Interim excerpt from the Record of the Immunisation Advisory Committee Meeting held on 9 November 2023 (pending publication of the full meeting record)

This is an excerpt from the meeting record of the Immunisation Advisory Committee (its meeting of 9 November 2023), provided in advance of the full meeting record.

Immunisation Advisory Committee records are published in accordance with the Terms of Reference for the Specialist Advisory Committees 2021.

This document is an excerpt and records only one of the items considered during the Immunisation Advisory Committee meeting.

Pharmac Advisory Committees make recommendations, including priority, within their therapeutic groups of interest.

The record of this Advisory Committee meeting will be reviewed by the Pharmacology and Therapeutics Advisory Committee (PTAC) at an upcoming meeting.

Specialist Advisory Committees and PTAC may differ in the advice they provide to Pharmac, including recommendations' priority, due to the committees' different, if complementary, roles, expertise, experience, and perspectives.

Pharmac is not bound to follow the recommendations made below. Applications are prioritised by Pharmac against other funding options and progressed accordingly. The relative priority of any one funding choice is dependent on a number of factors, including (but not limited to) the recommendation of PTAC and/or Specialist Advisory Committees, the mix of other applications being assessed, the amount of funding available, the success of commercial negotiations and/or the availability of clinical data.

1. The role of Specialist Advisory Committees and records of meetings

1.1. This meeting record of the Immunisation Advisory Committee is published in accordance with the Terms of Reference for the Pharmacology and Therapeutics Advisory Committee (PTAC) 2021 and Specialist Advisory Committees 2021.Terms of Reference describe, *inter alia*, the establishment, activities, considerations, advice, and the publication of such advice of Specialist Advisory Committees and PTAC.

1.2. Conflicts of Interest are described and managed in accordance with section 6.4 of the SAC Terms of Reference.

1.3. The Immunisation Advisory Committee is a Specialist Advisory Committee of Pharmac. The Immunisation Advisory Committee and PTAC and other Specialist Advisory Committees have complementary roles, expertise, experience, and perspectives. The Immunisation Advisory Committee and other Specialist Advisory Committees may therefore, at times, make recommendations for vaccines and immunisation that differ from PTAC's, including the priority assigned to recommendations, when considering the same evidence. Likewise, PTAC may, at times, make recommendations for treatments for immunisation that differ from the Immunisation Advisory Committee's, or Specialist Advisory Committees may make recommendations that differ from other Specialist Advisory Committees'.

Pharmac considers the recommendations provided by both the Immunisation Advisory Committee and PTAC and any other relevant Specialist Advisory Committees when assessing applications for vaccines and immunisation.

2. Recombinant varicella zoster virus vaccine – Prevention of herpes zoster in immunocompromised adults

Application

2.1. The Advisory Committee reviewed the application for recombinant varicella zoster virus (RVZV) vaccine in the prevention of herpes zoster (HZ, shingles) in immunocompromised adults.

2.2. The Advisory Committee took into account, where applicable, Pharmac's relevant decision-making framework when considering this agenda item.

Recommendation

2.3. The Advisory Committee made two separate recommendations (1.5 and 1.8) for two age-related groups of people regarding the listing of the RVZV vaccine and a recommendation for the clinical inputs into cost-effectiveness modelling.

2.4. The Advisory Committee **recommended** that the RVZV vaccine eligibility criteria be widened with **high priority** to include people aged 18 years and older who are immunocompromised, within the context of vaccines and immunisations subject to the following Special Authority criteria (new criteria in **bold**):

> **Recombinant varicella zoster vaccine [Shingles vaccine]**
> **Either:**
> **1.** Two doses for all people aged 65 years; **or**
> **2. Two doses for people 18 years of age and over with any of the following:**
> **a. pre- or post-haematopoietic stem cell transplant; or**
> **b. solid organ transplant; or**
> **c. haematological malignancies; or**
> **d. people living with poorly controlled HIV infection; or**
> **e. planned or receiving disease modifying anti-rheumatic drugs (DMARDs) for systemic lupus erythematosus, polymyalgia rheumatica or rheumatoid arthritis; or**
> **f. end stage kidney disease (CKD 4 or 5); or**
> **g. primary immunodeficiency.**

