

Self-Directed Learning Module on Immunizations



***June 2017
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SELF-DIRECTED LEARNING MODULE ON IMMUNIZATION

Goal:

To provide an ongoing standardized educational process that will guide health practitioners' immunization practice in accordance with policies and procedures outlined in the Newfoundland and Labrador Immunization Manual and the Canadian Immunization Guide.

Objectives:

On completion of the immunization educational process, you will be able to:

1. Explain how vaccines work using basic knowledge of the immune system.
2. Explain the types of immunizing agents and their composition.
3. Communicate effectively about immunization.
4. Demonstrate proper vaccine handling and storage.
5. Prepare, administer and document immunization agents correctly.
6. Anticipate, identify and manage adverse events following immunization.
7. Assess the unique immunization needs of specific populations.
8. Demonstrate an understanding of the variable immunization schedules among the provinces and territories.
9. Address immunization issues using an evidence-based approach.
10. Apply legal and ethical standards in all aspects of the immunization practice.
11. Demonstrate an understanding of the rationale and benefit of immunization.

Resources:

1. Department of Health and Community Services. (2019). Newfoundland Labrador immunization manual. Retrieved from http://www.health.gov.nl.ca/health/publichealth/cdc/health_pro_info.html#disease
2. Health Canada (2019). Drug product database. Retrieved from <https://health-products.canada.ca/dpd-bdpp/index-eng.jsp>
3. Immunize Canada. (2019). Retrieved from <http://www.immunize.ca>
4. Moore, D.L. (Ed.). (2015). Your child's best shot. A parent's guide to vaccination (4th ed.). Ottawa, ON: Canadian Pediatric Society.
5. Public Health Agency of Canada. (2008). Immunization competencies for health professionals. Ottawa, ON: Public Works and Government Services Canada. Retrieved from <http://www.phac-aspc.gc.ca/im/pdf/ichp-cips-eng.pdf>
6. Public Health Agency of Canada. (2019). Canadian immunization guide. Retrieved from <https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html>

Guidelines for the Practitioner

1. To become knowledgeable in the field of immunization you will need to successfully complete
 - This written self-directed immunization learning module;
 - A supervised immunization experience; and
 - Orientation session with the Communicable Disease Control Nurse (CDCN)/designate
2. To direct your own learning experience with the goal of reaching or maintaining competence in immunization. It is recommended that you use resources listed in the previous page.
3. To complete the module prior to meeting with the CDCN/designate for orientation on immunization. Submit your completed module to the CDCN/designate at least two days prior to your scheduled orientation time. The module will be reviewed by the CDCN/designate and discussed with you at the orientation session.

1. Which one of the following applies to active immunization?
- a) Involves the injection of antibodies
 - b) Includes any procedure that stimulates an immune response in a person
 - c) Protects an individual for a limited time, usually for one to three months
 - d) Has no long lasting protection

Answer:

2. The immune system helps to protect the body against infection. Which one of the following statements is **correct**?
- a) Viruses are complete organisms and can live on their own as long as they have the proper chemicals to nourish them.
 - b) The immune system responds to bacteria and viruses by producing antigens.
 - c) Antibodies and lymphocytes work by combining with or attaching to an antigen on the surface of a bacteria or virus.
 - d) Memory cells live for a short time and are not helpful in enabling the immune system to recognize germs it has seen before.

Answer:

3. Which type of vaccine should be avoided in immunocompromised clients?
- a) Inactivated vaccine
 - b) Live attenuated vaccine
 - c) Any vaccine with an adjuvant
 - d) All vaccines should be avoided

Answer:

4. Indicate whether the following statements regarding live vaccines are **TRUE** or **FALSE**.
- a) They are composed of a suspension of whole-killed bacteria or virus.
True False
 - b) One or two doses are usually sufficient to induce long-term immunity.
True False
 - c) They are contraindicated in immunocompromised clients.
True False
 - d) The replication in the body induces similar immunity to that seen with a natural infection.
True False

5. Which of the following is an example of passive immunization?
- a) Administering the measles, mumps, rubella & varicella (MMRV) vaccine.
 - b) Administering the seasonal influenza vaccine.
 - c) Providing Rifampin to close contacts of client with meningitis.
 - d) Administering hepatitis B immune globulin (HBIG).

