RADY FACULTY OF HEALTH SCIENCES IMMUNIZATION PROGRAM

STUDENT MANUAL

Last Update October 17, 2024

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http://umanitoba.ca/immunizationprogram

Welcome

Introduction

When studying to become a health professional, it's important to review your immunization status and screening tests. This is your professional responsibility. By doing so, you protect your patients, yourself, your coworkers, and the broader community around you.

Within the Rady Faculty of Health Sciences, immunizations are guided by the Learner Immune Status Policy. That policy is operationalized by the Rady Faculty of Health Sciences Immunization Program. This student manual, from the Immunization Program, explains the required and recommended immunizations.

Privacy and Protection of Personal Health Information

The Immunization Program is committed to maintaining the privacy of all students. Records are protected by the Personal Health Information Act (PHIA), and the Protection of Privacy provisions of the Freedom of Information and Protection of Privacy Act (FIPPA).

Student records are kept in a secure Electronic Medical Records (EMR) system. The immune status record for every student will be kept while the student is enrolled in their program of study, and for up to 10 years after the student's expected date of graduation. After 10 years the program will destroy all immune status records in a secure and confidential manner, consistent with accepted methods of disposal of health records. Students may request a copy of their immunization record at any time by filling out a form from our website.

Collection, use, and disclosure

Your personal information and personal health information is being collected under the authority of The University of Manitoba Act. The information you provide will be used by the University for the purpose of determining your ability to participate in patient-related activities during your clinical placements. Your personal information and personal health information may be disclosed to your clinical placement sites to confirm your immunization status. On occasion, records may be obtained from, or shared with, certain individuals or organizations as necessary to determine a student's ability to participate in patient-related activities in the student's current program of study. Immunizations provided by the Immunization Program will be entered in the provincial immunization registry (for those registered with Manitoba Health). Your personal information and personal health information will not be used or disclosed for other purposes, unless permitted by The Personal Health Information Act (PHIA) or The Freedom of Information and Protection of Privacy Act (FIPPA).

Vaccine Basics

What are Vaccines?

Vaccines, or immunizations, allow the immune system to learn how to recognize and fight bacteria and viruses that cause diseases. Vaccines not only protect the people who are immunized but may also protect those who cannot be immunized for medical reasons: It is more difficult to maintain a chain of person-to-person infection when large numbers of a population are immune (this is also called "herd-immunity"). Most vaccines are given in childhood, although some vaccines are given at other points in one's life. For some vaccines, booster (extra) needles are needed to maintain protection against certain diseases, since the protection given by the original immunizations begins to drop with time.

Before vaccines were available, little could be done to prevent serious diseases such as diphtheria, pertussis (whooping cough), tetanus (lockjaw), measles and polio, to name a few. Now, very few Canadians get sick or die from these diseases because people are protected by immunization. However, in some countries where immunization rates have dropped to low levels, rates of disease can quickly rise. Diseases that are rare in Canada have the potential to once again cause significant suffering and death if we do not continue to immunize individuals against them.

Some vaccines are live, containing living but weakened versions of the organisms they are being used to protect against; examples of this include MMR (measles, mumps, rubella) and varicella (chickenpox). Other vaccinations do not contain living organisms; these include diphtheria, hepatitis A and B, influenza, polio, pertussis, and tetanus.

What are antibodies?

Once an individual is exposed to viruses or bacteria, their immune system will attempt to create small proteins in the bloodstream called antibodies, to fight the infection. If the immune system is successful in creating antibodies, the next time an individual is exposed to the same virus or bacteria, they will be more successful in fighting off an infection, as there are now antibodies readily available. This is the basic concept behind vaccinations: an individual's immune system is exposed to small particles in the vaccine that mimic the appearance of viruses or bacteria; this trains the immune system to recognize and fight future infections.

For some diseases, antibody levels in the bloodstream can be measured through a simple blood test. This can be used to determine if the individual is likely protected against a disease, if an exposure were to occur in the future. A common example of this is the antibody level that is checked for hepatitis B after vaccination in all students in healthcare disciplines (see pages 26 to 27). However, in most situations it is not necessary or recommended to test antibodies after an immunization series is given.

Are vaccines necessary?

One of the greatest achievements by public health systems throughout the world is the reduction of infectious diseases resulting from the use of vaccines. Routine immunization has eradicated smallpox from the globe and led to the near elimination of wild poliovirus. The diseases that vaccines prevent are at an all-time low in developed countries, and now few people experience the devastating effects of measles, polio, tetanus, pertussis and other illnesses. Newer vaccines are being created to further reduce the toll that infectious agents take on human health.

Are vaccines safe?

Prior to approval by Health Canada, vaccines are tested extensively to ensure they are effective and safe. Vaccines are the best defense we have against certain infectious diseases; however, no vaccine is 100% safe or effective. Differences in the way individual immune systems react to a vaccine account for rare occasions when people are not protected following immunization or when they experience side effects. Unfortunately, as the incidence of infectious diseases continues to decline, some people have become less interested in the consequences of preventable illnesses. Instead, they have become increasingly concerned about the risks associated with vaccines. Since vaccination is such a common and memorable event, any illness following immunization may be attributed to the vaccine. While some of these reactions may be caused by the vaccine, many of them are unrelated events that occur after vaccination by coincidence.

Is it safe to receive more than one vaccine at the same time? Are there more side effects?

One of the most important principles of vaccination administration is that vaccines can almost always be given at the

same time. Doing so will not increase the rate of side effects than when

each individual vaccine is given alone. In fact, there are increasingly more vaccine manufacturers that are supplying combination vaccines where one needle contains up to five or six vaccines. The body's immune system is exposed to thousands of antigens (foreign substances such as bacteria and viruses) every day; giving more than one vaccine at one clinic visit is a very small fraction of the total number daily antigens the body encounters. (NOTE: If two live vaccines or a live vaccine and a tuberculin skin test are not given at the same visit, a short period of time must elapse after a live vaccination before any other live vaccines or tuberculin skin tests can be given.)

If it has been a long time since I started a particular vaccination series but did not finish, does the series need to be started over?

Many vaccinations require multiple doses given over a period of weeks or months, following a set schedule (e.g., hepatitis B; measles/mumps/rubella). If a lengthy period has elapsed since starting the series, the series does not need to be restarted, even if it has been years since the previous dose was given. There are minimum time intervals between vaccinations that need to be respected, but there are no maximum time intervals. (NOTE: The only exception to this rule is some situations where oral typhoid vaccination is given.)

Side effects of vaccinations

Common side effects (all vaccinations):

With any vaccination that is administered, local reactions are common and normal, and may include soreness and redness at the injection site for up to two days. Other reactions can include fever, headache or myalgia (tenderness or pain in the muscles). A few individuals will faint during or after an immunization, or when they are having blood drawn, which is one reason individuals should remain at the clinic 15 minutes after being immunized.