2.5. The Advisory Committee **recommended** that the cost-effectiveness modelling of the RVZV vaccine be stratified by people who are immunocompromised at high and/or moderate risk of shingles as defined by the Australian Technical Advisory Group on Immunisation (ATAGI) in the PBAC March 2023 meeting.

2.6. The Committee made these recommendations based on:

2.6.1. The high health need of individuals who are immunocompromised

2.6.2. The evidence that there would be significant health benefit experienced by people who are immunocompromised

2.6.3. The potential cost-savings to the healthcare system

2.6.4. The suitability of vaccine to be given to people who are immunocompromised

2.6.5. The prevention of shingles being more effective in preventing the complications of shingles than the current treatments available.

2.7. The Committee **recommended** that the RVZV vaccine eligibility criteria be widened with **high priority** to include people aged more than 65 years, within the context of vaccines and immunisations subject to the following Special Authority criterion, and in addition to the above recommendation for people who are immunocompromised and aged either 18 to 64 years or over 65 years (new criteria in **bold**):

> **Recombinant varicella zoster vaccine [Shingles vaccine]**
> Two doses for all people aged 65 years **and older.**

2.8. The Advisory Committee recommended that the cost-effectiveness modelling of the RVZV vaccine be stratified by 65 years and older and by 80 years and older.

2.9. The Committee made these recommendations based on:

2.9.1. The high health need of people who are older than exactly 65 years

2.9.2. People who are immunocompromised experiencing significant health benefits include those affected by the immunosenescence of ageing (ie. the impairment of immune function that occurs naturally with age)

2.9.3. The potential cost-savings to the healthcare system

2.9.4. The suitability of vaccine to be given to people who are older

2.9.5. The prevention of shingles being more effective in preventing the complications of shingles than the current treatments available.

2.10. The Committee considered that while RVZV vaccine has Medsafe approval for people 18 years of age and over who are immunocompromised, people aged 0-17 years who are immunocompromised might benefit from this vaccine, and requested it be able to consider this population at a future meeting when clinical evidence is made available.

Discussion

Māori impact

2.11. The Committee discussed the impact of funding RVZV vaccine for the prevention of shingles on Māori health outcomes. The Committee considered the impact that shingles may have on the individual affected and their whānau may be disproportionally greater compared to non-Māori, non-Pacific peoples due to the well documented barriers experienced by Māori within the healthcare system. The Committee considered there to be great need to ensure equitable access to this vaccine if it was to be funded.

Impact on other groups experiencing health inequities

2.12. The Committee discussed the impact of funding RVZV vaccine on Pacific, disabled, and underserved populations. The Committee noted that although the incidence of shingles does not appear to disproportionately affect Pacific peoples, the impact that shingles may have on the individual affected and their family/whānau may be disproportionally greater compared to non-Māori, non-Pacific peoples due to the barriers experienced by Pacific peoples within the healthcare system. The Committee noted that cost and access to healthcare would affect people more who are experiencing health inequities relative to the wider New Zealand population. The Committee considered there to be great need to ensure equitable access to this vaccine if it was to be funded.

Background

2.13. The Committee noted two doses of RVZV are currently funded for people aged 65 years of age.

2.14. The Committee noted it had previously considered at its May 2022 meeting that people aged 18 years or over who are immunocompromised and awaiting solid organ and stem cell transplant, and who have had previous exposure to the varicella virus is a population group that might benefit from this vaccine, and had asked to consider this group further at a future meeting.

