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# Guide to Immune Status Requirements for Visiting Elective Students

## Faculty of Medicine, University of Manitoba

The following document provides information on immunizations and tests that are required or recommended for students doing electives through the Faculty of Medicine at the University of Manitoba. Students who cannot be immunized due to allergies or family planning reasons must provide a physician's note, and speak to the Immune Status Program Coordinator.

Some students may have compromised immune systems due to the use of immune-suppressing medications, certain infections (e.g. human immunodeficiency virus [HIV] infection), or genetic disorders. Special immunization or serological testing requirements may be recommended for these students (different from that which is listed in this document); consultation with an infectious diseases expert is recommended in such situations.

For more information on immunizations or tuberculosis, please refer to the *Canadian Immunization Guide* and *Canadian Tuberculosis Standards* ([www.phac-aspc.gc.ca/publicat/cig-gci/index.html](http://www.phac-aspc.gc.ca/publicat/cig-gci/index.html) and [www.phac-aspc.gc.ca/tbpc-latb/pubs/pdf/tbstand07\\_e.pdf](http://www.phac-aspc.gc.ca/tbpc-latb/pubs/pdf/tbstand07_e.pdf)). For questions relating to these policies, please contact Dr. William Libich, Immune Status Coordinator, [libich@cc.umanitoba.ca](mailto:libich@cc.umanitoba.ca).

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### 1. Tetanus, diphtheria, and pertussis

**Tetanus and diphtheria primary series:** All students are expected to indicate that a primary immunization series for both diphtheria and tetanus has been given (usually completed in childhood); students are not required to submit specific dates for this. Students who have not had a primary series must complete a primary adult immunization series, as outlined in the *Canadian Immunization Guide*.

**Tetanus and diphtheria booster:** All students are required to provide the date of a tetanus and diphtheria booster within the previous 10 years; this can be given either as tetanus/diphtheria (Td), or as tetanus/diphtheria/acellular pertussis (Tdap; see below).

**Pertussis vaccination:** A single dose of acellular pertussis vaccine currently is recommended for all adolescents and adults in Canada. This is given combined as tetanus/diphtheria/acellular pertussis (Tdap). Pertussis vaccination of students is recommended but not required by the Immune Status Program.

### 2. Polio

**Primary series:** All students are expected to indicate that a primary immunization series for polio has been given (usually completed in childhood), although students are not required to submit specific dates for this. Students who have not had a primary series must complete a primary adult immunization series, as outlined in the *Canadian Immunization Guide*.

**Polio booster:** All students are required to provide the date of the last dose of polio. A repeat polio booster is not required for students who have received a complete primary series, unless work is expected in a high-risk area (e.g. a refugee camp).

### 3. Measles

A history of disease alone is not sufficient evidence of immunity to measles unless accompanied by laboratory confirmation. One of the following three items is required for evidence of immunity:

- Students born before 1970 may be considered immune, OR
- Documented evidence of vaccination with two doses of measles-containing vaccine, given at least a month apart, starting on or after the first birthday, OR
- Documentation of positive measles serology

### 4. Mumps

A history of disease alone is not sufficient evidence of immunity to mumps unless accompanied by laboratory confirmation. One of the following three items is required for evidence of immunity:

- Students born before 1970 with one dose of mumps-containing vaccine, OR
- Documented evidence of vaccination with two doses of mumps-containing vaccine, given at least a month apart, starting on or after the first birthday, OR
- Documentation of positive mumps serology

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Suggested approaches to specific clinical scenarios involving measles and/or mumps:

**Only one dose of measles and/or mumps vaccine is documented after the first birthday (birth after 1970):** Serology can be drawn to check for immunity. Alternatively, without checking serology, another dose of measles and/or mumps vaccine, given as MMR, can be administered at least one month after the first. **In general, vaccination is preferred over serological testing.** It is not necessary to do serological testing after immunization requirements have been met.

**No measles and/or mumps vaccinations are documented after the first birthday (birth after 1970):** If a series was *likely* given in childhood, serology should be drawn. If this fails to show immunity, or if childhood vaccination was *unlikely* to have been given, two doses of vaccine, given as MMR, should be administered at least a month apart. It is not necessary to do serological testing after immunization requirements have been met.

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### 5. Rubella

A history of disease alone is not sufficient evidence of immunity to rubella unless accompanied by laboratory confirmation. One of the following two items is required for evidence of immunity:

- Documented evidence of vaccination with one dose of rubella-containing vaccine on or after the first birthday, OR
- Documentation of positive rubella serology

If serology is drawn and fails to show immunity to rubella, a single dose of rubella vaccine, given as MMR, should be administered. Serological testing after immunization is not necessary.

## 6. Varicella (chickenpox)

Students require one of the following:

- a. A clear history of disease (e.g. student or parent can accurately describe illness with chickenpox; or physician-diagnosed), OR
- b. Documentation of positive varicella serology; OR
- c. Documentation of varicella vaccine, given as two doses at least a month apart for adults.