Answer:

6. Which statement about the immune system is **FALSE**?
- a) It helps to protect the body against infection.
 - b) Vaccination is the only way to achieve immunity.
 - c) The initial response of the immune system is to destroy the germ and help the body recover.
 - d) Immunity is infection specific.

Answer:

7. Which of the following is a benefit of immunity from a vaccine?
- a) Immunity that develops from a vaccine will never wane.
 - b) Vaccine won't cause the disease or complications associated with the disease.
 - c) Vaccination provides immediate protection.
 - d) The additives in vaccines help stimulate immunity.

Answer:

8. Which of the following are examples of passive immunity? **Select all that apply.**
- a) Mother to fetus
 - b) Breastmilk
 - c) Antibody injections
 - d) Vaccinations

Answer:

9. What is the purpose of adjuvants in vaccines?
- a) To strengthen the immune response.
 - b) To prevent bacterial contamination during the manufacturing process.
 - c) To kill the virus or bacteria used to manufacture the vaccine.
 - d) It's used as a stabilizing agent.

Answer:

10. Which of the following is an inactivated vaccine?

- a) MMR
- b) Tdap
- c) Rotavirus
- d) Varicella

Answer:

11. A PHN is reviewing Grade 6 school immunization consents. One consent indicates the student has a latex allergy. What should the PHN do in this situation?

- a) Proceed and immunize child since there are no vaccine products that contain latex.
- b) Call parent and inform them that child will not be able to receive vaccine.
- c) Determine if vaccine product on hand contains latex and if it does order a latex free vaccine.
- d) Immunize child with latex free vaccine.
- e) (c) and (d)

Answer:

12. Immunization refers to the process which helps a person be protected from disease utilizing vaccines. Which of the following is a **correct** statement as it relates to immunization and types of vaccines?

- a) A vaccine induces the immune system to make antibodies- the body's main defense against infection.
- b) All vaccines currently used contain preservatives and adjuvants.
- c) Thimersol is added to vaccines to enhance the immune response and can help to improve the immune response in the elderly population.
- d) Immunoglobulins are a type of passive immunity and provide long term rapid protection for when vaccines are not available or contraindicated.

Answer:

13. Classify the following vaccines as either live or inactive and include the vaccine abbreviation.

<i>Vaccine Name</i>	<i>Live</i>	<i>Inactivated</i>	<i>Abbreviation</i>
Tetanus, diphtheria and acellular pertussis			
Hepatitis B			
Human Papilloma Virus			
Measles, Mumps, Rubella and Varicella			
Meningococcal Conjugate Quadravalent			
Diphtheria, Tetanus, acellular Pertussis, Polio and Haemophilus			
Rotavirus			

14. Which one of the following statements regarding vaccines is **correct**?

- a) Inactivated vaccines can cause disease.
- b) Live attenuated vaccines contain living, weakened bacteria or viruses.
- c) Inactivated vaccines require only one dose.
- d) Live attenuated vaccines are the same as inactivated vaccines.

Answer:

15. A client approaches the nurse with concerns about vaccines containing mercury. Which of the following is the **MOST** appropriate response?

- a) "Mercury is used in almost every vaccine; it is a safe preservative."
- b) "There is absolutely no trace of mercury in all vaccines anymore."
- c) "Don't worry about it, mercury may be toxic but I feel this product is safe."
- d) "Mercury has been removed from most products, and there has never been a link suggesting it causes complications."

Answer:

16. Which of the following vaccines can be administered to a client with an egg allergy?

- a) Influenza
- b) Tdap
- c) MMR
- d) All the above

Answer:

17. Which one of the following is a **FALSE** statement regarding combination vaccines?

- a) Combination vaccines are rigorously evaluated before authorization in Canada.
- b) In general, combination vaccines are preferred rather than separate injections of the single component vaccines.
- c) Combination vaccines should fit the recommended immunization schedule, be easily stored, and be easy to administer.
- d) Vaccines intended for separate administration can be combined by vaccine providers.