Health need

2.15. The Committee noted herpes zoster (HZ, shingles) is caused by the varicella zoster virus, which also causes chickenpox. The Committee noted that following chickenpox infection, the virus lies dormant in the nerves near the spine and may re-emerge later as shingles. Varicella zoster virus is usually acquired in childhood, but it is often many decades before the virus reactivates, at times when cellular immunity is compromised and is unable to maintain suppression of the virus. Shingles most commonly affects adults, or people of any age with a weakened immune system.

2.16. The Committee noted shingles is characterised by a painful, unilateral (one side of the body) rash, usually in one area of the body, especially involving the back abdomen or face. The first sign of shingles is often a burning, sharp pain or tingling or numbness under the skin in the area involved, and this can lead to severe itching or aching. Tiredness, fever, chills, headache, and an upset stomach may also occur. Approximately 1 to 14 days after the onset of pain, a rash of small blisters appears on the reddened area of skin.

2.17. The Committee noted the burning pain and blisters follow the distribution of the nerve pathway the reactivated virus has spread from, often extending front to back on one side of the body or head. As with chickenpox infection, after a few days the lesions will crust over. Over the course of several days to weeks, the crusts will drop off and the skin will heal.

2.18. A common complication of shingles is post-herpetic neuralgia (PHN), a chronic, often debilitating pain condition that can last several months or even years. Other sequelae can include ocular complications (herpes zoster ophthalmicus, acute retinal necrosis, Ramsay Hunt syndrome), neurologic complications (encephalitis, aseptic meningitis, peripheral motor neuropathy, myelitis, Guillain-Barré syndrome, stroke syndromes), and secondary bacterial infections of the skin. The incidence of PHN following shingles is high in the elderly and/or in people who are immunocompromised (UpToDate, 2022).

2.19. The Committee noted people can be immunocompromised because of either a medical condition and/or due to medicines and treatments they receive. These include (but are not limited to):

- Congential and acquired immunodeficiencies (T-cell, B-cell and mixed)
- People who have received a haematopoietic stem cell transplant or CART therapy.
- Solid organ transplant
- Haematologic or solid tumour malignancies
- People living with human immunodeficiency virus (HIV) infection
- People with autoimmune conditions and their treatments
- People with chronic kidney disease
- People receiving medicines that affect the immune system such as high-dose corticosteroids (for 2 or more weeks), chemotherapies, immunosuppressants, immune modulators, disease-modifying antirheumatic drugs
- Immunosenescence of ageing.

2.20. The Committee noted for the year 2022/23 approximately 120,000 people received publicly funded immunosuppressants, oncology agents, antiretrovirals, immune modulators and antirheumatic agents in New Zealand. The Committee considered the number of people who are immunosuppressed in New Zealand to be greater than this.

2.21. The Committee noted an analysis of New Zealand general practice electronic records of 391,000 adults and children reported the incidence rate of shingles to be 48.6 cases per 10,000 person-years (95% CI 47.56 -49.6). The age-adjusted incidence for shingles was 29.1 per 10,000 patient-years (95% CI 25.6 -33.1) among Pacific peoples and 38.9 per 10,000 patient-years (95%CI 36.3 -41.6) among Māori (Turner et al. BMJ Open. 2018;8:e021241). The Committee noted that the incidence rates are limited by the unknown numbers of people who are impeded by barriers such as cost, travel, and time to see a general practitioner when experiencing the symptoms and signs of shingles.

2.22. The Committee noted an analysis of 549,870 New Zealand health records, including 38,105 people who were immunosuppressed who were aged ≥45 years (mean age of 71.1±5.0) and unvaccinated for shingles found the incidence rate for shingles in the community was 5.65 per 1000 person-years (95% CI 5.26-6.07) among people who were immunocompromised and 2.66 per 1000 person-year (95% CI 2.59-2.74) among people who were not immunocompromised. The incidence rate of hospitalisation due to shingles was 1.11 per 1000 person-years (95% CI 0.94-1.30) among people who were immunocompromised and 0.25 per 1000 person-years (0.22-0.27) among people who were not immunocompromised. The incidence rate for hospitalisation due to PHN was 0.340 per 1000 person-years (95% CI 0.232-0.429) among people who were immunosuppressed and 0.062 per 1000 person-years (95% CI 0.051-0.074) among people who were not immunosuppressed (Mbinta et al. Lancet Reg Health West Pac. 2022;31:100601).