Rare side effects:

About one in five hundred thousand vaccinations are associated with a severe allergic reaction (anaphylaxis), manifest by painless swelling about the face and mouth, an itchy rash (90% of cases), and respiratory symptoms, such as coughing, wheezing, and laboured breathing. Individuals should always mention any known allergies to their healthcare provider prior to receiving any vaccination. Some vaccinations (e.g., influenza) have been associated with Guillain-Barré syndrome, which is a form of paralysis that is usually temporary (occurs once in every one million vaccinations; this also occurs in individuals who have not been vaccinated).

Tetanus/diphtheria/pertussis vaccines side effects:

These have been noted to cause more local reactions than other vaccines, such as redness, pain and swelling around the area the vaccine is given; these reactions are not serious, and concern over such side effects should not lead to a delay in receiving this immunization (see pages 18 to 20).

Measles/Mumps/Rubella (MMR) vaccine side effects:

Within three weeks after immunization a red rash occurs in less than five per cent of people receiving live MMR vaccine who are not immune to measles or rubella; sometimes the rash can cover the whole body. The rash disappears by itself and is NOT passed on to other people. Temporary swelling of lymph glands, especially those of the head and neck, occurs in about five to 15 per cent of people who are not immune to rubella. Temporary joint pain or swelling lasting one to three weeks may occur after receiving rubella vaccine; this is most common in post- pubertal females. There is no evidence this leads to chronic arthritic or neurologic conditions.

Varicella (chickenpox) vaccine side effects:

Some people will get a rash that looks like chickenpox one to four weeks after getting the chickenpox vaccine, usually with fewer than 50 spots or blisters. The fluid in the blisters MAY be contagious, although transmission of the disease from a vaccine rash is rare. The rash should be covered if possible, and contact with people who have not had chickenpox or those with weakened immune systems should be minimized.

Tetanus

What is tetanus?
Tetanus is a rapid and often fatal disease caused by an extremely potent neurotoxin (nerve toxin) produced by the bacterium Clostridium tetani. The organism is found in soil, the intestines of animals and humans, and also the dust inside buildings. Wounds that are contaminated with soil or feces (stool) and that are associated with deep tissue injury are most frequently associated with tetanus; cases have also been reported related to injection drug use, animal bites/lacerations, burns or surgery. Once inside the body, the tetanus bacteria produce a neurotoxin that causes prolonged, painful contraction of muscles; usually starting in the jaw ("lockjaw", causing difficulty with opening the mouth or swallowing), and then progressing to other areas of the body. Death occurs in over 10% of cases.

How can tetanus be spread?
Exposure occurs when tetanus bacteria from the environment gain entry into the body, usually through an open wound; about a third of cases occur without a known injury. Tetanus is not spread person-to-person.

Canada
Prior to vaccination, there were about 40 to 50 deaths from tetanus each year in Canada. From 2005 to 2011 there were between 0 and 6 cases of tetanus in Canada each year; cases occur almost exclusively among individuals who are under-immunized or with uncertain immunization histories

How can tetanus be prevented?
Most cases of tetanus can be prevented through immunization. All individuals should receive a primary (childhood) series of vaccinations with tetanus vaccine. Adults with an unclear or absent history of vaccination should also be given a primary series. A booster dose of tetanus vaccine should then be given every ten years (in Canada tetanus vaccine comes combined with diphtheria vaccine). Sometimes special wound treatment may be required after an injury, depending on the level of contamination of the wound and the immunization status of the individual. Precautions should always be exercised when individuals handle soil or animal feces (e.g., gloves should always be worn while gardening). All injuries to skin should be thoroughly cleaned.

After a tetanus/diphtheria immunization is given, when is the next dose of tetanus/ diphtheria due?
After a tetanus/diphtheria (Td) or tetanus/diphtheria/acellular pertussis (Tdap) immunization is given in adulthood (and assuming the primary series is complete) one would need another routine Td immunization in 10 years. However, if a fully immunized adult sustains a wound that is serious and/or dirty, and it has been more than five years since the last dose of a tetanus- containing vaccine was given, then another dose of Td should be given. A dose of Tdap is also recommended with every pregnancy.

Why is this disease important to a health-care worker?

Although there is no risk of spread of tetanus person-to-person, health-care workers should know the risk of tetanus for themselves and their clients and take the appropriate control measures for all wound management.

Tetanus and Diphtheria Immunization Requirement

All students are required to have documented a complete primary series of tetanus/diphtheria-containing immunizations. These include Td, Tdap-IPV, DTaP-IPV-Hib, and Tdap.

A complete series requires a minimum of three doses, with ideally a minimum of two months (absolute minimum one month) between the first two doses, and a minimum of six months between the last two doses. In addition, the last tetanus/diphtheria containing immunization must have been received within the past ten years.

Serology is not accepted as proof of tetanus and diphtheria immunity.

Students who do not have a primary series documented must complete a primary adult immunization series. Records indicating that a childhood series was received without providing dates are insufficient.

Booster dose:

A booster dose of tetanus/diphtheria (Td) containing vaccine is required every 10 years, with one of these doses.

Diphtheria

What is diphtheria?

Diphtheria is a communicable disease caused by certain toxin-producing strains of the bacterium Corynebacterium diphtheriae. Infection can occur in the respiratory tract (lungs and connecting airways) and/or skin. One characteristic sign of diphtheria is an adherent, grey membrane that forms over the mucous membrane of the tonsils or throat; attempts to remove the membrane can cause bleeding. Large membranes may cause life-threatening airway obstruction. The diphtheria organisms can produce a toxin, which damages the heart and central nervous system. About 5% to 10% of those with diphtheria of the respiratory system will die; most at risk are the very young and the elderly. About 3% to 5% of healthy persons with no symptoms may have diphtheria bacteria living on the skin or in the nose and throat.

How can diphtheria be spread?

Diphtheria is spread by person-to-person transmission through respiratory secretions, and physical contact with skin lesions infected with diphtheria bacteria.

Canada

Prior to universal diphtheria vaccination there were thousands of cases of diphtheria in Canada each year, now there are 0 - 5 positive diphtheria cultures reported annually. Occasionally imported cases of diphtheria are reported.

How can diphtheria be prevented?

Diphtheria can usually be prevented through vaccination. All individuals should receive a primary (childhood) series of vaccination with diphtheria vaccine. Adults with an unclear or absent history of vaccination should also be given a primary series. A booster dose ofdiphtheria vaccine should then be given every ten years (in Canada diphtheria vaccine comes combined with tetanus vaccine). Studies of healthy adult populations in Canada indicate that approximately 20% of adults (higher in some age groups) do not have protective levels of antibody to diphtheria. Infection can occur in immunized persons, however, disease is most common and most severe in those not immunized, or just partially immunized. Taking precautions to minimize contact with respiratory secretions or skin lesions is also important in limiting the spread of diphtheria, and many other infections.

Why is this disease important to a health-care worker?

If diphtheria protection is not maintained through immunization and infection control precautions, there is a potential for disease reemergence. Health-care workers are in a unique position to be infected by diphtheria themselves, and to spread the disease to vulnerable patients.

Diphtheria immunization requirement is the same as tetanus. The two come as a combination product.

Pertussis (Whooping Cough)

What is pertussis?

