

<b>Section 7:</b>	<b>Biological Product Information</b>	<b>Standard #: 07.270</b>
<b>Created by:</b>	Province-wide Immunization Program Standards and Quality	
<b>Approved by:</b>	Province-wide Immunization Program Standards and Quality	
<b>Approval Date:</b>	August 1, 2012	<b>Revised:</b> January 1, 2021

	Priorix®	M-M-R® II
<b>Manufacturer</b>	GlaxoSmithKline Inc.	Merck Canada Inc.
<b>Biological Classification</b>	Live; attenuated	
<b>Indications for Provincially Funded Vaccine</b>	<p><b>Pre-exposure:</b></p> <ul style="list-style-type: none"> <li>• <b>Infants 6 months of age up to and including 11 months of age:</b> <ul style="list-style-type: none"> <li>○ Travelling to areas where measles is circulating (includes areas within Canada).</li> <li>○ Who are candidates for a solid organ transplant. See <i>Standard for Immunization of Transplant Candidates and Recipients</i>.</li> </ul> </li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>○ Infants who receive MMR vaccine prior to 12 months of age require two additional doses of MMR-containing vaccine on or after 12 months of age respecting recommended intervals.</li> <li>○ To assist with determining where measles is circulating refer to: <ul style="list-style-type: none"> <li>▪ The AHS Measles Immunization webpage - <a href="https://www.albertahealthservices.ca/info/Page16365.aspx">https://www.albertahealthservices.ca/info/Page16365.aspx</a></li> <li>▪ The Public Health Agency (PHAC) travel health notices - <a href="http://www.phac-aspc.gc.ca/tmp-pmv/notices-avis/index-eng.php">http://www.phac-aspc.gc.ca/tmp-pmv/notices-avis/index-eng.php</a></li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>• <b>All children 12 months of age up to and including 17 years of age:</b> <ul style="list-style-type: none"> <li>○ Children 12 months up to and including 12 years of age when varicella vaccine is not indicated. <ul style="list-style-type: none"> <li>▪ The combined MMR-Var vaccine is routinely given at 12 months of age and 18 months of age (see <i>MMR-Var Vaccine Biological Page</i>).</li> </ul> </li> <li>○ Children/adolescents 13 years up to and including 17 years of age who have not received 2 doses of measles, mumps and rubella containing vaccine.</li> </ul> </li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>○ A second dose of measles-containing vaccine given as MMR vaccine alone or MMR-Var can be given prior to 18 months of age using the recommended interval between doses for the following individuals: <ul style="list-style-type: none"> <li>▪ Those travelling to areas where measles is circulating (including to areas within Canada).</li> </ul> </li> <li>○ To assist with determining where measles is circulating refer to: <ul style="list-style-type: none"> <li>▪ The AHS Measles Immunization webpage - <a href="https://www.albertahealthservices.ca/info/Page16365.aspx">https://www.albertahealthservices.ca/info/Page16365.aspx</a></li> <li>▪ The Public Health Agency (PHAC) travel health notices - <a href="http://www.phac-aspc.gc.ca/tmp-pmv/notices-avis/index-eng.php">http://www.phac-aspc.gc.ca/tmp-pmv/notices-avis/index-eng.php</a></li> </ul> </li> </ul> <p><b>Scheduling Considerations:</b></p> <ul style="list-style-type: none"> <li>▪ If time allows, the second dose should be given on or after 15 months of age.</li> <li>▪ If MMR-Var is given, this dose would be considered adequate and count as the child's second dose of MMR and varicella vaccine.</li> <li>▪ If MMR vaccine is given the child would be offered varicella vaccine at their preschool immunization appointment.</li> </ul>	

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	<ul style="list-style-type: none"> <li>▪ The spacing of this dose of vaccine from previous doses of MMR and varicella vaccines must respect the minimum intervals outlined in the schedule section.</li> <li>• <b>Adults 18 years of age or older:</b> <ul style="list-style-type: none"> <li>○ Adults who are recipients of hematopoietic stem cell transplant (HSCT) should have their immunization schedules assessed and receive immunization as outlined in <i>Standard for Immunizing Clients Who Have Had or Will be Having a Transplant</i>.</li> <li>○ Adult candidates of solid organ transplant (SOT) should be immunized prior to transplant only if eligible based on the criteria for each antigen outlined below for all adults.</li> <li>○ <b>Measles</b> <ul style="list-style-type: none"> <li>▪ Individuals born in 1970 or later (regardless of country of birth) who do not have documented history of <b>2 valid doses</b> of measles-containing vaccine, history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive).</li> <li>▪ All healthcare workers regardless of their year of birth who do not have documented history of <b>2 valid doses</b> of measles-containing vaccine, history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive).</li> <li>▪ Post-secondary students born before 1970 who do not have documented history of <b>1 valid dose</b> of measles-containing vaccine, history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive).</li> <li>▪ Adults born before 1970 travelling to areas where measles is circulating in Canada and all countries outside of Canada who do not have documented history of <b>1 valid dose</b> of measles-containing vaccine, OR history of laboratory confirmed measles disease OR serological evidence of measles immunity (measles IgG positive).