Answer:

18. What principles can be used by vaccine providers to communicate immunization facts effectively to vaccine recipients or parents?

- a) Adopt a vaccine recipient-centered approach.
- b) Respect differences of opinion about immunization.
- c) Clearly communicate current knowledge using an evidence-based approach.
- d) All of the above.

Answer:

19. A parent presents to clinic with her 12 month old child. She requests that her child's 12 month vaccines be separated because she does not want to overwhelm his immune system. Which of the following responses would be the **MOST** appropriate?

- a) "Children are naturally exposed to multiple antigens on a routine basis and they respond well to these ongoing exposures with no untoward effects on their immune system."
- b) "Immunization significantly adds to a child's daily exposure to antigens."
- c) "Your child may have more side effects with multiple vaccines but should be fine."
- d) "It is fine to give the vaccines separately as we have very little disease circulating."

Answer:

20. A parent tells the nurse that natural infection is better than a vaccine. What is the **BEST** response by the nurse?

- a) "You are right immunity after most vaccines is a lot lower than immunity that is induced by the disease."
- b) "Natural disease can kill or seriously harm a child, whereas vaccines have the benefit of protection and eliminate the chance of complications from disease."
- c) "You are right in some cases vaccines may cause more harm than the disease they are preventing."
- d) "I had several diseases when I was a child and while I was very sick my immune system is a lot stronger."

Answer:

21. Which of the following are characteristics of a valid consent? **Select all that apply.**

- a) It is an informed consent
- b) The person signing for a child is a parent or legal guardian
- c) The consent is signed and dated in ink on a permanent record
- d) The consent was signed three years ago

Answer:

22. Which message would you communicate to parents about the benefits of immunizations?

- a) Immunizations are more important in childhood.
- b) Some vaccines cause autism in children.
- c) Immunizations led to the elimination, containment and control of diseases.
- d) Before vaccines became available, many Canadian children developed diseases but very few were hospitalized or died from the disease.

Answer:

23. How would you respond to a parent who states: "If these diseases are now so rare, why do we still need to vaccinate our children?"
- a) "You only need to vaccinate if you are travelling outside the country"
 - b) "The disease is still present, and will become common again"
 - c) "We do not need to vaccinate against diseases that we do not currently have"
 - d) "You only need to vaccinate during an outbreak"

Answer:

24. A thermal bag used for transporting vaccine offsite or for use in a clinic site without a refrigerator should meet which of the following criteria?
- a) Large enough to store vaccine and ice packs
 - b) Insulation thickness 10mm-20mm
 - c) External surface is durable and robust
 - d) a and c are both correct

Answer:

25. You are reviewing your local vaccine handling and storage policy. Which of the following statements are correct?
- a) Vaccines should be stored in the middle of the refrigerator.
 - b) Extra containers/bottles of water should be kept in the fridge to help maintain temperatures.
 - c) Documentation of the refrigerator temperatures should be done at least once a day.
 - d) All of the above.

Answer:

26. Which of the following statements regarding expiration dates is true?
- a) "Once a multi-dose vial has been punctured it must be discarded after 28 days regardless of the expiry date, unless a shorter time has been specified by the manufacturer."
 - b) "Unused reconstituted vaccines can be kept up to 7 days for future use."
 - c) "Once opened, multi-dose premixed vials should be used within the timeframe specified by the manufacturer."
 - d) "Vaccines with an expiration date of September should be disposed of on September 1st."

Answer:

27. Which of the following are vaccine storage recommendations? **Select all that apply.**
- a) Store vaccine that will soon expire at the front of the fridge.
 - b) Staff must write date first opened on all multi dose vials.
 - c) Multi dose vials can be used until empty regardless of when opened.
 - d) Store vaccines between 2-8 degrees Celsius in a monitored refrigerator.

Answer:

28. Indicate whether the following recommendations for transporting vaccines are **TRUE** or **FALSE**

- a) Pack vaccines in an insulated/thermal carrier with ice packs
True False
- b) Transport vaccines in the trunk of a private vehicle and/or in the rear of a van
True False
- c) The vaccine should be in protective cardboard or a paper bag and bubble wrap to avoid direct contact with ice packs
True False
- d) Vaccines should be clearly labeled "store at 2-8 degrees"
True False

29. Which of the following are appropriate steps in handling vaccine if there is a cold chain break?
Select all that apply.

