Southern Health-Santé Sud
Occupational Safety & Health Standard Orders

Only intended for use by SH-SS Occupational Health Program*

Table of Contents

1. <u>Treatment for Anaphylactic Shock</u>:

Severe

- Dyspnea with or without audible wheezing or stridor
- Hypotension
- Collapse
- Shock
- Weak/fast, irregular pulse

The Occupational Health Nurse:

1. Calls 911.
2. Places patient in supine position with feet elevated, as tolerated.
3. Differentiates symptoms from vasovagal syncope (fainting which can occur before, during or shortly after injection), with a steady pulse and normal respirations.
4. Administers IM Epinephrine (1 mg/mL preparation): Give epinephrine 0.5 mg intramuscularly, preferably in the mid-anterolateral thigh [can repeat every 5 to 15 minutes as needed to a maximum of 3 doses] If accessing the thigh is problematic, may use deltoid muscle of un-immunized limb.
5. Administers Benadryl (diphenhydramine) to a maximum of 50 mg IM at site other than inoculation. Do not repeat.
6. Monitors and documents vital signs and reassesses patient frequently until transport to hospital.
7. Administers C.P.R. as necessary.
8. Administers O_2 if available at site. This is optional.
9. Transfers employee to emergency department as soon as possible.
10. Following the completion of incident report, ensures the patient's current and future records(s) are clearly marked with a history of a suspected anaphylactic shock following immunization(s).

NOTE: Limitation of absorption by use of a tourniquet has been discontinued.

2. Hepatitis B Vaccine and Documentation – Required:

Immunization with Hepatitis B (HB) vaccine and post-immunization serologic testing are required for healthcare workers who are at increased risk of infection through occupational exposures to HB virus. This includes all health care workers who may be exposed to blood or blood products, are at risk of injury by instruments contaminated by blood, or are at risk of bites or penetrating injuries. Students in all healthcare occupations should complete their vaccine series before occupational exposure.

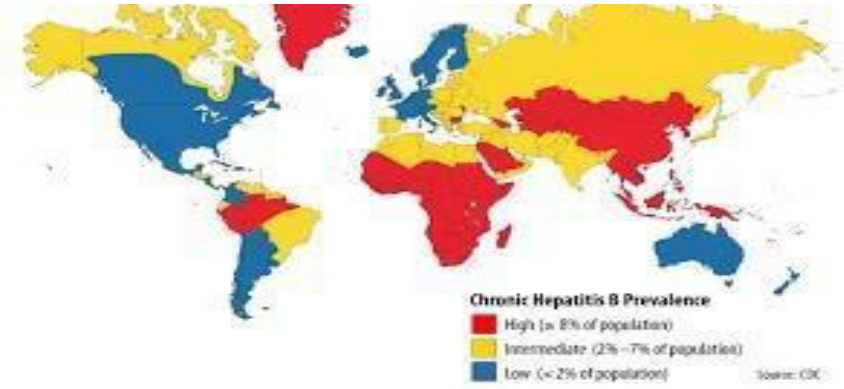
Evidence of long term protection against HB has only been demonstrated in individuals who have been vaccinated according to a recommended three dose immunization schedule. Many Canadian provinces, Manitoba included, accept a properly timed two dose series given during adolescence as an acceptable series. Paper documentation is ideal. However, verbal history of vaccination from a knowledgeable healthcare worker, who was vaccinated as an adult with a three dose series, is acceptable as evidence of documentation if paper documentation is not available. In cases where there is any uncertainty on the part of the employee regarding their vaccination status additional doses of vaccine/ revaccination would be appropriate. For example, an individual who reported having been vaccinated on entering professional school and requiring a fourth dose prior to getting protective antibodies, would be deemed to have appropriate documentation, while an individual who said they were vaccinated as a youth would not. The discussion should be documented in the employee health record.

The Hepatitis B vaccination schedule for unvaccinated people age 20 and over is Engerix-B 20 ug HBSag (1.0 mL) or Recombivax HB 10 HBSag (1.0 mL) IM in the deltoid muscle at times 0, 1 month and 6 months. Engerix-B is preferred. Employees under the age of 20 may be given the same dose. Alternative schedules are at time 0, 1 month, 2 months, and 12 months or at time 0, day 7, day 21 and at 12months. If the combined Hepatitis A/B vaccine Twinrix used, the completed schedule requires three doses at time 0, 1 month and 6 months. The Occupational Health Nurse is able to administer Twinrix® if brought in by the Employee.

Indications:

1. For elective immunization of HCW who has the potential to be in contact with another person's blood or body fluids, commence series. Confirmation of positive antibody (anti HBsAg) at 1 to 2 months post initial series is necessary. If negative or not a protective level for antibodies, administration of another series should be undertaken with confirmation of positive antibody at 1 to 2 months post second series.
2. Because certain persons might have been infected with HBV before they received Hep B vaccination, HBsAg testing is recommended regardless of vaccination history for persons born in geographic regions with HBsAg prevalence of ≥2%. Yellow and Red areas on the accompanying map.

Global prevalence of Chronic Hepatitis B infection:



3. If an adequate anti-HBs titre is confirmed one to six months after vaccination, serologic testing should not be repeated and further HB immunization is not needed, with the exception of immunocompromised persons and persons with chronic renal disease or on dialysis.
4. If testing for anti-HBs is conducted 1 to 6 months after vaccination and anti-HBs titre is less than 10 IU/L, the worker should be given a second HB vaccine series, followed by post-immunization serologic testing.
5. If testing for anti-HBs is conducted more than 6 months after vaccination and anti-HBs titre is less than 10 IU/L, the worker should be given 1 booster dose of HB vaccine, followed by post- immunization serologic testing. If an anamnestic response following the booster dose is absent, a second HB vaccine series should be completed followed by post-immunization serologic testing 1 to 2 months post vaccine.
6. If no positive antibodies are present after second series, conduct screening for chronic Hepatitis B infection with HBsAg after consultation with the Occupational Health consulting physician and counsel health care worker regarding additional test results.
7. Incompletely vaccinated HCP should receive additional dose(s) to complete the vaccine series. The vaccine series does not need to be restarted for HCP with an incomplete series; however, minimum dosing intervals should be heeded. Minimum dosing intervals are 4 weeks between the first and second dose, 8 weeks between the second and third dose, and 16 weeks between the first and third dose.
8. Following significant exposures, the HCW's records need to be reviewed to determine if they had a documented Hepatitis B vaccination schedule. Following potential exposure to HB, workers with an appropriate hepatitis vaccination series and documented adequate anti-HBs titre do not require post-immunization serologic testing, unless they are immunocompromised, or have chronic renal disease. These later workers should be tested for anti-HBs after a potential HB exposure and given additional vaccine and HBIG if their anti-HBs titre is less than 10IU/L.
9. The management of potential percutaneous or mucosal exposure to HB should be based on the immunization and antibody status of the injured person and the infectious status (if known) of the source as per NACI protocol. (http://www.phac-aspc.gc.ca/publicat/cig-gci/p04-hepb-eng.php#fig2- ft.). Testing of the source should be conducted if possible. If the assessment results of the exposed person and the source are not available within 48 hours, management of the exposed person should assume possible exposure. If indicated, HBIg (0.06mL/KG IM) should be administered to susceptible individuals within 48 hours after exposure. The efficacy of HBIg decreases significantly after 48 hours, but may be given up to 7 days after exposure. In the event of an exposure to a Hepatitis B positive source and for follow-up of a significant exposure to an unknown source for individuals who never had protective levels of antibodies after six doses of hepatitis B vaccine, HBIg should be administered as soon as possible but up to 1 week post exposure. A second dose of HBIg is to be given 1 month post the first dose.
10. All susceptible and exposed people should be counselled on the use of risk reduction measures until the vaccine series has been completed and protective concentrations of anti-HBs demonstrated.

