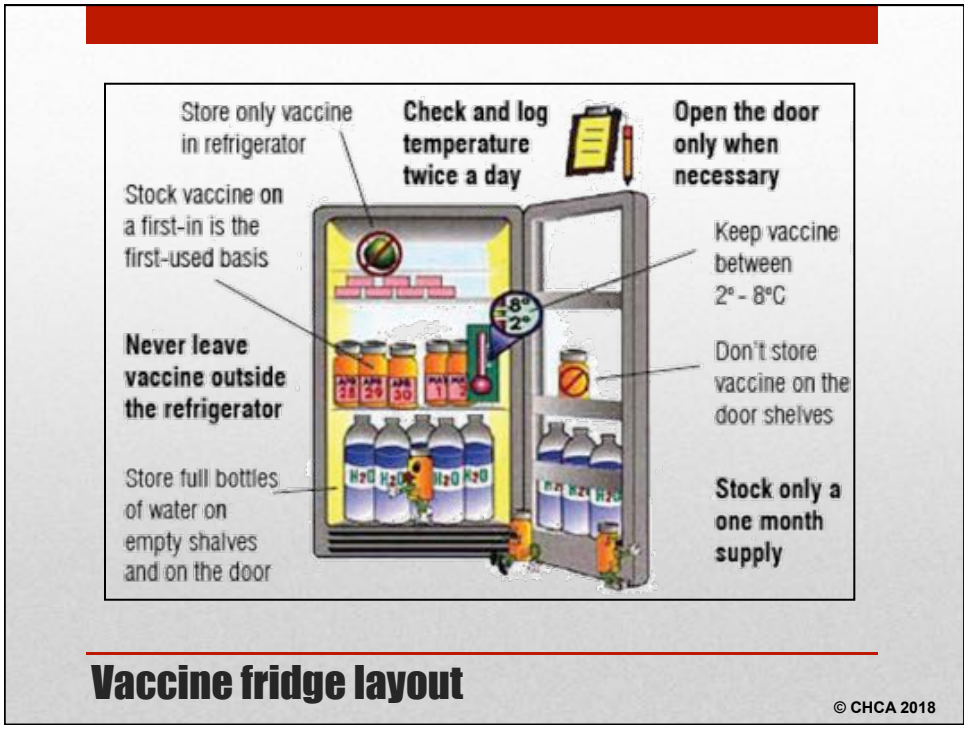
3 Elements to Cold Chain procedure:

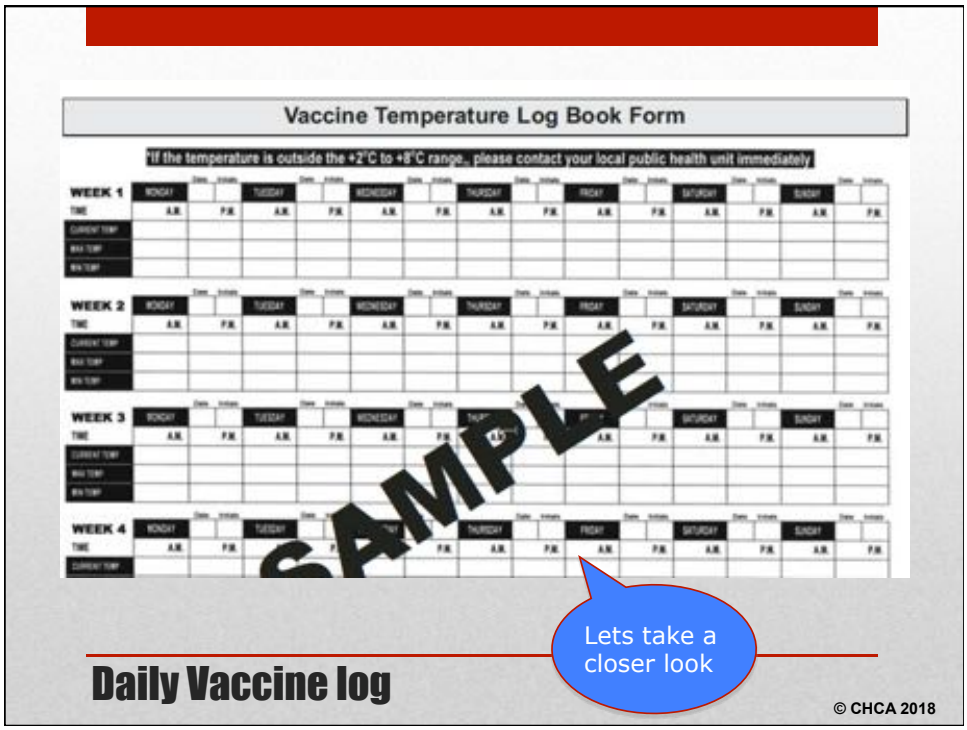
- Personnel
  - Delegated primary staff member
- Equipment
  - Refrigerator, koolatron, coolers, thermometers
- Storage and handling policy/procedures
  - Temperature-controlled supply chain (+2°C - +8°C)
  - Begins with the manufacturer and ends with the administration of the vaccine