- a) Separate the affected vaccine and label "Do Not Use".
- b) Record vaccine name, lot #, date and time of incident.
- c) Contact local public health officials for advice.
- d) Discard all vaccines that were exposed.

Answer:

30. You are about to immunize a class of grade 9 students with Tdap vaccine. During your screening process, one student tells you that his brother developed chickenpox a week ago. What action should you take?

- a) Defer and consult with the CDCN/designate
- b) Advise the student that if they do not develop a rash within the 21 days after exposure then they can receive the vaccine
- c) Immunize the student as a recent exposure to an infectious illness is not a contraindication
- d) Request that the student remain at home so as not to expose other students and defer the vaccine

Answer:

31. What is the correct route of administration for Rotavirus vaccine?

- a) Oral
- b) Intramuscular
- c) Subcutaneous
- d) Intranasal

Answer:

32. A four-year-old girl comes to your clinic with her mom for her preschool health check. You review her immunization record and determine her immunizations are up to date for her age. Mom states that her daughter was born 2 months premature. Answer the following questions as it relates to the scenario.
- a) Which vaccine would this child be due to receive today, as per the NL Immunization Schedule?
 - b) Which disease(s) does this vaccine provide protection for?
 - c) Which anatomical site should you use?
 - d) Which route should you use?
 - e) What is the dose/amount of vaccine you should administer?
 - f) How long should mom wait with her daughter post vaccine?
 - g) Is prematurity a contraindication to this vaccine?
33. You see a five-year-old child in your clinic who is not up to date with the current immunization schedule and will require multiple vaccines during his first visit. After your assessment and appropriate vaccine counseling, which of the following is an appropriate action?
- a) If two injections are required in the same limb separate the injection sites by 1.0 inch.
 - b) Administer vaccines that are known to cause discomfort or stinging first.
 - c) Record the time of administration of each vaccine.
 - d) Administer vaccine in the anterolateral thigh.

Answer:

34. Which of the following size and length is recommended for use when administering a MMRV to a 12 month old child?
- a) 25 G 7/8"
 - b) 22 G 1"
 - c) 25 G 5/8"
 - d) 22 G 7/8"

Answer:

35. When documenting an immunization which of the following information should you include?
Select all that apply.

- a) Vaccine name
- b) Date of immunization
- c) Lot number
- d) Route
- e) Dose
- f) Needle size

Answer:

36. Which of the following are acceptable pain management techniques that parents may use during vaccination? **Select all that apply.**

- a) Breastfeed before, during and after immunization
- b) Position the baby on the clinic table and pick the baby up after the immunization
- c) Apply topical anesthetic cream, gel or patch prior to immunization
- d) Distraction

Answer:

37. When discussing adverse effects of vaccines with a parent, which of the following is the **MOST** appropriate statement?

- a) "Most vaccines do not have any side effects especially when given for the first time."
- b) "Some vaccines have life-threatening side effects; would you like to hear more about them?"
- c) "While some side effects are severe they are very rare. You don't need to worry about them at all."
- d) "The most common side effects of vaccines are redness and pain at the injection site but those are temporary."

Answer:

38. Which of the following would be a true adverse event following an immunization?

- a) Mild rash
- b) Respiratory symptoms such as sneezing, coughing, labored breathing
- c) Pallor and loss of consciousness
- d) Redness at the injection site

Answer:

39. Which of the following would **NOT** require an adverse event following immunization (AEFI) report?

- a) If the client requires urgent medical attention
- b) If there is an unusual or unexpected event
- c) If there is an expected side effect of the vaccine
- d) If the event is serious in nature

Answer:

40. What is a true contraindication for all vaccines?

- a) Anaphylactic reaction to a previous dose or a constituent of the vaccine
- b) Antibiotic treatment
- c) Inactivated vaccines during pregnancy
- d) Mild to moderate illness

Answer:

41. What are some common side effects that may be expected after administration of MMRV vaccine?

- a) Pain, swelling and/or redness at the injection site
- b) Fever
- c) Rash
- d) All of the above

Answer:

42. You are administering the Tdap to grade nine students at the local junior high school. Immediately after receiving the vaccine one student starts perspiring, becomes pale and suddenly collapses. What type of reaction is this student most likely having?

