Immunising older Australians

Pre-COVID-19 vaccine perspectives from general practice training

Isaac Tranter, Parker Magin, Mieke L van Driel

Background and objective
Immunisation uptake in Australian older adults is suboptimal. General practice registrars are responsible for a significant proportion of immunisations in this age group and are also in the process of developing patterns of practice. Despite their role, little is known about general practice registrars' attitudes towards immunisation of older adults, the barriers faced, and the role supervisors play in developing adult immunisation skills.

Methods
This was a qualitative study involving semi-structured interviews with general practice registrars and supervisors purposively sampled from around Australia. Data were analysed using thematic analysis.

Results
The five key themes were grouped in terms of perceptions of registrars' role in immunisation of older adults, consultation barriers, health system barriers, managing vaccine hesitancy, and a team approach to vaccination.

Discussion
Vaccine positivity is an important attitude to cultivate within the general practice environment as it has an impact on registrar behaviour. Immunisation-skilled nurses could play a role in training general practice registrars in immunisation. Findings from the present study may be useful in improving vaccine uptake in the elderly in the context of the COVID-19 vaccine rollout.

PROVIDING IMMUNISATION is a central role of Australian primary care. In the past, efforts have primarily focused on childhood immunisation, achieving coverage of 90–95% of Australian children.[1] Despite these efforts, another group has been largely ignored: those aged over 65 years. The latest Australian immunisation data suggest only 54.4% of this population has received both the pneumococcal and influenza vaccines.[2] This reflects a large gap between childhood and adult immunisation uptake.

The reasons for low uptake of immunisation in this older age group are multifactorial. Patient perceptions about vaccine efficacy, severity of disease and possible side effects, combined with low provider confidence in adult vaccines, are all associated with low uptake.[2–4] Recommendation from a health professional was shown to be the most important factor influencing the decision to immunise.[4]

In Australia, general practitioners (GPs) are the key health professionals responsible for recommending vaccines to older adults. A particular group of interest regarding immunisation of older adults is early-career GPs, especially GPs undertaking specialist vocational training (in Australia, 'registrars'). General practice registrars work with considerable autonomy within an apprenticeship-like training model. They are establishing patterns of prescribing and preventive health practices that may persist into their future careers. They are also responsible for a significant proportion of immunisations delivered in general practice, making up approximately 13% of the Australian general practice workforce by headcount.[5,6] Despite this clear role, little is known about general practice registrars' attitudes towards adult immunisation, the barriers they face, and what role supervisors play in the development of registrars' adult immunisation skills.

This may have implications for Australian community COVID-19 vaccination programs and their ability to optimally reach vulnerable groups. An understanding of the perceived barriers and enablers of immunisation in older adults will inform the rollout, and ongoing delivery, of the COVID-19 vaccination program.

The aim of this study was to explore general practice registrars' and GP supervisors' experiences with and perceptions of immunisation of older adults.

Methods

The participants of this exploratory qualitative study were general practice registrars and active supervisors of registrars (with the experience of supervising in the previous two years) recruited from five of nine geographically based regional training organisations (RTOs; which train 75% of Australian general practice registrars[5]) using their list of current registrars and supervisors as the sampling frame. They were recruited via emails distributed through

 © The Royal Australian College of General Practitioners 2021

the RTOs and the chief investigator promoting the project in online teaching sessions. One participant was recruited via snowballing, and four were approached directly by their RTOs. Invitations were sent to approximately 1975 registrars and 2164 supervisors.[5,7]

Interested participants were asked to contact the research team directly via an email address. Sampling was purposive to ensure a maximum variation sample on the basis of gender, experience (first- or second-year registrar, or supervisor) and geographic location (urban or rural). Sampling continued until thematic saturation was achieved.

The data were collected from April to July 2020 during the first nationwide COVID-19 lockdown. Semi-structured interviews conducted using online video conferencing software were audio-recorded and subsequently transcribed verbatim.

The initial interview question schedule followed a theme list with reference to existing literature but was informant-led to enable new themes to emerge. The interview schedule was iteratively revised for subsequent interviews. Registrar responses broadly represented their own experiences, while supervisors were asked to comment on perceived impacts on registrar education and the systems in which training was conducted.

All interviews were conducted by the principal researcher, who was a general practice registrar. The possibility of unequal power dynamics during the interviews and the backgrounds and perspectives of the participants were explicitly acknowledged and considered in analysis of the data.

