

December 2017 ~ Resource #331201

## Shingles Vaccine: FAQs

The chart below addresses common clinical questions about the herpes zoster or shingles vaccines (*Shingrix*, *Zostavax* [U.S.], *Zostavax II* [Canada]).

**Abbreviations:** ACIP = Advisory Committee on Immunization Practices; CDC = Centers for Disease Control and Prevention; FDA = U.S. Food and Drug Administration; NNT = number needed to treat.

| Clinical question                                                     | Pertinent information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                       |                                                                |
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| What are important differences among the available shingles vaccines? |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b><i>Shingrix</i></b>                                                                                                | <b><i>Zostavax</i> (U.S.) and <i>Zostavax II</i> (Canada )</b> |
|                                                                       | Type of vaccine <sup>c</sup><br>(live or recombinant)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Recombinant (with an adjuvant to boost immunity) <sup>13,14</sup>                                                     | Live <sup>3,5</sup>                                            |
|                                                                       | Dosage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Two doses: <sup>13,14</sup> 0.5 mL each<br>Second dose given two to six months AFTER the first dose. <sup>13,14</sup> | One dose: <sup>3,5</sup> 0.65 mL                               |
|                                                                       | Route of administration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Intramuscular <sup>13,14</sup>                                                                                        | Subcutaneous <sup>3,5</sup>                                    |
|                                                                       | Injection-site pain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 69% to 86% <sup>13,14,b</sup>                                                                                         | 54% <sup>3,5,b</sup>                                           |
| At what age should the shingles vaccine be administered?              | <ul style="list-style-type: none"> <li>Risk of getting zoster or having prolonged postherpetic neuralgia pain is much lower in patients 50 to 59 years of age than in patients 60 years of age and older.<sup>1</sup></li> <li>The ACIP voted <i>Shingrix</i> as the preferred shingles vaccine in the U.S. (Canadian guidance not yet updated since <i>Shingrix</i> approval.)<sup>15</sup> (The U.S. recommendations will be published once approved by the CDC.)<sup>15</sup> <ul style="list-style-type: none"> <li>Vaccination with <i>Shingrix</i> is recommended for people 50 years of age and older.<sup>13-15</sup></li> <li><i>Shingrix</i> is recommended even in patients that have previously been vaccinated with <i>Zostavax</i>.<sup>15</sup> Administer <i>Shingrix</i> as early as eight weeks after <i>Zostavax</i> [Evidence Level C], but especially if it has been more than five years since <i>Zostavax</i> was given, as most of the protection is lost by then.<sup>23,27-29</sup></li> </ul> </li> <li><i>Zostavax</i> and <i>Zostavax II</i> are recommended by U.S. and Canadian guidelines for people 60 years of age and older.<sup>1,2</sup> <ul style="list-style-type: none"> <li>These are FDA- and Health Canada-approved for patients 50 to 59 years of age.<sup>1,3,5</sup> However, it is uncertain whether vaccination within the age range of 50 to 59 years will provide ongoing protection at older ages when the incidence of zoster and risk of complications is higher.<sup>1,2</sup> (See duration of <i>Zostavax</i> immunity below.) <ul style="list-style-type: none"> <li>The CDC suggests that consideration can be given to vaccinating these younger patients if they might have poor tolerance to zoster or postherpetic neuralgia symptoms or treatments, such as patients with chronic pain or severe depression; patients with allergies or intolerances to, or potential drug interactions with, treatment medications; or special employment situations.<sup>1</sup></li> </ul> </li> </ul> </li> </ul> |                                                                                                                       |                                                                |

