What strategies have been effective in optimising COVID-19 vaccine uptake in Australia and internationally?

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Background
A key public health measure protecting the population from COVID-19 is vaccination. Unvaccinated people have higher COVID-19 case rates and death rates than those who are fully or partially vaccinated. It has, and continues to be, critical to optimise COVID-19 vaccination uptake in the community.

Objective
The aim of this study was to identify population groups who were less likely to be fully vaccinated against COVID-19 and strategies that were successful in increasing uptake in these often hard-to-reach groups.

Discussion
Strategies that have successfully increased COVID-19 vaccine uptake may also be effective in enhancing uptake across a range of vaccine-preventable diseases. These strategies include collaboration and building trust with local communities, targeted communication and education, optimising access to vaccines and the use of targeted incentives. Primary care providers are often central to these strategies and are well placed to take the time that people need to shift from uncertain to becoming vaccinated.

THE COVID-19 VACCINATION ROLLOUT

has been rapid and extremely variable between countries. At the time of writing (18 July 2022), double (ie two-dose) vaccination rates ranged from 0.12% in Burundi to 104.56% in the United Arab Emirates,[1] with >95% of the eligible Australian population having received two or more vaccinations. The total number of vaccine boosters administered per 100 people ranges from 0.01 in Guinea to 128.98 in Chile, with Australia falling between at 53.98 (70.9% of those eligible, aged 16 years or older).[1] Per-capita metrics may exceed 100% in some territories, where vaccination coverage may include non-residents (eg tourists and foreign workers). While initial uptake and community intention to receive a third dose (often termed 'a booster') in Australia was robust, similar to the US trend,[2] this has plateaued.[3] On 29 May 2022, the uptake of COVID-19 boosters varied greatly across Australian local government areas, from 39% in Cherbourg, Queensland, to 90.6% in Claremont, Western Australia.[4] In low- and middle-income countries, access and affordability are major impediments to vaccination.[5] Equitable distribution and access to COVID-19 vaccines in these countries is a critical issue;[6] however, consideration of this is outside the scope of this article.

In addition to the relaxation of isolation measures, mask mandates have been lifted across most of Australia and internationally, with mask-wearing now often an individual choice. The key public health measure protecting the population from COVID-19 is vaccination. Evidence clearly indicates that unvaccinated people have higher COVID-19 case and death rates than those who are vaccinated.[7] It is therefore critical that we optimise COVID-19 vaccination uptake in the community.

This commentary draws on and synthesises key findings from a rapid narrative review conducted in November 2021 (and updated in May 2022). We examined the international literature to identify which groups of people were likely to remain unvaccinated and strategies that had been effective in increasing vaccine uptake in these populations.

Who is missing out on COVID-19 vaccines?

Internationally, COVID-19 vaccination rates are usually lower for people from lower socioeconomic groups,[2,8,9] those with lower education levels,[2] people living in regional and rural areas[10] and young people.[8] Substantially lower vaccination rates have been observed in ethnically and racially diverse groups in the USA,[11] the UK,[8] Canada[9] and Australia.[12] Vaccination rates for people experiencing homelessness are just over half those of

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other eligible citizens in the UK.[13] These inequities point to structural and systemic barriers that can reduce vaccine access.

The most common concerns people have reported with COVID-19 vaccines relate to their novelty and rapid approval processes,[14–16] concerns about safety[15,17] and potential side effects.[14,16–18] Some people who are vaccine hesitant report reduced trust in authorities,[19] including government,[20,21] science or the health system.[21] Some healthcare workers have expressed reticence to receive COVID-19 vaccines because of fear of side effects that might lead to them needing time off work and subsequently losing income or leaving their workplace understaffed.[22]

Current evidence indicates that between 3% and 8% of people will staunchly refuse a COVID-19 vaccine.[20,23] Ten per cent of Australian parents of children aged 12–15 years and 15% of those with children aged 5–11 years have no intention of arranging COVID-19 vaccination for their children.[3] Other than those who staunchly refuse to receive a vaccine, those remaining unvaccinated may be willing yet unvaccinated, or simply hesitant. Identifying these people, who are at increased risk if they contract COVID-19, and implementing strategies to optimise their rates of vaccination may help to avoid serious illness and save lives. In Australia, the majority of COVID-19 vaccinations have been provided in primary care, predominantly general practice;[24] optimising vaccine uptake in this setting is critical.