The transcribed interviews were analysed through a process of reflexive iterative thematic analysis as described by Braun and Clark.[8] The analysis was performed by two investigators independently (IT, MLvD) and commenced with initial familiarisation. Each interview was coded systemically using NVivo 12, and the resulting codes were collated. This process of coding was iterative and employed a process of constant comparison with previously analysed transcripts. The relationships between the resulting codes were mapped, and a theme list was derived from these mapped codes. Prominent themes were generated through consensus between the two investigators.

Ethics

Ethics approval was obtained from The University of Queensland human research ethics committee (#2020000507).

Results

A total of 23 interviews were completed, comprising 14 registrars (nine male, 14 female) and nine supervisors (four male, five female). Of the registrars, five were in their first or second six-month training term, and nine were in their third or fourth training term. Eight participants were working in rural communities, and five had completed their medical training internationally. The interviews ranged from nine to 41 minutes in duration (mean 25 minutes).

Five key themes were identified in the data. Themes and subthemes were grouped in terms of perceptions of the registrar's role in immunisation of older adults, the barriers experienced, the approaches taken to manage vaccine hesitancy, understanding a team approach to vaccination and the systemic issues hampering immunisation of the elderly. Table 1 lists the themes and subthemes with illustrative quotes. These will now be further explored.

Theme 1. Perceptions of the registrar's role in immunisation of older adults

Immunisation is core business

Many registrars expressed positive views of adult immunisation and preventive health. They expressed enjoyment and passion, and reported preventive health made up a significant proportion of their workloads. The time invested was thought to be worthwhile in improving health outcomes as well as saving future time and money.

Modelled behaviours and attitudes within a practice were thought to have an impact on personal attitudes. Supervisors recognised the importance of modelling behaviour and aimed to promote lifelong immunisation habits in their registrars through informal and structured education.

> *Having watched our clinic, it's really just creating a positive, proactive culture around vaccines, that makes it seem just like [it's] both a part of everyday healthcare, but also something that is really important to do.* (Registrar [Reg] 14)

Registrars reported vaccines to be something that patients expected them to discuss during consultations. Immunisation was considered to be analogous to smoking cessation and alcohol reduction discussions.

> *I don't feel bad about asking, because people should expect that from going to see their doctor. That their doctor will remind them about getting the vaccinations.* (Reg 13)

Indifference

In contrast, other registrars mentioned that immunisation was not front of mind and was something that could easily be forgotten, particularly early in the training process. Feelings of demotivation and 'numbness' towards vaccines were other sentiments voiced.

> *The preventative stuff, you become numb to it and dismiss it more easily.* (Reg 8)

The overarching feeling of prevention fatigue led to immunisation being provided only in consultations during which patients were seeking it.

Theme 2. Registrar barriers to an immunisation discussion

Cognitive load

The majority of immunisations provided by registrars were thought to be sought out by the patient. Some vaccines were perceived to be provided opportunistically when an older person presented for another issue. Although opportunistic vaccination was considered an ideal way to capture under-vaccinated patients, the cognitive load that it placed on registrars posed a significant barrier. This load was felt particularly by junior registrars who

© The Royal Australian College of General Practitioners 2021

had recently made the transition to primary care from acute settings. These registrars avoided the topic of immunisation because of feeling overburdened with the presenting complaint and lacking sufficient confidence to manage the discussion successfully.

Therapeutic relationship

A strong therapeutic relationship was considered to be the foundation of an effective general practice consultation. Bringing up the topic of immunisation when the patient was unknown to the registrar was considered a potential risk to establishing rapport. Registrars reported feeling fearful of alienating their patients through discussing immunisations opportunistically as this may be perceived as pushy or aggressive.

> *I don't really push it that much because by preventing that one case of pertussis,*

