

## Immunization Recommended for Health Care Students and Students in Other High-Risk Occupational Programs

Disease	Vaccine(s)	Acronym	Indication	Recommended Doses
Tetanus Diphtheria	Td Adsorbed	Td	All health care students and students in other high-risk occupational programs.	<p>If <b>no documented history</b> of primary series:</p> <ul style="list-style-type: none"> <li>Complete a primary series of 3 doses [day 0, 4 to 8 weeks (28 to 56 days), 6 to 12 months after second dose]</li> </ul> <p><b>Note:</b> A single dose of dTap should be given to adults as part of a primary series of tetanus/diphtheria-containing vaccine. Any remaining doses in the primary series should be given using Td vaccine ensuring the appropriate spacing.</p> <p>If <b>documentation</b> of primary series:</p> <ul style="list-style-type: none"> <li>Reinforcing dose of tetanus/diphtheria vaccine every 10 years.</li> </ul> <p><b>Note:</b> A single dose of dTap as an adult is recommended as one of the reinforcing doses if not already received.</p>
Pertussis <sup>1</sup>	Adacel® <sup>1</sup> Boostrix® <sup>1</sup>	dTap <sup>1</sup>	<p>All health care students:</p> <ul style="list-style-type: none"> <li>Priority to students who may in the course of their work related activities <b>provide care</b> to children younger than 12 months of age AND who have not previously received an adult dose of an acellular pertussis containing vaccine.</li> </ul> <p><b>Note: Providing care</b> is defined as having face-to-face contact and/or having shared confined air with children younger than 12 months of age for more than 1 hour at a time.<sup>2</sup></p>	<p>If <b>no documented history</b> of a dose of acellular pertussis vaccine as an adult:</p> <ul style="list-style-type: none"> <li>1 dose of dTap regardless of the interval since the last dose of Td</li> </ul> <p>Reinforcing doses are not routinely required.</p>

<sup>1</sup> Pertussis – provided as combined diphtheria, tetanus, acellular pertussis vaccine

<sup>2</sup> Based on Alberta Health Public Health Notifiable Disease Management Guidelines, Pertussis 2011

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Measles	MMR®II <sup>3</sup> Priorix® <sup>3</sup>	MMR <sup>3</sup>	<p>All post-secondary <b>health care students</b> without documentation of 2 valid doses of measles-containing vaccine or without documented laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive)<sup>4</sup>.</p> <p>All other post secondary students:</p> <ul style="list-style-type: none"> <li>• <b>born in 1970 or later</b> without documentation of 2 valid doses of measles-containing vaccine or without documented laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive)</li> <li>• <b>born prior to 1970</b> 1 valid dose of measles-containing vaccine or without documented laboratory confirmed measles disease or serological evidence of immunity (measles IgG positive)</li> </ul>	<p>All post-secondary <b>health care students</b></p> <ul style="list-style-type: none"> <li>• 2 doses of measles-containing vaccine after 12 months of age <ul style="list-style-type: none"> <li>○ Follow recommended minimum intervals for the specific vaccine.</li> </ul> </li> </ul> <p>All other post secondary students born in 1970 or later:</p> <ul style="list-style-type: none"> <li>• 2 doses of measles-containing vaccine after 12 months of age</li> </ul> <p>All other post secondary students born prior to 1970:</p> <ul style="list-style-type: none"> <li>• 1 dose of measles-containing vaccine after 12 months of age</li> </ul>
Mumps	MMR®II <sup>3</sup> Priorix® <sup>3</sup>	MMR <sup>3</sup>	<p>All post-secondary <b>health care students</b> without documentation of 2 valid doses of mumps-containing vaccine or without documented laboratory confirmed mumps disease<sup>4</sup>.</p> <p>All other post secondary students:</p> <ul style="list-style-type: none"> <li>• <b>born in 1970 or later</b> without documentation of 2 valid doses of mumps-containing vaccine or without documented laboratory confirmed mumps disease<sup>4</sup>. (Mumps IgG serology is not an acceptable indicator of immunity).</li> <li>• <b>born prior to 1970</b> 1 valid dose of mumps-containing vaccine or without documented laboratory</li> </ul>	<p>All post-secondary <b>health care students</b></p> <ul style="list-style-type: none"> <li>• 2 doses of mumps-containing vaccine after 12 months of age <ul style="list-style-type: none"> <li>○ Follow recommended minimum intervals for the specific vaccine.</li> </ul> </li> </ul> <p>All other post secondary students <b>born in 1970 or later</b>:</p> <ul style="list-style-type: none"> <li>• 2 doses of mumps-containing vaccine after 12 months of age</li> </ul> <p>All other post secondary students <b>born prior to 1970</b>:</p> <ul style="list-style-type: none"> <li>• 1 dose of mumps-containing vaccine after 12 months of age</li> </ul>

