Rationale for Update:
• Schedule change: Second dose of Varicella moved from 4 years of age to 18 months of age.
• Clarified minimum spacing recommendations. (Updated August 2020)
• Updated contraindications to note possible exception for Child SOT recipients. (Updated August 2020)

Please consult the Product Monograph\(^1,2\) for further information about the vaccine.

<table>
<thead>
<tr>
<th></th>
<th>VARILRIX(^\circ)</th>
<th>VARIVAX(^\circ) III</th>
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</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>GlaxoSmithKline Inc.</td>
<td>Merck Canada Inc.</td>
</tr>
<tr>
<td>Licensed use</td>
<td>All individuals 12 months of age and older as per the indications section.</td>
<td>All individuals 12 months of age and older as per the indications section.</td>
</tr>
<tr>
<td>Off-license use</td>
<td>Children starting at 6 months of age to less than 12 months of age expecting solid organ transplant.</td>
<td>Children less than 12 months of age expecting solid organ transplant. Second dose for children 4 – 6 years of age and susceptible adults with HIV meeting clinical criteria.</td>
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</table>

Indications for use of provincially funded vaccine

**Children 12 months up to and including 6 years of age.**

**Notes:**
• Verbal history of disease in the varicella vaccine era is not a reliable indicator of immunity.\(^3,4\)
• Children with a history of chickenpox disease should be offered varicella vaccine.
• When both MMR vaccine and varicella vaccine are indicated for children 12 months up to and including 6 years of age, measles, mumps, rubella and varicella combined vaccine should be considered.

**Children 7 years up to and including 12 years of age**

**Notes:**
• Children born prior to August 1, 2012 who have a history of chickenpox disease occurring at one year of age and older will not be offered varicella vaccine at this time.
• When both MMR vaccine and varicella vaccine are indicated for children 7 years up to and including 12 years of age, measles, mumps, rubella and varicella combined vaccine should be considered.

**Individuals 13 years of age and older** (with unknown/uncertain or no history of chickenpox disease and negative serology). See exceptions related to pregnant females and health care workers below.

• Individuals 13 years of age and older who have a history of chickenpox disease occurring at one year of age and older will not be offered varicella vaccine at this time.
- Serology to determine susceptibility is required for individuals 13 years of age and older with unknown/uncertain or no history of chickenpox disease except for students in the school immunization program (grades 1 to 9).

  Note: Susceptibility of students in the school immunization program will be based on history of disease or documented varicella immunization. Serological testing for this cohort will not be required.

**Exceptions: Pregnant Females and Health care workers (HCWs)**

1. Pregnant Females - Women identified through routine prenatal screening should be offered up to a maximum of two doses of varicella vaccine as they present post-partum regardless of disease history unless presenting with laboratory confirmation of immunity (varicella IgG positive).

2. HCWs and Post-secondary HCW Students without evidence of immunity should be offered two doses of varicella vaccine as they present.
   - Those presenting with documentation of one dose of varicella vaccine should be offered a second dose of varicella vaccine.
   - Zostavax® may be considered a valid first dose in a 2-dose varicella vaccine series on a case-by-case basis. (Shingrix® doses cannot be counted in a varicella vaccine series).

**Evidence of immunity** for non-pregnant HCWs and post-secondary HCW students includes:

- Documentation of two valid doses of varicella containing vaccine;
- Laboratory evidence of immunity;
- Laboratory confirmation of varicella disease;
- Physician diagnosed shingles disease;
- Self reported history or physician diagnosed varicella disease in Canada prior to a routine immunization program:
  - In Alberta, prior to January 2001.
  - For start dates of other Canadian jurisdictions see the NACI Varicella Proof of Immunity - 2015 Update.

### Considerations for Immuno-compromised Individuals

Varicella vaccine can be used with caution for select groups of immunocompromised persons as listed below.

**Medical consultation** with the individual’s physician(s) should be sought before immunizing immunocompromised persons.