2.23. The Committee noted that Manatū Hauora reported there were 482 hospitalisations associated with shingles during 2018/2019, with 60% of these hospitalisations occurring among people aged 60 years and older. The Committee considered the burden of shingles to increase substantially after the age of 50 years and then again after the age of 80 due to immunosenescence ie. the impact of ageing on immunity.

2.24. The Committee noted an analysis of 145,397 zoster cases matched to United Kingdom primary care health records reported that the greatest risk factor for shingles is being severely immunocompromised and that recipients of a haematopoietic stem cell transplant were the most at risk (Forbes et al. BMJ. 2014;348:g2911).

2.25. The Committee noted an analysis of German health records involving 9,554,821 (in 2008) and 10,193,093 (in 2012) people aged ≥18 years (median age 49 years) reported that the incidence rate for shingles was 11.5 per 1000 person-years (95% confidence interval (CI) 11.4-11.6) among people who were immunocompromised, 13.4 per 1000 person-years (95% CI 13.2-13.6) among people who were severely immunocompromised, and 5.9 per 1000 person-years among people who were not immunocompromised (Schröder et al. J Infect. 2017;75:207-15). The Committee noted 33.8% of people who were immunocompromised experienced post herpetic neuralgia due to shingles and 22.5% of people who were not immunocompromised (Schröder et al. 2017).

2.26. The Committee noted an analysis of the German rheumatoid arthritis biologic therapy registry (2007-2020), which involved observations of 13,991 people (62,958 people-years) receiving a disease-modifying antirheumatic drugs, reported a total of 559 herpes zoster cases in 533 people with 8.9 events per 1000 person-years (95% CI 8.2-9.6) (Redeker et al. Ann Rheum Dis. 2022;81:41-7). The Committee noted that when adjusted for age, sex, glucocorticoid usage, and indication, the relative risk of herpes zoster was significantly greater for people when receiving a monoclonal anti-TNF antibody (adjusted HR 1.63 [95% CI 1.17- 2.28], p=0.0042), B cell targeted therapy (1.57 [1.03- 2.40] p=0.0355) and JAK inhibitors (3.66 [2.38- 5.63], p<0.0001) when compared to conventional synthetic disease-modifying drugs (Redeker et al. 2022).

2.27. The Committee noted the live zoster vaccine is contraindicated in individuals who are immunocompromised, specifically people with immunodeficiency due to haematological malignancies, acquired immunodeficiency syndrome (AIDS) or clinical manifestations of human immunodeficiency virus (HIV) infection, and in people receiving immunosuppressive medical therapy.

2.28. The Committee noted the following treatment options are available for people who have developed shingles:

2.28.1. For people who are severely immunocompromised or at high risk for serious complications from herpes zoster, intravenous aciclovir is recommended at a dosage of 10 mg/kg IV every 8 hours for 7 to 10 days for adults and 20 mg/kg IV every 8 hours for 7 days for children < 12 years. Some experts recommend treatment beyond 7 to 10 days for the immunocompromised, lasting until all lesions are crusted (Herpes Zoster. MSD Manual, 2022). Alternatively, following initial clinical improvement people can be switched to oral anti-viral and treated until all lesions have crusted over (10-14 days) (Treatment of herpes zoster. UpToDate, 2023).

2.28.2. For people who are less severely immunocompromised, oral valaciclovir is recommended at a dosage of 1g 3 times a day for 7 days, or aciclovir at a dosage of 800mg 5 times a days for 7-14 days (MSDI, 2022).

