

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

Disease	Vaccine(s)	Acronym	Indication	Recommended Doses
Tetanus Diphtheria Pertussis	Adacel® Boostrix®	dTap	All health care students and students in other high-risk occupational programs.	<p>If no documented history of primary series:</p> <ul style="list-style-type: none"> • Complete a primary series of 3 doses [day 0, 4 to 8 weeks (28 to 56 days) after first dose, 6 to 12 months after second dose]. <p>If documentation of primary series:</p> <ul style="list-style-type: none"> • Reinforcing dose of tetanus/diphtheria/pertussis vaccine every 10 years. If no documented history of a dose of acellular pertussis vaccine as an adult: <ul style="list-style-type: none"> ○ 1 dose of dTap regardless of the interval since the last dose of tetanus containing vaccine.
Measles	MMR®II ¹ Priorix® ¹	MMR	<p>All post-secondary health care students 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)².</p> <p>All other post secondary students:</p> <ul style="list-style-type: none"> • born in 1970 or later 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). • born prior to 1970 without documentation of 1 valid dose of measles-containing vaccine or without documented laboratory confirmed measles disease or serological 	<p>All post-secondary health care students</p> <ul style="list-style-type: none"> • 2 doses of measles-containing vaccine after 12 months of age <ul style="list-style-type: none"> ○ Follow recommended minimum intervals for the specific vaccine. <p>All other post secondary students born in 1970 or later:</p> <ul style="list-style-type: none"> • 2 doses of measles-containing vaccine after 12 months of age <p>All other post secondary students born prior to 1970:</p> <ul style="list-style-type: none"> • 1 dose of measles-containing vaccine after 12 months of age

¹ MMR - provided as combined measles, mumps rubella vaccine

² 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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			evidence of immunity (measles IgG positive).	
Mumps	MMR®II ¹ Priorix® ¹	MMR	<p>All post-secondary health care students without documentation of 2 valid doses of mumps-containing vaccine or without documented laboratory confirmed mumps disease².</p> <p>All other post secondary students:</p> <ul style="list-style-type: none"> • born in 1970 or later without documentation of 2 valid doses of mumps-containing vaccine or without documented laboratory confirmed mumps disease⁴. (Mumps IgG serology is not an acceptable indicator of immunity). • born prior to 1970 without documentation of 1 valid dose of mumps-containing vaccine or without documented laboratory confirmed mumps disease² (Mumps IgG serology is not an acceptable indicator of immunity). 	<p>All post-secondary health care students</p> <ul style="list-style-type: none"> • 2 doses of mumps-containing vaccine after 12 months of age <ul style="list-style-type: none"> ○ Follow recommended minimum intervals for the specific vaccine <p>All other post secondary students born in 1970 or later:</p> <ul style="list-style-type: none"> • 2 doses of mumps-containing vaccine after 12 months of age <p>All other post secondary students born prior to 1970:</p> <ul style="list-style-type: none"> • 1 dose of mumps-containing vaccine after 12 months of age
Rubella	MMR®II ¹ Priorix® ¹	MMR	<p>Legislated under the Alberta Public Health Act, Communicable Diseases Regulation:</p> <ul style="list-style-type: none"> • 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.² 	1 dose of rubella-containing vaccine after 12 months of age.
Hepatitis B	Engerix®-B Recombivax HB®	HBV	<p>Eligibility for hepatitis B vaccine for health care students should be based on an assessment of the students reasonably anticipated risk of:</p> <ul style="list-style-type: none"> • Exposure to blood/bloody body fluids or sharps in the course of their work <p>and</p> <ul style="list-style-type: none"> • Transmission of hepatitis B infection to individuals when performing procedures that expose the individual to blood/bloody body fluids. 	<p>Primary series standard schedule is:</p> <ul style="list-style-type: none"> • 3 doses spaced at 0, 1 and 6 months. <p>For individuals delayed for second dose of vaccine, third dose should routinely be offered 5 months after second dose. For individuals at high risk of hepatitis B infection, minimal intervals may be considered.</p> <p>An alternative adolescent schedule of 2 doses of 1.0 mL administered on day 0 and 6</p>

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			<p>See: Hepatitis B Risk Assessment.</p> <p>Pre-immunization serology: Pre-immunization serology for previous hepatitis B infection is not indicated for all health care students; serology (including anti-HBs, HbsAg and anti-HBc total) is indicated for the following high-risk populations with a high probability of past infection regardless of their immunization status:</p> <ul style="list-style-type: none"> • Health care students who have emigrated from a country where hepatitis B is endemic. • Health care students with lifestyle risks for infection. • Health care students who are a spouse, sexual or needle sharing partner of a hepatitis B case or chronic carrier. • Health care students who are a household contact of a hepatitis B case or chronic carrier. <p>Post-immunization serology: All health care students who qualify for hepatitis B immunization:</p> <ul style="list-style-type: none"> • 1 to 6 months after completion of series. • If post immunization serology was not done within the recommended interval following immunization it should be done at time of assessment. • Once a positive antibody result is recorded no further serology required. <p>Note: <i>The following are serological markers of laboratory evidence of immunity or disease:</i></p> <ul style="list-style-type: none"> • <i>Positive anti-HBs, or</i> • <i>Positive anti-HBc and/or</i> • <i>HBsAg positive/reactive</i> <p>Refer to the following link for more detailed information on interpretation of hepatitis B serological tests. https://open.alberta.ca/publication/s/hepatitis-b-acute-and-chronic</p>	<p>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> <p>Students who have lab confirmation of positive anti-HBs but without documentation of a complete hepatitis B vaccine series should be offered hepatitis B vaccine to complete the series to ensure long term immunity. Once a positive antibody result is documented no further serology is recommended.</p>