- a) Fainting
- b) Anaphylaxis
- c) Anxiety
- d) Breath-holding

Answer:

43. An individual received MMR vaccine two days ago and requires a Tuberculin Skin Test (TST) with PPD. Which of the following would be an appropriate action?

- a) Proceed with TST
- b) TST should be delayed for four weeks
- c) TST should be delayed for one week
- d) None of the above

Answer:

44. What would be your **FIRST** action if a 26 year old individual presents as non-immune to rubella?

- a) Proceed with MMR vaccine
- b) Do not administer MMR vaccine
- c) Retest individual's rubella serology
- d) Assess individual's immunization record

Answer:

45. A 65 year old individual presents to clinic in November for immunization update. Which of the following vaccines would you offer?

- a) Influenza
- b) Pneu-P-23
- c) Tetanus containing vaccine
- d) All of the above

Answer:

46. Which of the following individuals are eligible to receive the Hepatitis B vaccine?

- a) Grade 6 students
- b) Infants born to Hepatitis B positive mother
- c) A five year old child moving to another country
- d) (a) and (b)

Answer:

47. Which of the following vaccines should be delayed until at least two years post hematopoietic stem cell transplant (HSCT)?

- a) Varicella
- b) Tetanus, diphtheria, acellular pertussis
- c) Meningococcal
- d) Hib

Answer:

48. You are preparing to administer vaccine(s) to a client who has recently been diagnosed with Hepatitis C. Which of the following vaccine(s) should you offer?

- a) Hepatitis A
- b) Hepatitis B
- c) Pneu-P-23
- d) All of the above

Answer:

49. A 50 year old client with chronic kidney disease will be undergoing a kidney transplant in the near future. He has been referred to you for a vaccine assessment. His immunization record indicates that he has received all his childhood immunizations. What vaccines should you offer at this time?

- a) Pneumococcal Polysaccharide, Hepatitis B, Tdap
- b) Tdap, Hepatitis B
- c) Hepatitis A, Hepatitis B, Tdap
- d) Pneumococcal Polysaccharide, Hepatitis A, Hepatitis B

Answer:

50. Give the recommended Newfoundland and Labrador schedule for a child who began immunization at birth.

Age	DTaP-IPV-Hib	DTaP-IPV or Tdap-IPV	HB	HPV-9	MMRV	Tdap	Inf	Pneu-C-13	Men C-ACYW₁₃₅	Men-C-C	Rot-5
2 mos											
4 mos											
6 mos											
6 mos and older											
12 mos											
18 mos											
4-6 yrs											
Grade 4											
Grade 6											
14-16 yrs											

51. A 14 month old child whose family moved from Alberta presents to clinic with a record of two and four month immunization. Which vaccines should be offered to this child?

- a) MMRV, Pneu-C-13, Men-C-C
- b) MMRV
- c) MMRV, Pneu-C-13, Men-C-C, DTaP-IPV-Hib
- d) DTaP-IPV, Pneu-C-23

Answer:

52. A parent comes to your clinic with her one-year-old child. They have recently moved from another province and while mom does not have any record of her child's immunization she states she is sure the child's immunizations are all up to date. What is your **FIRST** action?

- a) Take mom's word for it and proceed with the 12-month immunization.
- b) Tell mom you cannot update her child's immunization without a doctor's order.
- c) Request immunization record from previous provincial health unit or doctor's office.
- d) Tell mom her child is not eligible to receive any vaccines.

Answer:

53. The National Advisory Committee on Immunization (NACI) is a committee of experts in various fields such as infectious diseases, immunology, pediatrics, etc. Which of the following statements best describes the role of NACI?
- a) NACI submits reports on adverse events on behalf of provinces and territories to the Public Health Agency of Canada (PHAC).
 - b) NACI helps ensure that Medical Officers of Health (MOH) in the related provinces and territories within Canada are equipped with the proper training regarding vaccines and immunology.
 - c) NACI makes recommendations for the use of current or newly approved vaccines in Canada which includes identifying at-risk groups.
 - d) NACI helps identify at-risk groups who require specific immunizations so that provinces and territories in Canada can be prepared and know what to expect regarding requests for specific vaccinations.

