Alberta Health Services	Measles Mumps Rubella Vaccine Biological Page		
Section 7:	**Biological Product Information**		**Standard #: 07.270**
Created by:	Provincial Immunization Program Standards and Quality		
Approved by:	Provincial Immunization Program Standards and Quality		
Approval Date:	August 1, 2012	**Revised:**	March 28, 2024

	Priorix®	**M-M-R® II**
Manufacturer	GlaxoSmithKline Inc.	Merck Canada Inc.
Biological Classification	Live; attenuated	
Areas where measles is circulating in Canada	• Montreal • Toronto	
Indications for Provincially Funded Vaccine	**Pre-exposure:** ○ **Infants 6 months of age up to and including 11 months of age:** ○ Travelling to or through areas where measles is circulating in Canada. ○ Travelling to any country outside of Canada. ○ Who are candidates for a solid organ transplant. See *Standard for Immunization of Transplant Candidates and Recipients* **Notes:** ○ To ensure long term protection, two additional doses of measles-containing vaccine should be administered beginning at 12 months of age with the appropriate interval between doses. ○ **All children 12 months of age up to and including 17 years of age:** ○ Children 12 months up to and including 12 years of age when varicella vaccine is not indicated. ▪ The combined MMR-Var vaccine is routinely given at 12 months of age and 18 months of age (see *MMR-Var Vaccine Biological Page*). ○ 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. **Notes:** ○ 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: ▪ Those travelling to or through areas where measles is circulating in Canada. ▪ Those travelling to any country outside of Canada. **Scheduling Considerations:** ▪ If time allows, the second dose should be given on or after 15 months of age. ▪ If MMR-Var is given, this dose would be considered adequate and count as the child's second dose of MMR and varicella vaccine. ▪ If MMR vaccine is given the child would be offered varicella vaccine at their preschool immunization appointment. ▪ 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.	

	Priorix®	M-M-R® II
	○ **Adults 18 years of age or older:** ○ **Measles** ▪ Individuals born in 1970 or later (regardless of country of birth) who do not have documented history of **2 valid doses** of measles-containing vaccine, history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive). ▪ All healthcare workers regardless of their year of birth who do not have documented history of **2 valid doses** of measles-containing vaccine, history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive). ▪ Post-secondary students born before 1970 who do not have documented history of **1 valid dose** of measles-containing vaccine, history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive). ▪ Adults born before 1970 travelling to or through areas where measles is circulating in Canada and all countries outside of Canada, who do not have documented history of **1 valid dose** of measles-containing vaccine, or history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive). **Note:** ▪ From a population perspective, individuals born before 1970 (regardless of country of birth) 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. ○ **Mumps** ▪ Individuals born in 1970 or later (regardless of country of birth) who do not have documented history of **2 valid doses** of mumps-containing vaccine or history of laboratory confirmed mumps disease (Mumps IgG serology is not an acceptable indicator of immunity). ▪ Healthcare workers regardless of date of birth who do not have documented history of **2 valid doses** of mumps-containing vaccine or history of laboratory confirmed mumps disease (Mumps IgG serology is not an acceptable indicator of immunity).Post-secondary students born before 1970 who do not have documented history of **1 valid dose** of mumps-containing vaccine or history of laboratory confirmed mumps disease (Mumps IgG serology is not an acceptable indicator of immunity). **Notes:** ▪ 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. ○ **Rubella** ▪ Individuals born in 1957 or later without a documented history of **1 dose** of rubella containing vaccine, history of laboratory-confirmed rubella or serological evidence of rubella immunity. ▪ 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.	