2.28.3. Management of acute and postherpetic neuralgia can be particularly difficult, for pain relief paracetamol, NSAIDs, opioids, tricyclic antidepressants or gabapentin can be used (MSD, 2022; BPAC. The diagnosis and management of herpes zoster and its complications. 2014).

2.29. The Committee noted varicella zoster virus is contagious, and individuals hospitalised with shingles who are immunocompromised need to be cared for in a single negative-pressure isolation room, with healthcare workers employing airborne and contact infection prevention and control measures until disseminated disease is ruled out. Affected immunocompetent individuals only require standard precautions to be undertaken.

2.30. The Committee noted some people with shingles do not recover enough to return to independent living, which can impact carers of the affected individuals, including partners, relatives, whānau and friends (Scott et al. Vaccine. 2006;24:1308-14). The Committee noted the high cost associated with residential care for older people. The Committee noted

that some people may also not be able to continue to undertake employment, which may further impact family or dependents.

2.31. The Committee noted the incidence of shingles does not appear to disproportionately affect Māori, however the impact that shingles may have on the individual affected and their whānau may be disproportionally greater compared to non-Māori, non-Pacific peoples due to the barriers experienced by Māori within the healthcare system. The Committee considered there to be great need to ensure equitable access to this vaccine if it was to be funded.

2.32. The Committee noted the incidence of shingles does not disproportionately affect Pacific peoples however the impact that shingles may have on the individual affected and their family or whānau may be disproportionally greater compared to non-Māori, non-Pacific peoples due to the barriers experienced by Pacific peoples within the healthcare system. The Committee considered there to be great need to ensure equitable access to this vaccine if it was to be funded.

2.33. The Committee noted that people with end-stage kidney disease (ESKD) and on renal replacement therapies are immunocompromised. Māori and Pacific peoples experience disproportionally greater rates of ESKD compared to non-Māori and non-Pacific peoples and therefore would experience health benefit if the vaccination was to be available.

2.34. The Committee noted that cost and access to healthcare would affect people experiencing health inequities relative to the wider New Zealand population.

2.35. The Committee reprised that at its May 2022 meeting, it had recommended funding for people of Māori or Pacific ethnicity aged 60 years or older. The Committee noted that Māori and Pacific peoples overall experience a shorter life expectancy than non-Māori, non-Pacific peoples and reiterated that it considered that the age of access should be lowered relative to this.

2.36. The Committee considered there to be strong evidence that immunocompromised people (due to conditions, medicines, or age) are at greater risk of developing and/or having more frequent episodes of shingles and experiencing severe complications as a consequence. The Committee considered prevention of shingles would preserve a person's quality of life, alongside that of their family or whānau and mitigate the potential cost to the healthcare system including hospitalisations and oral prophylaxis.

Health benefit

2.37. The Committee noted varicella zoster vaccine is a recombinant subunit vaccine, containing the recombinant VZV envelope glycoprotein E antigen, that is reconstituted at the time of use with the adjuvant $AS01_B$. The adjuvant induces activation of the innate immune system, ultimately resulting in generation of glycoprotein E-specific CD4+ T cells and antibodies.

2.38. The Committee noted varicella zoster vaccine is indicated by Medsafe for the prevention of herpes zoster and post-herpetic neuralgia (PHN) in people 50 years of age or older; and adults 18 years of age or older at increased risk of herpes zoster.

2.39. The Committee noted the varicella zoster vaccine is administered in two doses of 0.5mL each, an initial dose followed by a second dose 2-6 months later. Medsafe reports that people who are immunocompromised, or likely to become immunocompromised, can receive the second dose 1-2 months following initial dose.