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| Clinical question                                                                   | Pertinent information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>Should patients who've had shingles receive the vaccine?</b>                     | <ul style="list-style-type: none"> <li>• Vaccination is recommended regardless of shingles or chickenpox history.<sup>1,2,15</sup></li> <li>• Different safety concerns are not expected in persons with a history of shingles.<sup>1,2,12</sup></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>How long after a shingles episode can the vaccine be given?</b>                  | <ul style="list-style-type: none"> <li>• Re-occurrence risk is low for the first 12 to 18 months after shingles due to residual immunity in immunocompetent patients.<sup>10</sup></li> <li>• <u>CDC</u>: A patient with shingles should wait until the acute stage of the illness is over and symptoms have subsided to be vaccinated, as with all vaccines.<sup>1</sup></li> <li>• <u>Canada</u>: It is recommended that at least one year elapse between the last shingles episode and zoster vaccination.<sup>2</sup> <ul style="list-style-type: none"> <li>○ Herpes ophthalmicus has recurred following shingles vaccination (<i>Zostavax II</i>).<sup>2</sup> <ul style="list-style-type: none"> <li>▪ Causality has not been established, but patients should be informed that the risk/benefit is unknown.<sup>2</sup></li> </ul> </li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Can the shingles vaccine be administered with other vaccines or medications?</b> | <ul style="list-style-type: none"> <li>• <i>Zostavax</i> and <i>Zostavax II</i> can be administered with other live and inactivated vaccines.<sup>1</sup></li> <li>• <i>Shingrix</i> can be safely administered with an <b>unadjuvanted</b> seasonal influenza vaccine without compromising efficacy of either vaccine.<sup>14,23,24</sup> (Do NOT give with <i>Fluad</i>, an adjuvanted influenza vaccine.) <ul style="list-style-type: none"> <li>○ CDC recommendations for co-administration with other inactivated vaccines (e.g., pneumococcal, Tdap) are not available at time of publication.</li> </ul> </li> <li>• See our CE, <i>Safe and Appropriate Use of Live Vaccines</i>, for more on coadministration of vaccines.</li> <li>• When possible, <u>live</u> zoster vaccines (<i>Zostavax</i>, <i>Zostavax II</i>) should be administered at least 24 hours after discontinuation of an antiviral agent active against herpes viruses (acyclovir, famciclovir, etc). The antiviral should not be restarted for at least 14 days after vaccination.<sup>18</sup> <ul style="list-style-type: none"> <li>○ Theoretically this should not be a concern with <i>Shingrix</i>, as it is a recombinant vaccine (e.g., does not contain live virus). However, no data are currently available.</li> </ul> </li> </ul> |
| <b>How long does immunity last?</b>                                                 | <p><u><i>Zostavax</i> and <i>Zostavax II</i></u></p> <ul style="list-style-type: none"> <li>• In patients 60 years and older, efficacy wanes within the first five years, and protection beyond five years is uncertain.<sup>1</sup> <ul style="list-style-type: none"> <li>○ May provide some efficacy up to seven years, but likely less than ten years.<sup>2,17</sup></li> <li>○ Though studies are ongoing, there is no current recommendation for a booster or revaccination.<sup>1,2</sup></li> </ul> </li> </ul> <p><u><i>Shingrix</i></u></p> <ul style="list-style-type: none"> <li>• Immune response appears to be maintained at least nine years after vaccination based on cellular response.<sup>20,21</sup> <ul style="list-style-type: none"> <li>○ It is unclear if this correlates to continued protection against shingles and postherpetic neuralgia.<sup>20,21</sup></li> </ul> </li> <li>• Maintains &gt;90% efficacy regardless of age at least four years after vaccination.<sup>19</sup> <ul style="list-style-type: none"> <li>○ Maintains about 88% efficacy four years after vaccination in patients vaccinated at 70 years of age or older.<sup>7</sup></li> </ul> </li> </ul>                                                                                                                 |