	Priorix®	M-M-R® II
	▪ Staff of daycare facilities (regardless of age) are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985. ▪ Rubella immunization should be prioritized for the following susceptible individuals: • Women of child-bearing age • Health care workers • Staff of daycare facilities • Candidates of solid organ transplant (SOT) ▪ A second dose of rubella vaccine should be offered to the following priority groups who have negative rubella serology: • Women of child-bearing age • 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 • Staff of daycare facilities are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985 **Notes:** ▪ 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. ▪ 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. **Notes:** • Immunization of HIV-infected children and adults should be completed under the direction of the infectious disease specialist attending the individual. • Children and adults who are recipients of hematopoietic stem cell transplant (HSCT) should have their immunization schedules assessed and receive immunization as outlined in *Standard for Immunization of Transplant Candidates and Recipients*. 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. **Post-exposure:** ○ **Measles** ○ Susceptible contacts of a measles case should receive either MMR or immune globulin depending upon the time-lapse from exposure, age and health status. ○ Susceptible immunocompetent contacts (without contraindications) 6 months of age and older should receive MMR vaccine. The vaccine should be administered within 72 hours of exposure and should not be delayed pending serology results. This includes children between 12 and 18 months of age who have received one dose of vaccine and are considered up-to-date, ensuring the minimum interval since the previous dose. ▪ If MMR vaccine is contraindicated or if more than 72 hours since exposure have elapsed, Immune Globulin (IG) may be indicated. See Immune Globulin Biological Page ▪ If MMR 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. **Notes:**	

<table>
<tr><th></th><th>Priorix®</th><th>M-M-R® II</th></tr>
<tr><td></td><td colspan="2">

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.
Not all HCW require measles serology post-exposure. Most HCW have robust measles immunity assessments upon hire, and as long as those records meet current criteria for measles immunity, there is no need to request serology following an exposure.
For disease investigation, contact assessment and reporting requirements, refer to Public Health Notifiable Disease Management Guidelines - Measles

Mumps

Susceptible eligible contacts should be immunized (this is not likely to prevent or alter the clinical severity of mumps from the current exposure; however, if the current exposure to mumps does not cause infection, this dose should induce protection against subsequent infection).
For disease investigation, contact assessment and reporting requirements refer to Public Health Notifiable Disease Management Guidelines - Mumps

Rubella

Susceptible eligible contacts should be immunized (this is not likely to prevent or alter the clinical severity of rubella from the current exposure; however, if the current exposure to rubella does not cause infection, this dose should induce protection against subsequent infection).
For disease investigation, contact assessment and reporting requirements refer to Public Health Notifiable Disease Management Guidelines - Rubella

</td></tr>
<tr><td>Specific Travel Indications and Recommendations</td><td colspan="2">
Individuals travelling to or through areas where measles is circulating in Canada and all countries outside of Canada.
Infants: 6 months up to and including 11 months of age

One dose of MMR vaccine.

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.

Children: 12 months up to and including 17 years of age (if not previously immunized with two doses)

Dose 1: Day 0
Dose 2: four weeks after dose 1

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.

Adults (18 years of age and older)

Adults born in 1970 or later

Two life-time doses with at least four weeks between doses.

Adults born before 1970

Adults born before 1970 without a documented history of one dose of measles-containing vaccine, history of laboratory confirmed measles disease or serological evidence of measles immunity (measles IgG positive) should receive one dose of measles-containing vaccine.

</td></tr>
<tr><td>Serology</td><td colspan="2">
Measles pre-immunization serology (measles IgG):

Not routinely indicated. If previously drawn, positive measles IgG serology results or laboratory confirmed measles disease can be accepted as immunity to measles disease.

Note:

Measles IgG serology results may be used in other specific situations to determine immunity to measles. Refer to supporting Standards as indicated:

</td></tr>
</table>

	Priorix®	M-M-R® II
	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. **Measles post-immunization serology (measles IgG):** • Not routinely indicated. **Note:** ▪ Sometimes measles IgM serology (alone or in addition to measles IgG serology) is inadvertently drawn when an individual presents 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. **Mumps pre-immunization serology (mumps IgG):** • Not recommended. **Mumps post-immunization serology (mumps IgG):** • Not recommended. **Notes:** ▪ 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. ▪ 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.[12] **Rubella pre-immunization serology (rubella IgG):** • Not routinely indicated. If previously drawn, a history of documented positive rubella IgG serology can be accepted as immunity to rubella disease. **Note:** ▪ Rubella IgG serology results may be used in other specific situations to determine immunity to rubella. Refer to *Alberta Prenatal Screening Program of Selected Communicable Disease Public Health Guidelines* https://open.alberta.ca/publications/alberta-prenatal-screening-program-for-select-communicable-diseases in addition to supporting Standards as indicated: *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.* **Rubella post-immunization serology (rubella IgG):** • Not routinely recommended. **Note:** ▪ 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.	
Schedule	• **Infants 6 months of age up to and including 11 months of age:** ○ Single dose prior to 12 months of age only when required because of increased risk of exposure.	