Cold Chain Procedure

- Vaccines must be stored in a dedicated vaccine refrigerator
- Vaccines must be stored on the middle shelves away from walls or cold air vents.
- No food, beverages or other biological products in the vaccine refrigerator.
- Do not leave vaccines on site if refrigerator will not be monitored for an extended period of time

Vaccine Storage and Handling


Store only vaccine in refrigerator
Check and log temperature twice a day
Open the door only when necessary
Stock vaccine on a first-in is the first-used basis
Keep vaccine between 2° - 8°C
Never leave vaccine outside the refrigerator
Don't store vaccine on the door shelves
Store full bottles of water on empty shalves and on the door
Stock only a one month supply
Vaccine fridge layout
© CHCA 2018


Vaccine Temperature Log Book Form
"If the temperature is outside the +2°C to +8°C range, please contact your local public health unit immediately"
WEEK 1
WEEK 2
WEEK 3
WEEK 4
SAMPLE
Lets take a closer look
Daily Vaccine log
© CHCA 2018

Month: January 2011 Office/Facility: ABC Pharmacy

Week 5	Mon	3	Tue	4
Time	8:30 AM	5:30 PM	8:30 AM	5:30 PM
Current	5.8	7.0	5.7	6.0
Max Temp	7.1	7.9	6.8	7.2
Min Temp	3.4	3.2	2.8	
Initials	AA	BJ	AA	

Health Canada Santé Canada

Monthly Vaccine Refrigerator Inventory Form

Clinic/Nursing Station:	Date:

Vaccine Generic	Vaccine Trade Name	Lot Number	Total Doses at Start of Month	Doses Received	Doses Wasted	Doses Lost to Cold Chain	Total Doses at End of Month
DTaP-IPV-Hib							
Pneu-C-13							
Rotavirus							
MMR							
Men-C-C							
Varicella							
DTaP-IPV							
MMRV							
HB							
HPV							
Men-C-ACYW-135							
Tdap							
Td							