Pertussis (or whooping cough) is an infectious disease caused by the bacterium Bordetella pertussis. The disease can affect individuals of any age; however, severity is greatest among young infants. Symptoms include fever, vomiting and severe coughing spasms, which may or may not be associated with the classic "whoop" made when breathing in (hence the popular name "whooping cough"). The cough gets progressively worse, to the point where some individuals will have difficulty breathing and become exhausted. Rare complications of pertussis include pneumonia, seizures, brain damage and death. Death is estimated to occur in 1 in 200 cases in children less than one year of age.

How can pertussis be spread?

The virus is transmitted person-to-person, through direct contact with or inhalation of the secretions from an infected person's nose or mouth.

Canada

There are 1,000 to 3,000 cases of pertussis every year in Canada, with one to three deaths annually. Those most affected are infants too young to have begun their immunization and in partially immunized infants (e.g., those who have received only one or two doses). From 2002 to 2012, Manitoba averaged 37 cases a year, with one death occurring in 2012; there were likely many other cases that went unrecognized and unreported. In 2015 Manitoba experienced a large outbreak of pertussis; this contributed to a total for the year of 57 laboratory confirmed cases (and likely many more undiagnosed cases).

How can pertussis be prevented?

The majority of pertussis cases can be prevented through vaccination. Since the introduction of the pertussis vaccine in 1943, rates of pertussis have decreased over 90% in Canada, although outbreaks continue to occur. Hand washing, covering one's cough, and other routine infection control practices are important strategies to prevent the transmission of many infections, including pertussis.

Why is this disease important to a health-care worker?

Healthcare workers are capable of acquiring pertussis infection, and of spreading the disease to vulnerable patients, particularly vulnerable babies who are at greatest risk of complications or death after the disease. Vaccination should also be considered for individuals who may be raising young children at home, now or in the future. Receiving adult pertussis vaccine might prevent a health-care worker from transmitting pertussis to younger, more vulnerable individuals (e.g., babies), some of whom are too young to be properly immunized; and it may also save the healthcare worker from getting a chronic cough (caused by pertussis) lasting several weeks at some point in their lives.

Didn't I already get vaccinated against pertussis in childhood?

Pertussis vaccination is part of the routine childhood series of vaccinations, but after childhood individuals did not traditionally receive any further doses. When it was recognized that adults could be afflicted by pertussis (pertussis is the cause of about 20% of "post-viral" chronic coughs that last several weeks in adults), an adult booster of pertussis vaccine was made available.

How soon after a tetanus/diphtheria immunization can a dose of pertussis vaccine be given?

The Tdap immunization can be administered regardless of the interval since the last dose of tetanus and diphtheria toxoid-containing vaccine.

After a Tdap immunization when is the next dose of tetanus/diphtheria due?

A Tdap booster given now would count as the regular tetanus/diphtheria (Td) booster that is due every ten years. After a Tdap vaccination is given in adulthood, one would need another routine Td immunization in 10 years. However, if a fully immunized adult sustains a wound that is serious and/or dirty, and it has been more than five years since the last dose of a tetanus- containing vaccine was given, then another dose of Td should be given. A dose of Tdap is also recommended with every pregnancy.

Pertussis Immunization Requirement

All students are required to have single adult dose of tetanus/diphtheria/acellular pertussis (Tdap) vaccine on or after 18 years of age. This is regardless of: when the last dose of tetanus/diphtheria was given; when the next dose of tetanus/ diphtheria is due; whether or not a dose of Tdap was already given in adolescence.

For example, a student who got a dose of Tdap in grade 8 or 9 as part of their routine childhood immunizations, they would still need an additional dose of Tdap on or after 18 years of age. They need this additional dose even if it's been less than 10 years since their last dose.

Polio

What is poliomyelitis (polio)?
Polio is a very contagious infection caused by the poliovirus. Over 90% of polio infections produce no symptoms or mild symptoms. Some individuals however will experience a severe infection with lasting complications. Symptoms of polio infection begin with minor fever, headache, and vomiting. The virus can attack the cells surrounding nerve cells in the spinal column or the brain stem, causing damage to these nerves and associated muscles. Individuals so affected may experience a major illness with severe muscle pain and stiffness of the neck and back. In less than 1% of infections paralysis of muscles at one or more parts of the body may occur; the paralysis is usually asymmetric (e.g., one arm affected more than the other, or one leg affected more than the other). Paralysis of the muscles of the lungs or the throat can be life threatening.

How can polio be spread?
Polio is spread person-to-person through the "fecal-oral route" or through the "oral-oral route"; infection can occur when secretions from an infected person's mouth or the person's feces are passed into another person's body through the mouth. The virus is extremely stable and can remain viable in the environment for long periods of time.

Canada
There have been no wild cases (i.e., local spread of natural disease) of polio in Canada since 1977. Cases of poliomyelitis occurring in Canada and the United States are attributable to importation by tourists and immigrants, and to vaccine-associated strains (see OPV and IPV discussed below). Polio has almost been eradicated in most parts of the world, but it continues to be a serious threat in certain countries, particularly parts of Africa.

How can polio be prevented?
Polio can be prevented through vaccination. It is important for all children to receive a primary immunization series against poliovirus. Immunization with polio vaccine is also recommended for previously unimmunized adults; this is particularly important for adults who may be exposed to wild polioviruses. These include: travelers to countries where these viruses are circulating; residents of communities in which a visitor or new refugee/immigrant may be excreting the viruses; health-care workers (see below); laboratory workers.

What is the difference between OPV and IPV?
In the past oral poliovirus vaccine (OPV), a live vaccine, was used for polio immunization. While this was a highly efficient and effective vaccination, it caused paralytic polio disease in about one in every two million vaccine recipients. Canada has since switched to the exclusive use of inactivated poliovirus vaccine (IPV), which is not a live vaccine and which cannot cause polio disease. (Note: Both OPV and IPV can be counted as valid when previous polio records are reviewed).

Why is this disease important to a health-care worker?
Health-care workers may be at higher risk of being infected by polio because they are more likely to be in close contact with individuals who may be excreting poliovirus.

Polio Immunization Requirement

All students are required to have documented a complete primary series of polio immunizations. This requires

a minimum of three doses, with a minimum of one month between the first two doses, and a minimum of six months between the last two doses. Serology is not accepted as proof of polio immunity. Students who do not have a primary series documented must complete

a primary adult immunization series. Records indicating that a childhood series was received without providing dates are insufficient.

Booster dose:
Booster doses of polio vaccine are generally not required for healthcare workers who have received a complete primary series, unless they are traveling to high-risk areas of the world (e.g., work or vacation in a polio-endemic country).

Measles

What is measles?

Measles (also called rubeola or red measles) is a highly contagious disease caused by the measles virus. Infection occurs when someone comes into contact with droplets or air contaminated with the virus. Symptoms of measles include fever, cough, runny nose, conjunctivitis (red eyes) and a characteristic red blotchy rash; these symptoms usually last one to two weeks. Complications can include diarrhea, ear infection, pneumonia, encephalitis (inflammation of the brain), seizures, coma, and death. Measles is the leading cause of vaccine-preventable deaths in children worldwide; in 2013 there were 145 700 measles deaths globally.

How is measles spread?

