

Strategies to increase vaccination rates in older people

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Coverage levels for recommended vaccines in older adults fall well below those in children. An important driver of vaccination is a recommendation from the person's GP. Tips for talking about vaccines and addressing patient misconceptions and specific practice strategies may help GPs increase vaccination rates among their older patients.

KEY POINTS

- Vaccination rates for recommended vaccines in older adults fall well below rates seen in children.
- One of the most influential drivers of vaccination is a recommendation from the person's GP.
- GPs can help increase vaccination rates by informing their older patients about the severity of vaccine-preventable diseases and the safety and effectiveness of vaccines.
- Other strategies to help increase vaccination rates include:
 - co-administration of vaccines
 - opportunistic vaccination
 - patient notification and recall programs.
- All vaccinations of older people can now be recorded in the expanded Australian Immunisation Register.

Australia has not achieved acceptable vaccination rates in older people for vaccines listed on the National Immunisation Program (NIP). More can be done to achieve vaccine coverage comparable to that in children, of whom about 94% are fully vaccinated. Suggested strategies for GPs to help improve vaccination rates among older people are summarised in Box 1 and discussed in this article.

Recommend vaccination to all eligible patients

Studies show that the most influential driver of vaccination is a recommendation from the person's healthcare provider. This can increase the likelihood of vaccination against influenza, pneumococcal disease and herpes zoster (HZ) 11-fold.¹⁻⁵ However, patient surveys have found that myths and misconceptions about vaccines in older people

1. GP STRATEGIES TO HELP INCREASE VACCINATION RATES IN OLDER PEOPLE

- Recommend vaccination to all eligible patients in the general practice
- Co-administer vaccines when safe
- Routinely offer opportunistic vaccination
- Implement a practice-based notification and recall program
- Record all vaccinations in the Australian Immunisation Register

are common (Table 1).^{4,5} These myths and misconceptions can act as barriers to vaccination. They include beliefs that:

- healthy people are not at risk of the disease targeted by the vaccine
- the disease is not serious
- the vaccine is ineffective or can itself cause the targeted disease
- natural immunity is better
- the risk of adverse effects is too high.

These misconceptions can be addressed by high-quality educational programs, ranging from one-on-one discussions through to societal-level campaigns. Both

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TABLE 1. FREQUENCY OF COMMON MISCONCEPTIONS ABOUT VACCINATIONS IN OLDER PEOPLE AND SUGGESTED GP RESPONSES TO MISCONCEPTIONS^{4,5}

Misconception	Percentage of respondents who agreed or were unsure ^{4,5}			Suggested GP response*
	Herpes zoster (HZ)	Influenza	Pneumococcal disease	
I am healthy and rarely get sick, I don't need vaccination	39%	22%	40%	<ul style="list-style-type: none"> • Age is one of the greatest risk factors for these diseases • Almost all older people are at risk of HZ (shingles), as about 95% have had chickenpox, and the virus that causes both chickenpox and HZ lies dormant in the nerve roots next to the spinal cord • Vaccination boosts health status and protects against these diseases
The vaccine injection will not reduce my risk of becoming seriously ill from complications of the disease	16%	17%	27%	<ul style="list-style-type: none"> • The HZ vaccine is the only strategy that reduces the risk of both acute shingles and its complication, postherpetic neuralgia. The latter is very difficult to treat and the risk of it developing is not reduced by taking antivirals during an acute bout of HZ • The influenza vaccine provides good protection against influenza and even better protection against the complications of influenza • The polysaccharide pneumococcal vaccine provides reasonable protection against pneumococcal pneumonia and better protection against invasive pneumococcal disease such as meningitis and septicaemia • The pertussis vaccine provides good protection against pertussis and its complications for three to possibly 10 years
Natural immunity is better	32%	NA	NA	<ul style="list-style-type: none"> • Natural immunity would mean suffering the natural consequences of the diseases: <ul style="list-style-type: none"> – A bout of HZ is painful and debilitating and can lead to complications such as postherpetic neuralgia and stroke – Influenza often worsens existing chronic diseases and may lead to a heart attack or worsening of chronic obstructive pulmonary disease or diabetes – Pneumococcal pneumonia causes significant illness and mortality and is increasingly resistant to antibiotics – Pertussis disease does not provide lifelong immunity and older people have the highest rates of pertussis; pertussis can cause a cough that lasts three months, cracked ribs, hospitalisation and even death • Boosting immunity through vaccination is a much safer and more effective way of protecting against these diseases
I could get the disease from the vaccine	44%	67%	66%	<ul style="list-style-type: none"> • For HZ, it is extremely unlikely that patients with a normally functioning immune system will get the disease from the vaccine • For influenza, pneumococcal disease and pertussis, it is not possible to get the disease from the vaccine
Vaccines weaken the immune system	32%	NA	NA	<ul style="list-style-type: none"> • There is no evidence that vaccines weaken the immune system • For many diseases, vaccines are the only way of providing increased protection against the disease
Concern that the vaccine may be painful or cause side effects	47%	30%	46 to 50%	<ul style="list-style-type: none"> • Local reactions to the vaccines are relatively common but short lasting • Severe reactions are very uncommon

Abbreviation: NA = not available.