11. Workers who have had an undocumented hepatitis vaccination series and were found to have an adequate anti-HBs titre at hire are potentially at risk for acquiring HB from occupational exposures due to the fact that the adequacy of their series is unknown. After an exposure these workers should have their titres tested and be assumed to be protected if their anti-HBs titre is equal or greater than 10 IU/L. Additional vaccination should be given as described above if required. Those found to have titers < 10 IU/L should be assumed to not be protected and should receive post exposure prophylaxis
12. For Hepatitis B exposure, and for follow-up of a significant exposure to an unknown source, if exposed individual is Hep B surface antibody negative and the person has not been immunized with Hep B vaccine, give Hep B vaccine at the same visit when HBIg is administered (0.06mL/KG IM). HBIg is most effective when given within 48 hours of exposures but could be given up to 7 days post exposure. The 2nd and 3rd doses of vaccine should be given 1 month and 6 months respectively after the first. If an individual has been partially vaccinated and has a significant exposure, HBIG and vaccination should be performed according to Manitoba Health, Seniors and Active Living Post-exposure Prophylaxis for HIV, HBV and HCV: Integrated Protocol for Managing Exposures to Blood and Body Fluids in Manitoba protocol (https://www.gov.mb.ca/health/publichealth/cdc/protocol/pep.html).
13. Any anti-HBs testing which is undertaken following administration of HBIg, or a combination of HBIg and HB vaccine, should be done 4 – 6 weeks after the last dose of Hep vaccine AND 6 months after the last dose of HBIg, whichever is greater.

Contraindications:

- Any serious active infection
- Hypersensitivity to any component of vaccine.

  In the case of HbsAg positive exposure a physician's assessment of benefit-to-risk will be required to address these concerns, and to determine eligibility to receive vaccine
- Severely compromised cardiopulmonary status.
- Engerix-B or Recombivax should not be used if there was a life-threatening allergic reaction to any vaccine containing hepatitis B, or if the person is allergic to baker's yeast.
- Use of vaccine in pregnancy and in lactating mothers. The use of Hepatitis B vaccine is not contraindicated in pregnancy based on limited data. If required, the vaccine should be given. As reproduction studies have not been done, if the prospective mother wishes to delay attempting to get pregnant after vaccination, a four week time period is appropriate. Lactation is not a contraindication to vaccination.

Caution:

Allergic reactions may occur. EPINEPHrine 1 mg/mL and Benadryl should be readily available in case an anaphylactic or acute hypersensitivity reaction occurs.

Potential side effects

- include: allergic reaction: i.e. hives; difficulty breathing; swelling of the face, lips, tongue, or throat;
- fever, sore throat, and headache with a severe blistering, peeling, and red skin rash;
- fast or pounding heartbeats; or
- easy bruising or bleeding.

Less serious side effects include:

- redness, pain, swelling, or a lump where the shot was given;
- headache, dizziness;
- low fever;
- joint pain, body aches;
- tired feeling; or
- nausea, vomiting, stomach pain, constipation, diarrhea.

This is not a complete list of side effects and others may occur.

Engerix-B or Recombivax may not be as effective in individuals with altered immune systems and should be deferred in individuals who have received cancer chemotherapy or radiation treatment in the past 3 months.

3. Tetanus/Diphtheria Toxoid - Recommended Vaccine

0.5 mL intramuscular injection (IM) in deltoid muscle.

Indications:

For immunization as per regional immunization policy.
Regular booster as per Manitoba Health Routine Immunization schedule.

Contraindications:

- Postpone vaccination in subjects suffering from acute febrile illness or respiratory infection.
- Hypersensitivity to any component or an anaphylactic reaction to a previous dose.
- Although a causal association has not been established between tetanus vaccination and Guillain-Barré syndrome (GBS), at the present time it is prudent to withhold subsequent vaccinations in children and adults who develop GBS within 8 weeks of a previous tetanus vaccine dose.

Adverse Reactions:

Most common reported side effects are pain, swelling and redness at the injection site (may last 2-3 days); fever less commonly.

Caution:

Allergic reactions may occur. EPINEPHrine 1 mg/mL and Benadryl should be readily available in case an anaphylactic or acute hypersensitivity reaction occurs.

4. Combined Tetanus Diphtheria Toxoids and Pertussis Vaccine - Required

At the time of pre-placement, pertussis immunization status of all HCWs should be determined and recorded. A single dose of Tdap should be offered to all HCWs who have not previously received an adult dose of Tdap. The interval between the last tetanus-diphtheria booster and the tetanus-diphtheria-acellular pertussis vaccine does not matter. The long-term effectiveness of a single dose of acellular pertussis vaccine is unknown at this time.

Adult's ≥ 18 years of age, who have not been immunized, including immigrants with unknown status, should receive a single dose of the adolescent/adult formulation (Tdap) and receive two more doses of Td using the appropriate schedule. After 17 years of age, it is considered unnecessary to give three doses of pertussis vaccine as the probability of having been in contact with pertussis is quite high in Canada and elsewhere in the world. Pregnancy is not a contraindication to receiving Tdap. In fact, it is recommended that Tdap be administered during the third trimester of pregnancy of every pregnancy (ideally between 27 weeks and 36 weeks of gestation) to maximize protection of the newborn from whooping cough. The newborn protection occurs because the protective antibodies the mom makes after being vaccinated are transferred to the fetus and protect the newborn until he or she begins to receive the vaccines against pertussis (at 2 months of age).

The Tdap vaccine can safely be given to breastfeeding mothers if they have not been previously vaccinated with Tdap. If a pregnant staff member presents for vaccination early in her pregnancy, vaccination can be deferred to the 27th week of pregnancy.

Dosage 0.5 mL IM. Adult preparation.

Caution:

Allergic reactions may occur. EPINEPHrine 1 mg/mL and Benadryl should be readily available in case an anaphylactic or acute hypersensitivity reaction occurs.

Adverse effects: Serious adverse events are rare following immunization and, in most cases, data are insufficient to determine a causal association. Local reactions may include pain and swelling.

Contraindications: Pertussis vaccine should not be given to individuals who have had an anaphylactic reaction to a previous dose or to any constituent of the vaccine. Because these events are so rare, it is not known which component of the combined DTaP-IPV-Hib, DTaP-IPV, DTaP or Tdapis responsible for allergic reactions. Therefore, no further doses of any of the vaccine components should be given unless an assessment by an allergist can determine the responsible antigen or other vaccine component.

Individuals who had coma or seizures within seven days of DTP or Dtap should not get Tdap, they can get Td. Individuals who have epilepsy or serious central nervous system problems should review with their physician if they should be candidates for Tdap.

Although a causal association has not been established between tetanus vaccination and Guillain-Barré syndrome (GBS), at the present time it is prudent to withhold subsequent vaccinations in children and adults who develop GBS within 8 weeks of a previous tetanus vaccine dose.

Anyone with a moderate or severe illness on the day of the vaccination should not be vaccinated. People with mild illness or low fever can be vaccinated.

Pertussis - Individuals who have close contact with a case of pertussis could be considered for prophylaxis or treatment.

HCWs that have close contact as defined below and are at high risk may be considered for prophylaxis.

A close contact of a patient with pertussis is a person who had face-to-face exposure within 3 feet of a symptomatic patient. Respiratory droplets (particles >5 μm in size) are generated during coughing, sneezing, or talking and during the performance of certain procedures such as bronchoscopy or suctioning; these particles can be propelled through the air for distances of approximately 3 feet.