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| Clinical question                                           | Pertinent information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>How effective is the shingles vaccine?</b>               | <p><u>Shingles</u></p> <ul style="list-style-type: none"> <li>• <i>Zostavax</i>: NNT ~ 59 patients to prevent one case of shingles over about three years in patients over 60 years of age.<sup>3,5,a</sup></li> <li>• <i>Shingrix</i>: NNT ~ 37 patients to prevent one case of shingles over about three years in patients at least 50 years of age.<sup>11</sup></li> </ul> <p><u>Postherpetic neuralgia</u></p> <ul style="list-style-type: none"> <li>• All available vaccines have an NNT ~ 350 to prevent one case of postherpetic neuralgia over about three years.<sup>7,25</sup></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Who should <u>not</u> receive the shingles vaccines?</b> | <p><u>Shingrix</u></p> <ul style="list-style-type: none"> <li>• There are limited data in immunocompromised patients.<sup>14</sup> <ul style="list-style-type: none"> <li>○ Immunosuppressive therapy may reduce effectiveness.<sup>13</sup></li> </ul> </li> <li>• There are no data available about risk with use in pregnant or breastfeeding women.<sup>13,14</sup></li> </ul> <p><u>Zostavax (U.S.)</u></p> <ul style="list-style-type: none"> <li>• Do not administer to immunosuppressed patients, such as severely immunocompromised HIV patients; patients with lymphoma, leukemia, or other diseases affecting the immune system; and those taking meds that affect the immune system such as corticosteroids (<math>\geq 2</math> weeks of prednisone 20 mg daily [or equivalent]), chemotherapy, or radiation therapy.<sup>1,4</sup></li> <li>• Defer vaccination for at least one month after discontinuation of immunosuppressive therapy.<sup>16</sup></li> <li>• Do not administer to women who are or may become pregnant.<sup>1</sup> <ul style="list-style-type: none"> <li>○ Women should not become pregnant until at least four weeks after getting the vaccine.<sup>1</sup></li> </ul> </li> </ul> <p><u>Zostavax II (Canada)</u></p> <ul style="list-style-type: none"> <li>• In general, do not administer to patients with primary immune deficiency (e.g., disorders of T-cell function) or acquired immune deficiency (e.g., blood dyscrasia, chemotherapy, radiation therapy, organ or stem cell transplant, cancer affecting the bone marrow or lymphatics).<sup>2</sup> Expert consultation is advised in complex cases.<sup>2</sup> <ul style="list-style-type: none"> <li>○ Patients with isolated immunoglobulin or complement deficiency, phagocytic defects (e.g., chronic granulomatous disease), or neutrophil disorders (e.g., neutropenia, Chediak-Higashi syndrome) can be vaccinated.<sup>2</sup></li> <li>○ The vaccine may be considered for people on low-dose immunosuppression, such as less than 14 days' corticosteroid use, prednisone <math>&lt; 20</math> mg daily or its equivalent, topical or inhaled corticosteroid, corticosteroid joint injection, methotrexate <math>\leq 0.4</math> mg/kg/week, azathioprine <math>\leq 3</math> mg/kg/day, or 6-mercaptopurine <math>\leq 1.5</math> mg/kg/day.<sup>2</sup> <ul style="list-style-type: none"> <li>▪ Hydroxychloroquine, sulfasalazine, and auranofin are not considered immunosuppressive.<sup>2</sup></li> </ul> </li> <li>○ The vaccine can be given at least four weeks before immunosuppressive therapy, four weeks after high-dose corticosteroids, or three months after other immunosuppressive drugs (e.g., cyclosporine, chemo).<sup>22</sup></li> <li>○ Consult an immunodeficiency expert if considering vaccination in a patient with HIV or on an anti-TNF biologic.<sup>2</sup></li> </ul> </li> <li>• This shingles vaccine is contraindicated during pregnancy.<sup>2</sup> <ul style="list-style-type: none"> <li>○ Women should not become pregnant until at least four weeks after getting the vaccine.<sup>2</sup></li> </ul> </li> </ul> |