</li> </ul> </li> </ul> </li> <li><b>Note:</b> <ul style="list-style-type: none"> <li>• From a population perspective, individuals born before 1970 are generally presumed to have acquired natural immunity to measles. However, some of these individuals may be susceptible therefore it is recommended to assess and immunize post-secondary students, all healthcare workers and travelers (regardless of country of birth) according to the information outlined above.</li> </ul> </li> <li>○ <b>Mumps</b> <ul style="list-style-type: none"> <li>▪ Individuals born in 1970 or later (regardless of country of birth) who do not have documented history of <b>2 valid doses</b> of mumps-containing vaccine or history of laboratory confirmed mumps disease (Mumps IgG serology is not an acceptable indicator of immunity).</li> <li>▪ Healthcare workers regardless of date of birth who do not have documented history of <b>2 valid doses</b> of mumps-containing vaccine or history of laboratory confirmed mumps disease (Mumps IgG serology is not an acceptable indicator of immunity).</li> <li>▪ Post-secondary students: <ul style="list-style-type: none"> <li>• <b>Born in 1970 or later</b> who do not have documented history of <b>2 valid doses</b> of mumps-containing vaccine or history of laboratory confirmed mumps disease (Mumps IgG serology is not an acceptable indicator of immunity).</li> <li>• <b>Born prior to 1970</b> who do not have documented history of <b>1 valid dose</b> of mumps-containing vaccine or history of laboratory confirmed mumps disease (Mumps IgG serology is not an acceptable indicator of immunity).</li> </ul> </li> </ul> </li> </ul>	

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	<p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>▪ From a population perspective, individuals born before 1970 are generally presumed to have acquired natural immunity to mumps. However, some of these individuals may be susceptible; therefore it is recommended to assess and immunize post-secondary students and all healthcare workers (regardless of country of birth) according to the information outlined above.</li> </ul> <p>○ <b>Rubella</b></p> <ul style="list-style-type: none"> <li>▪ Individuals born in 1957 or later without a documented history of <b>1 dose</b> of rubella containing vaccine, history of laboratory-confirmed rubella or serological evidence of rubella immunity.</li> <li>▪ HCW (regardless of age) who have face-to-face contact with patients in health care facilities are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985.4.</li> <li>▪ Staff of daycare facilities (regardless of age) are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985.4.</li> <li>▪ Rubella immunization should be prioritized for the following susceptible individuals: <ul style="list-style-type: none"> <li>• Women of child-bearing age</li> <li>• Health care workers</li> <li>• Staff of daycare facilities</li> <li>• Candidates of solid organ transplant (SOT)</li> </ul> </li> <li>▪ A second dose of rubella vaccine should be offered to the following priority groups who have negative rubella serology: <ul style="list-style-type: none"> <li>• Women of child-bearing age</li> <li>• Health care workers who have face-to-face contact with patients in health care facilities are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985.4</li> <li>• Staff of daycare facilities are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985.4</li> </ul> </li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>▪ From a population perspective, adults born before 1957 are generally presumed to have immunity to rubella, however some of these individuals may be susceptible; therefore it is recommended to assess and immunize all healthcare workers and staff of daycare facilities (regardless of country of birth) according to the information outlined above.</li> <li>▪ Individuals with 2 documented doses of a rubella-containing vaccine or previous serological evidence of rubella immunity (rubella IgG positive) do not require further doses regardless of subsequent negative rubella serology.</li> </ul> <p><b>Post-exposure:</b></p> <ul style="list-style-type: none"> <li>• <b>Measles</b> <ul style="list-style-type: none"> <li>○ Susceptible eligible contacts of a measles case should receive either MMR or immune globulin depending upon the time-lapse from exposure, age and health status. <ul style="list-style-type: none"> <li>▪ Susceptible contacts 12 months of age and older should receive measles-containing vaccine unless vaccine is contraindicated. The vaccine should be administered within 72 hours of exposure and should not be delayed pending serology results.</li> <li>▪ Children younger than 18 months of age who have received one dose of measles containing vaccine (considered up to date) should receive a second</li> </ul> </li> </ul> </li> </ul>	

