Changes to the recommended use of zoster vaccines

Plain-language summary

Herpes zoster disease is also called shingles. It is caused by a reactivation of the chickenpox virus. It causes a painful blistering rash.

Shingles is a serious disease because it can cause severe nerve pain that can last for months. This nerve pain is known as post-herpetic neuralgia or PHN. Shingles can also lead to:

- serious eye problems, including blindness
- pneumonia
- hearing problems
- swelling of the brain
- death.

Shingles is caused by the varicella-zoster virus, the same virus that causes chickenpox (varicella). The first time you catch the virus, you get chickenpox. The virus stays in your body and can reactivate later in life. When it reactivates, it is called shingles.

Anyone who has had chickenpox is at risk of getting shingles later in life. More than 97% of adults in Australia will have had chickenpox by the age of 30 years, so most adults are at risk of shingles. A vaccine to prevent chickenpox has been free for children under the National Immunisation Program (NIP) since 2005.

The risk of getting shingles increases with age. The likelihood of complications such as long-lasting nerve pain also increases with age.

There are 2 vaccines to prevent shingles in Australia, called Zostavax and Shingrix. The 2 vaccines are made in different ways and are registered for use in different groups of people:

- **Zostavax** is given as a single dose and is registered for use in people aged 50 years and over. Zostavax is a live-attenuated vaccine, which means it contains a weakened version of the live virus. It should not be given to people who have a weakened immune system (immunocompromised). Zostavax is available for free under the NIP for people aged 70 years, and as a catch-up program for people aged 71–79 years until 31 October 2023.
- **Shingrix** is given as 2 doses, 2 to 6 months apart (or from 1 month apart in people who are immunocompromised). It is registered for use in people aged 50 years and over who have a healthy immune system (immunocompetent), and people aged 18 years and over who are immunocompromised and at increased risk of herpes zoster. Shingrix is not a live vaccine, so it is safe to give to people who are immunocompromised. Shingrix is currently available through private prescription only.

The recommendations for zoster vaccination in Australia are changing. Under the new recommendations, people may have a zoster vaccine from age 50 if they have a healthy immune system, or from age 18 if they are immunocompromised. As we do not know how long the vaccine provides protection, people need to talk to their doctors about the best time for them to have the vaccine.

Summary of revised recommendations

The key changes to zoster vaccine recommendations are:

- the recommended age from which immunocompetent people can be vaccinated has changed from ≥60 years to ≥50 years
- immunocompromised people can now receive Shingrix from age ≥18 years
- the recommendations for serological testing have been clarified
- recommendations have been updated to include both of the zoster vaccines available in Australia (Shingrix and Zostavax).

New recommendations

- All adults aged ≥50 years are recommended to receive zoster vaccine
- People aged ≥18 years who are immunocompromised are recommended to receive zoster vaccine
- People who inadvertently received a varicella vaccine when a zoster vaccine was indicated are recommended to receive a subsequent zoster vaccine
- Serological testing is recommended before administration of Zostavax in people with mild immunocompromise
- Serological testing is not recommended before zoster vaccination in people who are immunocompetent

Recommendations with updated supporting information

- People who have had a previous episode of herpes zoster can receive zoster vaccine
- People who have received varicella vaccine are not recommended to receive zoster vaccine

Recommendations to be deleted

- Adults aged 50–59 years are not routinely recommended to receive Zostavax vaccine, but they can receive it if they want to reduce their risk of herpes zoster — *Replaced with new recommendations 'All adults aged ≥50 years are recommended to receive zoster vaccine' and 'People aged ≥18 years who are immunocompromised are recommended to receive zoster vaccine'*
- Adults aged ≥60 years are recommended to receive Zostavax — *Replaced with new recommendations 'All adults aged ≥50 years are recommended to receive zoster vaccine' and 'People aged ≥18 years who are immunocompromised are recommended to receive zoster vaccine'*
- Serological testing before zoster vaccination is recommended for some people — *Replaced with new recommendations 'Serological testing is not recommended before zoster vaccination in people who are immunocompetent' and 'Serological testing is recommended before administration of Zostavax in people with mild immunocompromise'*
- Healthy adults who are seronegative to varicella-zoster virus are recommended to receive either varicella vaccine or Zostavax — *Replaced with new recommendations regarding vaccination and serological testing, including a link to the Varicella chapter of the Handbook, which contains the recommendation for varicella vaccination in seronegative adults*