Close contacts also can include persons who;

- have direct contact with respiratory, oral, or nasal secretions from a symptomatic patient (e.g., cough, sneeze, sharing food and eating utensils, mouth-to-mouth resuscitation, or performing a medical examination of the mouth, nose, and throat)
- shared the same confined space in close proximity with a symptomatic patient for >1 hour**:**

High risk individuals include,

- **Women in their third trimester of pregnancy** – severe and sometimes fatal pertussis-related complications occur in infants aged <12 months, especially among infants aged <4 months. Women in their third trimester of pregnancy may be a source of pertussis to their newborn infant.
- All persons with pre-existing health conditions that may be exacerbated by a pertussis infection (for example, but not limited to immunocompromised persons and patients with moderate to severe medically treated asthma).
- Contacts who themselves have close contact with either infants under 12 months, pregnant women or individuals with pre-existing health conditions at risk of severe illness or complications.
- To be effective, chemoprophylaxis must be started as soon as possible after the contact but may be considered up to 21 days after the exposure. Although a pertussis containing vaccine may lessen the risk of developing pertussis, the extent of this protection has not been identified. As such, HCWs who have received acellular pertussis vaccine may still be considered for chemoprophylaxis.
- Post exposure antimicrobial prophylaxis is recommended for all HCP who have unprotected exposure to pertussis and are likely to expose a patient at risk for severe pertussis (e.g., hospitalized neonates and pregnant women). HCP who refuse antibiotic prophylaxis and work with high risk patients should either have their duties altered so as to work with lower risk patients or be furloughed for 21 days following last exposure. Other HCP should either receive post exposure antimicrobial prophylaxis or be monitored daily for 21 days after pertussis exposure and treated at the onset of signs and symptoms of pertussis.
- HCWs that become symptomatic must be assessed and treated by the MOH, occupational health physician, occupational health nurse or their healthcare provider. HCP in whom symptoms (i.e., unexplained rhinitis or acute cough) develop after known pertussis exposure might be at risk for transmitting pertussis and should be excluded from work until 5 days after the start of appropriate therapy.
- The treatment and prophylaxis dosage regime is **Azithromycin 500 MG in a single dose on Day 1 and then 250 MG per day on Days 2 – 5**.

Caution:

Azithromycin should not be given to persons with known hypersensitivity to Erythromycin or if taking astemizole, terfenadine or cisapride.

Additional information of pertussis is available from Health Canada
https://www.canada.ca/en/public-health/services/immunization/vaccine-preventable-diseases/pertussis-whooping-cough/health-professionals.html Accessed January 21, 2019

5. Influenza Virus Vaccine QuadrivalentIn inactivated Split-antigen - Recommended Vaccines

0.5 mL intramuscular (IM) in deltoid muscle.

Indications:

For "Influenza Immunization Program" for health-care workers and other personnel who have significant contact with people in high-risk groups and those who are in high risk groups as per MB Health.

Contraindications:

People who have had an anaphylactic reaction to a previous dose; or people who have had an anaphylactic reaction to any of the vaccine components, with the exception of egg.

Precautions:

Allergic reactions to previous vaccine doses
Expert review of the risks and benefits of vaccination should be sought for those who have previously experienced severe lower respiratory symptoms (wheeze, chest tightness, difficulty breathing) within 24 hours of influenza vaccination, an apparent significant allergic reaction to the vaccine or any other symptoms (e.g. throat constriction, difficulty swallowing) that raise concern regarding the safety of re-immunization. This advice may be obtained from local medical officers of health or other experts in infectious disease, allergy/immunology and/or public health.
In view of the considerable morbidity and mortality associated with influenza, a diagnosis of influenza vaccine allergy should not be made without confirmation (which may involve skin testing) from an allergy/immunology expert. Individuals who have an allergy to substances that are not components of the influenza vaccine are not at increased risk of allergy to influenza vaccine.

Oculo-respiratory syndrome (ORS)
Individuals who have experienced ORS without lower respiratory tract symptoms - may be safely re-immunized with influenza vaccine. Persons who experienced ORS with lower respiratory tract symptoms should have an expert review. Healthcare providers who are unsure whether an individual previously experienced ORS versus an IgE-mediated hypersensitivity immune response should seek advice.

Guillain-Barré syndrome (GBS)
Although the evidence considering influenza vaccination and GBS is inadequate to accept or reject a causal relation between GBS in adults and seasonal influenza vaccination, avoiding subsequent influenza vaccination of persons known to have had GBS within six weeks of a previous influenza vaccination appears prudent at this time. However, the potential risk of GBS recurrence associated with influenza vaccination must be balanced against the risk of GBS associated with influenza infection itself.

Severe acute illness with or without fever
Administration of seasonal influenza vaccine should usually be postponed in persons with serious acute illness until their symptoms have abated. Immunization should not be delayed because of minor acute illness, with or without fever.

Caution:
Allergic reactions may occur. EPINEPHrine 1 mg/mL and Benadryl should be readily available in case an anaphylactic or acute hypersensitivity reaction occurs.

6. Tuberculin Purified Protein Derivative used for Tuberculin Skin Testing (TST) - Required

5 TU PPD (0.1 mL) intra-dermal in flexor surface of forearm 2- 4 inches below the bend of elbow.

Pre-Placement (see Appendix 1 at end of this document)

A two-step (TST) test should be performed on employees unless:

1. There is a known history of a positive TST test.
2. Previous treatment for active TB.
3. Previous preventative treatment.
4. A two-step TST has been previously done and documented. (Then a one-step TST is required.)

The second TST of the two-step procedure is done 7 - 28 days after the first test.

The second TST of the two-step is only performed if the first is negative (<10 mm in induration). If the first TST is positive, the second test is not given. This individual is tuberculin positive. If the second test is performed, the result of the second test determines whether the individual is negative or positive. Those who do not know their tuberculin status (irrespective of BCG) should be two-stepped.

After a two-step TST has been documented, all future testing will require only one TST test.

- For contacts with a previously documented positive TST or a history of treatment for active or latent TB, no TST should be given.

Interpretation of TST:

The TST should be read 48 - 72 hours after administration of tuberculin. Induration should be measured and documented in millimeters. Erythema is not considered as evidence of a positive TST and should be ignored. Evidence of blistering should be documented.

See Appendix 2 for interpretation of TST following a contact.

Caution:

Causes of false-positive TST include nontuberculous mycobacteria infection and Bacillus Calmette-Guérin (BCG) vaccination. Among individuals with high likelihood of LTBI (latent Tuberculosis infection) and/or high risk of development of disease if infected, potential causes of false-positive tests should not influence the decision to administer LTBI therapy (Up To Date, July 2020). To decrease the chances of a false negative result:

- Delay test if viral infection is present.
- Those who have received measles or other live virus immunization within the past 4 weeks, as this has been shown to increase the likelihood of false-negative TST results. Note that only measles vaccination has been shown to cause false-negative TST results, but it would seem prudent to follow the same 4-week guideline for other live virus immunizations - mumps, rubella, varicella (chickenpox) and yellow fever. However, if the opportunity to perform the TST might be missed, the TST should not be delayed for live virus vaccines since these are theoretical considerations. (NOTE that a TST may be administered before or even on the same day as the immunizations but at a different site.
- Avoid testing an individual who is taking corticosteroids (≥15 mg of prednisone /day for 2 weeks) or immunosuppressive drugs.
- Allergic reactions may occur. EPINEPHrine 1 mg/mL and Benadryl should be readily available in case an anaphylactic or acute hypersensitivity reaction occurs.

NOTE: Pregnancy is not a contraindication to receiving a TST.

7. Chest X-Ray

Refer to various process flow charts/Appendices in these Standing Orders to determine indication for Chest X-ray PA or PA/Lateral. On the Radiology requisition, the Occupational Health Nurse (OHN) may sign her/his name beside the printed name of the Occupational Safety & Health consulting physician.

8. Measles, Mumps, and Rubella Vaccine (MMR II or Priorix) - Required Vaccine

0.5 mL subcutaneously in outer aspect of upper arm.