Table 1. Themes and subthemes with illustrative quotes

Theme	Subtheme	Quotes
Theme 1. Perceptions of the registrar's role in immunisation of older adults	Immunisation is core business	*'Preventative healthcare can become this drum of things that is a source of guilt. A more effective way of promoting preventative healthcare, is talking about positive aspects of life … because guilt never got anyone anywhere. There's got to be an element of enjoyment in health, because it should be such a positive thing. I think so often, it has so many negative connotations attached to it.'* (Registrar [Reg] 14)
Theme 2. Registrar barriers to an immunisation discussion	Cognitive load	*'A lot of the time the appointment is taken up with the actual issues that the patient's come to be seen for, and there's so many things to think about that sometimes those preventative health things just fall by the wayside when you're early on in training.'* (Reg 3)
	Therapeutic relationship	*'If I was just meeting them for the first time that day … I'm probably not going to try and get them on board with all their vaccinations at that point in time.'* (Reg 1)
Theme 3. Managing vaccine hesitancy	Listening and understanding	*'Listening is the main key to be a successful doctor. When the patient tells you, "No, I don't want the vaccine," you need to listen to the patient and get their opinion why they don't. What do they have in their mind?'* (Supervisor [Sup] 23)
	Non-judgemental approach	*'I offer to have the conversation at subsequent visits … But I remind them that we don't force anything on them. This is our role as doctors, where everything that we do and say is a recommendation. Also I mention that if they do change their mind in future, we're not going to hold that against them.'* (Reg 12)
	Assertive approach	*'I'm pretty blunt. I say, look, you cannot catch the 'flu from the 'flu vaccine. I'm pretty straight forward with that just saying, look, that's not true.'* (Reg 13)
	Recording vaccine hesitancy	*'Every time someone gives you a reason why they might not, you store that away, so that you can be prepared to make things smoother, when you offer it the next time.'* (Reg 14) *'The relationship between the GP and their patient is sacred and very important in my surgery. I listen and document the reasons why they wish to not vaccinate. It is rare; however, we must respect their wishes.'* (Sup 22)
Theme 4. The immunisation team	Team approach	*'Receptionist and nurses to do recalls, doctors and nurses vaccinate [and] upload the data to reflect our immunisation rates. The government is able to pick up our data and compare to other practices and reflect on our country as a whole.'* (Sup 22)
	Nurse immunisers – a risk to learning	*'Our nurses do a lot [of immunisation] and that's a problem because [the registrars] don't learn. Compared to other practices that I've been where at one point we had no nurse; you don't have to know as much here. So there's a little bit of a danger about having nurses that are so good.'* (Sup 19) *'I feel it would be pretty easy to not do that if you weren't forced to do it.'* (Reg 7)
Theme 5. Systemic barriers to immunisation	Access to records	*'I'm auditing which people, in the 65 to 80-year-old age group, have got documented Pneumovax and Zostavax vaccination. It's been actually quite hard to track down all that information'.* (Sup 19)
	Healthcare structure	*'It's our model of care that is based around acute fee-for-service, that you're always dealing with the acute presentation and sometimes you lose sight of those more preventative longer-term issues.'* (Sup 20)
	Complex vaccine schedule	*'I think the reason why we don't do it is, it's the hardest set of criteria to remember. It changed twice about five and eight years ago, and people hate changes, a lot of us just went, ugh, and then other messages took over our brain space.'* (Sup 21)

© The Royal Australian College of General Practitioners 2021

> *[there is a] risk of causing more harm by damaging the therapeutic relationship by being overbearing.* (Reg 8)

A conscious process of weighing the benefit of immunisation against potential damage to the therapeutic relationship was described in these situations.

Theme 3. Managing vaccine hesitancy

The most challenging immunisation consultations were those involving patients with vaccine hesitancy. Elderly patients were thought to be comparatively less averse to vaccines than parents of young children. However, all participants had experience with older individuals who were hesitant towards immunisation. A number of approaches were used in consultations involving patients with vaccine hesitancy.

Listening and understanding

When faced with a patient who was hesitant towards immunisation, participants identified the importance of listening to their concerns and ideas as a key starting point. After listening to the patient's primary apprehensions, participants endeavoured to explore their reasoning to help tailor refutations or motivational arguments. Exploring the background and health literacy of the patient was thought to be helpful in building an understanding of how these hesitant beliefs had been formed.

Non-judgemental approach

Maintaining trust in the doctor and the health system was a focus for registrars. To maintain this trust, they reported using an open-door policy to allow the patient to return to further discuss vaccines without feeling embarrassed about having changed their mind.

Others suggested using a gentle approach to avoid making the patient feel pressured or forced into accepting a vaccine.

> *The more you push, the less interested people are to engage.* (Reg 14)

Registrars saw their role in providing immunisation to the elderly as one of education rather than paternalism. They acknowledged and respected the patient's own decision but thought it important that all relevant information was conveyed.