<table>
<thead>
<tr>
<th>Considerations for Immuno-compromised Individuals</th>
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</table>
| **Children with acute lymphocytic leukemia (ALL):**<sup>3</sup> (can receive Varilrix® only) | **Must be in remission for 12 months or longer AND**
**Total lymphocyte count of 1.2 x 10<sup>9</sup>/L or greater AND**
**Not be receiving radiation therapy**
**Maintenance chemotherapy can be withheld for at least 1 week before to 1 week after immunization.**
**Note:** Two doses of vaccine are recommended for all children that meet the above conditions for ALL.  
| Cured of ALL (can receive Varilrix® or Varivax®) | **Susceptible persons who have been cured of ALL may be immunized with up to 2 doses starting at least 1 week after completing chemotherapy.**
| HIV infected individuals (can receive Varilrix® or Varivax®) | **Children 12 months of age and older who are varicella non-immune and with CDC clinical category N, A or B and immunologic category 1 or 2 (i.e., CD4 counts greater than or equal to 15%) may be immunized with 2 doses of univalent vaccine with a 3 – 6 month interval between doses.**
<table>
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<tr>
<th>HIV infected individuals (cont.)</th>
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| Susceptible adolescents and adults (no previous history of varicella illness or previous varicella immunization and a negative varicella antibody test) with CD4 cell count greater or equal to 200x10^6/L and greater or equal to 15% may be considered for varicella immunization.  
| **Note:** It is essential to ascertain with the specialist that the individual conforms to the appropriate clinical and immunologic categories before making the decision to immunize with varicella vaccine.  
| Planned solid organ transplant (can receive Varilrix® or Varivax®) |  
| Persons with planned solid organ transplant, at least 4 weeks prior to the initiation of immunosuppressant treatment and/or transplant and only following consultation with the attending transplant physician. See:  
|  
| Immunization for Children Expecting Solid Organ Transplant before 18 Months of Age (Accelerated),  
| Immunization for Children Expecting Solid Organ Transplant after 18 Months of Age or Older (Catch-up Schedule) and  
| Immunization for Adult Solid Organ Transplant Candidates and Recipients  
| **Note:** It is essential to ascertain with the specialist that the individual conforms to the appropriate clinical and immunologic categories before making the decision to immunize with varicella vaccine.  
| Hematopoietic stem cell transplants (HSCT) (can receive Varilrix® or Varivax®) |  
| Child and adult recipients of hematopoietic stem cell transplants (HSCT) if there is no graft versus host disease. Consultation with the attending transplant physician is recommended. See:  
|  
| Immunization for Child Hematopoietic Stem Cell Transplant Recipients and  
| Immunization for Adult Hematopoietic Stem Cell Transplant Recipients.  
| **Note:** Varicella immunization is not indicated for persons awaiting HSCT.  
| Isolated immunodeficiency diseases (can receive Varilrix® or Varivax®) |  
| People with isolated immunodeficiency diseases and known intact T-cell systems may be immunized using the same age-appropriate schedule for healthy persons.  
|  
| B cell deficiencies: Isolated humoral (immunoglobulin) deficiency diseases.  
| Phagocytic and neutrophil deficiency disorders.  
| Complement deficiency diseases.  
| Cured of malignancies other than ALL (can receive Varilrix® or Varivax®) |  
| Susceptible persons cured of malignancies other than ALL may be immunized 3 months or more after completion of immunosuppressive therapy.  
| Low-dose steroid therapy (can receive Varilrix® or Varivax®) |  
| Susceptible children and adults on low-dose steroid therapy (less than 2 mg prednisone/kg daily or less than 20 mg/day if weight is greater than 10 kg for less than 2 weeks) or who are taking inhaled or topical steroids may be safely immunized using the age-appropriate schedule for healthy persons.  
| Other immunosuppressive treatment (can receive Varilrix® only) |  
| Persons receiving immunosuppressive treatment (e.g. high-dose steroids or treatment for renal failure or auto-immune diseases causing immunosuppression) may be considered for varicella immunization if the total lymphocyte count is at least 1,200 per mm^3 (1.2 x 10^9/L) or there is no other evidence of lack of cellular immune competence.  
|
| Post-exposure | Post-exposure immunization could be considered for susceptible contacts of varicella or disseminated zoster cases.  
- When given within 5 days of first exposure, it may prevent or modify varicella disease. 
- If more than 5 days after first exposure, the vaccine could still be offered as this will provide protection for future exposures.  
Refer to Public Health Notifiable Disease Management Guidelines – Varicella (Chickenpox). |
<table>
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<tr>
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<tbody>
<tr>
<td>Dose</td>
<td>0.5 mL</td>
</tr>
<tr>
<td>Route</td>
<td>Subcutaneous</td>
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</tbody>
</table>
| Schedule | Individuals who have never been immunized are eligible for two doses according to the following schedules:  
**Children 12 months up to and including 6 years of age:**  
- Dose 1: 12 months of age  
- Dose 2: 18 months of age  
**Notes:**  
- Most children in Alberta routinely receive measles, mumps, rubella and varicella combined vaccine (MMR-Var) at 12 months and at either 18 months or 4 years of age. See Measles, mumps, rubella and varicella combined vaccine.  
- After the start of second dose varicella vaccine program August 1, 2012, children born on August 1, 2005 or later are eligible for two doses of varicella vaccine.  
- The recommended spacing between the first and the second dose is 3 months.  
- If Varicella vaccine is given as the first dose, MMR-Var vaccine can be administered for the other dose to complete the series if MMR is also required. The recommended interval between the two vaccines is 3 months.  
- The minimum interval between live vaccines is 4 weeks if rapid protection is required.  
- Children who have received a single dose of varicella-containing vaccine and develop laboratory-confirmed varicella disease, do not require the second dose of a varicella-containing vaccine.  
Refer to Public Health Notifiable Disease Management Guidelines – Varicella (Chickenpox).  
**Children 7 years up to and including 12 years of age:**  
- Dose 1: day 0  
- Dose 2: 3 months after dose 1  
**Note:** The minimum interval between live vaccines is 4 weeks if rapid protection is required.  
**Individuals 13 years of age and older:**  
- Dose 1: day 0  
- Dose 2: 6 weeks after dose 1  
**Notes:**  
- The minimum interval between live vaccines is 4 weeks if rapid protection is required. |
- Individuals who received one dose under the age of 13 years AND whose birthdate is prior to August 1, 2005 are considered COMPLETE at this time. See exceptions.