Indications:

For susceptible employees (any gender) who have not had a record of adequate vaccine or history of measles (rubeola), mumps or rubella disease or vaccine in the past. Immunity against red measles (rubeola) requires two doses of measles vaccine usually supplied as MMR II or Priorix vaccine after the first birthday. Immunity to mumps requires two doses and rubella one dose of vaccine usually supplied as MMRII or Priorix vaccine after the first birthday. Individuals are considered immune if they have laboratory confirmed evidence of either immunity or disease. If no documentation of vaccination, the nurse may either vaccinate or test for titres prior to vaccination and vaccinate if not immune. Once two doses are documented do not test titres.

Contraindications:

MMR vaccines is contraindicated in persons with a history of anaphylaxis after previous administration of the product and in persons with proven immediate or anaphylactic hypersensitivity to any component of the product (with the exception of egg allergy for MMR [refer below]), or its container. For measles-containing vaccines, potential allergens include:

M-M-R ®II: neomycin, phenol red, porcine gelatin, residual components of chick embryo cell cultures

PRIORIX®: egg protein, neomycin

PRIORIX-TETRA®: egg protein, neomycin

In situations of suspected hypersensitivity or non-anaphylactic allergy to vaccine components, consultation with the OSH consulting physician is recommended.

The measles and mumps components of MMR are produced in chick embryo cell culture and may contain traces of residual egg protein. The trace amount of egg protein in the vaccine appears to be insufficient to cause an allergic reaction in egg-allergic individuals. Prior egg ingestion is not a prerequisite for immunization with egg protein-containing vaccine. Skin testing is not recommended prior to vaccination as it does not predict reaction to the vaccine. MMR vaccine can be administered in the routine manner to people who have a history of anaphylactic hypersensitivity to hens' eggs. For all vaccines, immunization should always be performed by personnel with the capability and facilities to manage adverse events post-vaccination.

MMR vaccine is contraindicated in persons with impaired immune function, including primary or secondary immunodeficiency disorders.

MMR vaccine is contraindicated during pregnancy.

MMR vaccine is contraindicated in individuals with active, untreated tuberculosis.

A history of febrile seizures or a family history of convulsions is not a contraindication for the use of MMR vaccine.

Administration of MMR vaccine should be postponed in persons with severe acute illness. Persons with a minor acute illness (with or without fever) may be vaccinated.

Passive immunization with human Ig or receipt of most blood products can interfere with the immune response to MMR and MMRV vaccines. These vaccines should be given at least 14 days prior to administration of an Ig preparation or blood product, or delayed until the antibodies in the Ig preparation or blood product have degraded. If the interval between administration of vaccine and subsequent administration of an Ig preparation or blood product is less than 14 days, the vaccine dose should be repeated after the recommended interval. The recommended interval between administration of an Ig preparation or blood product and subsequent immunization varies, depending on the Ig preparation or blood product. If the vaccine is given too early following Ig or blood product administration, it should be repeated after the appropriate interval has passed. The appropriate time intervals ranging from 3-11 months can be found at https://www.canada.ca/en/public- health/services/publications/healthy-living/canadian-immunization-guide- part-1-key-immunization- information/page-11-blood-products-human-immune-globulin-timing- immunization.html

Caution:

- Consent must be signed.
- MMR II/Priorix may be given simultaneously with other live vaccines but at separate injection sites. If not administered at the same time, must be separated by at least a 4 week interval.
- MMR II/Priorix may be given simultaneously with Hepatitis B, oral polio vaccine (OPV), inactivated polio vaccine (IPV) or DTaP vaccines but in a separate injection site. **Note**: TB skin test should be administered either before or simultaneously with MMR II/Priorix.
- Allergic reactions may occur. EPINEPHrine 1 mg/mL and Benadryl should be readily available in case an anaphylactic or acute hypersensitivity reaction occurs.
- Provide a one month interval between two doses of vaccine.
- Advise those planning a pregnancy to postpone becoming pregnant for 1 month following the 2 doses of vaccine.

Post exposure protocol - Measles

Background: Measles is one of the most contagious of all infectious diseases; approximately 9 out of 10 susceptible persons with close contact to a measles patient will develop measles. The virus is transmitted by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs, or sneezes. Measles virus can remain infectious in the air for up to two hours after an infected person leaves an area.

Measles is an acute viral respiratory illness. It is characterized by a prodrome of fever (as high as 105°F) and malaise, cough, coryza, and conjunctivitis -the three "C"s, a pathognomonic rash (Koplik spots) in the mouth followed by a maculopapular rash. The rash usually appears about 14 days after a person is exposed; however, the incubation period ranges from 7 to 21 days. The rash spreads from the head to the trunk to the lower extremities. Patients are considered to be contagious from 4 days before to 4 days after the rash appears. Of note, sometimes immunocompromised patients do not develop the rash.

Definition of immunity: Individuals are considered immune to measles if they have laboratory confirmed evidence of either immunity or disease or a history of two doses of a measles containing vaccine after their first birthday. One dose of MMR vaccine is approximately 93% effective at preventing measles; two doses are approximately 97% effective. If two doses of vaccine are documented there is no need to test titres.

Definition of exposure:

A contact is defined as any individual who has:

- spent any length of time in a room or enclosed space with a confirmed measles case during that case's infectious period; or
- Spent time in a room previously occupied by a measles case, during that case's infectious period, within 2 hours after that individual left the room/space.

Regardless of their immunity status, all healthcare staff entering the room of a case of suspected measles should use respiratory protection consistent with airborne infection control precautions (N95 respirator). Individuals who are not known to be immune to measles as defined above should not look after suspected or confirmed cases of measles.

Management of healthcare workers exposed to cases of measles

HCWs that have been exposed to a confirmed case of measles should have their immune status reviewed.

Health care personnel assessed as immune. Healthcare personnel with evidence of immunity as described above do not need to be excluded from work following an exposure.

Health care personnel who have had only one dose of a measles containing vaccine. If HCWs have had only one documented dose of measles-containing vaccine, without laboratory evidence of immunity or history of laboratory confirmed measles, they should be tested for measles IgG antibody and one dose of MMR vaccine be administered immediately. While waiting for the serology results, HCWs should be excluded from work from the 7th day to the 21st day after the last exposure. If their IgG measles antibody results are positive, they can be considered immune and returned to work. If their IgG measles antibody results are negative, they should be considered susceptible and excluded from work from the 7th to 21st day post exposure.

Health care personnel without evidence of immunity. Healthcare personnel without evidence of immunity should be given a dose of vaccine ideally within 72 hours of exposure and a second dose of vaccine 28 days after the first dose. Administration of immune globulin within six days of exposure could be considered in healthcare personnel who are pregnant or severely immunocompromised Non-immune workers should be excluded from work from the 7th day to the 21st day after the last exposure regardless of whether they received the vaccine or immune globulin after the exposure.

Post exposure protocol - Mumps

Definition of immunity: Individuals are considered immune to mumps if they have laboratory confirmed evidence of either immunity or disease or a history of two doses of a mumps containing vaccine after the first birthday. If two doses of vaccine are documented there is no need to test titres.

Definition of exposure: Mumps virus is spread through contact with respiratory droplets from an infected person, direct contact with the saliva of an infected person, and contact with a contaminated surface. Unprotected exposures are defined as having a face to face interaction within one meter of an infectious mumps case without the use of proper personal protective equipment. Healthcare personnel who have had unprotected exposures, between two days before through five days after parotitis onset in a case of mumps, should be identified and considered contacts

Post exposure protocol: Mumps vaccination is not completely protective against developing disease. Irrespective of their immune status, all exposed healthcare personnel who are identified as mumps contacts should report any signs or symptoms of illness consistent with mumps during the incubation period, from 12 through 26 days after exposure. The classic symptom of mumps is parotitis (i.e., acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland(s). Parotitis typically develops 16 to 18 days after exposure to mumps virus. Nonspecific prodromal symptoms may precede parotitis by several days, including low-grade fever which may last three to four days, myalgia, anorexia, malaise, and headache. However, mumps infection may present only with nonspecific or primarily respiratory symptoms or may be a subclinical infection.

