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Original article

Australia's national zoster vaccination program: Knowledge, attitudes and behaviour of general practitioners

Harunor Rashid, Aditi Dey, Ramesh Manocha, Mohamed Tashani, Kristine Macartney, Frank Beard

Abstract

Objectives

To assess knowledge, attitudes and behaviour of Australian general practitioners (GPs) regarding herpes zoster vaccination under the National Immunisation Program (NIP) from 2016 for adults aged 70–79 years.

Design, setting, participants

National cross-sectional online survey of GPs, October–November 2017.

Outcome measures

Knowledge, attitudes and behaviour regarding zoster vaccination, including challenges experienced and recommendations for improvement.

Results

Of the 1026 GPs who responded (response rate 7.9%), 98.5% were aware that zoster vaccine is NIP-funded for adults aged 70–79 years and 85.4% that it is recommended for age 60–69 years; however, 51.3% incorrectly thought it is routinely recommended for age 50–59 years. A minority (4.6%) incorrectly believed that being immunocompromised is not a contraindication to zoster vaccination and 16.0% that it cannot be co-administered with influenza or pneumococcal vaccine. Almost half (48.9%) rarely or never reported zoster vaccination data to the Australian Immunisation Register (AIR). Challenges perceived included lack of adequate information on vaccine contraindications; efficacy and safety concerns; and difficulty applying age criteria for NIP eligibility in general practice. Respondents indicated a desire for program expansion to include younger and older adult age groups.

Conclusion

This Australian GP survey, conducted one year after the introduction of the national zoster vaccination program, identified some knowledge gaps. A repeat survey of GPs is warranted to determine whether these issues persist, particularly regarding contraindication to vaccination for immunocompromised individuals. We encourage all GPs to offer zoster vaccination in line with current Australian evidence-based guidelines, particularly for the NIP-funded 70–79 years cohort; ensuring compliance with relevant contraindications; and reporting to AIR.

Keywords: general practitioner; herpes zoster; immunocompromise; national zoster vaccination program; post-herpetic neuralgia; zoster vaccine.

Introduction

Herpes zoster, or shingles, results from reactivation of latent varicella–zoster virus infection and typically presents as a painful vesicular rash in a dermatomal distribution, most commonly in older adults and immunocompromised individuals. It is often complicated by persistent chronic debilitating pain known as post-herpetic neuralgia (PHN), defined as pain persisting for ≥ 3 months. PHN can severely affect physical and psychological wellbeing and is often treatment-resistant.[1] The annual incidence in Australian adults aged ≥ 70 years is 13.1–13.8 per 1000 for herpes zoster and 2.4–3.2 per 1000 for PHN.[2]

A live attenuated zoster vaccine (Zostavax®, Seqirus) is registered in Australia for people aged ≥ 50 years and was included in the National Immunisation Program (NIP) from 1 November 2016 for individuals aged 70 years, with a five-year catch-up program for people aged 71–79 years.[3,4] Vaccination is recommended in Australia for adults aged ≥ 60 years in the Australian Immunisation Handbook (the Handbook) but is only funded under the NIP for those aged 71–79 years, for whom vaccination is particularly recommended. The Handbook notes that vaccination is less efficacious in people aged ≥ 80 years, although it may still provide some clinical benefit, and is not routinely recommended for use in those aged 50–59 years, but is permissible based on registered indication recommended.[5]

Clinical trial data suggest vaccination with Zostavax® reduces the incidence of herpes zoster by 61% and the incidence of PHN by 67% among adults aged ≥ 60 years out to around 3 years post-vaccination,[6] although vaccine efficacy then declines over time.[7] The safety profile of the vaccine has been generally favourable, although it is contraindicated in immunocompromised individuals due to the risk of disseminated infection with the vaccine strain.[8,9] While a new non-live recombinant subunit zoster vaccine (Shingrix®) has shown promising effectiveness of over 90% against zoster and PHN in clinical trials,[10] and is not contraindicated in immunocompromised individuals, this vaccine is not yet available in Australia.

The current program represented the first time that a live attenuated vaccine was funded for older adults. As there were no published data on Australian GPs' knowledge, attitudes and practices in relation to the national zoster vaccination program, we undertook a survey to assess these factors. This survey was conducted as part of a more comprehensive program evaluation which also sought to assess program implementation and vaccine safety.[11]

Methods

We conducted a web-based survey (using *SurveyMonkey*®) of Australian GPs, via the *Healthed* network, from 16 October to 3 November 2017. *Healthed* is a private continuing professional development and education provider for GPs that has approximately 13,000 GPs' contact details on its national electronic database. *Healthed* provided an incentive for respondents who participated in the survey of entry into a draw for five shopping vouchers worth AU$500 each.