**Exceptions:**
- Women identified through routine prenatal screening are eligible for a maximum of two doses of varicella containing vaccine.
- HCWs upon hire and Post-secondary HCW Students are eligible for a maximum of two doses of varicella containing vaccine.
- Zostavax® vaccine may be considered a valid first dose in a 2-dose varicella vaccine series on a case-by-case basis. (Shingrix® doses cannot be counted in a vaccine series).^5

**Additional Notes:**
- Individuals infected with HIV, who meet the clinical and immunologic categories under Indications above, should receive 2 doses of varicella vaccine with an interval of at least 3 months between doses.^7 MMR vaccine, if needed, may be administered at the same time.^7
- Post-immunization serology is usually not indicated for healthy children and adults as commercial laboratory tests are not sensitive enough to detect vaccine-induced antibodies.^3

### Contraindications

- Known severe hypersensitivity to any component of varicella vaccine.^3
- Anaphylactic reaction to a previous dose of vaccine containing varicella antigen.^3
- Pregnancy^3
- Individuals with a suspicious medical history for immunodeficiency disorders until they have been investigated and T-cell dysfunction is ruled out.^3
- Children and adults with T-cell or combined T- and B-cell immunodeficiencies.^3
- Children and adults with advanced HIV.^3
- Children and adults with solid tumors undergoing immunosuppressive therapy.^3
- Individuals undergoing radiotherapy.^3
- Family history of congenital or hereditary immunodeficiency, unless the immune competence of the potential vaccine recipient is demonstrated.^3
- Individuals with chronic inflammatory diseases (e.g., inflammatory bowel disease, collagen-vascular disease, nephrotic syndrome) taking long-term immunosuppressive therapy or whose immunosuppressive therapy was stopped less than 6 – 12 weeks previously.^3
- Active, untreated tuberculosis.^3
- Solid organ transplant recipients.^11
  - Refer to SOT guidelines for exceptions.
  - Immunization for Children SOT Before 18 Months of Age
  - Immunization of Children SOT After 18 Months of Age