Measles virus is transmitted person-to-person by direct contact with an individual's infectious nose and throat droplets; less commonly, measles can be spread by the airborne route, i.e., carried short distances when an individual coughs or sneezes.

Canada

Despite a dramatic drop in the number of cases of measles reported after the widespread use of measles vaccine, Canada continues to see sporadic activity. The majority of cases are the result of international travelers arriving in Canada with measles, or as a result of limited spread following imported cases. Between 2005 and 2011 the number of measles cases in Canada ranged from 6 to 750 cases each year. In 2014 there was significant measles activity reported in several Canadian provinces, including Manitoba.

How can measles be prevented?

The best way of preventing the spread of measles in the world is through an effective vaccination program. In Canada, children now routinely get two doses of the vaccine MMR (measles, mumps, rubella) to prevent infection (the two-dose vaccine schedule was introduced around 1996-97). As measles outbreaks were so common in the past, the majority of individuals born prior to 1970 are considered immune to measles. Adults in 1970 or later should ensure that they have received at least one dose of measles vaccine. Some high-risk adults (e.g., healthcare workers; military recruits; university students and those traveling to measles- endemic areas of the world born in or after 1970) require two doses of measles vaccine for immunity.

Why is this disease important to a health-care worker?

Susceptible health-care workers are capable of developing measles infection from patients afflicted by the infection; workers are also at higher risk of spreading the disease to vulnerable patients. Young health-care workers such as students are at particular risk because many were born on or after 1970 and are therefore too young to have any degree of immunity from natural measles infection.

Measles Requirement

One of the following criteria is required for evidence of measles immunity:

1. Documented evidence of immunization with TWO doses of measles-containing vaccine, given at least a month apart, starting on or after the first birthday.
2. Serology showing antibodies to measles; date of test and IgG serology (blood antibody) results required.
3. Laboratory documentation of measles infection (e.g., virus culture); laboratory report required.

In most situations immunization to measles is preferred over serological testing, but either is acceptable. Serology is not required if measles immunization requirements have been met. If two doses of measles vaccine have been documented, negative serology can be ignored.

Mumps

What is mumps?

Mumps is an infectious disease caused by the mumps virus. Symptoms include fever, headache, muscle ache and swelling and tenderness of the parotid glands at the angle of the jaw (parotitis). Half of infections present with mild symptoms, or no symptoms at all. Less commonly, mumps infection can lead to inflammation of the testicles (orchitis; 25% of cases in adolescents or adults) or ovaries (oophoritis; 5% of cases), inflammation of the pancreas, inflammation of the meninges surrounding the brain and spinal cord (meningitis), and temporary or permanent hearing loss. Although extremely rare, if meningitis is severe mumps can prove fatal.

How is mumps spread?

Infection with the mumps virus occurs through direct contact with respiratory droplets from the nose or throat, coughing, sneezing, sharing drinks, kissing or from contact with surfaces that have been contaminated with the mumps virus.

Canada

Prior to routine vaccination in 1969 there were about 34,000 cases of mumps in Canada each year; after universal mumps vaccinations was introduced numbers dropped more than 99%. From September 2016 up to January 9, 2018 there have been 1,500 confirmed cases of mumps reported in Manitoba as part of a large provincewide outbreak of the disease.

How can mumps be prevented?

The most effective way of preventing mumps infection is through immunization. Originally a single dose of mumps vaccine was recommended for all children as part of their routine immunization schedule; children began to receive two doses of mumps when a second dose of MMR (measles, mumps, rubella) vaccine was introduced in 1996 (the second dose was intended for enhanced measles protection). Due to large mumps outbreaks across Canada, recommendations around mumps vaccination for health-care workers have changed (listed below).

Why is this disease important to a health-care worker?

Susceptible health-care workers are capable of developing mumps infection from patients afflicted by the infection; workers are also at higher risk of spreading the disease to vulnerable patients. Young health-care workers such as students are at particular risk because (1) many were born in or after 1970 and are therefore too young to have any degree of immunity from natural mumps infection; (2) healthcare students will spend a great deal of time around vulnerable patients; and (3) young university students are known to be at particularly high risk for mumps (this is the group that was most affected by a large 2007 mumps outbreak).

Mumps Requirement

One of the following criteria is required for evidence of mumps immunity:

1. Documented evidence of immunization with TWO doses of mumps-containing vaccine, given at least a month apart, starting on or after the first birthday.
2. Serology showing antibodies to mumps; date of test and IgG serology (blood antibody) results required.
3. Laboratory documentation of mumps infection (e.g., virus culture); laboratory report required.

In most situations immunization to mumps is preferred over serological testing, but either is acceptable. Serology is not required if mumps immunization requirements have been met. If two doses of mumps vaccine have been documented, negative serology can be ignored.

Rubella

What is rubella?

Rubella is an infection caused by the rubella virus, which is usually a mild illness that can occur in adults and children. It presents with a rash that starts out with red spots on the face, which spread downwards to cover the entire body. Other symptoms include fever, sore throat, eye irritation, painful joints and tender swelling of the lymph nodes located behind the ear and at the back of the head. Children usually have few or no symptoms, but adults may have a more severe illness; 70% of adolescent and adult females with rubella develop pain and swelling of large joints. About 20% to 50% of those who acquire rubella infection have no symptoms, and yet can still transmit the infection to others. Although rubella is generally a mild illness, if contracted in the early months of pregnancy it is associated with a high rate of fetal loss or a constellation of birth defects known as **congenital rubella syndrome (CRS)**. The most common features of CRS are deafness, blindness, and heart and brain defects. Symptoms of CRS may be obvious at birth or develop later in life. Diabetes mellitus is a recognized late complication of CRS. Between 1986 and 1995, thirty cases of CRS were reported in Canada.

How is rubella spread?

Rubella is acquired by direct contact with the secretions from the nose or mouth of an infected person. It can also be acquired by directly inhaling droplets discharged from infected people when they cough or sneeze. In CRS, the virus is transmitted from an infected mother across the placenta to her baby during pregnancy.

Canada

After universal rubella vaccination was introduced in Canada in 1983, the average number of rubella cases reported decreased from approximately 5,300 (1971-1982) to fewer than 30 cases per year (1998-2004). Outbreaks of rubella used to occur fairly frequently, including one in Manitoba in 1997 (3,900 cases, mainly among males who were not immunized prior to 1983). In Manitoba there was one case of rubella in 2007 and two cases in 2009.

How can rubella be prevented?

The most effective way of preventing mumps infection is through immunization. In Canada, routine infant immunization programs have resulted in sustained high rates of rubella immunity in the general population.

Why is this disease important to a health-care worker?

Susceptible health-care workers are capable of acquiring rubella infection from patients afflicted by the infection; workers are also at higher risk of spreading the disease to vulnerable patients, particularly pregnant people..

Rubella Requirement

One of the following criteria is required for evidence of rubella immunity:

1. Documented evidence of immunization with TWO doses of rubella-containing vaccine, given at least a month apart, starting on or after the first birthday.
2. Serology showing antibodies to rubella; date of test and IgG serology (blood antibody) results required.
3. Laboratory documentation of rubella infection (e.g., virus culture); laboratory report required.