* Healthcare providers remain the most trusted advisors and influencers of vaccination decisions. A recommendation from a GP or practice nurse often counters myths and misperceptions about both the disease and the vaccine to protect against the disease.

healthcare providers and patients need evidence-based information on the risks associated with the various vaccine-preventable diseases, the effectiveness and safety of the vaccines and ways of achieving high levels of vaccine coverage.

Some suggested GP responses to common patient misconceptions about vaccination are shown in Tables 1 and 2. Tips for GPs talking with patients about influenza, pneumococcal, HZ and pertussis vaccination are shown in Boxes 2 to 5. A suggested patient handout about vaccination for people aged 65 years and over appears on page 33 of this supplement.

Other useful resources include the Australian Immunisation Handbook, National Centre for Immunisation Research and Surveillance fact sheets and the Australian and New Zealand Society for Geriatric Medicine position statement on Immunisation of Older People.⁶⁻⁸

Co-administer vaccines

Presentation of a patient for one vaccine, such as annual influenza vaccine, provides an opportunity to check current vaccination status and offer other vaccines. Despite some product information advice to the contrary, pneumococcal vaccine can be given at the same time as the live attenuated HZ vaccine (although they are best administered in different arms), and each of these can be given at the same time as influenza vaccine. However, the safety and efficacy of administration of all three together has not been established.

Support opportunistic vaccination

Other strategies that can help GPs increase vaccine coverage among older people in their practices include opportunistic vaccination and notification and reminder programs, which can act synergistically. Opportunistic vaccination captures the patient when they attend the practice; the vast majority of the older population visit a GP several times a year.^{4,9}

A successful opportunistic vaccination program requires some planning. Suggested steps for GPs and practice staff to support

TABLE 2. COMMON MISCONCEPTIONS ABOUT PERTUSSIS VACCINATION AND SUGGESTED GP RESPONSES

Misconception	Suggested GP response*
I wasn't aware that I need pertussis vaccination	<ul style="list-style-type: none"> Older people have the highest rates of pertussis Pertussis can be severe in older people, leading to a three-month-long cough and complications such as cracked ribs, hospitalisation and even death
I was vaccinated against pertussis as a child, I don't need another vaccination	<ul style="list-style-type: none"> Pertussis vaccine provides good protection, but this protection starts to decrease after about three years Older people are not protected by childhood pertussis vaccination and need a booster dose
Pertussis vaccination won't stop me getting whooping cough	<ul style="list-style-type: none"> Although pertussis vaccination does not protect for life, it is very effective for at least three to possibly 10 years
I was diagnosed with pertussis 10 years ago, I don't need the vaccine	<ul style="list-style-type: none"> Immunity from natural pertussis infection lasts up to 20 years in some people but for as little as four years in others, so a booster should be considered
I am concerned about the adverse effects of pertussis vaccination	<ul style="list-style-type: none"> Adult pertussis vaccines contain less antigen than the childhood vaccines so cause fewer adverse reactions Local reactions and mild fever or an unwell feeling may occur but severe adverse effects are rare

* Healthcare providers remain the most trusted advisors and influencers of vaccination decisions. A recommendation from the practice nurse or GP frequently counters myths and misperceptions about both the disease and the vaccine to protect against the disease.

opportunistic vaccination include:

- Display posters and leaflets about vaccinations for older people in the GP's waiting and consulting rooms.
- Routinely inform all eligible patients about each vaccine. A strategy is for the practice nurse to flag attending patients who are due for a vaccine in the appointment system after checking their vaccination status in the electronic record.
- Integrate vaccination into health assessments (e.g. ensure HZ vaccination is part of the age 75 years health assessment).
- Administer the vaccine and document this in the patient's electronic health record as well as the Australian Immunisation Register (AIR, see below).
- Give the patient information to take away that is relevant to their knowledge, interest and concerns or direct them to online patient information sites (e.g. www.ncirs.org.au/public, www.chop.edu/centers-programs/

vaccine-education-center).