> *Ultimately, you've got to let them make their decision, as long as they've got all the facts. (*Reg 3)

Assertive approach

Challenging patients on their beliefs through use of assertive language was another approach. Some participants thought it was imperative for the doctor to stop misinformation circulating in the community, even if this resulted in alienating the patient. Not challenging beliefs could be seen as confirming or condoning vaccine hesitancy in the eyes of the patient.

> *I think letting it slide may make it seem like I think it's okay ... But I don't want to continue that misinformation.* (Reg 4)

Recording vaccine hesitancy

Supervisors and registrars suggested recording a patient's vaccine hesitancy in the medical record. The rationale for this arose in three subthemes. The first was in order to provide a more convincing and tailored argument in the future. The second was to avoid hassling patients who had already made their position clear. This strategy also enabled the patient to feel heard so that future offers of immunisation could be provided with the understanding of previously stated hesitancy.

> *I certainly make notes in my chart that if people have refused or declined vaccines that are recommended, I kind of make a note of that and try not to hassle them every year, but acknowledge that I know you've declined this in the past but have you had any further thoughts about it?* (Supervisor 17)

Documenting prior hesitancy towards vaccines was felt to be an important part of respecting patient autonomy and maintaining the long-term therapeutic relationship.

Theme 4. The immunisation team

Immunisation – A team effort

To ensure that public health interventions such as immunisation are not missed, participants considered a team approach to be the most successful. Junior registrars reported feeling supported by the general practice team and felt that seeking the expertise of experienced nursing staff was key to improving their immunisation skills and confidence.

> *I seek assistance from a nurse, to give the vaccine. They are formally trained in vaccine giving, and they do it more frequently, it's a more prominent part of their role.* (Reg 14)

Nurse immunisers – A risk to learning

Despite the team approach being seen as a successful way to improve vaccine uptake, it does pose a significant risk to registrar education and training. Supervisors mentioned that registrars were not being fully exposed to vaccination discussions or delivery in practices that employed highly trained nursing staff. Some registrars reported feeling disempowered to deliver vaccines, as they considered this to be the nurses' domain and did not want to encroach on the nurses' area of responsibility.

Theme 5. Systemic barriers to immunisation

Access to records

Participants felt that, to deliver vaccines safely and ensure that all patients are provided with appropriate immunisation opportunities, an accurate and up-to-date record is necessary. When the vaccination record and medical history were not available or were incomplete, registrars voiced fear of over-servicing and potentially harming patients through avoidable adverse reactions.

> *My main concern is if there's no continuation of records ... we might end up double vaccinating them.* (Reg 2)

Healthcare structure

Participants described medical care provided through the current fee-for-service model to be a disincentive to

© The Royal Australian College of General Practitioners 2021

preventive health measures such as immunisation. The fact that many older patients had to pay for some of the recommended vaccines was identified as another barrier to discussing immunisation. Promoting unfunded vaccines placed registrars in the unfamiliar position of salesperson rather than doctor.

Complex vaccine schedule

The complexity and frequent revision of the pneumococcal vaccine schedule was felt to pose another barrier to immunisation of older adults. Which patients require vaccination? Who is eligible for a government-subsidised vaccine? Am I giving the current advice? All these questions 'require a deeper level of thought' (Reg 7) and added to the cognitive burden.

Discussion

This is the first study to explore general practice registrars' and GP supervisors' experiences of, and attitudes to, immunising older Australians. It provides a unique perspective of how they view their role in immunisation of older adults, the barriers faced (both within the consultation and the health system broadly) and the challenge of navigating vaccine hesitancy.

Registrars and supervisors acknowledged the importance of immunising older Australians, but some expressed a feeling of fatigue with the prospect of immunisation and preventive health more broadly. One of the key barriers faced by registrars was that of vaccine hesitancy. This was thought to be an infrequent view held by older patients but remained one of the most challenging aspects of navigating the immunisation consultation.

The structure of service delivery in Australian general practice was thought to be both a facilitator in registrar development of adult immunisation skills and an important barrier. Supportive nursing staff are essential to improve immunisation efficiency and building registrar confidence, but their role in delivering immunisations needs to be balanced against registrar exposure and experience during their formative years.

Comparison with existing literature

While many authors suggest immunisation fits firmly in the realm of general practice, others have identified failing to assume responsibility for immunisation and lack of motivation on the part of the GP to be prevailing attitudes.[9–11] These failures may be due to the cognitive and time burdens of primary care, which lead to prevention fatigue and indifference. The Australian health system, similar to international settings, has limited incentives for preventive care, which also hampers the motivation of GPs to provide opportunistic vaccines.