In most situations immunization to rubella is preferred over serological testing, but either is acceptable. Serology is not required if rubella immunization requirements have been met. If two doses of rubella vaccine have been documented, negative serology can be ignored.

Varicella (Chickenpox)

What is chickenpox?
Chickenpox (also known as varicella) is an infection caused by a virus. The virus causes an itchy rash that turns into small, fluid-filled blisters. Sometimes a person may also have a fever and headache before or during the rash. Some people have only a few blisters; others can have many blisters over their entire body. While most people recover from chickenpox without lasting effects, some children and adults will suffer severe complications. These complications include: infection of the skin or organs; pneumonia; bleeding problems; inflammation of the liver, kidney, lining around the spinal cord (meningitis) or the brain (encephalitis). Prior to universal vaccination about 90% of all children acquired chickenpox before they reach 12 years of age. Most individuals will only get chickenpox once.

How is chickenpox spread?
Chickenpox is one of the most contagious infections; the virus spreads easily through coughing, sneezing and contact with infected saliva or blister fluid.

How is shingles, or zoster?
After a person gets chickenpox, the virus stays in the body in an inactive form. It can become active again later causing shingles (zoster), a rash appearing on usually one isolated area of the body that can cause severe pain, sometimes lasting as long as six months. The rash is even more serious if it occurs on the face or near the eyes. In persons with weakened immune systems, shingles can sometimes spread throughout the entire body. Up to 30% of individuals who have been infected with chickenpox will get shingles. Shingles tends to occur in older individuals and those with a weakened immune system.

Canada
In the pre-vaccine era, it is estimated that in Canada there were approximately 350,000 varicella cases and 1,500 to 2,000 varicella-related hospitalizations each year. Since the introduction of varicella immunization as part of the childhood immunization series these numbers have dropped substantially. Since 2004, the annual average number of varicella hospitalizations at Immunization Monitoring Program ACTive (IMPACT) centers has dropped from 300 (2000 to 2004) to 114 (2005 to 2009). Between 2000 and 2009, a total of 10 pediatric deaths due to varicella were reported by the (IMPACT) system, with a range of 0-3 deaths per year.

How can chickenpox be prevented?
Chickenpox vaccine decreases the chance of getting chickenpox by between 70 and 90%, and substantially decreases the likelihood of severe illness. In Canada, all children are being offered chickenpox vaccine on or after the first birthday, with a booster dose at age five to six years. Older children and adults who have already had chickenpox infection do not need to get vaccinated.

Why is this disease important to a health-care worker?
Students who are not immune to chickenpox may get infected, and then transmit the virus to others in health-care settings who are also not immune. This may include pediatric patients, and patients with weakened immune systems, who may suffer severe complications from infection. If a non-immune pregnant person gets chickenpox, their baby may be born with birth defects. These include eye problems, scarring, or shortening of the arms and legs. If the pregnant person has chickenpox around the time the baby is born, the newborn can suffer severe infection.

Varicella Requirement

One of the following criteria is required for evidence of varicella immunity:

1. Documented evidence of immunization with TWO doses of varicella-containing vaccine, given at least a month apart (ideally six or more weeks), starting on or after the first birthday.
2. Serology showing antibodies to varicella; date of test and IgG serology (blood antibody) results required.
3. Laboratory documentation of varicella infection (e.g. virus culture, laboratory report required.

Students without documented varicella immunizations should have a varicella serology blood test performed before receiving chickenpox vaccine; most of these students will already be immune, making immunization unnecessary. A history of varicella infection is not acceptable proof of immunity.

Serology is not required if varicella immunization requirements have been met. If two doses of varicella vaccine have been documented, negative serology can be ignored

Hepatitis B

What is hepatitis B?

Hepatitis B is a serious infection of the liver caused by the hepatitis B virus (HBV). The virus is spread by direct exposure to the blood or body fluids of those infected with HBV. Symptoms appear usually about three months after infection occurs, and include loss of appetite, nausea and vomiting, stomach pain, fatigue, and a yellowing of the skin and eyes (jaundice). About 30% of infected adults will have few or no symptoms. It is possible after infection to completely clear the virus and develop life-long immunity. However some people infected with HBV, especially infants and children, never completely recover and carry the virus in their blood for the rest of their lives; people who permanently carry the virus remain infectious to others. In some of these people there will be persistent inflammation of the liver and possibly cirrhosis (scarring and hardening) of the liver, liver failure and liver cancer. HBV causes 80% of all primary liver cancers worldwide.

How is hepatitis B spread?

HBV is spread through exposure to the blood or body fluids of those infected with the virus. This includes: sexual contact with an infected person; sharing of drug injection equipment; transmission from an infected pregnant person to their infant at the time of birth; or exposure to blood in the workplace. Almost one-third of infections have no identified risk factors.

Canada

Canada has low rates of hepatitis B infection; almost 5% of the population shows serological (blood) evidence of previous infection, and less than 1% are chronic HBV carriers. About 10% of those immigrating to Canada are HBV chronic carriers. In Manitoba there is marked variation from year to year in new cases; this number will likely drop due to universal immunization.

Can hepatitis B be prevented?

Hepatitis B infection is preventable through immunization. Universal immunization to hepatitis B is offered in all provinces and territories (in Manitoba, this started for grade 4 students in 1998). Hepatitis B vaccine is also recommended for certain groups at higher risk of infection with hepatitis B. Other steps that can be taken to reduce the risk of infection with HBV include: universal precautions for healthcare workers when handling specimens potentially contaminated with HBV (e.g., needles); safer sexual practices (e.g., reducing the number of sex partners, using latex condoms); not sharing household articles that may be contaminated with blood (e.g., toothbrushes, razors); for those who use injection drugs, not sharing injection equipment; screening all pregnant people for infection, and providing prophylaxis to newborns at birth.

Why is this disease important to a health-care worker?

Handling potentially infected blood and body fluids or contaminated sharp equipment is a risk of health care. Occupational transmission of hepatitis B used to happen more frequently, but has become significantly less common since the advent of hepatitis B immunization and infection control precautions. Health-care workers are capable of both acquiring HBV through their work, and of passing on HBV to patients.

Please note the following:

Complete hepatitis B series: there are multiple different hepatitis B series available, including 2-dose, 3-dose, and 4-dose series. Whether a series is complete depends on the type of vaccine used, the age of the recipient, the number of doses used and the spacing between doses. For a complete list please see table 3 in the Hepatitis B section of the Canadian Immunization Guide. For adults starting a series, a three-dose series should be selected, with doses given at time 0, 1, and 6 months.

Previous doses: Any previous documented doses of hepatitis B vaccine count towards the total number of doses in the series; the vaccination series does not need to be re-started. The final dose(s) of the series should be completed, regardless of how long ago the initial dose(s) were given, as long as the minimal intervals between doses are respected. Vaccines produced by different manufacturers can be used interchangeably, provided that the age-appropriate dosages are used.