Recommendations that are not changing

- People aged ≥50 years who are household contacts of a person who is immunocompromised are recommended to receive zoster vaccine
- Serological testing after zoster vaccination is not recommended

Background and rationale

The Australian Technical Advisory Group on Immunisation (ATAGI) advises the Australian Government on clinical recommendations for vaccinations. ATAGI is proposing changes to the recommendations for the use of zoster vaccines.

The proposed changes reflect the current best clinical practice to prevent herpes zoster disease (shingles) and its complications, including post-herpetic neuralgia (PHN). The revised recommendations will be published online in the Australian Immunisation Handbook. Information relating to the GRADE (Grading of Recommendations, Assessment, Development and Evaluations) assessment are published on the National Centre for Immunisation Research and Surveillance (NCIRS) website.

Herpes zoster (shingles)

Primary infection with the varicella-zoster virus (VZV) is known as chickenpox. After primary infection, the virus resides in the sensory ganglia.[1]

Herpes zoster, or shingles, occurs when latent VZV reactivates. It causes a painful vesicular rash, usually in a dermatomal distribution on one side of the body. This could be due, in part, to a decline in cellular immunity to the virus.[2] Virus-specific cellular immunity most commonly declines with ageing, or with immunocompromising medical conditions or immunosuppressive treatment.

PHN is the most frequent debilitating complication of herpes zoster. PHN is a neuropathic pain syndrome that persists or develops after the dermatomal rash has healed. PHN is most commonly defined as the persistence of pain for longer than 3 months after the onset of the rash.

Herpes zoster occurs most commonly in people who:

- are of older age — particularly >50 years
- are immunocompromised
- had varicella in the first year of life.

The lifetime risk of reactivation of VZV is about 50%. It affects half of people who live to 80 years.[1,3-5]

Overall, 13–26% of patients with herpes zoster develop complications. Complications occur more often in older people and people who are immunocompromised.[6,7]

Further attacks of herpes zoster occur in approximately 5% of immunocompetent people, but are more common in people who are immunocompromised.[2,8-10]

Zostavax zoster vaccine

Zostavax is registered with the Therapeutic Goods Administration (TGA) for adults aged ≥50 years. It is funded under the NIP for people aged 70 years, with a catch-up program for people aged 71–79 years until 31 October 2023.

Zostavax is a live-attenuated vaccine. It is contraindicated in people with current or recent significant immunocompromise due to the risk of disseminated varicella disease from the Oka varicella virus strain used in the vaccine. Zostavax may be given to people with mild immunocompromise if Shingrix is not accessible, after careful assessment on a case-by-case basis of the degree of immunocompromise using the Live shingles vaccine (Zostavax) screening for contraindications tool.

Zostavax has been associated with serious adverse events, including after incorrect administration to people who are immunocompromised. This has led to several TGA safety advisories, a safety alert from the Chief Medical Officer and previous updates to the Handbook. The Zostavax Product Information contains a boxed warning with information about how to manage this risk, and the TGA has introduced a range of other safety measures to mitigate this risk.

Shingrix zoster vaccine

Shingrix has been registered with the TGA for adults aged ≥50 years since 2017. In late 2021, registration was expanded to include immunocompromised people aged ≥18 years at increased risk of herpes zoster. Shingrix is the only registered zoster vaccine for immunocompromised people aged 18–49 years.