The format of the survey questionnaire was based on our previous evaluations,[12] and the content was developed in consultation with experts in the field. The questionnaire comprised 21 questions, a mix of open-ended, closed-ended, Likert scale, matrix and multiple choice. The survey included questions on individual GPs' demographics; location and nature of practice; knowledge, beliefs and attitudes about the national zoster immunisation program; recording of zoster vaccination data in the Australian Immunisation Register (AIR); challenges experienced with the program; and recommendations for improvement.

The study was approved by the Sydney Children's Hospitals Network Human Research Ethics Committee (Ref: LNR/17/SCHN/250).

Results

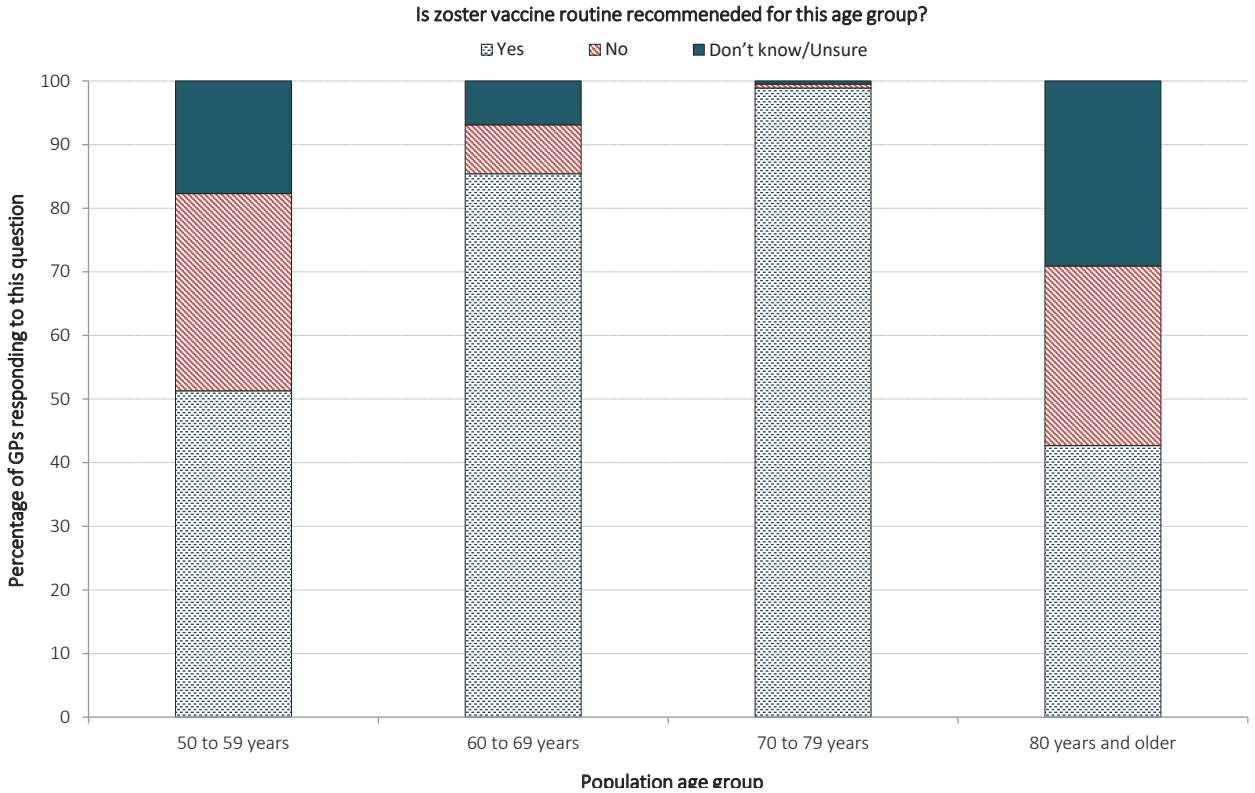
A total of 1026 GPs completed the survey (response rate 7.9%), of whom 75.2% were female and 80.7% were aged 35–64 years. Most respondents (81.4%) were from three states: New South Wales, Victoria and Queensland (Table 1). Nearly all respondents (98.5%) were aware that zoster vaccine is funded for adults aged 70 to 79 years, and most (85.4%) that it is recommended for adults aged 60–69 years (Figure 1). However, over half (51.3%) incorrectly thought the vaccine is recommended for 50 to 59 year olds and only 42.7% correctly reported that it is recommended for adults aged ≥ 80 years (Figure 1). Most respondents (95.5%) were aware that it is not funded for younger adults and 89.0% were aware that it is not funded for those aged ≥ 80 years (Figure 2).