Registrars described a dissonance between feeling duty-bound to provide immunisation advice to older adults and being constrained by the risk of damaging the therapeutic relationship. Other authors have found similar findings, with GPs feeling stuck between respecting patient autonomy and promoting public good.[12] The cognitive load of the consultation, limited time and poor access to medical records have also been described in other studies and are consistent with the present findings.[10,12] Given that cognitive load was identified as a key barrier, implementing measures to offload certain tasks – such as automation, recalls and reminders – may be helpful in increasing vaccine uptake in elderly patients.

Registrars described using an assertive approach to combat misinformation and motivate their patients to immunise. Previous studies have found that refuting myths directly does reduce the belief in the myth but also reduces the overall intention to vaccinate.[13] Despite this approach being used by registrars, its efficacy is questionable.

Using the strength of the healthcare team to promote adult vaccinations has been advocated for many years.[11] Standing immunisation orders, nurse-led vaccine clinics and increased autonomy for non-medical staff have all been successfully used in the past.[10] However, when implementing these strategies, the potentially detrimental impact on general practice registrar education needs to be kept in mind to ensure adequate exposure to and learning regarding vaccines in the years of registrar training.

Strengths and limitations

A strength of the present study is its transferability given the explicit recruitment strategy, sampling registrar and supervisor experiences' from across Australia, from diverse backgrounds and differing levels of experience. The triangulation of the registrars' views with those of supervisors provides a deeper understanding of the context of registrars' experiences and learning. The depth of data was strengthened through the interviewer having a similar experience level to many of the registrars, allowing them to speak comfortably with a peer. On the other hand, in the interviews involving supervisors, there may have been an unequal power dynamic. This may have led the interviewer to be less empowered to ask pointed or sensitive questions to a perceived superior, which in turn may have resulted in less depth of understanding of supervisor interview data. A further consideration is that data collection occurred during the period of COVID-19 lockdown. The pandemic was front of mind for many participants, which may have influenced their responses. Some potential influences include a higher than usual focus on infectious disease and immunisation in clinical practice or alternatively a greater sense of fatigue due to disruption in workflow and the cognitive burden of the evolving pandemic.

Implications for research and practice

General practice registrars are at a stage where their attitudes and practices are being formed. A strong practice culture and in-practice promotion of vaccines is essential for instilling a positive view of immunisation. Vaccine positivity was identified as having a strong impact on immunisation practices and is an important value to cultivate within the general practice environment.

Vaccine hesitancy was described as the most challenging part of the immunisation consultation. The current literature suggests that a public health and community approach is more effective in promoting vaccines than interventions at a consultation level.[14] Despite the best vaccine campaigns, a small group of hesitant patients will

© The Royal Australian College of General Practitioners 2021

remain. To date, few studies have looked at the consultation skills that may be helpful in managing vaccine avoidance. Given that behaviour change is a key goal in consultations involving vaccine hesitancy, a model based on the principles of motivational interviewing (engaging with empathy, evoking a discussion about change and reinforcement of patient's own change talk) may be helpful.[15]

At the time of writing, the Australian health system is in the midst of the COVID-19 vaccine roll-out. This study gives insight into pre-vaccine experiences with immunisation of older adults and may provide some guidance to optimising uptake of the COVID-19 vaccine. Of particular interest may be the findings regarding registrars' approaches to combating misinformation (given current public misconceptions regarding the absolute risk of COVID-19 vaccine serious adverse effects) and to motivating patients to accept immunisation in the face of vaccine hesitancy.

Conclusion

In Australia, uptake of immunisation in older age groups has been shown to be poor when compared with childhood uptake. The present findings provide insight into some of the structural and consultation factors that may contribute to this issue. Interventions at both the level of the practice and the consultation may be useful adjuncts to a broader public health approach.

Implications for general practice

- Vaccine positivity is an important value to cultivate within the general practice environment, especially during the COVID-19 vaccine rollout.
- Automation, recalls and reminders may be helpful in reducing the cognitive burden on registrars and increasing vaccine uptake in elderly patients.
- Immunisation-skilled nurses could play a role in training general practice registrars in immunisation.
- Assertive or confrontational approaches to vaccine hesitancy are unlikely to be successful.
- A consultation model based on the principles of motivational interviewing (engaging with empathy, evoking a discussion about change and reinforcement of patient's own change talk) may be a useful method to combat vaccine hesitancy.