	Priorix®	M-M-R® II

Note:

- 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.

- Children who are candidates of a solid organ transplant, see *Standard for Immunization of Transplant Candidates and Recipients*.

- **Children 12 months up to and including 17 years of age (2 doses):**
  - Dose 1 – 12 months of age (routinely given as MMR-Var)
  - Dose 2 – 18 months of age (routinely given as MMR-Var), respecting minimum intervals.

Notes:

- Most children in Alberta routinely receive measles, mumps, rubella and varicella combined vaccine (MMR-Var) at 12 months and 18 months of age. See Measles, Mumps, Rubella and Varicella Vaccine Biological Page https://www.albertahealthservices.ca/assets/info/hp/cdc/if-hp-cdc-mmr-vac-bio-pg-07-270.pdfThe second dose may be administered using a minimum interval of four weeks between the doses if child is off schedule or rapid protection is required.
- 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:
  - Those travelling to or through areas where measles is circulating in Canada and any country outside of Canada.

Spacing Considerations:

Recommended Intervals for MMR and Varicella Containing Vaccines			
Previous Vaccine Administered	**Recommended Interval to Next Dose**		
	MMR-Var	**MMR[1]**	**Varicella**
MMR-Var	3 months	6 weeks	3 months
MMR[1]	6 weeks	4 weeks	4 weeks
Varicella	3 months	4 weeks	6 weeks or 3 months[2]

1. For all HSCT recipients there must be a minimum of 3 months separating 2 doses of MMR vaccine. See *Standard for Immunization of Transplant Candidates and Recipients*.
2. 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.

- See above for routine recommended intervals between all measles, mumps, rubella and varicella vaccines.
- 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 *Administration with Other Products* section for additional information for MMR and Yellow Fever vaccine spacing).
- LAIV/QLAIV may be administered any time before or after the administration of other live attenuated or inactivated vaccines.
  - Specialists recommending alternate spacing for specific high risk individuals may be accommodated on a case by case basis.

	Priorix®	M-M-R® II
	• 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. • **Adults (18 years of age and older):** ○ **Measles** ▪ Individuals **born in 1970 or later:** • Documented history of **2 valid lifetime doses** of measles-containing vaccine. ▪ Health care workers: • Documented history of **2 valid lifetime doses** of measles-containing vaccine. • Students at post-secondary educational institutions: • Born before 1970: documented history of 1 valid dose of measles-containing vaccine. **Notes:** ▪ 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. ▪ Please see *Standard for Recommended Immunization Schedules* for information regarding killed measles vaccine. ▪ 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. ○ **Mumps** ▪ Individuals **born in 1970 or later:** • Documented history of **2 valid lifetime dose** of mumps-containing vaccine. ▪ Health care workers: • Documented history of **2 valid lifetime doses** of mumps-containing vaccine. ▪ Students at post-secondary educational institutions: • **Born before 1970:** documented history of **1 valid dose** of mumps-containing vaccine. ○ **Rubella** ▪ Individuals born in 1957 or later: • Documented history of **1 valid lifetime dose** of rubella-containing vaccine. ▪ Healthcare workers and staff of daycare facilities (regardless of age): • Documented history of **1 valid lifetime dose** of rubella-containing vaccine. ▪ A second dose of rubella vaccine should be offered to the following priority groups who have negative rubella serology: • Women of child-bearing age. • 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. • Staff of daycare facilities are required to have documented immunity to rubella under the Communicable Diseases Regulation, Alberta Regulation 238/1985. • Candidates of solid organ transplant (SOT) who do not have evidence of rubella immunity.	