2.40. The Committee noted the following clinical evidence relating to the efficacy and safety of RVZV vaccine:

2.40.1. Bastida et al. JAMA.2019;322:123-33

2.40.2. Dagnew et al. Lancet Infect Dis. 2019;19:988-1000

2.40.3. Vink et al. Clin Infect Dis. 2020; 70:181-190

2.40.4. Venerito et al. Int J Mol Sci. 2023;24:6967

2.41. The Committee considered RVZV vaccine to be an effective vaccination and can be given to people who are immunocompromised, unlike the live-attenuated zoster vaccine.

2.42. The Committee noted that preventing shingles and its complications would likely have health benefits for carers, family and whānau.

2.43. The Committee noted the duration of effectiveness of RVZV vaccine to prevent shingles is unknown and considered it difficult to determine whether people would need another vaccination. The Committee noted follow-up studies for the ZOE-50 and ZOE-70 clinical trials report an annual vaccine efficacy estimate of >84% for each year since vaccination, suggesting that the clinical benefit of RVZV vaccine in people aged ≥ 50 years and older is sustained for at least 7 years post-vaccination (Boutry et al. Clin Infect Dis. 2022;74:1459-67). The Committee noted these studies did not include people who are immunocompromised.

Cost and savings

2.44. The Committee considered that funding the RVZV vaccine would result in significantly fewer primary care consultations as fewer people would be expected to develop shingles and PHN.

2.45. The Committee considered that if funded, the likely uptake of the RVZV vaccine in people who are immunocompromised would be in the range of 50-80%, but noted that 100% of severely immunocompromised (ie those who had received stem cell transplants) people would receive it.

2.46. The Committee considered the uptake to be similar to the uptake of the influenza vaccine among people who are 65 years and among Māori and Pacific peoples who are 55 years and older.

2.47. The Committee noted treatments for shingles and PHN such as valaciclovir would still be given to the immunocompromised population in the case of vaccine failure.

2.48. The Committee noted RVZV vaccine can be co-administered with the influenza vaccination, this would require a person to receive two vaccinations in one appointment and the savings are likely to be minimal.

2.49. The Committee noted that vaccine efficacy was likely to wane more quickly in people who are severely immunocompromised than in the 65 years of age and over population.

2.50. The Committee noted that it would be appropriate to adapt the efficacy waning assumptions used in previous modelling of RVZV vaccine for the subgroups defined by age. The Committee noted the lack of evidence reporting on the efficacy waning for the people who are immunocompromised and with the absence of data, considered it appropriate to adjust previous modelling based on the ZOE-50 and ZOE-70 clinical trials. The Committee expressed interest in discussing the appropriate time for revaccination when data are published.

Funding criteria

2.51. The Committee noted the risk of shingles can vary depending on the level of immunocompromise. The Committee noted the March 2023 meeting record of the Pharmaceutical Benefits Advisory Committee (PBAC) that cited Australian Technical Advisory Group on Immunisation (ATAGI) advice identifying the medical sub-groups who are of high, moderate, and low risk of shingles, presented in the table below:

High risk	• stem cell transplant recipients • solid organ transplant recipients • people with haematological malignancies and advanced or untreated HIV with CD4 counts <250/ µL or those with a higher CD4 count unable to be established on effective anti-retroviral therapy • individuals receiving regular high doses of systemic corticosteroids, disease modifying anti-rheumatic drugs, or chemotherapy
Moderate risk	• systemic lupus erythematosus • rheumatoid arthritis
Low risk	• solid organ malignancies • inflammatory bowel disease • end-stage renal disease • asthma

	• diabetes • depression • chronic obstructive pulmonary disease

2.52. The Committee noted that there is a cumulative risk for people with 'low-risk' conditions as they age which means some people would have a greater risk of shingles.

2.53. The Committee noted ATAGI's consideration that people who are immunocompromised with a moderate risk of shingles are at greater risk of shingles and its complications compared to individuals who are aged 65 years and older.

2.54. The Committee noted the Pharmac COVID-19 antiviral treatment access criteria identifying severely immunocompromised people.