Health care personnel assessed as immune. Healthcare personnel with evidence of immunity do not need to be excluded from work following an unprotected exposure.

Health care personnel who have had only one dose of a mumps containing vaccine. These healthcare personnel may continue working following an unprotected exposure to mumps. Such personnel should receive a second dose as soon as possible, but no sooner than 28 days after the first dose.

Health care personnel without evidence of immunity. Healthcare personnel without evidence of immunity should be excluded from work from the 12th day after the first unprotected exposure to mumps through the 26th day after the last exposure. Previously unvaccinated healthcare personnel who receive a first dose of vaccine after an exposure are considered non-immune.

Management of healthcare personnel with illness due to mumps. A diagnosis of mumps should be considered in exposed healthcare personnel who develop non-specific respiratory infection symptoms during the incubation period after unprotected exposures to mumps, even in the absence of parotitis. Healthcare personnel with mumps should be excluded from work until nine days after the onset of parotitis.

Post exposure protocol – Rubella

Background: Rubella is characterized by a mild, maculopapular rash along with lymphadenopathy, and a slight fever. The rash usually starts on the face, becomes generalized within 24 hours, and lasts a median of 3 days; it occurs in 50% to 80% of infected people. The clinical diagnosis of rubella virus is unreliable and should not be considered in assessing immune status. Up to half of all infections may be subclinical or unapparent.

Rubella is transmitted primarily through direct or droplet contact from nasopharyngeal secretions. Transmission may also occur via nasal and respiratory tract secretions carried on hands that come in contact with nasal mucosa. The average incubation period of rubella virus is 17 days, with a range of 7 to 23 days. People infected with rubella are most contagious when the rash is erupting, but they can be contagious from 7 days before to 7 days after the rash appears. Rash is the first symptoms to appear. Rash appears 2 weeks after infection. Transmission requires close person-to-person contact.

Definition of immunity: Individuals are considered immune to rubella if they have laboratory confirmed evidence of either immunity or disease or a history of one dose of a rubella containing vaccine after their first birthday.

Definition of exposure:

- Any direct contact with a patient with rubella during the infectious period (7 days before to 7 days after rash onset) is defined as an exposure.

Management of healthcare workers exposed to cases:

- HCWs that have been exposed to a confirmed case of rubella should have their immune status reviewed.
- **Health care personnel assessed as immune**. Healthcare personnel with evidence of immunity as described above do not need to be excluded from work following an exposure.
- Healthcare personnel without evidence of immunity.
    - In healthcare settings, exposed healthcare personnel without adequate presumptive evidence of immunity should be excluded from duty beginning 7 days after exposure to rubella and continuing through either 23 days after their last exposure or 7 days after rash appears if they have become infected. Exposed nonimmune healthcare personnel should be vaccinated. Post vaccination, they should still be excluded from direct patient care for 23 days after the last exposure to rubella because the effectiveness of post-exposure vaccination in preventing rubella infection has not been shown.
- Every effort should be made to identify all pregnant women who might have been exposed to a patient and evaluate them serologically for rubella-specific IgM and IgG antibodies. All women of childbearing age who are contacts of a person with a suspected or confirmed case should have their pregnancy status determined. If a pregnant woman is infected with rubella, immediate medical consultation is necessary.

9. Chickenpox Evidence of Immunity Required Chickenpox (Varicella) History/Test

Documentation of immunity required for employment.

Currently employed: Self-reported history or diagnosis of varicella or herpes zoster by a health care provider, if the disease occurred before 2004; documented evidence of immunization with two doses of a varicella-containing vaccine; or previous laboratory evidence of varicella immunity.

Newly hired: Documented evidence of immunization with two doses of a varicella-containing vaccine; or previous laboratory evidence of varicella immunity required.

Method of vaccination:

0.5 mL subcutaneously in deltoid area. Live attenuated virus vaccine. 2 doses – second dose is to be given within 4 to 8 weeks after first dose.

Side Effects:

- Local reaction at site of injection
- Slight fever
- Varicella-like rash either:
  - Local at injection site or
  - Generalized rash of chickenpox lesions on the body. The risk of transmission of vaccine virus from persons who develop a varicella-like rash after vaccination is low, and has been documented only after exposures in households and long term care facilities. As a safeguard, precautions should be taken for personnel who develop rash after vaccination. These individuals should avoid contact with persons without evidence of immunity who are at risk for severe disease and complications until all lesions resolve (i.e. crusted over or fade away) or no new lesions appear within a period of 24hours.
- Administration of the chicken pox vaccination is not a contraindication to working provided the individual remains rash free/vaccine related rash free.

Contraindications:

Pregnant or breastfeeding women or women planning to become pregnant soon. (It is unknown if vaccine can cause fetal harm or if varicella virus is excreted in human milk).

Caution:

- Advise those planning a pregnancy to postpone becoming pregnant for 1 month following the 2 doses of vaccine.
- Allergic reactions may occur. EPINEPHrine 1 mg/mL and Benadryl should be readily available in case anaphylactic or acute hypersensitivity reaction occurs.

Post exposure management - Varicella:

Definition of Occupational Exposure – a susceptible healthcare worker who has been in an enclosed airspace, or had face-to-face contact with an infectious person for over 5 minutes during the period of communicability (2 days before onset of symptoms and until all lesions have dried and crusted). Exposure can also occur through direct or indirect contact of vesicle fluid with oral or nasal membranes of healthcare workers.

- **Non-vaccinated non-immune healthcare personnel**. Non-vaccinated, non-immune healthcare personnel are potentially contagious from days 10 to 21 after exposure. They should be furloughed or temporarily reassigned to locations remote from patient-care areas during this period. Exposed healthcare personnel without evidence of VZV immunity should receive post exposure vaccination as soon as possible.

Exposure to chicken pox or disseminated shingles after vaccination:

- Contact OHN promptly if exposure occurs either in the workplace or in the community. OHN will evaluate type of contact and determine blood level of antibody protection.
- Exposed HCPs who have received 2 doses of vaccine should be monitored daily during days 10 – 28 after exposure to determine clinical status (i.e. daily screening for fever, skin lesions and systemic symptoms). If asymptomatic, they may remain at work. Wearing of an N95 respirator is not necessary. They should also be instructed to report any symptoms as they occur without delay. If symptomatic with symptoms suggestive of varicella, HCPs should be immediately removed from work. Exposed HCPs who have received 1 dose of vaccine and who are exposed to VZV should receive the second dose of vaccine within 3– 5 days post exposure (provided 4 weeks have elapsed after the first dose). After vaccination, management is similar to that of 2 dose vaccine recipients described above.
- **N.B.** If level of protection is low or not present, in consultation with the MOH, OHN is to arrange with the employee and the respective supervisor for quarantine.

Post exposure treatment of varicella susceptible HCP:

- Initiation of varicella vaccination has been shown to be effective in preventing or reducing the severity of varicella if given to a susceptible individual within 3 to 5 days after exposure. Standard dosage regimes apply with a second dose approximately 4 weeks after the first. Vaccination 6 or more days after exposure is still indicated because it induces protection against subsequent exposures (if the current exposure did not cause infection).
- For unvaccinated VZV-susceptible healthcare personnel at risk for severe disease and for whom varicella vaccination is contraindicated (e.g., pregnant healthcare personnel), varicella-zoster immune globulin within 96 hours after exposure is recommended.