	Priorix®	M-M-R® II
	Notes: ▪ 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. ▪ 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. ▪ Pregnant females who have negative or indeterminate rubella serology are to be considered susceptible if exposed to rubella disease and followed up as per Public Health Notifiable Disease Guidelines - Rubella	
Preferred Use	There will be no preference indicated for the use of Priorix® or M-M-R® II in specific age or risk groups. • Both vaccines are safe and immunogenic in individuals 12 months of age and older. • Persons with medical contraindications to one product should be offered the alternate product if supply is available.	
Dose	0.5 mL **Note:** • 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.	
Route	SC	
Contraindications/ Precautions	**Contraindications:** • Known severe hypersensitivity to any component of the vaccine. • Anaphylactic or other allergic reaction to previous dose of vaccine containing similar components. • Pregnancy. • Impaired immune function, including those with primary or secondary immunodeficiency: ○ Asymptomatic children with HIV can receive MMR after consultation with their infectious disease specialist. ○ Immunization of HIV-infected children and adults should be completed under the direction of the infectious disease specialist attending the individual. ○ Agammaglobulinemia or hypogammaglobulinemia. ○ Immunocompromised due to blood dyscrasias, leukemia, lymphoma, Hodgkin's disease, generalized malignancy affecting the bone marrow or lymphatic system. • Family history of congenital or hereditary immunodeficiency unless the immune competence of the potential vaccine recipient is demonstrated. • Immunosuppressive therapy (including high dose corticosteroids). ○ 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: ▪ The Canadian Immunization Guide at http://www.phac-aspc.gc.ca/publicat/cig-gci/p03-07-eng.php ▪ PADIS (Poison and Drug Information Service) Drug Information for Health Professionals at http://www.albertahealthservices.ca/topics/Page11975.aspx • Active untreated tuberculosis. ○ See Precautions section for further details.	

	Priorix®	M-M-R® II

	• Solid organ transplant recipients. See:
	  ○ Immunization for Child SOT (before 18 months of age)
	  ○ Immunization for Child SOT (after 18 months of age)
	  ○ Immunization for Adult SOT.
	• Recent (within the previous 11 months) administration of immune globulins and blood products. The interval between the receipt of IG or a blood product and the subsequent MMR administration is dependent upon the IG or blood product received and the dosage administered. See: Standard for Recommended Immunization Schedules
	• Administration of another live vaccine within the past 1-3 months (see Spacing Considerations above).
	
	Precautions:
	• 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.
	• The risk for vaccine-associated thrombocytopenia may be higher for persons who previously had thrombocytopenia, especially if it occurred in temporal association with an earlier MMR immunization. Individuals who develop vaccine-associated thrombocytopenia should have serology to assess immunity to measles and rubella. A second dose of vaccine should only be administered if non-immune and after careful consideration of the risks and benefits of the vaccine.
	• 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-containing vaccines have such an effect. Nonetheless, anti-tuberculous therapy for active TB disease is advisable before administering measles-containing vaccines and it may be prudent to avoid vaccine in those with active TB disease until treatment is underway. Consultation with attending physician is recommended.
	• Immunization with a measles-containing vaccine can temporarily suppress tuberculin reactivity resulting in false-negative results. If tuberculin skin testing is required, it should be done on the same day as immunization with a measles-containing vaccine or delayed for at least four weeks after immunization.	

Possible Reactions	**Common:** • Redness, swelling and tenderness at injection site • Burning and/or stinging at injection site for a short duration immediately following injection • Fever, rash, and/or measles-like rash appearing between the 5th and 12th day following immunization • Irritability • Arthralgia/arthritis 1-3 weeks following immunization (more common in post pubescent females) • Sore throat, runny nose, cough **Uncommon:** • Lymphadenopathy • Nervousness, abnormal crying, insomnia • Conjunctivitis • Bronchitis, wheezing • Parotid gland enlargement • Anorexia • Gastroenteritis, diarrhea, vomiting	