2.55. The Committee noted its concern that a Special Authority containing lists of specific conditions and medicines may unintentionally exclude people who have a severe or moderate risk of shingles and would benefit from vaccination.

2.56. The Committee considered the following Special Authority criteria would include people who are immunocompromised and have similar or greater risk of shingles and its complications compared to people not immunocompromised aged 65 years or older.

Recombinant varicella zoster vaccine [Shingles vaccine]
Either:
1. Two doses for all people aged 65 years; or
2. Two doses for people with any of the following:
    a. pre- or post-haematopoietic stem cell transplant; or
    b. solid organ transplant; or
    c. haematological malignancies; or
    d. people living with poorly controlled HIV infection; or
    e. planned or receiving disease modifying anti-rheumatic drugs (DMARDs) for systemic lupus erythematosus, polymyalgia rheumatica or rheumatoid arthritis; or
    f. end stage kidney disease (CKD 4 or 5); or
    g. primary immunodeficiency.

2.57. The Committee further considered RVZV vaccine should be funded for people aged more than 65 years, additional to immunocompromised people of that age already within the above Special Authority criteria.

Summary for assessment

2.58. The Committee considered that the tables below summarise its interpretation of the most appropriate PICO (population, intervention, comparator, outcomes) information for the RVZV vaccine if it were to be funded in New Zealand for the prevention of herpes zoster when immunocompromised, including by age. These PICOs capture key clinical aspects of the proposal and may be used to frame any future economic assessment by Pharmac staff. The PICOs are based on the Committee's assessment at this time and may differ from that requested by the applicant. The PICOs may change based on new information, additional clinical advice, or further analysis by Pharmac staff.

Immunocompromised population

Population	Individuals aged 18-64 years and over 65 years (the varicella zoster vaccine is currently funded for people aged exactly 65 years) who are immunocompromised, as defined by the Special Authority criteria.
Intervention	Two 0.5mL doses of recombinant varicella zoster vaccine (SHINGRIX) spaced 1-2 months apart. Those who develop shingles currently either receive supportive care, or a valaciclovir antiviral course and additional treatments for PHN, as per previous modelling of the varicella vaccine.
Comparator(s)	No vaccination plus antiviral treatment for those with HZ and PHN
Outcome(s)	Reduction in HZ and PHN as per trial evidence for each subgroup. For example, the Bastida et al. 2019 trial in those who had received an autologous HSCT reported a 68% reduction in HZ infection and 78% reduction in PHN at a median follow-up of 21 months. A reduction in HZ and PHN results in: • Lower HZ-related mortality • Improved health-related quality of life • Reduced inpatient and outpatient events
Table definitions: Population, the target population for the pharmaceutical; Intervention, details of the intervention pharmaceutical; Comparator, details the therapy(s) that the target population would receive currently (status quo – including best supportive care); Outcomes, details the key therapeutic outcome(s) and source of outcome data.	

Wider population

Population	Individuals aged 65 years and over
Intervention	Two 0.5mL doses of recombinant varicella zoster vaccine (SHINGRIX) spaced 1-2 months apart. Those who develop shingles currently either receive supportive care, or a valaciclovir antiviral course and additional treatments for PHN, as per previous modelling of the varicella vaccine.
Comparator(s)	No vaccination plus antiviral treatment for those with HZ and PHN
Outcome(s)	Reduction in HZ and PHN as per trial evidence for each subgroup. For example, the Bastida et al. 2019 trial in those who had received an autologous HSCT reported a 68% reduction in HZ infection and 78% reduction in PHN at a median follow-up of 21 months. A reduction in HZ and PHN results in: • Lower HZ-related mortality • Improved health-related quality of life Reduced inpatient and outpatient events
Table definitions: Population, the target population for the pharmaceutical; Intervention, details of the intervention pharmaceutical; Comparator, details the therapy(s) that the target population would receive currently (status quo – including best supportive care); Outcomes, details the key therapeutic outcome(s) and source of outcome data.	