A minority of respondents had incorrect knowledge about the contraindications to

Table 1: Demographic characteristics of the surveyed GPs (n = 1,026)

Characteristics	n (%)
Male	254 (24.8)
Female	772 (75.2)
Age bands	
25–34 years	73 (7.1)
35–44 years	236 (23.0)
45–54 years	256 (25.0)
55–64 years	336 (32.7)
≥ 65 years	126 (12.2)
Location of practices	
New South Wales	357 (34.8)
Victoria	289 (28.2)
Queensland	189 (18.4)
Western Australia	80 (7.8)
South Australia	76 (7.4)
Tasmania	18 (1.8)
Australian Capital Territory	13 (1.3)
Northern Territory	4 (0.4)
Types of practices	
Private, independent, 5–9 GPs	427 (41.6)
Private, independent, 2–4 GPs	239 (23.3)
Private, independent, ≥ 10 GPs	238 (23.2)
Private, independent, solo practice	61 (5.9)
Aboriginal Medical Service	12 (1.2)
Hospital-based clinic	10 (1.0)
Other	39 (3.8)

Figure 1: GPs' knowledge about zoster vaccine recommendations by age group



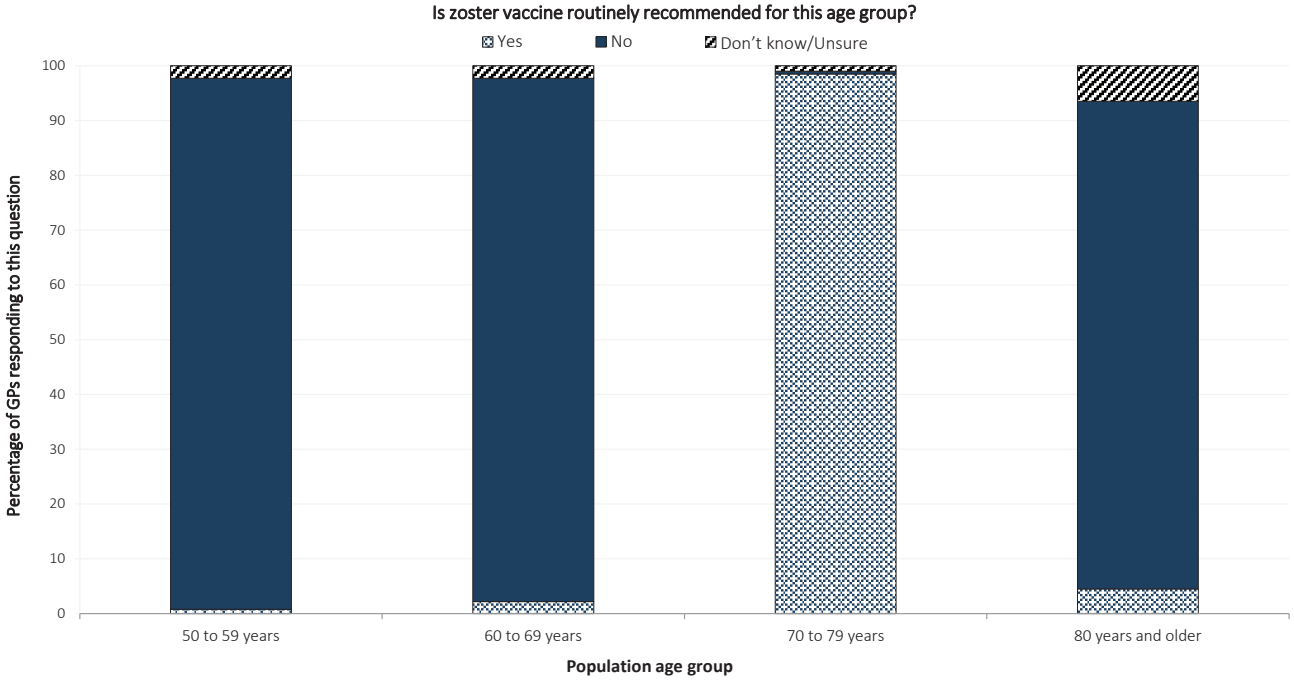
zoster vaccination. Close to 1 in 20 (4.6%) disagreed with the Handbook's recommendation that immunocompromised people should not receive zoster vaccine and 1 in 6 (16.0%) thought incorrectly that zoster vaccine could not be administered with influenza or pneumococcal vaccine. The majority of respondents reported providing advice regarding funded zoster vaccination to adults in the NIP target age group on at least a weekly basis (84.0% in relation to adults aged 70 years and 79.9% for those aged 71–79 years; Figure 3). However, 32.9% rarely and 2.6% never administered zoster vaccine to people aged 70–79 years, and 23.1% rarely, and 25.8% never reported zoster vaccination data to the AIR. A total of 187 respondents reported challenges experienced in the first year of the program. These challenges included: lack of timely availability of succinct information including advice on dangers of vaccination in immunocompromised individuals (37 respondents); supply issues including temporary shortages and supply irregularities (37); difficulty in applying and/or adhering to rigid age criteria in general practice (26); provider uncertainty about contraindications and risk of adverse events (18); public not being aware of the vaccine (10); cost barrier for individuals not covered under the NIP (10); patient concerns about safety (6); and provider concerns about efficacy (4).