Answer:

54. A mother who recently moved from Nova Scotia (NS) presents to the public health clinic with her three month old child. The child's immunization record reflects that all immunizations are up to date as per NS schedules. Which vaccine(s) should you administer today?
- a) MMRV
 - b) Rotavirus
 - c) Men-C
 - d) All of the above

Answer:

55. A parent advises you that their 18 month old child was diagnosed with Hib disease at 16 months of age. The child requires the Hib containing vaccine.
- a) True
 - b) False

Answer:

56. Which of the following groups have the best seroprotection rates following immunization with HB?
- a) Children <2 years of age
 - b) Children between the ages of 5 and 15 years
 - c) Individuals aged 20-29 years
 - d) Individuals >60 years of age

Answer:

57. Which of the following is assessed through each of the phases of a vaccine's clinical trials?

- a) Immunogenicity
- b) Safety of the vaccine
- c) Optimal dose schedule
- d) Possible interactions with other vaccines

Answer:

58. An adult woman originally from Syria comes to your public health office for vaccines, as requested by immigration services. When you greet her you realize she does not speak English. What should you do?

- a) Ask her to come back at another time
- b) Refer her to another nurse
- c) Book an appointment for the client and coordinate a translator for that clinic visit
- d) Try your best to communicate with her to determine what services are required

Answer:

59. You see a 12 month old child in your clinic for vaccinations and after the client leaves you realize that you administered Pneumococcal Polysaccharide vaccine instead of Pneumococcal Conjugate vaccine. What would be your first action?

- a) Document the vaccine as Pneumococcal Conjugate vaccine and forget about it as both vaccines prevent pneumococcal disease.
- b) Have the child return the next day to administer the correct vaccine.
- c) Tell them to bring the baby to the ER department.
- d) Report the error using the recommended reporting system for your area.

Answer:

60. An adult client, who is also a friend of yours, presents to your clinic for Tdap vaccine. After completing the pre-vaccine counseling, what is the best action regarding obtaining consent?

- a) After determining that she is capable of providing consent you get her to sign the consent form before you administer the vaccine.
- b) You review the information with her and accept a verbal consent.
- c) Proceed to administer the vaccine- your friend is familiar with this vaccine so obtaining consent is not necessary in this situation.
- d) Give your friend the consent form the day before to complete as it will save time during the day of the appointment.

Answer:

61. Which of the following are complications of pertussis? **Select all that apply.**

- a) Pneumonia
- b) Maculopapular rash
- c) Death
- d) Seizures

Answer:

62. How is tetanus transmitted?

- a) Airborne
- b) Through a break in the skin
- c) Insect bite
- d) Sexual contact

Answer:

Checklist for Supervised Immunization Experience

Employee's Name: _____

ACTIVITY	DATE COMPLETED	COMMENTS
Completed the Self-Directed Learning Module		
Shared Vaccine Information with Client		
Assessment Prior to Immunization		
Discussed Risks and Benefits		
Obtained Informed Consent		
Washed Hands		
Vaccine Preparation – Sections 3 and 4 Checked <ul style="list-style-type: none"> • Epinephrine/Benadryl® dose • Vaccine selection • Checked expiry date • Dosage • Reconstitution as required • Choice of syringe, needle and site • Sterile/aseptic technique • Vaccine storage handling techniques 		
Demonstrated Appropriate Vaccine Administration – Section 4 <ul style="list-style-type: none"> • Inspect vaccine • Positioning, holding • IM • SC • ID • Disposal of needle and syringe • Comfort measures • Assessment post immunization 		
Demonstrated Appropriate Documentation Section 1.4 <ul style="list-style-type: none"> • Client's Record of Immunization • Provide post-immunization information • Provide record of immunization 		

Completion Date: _____ Employee Signature: _____

Preceptor/Mentor
Signature: _____