How can we optimise COVID-19 vaccine uptake?

Strategies that have been effective in optimising COVID-19 vaccine uptake in the community fall within six broad themes: collaboration and trust, communication and information, countering misinformation, supporting people to shift from uncertain to vaccinated, improving access, and mandates and incentives. These are

Table 1. Strategies to optimise COVID-19 vaccine uptake across the health system

Strategy	Public health	Primary care	Community settings (residential care, home care)	Acute care (eg emergency departments)
Collaboration and trust	Co-leadership with local community leaders Development of trust and trustworthiness Multilingual materials and those accessible for people with disabilities	Using existing trusting relationships between patient and primary care providers	Relationships with local community leaders, facilitating solutions that meet local preferences and needs	Co-leadership with local community leaders Development of trust and trustworthiness Multilingual materials and those accessible for people with disabilities
Communication and information	Emphasis on importance and benefits of vaccination using a broad range of voices Information about where to be vaccinated	Information delivered by trusted/known health care provider Locally relevant information and resources provided	People see themselves represented in locally relevant information and resources	Emphasis on importance and benefits of vaccination using a broad range of voices Information about where to be vaccinated
Countering misinformation	Collaborative development of appropriate information from trusted messengers and available in multiple languages	Conversations with trusted/known health care providers	Conversations with trusted/known health care providers	Conversations with healthcare providers, and in multiple languages
Supporting people to shift from uncertain to vaccinated	Messaging that addresses people's concerns Choice of vaccine brand	Using multiple contacts to inform thinking	Conversations with trusted/known health care providers	Contextually relevant information provided opportunistically
Access – make it easy to get vaccinated	Mass vaccination centres/home-based care, walk-in clinics, mobile vaccination teams, pop-up clinics	Vaccines available where usual care is accessed – planned and opportunistic	Offering planned and opportunistic vaccines (eg during home visits)	Opportunistic vaccines (eg in emergency departments and outpatient clinics)
Mandates and incentives	Public health initiatives have supported workplaces to increase vaccine uptake	Most general practices require staff to be vaccinated	Many healthcare settings in the community require staff to be vaccinated	Many acute care settings require staff to be vaccinated

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applicable across the health system, as indicated in Table 1. These strategies are also likely to be effective in enhancing vaccine uptake across a range of vaccine-preventable diseases and may be considered in this light.

Collaboration and trust

Developing partnerships and co-leadership with local community leaders has been effective in increasing COVID-19 vaccine access and uptake.[25] Primary care and other trusted healthcare providers' relationships with community leaders have facilitated creative solutions that suit local preferences and needs.[26] Multilingual materials[21] and those accessible for people with disabilities[11] have been essential, as have strategies that address other historically rooted inequities, including systemic racism, medical exploitation,[27] discrimination and trauma[21,28] – histories that may create reticence to receive vaccines and also increase risk of severe COVID-19 illness.[28] Aboriginal health workers have played a key part in effectively communicating COVID-19 information and increasing vaccine uptake in their local communities.[12] Building trust has been a prerequisite for vaccine uptake in culturally and linguistically diverse communities (Box 1).[29] Medical professionals and researchers taking active steps to establish their trustworthiness was an important first priority, as opposed to 'educating' people about vaccine safety and efficacy.[25] Partnerships with trustworthy, historical institutions such as the National Centre for Immunisation Research and Surveillance[30] and the Collaboration on Social Science and Immunisation[31] has been a source of organisational and individual confidence. The recently introduced COVID-19 Vaccine Claim Scheme is an example of partnerships between government and peak medical, healthcare, insurance and business sectors, fostering consumer advocacy and trust.[32]