<sup>3</sup> MMR - provided as combined measles, mumps rubella vaccine

<sup>4</sup> In general, serological testing to determine immunity to measles, mumps or rubella is not necessary or recommended and should not routinely be done for those who lack documentation of previous immunization

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			confirmed mumps disease <sup>4</sup> (Mumps IgG serology is not an acceptable indicator of immunity).	
Rubella	MMR®II <sup>3</sup> Priorix® <sup>3</sup>	MMR <sup>3</sup>	Legislated under the Alberta Public Health Act, Communicable Diseases Regulation: <ul style="list-style-type: none"> <li>Students without documentation of at least one dose of rubella-containing vaccine or serological evidence of immunity (rubella IgG positive) who may have face to face contact with patients in health care facilities.<sup>4</sup></li> </ul>	1 dose of rubella-containing vaccine after 12 months of age.
Hepatitis B	Engerix®-B Recombivax HB®	HBV	Eligibility for hepatitis B vaccine for health care students should be based on an assessment of the students reasonably anticipated risk of: <ul style="list-style-type: none"> <li>Exposure to blood/bloody body fluids or sharps in the course of their work <b>and</b></li> <li>Transmission of hepatitis B infection to individuals when performing procedures that expose the individual to blood/bloody body fluids</li> </ul> <p><b>See:</b> Hepatitis B Risk Assessment.</p> <p><b>Pre-immunization serology:</b> Pre-immunization serology for previous hepatitis B infection is <b>not indicated for all health care students</b>; it is indicated for the following <b>high-risk populations with a high probability of past infection</b> regardless of their immunization status: <ul style="list-style-type: none"> <li>Health care students from a hepatitis B endemic country</li> <li>Health care students who have received repeated blood transfusions or blood product</li> <li>Health care students who have a history of dialysis</li> <li>Health care students who indicate lifestyle risks for infection</li> </ul> </p>	Primary series standard schedule is: <ul style="list-style-type: none"> <li>3 doses spaced at 0, 1 and 6 months. The minimum acceptable intervals are 0, 1, and 4 months with: <ul style="list-style-type: none"> <li>1 month (28 days) between the first and second dose, <b>and</b></li> <li>At least 2 months (56 days) between the second and third dose, <b>and</b></li> <li>At least 4 months between the first and third dose.</li> </ul> </li> </ul> <p>An alternative adolescent schedule of 2 doses of 1.0 mL administered on day 0 and 6 months later is also acceptable.</p> <p>Students who have received combined hepatitis A and B vaccine or hepatitis B vaccine using an accelerated schedule should be assessed using the minimum intervals outlined in the specific product monograph.</p>