Positive serology without documented immunizations: Positive serology (anti-HBs ≥10 mIU/mL) will not be accepted if there is an incomplete or absent record of immunization. This is because positive serology proves long-term immunity only in those with a complete, documented hepatitis B immunization series. An exception to this: students immune due to presumed natural immunity, i.e., positive anti-HBs AND positive anti-HBc (hepatitis B core antibody), are considered immune and do not require documented hepatitis B immunizations.

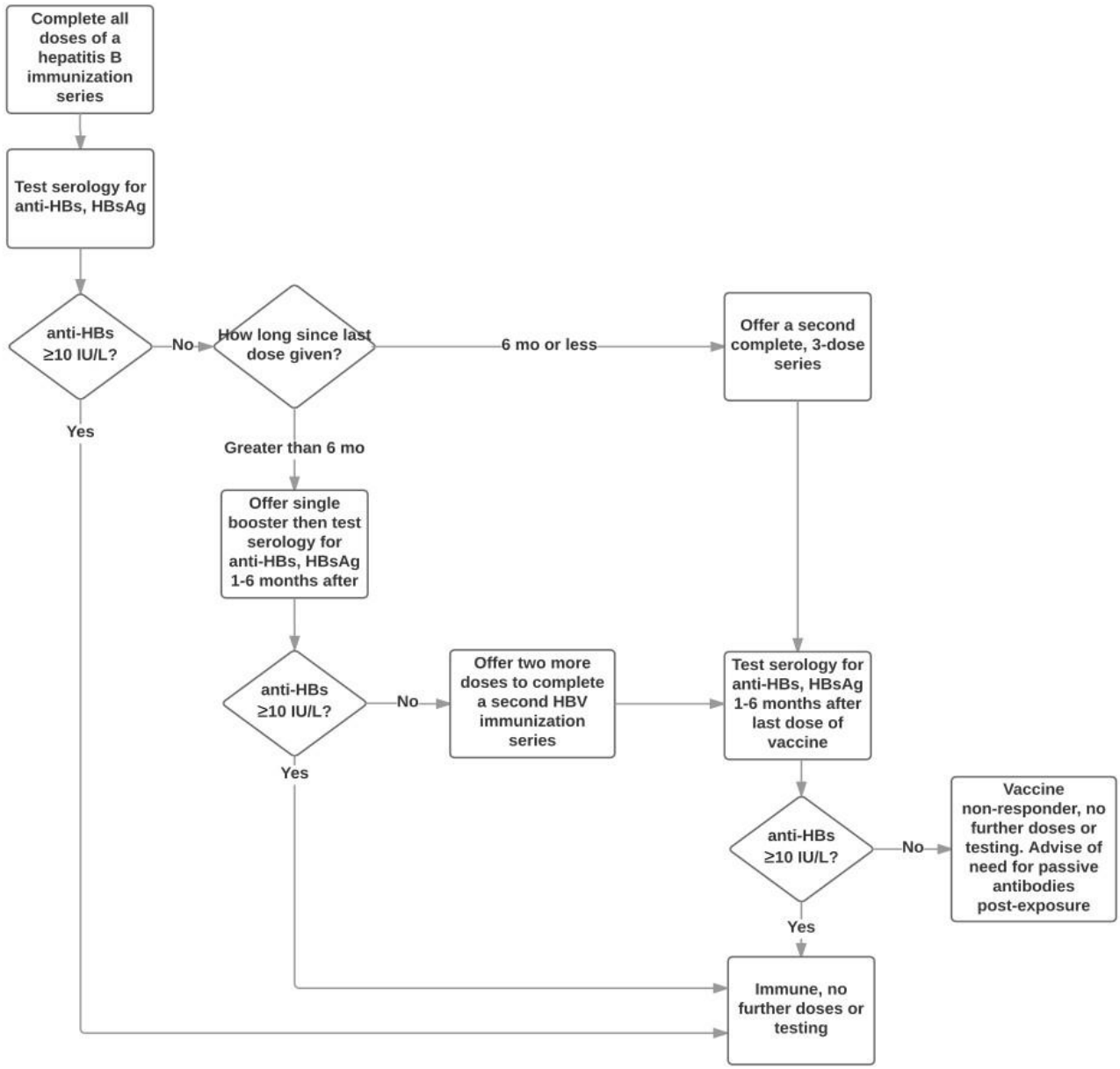
Hepatitis B Requirement

Assessment for hepatitis B infection: Hepatitis B surface antigen (**HBsAg**) is a test for current hepatitis B infection. This test is required for **all students**, including those who are believed to be already immune to hepatitis B. The test must be conducted on or after the time of the assessment for hepatitis B immunity. The test should be conducted 28 or more days after a hepatitis B immunization to avoid the possibility of a false-positive HBsAg result (vaccine can produce a false-positive HBsAg result for several weeks).

Assessment for hepatitis B immunity: Students will fall into one of the following four categories:

1. **Immune to hepatitis B (most students are in this category):** Documentation of a complete hepatitis B immunization series is required (see definition of a complete series below). A test for immunity, hepatitis B surface antibody (anti-HBs) should be performed one or more months (ideally 1-2 months) after the last dose of the series. If the postimmunization anti-HBs is positive (≥10 mIU/mL), no further hepatitis B immunizations or anti-HBs tests are required. If anti-HBs is negative, additional doses of vaccine and antibody tests are required (see algorithm on **page 18**).
2. **Vaccine non-responders:** This means a student has received two complete, documented hepatitis B immunization series, and post-immunization serology 1-6 months after the final dose has not demonstrated immunity. In this situation generally no further hepatitis B immunizations or serological testing are required. In the event of a possible exposure to hepatitis B (e.g., a needlestick injury, human bite, mucosal splash) the student may need passive immunization with hepatitis B immune globulin (a human blood product) as soon as possible, and then again one month later.
3. **Immune due to natural infection:** Students with positive anti-HBs AND positive anti- HBc (hepatitis B core antibody), are considered immune due to presumed natural infection and do not require documented hepatitis B immunizations. Testing for natural immunity is not necessary for most students, but can be considered if a student comes from a background with a high likelihood of previous hepatitis B infection (e.g., countries with high rates of endemic hepatitis B infection).
4. **Current hepatitis B infection:** Students with hepatitis B infection (positive HBsAg) do not require any additional hepatitis B immunizations.

Hepatitis B Immunization and Testing Algorithm



Tuberculosis (TB)

What is the difference between tuberculosis infection and tuberculosis disease?

Tuberculosis infection, also known as latent tuberculosis infection (LTBI), occurs when an individual has been infected with tuberculosis bacteria and now has latent (sleeping) bacteria inside the lungs. The individual has no symptoms because of this infection and cannot transmit the bacteria to others; in this situation a chest x-ray is usually normal. The only way to test for LTBI is to administer a tuberculin skin test, or to use a new blood test called an interferon gamma release assay (IGRA).

About 10% of individuals with LTBI will progress to tuberculosis disease, also known as active tuberculosis (TB). This occurs when the TB organisms begin to multiply, and break through the body's immune system defenses. Individuals with tuberculosis disease usually have symptoms of TB, such as: cough lasting more than three weeks, fever, weight loss, night sweats, fatigue, and sometimes a cough that has blood in it. These individuals are usually infectious to other people through coughing or sneezing, until they receive appropriate treatment.