- Identify likely low-vaccination groups. Patients who attend the practice infrequently are less likely to receive recommended preventive care, such as vaccines. Reception staff can use the appointment system to generate a list of infrequent attenders (e.g. have not attended in the previous 12 to 18 months). This group could be sent an SMS or other electronic reminder suggesting they attend for vaccination.
- Implement standing orders to guide staff such as practice nurses to offer a range of vaccines after appropriate checks of eligibility and contraindications. Practice nurses could then administer the vaccine without the GP being present. Although this might mean patients are not billed, it will increase patient convenience and could be done in association with a GP appointment. For example, patients could see the practice nurse for vaccination while waiting to see the GP.

2. TIPS FOR GPs TALKING WITH OLDER PATIENTS ABOUT INFLUENZA VACCINATION

What is the risk of getting influenza?

In a typical year, 6 to 8% of the population get influenza. In a pandemic year, the risk is much higher. For example, in the pandemic year 2009, 25% of the population got influenza.

How serious is influenza?

Influenza is a serious disease for the very young (under 2 years old) and older people (over 65 years) and can be fatal. People aged over 65 years account for more than 90% of the deaths due to influenza.

How effective is influenza vaccine?

The standard quadrivalent flu vaccine reduces the risk of influenza by 50 to 60% in healthy adults and 30 to 50% in older adults. Newer enhanced vaccines such as the adjuvanted trivalent vaccine are 25% more effective than the standard vaccine in reducing hospitalisations and complications of influenza in older people.

How long does protection last?

Immunity provided by the standard influenza vaccines starts to decline

three months after vaccination, particularly in older people. The decline is greater for H3N2 influenza strains. There is some evidence that the adjuvanted trivalent vaccine protects for up to six months and possibly longer.

What are possible adverse effects of the vaccine and how common are they?

Local reactions are the most common side effect of the influenza vaccine. Serious reactions are very rare. The enhanced vaccines are more likely to produce local and systemic side effects, but these are self-limiting and mild.

What is the risk of an allergic reaction to the vaccine?

The influenza vaccine is contraindicated in people with a history of anaphylaxis to influenza vaccine or any of the vaccine components. People with an egg allergy may be safely vaccinated, although those who have had an anaphylactic reaction to eggs should be considered for vaccination under medical



supervision, for example in a hospital emergency department.

What is the risk of getting influenza from the vaccine?

The influenza vaccine is an inactivated vaccine. It is not possible to get influenza from the influenza vaccine.

3. TIPS FOR GPs TALKING WITH OLDER PATIENTS ABOUT PNEUMOCOCCAL VACCINATION

What is the risk of getting pneumococcal disease?

Similar to influenza, children younger than 2 years and people aged 65 years and over are at high risk of pneumococcal infection. Conditions associated with the highest increased risk of invasive pneumococcal disease include functional and anatomical asplenia and a range of immunocompromising conditions. Patients with cerebrospinal fluid leaks, including cochlear implants and intracranial shunts, and those with a range of chronic diseases are also at increased risk of invasive disease.

How serious is pneumococcal disease?

Patients who are hospitalised with community-acquired pneumonia caused by pneumococcus have a mortality rate of 5 to 15%, rising to more than 30% in those who are admitted to the intensive care unit. Community-acquired pneumonia causes a higher burden of hospitalisation and total costs than myocardial infarction, stroke and osteoporotic fractures in the older population. Invasive pneumococcal disease has a mortality rate of 8 to 12%.

How effective is pneumococcal vaccine?

The 23-valent polysaccharide pneumococcal vaccine (23vPPV) has an effectiveness of 25 to 35% against the pneumococcal serotype strains that cause community-acquired pneumonia, and 65 to 75% against invasive pneumococcal disease.

How long does protection last?

23vPPV provides protection for at least two years and possibly up to five years.

What are possible adverse effects of the vaccine and how common are they?

Local reactions are the most common adverse effects, including moderate pain, severe pain and/or large induration at the injection site. Among people aged 65 years and over, this composite endpoint was reported by 10% of people after primary vaccination and 30% after revaccination. Systemic reactions are relatively common, including fatigue (18%), headache (13%), myalgia (10%) and fever (1%).



What is the risk of an allergic reaction to the vaccine?

The risk of an allergic reaction to 23vPPV is very low. 23vPPV is contraindicated in patients with a history of hypersensitivity to any component of the vaccine.

What is the risk of getting pneumococcal disease from the vaccine?

