AOTEAROA NEW ZEALAND RESEARCH

Midwives' perceptions of enablers and barriers to pertussis and influenza vaccination in pregnancy and information sharing

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ABSTRACT

Background: Vaccination in pregnancy against influenza and pertussis protects the pregnant woman/person and their infant against severe disease. Aotearoa New Zealand has a lower uptake of vaccination in pregnancy than some other countries, despite this immunisation being publicly funded. Coverage is also inequitable, with Māori, Pacific people, and people from high deprivation areas less likely to be vaccinated. Many barriers exist to vaccinations in pregnancy, e.g., access barriers and lack of knowledge about vaccination. Discussions about recommended vaccines with healthcare professionals, particularly midwives, may have a positive impact on vaccine decision-making.

Aim: This study aimed to investigate midwives' perceptions of enablers and barriers with discussions about vaccinations in pregnancy, barriers to vaccination in pregnancy, and influences on vaccine decision-making in pregnancy. The study also aimed to gather midwives' insights into what might improve vaccination uptake.

Method: A structured questionnaire was developed containing a mix of closed and open-ended questions. The questionnaire was sent out to 3002 midwives registered in Aotearoa New Zealand in October 2021, using REDCap electronic data capture tools. Simple descriptive statistics were undertaken on the quantitative data. The answers to the open-ended questions were analysed using a direct, qualitative content analysis approach.

Findings: Fifty-one midwives' responses were included in the analysis (1.8% response rate). Almost all reported sufficient knowledge of vaccinations in pregnancy but had varying levels of confidence when discussing them. The most common enablers to conversations were good relationships, easy communication, and having the time and resources available. Respondents perceived that barriers to conversations were negative preconceptions, communication difficulties and lack of time. Lack of awareness, cost to access services and competing priorities for time were also thought to reduce the likelihood of vaccination in pregnancy. To improve vaccine uptake, respondents identified the need for accessible and suitable vaccination venues, appropriate information and the support of all healthcare professionals involved in maternal healthcare.

Conclusion: Midwives surveyed understand the importance of vaccination in pregnancy but there may be lack of confidence, time or resources to effectively engage in discussions. A trusting relationship is important but this can be affected by disengagement or late presentation to healthcare services. Resources to counter pre-existing negative ideas and support communication would help midwives to provide useful information about vaccination. Furthermore, respect and cultural understanding of hapū Māori and their needs will positively support their ability to make informed decisions.

Keywords: midwives, vaccination in pregnancy, immunisation, communication, barriers, decision-making

BACKGROUND

Influenza and pertussis vaccinations during pregnancy have proven safety (Griffin et al., 2018; Lu et al., 2021) and effectiveness for the mother and infant (Ministry of Health [MOH], 2020a), and have been widely recommended for many years. Aotearoa New Zealand (NZ) has a lower uptake of vaccination in pregnancy than some other countries (Maertens et al., 2016; Quattrocchi et al., 2019; Razzaghi et al., 2020; Sebghati & Khalil, 2021), despite the vaccinations being publicly funded for almost a decade (Immunisation Advisory Centre, 2022; MOH, 2020a; World Health Organization, 2005). Vaccination against influenza in pregnancy protects the mother from severe infection and their infant in its first few months of life, by passive antibody transfer across the placenta (MOH, 2020a). Influenza can be severe during pregnancy, resulting in hospitalisation (including ICU admission and death), preterm birth and low birthweight for newborns (Immunisation Advisory Centre, 2022; Rasmussen et al., 2012).

Vaccinating against pertussis in pregnancy will provide passive protection for pēpi (see glossary of Māori terms, p. 36) too young to be vaccinated themselves (MOH, 2020a). Pertussis infection in pēpi can result in severe complications, including seizures, pneumonia, brain damage and death (bpac^{nz}, 2014; Environmental Science and Research NZ [ESR], 2013). Vaccinating in pregnancy reduces the risk of hospitalisation from influenza infection during pregnancy by 65% (MOH, 2020a) and infant pertussis hospitalisation by 38% (bpac^{nz}, 2014). Aotearoa NZ experienced its latest pertussis outbreak between October 2017 and May 2019 (ESR, 2019). For the 12 months to May 2019, there were 152 cases of pertussis in pēpi and over half of these cases were hospitalised (ESR, 2019). Māori and Pacific pēpi are disproportionately affected by pertussis (ESR, 2019).