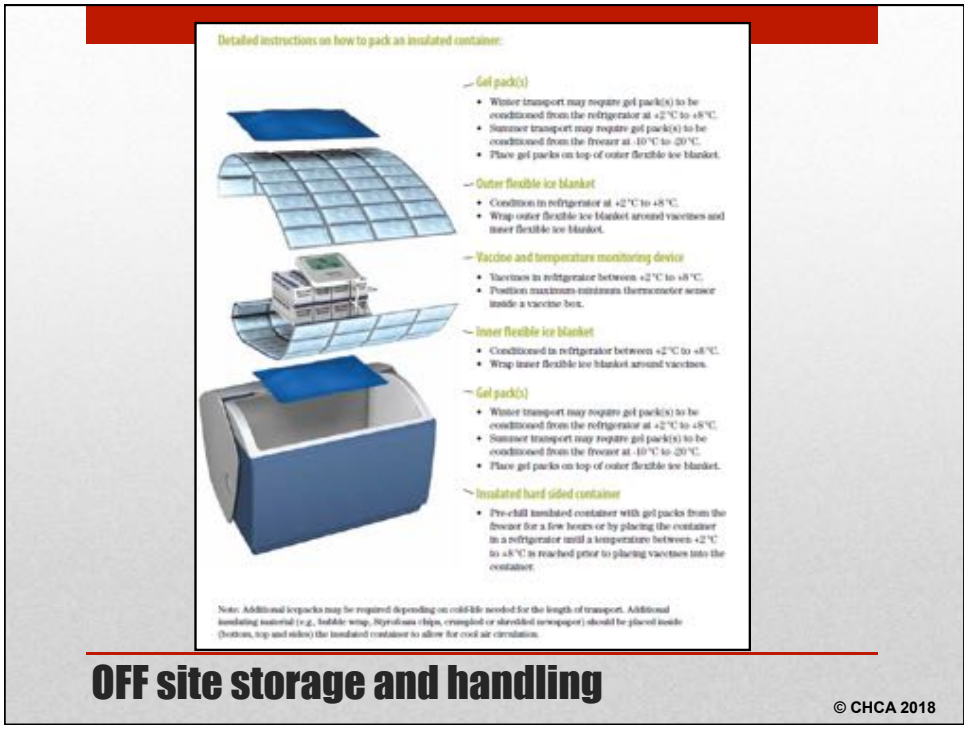
Faxed to ZONE OFFICE Monthly

The following 9 steps must be taken in response to a cold chain break:

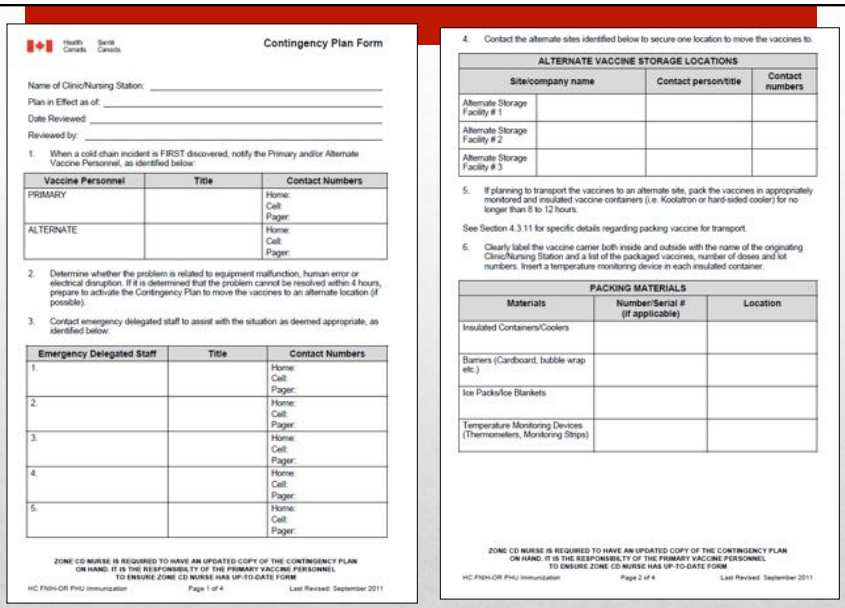
1. **Notify** the vaccine manager immediately of any situation when the refrigerator temperature goes outside of the +2C to +8C range.
2. **Complete** the cold chain Failure/Exposure/Wastage Report form.
3. **Record the date and time** of discovery of the problem.
4. **Record the temperature** (current, minimum, maximum) at the time of discovery of the problem.
5. **Record the estimated duration** of exposure.

... continued

6. **Record the date and time** of the last recorded temperature which was in the correct temperature range of +2C to +8C.
7. **Record the current inventory** of the vaccines inside the refrigerator. DO NOT open the door unnecessarily, this will cause further temperature fluctuations inside the refrigerator.
8. **Package the vaccine** and label as "DO NOT USE", transfer to a functioning refrigerated unit with the temperature monitor.
9. **Determine** whether the problem is related to the status of the equipment or an electrical problem.