What is the tuberculin skin test?

The tuberculin skin test (TST or Mantoux test) is a test used to determine whether a person is infected with Mycobacterium tuberculosis, the bacteria that caused tuberculosis disease. The TST is a good test for tuberculosis infection, but it is not a good test for tuberculosis disease.

How is the TST administered?

The TST is performed by injecting 0.1 ml of tuberculin purified protein derivative (PPD) into the inner surface of the forearm, just under the skin. When the test is done properly, the injection should produce a pale elevation of the skin (a wheal) 6 to 10 mm in diameter. A trained\ healthcare worker familiar with TST technique, interpretation, and indications for testing must perform the test. Tuberculin does not contain any living organisms.

How is the TST read?

The skin test must be read between 48 and 72 hours after administration. A patient who does not return for the reading within 72 hours will need to have a repeat test performed. The reaction should be measured in millimeters of induration (a hardened area of swelling); the diameter of the indurated area should be measured across the forearm (perpendicular to the long axis of the forearm). The reader should NOT measure erythema (redness).

How are TST reactions interpreted?

When interpreting the TST result, the healthcare provider must consider three important factors:

1. The size of the skin reaction, measured in millimeters of induration;
2. Possible causes of false-negative and false-positive reactions; and
3. The individual's risk of development of active tuberculosis if truly infected.

For most healthcare workers, a TST reaction of 10 mm or greater is considered positive; however, there are special situations where a TST less than 10 mm might also be considered positive (see the Canadian Tuberculosis Standards online for more information on test interpretation).

What are false-positive reactions?

Some persons may react to the TST even though they are not infected with M. tuberculosis. Possible causes of false positive reactions include: infection with specific bacteria found in the environment that are similar but not identical to tuberculosis bacteria; previous Bacille Calmette-Guérin (BCG) vaccination; incorrect method of TST administration; or incorrect interpretation of the reaction.

What are false-negative reactions?

Some persons may not react to the TST even though they are infected with M. tuberculosis. Possible causes of false negative reactions include: a weakness in the immune system's ability to react to foreign substances; very recent tuberculosis infection (i.e., infection that occurred within the past eight weeks may not yet be detectable); tuberculosis infection that occurred many years ago; very young age (less than six months old); recent live-virus vaccination (e.g.,

measles, mumps, rubella vaccine; possibly chickenpox and yellow fever vaccines); some viral illnesses (e.g., measles and chickenpox); overwhelming tuberculosis disease (this is one reason why a TST is not a good test for active tuberculosis disease); incorrect method of TST administration.

Is the TST safe?

Almost everyone can safely receive a TST; this includes infants and children, pregnant women, those with HIV infection, and those who have received a BCG (TB) vaccine in the past.

Who should not have a TST?

Individuals who should not receive a TST include: persons who have had a severe reaction to a previous TST (e.g., severe skin damage, blistering, or a severe allergic reaction that interferes with breathing); those with a documented previously positive TST; those with documentation of treatment for active TB disease or latent tuberculosis infection.

What are the side effects of a TST?

The TST is very well tolerated, and serious reactions are extremely rare. As with any injection through the skin, there is a small risk of infection or bleeding at the injection site, or fainting after the injection. Some individuals will notice some redness, swelling, or tenderness at the injection site. Rarely, blistering of the skin may occur. There is a very small risk (approximately one in one million) of a severe allergic reaction called anaphylaxis, manifested by an itchy body rash, swelling of the mouth and throat, and difficulty breathing. Any serious reactions should be reported to the individual's health-care provider.

What should be done to the area where the TST was administered?

The area of the TST should be left alone, and should not be bandaged, scratched, or have any lotions or compresses applied to it before it is read.

How often can TSTs be repeated?

In general, there is no risk associated with repeated tuberculin skin tests, as long as previous tests were tolerated. If a person does not return within 48 to 72 hours for a tuberculin skin test reading, a second test can be placed as soon as possible.

Can TSTs be given to persons receiving vaccinations?

A TST can be given at the same time as most vaccinations. However, vaccination with live viruses may interfere with TST reactions. The TST should either be given on the same day as vaccination with a live virus vaccine, or four weeks after the administration of the live virus vaccine. Live virus vaccinations include measles, mumps, rubella (MMR), varicella (chickenpox), and yellow fever vaccines; live virus vaccinations do NOT include hepatitis A or B, tetanus/ diphtheria, polio, pertussis, or injectable influenza vaccines.

What is a two-step TST?

In some persons who are infected with M. tuberculosis, the ability to react to a TST may drop over time. When the very first TST is administered years after tuberculosis infection occurred, these persons might have a false negative reaction. However, this TST may stimulate the immune system, causing a positive (boosted) reaction to future tests. Giving a second TST after an initial negative TST reaction is called two-step testing. The second test is usually performed 7-28 days after the first (up to one year later).

When is a two-step TST indicated?

Two-step testing is useful for the initial skin testing of adults who may be tested again in the future, such as health care workers. This two-step approach can reduce the likelihood that a boosted reaction to a subsequent TST will be misinterpreted as a recent infection. A two-step usually only needs to be done ONCE; future TSTs can be single, one-step TSTs.

What if I have a significant or positive TST?

If you have a positive TST, this may mean that you were infected with TB bacteria at some point in your life. Your healthcare provider will provide you with additional information, and advice on what you need to do. A chest x-ray will be required to look for evidence of previous TB infection or disease, as well as a TB symptom questionnaire. The

student may then choose to be referred to a specialized clinical site for additional information on tuberculosis, and for consideration of LTBI therapy (referral is optional for students). Students with a positive TST can all choose to complete an Interferon gamma release assays (IGRAs) test; these tests are new blood tests that can test for latent tuberculosis infection. Additional information is available upon request; there is a cost associated with obtaining this test.

Why is tuberculosis important to a health-care worker?

If a health-care worker has latent (sleeping) tuberculosis infection, they may one day go on to develop active (infectious) tuberculosis disease. It is possible that a healthcare worker may then infect others with the tuberculosis bacteria, including vulnerable clients in healthcare settings. It is also important to document a worker's baseline TST status, in case testing needs to be performed after a future exposure to TB disease.

TST Requirement

TB History: Students need to answer if they have a previous positive TB history (e.g., previous positive TST). Students with a positive TB history will need to supply a chest X-ray report ordered on or after the date of the positive TB history.

Testing for latent tuberculosis infection: All students without contraindications must have a two-step TST documented; Most students will require a two-step TST at the start of the program, but students who have already had a two-step TST documented previously will only require a one-step (single) TST at this time. Students found to have a positive TST will require a chest x-ray, and will need to complete a TB symptom questionnaire.

BCG (Bacille Calmette-Guérin)

What is BCG?

BCG (Bacille Calmette-Guérin) is a live vaccine that was developed in the 1920s. It helps protect babies and young children against the most severe forms of TB disease. BCG is one of the most commonly used vaccines in the world, and is frequently used in other countries where TB infection and TB disease are more common. It is rarely used in Canada today.

How do I know if I had a BCG vaccine?