Previous ATAGI recommendations for the use of Shingrix were published as an ATAGI clinical statement on the use of zoster vaccines in adults in Australia. These recommendations are being incorporated into the Handbook as part of this proposed update.

GRADE methods

Evidence on benefits and harms of zoster vaccines was assessed using GRADE (Grading of Recommendations, Assessment, Development and Evaluations) methods. The primary research questions were:

- Should Shingrix be used for immunocompetent older adults (aged ≥50 years) compared with placebo? (2 large double-blind, placebo-controlled randomised controlled trials were included)
- Should Shingrix be used for immunocompetent older adults (aged ≥50 years) compared with Zostavax? (No direct comparison clinical trials; 1 network meta-analysis was included from an indirect comparison of both vaccines compared with placebo)
- Should Shingrix be used for immunocompromised adults (aged ≥18 years) compared with placebo or no vaccine? (6 randomised controlled trials and 3 observational studies were included)

The benefits outcomes considered included:

- vaccine efficacy against herpes zoster
- vaccine efficacy against PHN
- duration of protection.

The harms outcomes considered included:

- herpes zoster-related hospitalisation

- herpes zoster-related death
- adverse events – serious, local, systemic and unsolicited.

For immunocompromised adults, outcomes also included vaccine effectiveness against herpes zoster, humoral (antibody) immune response, cell-mediated immune response and potential immune-mediated disease.

The certainty of the evidence for each outcome was determined by assessing the study design, risk of bias, inconsistency, indirectness and imprecision.

Updated recommendations

New recommendation — adults

New recommendation: All adults aged ≥50 years are recommended to receive zoster vaccine

All adults aged ≥50 years should be offered zoster vaccine. Recommended vaccines differ according to the individual's immune status. The optimal timing of zoster vaccination should be determined on a case-by-case basis (see 'Considerations for timing of zoster vaccination', below).

Zostavax is **not** recommended for people who are or have recently been immunocompromised. A thorough assessment of each patient's immune status should be undertaken before administering Zostavax. If there is uncertainty about a person's immune status, do not administer the vaccine, and consult the person's specialist or an immunisation specialist before proceeding. See 'People who are immunocompromised' for recommendations specific to this population.

People who are immunocompetent

Both Shingrix and Zostavax have good efficacy in preventing herpes zoster, but they have not been directly compared in clinical trials. Studies of each vaccine against placebo, however, suggest that Shingrix may be substantially more efficacious,[11] particularly in the elderly, and may offer longer-lasting protection against herpes zoster.[12-17]

People who are immunocompetent are recommended to receive a 2-dose schedule of Shingrix, 2 months apart, for the prevention of herpes zoster and associated complications.

A single dose of Zostavax remains an effective alternative to Shingrix in people who are immunocompetent. Careful assessment of the individual's immune status should be undertaken before administering Zostavax to confirm they are not immunocompromised.

Considerations for timing of zoster vaccination

The optimal time to receive zoster vaccination depends on individual circumstances.

Age-related risk of herpes zoster and its complications

Herpes zoster can occur at any age, but the risk increases with age. The risk of herpes zoster in the general population increases from an estimated annual rate of 6 per 1000 in people aged 50–59 years, to 15 per 1000 in people aged 70–79 years.[18] The likelihood of complications such as post-herpetic neuralgia (PHN) also increases with age.[18]

Duration of protection offered by the vaccine chosen

Shingrix has demonstrated high vaccine efficacy for 7 years after vaccination in people without apparent immunocompromise,[19] and immunogenicity data suggest that protection may persist for at least 10 years.[12-14] Effectiveness of Zostavax appears to wane more quickly, decreasing significantly by 5–10 years after vaccination.[15-17]

It is possible that a person vaccinated at a younger age (such as in their 50s or 60s) may have reduced protection from vaccination as they age, when the risk of zoster is higher.

There is no current recommendation for boosters for either vaccine.