OFF site storage and handling


Contingency Plan Form

Name of Clinic/Nursing Station: _____

Plan in Effect as of: _____

Date Reviewed: _____

Reviewed by: _____

1. When a cold chain incident is FIRST discovered, notify the Primary and/or Alternate Vaccine Personnel, as identified below:

Vaccine Personnel	Title	Contact Numbers
PRIMARY		Home: Cell: Pager:
ALTERNATE		Home: Cell: Pager:

2. Determine whether the problem is related to equipment malfunction, human error or electrical disruption. If it is determined that the problem cannot be resolved within 4 hours, prepare to activate the Contingency Plan to move the vaccines to an alternate location (if possible).

3. Contact emergency delegated staff to assist with the situation as deemed appropriate, as identified below:

Emergency Delegated Staff	Title	Contact Numbers
1.		Home: Cell: Pager:
2.		Home: Cell: Pager:
3.		Home: Cell: Pager:
4.		Home: Cell: Pager:
5.		Home: Cell: Pager:

ZONE CD NURSE IS REQUIRED TO HAVE AN UPDATED COPY OF THE CONTINGENCY PLAN ON HAND. IT IS THE RESPONSIBILITY OF THE PRIMARY VACCINE PERSONNEL TO ENSURE ZONE CD NURSE HAS UP-TO-DATE FORM

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4. Contact the alternate sites identified below to secure one location to move the vaccines to.

ALTERNATE VACCINE STORAGE LOCATIONS			
Site/company name		Contact person/title	Contact numbers
Alternate Storage Facility # 1			
Alternate Storage Facility # 2			
Alternate Storage Facility # 3			

5. If planning to transport the vaccines to an alternate site, pack the vaccines in appropriately monitored and insulated vaccine containers (i.e. Koolatron or hard-sided cooler) for no longer than 8 to 12 hours.

See Section 4.3.11 for specific details regarding packing vaccine for transport.

6. Clearly label the vaccine carrier both inside and outside with the name of the originating Clinic/Nursing Station and a list of the packaged vaccines, number of doses and lot numbers. Insert a temperature monitoring device in each insulated container.

PACKING MATERIALS		
Materials	Number/Serial # (if applicable)	Location
Insulated Containers/Coolers		
Barriers (Cardboard, bubble wrap etc.)		
Ice Packs/Ice Blankets		
Temperature Monitoring Devices (Thermometers, Monitoring Strips)		

ZONE CD NURSE IS REQUIRED TO HAVE AN UPDATED COPY OF THE CONTINGENCY PLAN ON HAND. IT IS THE RESPONSIBILITY OF THE PRIMARY VACCINE PERSONNEL TO ENSURE ZONE CD NURSE HAS UP-TO-DATE FORM

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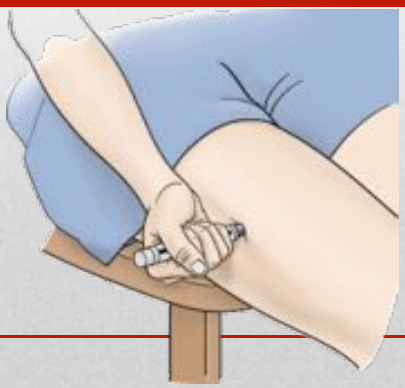
Vaccine Contingency Planning

Emergency Measures



PART 11

- Anaphylaxis is an acute hypersensitivity reaction with multi-organ system involvement that can rapidly progress to a severe life threatening reaction.
- Anaphylaxis following immunization is rare.
- Anaphylaxis generally begins a few minutes after injection and is usually evident within 30 minutes.

Table 1 Mueller's grading for systemic allergic reactions[12]

I	Generalised urticaria, periorbital oedema, itching, malaise, anxiety
II	Angioedema or two or more of the following: chest or throat tightness, nausea, vomiting, diarrhoea, abdominal pain, dizziness
III	Dyspnoea, wheezing, or stridor, or two or more of the following: dysphagia, dysarthria, hoarseness, weakness, confusion, feeling of impending disaster
IV	Hypotension, collapse, loss of consciousness, incontinence, cyanosis