10. Chemoprophylaxis for High-Risk Exposure (HIV) and Post-Exposure Blood Work

Percutaneous and mucous membrane initial wound management:

Body sites exposed to potentially infectious fluid should be cleansed immediately. Wound and skin exposure sites should be washed with soap and water. Alcohol, hydrogen peroxide, bleach or other chemical cleansers/antiseptics/disinfectants should be avoided. No attempt to "milk" the wound should be made. Squeezing the wound may promote hyperemia and inflammation at the wound site, potentially increasing exposure if HIV is present in the contaminating fluid. Allow injury/wound site to bleed freely, and then cover lightly. Exposed mucous membranes (including the eyes) should be flushed with water or normal saline.

Post-exposure Prophylaxis (PEP) Indications for HIV/AIDS:

Post-exposure prophylaxis (PEP) with zidovudine (ZDV) was shown to reduce the risk of HIV seroconversion following percutaneous exposure over 20 years ago. (MMWR 1995; 44(50): 929-933). Overtime the recommended PEP protocols have changed with changes in the management of HIV/AIDS. The current PEP protocol calls for three drugs in all situations, a change from the two or three drugs regimes which were the previous standard. The current preferred regime consists of Truvada TENOFOVIR/EMTRICITABINE 300/200mg tablet daily and Isentress (RALTEGRAVIR 400 mg) BID. There is no longer a need to separate out high risk and low risk exposures as all exposures are treated the same.

A starter kit should be given to exposed workers while the HIV status of the source is being determined if possible in the following situations:

a) Significant exposures where the **Source is known to be HIV positive**;

OR

b) Significant exposures where the **Source is known, but the HIV status of the Source is unknown and the source is testable.** If the source is deemed to be very low risk after discussion with the exposed a decision may be made to forgo beginning the PEP starter kit.

A Significant Exposure occurs when blood or contaminated body fluids from the source enter the exposed person via a percutaneous injury or exposure to mucous membranes or non-intact skin. Examples of significant exposures include the following:

- Deep percutaneous injury (deep puncture or wound with or without bleeding).
- Visible blood present on the device associated with the exposure.
- A percutaneous injury from a procedure which involved a needle placed directly into the source's vein or artery.
- Other percutaneous punctures.
- Mucous membrane exposure to blood or potentially contaminated body fluids.
- Non-intact skin exposures to blood or potentially contaminated body fluids.

Effort should be made to **determine the HIV antibody status of the Source as soon as possible**, as this will affect management. Informed consent for testing should be obtained. If the Source has recently tested negative for HIV, re-testing the Source is still recommended.

Prophylaxis should be offered prior to obtaining the result of the source HIV test, if the source can be tested. If chemoprophylaxis has not been initiated at the time of exposure, but the Source subsequently tests HIV seropositive, begin chemoprophylaxis as soon as possible. Chemoprophylaxis in this circumstance may be initiated on the basis of a positive HIV antibody-screening test.

If chemoprophylaxis is to be implemented, it should be started as soon as possible, ideally within 4 hours. Efficacy is thought to be reduced if delayed. Prophylaxis can be initiated up to 72 hours post exposure. Prophylaxis may be considered after this length of time after discussion with the MOH, an occupational health physician or an infectious disease specialist.

Guidelines for exposure to abandoned sharps:

In contrast to HBV, the HIV does not survive long outside the body on exposed surfaces. There have been no documented HIV seroconversions after exposure to abandoned needles or sharps. PEP would not be recommended for exposure to an abandoned needle found in a hospital laundry. HIV testing and follow-up is generally not recommended in these circumstances, but may be undertaken for purposes of documentation or if the exposed person requires reassurance. Only in rare situations, if there is reasonable suspicion that an abandoned sharp or needle may have been in recent contact with an HIV infected person, chemoprophylaxis and HIV testing may be considered.

Prophylaxis when the source was known, but was not/cannot be tested:

When the source is known but cannot be tested a case by case decision needs to be made on initiating and/or continuing prophylaxis. The general population rate of HIV positivity in Manitoba in 2012 was 1.2/1000 adult population.

Factors influencing the decision include type of exposure. Higher risk exposures would include:

- Deep percutaneous injury (deep puncture or wound with or without bleeding).
- Visible blood present on the device associated with the exposure.
- A percutaneous injury from a procedure which involved a needle placed directly into the Source's vein or artery.

Some Risk Factors for HIV infection in the Source include;

- History of injection drug use.
- History of residence in a country or area with a high HIV prevalence.
- Sexual partner who is an injection drug user.
- Sex trade worker, or someone exchanging sex for drugs.
- History of sexually transmitted disease.
- History of Hepatitis B or C.
- Recipient of blood products prior to 1985.
- If male, having had sex with another man.
- "Street connected" (lives on the street, or shares drugs with/has sex with persons living on the street).
- Unhygienic tattoo or body piercing (needles used on two or more individuals without sterilization, or amateur/mobile operations).
- Incarcerated in a p r i s o n .

Post-Exposure Prophylaxis:

Refer to Southern Health-Santé Sud (SH-SS) Post Exposure to Blood and/or Body Fluids Algorithm. Four different types of treatment kits (A, B, C, D) available based on patient weight, age, and renal function.

For SH-SS post-exposure prophylaxis see:

- Pediatric Standard Orders
- Adult Standard Orders

Discontinuing Post-Exposure Prophylaxis:

When results of HIV testing of the Source are available, a decision to continue therapy is dependent on the result. If the **Source is HIV negative, discontinue chemoprophylaxis.** Follow-up HIV testing of the Exposed is not generally necessary. In rare circumstances, chemoprophylaxis and/or follow-up HIV testing maybe continued if there is concern about the Source patient being in a window period of infection (seroconversion phase). Symptoms suggestive of early HIV infection include fever and adenopathy without another explanation. Any continuation of chemoprophylaxis for the Exposed, when the Source has tested negative for HIV, must be determined either by the MOH, occupational health physician or an infectious disease physician.

Therapy and follow-up HIV testing of the Exposed may be continued if the Source refuses testing or was not tested, a High Risk Exposure has occurred and HIV risk factors are known in the Source as described above. A decision to continue treatment requires consultation with the MOH, an occupational health physician or ID consultant.

Recommended Chemo Prophylactic Regimens:

Truvada TENOFOVIR/EMTRICITABINE 300/200 mg tablet daily and Isentress RALTEGRAVIR 400 mg twice daily.

The emergency room physician or NP may give a three-day starter pack of the above drugs when exposures of concern have occurred.

If an HIV positive Source is already on anti-retroviral therapy and drug resistance is a possibility, the MOH, an occupational health physician or an infectious disease specialist must determine an alternate chemoprophylactic regimen. The standard triple therapy as described above should still be instituted immediately while decisions about alternate treatment are being sought and made.

Contraindications and Other Considerations:

- PEP with the above regime appears safe and well tolerated in pregnant women. Follow-up has not yet been long- term. The MOH or an infectious disease specialist should be consulted before prescribing antiretroviral drugs in pregnancy.
- Exposed workers should be informed about the potential side effects of the medications, potential benefits, and that the exposed worker may decline or discontinue treatment at any time.
- Contraindications to therapy include chronic renal insufficiency, hepatic insufficiency and bone marrow dyscrasia. Caution should be used in persons treated with myelosuppressive, nephrotoxic, or hepatotoxic drugs in the two weeks prior to initiation of therapy.
- Symptomatic individuals may be assessed or alternative regimes by their health care provider.
- Once notified of an exposure, the Post-Exposure Protocol should be initiated by the supervisor/ manager and the exposed should be sent to the nearest emergency room for assessment and treatment. Post-exposure prophylaxis should be initiated by the emergency room physician/NP ideally within 4 hours of the exposure.