Although the benefits of vaccinating in pregnancy are clear, in 2018 less than half of pregnant women/people in Aotearoa NZ were vaccinated against pertussis and less than a third against influenza (Howe et al., 2020). Furthermore, coverage was inequitable, with Māori, Pacific people and people from low deprivation areas significantly less likely to receive vaccinations in pregnancy than other groups (Howe et al., 2020; Pointon et al., 2022). Because Māori and Pacific pēpi have higher rates, and increased likelihood, of being hospitalised with pertussis and influenza infection (ESR, 2013; Prasad et al., 2020; Somerville et al., 2007), the inequitable vaccination coverage in pregnancy for Māori and Pacific people has serious consequences for their pēpi and tamariki.

Although influenza and pertussis vaccinations are available free of charge during pregnancy in Aotearoa NZ (MOH, 2020a), many barriers to vaccination have been identified. Some pregnant women/people often remain unvaccinated in Aotearoa NZ and internationally because they do not receive information about vaccinations in pregnancy (Donaldson et al., 2015; Gauld et al., 2016; Young et al., 2022). Other barriers include limited access to care, lack of transport to vaccination venues, costs involved with vaccination and time pressures (Duckworth, 2015; Gauld et al., 2022a; Gauld et al., 2022b; Hill et al., 2018; Larson et al., 2014; Wilson et al., 2015). Unfortunately, some barriers (such as cost and transport issues) are likely to affect those most vulnerable to poor health outcomes in the community and thus worsen existing health inequities. Additionally, some may choose to remain unvaccinated during pregnancy due to negative influences and conflicting priorities (Young et al., 2022). To support women/people to make informed decisions for themselves and their whānau, barriers to both access and acceptance need to be addressed.

Discussion with health professionals, including midwives, about vaccine recommendations positively impacts the decision to be vaccinated (Healy et al., 2015; Kriss et al., 2019; Mak et al., 2015). However, in some cases, the decision is left up to the pregnant woman/person with no clear recommendations provided to assist decision-making (Duckworth, 2015; Nowlan et al., 2015). Lack of healthcare providers' confidence (Wilcox et al., 2019) and up-to-date knowledge of vaccination recommendations can also prevent vaccination from being discussed in pregnancy (Frawley et al., 2020; Gauld et al., 2016; Wilson et al., 2019). Some healthcare professionals may have negative perceptions of vaccines and are unwilling to promote their use in pregnancy (Wilson et al., 2019).

In Aotearoa NZ, funded maternity care is provided by Lead Maternity Carers (LMCs) in a midwifery continuity-of-care model (MOH, 2021; New Zealand College of Midwives[the College], 2019). Most often, care is provided by community midwives; however, people unable to book with community midwives as their LMCs may receive care from a hospital-based midwifery team. As most pregnant women/people have midwifery care during their pregnancy in Aotearoa NZ (MOH, 2022), it is important to understand more about midwives' actual and potential role in vaccination decision-making.

AIM

This study aimed to:

i) investigate enablers and barriers that support or inhibit midwives during their discussions about vaccination against pertussis and influenza in pregnancy;

ii) investigate, from midwives' perspectives, barriers to vaccination and what positively or negatively influenced decisions to vaccinate against pertussis and influenza in pregnancy; and,

iii) gather insights from midwives on what might improve vaccination against pertussis and influenza uptake during pregnancy.

METHOD

Participants, recruitment, and study setting

This cross-sectional survey was part of a larger mixed methods study (Young et al., 2022, 2023) underpinned by pragmatism as the research paradigm (Cameron, 2011; Clarke & Visser, 2019; Onwuegbuzie & Leech, 2005). Pragmatism supports utilisation of both quantitative and qualitative data to better understand and define the results to address the research aim (Cameron, 2011; Clarke & Visser, 2019; Onwuegbuzie & Leech, 2005). A structured questionnaire was developed by the research team (AY), based on a previously validated questionnaire (Wilcox et al., 2019), other literature (Frawley et al., 2020; Gauld et al., 2022a) and members of the research team's knowledge of clinical practice (i.e., midwife, general practitioner and pharmacist). The questionnaire contained a mix of closed and open-ended questions. Open-ended questions consisted of general questions, where participants could respond generally about a question, and expansion questions, where participants were asked to elaborate on a closed question (O'Cathain & Thomas, 2004). This was to create a more complete picture of midwives' views and experiences in practice and deepen the understanding of the quantitative responses (Onwuegbuzie & Leech, 2005). The questionnaire underwent review by the academic research group (comprising of a Māori academic, a general practitioner, midwives and pharmacists) and a governance group at the College. Minor changes for clarification were made following pilot testing. (Contact lead author for access to the questionnaire.)

We sought participation from registered LMC midwives currently practising in Aotearoa NZ, either as primary care LMCs or employed in a hospital setting or other organisation, to provide care to a caseload of pregnant women/people. Recruitment was undertaken via an email sent out on behalf of the research team by the College to their members in October 2021.

This research was approved by the University of Otago Human Ethics Committee (D21/170).