Communication and information

Emphasising the importance and benefits of vaccination has been effective in increasing COVID-19 vaccine uptake,[33] as has including a broad range of voices – community members, clinicians, scientists and government agencies,[11,20] which has enabled people to see themselves represented in campaigns. Information about where to be vaccinated has been shared on television, radio and social media and through local community networks.[34] Connecting scientific evidence to vaccine communication has improved vaccine uptake, including providing evidence to enhance people's understanding of risk in the work environment for unvaccinated employees, clients, the public and vulnerable populations.[35]

Countering misinformation

Misinformation can both initiate and reinforce COVID-19 vaccine hesitancy[21,34,36–39] and can originate from families,[18] religious beliefs[34,36] and local communities.[21] Social media has provided an important channel to reach target populations but has also been a source of highly polarised and active antivaccine commentaries,[37] including for people from culturally and linguistically diverse populations.[21] Collaborative development of appropriate content has been most effective when it has included 'trusted messengers',[38] including healthcare professionals, academics and community leaders,[37] and been made available in multiple languages, as described in the example provided in Box 1.

Supporting people to shift from uncertain to vaccinated

Studies refer to a spectrum of willingness for COVID-19 vaccines, ranging from cautious to unlikely.[16] For those who are willing yet unvaccinated, their reasons are often combinations of complacency, convenience and confidence.[38] Choice of brand and easy access to vaccines have been important for the 'cautious', while many people who were 'unlikely' have responded to incentives. Focusing on the 'cautious' has been an effective way to move people to 'interested' and then 'vaccinated'.[16] Contextually relevant information provided by a trusted healthcare provider has proven important in shifting many from a state of hesitancy or resistance to cautious readiness;[16] primary healthcare providers have been well placed to do this.[40] Offering vaccines opportunistically has been effective in reaching people who were vaccine receptive or pre-contemplative.[26]

When talking to people who are hesitant to receive a vaccine, it has been helpful to lead with values related to caring for people in the community, rather than with facts about the safety and efficacy of vaccines.[23] The use of plain language and active listening (Ask-Tell-Ask) has been effective.[23] Discussions with people who staunchly refuse vaccines has required a similar listening approach that acknowledges their beliefs and avoids engaging in a 'fact-off'.[23] Healthcare providers can choose between continuing with vaccine counselling conversations using a values-based approach or ending a consultation in favour of maintaining the therapeutic relationship and future conversations.[23]

Access: Make it easy to get vaccinated

The many ways to optimise access have included building flexibility into times, sites and methods for administering vaccines, such as via community centres and home-based care.[26] Establishing walk-in clinics[16] and sending mobile vaccination teams to populations with

Box 1. Increasing vaccine uptake in a South Sudanese community

A South Sudanese community-led vaccination program in Canberra was developed in collaboration with ACT Health. Community members worked with the government to set goals and co-design approaches that were acceptable to them, including appropriate support for people in quarantine, supported by community leaders' insight into social networks. A COVID-19 emergency summit was convened with the nationwide South Sudanese community to address concerns about the pandemic and vaccines. Facebook, Zoom, WhatsApp and Instagram were used to ensure intergenerational engagement. A pilot vaccination clinic was conducted, with health staff administering vaccines and South Sudanese community leaders staffing the entrance and front counters. Community ownership was critical, and community uptake of COVID-19 vaccines was very high. This program has subsequently been rolled out nationally.[28]

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high transmission rates have also been effective.[34] Clinics located at or near workplaces or shops[16,35,41] and open for long hours have increased access[42] and reduced barriers to vaccination such as travel, scheduling and the need for time off from work.[43] People with disability, mental health and special needs have often needed additional support to get vaccinated, including disability-focused information that is applicable for varying needs,[44] specific access and sensory requirements, longer appointment times and the availability of vaccines for carers at the same time.[45] Consideration of workplace culture in relation to sick leave has been important, as has been addressing illness presenteeism.[46] A rolling approach to vaccination in workplaces has avoided multiple staff being absent at the same time as a result of side effects,[22] and collaborations with workplaces have been effective in targeting people who are 'unvaccinated but willing' (Box 2).[42]

The unpredictability of the lives of people experiencing homelessness, including prioritisation of food and shelter, has presented challenges to vaccination, including locating patients for a second or subsequent dose.[13] Customised strategies that respond to their needs and lives, including outreach and peer advocacy, have been effective (Box 3).