Individual's immune status

People who are immunocompromised are at significantly higher risk of herpes zoster and severe complications than those who are immunocompetent.[20-22] However, the duration of protection of zoster vaccines in people who are immunocompromised is less certain. If there is uncertainty about the optimal timing of vaccination in people who are immunocompromised, this should be discussed with the patient's specialist.

Individual's personal preferences

A person's desire to protect themselves from herpes zoster and related complications may vary and this will influence decision-making on when to receive zoster vaccination.

Receiving Shingrix if previously vaccinated with Zostavax

People who have previously received Zostavax can receive Shingrix if they wish to increase their protection against herpes zoster. Shingrix has been demonstrated to be immunogenic and safe in people who had received Zostavax a minimum of 5 years earlier.[23,24] A minimum interval of at least 12 months is recommended between receiving Zostavax and a subsequent dose of Shingrix. There is currently no recommendation for booster doses for either vaccine.

Current recommendation

ATAGI currently recommends the following:

- Adults aged 50–59 years are not routinely recommended to receive Zostavax vaccine, but they can receive it if they want to reduce their risk of herpes zoster
- Adults aged ≥60 years are recommended to receive Zostavax

Key differences

The recommended age from which vaccination may be offered has changed from ≥60 years to ≥50 years. The recommendation wording has changed to no longer specify Zostavax, as Shingrix is now available and is the preferred vaccine. Shingrix vaccine has both clinical and immunogenicity data supporting a longer duration of protection than Zostavax, and this underlies the change to the recommendation to consider vaccination from the earlier age of 50 years. More information has been included to guide providers on considerations for timing of vaccination, including age-related risk of disease, duration of protection and individual factors.

Evidence for the new recommendation

In 2 large clinical trials, Shingrix provided 97% protection against herpes zoster in immunocompetent adults ≥50 years and 91% protection in immunocompetent adults ≥70 years.[12,13] In clinical trials of Zostavax, efficacy was lower, and decreased with increasing age: 70% in people aged 50–59 years, 64% in those aged 60–69 years, 41% in 70–79 years, and 18% in 80–89 years (no longer statistically significant in this age group).[25,26]

Vaccine efficacy of Shingrix against PHN was 91% in immunocompetent adults ≥50 years and 89% in immunocompetent adults ≥70 years.[12,13] In clinical trials of Zostavax, vaccine efficacy against PHN was around 66% in people aged 60–79 years.[25]

High vaccine efficacy (>80%) has been demonstrated up to 7 years after vaccination with 2 doses of Shingrix,[19] and immunogenicity data suggest protection may persist beyond 10 years.[12-14] In contrast, the effectiveness of Zostavax appears to decrease significantly by 5–10 years after vaccination.[11,15-17]

Local and systemic adverse events following Shingrix were substantially higher than after placebo. Local adverse events (such as pain, redness and swelling) were experienced by 82% of trial participants aged ≥50 years who received Shingrix (compared with 12% who received placebo), and 74% of participants aged ≥70 years (compared with 10% who received placebo). Systemic adverse events (such as fever, fatigue, gastrointestinal symptoms, headache, shivering myalgia) were experienced by 66% of trial participants aged ≥50 years who received Shingrix (compared with 30% who received placebo), and 53% of participants aged ≥70 years (compared with 25% who received placebo). There was no difference in the rates of serious adverse events compared with placebo.[12,13] Compared with Zostavax, the rates of local and systemic adverse events following Shingrix vaccine may be higher, but the evidence is very uncertain.[11-13,25-29]

New recommendation — people who are immunocompromised

New recommendation: People aged ≥18 years who are immunocompromised are recommended to receive zoster vaccine

People who are immunocompromised are recommended to receive a 2-dose schedule of Shingrix, 1–2 months apart, for the prevention of herpes zoster and associated complications. This includes people who are currently or recently immunocompromised due to a primary or acquired medical condition, or due to medical treatment (including treatment that has recently ceased).