	Priorix®	M-M-R® II
	• Ear infection, nasopharyngitis Urticaria **Rare:** • Anaphylaxis • Febrile convulsions • As with any immunization, unexpected or unusual side effects can occur. Refer to the product monograph for more detailed information.	
Pregnancy	MMR vaccine is contraindicated in pregnant women. Women of child-bearing potential should be advised to delay pregnancy for 4 weeks following immunization.	
Lactation	Susceptible individuals who are breastfeeding should be immunized with MMR vaccine.	
Composition	Each 0.5 mL dose of reconstituted vaccine contains: • Not less than $10^{3.0}$ $CCID_{50}$ of the Schwarz measles* • Not less than $10^{3.7}$ $CCID_{50}$ of the RIT 4385 mumps* (derived from the Jeryl Lynn strain) • Not less than $10^{3.0}$ $CCID_{50}$ of the Wistar RA 27/3 rubella** virus strains • Amino acids • Lactose • Mannitol • Sorbitol • Water for injection • Residual Neomycin sulphate *Produced in chick embryo cells ** Produced in human diploid (MRC-5) cells	Each 0.5 mL dose of reconstituted vaccine contains: • Measles virus*, Enders' Edmonston strain (live, attenuated) $\geq$1,000 $CCID_{50}$ • Mumps virus*, Jeryl Lynn® (B level) strain (live attenuated) $\geq$5,000 $CCID_{50}$ • Rubella virus**, Wistar RA 27/3 strain (live attenuated)$\geq$ 1,000 $CCID_{50}$ • 14.5 mg sorbitol • 14.5 mg hydrolyzed gelatin • 3.3 mg Medium 199 with Hank's salts • 3.1 mg sodium phosphate monobasic • 2.2 mg sodium phosphate dibasic (anhydrous) • 1.9 mg sucrose • 0.5 mg sodium bicarbonate • 0.1 mg Minimum Essential Medium, Eagle • 30 mcg potassium phosphate dibasic (anhydrous) • 25 mcg neomycin • 20 mcg monosodium L-glutamate monohydrate • 20 mcg potassium phosphate monobasic • 3.4 mcg phenol red • ≤ 0.3 mg recombinant human albumin • Less than 1 ppm fetal bovine serum *Propagated in chick embryo cell culture **Grown in human diploid lung fibroblasts • No Preservative • Sterile water for injection (diluent)
Blood/Blood Products	• The rubella virus is grown in MRC-5 human diploid cell culture.	• Contains trace amount of human albumin. • The rubella virus is grown in human diploid lung fibroblasts.

	Priorix®	M-M-R® II
Bovine/Porcine Products	• Contains lactose and galactose derived from bovine milk. • Fetal bovine serum is used as raw materials during routine manufacturing process. • Trypsin (isolated from porcine pancreas) is used as raw materials during routine manufacturing process.	• Contains less than 1 ppm of fetal bovine serum. • Contains hydrolyzed gelatin of porcine origin.
Latex	Does not contain latex.	
Interchangeability	PRIORIX® or M-M-R® II may be used interchangeably provided the appropriate dose and schedule recommended by the manufacturer are used.	

Administration with Other Products	• See schedule section for recommended intervals between all measles, mumps, rubella and varicella vaccines.
	• 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.
	  ○ Limited data suggest it may be preferable for individuals to receive MMR-containing and Yellow Fever vaccine at least 30 days apart if time permits, because of lower seroconversion rates for mumps, rubella, and yellow fever in those immunized simultaneously than in those immunized 30 days apart. However, it is important to ensure that travelers, of all ages, are immunized appropriately before travel, therefore coadministration of Yellow Fever vaccine and MMR vaccine is acceptable.
	• LAIV/QLAIV may be administered any time before or after the administration of other live attenuated or inactivated vaccines.
	  ○ Specialists recommending alternate spacing for specific high risk individuals may be accommodated on a case by case basis.
	• 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.
	• 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.
	• 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
	• If MMR is given to rubella susceptible women less than 3 months from receipt of the RhIg (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 RhIg then serology is not necessary.	

Appearance	• Diluent: clear, colourless • Vaccine prior to reconstitution: whitish to slightly pink coloured cake or powder • 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	• Diluent: clear, colourless • Vaccine prior to reconstitution: light yellow compact crystalline plug • Reconstituted vaccine: clear yellow
Storage	• Store at $+2^0$C to $+8^0$C • Must be protected from light	

	Priorix®	M-M-R® II
	• Do not freeze • Do not use beyond the labeled expiry date • Diluent may be stored at room temperature • Reconstituted vaccine should be used as soon as possible	
Vaccine Code	MMR	
Antigen Code	Measles – MEA Mumps – MU Rubella – RUB	

Licensed for	• All individuals 12 months of age and older.
	• Off-license use for infants 6 months up to and including 11 months of age who are:
	  • Travelling to or through areas where measles is circulating (see indications).
	  • Contact of a measles case (see indications for post-exposure).
	  • Pre solid organ transplant (see Child Solid Organ Transplant for indications).	