Authors

Isaac Tranter MBBS, MPH&TM, Associate Lecturer, Academic General Practice Registrar, Primary Care Clinical Unit, University of Queensland, Qld

Parker Magin PhD, FRACGP, Conjoint Professor, Discipline of General Practice, School of Medicine and Public Health, The University of Newcastle, NSW; Director, Research and Evaluation Unit, GP Synergy, NSW

Mieke L van Driel MD, MSc, PhD, FRACGP, Emeritus Professor, Primary Care Clinical Unit, University of Queensland, Qld

Competing interests: None.

Funding: This research project is supported by The Royal Australian College of General Practitioners with funding from the Australian Government under the Australian General Practice Training program.

Provenance and peer review: Not commissioned, externally peer reviewed.

Correspondence to:
i.tranter@uq.edu.au

References

1. Department of Health. Immunisation coverage rates for all children. Canberra, ACT: DoH, 2021. Available at www.health.gov.au/health-topics/immunisation/childhood-immunisation-coverage/immunisation-coverage-rates-for-all-children [Accessed 25 April 2021].
2. Australian Institute of Health and Welfare. 2009 adult vaccination survey: Summary results. Cat. no. PHE 135. Canberra, ACT: AIHW, 2011.
3. Raina MacIntyre C, Menzies R, Kpozehouen E, et al. Equity in disease prevention: Vaccines for the older adults – a national workshop, Australia 2014. Vaccine 2016;34(46):5463–69. doi: 10.1016/j.vaccine.2016.09.039.
4. Menzies RI, Leask J, Royle J, MacIntyre CR. Vaccine myopia: Adult vaccination also needs attention. Med J Aust 2017;206(6):238–39. doi: 10.5694/mja16.00811.
5. Radloff A CL, Matthews D. Australian General Practice Training program: National report on the 2019 national registrar survey. Camberwell, Vic: ACER, 2019.
6. Department of Health. Summary Statistics, MET 4th 2019. Canberra, ACT: DoH, 2019. Available at https://hwd.health.gov.au/resources/data/summary-met4-2019.html [Accessed 26 April 2021].
7. General Practice Supervisors Australia. The GPSA annual report 2018–19. Bendigo, Vic: GPSA, 2019.
8. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol 2006;3(2):77–101. doi: 10.1191/1478088706qp063oa.
9. Klett-Tammen CJ, Krause G, von Lengerke T, Castell S. Advising vaccinations for the elderly: A cross-sectional survey on differences between general practitioners and physician assistants in Germany. BMC Fam Pract 2016;17:98. doi: 10.1186/s12875-016-0502-3.
10. Rehm SJ, File TM, Metersky M, Nichol KL, Schaffner W. Identifying barriers to adult pneumococcal vaccination: An NFID task force meeting. Postgrad Med 2012;124(3):71–79. doi: 10.3810/pgm.2012.05.2550.
11. Zwar N, Hasan I, Harris M, Traynor V. Barriers and facilitators to influenza vaccination among high-risk groups aged less than 65 years – Views from general practitioners and practice nurses. Aust N Z J Public Health 2007;31(6):558–61. doi: 10.1111/j.1753-6405.2007.00143.x.
12. MacDougall DM, Halperin BA, MacKinnon-Cameron D, et al. The challenge of vaccinating adults: Attitudes and beliefs of the Canadian public and healthcare providers. BMJ Open 2015;5:e009062. doi: 10.1136/bmjopen-2015-009062.
13. Nyhan B, Reifler J. Does correcting myths about the flu vaccine work? An experimental evaluation of the effects of corrective information. Vaccine 2015;33(3):459–64. doi: 10.1016/j.vaccine.2014.11.017.
14. Jacobson RM, St Sauver JL, Finney Rutten LJ. Vaccine hesitancy. Mayo Clinic Proc 2015;90(11):1562–68. doi: 10.1016/j.mayocp.2015.09.006.
15. Miller WR, Rose GS. Toward a theory of motivational interviewing. Am Psychol 2009;64(6):527–37. doi: 10.1037/a0016830.

correspondence **ajgp@racgp.org.au**

© The Royal Australian College of General Practitioners 2021