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	<p>dose of measles containing vaccine ensuring the recommended interval spacing between the vaccine doses.</p> <ul style="list-style-type: none"> <li>▪ If measles-containing vaccine is contraindicated or if more than 72 hours since exposure have elapsed, Immune Globulin (Ig) may be indicated. See <i>Immune Globulin Biological Page #07.250</i>.</li> <li>▪ If measles-containing vaccine is administered more than 72 hours after exposure, it may not provide protection against the current exposure but would offer protection against subsequent exposures.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>▪ As an outbreak control strategy during a measles outbreak, the Medical Officer of Health may recommend MMR vaccine for children 6-11 months of age inclusive.</li> </ul> <ul style="list-style-type: none"> <li>• <b>Mumps</b> <ul style="list-style-type: none"> <li>○ Susceptible eligible contacts should be immunized (this is not likely to prevent or alter severity of mumps from current exposure; however if current exposure to mumps does not cause infection, this dose should induce protection against subsequent infection).</li> </ul> </li> <li>• <b>Rubella</b> <ul style="list-style-type: none"> <li>○ Susceptible eligible contacts may be immunized (this is not likely to prevent or alter rubella from current exposure; however if current exposure to rubella does not cause infection, this dose should induce protection against subsequent infection).</li> </ul> </li> </ul> <p>For further guidelines related to post-exposure follow-up refer to the following (<a href="https://www.alberta.ca/notifiable-disease-guidelines.aspx?utm_source=redirector">https://www.alberta.ca/notifiable-disease-guidelines.aspx?utm_source=redirector</a>):</p> <ul style="list-style-type: none"> <li>• Public Health Notifiable Disease Management Guidelines – Measles</li> <li>• Public Health Notifiable Disease Management Guidelines – Mumps</li> <li>• Public Health Notifiable Disease Management Guidelines – Rubella</li> </ul>	
<b>Specific Travel Indications and Recommendations</b>	<p>Individuals travelling to areas where measles is circulating in Canada and all countries outside of Canada.</p> <p><b>Infants:</b> 6 months up to and including 11 months of age</p> <ul style="list-style-type: none"> <li>• One dose of MMR vaccine. <ul style="list-style-type: none"> <li>○ Note: Two additional doses of measles-containing vaccine should be administered as per routine schedule at 12 months of age and older respecting recommended intervals.</li> </ul> </li> </ul> <p><b>Children:</b> 12 months up to and including 17 years of age</p> <ul style="list-style-type: none"> <li>• Dose 1: Day 0</li> <li>• Dose 2: four weeks after dose 1 <ul style="list-style-type: none"> <li>○ Note: When both MMR vaccine and varicella vaccine are indicated for children 12 months up to and including 12 years of age, MMR-Varicella combined vaccine should be considered.</li> </ul> </li> </ul> <p><b>Adults</b> (18 years of age and older)</p> <ul style="list-style-type: none"> <li>• <b>Adults born in 1970 or later</b> <ul style="list-style-type: none"> <li>○ Two life-time doses with at least four weeks between doses.</li> </ul> </li> <li>• <b>Adults born prior to 1970</b> <ul style="list-style-type: none"> <li>○ Adults born prior to 1970 without a documented history of measles-containing vaccine, history of laboratory-confirmed measles disease or laboratory evidence of measles immunity should receive one dose of measles-containing vaccine.</li> </ul> </li> </ul>	
<b>Serology</b>	<p><b>Measles pre-immunization serology (measles IgG):</b></p> <ul style="list-style-type: none"> <li>• Not routinely indicated. If previously drawn, positive measles IgG serology results or laboratory confirmed measles disease can be accepted as immunity to measles disease.</li> </ul>	

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	<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>▪ Measles IgG serology results may be used in other specific situations to determine immunity to measles. Refer to supporting Standards as indicated: <i>Immunization of Health Care Workers, Immunization of Post-Secondary Health Care Students and other Students in High-Risk Occupational Programs and Immunization of Transplant Candidates and Recipients.</i></li> </ul> <p><b>Measles post-immunization serology (measles IgG):</b></p> <ul style="list-style-type: none"> <li>• Not routinely indicated.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>▪ Sometimes measles IgM serology (alone or in addition to measles IgG serology) is inadvertently drawn when an individual present to their family physician with an expected reaction (measles-like rash) following immunization with measles containing vaccine. Although measles IgM can indicate evidence of acute disease it can also be present following recent immunization. Assessment of positive measles IgM results should include checking for recent immunization with measles containing vaccine. In the event of a recent positive measles IgM serology result immediately follow-up with Zone Notifiable Disease program for further advice and direction.</li> </ul> <p><b>Mumps pre-immunization serology (mumps IgG):</b></p> <ul style="list-style-type: none"> <li>• Not routinely indicated.</li> </ul> <p><b>Mumps post-immunization serology (mumps IgG):</b></p> <ul style="list-style-type: none"> <li>• Not routinely indicated.</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>▪ In Alberta mumps IgG is not accepted as evidence of immunity to mumps disease. It should be noted that in other jurisdictions a positive mumps IgG results may be accepted as evidence of immunity. If an individual has other historical laboratory evidence of past mumps disease (such as isolation of mumps virus from nasopharyngeal swabs, saliva, urine or cerebral spinal fluid) then these tests can be taken as confirmation of mumps disease.</li> <li>▪ When performing a medical record review it should be noted that mumps IgM serology has the potential for false positive findings therefore for the purposes of immunization decisions; historical evidence of positive mumps IgM is not an acceptable indication of immunity.