Shingrix has been shown to provide good protection against herpes zoster and associated complications in some highly immunocompromised populations for up to 2 years after vaccination.[30,31] A robust immune response has also been demonstrated in a broader range of immunocompromised populations.[30-35]

In immunocompromised people aged 18–49 years, Shingrix is the only vaccine available to prevent herpes zoster.

In immunocompromised adults aged ≥50 years, Zostavax is generally contraindicated and Shingrix should be used. This is due to the risk of disseminated varicella disease from the Oka strain vaccine virus, which can lead to death.[36-39] This risk increases with the level of immunosuppression. Zostavax is contraindicated in people with severe immunocompromise. However, Zostavax may be given to people with mild immunocompromise where Shingrix is not accessible, after careful assessment of the degree of immunocompromise using the Live shingles vaccine (Zostavax) screening for contraindications tool. See Contraindications and precautions.

Considerations for timing of zoster vaccination

The optimal time to receive zoster vaccination depends on individual circumstances.

Age-related risk of herpes zoster and its complications

Herpes zoster can occur at any age, but the risk increases with age. The risk of herpes zoster in the general population increases from an estimated annual rate of 6 per 1000 in people aged 50–59 years, to 15 per 1000 in people aged 70–79 years.[18] The likelihood of complications such as post-herpetic neuralgia (PHN) also increases with age.[18]

Duration of protection offered by the vaccine chosen

Shingrix has demonstrated high vaccine efficacy for 7 years after vaccination in people without apparent immunocompromise,[19] and immunogenicity data suggest that protection may persist for at

least 10 years.[12-14] Effectiveness of Zostavax appears to wane more quickly, decreasing significantly by 5–10 years after vaccination.[15-17]

It is possible that a person vaccinated at a younger age (such as in their 50s or 60s) may have reduced protection from vaccination as they age, when the risk of zoster is higher.

There is no current recommendation for boosters for either vaccine.

Individual's immune status

People with immunocompromise are at significantly higher risk of herpes zoster and severe complications than those who are immunocompetent.[20-22] However, the duration of protection of zoster vaccines in people who are immunocompromised is less certain. If there is uncertainty about the optimal timing of vaccination in people who are immunocompromised, this should be discussed with the patient's specialist.

Individual's personal preferences

A person's desire to protect themselves from herpes zoster and related complications may vary and this will influence decision-making on when to receive zoster vaccination.

Receiving Shingrix if previously vaccinated with Zostavax

People who have previously received Zostavax can receive Shingrix if they wish to increase their protection against herpes zoster. Shingrix has been demonstrated to be immunogenic and safe in people who had received Zostavax a minimum of 5 years earlier.[23,24] A minimum interval of at least 12 months is recommended between receiving Zostavax and a subsequent dose of Shingrix. There is currently no recommendation for booster doses for either vaccine.

Current recommendation

As Zostavax is generally contraindicated in people who are immunocompromised, there is no current recommendation specifically for people who are immunocompromised. Until recently, Zostavax was the only zoster vaccine available, was registered for use in adults aged ≥50 years and was able to be used only in selected mildly immunocompromised people. However, since late 2021, Shingrix has been registered for use in people aged ≥18 years who are immunocompromised, and Shingrix is now the recommended vaccine for all levels of immunocompromise.

Evidence for the new recommendation

Zostavax is contraindicated in people with significant immunocompromise, making Shingrix the only suitable vaccine for prevention of herpes zoster and associated complications in this population. Shingrix is the only zoster vaccine registered for use in immunocompromised people aged 18–49 years.