- Immune globulins and blood products within the previous 3 – 11 months. Refer to Assessment Expected Prior to Vaccine Administration — Guidelines for Interval between Blood Products and Live Vaccines. See also Canadian Immunization Guide^3 — Blood products, human immune globulin and timing of immunization.
- Varicella immunization of susceptible post-partum women should be delayed for 3 months after receipt of Rh immune globulin (Rh IG).^3
For Varilrix® only:
- Individuals undergoing immunosuppressive treatment for acute myelogenous leukemia, adults undergoing treatment for ALL\(^3\) and children with ALL that is not in remission\(^2\) (See ‘Considerations for Immunocompromised Individuals’ above).
- Individuals with primary or acquired immunodeficiency states with a total lymphocyte count of less than 1,200 per mm\(^3\) or presenting other evidence of lack of cellular immune competence, such as individuals with active leukemias, lymphomas, blood dyscrasias, clinically manifest HIV infection or patients receiving immunosuppressive therapy (including high-dose corticosteroids).\(^1\)

Note: Varilrix® should not be administered to high-risk patients at the same time as other live attenuated vaccines\(^1\) (exception HIV infection see note above in Schedule).

For Varivax® III:
- Children and adults with leukemia (ALL or acute myelogenous leukemia.)\(^3\)
- Individuals with blood dyscrasias, leukemia, lymphomas of any type or other malignant neoplasms affecting the bone marrow or lymphatic systems.\(^2\)
- Individuals receiving immunosuppressive therapy.\(^2\)
- Individuals with primary and acquired immunodeficiency states including HIV infection except as outlined in Indications above.

Precautions
- Avoid use of salicylates for 6 weeks after vaccination,\(^1,2\) if possible due to association of varicella and Reye’s syndrome. However, children and adolescents on long-term salicylate therapy should be considered for immunization with close subsequent monitoring.\(^3\) Medical consultation is recommended before proceeding with immunization for children on salicylate therapy.
- Individuals taking long-term antiviral therapy should discontinue these drugs (e.g., acyclovir, valacyclovir or famciclovir) if possible from at least 24 hours before administration of varicella vaccine and up to 14 days after immunization.\(^3\) Medical consultation is recommended before proceeding with immunization.
- See ‘Considerations for Immunocompromised Individuals’ above for precautions and considerations.
- If the vaccine recipient develops a varicella-like rash, the rash should be covered when possible; when not possible, direct contact with susceptible high-risk individuals should be avoided for the duration of the rash.\(^3\)

Possible reactions
See Product Monograph

Pregnancy
Contraindicated for pregnant women. Pregnancy should be avoided for 1 month following completion of the appropriate number of doses.\(^3\)

Lactation
Breastfeeding is not a contraindication to immunization.\(^3\) If post-vaccination rash develops, breastfeeding should not be discontinued. The rash should be covered if possible.\(^3\)

Program Notes
- March 2001 - Varicella vaccine for non-immune special groups (household contacts of immunocompromised individuals, HCWs known to be susceptible and women identified through routine pre-natal care).
- April 2001 - Varicella vaccine for susceptible students in Grade 5.
- July 2001 - Routine program for children 12 months of age (born January 1, 2000 or after).
- Spring 2002 - Catch-up program was offered during the preschool immunization visit.
• April 2003 - Varicella vaccine for all susceptible individuals.
• August 2012 - All children born on or after August 1, 2005 eligible to receive 2 doses of varicella vaccine.
• September 2018 - Verbal history of disease is no longer considered a reliable indicator of immunity after introduction of routine varicella vaccine programs (phased in approach) and immunization recommendation for two doses of varicella containing vaccine. (phased in approach). Priority groups: children born August 1, 2012 or later, women identified through routine prenatal screening.
- Specifically for HCWs/HCW students, evidence of immunity includes: documentation of two valid doses of varicella containing vaccine; or laboratory evidence of immunity; or laboratory confirmation of varicella disease; or physician diagnosed shingles disease; or self reported history or physician diagnosed varicella disease in Canada prior to a routine immunization program (In Alberta prior to January 2001. See the NACI Varicella Proof of Immunity - 2015 Update for other Canadian jurisdictions.)
• April 2020 - Univalent varicella vaccine has been shown to be safe and effective in carefully selected pediatric renal and liver transplant recipients >1 year post-transplant receiving minimal immune suppression. In consultation with the transplant team (transplant/infectious disease physician), univalent varicella vaccine may be administered to those who were not optimally immunized prior to transplant
• 2021 January 1 – Varicella second dose offered at 18 months instead of 4 years of age.

References