<sup>12</sup></li> </ul> <p><b>Rubella pre-immunization serology (rubella IgG):</b></p> <ul style="list-style-type: none"> <li>• Not routinely indicated. If previously drawn, a history of documented positive rubella IgG serology can be accepted as immunity to rubella disease.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>▪ Rubella IgG serology results may be used in other specific situations to determine immunity to rubella. Refer to <i>Alberta Prenatal Screening Program of Selected Communicable Disease Public Health Guidelines</i> <a href="https://open.alberta.ca/publications/alberta-prenatal-screening-program-for-select-communicable-diseases">https://open.alberta.ca/publications/alberta-prenatal-screening-program-for-select-communicable-diseases</a> in addition to supporting Standards as indicated: <i>Immunization of Health Care Workers, Immunization of Post-Secondary Health Care Students and other Students in High-Risk Occupational Programs and Immunization of Transplant Candidates and Recipients.</i></li> </ul> <p><b>Rubella post-immunization serology (rubella IgG):</b></p> <ul style="list-style-type: none"> <li>• Not routinely recommended.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>▪ If an individual has a positive rubella IgG, or a history of age-appropriate rubella immunization no further serological testing is indicated. If rubella IgG testing has inadvertently been done and results are negative after documented history of 2 age-appropriate rubella containing vaccine doses, the individual should not be offered vaccine.</li> </ul>	

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Schedule	<ul style="list-style-type: none"> <li> <b>Infants 6 months of age up to and including 11 months of age:</b> <ul style="list-style-type: none"> <li>Single dose prior to 12 months of age only when required because of increased risk of exposure.</li> </ul> </li> </ul>																									
	<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>Any dose given prior to 12 months of age must be repeated due to the possibility of interference with vaccine virus replication due to maternal antibodies circulating in the child; therefore, the routine 2 dose series must be restarted on or after the first birthday as outlined in the schedule below.</li> <li>Children who are candidates of a solid organ transplant, see <i>Standard for Immunization of Transplant Candidates and Recipients</i>.</li> </ul>																									
	<ul style="list-style-type: none"> <li> <b>Children 12 months up to and including 17 years of age (2 doses):</b> <ul style="list-style-type: none"> <li>Dose 1 – 12 months of age (routinely given as MMR-Var)</li> <li>Dose 2 – 18 months of age (routinely given as MMR-Var), respecting minimum intervals.</li> </ul> </li> </ul>																									
	<p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>Children who have presented for their 18 month immunization prior to January 1, 2021 will be offered their second dose of measles-containing vaccine when they present for the preschool booster.</li> <li>If the first dose is administered at 18 months of age or older the second dose may be administered using minimum interval of four weeks between the doses if child is off schedule or rapid protection is required.</li> <li>A second dose of measles-containing vaccine given as MMR vaccine alone or MMR-Var can be given prior to 18 months of age using the recommended interval between doses for the following individuals: <ul style="list-style-type: none"> <li>Those travelling to areas where measles is circulating (including Canada)</li> </ul> </li> <li>For children 12 months up to and including 12 years of age these doses are routinely given using combined MMR-Var vaccine (see <i>MMR-Var Vaccine Biological Page and Varicella Vaccine Biological Page</i>).</li> </ul>																									
	<p><b>Spacing Considerations:</b></p> <table border="1"> <thead> <tr> <th colspan="4">Recommended Intervals for MMR and Varicella Containing Vaccines</th> </tr> <tr> <th rowspan="2">Previous Vaccine Administered</th> <th colspan="3">Recommended Interval to Next Dose</th> </tr> <tr> <th>MMR-Var</th> <th>MMR<sup>1</sup></th> <th>Varicella</th> </tr> </thead> <tbody> <tr> <td>MMR-Var</td> <td>3 months</td> <td>6 weeks</td> <td>3 months</td> </tr> <tr> <td>MMR<sup>1</sup></td> <td>6 weeks</td> <td>4 weeks</td> <td>4 weeks</td> </tr> <tr> <td>Varicella</td> <td>3 months</td> <td>4 weeks</td> <td>6 weeks or 3 months<sup>2</sup></td> </tr> </tbody> </table>			Recommended Intervals for MMR and Varicella Containing Vaccines				Previous Vaccine Administered	Recommended Interval to Next Dose			MMR-Var	MMR <sup>1</sup>	Varicella	MMR-Var	3 months	6 weeks	3 months	MMR <sup>1</sup>	6 weeks	4 weeks	4 weeks	Varicella	3 months	4 weeks	6 weeks or 3 months <sup>2</sup>