Student can check their immunization records or check with their parents or former guardians to see if they have ever had a BCG vaccine. Most new health-care students today have never had a BCG vaccine, but some may have. In Manitoba, BCG vaccine was discontinued in the 1970s for health-care workers, but it is still given to infants living in some communities in Manitoba. Most people who have had a BCG have a characteristic scar at the site at which it was administered (e.g., upper arm or shoulder). However, not everyone who had a BCG vaccination will have a scar.

Why is BCG not used routinely in Canada?

Since TB disease rates have dropped in most communities, the risk of infants and young children being exposed to TB is very small (the exception to this is infants who live in Indigenous communities with high rates of TB). Also, there can be serious side effects from the BCG vaccine, particularly in individuals who have problems with their immune system. Finally, BCG may make the tuberculin skin test more difficult to interpret, limiting the usefulness of this test (see below).

Does a history of BCG vaccination mean that the tuberculin skin test will be positive?

People vaccinated with BCG may have a positive reaction to a tuberculin skin test (TST or Mantoux). This reaction may be due to the BCG vaccine or to a real TB infection (BCG likely does not prevent TB infection; it is intended only to prevent the development of severe TB disease in those already infected with the TB bacteria). BCG given in the first year of life will almost never cause a positive TST 10 or more years later; those who were vaccinated after the age of 6 years, or adults who had many BCG vaccinations are much more likely to have a positive TB skin test because of BCG. Since the reaction from BCG fades over time, adults who were vaccinated with BCG very early in life should consider a positive skin test as indicative of true TB infection. Health-care workers with a history of BCG vaccination should still have a TST performed.

How can I tell if my positive TST was caused by my previous BCG vaccination?

Interferon gamma release assays (IGRAs) are new blood tests that can test for latent tuberculosis infection. The two IGRA tests approved for use in Canada are QuantiFERON TB Gold and T-SPOT.TB. Unlike the TST, IGRA tests are not influenced by a past history of Bacille Calmette-Guérin (BCG) vaccination. An individual who has a positive TST and who had a previous BCG vaccination may opt to have an IGRA test performed as an aid in confirming whether the individual likely has latent tuberculosis infection. Additional information on IGRA testing is available on request.

There is no BCG requirement for students. It's mentioned in this manual because of its relationship with TSTs.

Influenza

What is influenza?

Influenza (also called "the flu") is a common respiratory viral illness spread person-to-person. In Canada, influenza season usually runs from November to May, and sometimes later. Symptoms may include fever, headache, cough, muscle aches, runny nose, sore throat and exhaustion.

Symptoms can be similar to other viral illnesses such as a cold; however, the symptoms are usually more serious than a cold, and onset of influenza is usually more sudden than other respiratory pathogens. Most individuals will recover from the illness after 7 to 10 days, but sometimes this takes longer for high-risk individuals. Some people may carry and spread the influenza virus but have no symptoms. Some individuals, particularly babies, the elderly, and those with immune system problems are particularly vulnerable to the complications of influenza, including pneumonia and meningitis.

How can influenza be spread?

Influenza virus is spread when a person who has influenza coughs, sneezes, or speaks, and sends influenza virus into the air, allowing others to inhale the virus. Influenza viruses may also be spread when a person touches respiratory droplets on another person or an object and then touches his or her own mouth or nose before washing his or her hands.

Canada

Influenza and related pneumonia is ranked among the top 10 leading causes of death in Canada. Although the overall number and severity of influenza infections can vary from year to year, it is estimated that an average of 12,200 hospitalizations and approximately 3,500 deaths attributable to influenza occur annually. The incidence of influenza is often underreported since the illness may be confused with other viral illnesses, and many people with influenza-like illness (ILI) do not seek medical care or have viral diagnostic testing done.

Can influenza be prevented?

In addition to existing concerns over seasonal influenza, there is always concern over an impending world wide influenza pandemic; an influenza pandemic was declared by the World Health Organization in 2009. An influenza pandemic occurs when a new influenza virus for which people have little or no immunity emerges and spreads rapidly throughout the world. The rate of infection and fatality rate may be greater than what is seen with the seasonal influenza that occurs now, particularly if an effective vaccine is not available. While it is difficult to predict when influenza pandemics will occur or their severity, governments, public health officials, and businesses should prepare for the worse (additional information on Canadian Pandemic Influenza Preparedness is available online).

Why is this disease important to a health-care worker?

Health-care providers are in a unique position to both acquire influenza infection in the workplace, and to transmit infection to patients, many of whom are extremely vulnerable. As it is possible to transmit influenza prior to the onset of symptoms, providers may not even know that they are infectious to others.

Influenza immunization is not required. All students are encouraged to get an annual influenza vaccine.

COVID-19

What is COVID-19?

COVID-19 (coronavirus disease 2019) is a new infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), believed to have evolved from a virus moving from bats to humans through an intermediary animal host. The first outbreak stated in late 2019 and spread to countries throughout the world. The World Health Organization declared the COVID-19 outbreak a worldwide pandemic on March 11, 2020.

How is COVID-19 spread?

The virus is transmitted mainly through the respiratory route, when those infected with COVID-19 release droplets as they breathe, talk, cough, sneeze or sing; these droplets are then inhaled by others leading to infection. Close interactions and those that last longer are more likely to lead to transmission. Infection can occur through contaminated surfaces, although this is not a common mode of transmission. People are at their peak of infectiousness when their symptoms start and are infectious for two days prior to this. Their infectiousness declines after the first week, but they remain infectious for several days after this. Those diagnosed with COVID-19 must isolate away from others until they are no longer infectious.

COVID-19 immunization is not required. All students are encouraged to be up to date with their COVID-19 immunizations.

Travel Health Services

When would I need to go to a travel health clinic?

Many students will at some point travel to a foreign country, either as part of their formal education, for work, or for a vacation. It is important for students planning international journeys to access high quality travel health advice, to ensure a positive travel experience. A travel health clinic can both help travellers stay healthy while traveling, and also provide assistance if a traveller experiences illness after arriving back in Canada.

Do travel health services cost anything?

As the majority of travel health services are not publicly insured services, clients will be charged for services, immunizations and supplies. However, this should be seen as essential "travel insurance" to make a trip as safe and enjoyable as possible. Travellers will often spend many thousands of dollars on airline and accommodation fees, and yet hesitate to spend a couple hundred dollars to make sure they are in good health during the trip. Manitoba Health covers post travel clinic visits, for travellers experiencing travel-related illness on return.

Where should I go for travel health advice?

There are several travel health clinics in Manitoba (a list of Manitoba travel health clinics is listed at: http://www.wrha.mb.ca/community/travel/index.php). Travellers who do not wish to go to a travel health clinic should, at a minimum, visit their own physicians or healthcare provider, who can review current travel health resources, or contact the Manitoba travel health network for advice. However, the more exotic the trip, the more travellers are encouraged to make use of a high-quality, certified travel health clinic.

When should I go for travel health advice?

It is best to make an appointment at least 6-8 weeks prior to your departure; this is particularly important when a traveller is being offered vaccinations, as some require several weeks to build the traveller's immunity. However, even if a traveller is scheduled to depart in a few days, an appointment with a travel health clinic will still be beneficial.