A total of 151 respondents provided recommendations for improvement of the program: these mainly focused on expansion of age eligibility (to both younger and older adults) and extension of the time period (currently planned to be 5 years) for NIP-funded catch-up vaccination of adults aged 71–79 years.

Discussion

Our study, conducted one year after the introduction of the national zoster vaccination program, found that most GPs surveyed were aware of the eligibility criteria for funded vaccinations under the NIP. However, there was more uncertainty around recommendations for vaccination, with just over half incorrectly stating that the vaccine is recommended and funded for 50 to 59 year olds and less than half of respondents aware that it is recommended for those aged ≥ 80 years. Uncertainty regarding the latter age

Figure 2: GPs' knowledge about National Immunisation Program funding for zoster vaccination by age group



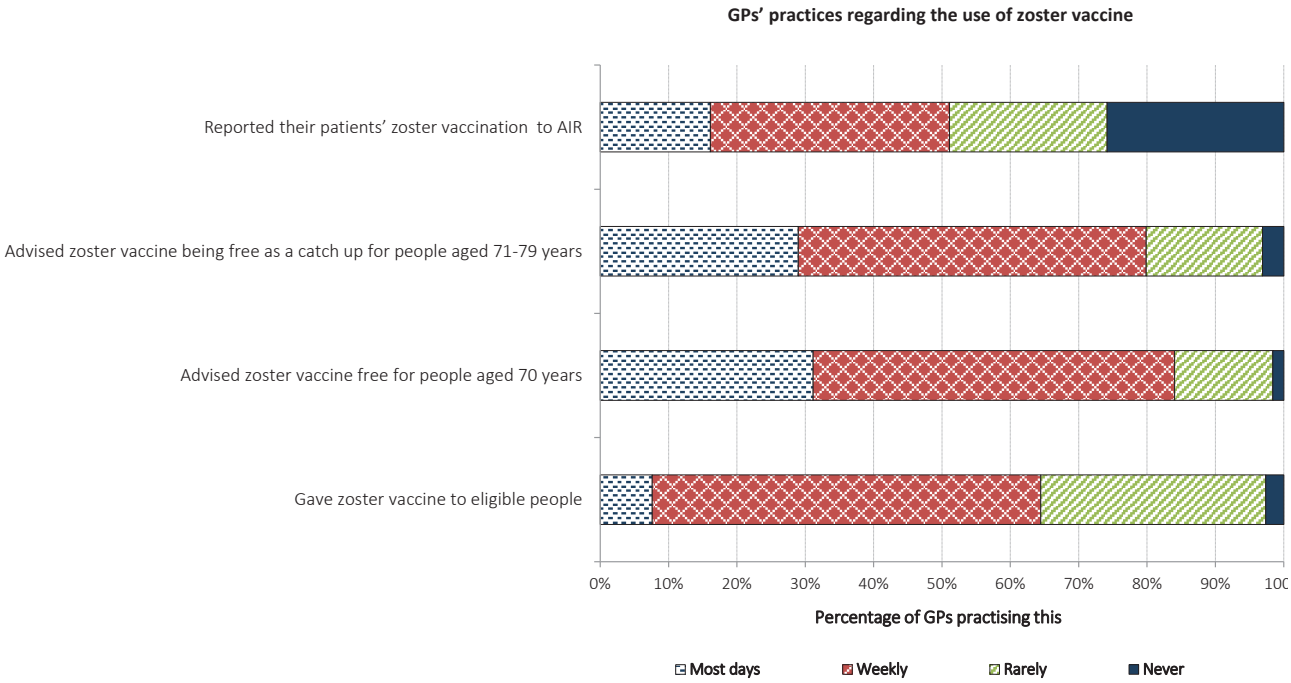
group may be contributed to by Handbook wording that zoster vaccine is less efficacious in this age group, although they 'may still receive some clinical benefit'.[5] It may be appropriate to strengthen the wording of this recommendation given recent evidence suggesting that vaccine effectiveness against PHN is similar in the ≥ 80 years age group to that in younger age groups.[13]