Compared with immunocompetent individuals, people who are immunocompromised have increased rates of herpes zoster and of complications such as PHN.[6,7] Herpes zoster can occur at a younger age in people who are immunocompromised, and there is also a higher risk of recurrence.[2,8-10]

Shingrix has been shown to provide good protection against herpes zoster and associated complications in some highly immunocompromised populations aged ≥18 years for up to 2 years following vaccination.[30] Longer-term data are not yet available. A robust immune response has also been demonstrated in a broader range of immunocompromised populations aged ≥18 years.[30-35]

In a small number of clinical trials of highly immunocompromised populations (haematopoietic stem cell transplantation and haematological malignancy), including patients aged 18 years and above, Shingrix has been shown to provide good protection against herpes zoster, PHN and herpes zoster-related hospitalisation.[30,31]

Vaccine effectiveness studies on Shingrix using observational data have also shown good protection against herpes zoster.[40-42] Participants in these studies were a general immunocompromised population aged ≥65 years, and people aged ≥50 years being treated for inflammatory bowel disease on immunosuppressant medications.

Compared with placebo, Shingrix results in a moderate to large increase in local and systemic reactogenicity, but little to no difference in serious adverse events, immune-mediated disease and unsolicited adverse events.[30-34] The high efficacy of Shingrix against herpes zoster and associated complications outweighs the increase in non-serious adverse events in immunocompromised populations.

While there is a lack of data on the efficacy of Shingrix in a broader range of immunocompromised groups, trials demonstrate a similarly robust immune response to the vaccine in a range of other immunocompromised populations (HIV, renal transplant, solid organ malignancies receiving immunosuppressant/cytotoxic medications) to support a recommendation for the vaccine's use in immunocompromised populations more generally.[30-35]

New recommendation — people who have received varicella vaccine

New recommendation: People who inadvertently received a varicella vaccine when a zoster vaccine was indicated are recommended to receive a subsequent zoster vaccine

If a person has received varicella vaccine inadvertently when a live-attenuated zoster vaccine was indicated, there are no specific safety concerns, but the dose should not be considered valid.

A dose of zoster vaccine should be given at the same visit. If not able to be given at the same visit, Shingrix can be given at any time after the varicella vaccine, or Zostavax can be given at least 4 weeks after the varicella vaccine.

Current recommendation

ATAGI currently recommends the following:

- People who have received varicella vaccine are not recommended to receive zoster vaccine

Key differences

ATAGI proposes adding an additional recommendation to expand on the current recommendation. This will help clarify the two scenarios in which a person may have previously received a varicella vaccine and the appropriate action for each.

Evidence for the updated recommendation

A person vaccinated with varicella vaccine in the past (that is, following the NIP schedule or clinical guidance because they were non-immune to varicella-zoster virus) is unlikely to have had wild-type chickenpox. This means that they are unlikely to require zoster vaccine as they get older.

In contrast, if a person who requires a zoster vaccine is inadvertently given a varicella vaccine, this should be corrected by administering a zoster vaccine.

New recommendations — serological testing before and after zoster vaccination

New recommendation: Serological testing is recommended before administration of Zostavax in people with mild immunocompromise

If a provider chooses to administer Zostavax to a person with mild immunocompromise, serological testing should be performed before vaccination to confirm the person is varicella-zoster virus (VZV) IgG positive.

People who are immunocompromised and have negative VZV IgG **should not** receive Zostavax. This is because they may have very severe outcomes after receiving Zostavax.[43] Consult with the patient's specialist or immunologist before administering Zostavax. A cautious approach with detailed individual clinical assessment is required before administering Zostavax.

See recommendations for adolescents and adults in the Varicella chapter for more information about vaccination for people who are seronegative for VZV IgG.

Serological testing is not required before administration of Shingrix in immunocompromised adults.

New recommendation: Serological testing is not recommended before zoster vaccination in people who are immunocompetent

It is not necessary to have serological evidence of immunity to varicella-zoster virus (VZV) or a history of previous varicella infection before administering zoster vaccine in immunocompetent people. More than 97% of people in Australia are seropositive to VZV by 30 years of age,[44] even if they cannot recall having varicella at a younger age.