Identification of Anaphylaxis

Basic Management of Post-Immunization Anaphylaxis in Non-Hospital Setting

EARLY RECOGNITION AND TREATMENT IS VITAL

1. Promptly administer aqueous epinephrine 1:1000 by IM in the mid-anterolateral aspect of the thigh.
   - Record time of dose
   - Repeat Q5-15 min PRN; max. 3 doses (don't use the same site as immunization)
2. Activate the emergency Response System (911) or other service as per community protocol
3. Position client:
   - On back or position of comfort
   - Elevate lower extremities
   - Place on side if vomiting or unconscious
   - Pregnancy- place in semi-recumbent position on left side with legs elevated
4. Monitor airway, skin, HR, BP frequently for change in condition. Establish oral airway if necessary
5. Stabilize:
   - Give adjunctive treatment such as diphenhydramine IM if indicated
   - Perform CPR if necessary
6. Arrange for transportation for local hospital or other facility as per community protocol

Treatment Protocol

Table 1: Dose of Epinephrine (1:1000, 1 mg/mL solution), by weight or age

The Canadian Immunization Guide (2016) recommends injecting epinephrine intramuscularly in the mid-anterolateral aspect of the thigh. It further states that the deltoid is not as effective as an absorption site as the mid-anterolateral thigh and to avoid the limb used for vaccination.

The dosing regimens included in the tables below are based on most recent CIG and IAC recommendations for weight based dosing, further adapted by and used with permission from FNIHB SK Region.

Use of Autoinjector: If 15- 30 kg, give Junior dose; if > 30 kgs, give Standard dose;
***Do not use under 15kg**

Weight (recommended at all times)	Age (if weight not known)	Dose (1:1000) (IM) (0.01mg/kg body weight)	Dose by Autoinjector
Under 9 kg (18 lb)	0 - 6 months	0.05 ml (minimum per dose)	Not applicable
9 – 12 kg (18 – 28 lbs)	7 months – 2 yrs	0.1 ml	Not applicable
13 – 17 kg (29 – 39 lbs)	3 – 4 yrs	0.15 ml	*Junior Dose of 0.15mg after 15kg
18 – 22 kg (40 – 50 lbs)	5 – 6 yrs	0.2 ml	Junior Dose of 0.15mg
23 – 27 kg (51 – 61 lbs)	7 – 8 yrs	0.25 ml	Junior Dose of 0.15mg
28 – 32 kg (62 – 72 lbs)	9 - 10 yrs	0.3 ml	Standard Dose 0.30mg
33 – 37 kg (73 – 83 lbs)	11 yrs	0.35 ml	Standard Dose 0.30mg
38 – 45 kg (84 – 99 lbs)	12 yrs	0.4 ml	Standard Dose 0.30mg
46 kg (100 lbs and up)	13 yrs of age and up	0.5ml (maximum per dose)	Standard Dose 0.30mg

Adapted with permission from FNIHB – Saskatchewan Region based on CIG and IAC

Epinephrine Treatment Protocol

Table 2: Dose of Diphenhydramine Hydrochloride, by weight or age

Diphenhydramine hydrochloride (Benadryl®) can be given as an adjunct to epinephrine if:

- The client's symptoms are not controlled by epinephrine; or
- The client cannot be transferred to an acute care facility within 30 minutes.

*Note: IM administration of Benadryl®) is recommended during anaphylaxis because it provides more rapid absorption.

Oral treatment is suitable for conscious patients that exhibit non-anaphylactic allergic reactions following immunization. Diphenhydramine is available as oral solutions in 2 strengths:
Benadryl Liquid Children (and generics) 6.25 mg/5 ml or
Benadryl Elixir (and generics) 12.5 mg/5ml.

Diphenhydramine is generally not recommended for infants under 12 months of age, and should be used with caution between 12-23 months because it may cause drowsiness or paradoxical excitement.