Those with an uncertain or absent history of varicella disease should have serology drawn, as the majority of such individuals will have positive serology. Those with negative serology should be vaccinated as outlined above. Post-vaccination serology is not recommended, as the test may not be sensitive enough to detect antibodies produced as a result of vaccination.

## 7. Hepatitis B

Students must have documented immunity to hepatitis B virus (HBV), demonstrated as a protective level of antibody to hepatitis B surface antigen (anti-HBs  $\geq$  10 mIU/mL). For the majority of new healthcare students in Canada this will be achieved through a complete series of three hepatitis B immunizations, and post-vaccination serology being drawn 1-2 months after the final dose of the series. The following recommendations are made for various clinical scenarios:

**Students without a prior history of HBV vaccination:** pre-vaccination serology is not necessary, unless the student hails from a background with a high likelihood of previous hepatitis B infection. A three-dose series should be given, at **0, 1, and 6 months**, with at least 1 month between the first and second dose, 2 months between the second and third dose, and 4 months between the first and the third dose. The rapid-dosing schedule for hepatitis B is not required for students. Post-vaccination serology should be drawn 1-2 months after the final dose of the series.

**Students with a history of an incomplete HBV vaccination 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 vaccines are respected (see above). Post-vaccination serology should be drawn at 1-2 months after the final dose. Vaccines produced by different manufacturers can be used interchangeably, provided that the age-appropriate dosages are used.

**Students with a history of a complete HBV vaccination series:** Serology should be drawn for anti-HBs immediately, although it should be recognized that serology can be falsely negative if drawn > 6 months after the initial vaccination series was completed. If protective levels are shown (anti-HBs  $\geq$  10 mIU/mL), no further work-up is indicated. If anti-HBs levels are lower than this or absent, a single hepatitis B vaccination should be given immediately, and repeat serology drawn one month later. If anti-HBs levels are still not protective, the second and third dose of vaccine should be given at the appropriate times to complete the second series, with post-vaccination serology for anti-HBs drawn 1-2 months after the final dose.

**Students found to have chronic hepatitis B infection:** The presence of chronic hepatitis B infection (hepatitis B surface antigen positive [HBsAg+]) should be excluded if a second 3-dose hepatitis B vaccination series fails to produce protective levels of anti-HBs. Students with chronic hepatitis B infection must consult with the Immune Status Program Coordinator.

**Hepatitis A:** Hepatitis A vaccination is neither required nor recommended for the majority of healthcare workers prac-

ticating within Canada at this time. However, some students may wish to be vaccinated against hepatitis A at the same time as hepatitis B, using a combination hepatitis A and B vaccine.

## 8. Tuberculosis (TB)

The following information should be submitted on the immune status record:

**Tuberculin skin test (TST):** All students must submit documentation of a two-step TST (7-28 days apart), and at least one TST done upon admittance to medicine in their home province, unless such testing is contraindicated. For some students a two-step TST was done when they entered medicine; for others, a two-step was done prior to entering medicine, and a single TST was done at the time of admittance to medicine; both situations are acceptable. A repeat two-step is generally not indicated, unless a significant period of time has elapsed without ANY intercurrent testing occurring (i.e. 10 or more years).

**Annual tuberculin skin testing:** Annual TSTs are NOT required for students, unless one of the following situations has occurred:

- The student is named as a contact to TB while performing clinical duties (follow-up, if required, is typically arranged by the occupational health department in the facility where the exposure occurred)
- The student has likely been a contact to TB in a high-risk setting (e.g. unprotected exposure on a TB ward in a TB-endemic country)

For most situations involving healthcare workers, a TST of **10 mm or greater** is considered significant, although the tester should be aware of situations where a TST result <10 mm may be considered significant. All TSTs must be performed and read 48-72 hours after administration by a healthcare worker; self-reading of TSTs is not acceptable. Results must be recorded as millimetres of induration (not "positive" or "negative").

**Interferon gamma release assay (IGRA):** IGRA results will be accepted in lieu of a TST; such testing is not yet universally available.

**Chest x-rays to screen for tuberculosis:** Routine chest x-rays are NOT required for students. A chest x-ray report is only required in the following situations:

- A student has a newly-discovered significant TST
- A previously-documented TST was significant, and a chest x-ray was not done at the time, or the report is unavailable (if the report is available, submit this report, and a repeat chest x-ray is not required)
- There is a suspicion of active tuberculosis disease (involvement of a TB expert is recommended)

**Students with a documented significant TST; positive IGRA; previous diagnosis of latent TB infection (LTBI) or active TB disease:** Students must submit details of all follow-up measures taken.

## 9. Influenza

Annual influenza immunization is recommended but not required of students. Students applying for an elective during influenza season (November to May) who do not submit documentation of an up-to-date influenza vaccination are required to fill out and submit the form *Refusal of Influenza Vaccination* (available online). If an elective application is submitted before vaccine is available, documentation must be submitted prior to the student's arrival for the elective.