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			<p>See: Hepatitis B Virus Infection – High Endemic Geographic Areas.</p> <p>See: Hepatitis B Vaccine Recommendations Algorithm for Individuals Not at Risk of Past Infection.</p> <p>See: Hepatitis B Vaccine Recommendations Algorithm for Individuals at High-Risk of Past Infection.</p> <p>See: Occupational Considerations for Immunization</p>	
Varicella	Varilrix™ Varivax® III	Vz	<p>Students with none of the following:</p> <ul style="list-style-type: none"> • Documented history of 2 valid doses of varicella-containing vaccine; or • Laboratory evidence of immunity; or • Physician diagnosed shingles disease; or • Self-reported history or physician diagnosed varicella disease in Canada prior to a routine immunization program: <ul style="list-style-type: none"> ○ In Alberta, prior to January 2001. ○ For start dates of other Canadian jurisdictions see the NACI Varicella Proof of Immunity - 2015 Update 	<ul style="list-style-type: none"> • 2 doses of varicella vaccine with a minimum interval of 3 months between doses. • While Zostavax® vaccine is not indicated for and should not be used for prevention of varicella disease, it can be considered a valid first dose in a 2-dose varicella vaccine series. (Shingrix doses cannot be counted in a varicella vaccine series). • Individuals who received their first dose of varicella-containing vaccine and at any point subsequently developed laboratory confirmed vaccine modified varicella disease do not require a second dose of varicella-containing vaccine.
Influenza	Note: Annual influenza vaccine(s) may vary from year to year as determined and provided by AH	FLU	All students	1 dose annually
Polio	Imovax® Polio	IPV OPV ³	Due to the availability of and protocols for personal protective equipment, and the limited supply of vaccine, assessment of polio immunization (primary series and reinforcing doses) is not routinely recommended for individuals who work or study in environments with an increased risk of exposure to poliovirus compared to the general population. Post secondary institutions are not expected to assess health care students for polio immunization.	
Meningococcal B	Bexsero®	Men-B	Research, industrial and clinical laboratory personnel routinely exposed to <i>N. meningitidis</i> . Includes those workers only	<p>Eligible laboratory workers:</p> <ul style="list-style-type: none"> • 2 doses with minimum 1 month between doses.

³ OPV – oral polio vaccine (Sabin®) no longer available in Canada

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			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.	The need for a reinforcing dose has not been established.
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"> 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. 	All eligible students: <ul style="list-style-type: none"> 1 dose of meningococcal conjugate quadrivalent A, C, Y, W135 vaccine. <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"> 1 primary dose. Reinforcing dose every 2 to 3 years for students at ongoing risk.
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 ⁴ <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:	Single baseline TST, unless there is a history of active TB disease or documentation of a previous positive TST. ⁶ <ul style="list-style-type: none"> The TST must be read 48-72 hours later by a qualified provider, not self-read⁷. <p>A baseline 2-step TST is only indicated for any health care students in special circumstances (see Tuberculin biological page, Scheduling Section and Health Care Workers for specific criteria).</p>

⁴ 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.

⁶ Students with a history of active TB or positive TST should have a chest X-ray through their family physician.

⁷ 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"> • Those with undocumented⁵ prior TST results. • Those with documentation of prior negative TST unless there has been a baseline TST within the past year (with no history of known exposure). • Those without history of prior TST (i.e., do not recall having received a TST before). <p>See Tuberculin biological page, Scheduling Section and Health Care Workers 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"> • Complete a pre-exposure intradermal⁸ (ID) series of 3 doses spaced at day 0, day 7, day 21 or 28. <p>Post-immunization:</p> <ul style="list-style-type: none"> • Rabies antibody titre determination is recommended 2 weeks after the third dose to ensure an acceptable level of protection has been achieved. • Rabies antibody titre determination is recommended every 2 years to determine immunity for students at continued risk of rabies exposure. • 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. <p>Reinforcing dose: Rabies antibody titre determination should be done first and a reinforcing dose given only if</p>

⁵ 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.

⁸ The ID route should not be used for students who are immune compromised, taking steroids or on chloroquine.

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				<p>level is below that recommended for protection. Post-exposure prophylaxis: Consult public health for specific information.</p>