Post Exposure Counseling and Medical Evaluation for HIV

Follow-up counseling and medical evaluation should be provided for all workers who are given chemoprophylaxis which is extended to a total of 28 days of therapy (25 days in addition to the 3 day Starter Kit). The worker will be referred to their healthcare provider for follow-up and ongoing care.

Post-exposure blood work for Hep C and HIV serology should be done at baseline. Hep B status should be checked if the exposed is not known to have had protective levels of antibodies. Follow-up testing for HIV status is done at 4 and 12 weeks. Counseling should be given to prevent possible secondary transmission.

How to prevent potential HIV transmission to others during the 3 month follow-up period:

- Employees should be instructed to only practice safe sex. If vaginal intercourse does continue, use a latex condom with a non-petroleum lubricant at all times. Receptive anal sex is the highest risk sexual activity for acquiring HIV. Oral sex has a much lower risk of transmission of HIV. Factors that may increase the risk of transmitting HIV through oral sex are oral ulcers, bleeding gums, genital sores, and the presence of other STIs, which may or may not be visible. The employee should notify their sexual partner of the exposure.
- The employee should not donate blood, plasma, organs, tissue or sperm.
- The employee should not share toothbrushes, razors, needles or any items that may be contaminated with blood or body fluids.
- The employee should not become pregnant.
- The employee should not breastfeed or donate breastmilk.

HIV is not transmitted by casual contact, as an airborne disease, from touching and hugging, from dishes or utensils or from toilet seats.

Symptoms are (may also indicate an infection not related to the AIDS virus):

- Unexplained weight loss
- Unexplained fever
- Unexplained diarrhea
- Yeast infections in the mouth
- Severe sweating during the night
- Extreme fatigue
- Swollen glands
- Dry cough or shortness of breath

No laboratory evaluation is required prior to initiation of chemoprophylaxis for an HIV or high-risk exposure. If therapy is continued after three days, baseline tests should be performed on the Exposed. A baseline CBC, Cr, and ALT, AST (**one chemistry tube (red or red/gray) and one CBC tube (mauve)** should be performed and repeated at 4-6 weeks post exposure if clinically indicated. Dose reduction or drug substitution should be considered, after consultation with an infectious disease specialist if the blood work is not normal.

11. Post Exposure Counseling on Hepatitis C

Hepatitis C is a potential blood borne infection. Based on national 2011 estimates, the equivalent of six to seven people out of every 1,000 Canadians (or 0.6% to 0.7% of the total Canadian population) have chronic Hepatitis C infection and an estimated 44% of them are unaware of their status. Individuals at higher risk for hepatitis C include current and former IV drug users, hemophiliacs, inmates, HIV positive individuals, men who have sex with men, street involved youth, aboriginal groups, and immigrants from countries with high rates of Hepatitis C such as parts of South America, Africa and Asia and people born between 1945-65.

Acute hepatitis C infection is asymptomatic in most patients (60% to 75%). If symptoms/signs are present, they can include: nausea, malaise, anorexia, jaundice, vomiting, elevated serum alanine aminotransferase (ALT) and right upper quadrant (RUQ) abdominal discomfort. These symptoms may last for 2 to 12 weeks. Approximately 25% of those infected with the hepatitis C virus will spontaneously clear the virus within 6 months.

The risk for HCV transmission from an infected source following a needle stick injury to a health care worker averaged 1.8% in a number of studies with a range of between 0-7%. Mucous membrane exposures are likely less infectious, the exact level is not known.

There is no vaccine against Hepatitis C. There is no specific post exposure treatment available.

Post exposure evaluation:

Baseline testing for HCV antibody (anti HCV) of both exposed and source persons is necessary where the exposure incident is deemed to be of concern for possible transmission of HCV. Baseline testing is not necessary if the exposed person is known (documented) to be HCV-positive prior to exposure. If baseline testing of the exposed person is negative and source person is positive, follow-up Hepatitis C RNA testing of exposed person is done at 4 weeks and anti- HCV testing at 12 and 24 weeks post-exposure. If baseline testing of exposed person is negative and source person status is low risk, follow-up testing of the exposed person should only include anti-HCV testing at 24 weeks. Follow-up bloodwork may be done by the occupational health nurse or the worker's health care provider. If the source or exposed bloodwork is positive for HCV, the occupational health nurse will notify the referring emergency physician to continue follow-up.

Post exposure counselling:

Do not share personal care items, such as, razors, scissors, nail clippers, toothbrushes while being followed for a Hepatitis C exposure.

Do not donate blood.

Sexual activity:

The risk of transmitting Hepatitis C during sexual activity is low unless one is infected with HIV. Only sexual activities that increase the potential for exposure to blood are considered risky. A study looked at 895 monogamous heterosexual people whose partner was chronically infected with HCV. Over a ten year period, none of them was infected by their partner. Any sexual activities which have the potential for blood-to-blood contact inherently increase the risk of transmitting hepatitis C. This includes rough vaginal sex that could cause bleeding from the penis or vagina, unprotected anal sex or vaginal sex during menstruation.

12. Occupational Health Communicable Disease Follow-up

The OHN manages follow-up of staff exposed to a communicable disease during the course of their work in collaboration with the MOH and Infection Prevention and Control.
The OHN will consult with the MOH regarding staff meeting specific communicable disease case definition for determination of assessment (i.e. Lab investigation), treatment recommendations (i.e. Chemoprophylaxis, vaccination) and work restrictions as applicable. The OHN will work with the MOH to facilitate treatment which may be accessed from the OHN, MOH, emergency department physician, primary health care provider, Public Health Nurse or others as appropriate. The OHN may liaise additionally with other experts as appropriate (i.e. Infection Prevention and Control, Infectious Disease Physician, Public Health).

13. Physician Absence

When the occupational safety & health consulting physician is away or cannot be located by the OHN in a reasonable time frame, the OHN will contact the MOH for physician advice and consultation.

14. Occupational Health Nurse Follow-up

Employee Immunization Program

1. Educate and counsel on benefits, risks, and possible side effects of vaccines/tests recommended for health care workers.
2. Blood tests
   - Order test.
   - Arrange for employees to attend an SH-SS lab.
   - Ensure employee is informed of their test results and provide immunization recommendations based on the OSH Standing Orders.
3. Offer and administer vaccines following the OSH Standing Orders.
4. Offer and administer Tuberculin 1 step and 2 step testing based on the OSH Standing Orders.
5. Document all Tuberculin testing, vaccines administered and bloodwork results on the Employee Immunization Form and place in the employee's personnel file.
6. Enter Tuberculin testing, immunization and bloodwork information in the secure QHR immunization database.
7. Positive TST
   - Refer to Appendix 1 to 3 for interpretation and management of a positive TST.
   - Consult the OSH covering physician for chest x-ray order and requisition.
   - Consult OSH consulting physician for LTBI risk assessment and ongoing management recommendations/orders.
   - Notify employee of chest x-ray results.
   - Educate employee of signs and symptoms of TB.