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	<p><sup>1.</sup> For all HSCT recipients there must be a minimum of 3 months separating 2 doses of MMR vaccine. See <i>Standard for Immunizing Clients Who Have Had or Will be Having a Transplant</i>.</p> <p><sup>2.</sup> An interval of 3 months between doses of varicella containing vaccines is recommended for individuals under 13 years of age and 6 weeks for individuals over 13 years of age unless they have one of the following conditions: HIV, asplenia/hyposplenia and chronic renal disease. Individuals with these conditions require a minimum spacing of three months between doses.</p> <ul style="list-style-type: none"> <li>See above for routine recommended intervals between all measles, mumps, rubella and varicella vaccines.</li> <li>With the exception of Yellow Fever vaccine, MMR can be administered simultaneously with other live vaccines or separated by an interval of at least 4 weeks (See <i>Administration with Other Products</i> section for additional information for MMR and Yellow Fever vaccine spacing).</li> </ul>																									

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	<ul style="list-style-type: none"> <li>• LAIV/QLAIV may be administered any time before or after the administration of other live attenuated or inactivated vaccines. <ul style="list-style-type: none"> <li>○ Specialists recommending alternate spacing for specific high risk individuals may be accommodated on a case by case basis.</li> </ul> </li> <li>• If live vaccine was inadvertently administered at less than the routine intervals outlined above, the dose can be considered valid and vaccine would not need to be repeated if there is a minimum interval of at least 4 weeks.</li> <li>• <b>Adults (18 years of age and older):</b> <ul style="list-style-type: none"> <li>○ <b>Measles</b> <ul style="list-style-type: none"> <li>▪ Individuals <b>born in 1970 or later:</b> <ul style="list-style-type: none"> <li>• Documented history of <b>2 valid lifetime doses</b> of measles-containing vaccine.</li> </ul> </li> <li>▪ Health care workers: <ul style="list-style-type: none"> <li>• Documented history of <b>2 valid lifetime doses</b> of measles-containing vaccine.</li> </ul> </li> <li>▪ Students at post-secondary educational institutions <b>born before 1970:</b> <ul style="list-style-type: none"> <li>• Documented history of <b>1 valid lifetime dose</b> of measles-containing vaccine. For post-secondary students born in 1970 or later see information above for individuals born in 1970 or later.</li> </ul> </li> </ul> </li> <li>▪ <b>Notes:</b> <ul style="list-style-type: none"> <li>▪ Laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive) would be accepted, however serology is not recommended if it has not already been done.</li> <li>▪ Please see <i>Standard for Recommended Immunization Schedules 03.110</i> for information regarding killed measles vaccine.</li> <li>▪ Individuals with two documented doses of a measles-containing vaccine do not require a third dose regardless of negative or indeterminate measles serology. Such persons should be considered to have presumptive evidence of immunity.</li> </ul> </li> <li>○ <b>Mumps</b> <ul style="list-style-type: none"> <li>▪ Individuals <b>born in 1970 or later:</b> <ul style="list-style-type: none"> <li>• Documented history of <b>2 valid lifetime dose</b> of mumps-containing vaccine.</li> </ul> </li> <li>▪ Health care workers: <ul style="list-style-type: none"> <li>• Documented history of <b>2 valid lifetime doses</b> of mumps-containing vaccine.</li> </ul> </li> <li>▪ Students at post-secondary educational institutions: <ul style="list-style-type: none"> <li>• <b>Born in 1970 or later:</b> documented history of <b>2 valid doses</b> of mumps-containing vaccine.</li> <li>• <b>Born prior to 1970:</b> documented history of <b>1 valid dose</b> of mumps-containing vaccine.</li> </ul> </li> </ul> </li> <li>○ <b>Rubella</b> <ul style="list-style-type: none"> <li>▪ Individuals born in 1957 or later: <ul style="list-style-type: none"> <li>• Documented history of <b>1 valid lifetime dose</b> of rubella-containing vaccine.</li> </ul> </li> <li>▪ Healthcare workers and staff of daycare facilities (regardless of age): <ul style="list-style-type: none"> <li>• Documented history of <b>1 valid lifetime dose</b> of rubella-containing vaccine.</li> </ul> </li> <li>▪ A second dose of rubella vaccine should be offered to the following priority groups who have negative rubella serology: <ul style="list-style-type: none"> <li>• Women of child-bearing age.</li> <li>• Health care workers who have face-to-face contact with patients in health care facilities are required to have documented immunity to</li> </ul> </li> </ul> </li> </ul> </li> </ul>	

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	<p>rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985.4.</p> <ul style="list-style-type: none"> <li>Staff of daycare facilities are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985.4.</li> <li>Candidates of solid organ transplant (SOT) who do not have evidence of rubella immunity.</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>Laboratory confirmed rubella disease or serological evidence of rubella immunity (rubella IgG positive) would be accepted, however serology is not recommended if it has not already been done.</li> <li>Individuals with two documented doses of a rubella-containing vaccine do not require a third dose regardless of negative or indeterminate rubella. Such persons should be considered to have presumptive evidence of immunity except for pregnant females.</li> <li>Pregnant females who have negative or indeterminate rubella serology are to be considered susceptible if exposed to rubella disease and followed up as per <i>Public Health Notifiable Disease Guidelines – Rubella</i>. <a href="https://open.alberta.ca/publications/rubella">https://open.alberta.ca/publications/rubella</a></li> </ul>	