Weight	Age	IM Dose (50mg/ml; 1mg/kg to max. dose of 50 mg)	PO Dose (6.25 mg/5ml or 12.5mg/5ml); 2 mg/kg to a max. dose of 50 mg)
7 – 10 kg (15 – 23 lbs)	12-23 months	0.2 ml	2.5 ml/dose or 1.25 ml/dose
11 – 15 kg (24 – 34 lbs)	2-4 years	0.3 ml	5 ml/dose or 2.5 ml/dose
16 – 20 kg (35 – 45 lbs)	5 – 7 yrs	0.4 ml	7.5 ml/dose or 3.75ml/dose
21 – 30 kg (46 – 67 lbs)	8 – 9 yrs	0.6 ml	10 ml/dose or 5 ml/dose
31 – 40 kg (68 – 89 lbs)	10 – 12 yrs	0.8 ml	15 ml/dose or 7.5 ml/dose
41 kg (90 lbs) and up	13 yrs of age and up	1 ml	20 ml/dose or 10 ml/dose

Adapted with permission from FNIHB – Saskatchewan Region based on CIG and IAC

Diphenhydramine Treatment Protocol

- Ensure all supplies are stocked in Anaphylaxis Kits, as per recommendations
- Maintain Anaphylaxis Kits, ensuring supplies are sufficient and expiry dates are not surpassed

Anaphylaxis Kit – Each kit should contain the following items:

- 1 Page of "Drug Management Guidelines for Management of Suspected Anaphylactic Shock in Children and Adults" (taped to the inside of the box lid)
- 3 x 1 mL ampoules of epinephrine (1:1000 aqueous solution)
- 1 x 1 mL vials of diphenhydramine (50 mg/mL)
- 3 x 1 mL syringes with safety engineered needles* (various lenghts with 25G)
- 1 pocket mask
- 5 alcohol swabs
- Sphygmomanometer (optional)
- Stethoscope (optional)
- Up to date contact information for the Public Health Supervisor and Medical Officer(s) of Health.

*Length of needle to be selected appropriate to patient size and body mass. Suggest: Needle gauge: 25G, needle lenghts: 3 x 1"; 3 x 5/8"; 3 x 1.5"

- Ensure that reference material is current and up to date

Basic Management of Post-Immunization Anaphylaxis in Non-Hospital Setting
EARLY RECOGNITION AND TREATMENT IS VITAL

Role of Community Health Nurse

- Be familiar with the immunizations
- Observe storage & handling procedures to minimize risks & optimize effectiveness
- Use every opportunity to update a person's immunization status
- It is safe & effective to give multiple injections
- Do not defer vaccination unless there is a true contraindication
- Never mix vaccines in the same syringe
- Always give full doses
- Do not re-initiate a primary vaccine schedule
- Always observe a 15 minute waiting period following immunization

Lets wrap it up···

The Immunization Support Line

1-866-297-3577

Monday – Friday

8:00am-4:00pm Eastern Time

Email immunization support:

immunization-fnih-ontario@hc-sc.gc.ca

Immunization Support Line

References

1. Canadian Immunization Guide. Public Health Agency of Canada retrieved from https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html
2. Immune System Part 1- Innate Immune System retrieved from https://www.youtube.com/watch?v=GIJK3dwCWCw
3. Immune System Part 2- Adaptive Immune System retrieved from https://www.youtube.com/watch?v=2DFN4IBZ3rI
4. Immune System Part 3- Cellular Immune Response retrieved from https://www.youtube.com/watch?v=rd2cf5hValM
5. Ontario Immunization Schedule. Government of Ontario. Retrieved from http://www.health.gov.on.ca/en/pro/programs/immunization/docs/immunization_schedule.pdf
6. Immunization Schedule Tool. Government of Canada. Retrieved from https://www.canada.ca/en/public-health/services/provincial-territorial-immunization-information.html?_ga=2.143618044.858817293.1523022460-1921619209.1497638873
7. Immunizations Questions and Answers. Immunize.ca. Retrieved from https://immunize.ca/questions-and-answers
8. Education Program for Immunization Competencies. Advanced Practice. Module 1 – 14
9. M. Lima (2017). Immunization Orientation Sessions 1-3. First Nation Inuit Health Branch- Ontario Region.
10. Adverse Events Following Immunization Form. Government of Canada. Retrieved from https://www.canada.ca/en/public-health/services/immunization/reporting-adverse-events-following-immunization.html
11. Vaccine Storage and Handling Guidelines. Government of Ontario. Retrieved from http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/guide_vaccine_storage.pdf
12. Basic Management of pot-Immunization Anaphylaxis in Non Hospital Setting. Early Recognition and Treatment is Vital (2017). Government of Canada.