We identified some other important knowledge gaps that are relevant to clinical practice, including that 16.0% of GP respondents were unaware that zoster vaccine can be administered with influenza or pneumococcal vaccine. More concerningly, about 1 in 20 of the GPs surveyed thought this live attenuated vaccine could be given to immunocompromised people, when it is clearly contraindicated in both the product information and the Handbook. These responses were obtained after the death in January 2017 of a 71-year-old Australian man with chronic lymphocytic leukaemia who developed disseminated varicella-zoster virus infection from the vaccine strain,[14,15] resulting in numerous subsequent safety alerts and communications to immunisation providers.[16]

Over a third of GPs surveyed reported never or rarely administering zoster vaccine, and approximately 1 in 5 never or rarely advised that the vaccine is free to age-eligible patients. Further research to explore how much this reflects lack of penetration of recommendations versus differences in practice demographic profile would be of benefit. Almost half of respondents never or rarely reported zoster vaccinations to AIR. This is consistent with the considerable underreporting previously documented, with 1,427,234 doses of vaccine distributed from 1 October 2016 to 30 September 2018 but only 693,454 (48.6%) recorded in the AIR.[17] Similar findings of likely underreporting of zoster vaccination to AIR have been reported from a national primary care dataset.[18] Further research and engagement with immunisation providers is required so as to facilitate more complete reporting of zoster vaccinations to AIR.

In our study, the GPs surveyed considered application of the rigid age eligibility criteria under the NIP to be a key challenge of the program, and suggested that age eligibility be expanded to both younger and older adults. While this reflects the difficulty for GPs and other immunisation providers whenever there are age groups

Figure 3: GPs' practices regarding the use of zoster vaccine



for which a vaccine is recommended but not funded under the NIP, expansion of eligibility beyond the 70–79 year age group would require reassessment of cost-effectiveness in these age groups.[19,20] An in-depth study (preferably mixed methods) involving GPs who predominantly work with geriatric populations or residents of aged care facilities may help to contribute to understanding of current issues around age eligibility and other related challenges for giving this live attenuated vaccine to older Australians.

Our study is the first to report on the knowledge, attitudes and behaviour of Australian GPs in regards to zoster vaccination. Given this was a significant new national program and the first time a live vaccine has been recommended in older adults, this was important to assess, although a repeat survey would also be useful to assess any changes since 2017. While we surveyed GPs from all states and territories, and the age distribution of respondents was similar to that of Australian GPs overall,[21] the sample might not be fully representative given the low response rate (7.9%), underrepresentation from some states/territories, and preponderance of female respondents (75%, though only 45% of GPs in Australia are female).[22] Twelve respondents (1.2%) reported working in Aboriginal Medical Services. It is unclear given these limitations whether our findings might over-or underestimate knowledge of Australian GPs overall. Future research specifically targeting GPs working in Aboriginal and Torres Strait Islander health would be of benefit due to the higher risk of severe herpes zoster at a younger age in this population.[23]

We encourage all GPs to recommend zoster vaccination to eligible patients without contraindications, in line with current Australian evidence-based guidelines,[5] particularly for the NIP-funded 70–79 years cohort, and to report all vaccinations to the AIR to optimise monitoring of this preventive health intervention at both an individual and population level.

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