Mandates and incentives

Strategies to increase COVID-19 uptake have included requirement (mandated) and incentive programs; however, consideration of ethical criteria has been essential, including the effectiveness of other mitigation strategies and voluntary uptake of vaccines, adequate communication regarding the safety of COVID-19 vaccines, and ensuring that access barriers have also been addressed.[47] Trust is integral in COVID-19-related decision making, even in the setting of mandatory vaccinations. People have been more willing to receive a COVID-19 vaccine if their peers have also been required to receive one; this has applied to schools, workplaces and hospitals.[35] Taking time to discuss concerns with students[48] and staff,[11] rather than stigmatising hesitancy, has been integral to improving trust. Among young people, 'identity, agency and autonomy' are especially paramount, and tying strategies to these characteristics has been effective.[48] A balanced and targeted approach has been essential for requirement programs, as has consideration of both public health and ethical criteria.[47]

Financial incentives have supported healthcare providers to provide this important vaccine program to at-risk groups in a sustainable way[49] and to encourage vaccine uptake in hard-to-reach groups.[42] Incentives have required effective advertising to target populations, immediate delivery after vaccination, value for prospective participants, cost-effectiveness, increased equity and no disadvantage to a vulnerable group, and careful consideration of potential risks.[47]

Conclusion

The people missing out on COVID-19 vaccines are often the most vulnerable to poor outcomes from COVID-19 and comprise groups who may be difficult to reach using conventional strategies. Targeted strategies that optimise vaccine uptake have been important to minimise the spread and impact of COVID-19, both among unvaccinated individuals and across the broader community. Effective strategies have prioritised direct engagement with community members and emphasised developing trust and trustworthiness. Meaningful communication and targeted education have leveraged relationships and values to build confidence and counter misinformation. Taking vaccine initiatives directly to target communities has been greatly effective in reducing barriers to vaccination. The health system needs to adapt and support innovation if it is to reach people who are currently missing out on COVID-19 and other vaccines.

Key points

- Large disparities in COVID-19 vaccination uptake have been observed internationally.
- Optimising COVID-19 uptake in primary care, where the majority of vaccines are provided, is critical.
- Successful strategies have prioritised direct engagement with community members and emphasised developing trust and trustworthiness, and targeted, collaborative education programs.
- Mass media campaigns have been critical to countering misinformation and the associated threat to public health.
- Healthcare providers have opportunities to assist people to make the shift from cautious or unlikely to willing and vaccinated.

Box 2. Establishment of a Diversity, Equity, and Inclusion Committee for COVID-19 vaccines

An effective strategy for healthcare workers in a group of long-term care facilities in the USA was the establishment of a Diversity, Equity, and Inclusion Committee comprising a diverse range of members and listening sessions to inform interventions to improve COVID-19 vaccine uptake. Messages were modified in response to concerns raised by staff, including culturally sensitive topics that affected their decisions regarding vaccine uptake.[10]

Box 3. Mobile COVID-19 vaccination clinic for people experiencing homelessness

A mobile vaccination clinic in Melbourne, Australia, has vaccinated up to 40 homeless people per day in a variety of locations, including homelessness services, drop-in centres, crisis accommodation facilities and rooming houses. The vaccination team has included two nurse immunisers, a peer worker who has a lived experience of homelessness, a social worker and a clerical services officer.[41]

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Competing interests: MW is Deputy Chair of The Royal Australian College of General Practitioners NSW/ACT Faculty Board, Chair of Central and Eastern Sydney Primary Health Network and a member of the *Australian Journal of General Practice* (*AJGP*) Editorial Advisory Committee. LB reports grants from National Health and Medical Research Council, outside the submitted work, and is a member of the *AJGP* Editorial Advisory Committee.

Funding: This work received in kind support from the Australian Government Department of Health, and the Australian National University where the authors are employed.

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

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