<b>Preferred Use</b>	<p>There will be no preference indicated for the use of Priorix® or M-M-R® II in specific age or risk groups.</p> <ul style="list-style-type: none"> <li>Both vaccines are safe and immunogenic in individuals 12 months of age and older.</li> <li>Persons with medical contraindications to one product should be offered the alternate product if supply is available.</li> </ul>	
<b>Dose</b>	<p>0.5 mL</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>Withdraw the entire contents of the diluent and inject into the vial containing the powder. Once reconstituted withdraw the entire contents of the vial and inject the entire volume.</li> </ul>	
<b>Route</b>	SC	
<b>Contraindications/ Precautions</b>	<p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>Known severe hypersensitivity to any component of the vaccine.</li> <li>Anaphylactic or other allergic reaction to previous dose of vaccine containing similar components.</li> <li>Pregnancy.</li> <li>Impaired immune function due to HIV, AIDS, HSCT, SOT, cellular immune deficiencies. <ul style="list-style-type: none"> <li>Asymptomatic children with HIV can receive MMR after consult with their infectious disease specialist.</li> <li>Immunization of HIV-infected children and adults should be completed under the direction of the infectious disease specialist attending the individual.</li> <li>Persons receiving immunoablative or immunosuppressive therapy (including high dose corticosteroids) which could include monoclonal antibodies (e.g. rituximab), alkylating agents, tumour necrosis factor (e.g. Enbrel), antimetabolites (e.g. methotrexate) or long-term steroids. For further information refer to: <ul style="list-style-type: none"> <li>The Canadian Immunization Guide at <a href="http://www.phac-aspc.gc.ca/publicat/cig-gci/p03-07-eng.php">http://www.phac-aspc.gc.ca/publicat/cig-gci/p03-07-eng.php</a></li> <li>PADIS (Poison and Drug Information Service) Drug Information for Health Professionals at <a href="http://www.albertahealthservices.ca/topics/Page11975.aspx">http://www.albertahealthservices.ca/topics/Page11975.aspx</a></li> </ul> </li> </ul> </li> <li>Immunocompromised due to blood dyscrasias, leukemia, lymphoma, Hodgkin's disease, generalized malignancy affecting the bone marrow or lymphatic system.</li> <li>Agammaglobulinaemia or hypogammaglobulinaemia.</li> </ul>	



	Priorix®	M-M-R® II
	<ul style="list-style-type: none"> <li>Family history of congenital or hereditary immunodeficiency, unless the immune competence of the potential vaccine recipient is demonstrated.</li> <li>Immune globulins or blood product received within the past 11 months (see <i>Recommended Schedules Standard</i> for Guidelines for Interval Between Immune Globulin and other Blood Products and Live Vaccines).</li> <li>Administration of another live vaccine within the past 1-3 months (see Spacing Considerations above).</li> </ul> <p><b>Precautions:</b></p> <ul style="list-style-type: none"> <li>Egg allergy, including anaphylaxis, is not a contraindication to immunization with MMR vaccine as the amount of egg protein found in the vaccine is not felt to be enough to cause an allergic reaction. Observation for 30 minutes post immunization is recommended for clients who have experienced anaphylaxis to eggs.</li> <li>The use of MMR vaccine in individuals who suffered thrombocytopenia after a first dose of live measles, mumps, and rubella vaccines should be carefully evaluated in terms of risk-benefit. Individuals, who develop vaccine-associated thrombocytopenia, should be referred to their physician for serology to assess immunity to measles, mumps and rubella and to determine the need for vaccine. A second dose of vaccine should only be given if non-immune and after consultation with zone MOH/designate.</li> <li>Immunization with a measles-containing vaccine can suppress tuberculin reactivity.</li> <li>Measles-containing vaccines are contraindicated in individuals with active, untreated tuberculosis as a precautionary measure. Tuberculosis may be exacerbated by natural measles infection, but there is no evidence that measles vaccine has the same effect.</li> </ul>	
<b>Possible Reactions</b>	<p><b>Common:</b></p> <ul style="list-style-type: none"> <li>Redness, swelling and tenderness at injection site</li> <li>Burning and/or stinging at injection site for a short duration immediately following injection</li> <li>Fever, rash, and/or measles-like rash appearing between the 6th and 23rd day following immunization</li> <li>Irritability</li> <li>Arthralgia/arthritis 1-3 weeks following immunization (more common in post pubescent females)</li> </ul> <p><b>Uncommon:</b></p> <ul style="list-style-type: none"> <li>Lymphadenopathy</li> <li>Nervousness, abnormal crying, insomnia</li> <li>Conjunctivitis</li> <li>Bronchitis, wheezing</li> <li>Parotid gland enlargement</li> <li>Anorexia</li> <li>Gastroenteritis, diarrhea, vomiting</li> <li>Ear infection, nasopharyngitis, cough, rhinorrhea</li> <li>Urticaria</li> </ul> <p><b>Rare:</b></p> <ul style="list-style-type: none"> <li>Anaphylaxis</li> <li>Febrile convulsions</li> <li>As with any immunization, unexpected or unusual side effects can occur. Refer to the product monograph for more detailed information.</li> </ul>	
<b>Pregnancy</b>	Live vaccines are contraindicated in pregnant women. Women of child-bearing potential should be advised to avoid pregnancy for 1 month following immunization.	
<b>Lactation</b>	Can be safely administered to eligible breastfeeding women.	