Blood and Body Fluid Exposure

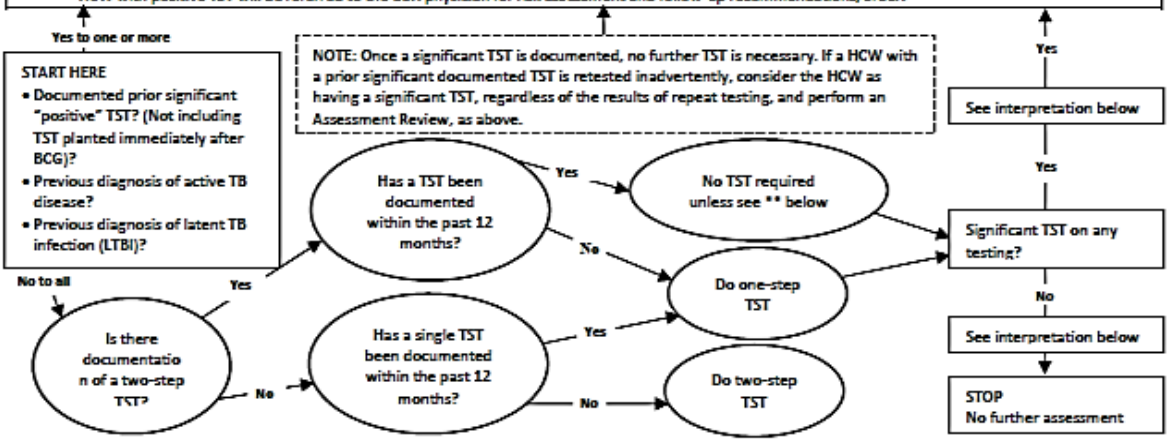
1. Ensure employee has seen a health care provider, ideally within 2-4 hours post exposure.
2. Contact employee for description of incident, source and exposed information.
3. Obtain exposed and source results from Cadham lab.
4. Provide direction as indicated in CLI.4110.PL.017 Post-Exposure Prophylaxis for Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), or Hepatitis C Virus (HCV) and CLI.8011.PL.011 Post-Exposure to Blood and Body Fluids Follow-up for Southern Health-Santé Sud Occupational Exposures.

APPENDIX 1 – Pre-placement TST Flow Chart

15. APPENDIX 1 – Pre-placement TST Flow Chart

Occupational Health Nurse/ Physician Tuberculosis (TB) Assessment Review

- Obtain a **past medical history** to include: country of birth, medical conditions, high-risk work or travel; known TB exposures (including family); personal history of TB disease or Latent Tuberculosis Infection (LTBI); previous TST results; past treatment for LTBI or TB disease; history of Bacillus Calmette and Guérin (BCG) vaccination.
- Inquire about **signs or symptoms of TB** (cough greater than three weeks duration; sputum, fever, night sweats, weight loss, lymphadenopathy).
- **Educate healthcare worker (HCW)** on the signs and symptoms of TB disease, and the need to report to Occupational Health if any develop while working in an Southern Health-Santé Sud (SH-SS) facility. Advise HCW if SH-SS employment terminates, should contact physician **immediately** if signs/symptoms consistent with TB develop
- If **symptomatic**, order a **PA & Lateral chest x-ray**. Consult Occupational Safety & Health (OSH) physician to obtain order for PA & Lateral chest x-ray.
- If **no signs or symptoms of active TB disease**, & had a chest x-ray subsequent to positive TST, no further x-ray is needed if a copy of the result can be obtained.
- HCW with positive TST will be referred to the OSH physician for risk assessment and follow-up recommendations/order.



** If the HCW has had a recent high-risk exposure e.g. work in a tertiary care emergency department/TB ward/ visited or worked in a Northern community or TB endemic country, then a one-step TST should be done regardless of a TST being done in the past 12 months, so a true baseline of current status is documented and treatment offered, if positive.

ALERT: Persons who should not receive a TST include those:

- With a documented prior significant TST (if no documentation, TST should be given) unless HCW has a severe blistering TST reaction in past
- With a documented diagnosis of past or present active TB disease or latent TB infection or history of adequate treatments
- With extensive burns or eczema present over testing sites
- Who have had an anaphylactic reaction to a previous TST (rare)
- With a major viral infection or who have received measles or other live virus vaccine in last 4 weeks (wait six weeks before testing)

NOTE: Pregnancy, breastfeeding, past history of BCG, those taking low dose of systemic corticosteroids, and undocumented history of positive TST reaction are note contraindications to receiving a TST.

Tuberculin Skin Test (TST)

TST Technique: 0.1ml of 5 tuberculin units (5TU) of tuberculin purified protein derivative (PPD) is planted intradermally on the anterior surface of the forearm creating an elevated wheal. The TST is read at **48 to 72 hours** after administration. Induration not erythema is measured and recorded in millimeters; blistering should be documented. With the HCW arm supported, the edges of induration are palpated using fingertips. The diameter is measured transversely to the long axis of the forearm. Alternatively, a pen tip can be used to measure the TST; push the tip at 45-degree angle transversely toward the site of injection until the edge of induration is met. Repeat on the other side and measure the distance between the markings. A TST must be read by a provider trained in reading TST. Self-reading of TST is not acceptable.

Two-Step TST: If the first TST is not significant a second TST is administered in the opposite arm 7 to 28 days later and read at 48 to 72 hours. While both TST should be read and documented, if the first TST is not read, it does not need to be repeated, and the second TST can be administered and read at the appropriate time. If it is greater than 28 days since the first TST was administered, the second TST can still be given up to one year after the first TST.

TST Interpretation: HCW should be informed that there are different TST cut-offs, depending on past/present medical history and previous exposures.

TST size (mm)	Situation in which this reaction size is considered significant
0-4	– HIV infection, particularly those with immunosuppression AND expected likelihood of TB infection is high (e.g. HCW from a population with a high prevalence of TB infection, is a close contact of an active contagious case or has an abnormal chest x-ray)
5-9	– HIV infection - Close contact of active infectious TB disease - Abnormal chest x-ray with fibronodular disease - Other immune suppression present (e.g. Immunosuppressive medications) NOTE: If a previous chest x-ray is available and shows fibronodular disease, a TST of 5-9 mm is considered significant. However, if no previous chest x-ray exists, a TST of 5-9mm would not prompt a chest x-ray, unless any of above is noted.
10 or more	– All others
COVERSION	Induration of 10 mm or greater, when an earlier test resulted in a reaction of less than 5 mm. If earlier TST result was between 5-9 mm, there are two criteria: 1) An increase of 6mm or more – more sensitive criterion, suggested for those who are immune compromised with increased risk of disease or in an outbreak: 2) An increase of 10mm or more – less sensitive but more specific criterion. In general, the larger the increase, the more likely that it is due to true conversion.

APPENDIX 2 – Guidelines for Tuberculin Skin Testing in Contact Investigation

Guidelines for Tuberculin Skin Testing in the Context of a Contact Investigation According to Previous TST Results

No documented previous TST result In this case, a TST result of 5 mm or more on the first/initial test (done no more than two weeks after first exposure) or on the test at least 8 weeks after the last exposure is considered positive.
Documented previous TST result less than 5 mm In this case, the TST result of 10 mm or more on the first/initial test (done no more than two weeks after first exposure) or on the test at least 8 weeks after the last exposure is usually considered positive. However, the circumstances of the contact must be taken into account. For example, if the source case is highly infectious; if there was close or prolonged contact; if the contact is under age 5; or if the contact has impaired immunity, than an increase of 6 mm from the previous TST result may be considered a conversion. Decisions in this regard need to be individualized.
Documented previous TST result between 5 and 9 mm, no history of treatment of TB disease or LTBI In this case, the TST should be repeated. An increase of at least 6 mm is considered a positive result, either on the initial TST after (done no more than two weeks after first exposure) or on the second test done at least 8 weeks after the last contact.
Documented previous TST result of 10 mm or greater or history of treatment for TB disease or LTBI Contacts that have a documented prior positive TST or history of treatment for active TB disease or LTBI should not undergo post-exposure TST. Evaluation of these contacts should include assessment for signs & symptoms of active TB disease and additional investigations (e.g. chest radiography, sputum examination) as deemed necessary. Clinical history and results of clinical investigations should guide treatment decisions. Very high-risk, severely immunocompromised persons (e.g. those who are HIV co-infected) who are re-exposed to infectious TB after having already completed a satisfactory course of treatment for TB disease or LTBI in the past should be considered for a repeat course of treatment for LTBI.

Canadian Tuberculosis Standards, 6th Edition 2007