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| Clinical question                               | Pertinent information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <b>How is the shingles vaccine reimbursed?</b>  | <ul style="list-style-type: none"> <li>Reimbursement for <i>Shingrix</i> is unlikely to be available until early 2018 at the earliest (U.S.), after the official ACIP recommendations are published. <ul style="list-style-type: none"> <li>Until reimbursement for <i>Shingrix</i> is established, discuss the pros and cons of administering <i>Zostavax</i> (U.S.) or <i>Zostavax II</i> (Canada) versus waiting to administer <i>Shingrix</i>.</li> </ul> </li> </ul> <p><u>U.S.</u></p> <ul style="list-style-type: none"> <li>Medicare Part D covers <i>Zostavax</i>, but the patient's share varies by plan.<sup>8</sup> It is expected that Medicare Part D will eventually cover <i>Shingrix</i> for patients 65 years and older.</li> <li>Private insurance coverage varies.<sup>9</sup></li> <li><i>Zostavax</i> costs about \$212 to use, while <i>Shingrix</i> costs about \$280 for the two-dose series.<sup>26</sup></li> </ul> <p><u>Canada</u></p> <ul style="list-style-type: none"> <li>In Ontario, patients 65 to 70 years of age can receive <i>Zostavax II</i> free of charge from their primary care provider.<sup>6</sup></li> <li>Otherwise for other patients and provinces, the out-of-pocket cost is about \$170.<sup>6</sup></li> <li><i>Shingrix</i> is approved but not yet marketed in Canada; therefore reimbursement information is not available at time of publication.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| <b>How must the shingles vaccine be stored?</b> | <ul style="list-style-type: none"> <li><i>Shingrix</i> (both the lyophilized antigen vial and adjuvant suspension vial [diluent]) should be refrigerated between 36°F and 46° F (2°C and 8°C).<sup>13,14</sup> <ul style="list-style-type: none"> <li>Vaccine should be reconstituted with the diluent provided and used immediately or refrigerated between 36°F and 46° F (2°C and 8°C) and used within six hours.<sup>13,14</sup></li> </ul> </li> <li><i>Zostavax</i> (only available in the U.S.) should be stored frozen between -58°F and +5°F (-50°C and -15°C) in a unit with a separate, sealed, frost-free freezer.<sup>5</sup> <ul style="list-style-type: none"> <li>It may be stored or transported at refrigerator temperatures 36°F and 46° F (2°C and 8°C) for up to 72 hours prior to reconstitution.<sup>5</sup> <ul style="list-style-type: none"> <li>Discard any product not used within 72 hours of removal from freezer.<sup>5</sup></li> </ul> </li> <li>Vaccine should be reconstituted with the diluent provided and administered within 30 minutes of reconstitution.<sup>5</sup> <ul style="list-style-type: none"> <li>The diluent can be stored in the refrigerator between 36°F and 46° F (2°C and 8°C) or at room temperature between 68°F and 77°F (20°C and 25°C).<sup>5</sup></li> </ul> </li> </ul> </li> <li><i>Zostavax II</i> (only available in Canada) should be refrigerated at 2°C to 8°C.<sup>3</sup> <ul style="list-style-type: none"> <li>The diluent can be stored in the refrigerator between 2°C and 8°C or at room temperature between 20°C and 25°C.<sup>3</sup></li> <li>Vaccine should be reconstituted with the diluent provided and administered within 30 minutes of reconstitution.<sup>3</sup></li> </ul> </li> </ul> |

- Zostavax II* product monograph references efficacy data from *Zostavax* trials.
- Shingrix* causes more injection site pain. However, *Zostavax* causes more redness and swelling.<sup>5,13</sup>
- Quillaja saponaria* Molina, fraction 21 (QS-21) and 3-O-desacyl-4-monophosphoryl lipid A (MPL) act as adjuvants to boost immune response.<sup>13,14</sup>

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*Users of this resource are cautioned to use their own professional judgment and consult any other necessary or appropriate sources prior to making clinical judgments based on the content of this document. Our editors have researched the information with input from experts, government agencies, and national organizations. Information and internet links in this article were current as of the date of publication*

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