	<b>Priorix®</b>	<b>M-M-R® II</b>
<b>Composition</b>	<p>Each 0.5 mL dose of reconstituted vaccine contains:</p> <ul style="list-style-type: none"> <li>• Not less than 103.0 CCID50 of the Schwarz measles</li> <li>• Not less than 103.7 CCID50 of the RIT 4385 mumps (derived from the Jeryl Lynn strain)</li> <li>• Not less than 103.0 CCID50 of the Wistar RA 27/3 rubella virus strains</li> <li>• Amino acids</li> <li>• Lactose</li> <li>• Mannitol</li> <li>• Neomycin sulphate</li> <li>• Sorbitol</li> <li>• Trace amounts of egg protein (measles and mumps viruses grown in chick embryo fibroblast culture)</li> <li>• Sterile water for injection (diluent)</li> </ul>	<p>Each 0.5 mL dose of reconstituted vaccine contains:</p> <ul style="list-style-type: none"> <li>• Measles virus, Enders' Edmonston strain (live, attenuated) not less than 1,000 CCID50</li> <li>• Mumps virus, Jeryl Lynn® (B level) strain (live attenuated) not less than 5,000 CCID50</li> <li>• Rubella virus, Wistar RA 27/3 strain (live attenuated) not less than 1,000 CCID50</li> <li>• 14.5 mg sorbitol</li> <li>• 14.5 mg hydrolyzed gelatin</li> <li>• 3.3 mg medium 199 with Hank's salts</li> <li>• 3.1 mg sodium phosphate monobasic</li> <li>• 2.2 mg sodium phosphate dibasic (anhydrous)</li> <li>• 1.9 mg sucrose</li> <li>• 0.5 mg sodium bicarbonate</li> <li>• 0.1 mg minimum essential medium, eagle</li> <li>• 30 mcg potassium phosphate dibasic (anhydrous)</li> <li>• 25 mcg neomycin</li> <li>• 20 mcg monosodium L-glutamate monohydrate</li> <li>• 20 mcg potassium phosphate monobasic</li> <li>• 3.4 mcg phenol red</li> <li>• ≤ 0.3 mg recombinant human albumin</li> <li>• Less than 1 ppm fetal bovine serum</li> <li>• Propagated in chick embryo cell culture</li> <li>• Sterile water for injection (diluent)</li> </ul>
<b>Blood/Blood Products</b>	<ul style="list-style-type: none"> <li>• The rubella virus is grown in MRC-5 human diploid cell culture.</li> </ul>	<ul style="list-style-type: none"> <li>• Contains trace amount of human albumin.</li> <li>• The rubella virus is grown in human diploid lung fibroblasts.</li> </ul>
<b>Bovine/Porcine Products</b>	<ul style="list-style-type: none"> <li>• Contains lactose derived from milk. Bovine serum is used in the early stages of manufacturing.</li> <li>• Porcine materials are used in early stages of manufacturing.</li> </ul>	<ul style="list-style-type: none"> <li>• Contains less than 1 ppm of fetal bovine serum.</li> <li>• Contains hydrolyzed gelatin of porcine origin.</li> </ul>
<b>Latex</b>	Does not contain latex.	
<b>Interchangeability</b>	PRIORIX® or M-M-R® II may be used interchangeably provided the appropriate dose and schedule recommended by the manufacturer are used.	
<b>Administration with Other Products</b>	<ul style="list-style-type: none"> <li>• See schedule section for recommended intervals between all measles, mumps, rubella and varicella vaccines.</li> <li>• With the exception of Yellow Fever vaccine, MMR can be administered simultaneously with other live vaccines or separated by an interval of at least 4 weeks. <ul style="list-style-type: none"> <li>○ Recent limited data suggest it may be preferable for children aged 12 months up to and including-23 months of age to receive MMR and <b>Yellow Fever</b> vaccine <b>at least 30 days apart</b> if time permits, because of lower seroconversion rates for mumps, rubella, and yellow fever in those immunized simultaneously than in</li> </ul> </li> </ul>	

	Priorix®	M-M-R® II
	<p>those immunized 30 days apart. The study did not include infants younger than 12 months of age, but it is reasonable to follow the same guidance for infants under 12 months of age.</p> <ul style="list-style-type: none"> <li>○ For individuals 2 years of age and older MMR can be administered simultaneously with Yellow Fever vaccine or separated by an interval of at least 4 weeks.</li> <li>● LAIV/QLAIV may be administered any time before or after the administration of other live attenuated or inactivated vaccines. <ul style="list-style-type: none"> <li>○ Specialists recommending alternate spacing for specific high risk individuals may be accommodated on a case by case basis.</li> </ul> </li> <li>● MMR vaccine can be given at the same time as other inactivated and live vaccine using a separate needle and syringe for each vaccine. The same limb may be used if necessary, but different sites on the limb must be chosen.</li> <li>● Tuberculin skin tests should be given either before or at the same time as MMR vaccine; otherwise, the tuberculin skin test should be delayed for 4 weeks following MMR vaccine.</li> <li>● Immune globulins (IG) and antibody-containing blood products cannot be given concurrently with live vaccines and need to be separated by specified time intervals depending upon the dosage and the biological. MMR vaccine should be given at least 14 days prior to administration of an IG preparation or blood product, or delayed until the antibodies in the IG preparation or blood product have degraded. If the interval between administration of vaccine and subsequent administration of an IG preparation or blood product is less than 14 days, the vaccine dose should be repeated after the recommended interval. See <i>Recommended Schedules Standard - Guidelines for Interval Between Immune Globulin and other Blood Products and Live Vaccines</i> for spacing considerations.</li> <li>● If MMR is given to rubella susceptible women less than 3 months from receipt of the Rhlg (RhoGam, Anti-Rho D), serological testing should be done 3 months after the MMR dose to assess the immune response. If MMR is given 3 months or more following Rhlg then serology is not necessary.</li> </ul>	