Zoster vaccine effectively boosts humoral and cellular immune responses. However, it is not known how this level correlates with protection against the virus. In some small studies, high-dose VZV-containing vaccine (comparable to Zostavax) was given to healthy VZV-seronegative adults and previously infected adults. The limited data suggest that Zostavax was well tolerated and immunogenic in seronegative people.[45,46] Large clinical trials administering Shingrix to immunocompetent adults did not require confirmation of VZV seropositivity as part of their inclusion criteria, and no safety or immunogenicity concerns were identified.[12,13,47]

Current recommendation

ATAGI currently recommends the following:

- Serological testing before zoster vaccination is recommended for some people

Key differences

ATAGI proposes splitting the current recommendation into 2, with additional information to help clarify the need for serological testing in people who are immunocompromised who are intending to receive Zostavax.

Evidence for the new recommendation

Zostavax has been associated with serious adverse events (including death) in immunocompromised people due to disseminated infection with the vaccine strain. The risk of this may be higher in immunocompromised people who have not had varicella infection

previously and have no pre-existing immunity. Serological testing may help to identify people at higher risk who should not receive Zostavax.

Recommendations with updated supporting information

Updated recommendation: People who have had a previous episode of herpes zoster can receive zoster vaccine

People who have previously experienced herpes zoster are at risk of recurrent episode(s) and can receive zoster vaccine.[9]

There is limited evidence for the use of zoster vaccine in these people and studies have not established the optimal interval to wait between a herpes zoster episode and subsequent vaccination. However, no safety or immunogenicity concerns have been identified.[48]

For immunocompetent people, it is recommended to delay vaccination for at least 12 months after an episode of herpes zoster. This is because an episode of herpes zoster boosts cellular and humoral immunity above baseline levels in most people.

Immunocompromised people are at higher risk of recurrence of zoster[20,49-51] and can receive Shingrix from 3 months after the acute illness. Vaccination soon after an acute episode should be balanced by considering the uncertainty of the duration of protection after vaccination in immunocompromised people, and the absence of recommendations for booster doses after the initial course.

Key differences

The supporting information has been updated to clarify the recommended interval between an episode of herpes zoster and receiving a vaccine — 12 months for immunocompetent people, and 3 months for people who are immunocompromised.

Evidence for the updated recommendation

An episode of herpes zoster boosts cellular and humoral immunity. Some studies suggest lower recurrence rates in the first 12 months after the first episode of herpes zoster.[52] Because of this natural boosting, ATAGI recommends that vaccination should be delayed in immunocompetent people for at least 12 months after an episode of herpes zoster.

People who are immunocompromised have a higher risk of recurrence of zoster than immunocompetent people.[20,49-51] Because of this increased risk, ATAGI recommends an interval of at least 3 months between acute illness and vaccination. The length of this interval should be determined on an individual basis and should consider:

- the uncertainty in duration of protection after vaccination in people who are immunocompromised
- the absence of recommendations for booster doses later in life.

Updated recommendation: People who have received varicella vaccine are not recommended to receive zoster vaccine

People who have received varicella vaccine when it was indicated are not recommended to receive zoster vaccine.

Studies of the safety and immunogenicity of zoster vaccine in people who have previously received varicella vaccine are limited, and data are insufficient to suggest a benefit from zoster vaccination. Preliminary information suggests that the incidence of herpes zoster in people who have received varicella vaccine is lower than in people infected with wild-type varicella.[53,54]

Key differences

The supporting information has been updated to clarify the scenario in which a person who previously received an indicated varicella vaccine would not require a zoster vaccine. This is supported by the addition of new recommendation which describes the recommendation for a person who inadvertently received a varicella vaccine.

Evidence for the updated recommendation

A person vaccinated with varicella vaccine in the past (that is, following the NIP schedule or clinical guidance because they were non-immune to varicella-zoster virus) is unlikely to have had wild-type chickenpox. This means that they are unlikely to require zoster vaccine as they get older.

In contrast, if a person who requires a zoster vaccine is inadvertently given a varicella vaccine, this should be corrected by administering a zoster vaccine.