23vPPV is an inactivated vaccine. It is not possible to get pneumococcal disease from this vaccine.

4. TIPS FOR GPs TALKING WITH OLDER PATIENTS ABOUT HERPES ZOSTER VACCINATION

What is the risk of getting herpes zoster (HZ)?

Lifetime risk of HZ (shingles) is about 30 to 35%. In the vaccine target group (age 70 to 79 years), this increases to 40%, and by the age of 85 years one in two people will have had HZ.

How serious is HZ?

The pain from acute HZ is moderate to severe, lasts up to a month and often has a significant impact on the person's daily activities. The most common complication, postherpetic neuralgia, typically scores 6/10 on pain scales and is very difficult to treat. It has a substantial impact on quality of life and often lasts several years.

How effective is HZ vaccine?

The current HZ vaccine reduces the likelihood of acute HZ by 50% and the incidence of postherpetic neuralgia by 61%.

How long does protection last?

The current vaccine protects against acute HZ for seven to nine years. No current guidelines suggest a HZ vaccine booster.

What are possible adverse effects of the vaccine and how common are they?

Local reactions are fairly common, and usually short-lived, including tenderness (26%), redness (36%) and swelling (35%). Severe reactions are rare (less than 2%), similar to the rate among people receiving placebo (1.3%).

What is the risk of an allergic reaction?

The risk of an allergic reaction to the current HZ vaccine is very low. However, the vaccine should not be given to people with a history of hypersensitivity to any of its components, including gelatin, or an anaphylactic or anaphylactoid reaction to neomycin (which is present in the vaccine in trace quantities). A history of contact dermatitis due to neomycin (the usual manifestation of neomycin allergy)



is not a contraindication to receiving live virus vaccines such as the current HZ vaccine.

What is the risk of getting the disease from the vaccine?

In people with a normal immune system, the risk of contracting varicella (chickenpox) from the vaccine is extremely low. People who are significantly immunocompromised must not receive the current HZ vaccine.

Occasionally, patients have strong views about vaccination and resist offers of vaccines. Although these views need to be respected, it is useful to understand the patient's exact concerns and whether they might be amenable to further information. A strategy to help avoid giving offence when repeatedly offering a vaccine is to say 'I understand your concerns about the [...] vaccine and respect your decision. I find from time to time that patients change their mind, so raising the issue gives them an opportunity to discuss their wishes, address any concerns and possibly accept the vaccine if they wish'.

Implement notification and recall programs

Vaccination rates are likely to remain sub-optimal, even with a planned opportunistic vaccination program, unless GPs also use a notification and recall strategy. This is particularly important for nonseasonal diseases, such as shingles. Suggested steps in a notification and recall/reminder program for GPs include:

- Appoint a co-ordinator. This increases the likelihood of teamwork, allocation

of tasks and follow up of the impact.^{10,11}

- Identify eligible patients. Practice software can be used to compile a list. GPs will need to determine whether they are the patient's usual GP, for example by checking the patient's electronic health record.
- Notify eligible patients about relevant vaccinations using one or more methods, ideally including an electronic strategy such as SMS messaging or an electronic reminder system. Examples of the latter include SmartVax (www.smartvax.com.au) and HotDoc (<https://hotdoc.com.au>). A birthday card reminder is another way of prompting patients to attend for vaccination.
- Administer the vaccine and record the vaccination in the patient's electronic record as well as the AIR. It can also be useful to give patients a small immunisation card that lists all the vaccines they have received. These cards are available from most state health departments and have the advantage of providing a portable summary of the individual's vaccine history.

- Send ongoing recalls and reminders to any missed or new eligible patients at appropriate intervals. A tailored phone call or SMS from the practice nurse coupled with a strong GP recommendation will further increase coverage rates and potentially save the practice the time and cost of sending repeated letters.¹⁰ It is important to document reminders in the patient's electronic health record. Sending reminders is made easier for some patient target groups if they are captured in the electronic practice register; it is worthwhile setting up disease and high-risk practice registers for some conditions.¹⁰

Australian Immunisation Register

The AIR was extended to all age groups from November 2016, replacing the Australian Childhood Immunisation Register.¹² The AIR can record vaccinations given through general practice and community clinics, including vaccines funded under the NIP and privately funded vaccinations. It provides an opportunity to record vaccinations of older people and to make this

5. TIPS FOR GPs TALKING WITH OLDER PATIENTS ABOUT PERTUSSIS VACCINATION

What is the risk of getting pertussis?