<b>Appearance</b>	<ul style="list-style-type: none"> <li>● Diluent: clear, colourless</li> <li>● Vaccine prior to reconstitution: whitish to slightly pink pellet</li> <li>● Reconstituted vaccine: due to minor variation of its pH, may vary in colour from clear peach to fuchsia pink without deterioration of the vaccine potency</li> </ul>	<ul style="list-style-type: none"> <li>● Diluent: clear, colourless</li> <li>● Vaccine prior to reconstitution: whitish to off-white solid mass of powder</li> <li>● Reconstituted vaccine: clear yellow</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>● Store at +2°C to +8°C</li> <li>● Must be protected from light</li> <li>● Do not freeze</li> <li>● Do not use beyond the labeled expiry date</li> <li>● Diluent may be stored at room temperature</li> <li>● Reconstituted vaccine should be used as soon as possible</li> </ul>	
<b>Vaccine Code</b>	MMR	
<b>Antigen Code</b>	Measles – MEA Mumps – MU Rubella – RUB	
<b>Licensed for</b>	<ul style="list-style-type: none"> <li>● All persons 12 months of age and older.</li> <li>● MMR vaccine may be recommended for infants 6 months of age up to and including 11 months of age for post-exposure prophylaxis and for travel. In these situations where a dose is provided at less than 12 months of age children should receive two additional doses after 12 months of age.</li> </ul> Off-license use: <ul style="list-style-type: none"> <li>○ Pre solid organ transplant (see Child Solid Organ Transplant for indications)</li> </ul>	

	Priorix®	M-M-R® II
<p><b>Program Notes:</b></p> <ul style="list-style-type: none"> <li>October 1, 1982: MMR vaccine was introduced into the routine immunization program in Alberta on.</li> <li>1983 to 1986: Catch-up programs with MMR vaccine for grade 1 and 6 were offered.</li> <li>June 1996: The second dose of MMR vaccine was introduced at 4 to 6 years of age.</li> <li>April 1997 to the end of June 1998: A catch-up program was offered for the second dose of measles in grades 1 through 9 using monovalent measles vaccine. A second catch-up program using measles/rubella vaccine was offered for grades 1 through 9 from January 1997 to end of December 1997.</li> <li>November 2007: A mass immunization campaign in response to a mumps outbreak was initiated using the combined MMR vaccine.</li> <li>September 2013: An expanded measles immunization program was implemented as part of measles outbreak measures.</li> <li>June 1, 2017: Adults born in or after 1970 became eligible for 2 doses of mumps-containing vaccine.</li> <li>January 1, 2021: MMR second dose offered at 18 months of age instead of 4 years of age.</li> </ul>		
<p><b>Related Resources:</b></p> <ul style="list-style-type: none"> <li>Measles Mumps Rubella Vaccine Information Sheet (104511).</li> </ul>		
<p><b>References:</b></p> <ol style="list-style-type: none"> <li>Alberta Immunization Policy, Biological Products (2020, December). <i>Measles, Mumps, Rubella Combined Vaccine</i>.</li> <li>Alberta Health, Letter from Office of the Chief Medical Officer of Health. (2016, March 8). <i>Updated Recommendation - Measles-Containing Vaccine for Residents of Alberta Planning to Travel</i>.</li> <li>Alberta Health, Surveillance and Assessment Health System Accountability and Performance Division. 2016, December. Adverse Events Following Immunization (AEFI) Policy for Alberta immunization Providers – WEB.</li> <li>American Academy of Pediatrics. Summaries of Infectious Diseases. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS, eds. <i>Red Book: 2015 Report of the Committee on Infectious Diseases</i>. 30th ed. Elk Grove Village, IL: American Academy of Pediatrics:</li> <li>Centers for Disease Control and Prevention. (2011, January). General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). <i>Morbidity and Mortality Weekly Report</i>, 60(2).</li> <li>Centers for Disease Control and Prevention. (2015, July). Measles. In <i>Epidemiology and Prevention of Vaccine-Preventable Diseases 13<sup>th</sup> Edition</i>. Second Printing (chap.13). (Pink Book). Retrieved March 1, 2017 from <a href="https://www.cdc.gov/vaccines/pubs/pinkbook/meas.html">https://www.cdc.gov/vaccines/pubs/pinkbook/meas.html</a></li> <li>GlaxoSmithKline Inc. (2018, June 15). PRIORIX®: Combined measles, mumps and rubella vaccine, live, attenuated. Product monograph.</li> <li>Merck Canada Inc. (2017, February 17). M-M-R® II (measles, mumps and rubella virus vaccine, live, attenuated). Product monograph.</li> <li>National Advisory Committee on Immunization, (2007, August 1). Statement on Mumps Vaccine. <i>Canada Communicable Disease Report, Volume 33, ACS-8</i>.</li> <li>National Advisory Committee on Immunization. (2016). <i>Canadian immunization guide (Evergreen Edition)</i>. Ottawa, ON: Public Health Agency of Canada. <a href="https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html">https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html</a></li> <li>Alberta Health. (2011, August) Mumps. Alberta Health Public Health Notifiable Disease Management Guidelines.</li> </ol>		