Recommendations to be deleted

ATAGI proposes to delete the following recommendations:

- Adults aged 50–59 years are not routinely recommended to receive Zostavax vaccine, but they can receive it if they want to reduce their risk of herpes zoster — *Replaced with new recommendations 'All adults aged ≥50 years are recommended to receive zoster vaccine' and 'People aged ≥18 years who are immunocompromised are recommended to receive zoster vaccine'*
- Adults aged ≥60 years are recommended to receive Zostavax — *Replaced with new recommendations 'All adults aged ≥50 years are recommended to receive zoster vaccine' and 'People aged ≥18 years who are immunocompromised are recommended to receive zoster vaccine'*
- Serological testing before zoster vaccination is recommended for some people — *Replaced with new recommendations 'Serological testing is not recommended before zoster vaccination in people who are immunocompetent' and 'Serological testing is recommended before administration of Zostavax in people with mild immunocompromise'*
- Healthy adults who are seronegative to varicella-zoster virus are recommended to receive either varicella vaccine or Zostavax — *Replaced with new recommendations regarding vaccination and serological testing, including a link to the Varicella chapter of the Handbook, which contains the recommendation for varicella vaccination in seronegative adults.*

Recommendations that are not changing

No changes are proposed for the following recommendations:

- People aged ≥50 years who are household contacts of a person who is immunocompromised are recommended to receive zoster vaccine
- Serological testing after zoster vaccination is not recommended

Benefits

Key benefits from the new recommendations include the following:

- People who are immunocompromised can be safely vaccinated with Shingrix, and from an earlier age than previously. This may help to reduce the risk of herpes zoster and its complications in this population.
- Immunisation providers will have clearer guidance on zoster vaccination for people who are immunocompromised.
- Consolidating the current guidance on zoster vaccination into the Handbook chapter will mean that providers have all the information they need from a single source.

Potential risks

The potential risks that may arise from the new recommendations include the following:

- Shingrix is not funded under the NIP. This means that consumers who want to receive Shingrix will need to pay out-of-pocket costs. This will create inequities, as not everyone who is recommended to receive Shingrix may be able to pay for it. ATAGI is responsible for providing recommendations on the best clinical use of vaccines in Australia. Recommendations about NIP funding are made by the Pharmaceutical Benefits Advisory Committee (PBAC).
- Duration of protection after zoster vaccination is uncertain. Vaccination at an earlier age may mean that people are not well protected later in life when their risk of herpes zoster increases. There are no recommendations for additional doses later in life because there is not enough evidence to support the need for and safety of booster doses of either vaccine.

Preference and values

The proposed changes to the use of zoster vaccines are in line with best clinical practice. It is expected that the changes will result in additional protection for people who are most at risk of disease. This is consistent with societal expectations of the best use of vaccine in Australia.

Practical considerations

Shingrix will be available in Australia through private prescription only. Shingrix is not funded under the NIP. This means that people who choose to receive Shingrix will need to pay out-of-pocket costs for the vaccine.

Shingrix requires a 2-dose schedule, while Zostavax is given as a single dose. People who receive Shingrix must complete the 2-dose schedule for optimal protection.

The incidence of herpes zoster and related complications increases with age, and the duration of longer-term protection after vaccination is uncertain. This means that vaccination at an earlier age may result in insufficient protection later in life when the risk is higher. Providers and consumers should consider this when making decisions about zoster vaccination.

All people considered for vaccination with Zostavax should undergo careful screening using the Live shingles vaccine (Zostavax) screening for contraindications tool to exclude immunocompromise and ensure they can be safely vaccinated. People with mild

immunocompromise who are considering Zostavax should have serological testing performed before they receive vaccine.

Additional information to be included in the Australian Immunisation Handbook

Other parts of the zoster chapter will be updated in line with the evidence underpinning these recommendations.

Glossary

A glossary of technical terms is available on the Australian Immunisation Handbook website.

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