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			<p>Pre-immunization serology is also recommended for HCWs who:</p> <ul style="list-style-type: none"> <li>• have documentation of a complete HBV immunization series</li> <li>• report a history of HBV immunization series but have no or incomplete documentation</li> </ul> <p><b>Post-immunization serology:</b> All health care students who qualify for hepatitis B immunization:</p> <ul style="list-style-type: none"> <li>• 1 to 6 months after completion of series</li> <li>• If post immunization serology was not done within the recommended interval following immunization it should be done at time of assessment</li> <li>• Once a positive antibody result is recorded no further serology required</li> </ul> <p><b>Note:</b> <i>The following are serological markers of laboratory evidence of immunity or disease:</i></p> <ul style="list-style-type: none"> <li>• <i>Positive anti-HBs, or</i></li> <li>• <i>Positive anti-HBc and/or</i></li> <li>• <i>HBsAg positive/reactive</i></li> </ul> <p>Refer to the following link for more detailed information on interpretation of hepatitis B serological tests.  <a href="http://www.health.alberta.ca/documents/Guidelines-Hepatitis-B-Acute-Case-2011.pdf">http://www.health.alberta.ca/documents/Guidelines-Hepatitis-B-Acute-Case-2011.pdf</a></p> <p><b>See:</b> Hepatitis B Endemic Countries List.</p> <p><b>See:</b> Hepatitis B Vaccine Recommendations Algorithm for Individuals Not at Risk of Past Infection.</p> <p><b>See:</b> Hepatitis B Vaccine Recommendations Algorithm for Individuals at High-Risk of Past Infection.</p>	

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Varicella	Varilrix™ Varivax® III	Vz	<p>Students with none of the following:</p> <ul style="list-style-type: none"> <li>• Documented history of valid age-appropriate varicella vaccine, or</li> <li>• Laboratory evidence of immunity, or</li> <li>• STRONG history of past infection at 12 months of age or greater as evidenced by: <ul style="list-style-type: none"> <li>○ Visible scars</li> <li>○ Strong recollection of disease</li> <li>○ Student's children had disease and they did not get it, or</li> </ul> </li> <li>• History of herpes zoster (shingles)</li> </ul> <p><b>Note:</b> <i>If there is any question or doubt of past history of disease, recommend varicella IgG serology to determine immunity.</i></p>	<p>For students 13 years of age and older with negative or uncertain history of prior varicella infection:</p> <ul style="list-style-type: none"> <li>• Varicella IgG serology is required prior to administering vaccine.</li> </ul> <p>For students with negative or indeterminate varicella IgG, provide 2 doses of varicella vaccine with a minimum interval of 3 months between doses.</p>
Influenza	<b>Note:</b> <i>Annual influenza vaccine(s) may vary from year to year as determined and provided by AH</i>	FLU	All students.	1 dose annually.
Polio	Imovax® Polio	IPV OPV <sup>5</sup>	Due to the low risk of exposure to polio in Alberta and Canada for post-secondary student placements, post-secondary institutions are not expected to assess healthcare students for polio immunization. Once these students enter the workforce they will be assessed by Workplace Health and Safety staff for polio risk based on exposure at the clinical site where they will be employed and offered appropriate vaccine at that time.	
Meningococcal B	Bexsero®	Men-B	Research, industrial and clinical laboratory personnel routinely exposed to <i>N. meningitidis</i> . Includes those workers only involved in conducting subculture identification, susceptibility testing, serological and /or molecular characterization and deep freeze for storage. Laboratory workers who do only initial specimen plants are not eligible.	<p>Eligible laboratory workers:</p> <ul style="list-style-type: none"> <li>• 2 doses with minimum 1 month between doses</li> </ul> <p>The need for a reinforcing dose has not been established</p>