The risk of getting pertussis is high. Protection provided by childhood vaccination wanes within a decade of the final dose, and protection after infection lasts only four to 20 years. Most older people are thus not immune to pertussis; they are at greater risk of disease than younger age groups.

How serious is pertussis?

Older adults usually develop an annoying and chronic cough that can last up to three months. One in five people who have a cough for more than two weeks are likely to have pertussis. Some older people with pertussis require hospitalisation and a small number die of the disease.

How effective is pertussis vaccine?

The vaccine has good effectiveness (about 84%).

How long does protection last?

Pertussis vaccine protects for three to possibly 10 years.

What are possible adverse effects of the vaccine and how common are they?

Adult pertussis vaccines contain lower amounts of antigens than paediatric vaccines. Possible side effects include local site reactions and mild systemic effects, which are self-limiting. Severe adverse effects are rare.

What is the risk of an allergic reaction?

The risk of an allergic reaction is very low, quoted as less than one in a million doses.



What is the risk of getting pertussis from the vaccine?

The pertussis vaccine consists of *Bordetella pertussis* antigens, not live organisms. It cannot cause pertussis.

information available to other GPs and healthcare practitioners, for example if the patient moves to a new general practice.

The data could also be used, when sufficiently complete and reliable, to identify and target regions achieving lower vaccination rates, and to identify high vaccination regions that can be further interrogated to demonstrate best practices.

Conclusion

Despite official recommendations on vaccination in older people and inclusion of many vaccines on the NIP, coverage levels in older adults are well below those in children. Strategies that might increase uptake of recommended vaccines among older people include government actions, such as listing all recommended vaccines on the NIP and improving national surveillance of vaccination coverage levels and disease rates in the older population to inform funding discussions. However, GPs also have the opportunity to help increase vaccination rates among their older patients. Suggested strategies include informing their older patients about the risks and potential severity of vaccine-preventable diseases and the safety and effectiveness of vaccines, co-administration of vaccines where this is safe, and adopting systematic practice strategies to support opportunistic

vaccination and patient notification and recall systems. MT

References

1. Damm O, Witte J, Greiner W. A systematic review of herpes zoster vaccine acceptance. *Value Health* 2015; 18: A592.
2. Task Force on Community Preventive Services. Recommendations to improve targeted vaccination coverage among high-risk adults. *Am J Prev Med* 2005; 28(5 Suppl): 231-237.
3. Mieczkowski T, Wilson S. Adult pneumococcal vaccination: a review of physician and patient barriers. *Vaccine* 2002; 20: 1383-1392.
4. Litt J, Rigby K, Duffy J. Australian National Influenza and Pneumococcal Survey in the elderly. Report No. 1. 12/2003 to Commonwealth Department of Health and Ageing. Adelaide: Discipline of General Practice, Flinders University; 2003. p. 199.
5. Litt J, Kim S, Woodman R, MacIntyre R, Cunningham A. Australian zoster study: GP and patient views about herpes zoster (shingles), its complications, and the likely acceptance of a zoster vaccine (Zostavax). *Int J Infect Dis* 2014; 21(Suppl): 436-437.
6. Australian Technical Advisory Group on Immunisation (ATAGI). Australian immunisation handbook. Canberra: Australian Government Department of Health; 2018. Available online at: <https://immunisationhandbook.health.gov.au> (accessed February 2019).
7. National Centre for Immunisation Research and Surveillance (NCIRS). NCIRS factsheets & FAQs. Sydney: NCIRS; 2018. Available online at: www.ncirs.org.au/health-professionals/ncirs-fact-sheets-faqs (accessed February 2019).
8. Australian and New Zealand Society for Geriatric

- Medicine (ANZSGM). Position statement no. 7. Immunisation of older people - revision number 3, 2018. Sydney: ANZSGM; 2018. Available online at: www.anzsgm.org/posstate.asp (accessed February 2019).
9. Britt H, Miller GC, Charles J, et al. General practice activity in Australia 1990-00 to 2008-09: 10 year data tables. Canberra: Australian Institute of Health and Welfare; 2009.
 10. Royal Australian College of General Practitioners. Putting prevention into practice. Guidelines for the implementation of prevention in the general practice setting. Melbourne: RACGP; 2018.
 11. Thomas RE, Lorenzetti DL. Interventions to increase influenza vaccination rates of those 60 years and older in the community. *Cochrane Database Syst Rev* 2014; (7): CD005188.
 12. Australian Government Department of Human Services. Australian Immunisation Register. Available online at: www.humanservices.gov.au/individuals/services/medicare/australian-immunisation-register (accessed February 2019).

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