Program Notes:

- October 1, 1982: MMR vaccine was introduced into the routine immunization program in Alberta on.
- 1983 to 1986: Catch-up programs with MMR vaccine for grade 1 and 6 were offered.
- June 1996: The second dose of MMR vaccine was introduced at 4 to 6 years of age.
- 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.
- November 2007: A mass immunization campaign in response to a mumps outbreak was initiated using the combined MMR vaccine.
- September 2013: An expanded measles immunization program was implemented as part of measles outbreak measures.
- June 1, 2017: Adults born in or after 1970 became eligible for 2 doses of mumps-containing vaccine.
- January 1, 2021: MMR second dose offered at 18 months of age instead of 4 years of age.
- 2022 May 18: Updated Indications for infants 6 months up to and including 11 months of age who are traveling
- March 28, 2024: Updated to indicate that children older than 18 months of age and younger than 4 years of age who have only received one dose of vaccine are no longer considered up-to-date for measles. Clarification on the locations where measles is circulating in Canada. Immunization is now recommended for all measles-susceptible individuals travelling to any country outside of Canada (including all of the US).

Related Resources:

- Measles Mumps Rubella Vaccine Information Sheet (104511).

References:

1. Alberta Health, Health System Accountability and Performance Division (2024, March 28). Alberta Immunization Policy. *Measles, Mumps, Rubella Combined Vaccine.*
2. Alberta Health. Office of the Chief Medical Officer of Health. 2024.
3. Alberta Health, Surveillance and Assessment Health System Accountability and Performance Division. 2016, December. Adverse Events Following Immunization (AEFI) Policy for Alberta immunization Providers – WEB.
4. American Academy of Pediatrics. Red Book: 2021-2024 Report of the Committee on Infectious Diseases (32nd ed.). Elk Grove Village, IL. 2015.
5. Centers for Disease Control and Prevention. Prevention of Measles, Rubella, Congenital Rubella Syndrome, and Mumps: Recommendations of the Advisory Committee on Immunization Practices (ACIP) [Internet]. Morbidity and Mortality Weekly Report (MMWR), 62 (No.RR-04). p. 1–34. Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm.
6. Centers for Disease Control and Prevention. Measles [Internet]. Pink Book. Epidemiology and Prevention of Vaccine-preventable Diseases 14th ed. [cited 2024 Mar 20]. Available from: www.cdc.gov/vaccines/pubs/pinkbook/meas.html.Centers for Disease Control and Prevention. Yellow Book: Health information for International Travel [Internet]. Oxford University Press. 2024. Available from: wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/yellow-fever.
7. GlaxoSmithKline Inc. (2023, August 11). PRIORIX®: Combined measles, mumps and rubella vaccine, live, attenuated. Product monograph.

	Priorix®	M-M-R® II

8. Mantadakis E, Farmaki E, Buchanan GR. Thrombocytopenic purpura after measles-mumps-rubella vaccination: a systematic review of the literature and guidance for management. J Pediatr. 2010;156(4).
9. Merck Canada Inc. (2023, March 10). M-M-R® II (measles, mumps and rubella virus vaccine, live, attenuated). Product monograph.
10. National Advisory Committee on Immunization. Canadian Immunization Guide (Evergreen ed.). Ottawa, Public Heal Agency Canada [Internet]. Available from: https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html.
11. Alberta Health. Measles [Internet]. Public Health Notifiable Disease Management Guidelines. Available from: https://open.alberta.ca/publications/measles.
12. Alberta Health. Mumps [Internet]. Public Health Notifiable Disease Management Guidelines. Available from: https://open.alberta.ca/publications/mumps.
13. Alberta Health. Rubella [Internet]. Public Health Notifiable Disease Management Guidelines. Available from: https://open.alberta.ca/publications/rubella.
14. Province of Alberta. Communicable Diseases Regulation Reg. 238/1985 [Internet]. 2014 [cited 2024 Mar 20]. Available from: www.canlii.ca/s/a7l1.
15. Public Health Agency of Canada. Updated NACI recommendations for measles post-exposure prophylaxis [Internet]. Canada Communicable Disease Report (CCDR). 2018. Available from: https://www.canada.ca/en/public-health/services/reports-publications/13anada-communicable-disease-report-ccdr/monthly-issue/2018-44/issue-9-september-6-2018/article-7-naci-recommendation-pep.html.
16. Silva J, Camcho L, Siqueira M, Freire M, Castro Y, Maia M, et al. Mutual interference on the immune response to yellow fever vaccine and a combined vaccine against measles, mumps and rubella. Vaccine [Internet]. 2011;29(37):6327–34. Available from: https://www.sciencedirect.com/science/article/pii/S0264410X11007298.