<sup>5</sup> OPV – oral polio vaccine (Sabin®) no longer available in Canada

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Meningococcal ( <i>Neisseria meningitidis</i> )	Menactra™ Menveo™	MenC-ACYW	Health care students (i.e., laboratory students) who are routinely exposed to <i>Neisseria meningitidis</i> through subculture identification, susceptibility testing, serological and or molecular characterization. <ul style="list-style-type: none"> <li>Meningococcal conjugate quadrivalent A, C, Y, W135 vaccine to be provided to eligible health care students who received a dose of meningococcal polysaccharide quadrivalent A, C, Y, W135 in the past and it has been 5 years since this dose.</li> </ul>	All eligible students: <ul style="list-style-type: none"> <li>1 dose of meningococcal conjugate quadrivalent A, C, Y, W135 vaccine.</li> </ul> <p>Though there is no data currently on the use of meningococcal conjugate quadrivalent vaccine in individuals 56 years of age and older; AH recommends this vaccine be used off license with the expectation of similar increased immune response and local reaction rates compared to meningococcal polysaccharide vaccine.</p>
Typhoid ( <i>Salmonella Typhi</i> )	Typherix™ Typhim Vi®	TYVI	Health care students (i.e., laboratory students) who regularly manipulate <i>Salmonella Typhi</i> .	Eligible health care students: <ul style="list-style-type: none"> <li>1 primary dose.</li> <li>Reinforcing dose every 2 to 3 years for students at ongoing risk.</li> </ul>
Tuberculosis ( <i>Mycobacterium tuberculosis</i> )	Tubersol®	PPD	The purpose of baseline tuberculin skin test (TST) for health care students on enrolment is to establish baseline <sup>6</sup> <i>Mycobacterium tuberculosis</i> (TB) infection status in those individuals at risk for potential occupational exposure to an infectious case. The TST is recommended for health care students on enrolment (except those with a history of active TB disease or a history of a prior positive TST) as follows: <ul style="list-style-type: none"> <li>Those with undocumented<sup>7</sup> prior TST results</li> <li>Those with documentation of prior negative TST unless there has been a baseline TST <b>within the past year</b> (with no history of known exposure)</li> </ul>	Single baseline TST, unless there is a history of active TB disease or documentation of a previous positive TST <sup>8</sup> . <ul style="list-style-type: none"> <li>The TST must be read 48-72 hours later by a qualified provider, not self-read<sup>9</sup>.</li> </ul> <p>A baseline 2-step TST is only indicated for any health care students in special circumstances (see <b>Tuberculin biological page, Scheduling Section and Health Care Workers</b> for specific criteria).</p>

<sup>6</sup> Health care students who may be working in health care facilities either during their training or on completion of their program should receive a baseline TST. Students in dental programs would not be included routinely as an eligible group for baseline TST unless they are working with high-risk individuals or in high-risk settings.

<sup>7</sup> Individuals who give a history of blistering TST reaction should not receive a TST. Individuals with history of undocumented positive TST reaction (other than blistering) can receive a TST; if these individuals decline the baseline TST they do require a baseline chest X-ray within the past 6 months through their family physician.

<sup>8</sup> Students with a history of active TB or positive TST should have a chest X-ray through their family physician.

<sup>9</sup> Self-reading of TST is not an acceptable practice, and should not be allowed under **any** circumstances.

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			<ul style="list-style-type: none"> <li>Those without history of prior TST (i.e., do not recall having received a TST before)</li> </ul> <p><b>See Tuberculin biological page, Scheduling Section and Health Care Workers</b> for specific criteria.</p>	
Rabies	Imovax®Rabies RabAvert®	RAB	Students in programs related to animal health (including research), equine science and wildlife	<p>If no history of a primary series:</p> <ul style="list-style-type: none"> <li>Complete a pre-exposure intradermal<sup>10</sup> (ID) series of 3 doses spaced at day 0, day 7, day 21 or 28</li> </ul> <p>Post-immunization:</p> <ul style="list-style-type: none"> <li>Rabies antibody titre determination is recommended 2 weeks after the third dose to ensure an acceptable level of protection has been achieved.</li> <li>Rabies antibody titre determination is recommended every 2 years to determine immunity for students at continued risk of rabies exposure;</li> <li>Rabies antibody titre determination is recommended every 6 months to determine immunity for student research lab workers working with live rabies virus at risk of inapparent exposure.</li> </ul> <p><b>Reinforcing dose:</b> Rabies antibody titre determination should be done first and a reinforcing dose given only if level is below that recommended for protection.</p> <p>Post-exposure prophylaxis: Consult public health for specific information.</p>

<sup>10</sup> The ID route should not be used for students who are immune compromised, taking steroids or on chloroquine.