Data collection

Study data were collected and managed using REDCap electronic data capture tools hosted at the University of Otago (Harris et al., 2019; Harris et al., 2009). The first page of the electronic version of the questionnaire contained the Participant Information Sheet and the option to consent to the survey. Data collection was anonymous to protect the identity of participants. The College sent an email link to the survey to 3002 midwife members.

Analysis

An Excel spreadsheet of results was subjected to quantitative and qualitative analysis. Simple descriptive statistics were undertaken on quantitative data. Open-ended questions were analysed using a direct, qualitative content analysis approach (Corner et al., 2013; Hsieh & Shannon, 2005). Open responses were read and reread multiple times by the first author (AY). The study aims were used to provide a structural analysis of the framework to align with the quantitative questions in the survey of *Discussions about vaccination* with a focus on time pressures as a barrier to effective discussions, *Barriers to vaccination perceived by midwives*, and *Midwives' recommendations to support vaccination.* Data were inductively analysed within this framework by allocating codes and arranging into potential themes and sub-themes. Themes and sub-themes underwent further refinement by reviewing, collapsing and reordering until the final themes were conceptualised. These were then peer reviewed by the Māori investigator on the project (EW). Simple counts of participants were used to describe the proportion of comments relating to a theme or concept within a theme (Corner et al., 2013). Important themes were illustrated by direct quotes from participants, a step which also supports transparency of the analytical process.

Particular consideration was given to opinions about barriers to vaccination and discussions with hapū Māori and Pacific people as these groups, as already stated, have lower immunisation coverage in pregnancy. A Te Ao Māori lens was applied to the analysis process to ensure appropriate framing of opinions and avoidance of purporting negative cultural stereotypes in the analysis of midwives' perceptions.

FINDINGS

Sixty-two midwives responded to the survey; 11 responses with more than 20% of data missing (i.e., stopped responding after the initial couple of questions) were removed from analysis (Field, 2013). A total, therefore, of 51 responses were included in the analysis (1.8% response rate).

Most respondents practised as an LMC midwife, had NZ European ethnicity, and had been practising for longer than 10 years (Table 1). Compared to the midwifery workforce overall, there was a similar proportion of Māori participants (12%, compared to 11% in the workforce) and Pacific participants (4%, compared to 3% in the workforce). However, proportionally more participants in our study had been practising for over 10 years compared to midwives currently practising (Midwifery Council, 2021). All respondents could speak English conversationally and four people reported fluency in another language.

Table 1. Demographics and employment details of respondents (N=51)

Demographic characteristic	n (%) (N=51)
Ethnicity*	
NZ European	36 (71%)
Other European	11 (22%)
Māori	6 (12%)
Pacific Islands (Cook Islands Māori, Samoan, Tongan)	2 (4%)
Chinese	2 (4%)
Years as a practising midwife	
5 years or less	9 (18%)
6-10 years	6 (12%)
11-15 years	11 (22%)
16-20 years	9 (18%)
21+ years	16 (31%)

* Multiple ethnicities could be chosen

Qualitative and quantitative findings have been presented together. Qualitative analysis was undertaken to explore midwives' perceptions of *knowledge and confidence in providing information, lack of time and late presentation* as barriers to discussions, and *groups less likely to be vaccinated in pregnancy*, and to identify *midwives' recommendations to support vaccination*. See Table 2 for an overview of qualitative findings.

Table 2. Overview of qualitative findings

Section	Qualitative themes
Discussions about vaccination	
Knowledge and confidence in providing information	i) Information to support discussions ii) Ongoing education
Barriers to effective discussions about vaccination in pregnancy: Time pressures	i) Expectations to give information on many topics ii) Limited resources and prioritisation iii) Complex and/or time-consuming communication required
Barriers to vaccination perceived by midwives	
Groups less likely to be vaccinated	i) Māori or ethnic minority groups ii) Vulnerable groups who have less engagement with healthcare service iii) Individuals who are against vaccination
Midwives' recommendations to support vaccination	
	i) Accessible and suitable vaccination venues ii) Appropriate information iii) The role of midwives and other healthcare providers

Discussions about vaccination

Knowledge and confidence in providing information

Almost all the midwives (n=48, 94%) reported having sufficient knowledge about vaccination in pregnancy to support their discussions with pregnant women/people. Despite this, a minority of respondents felt *extremely confident* discussing influenza (n=18, 35%) or pertussis vaccination (n=22, 43%) in pregnancy. Around half of respondents felt *moderately confident* when discussing influenza (n=27, 53%) and pertussis (n=26, 51%) vaccination. Few midwives felt *slightly* or *somewhat confident* discussing influenza vaccine (n=2, 4% and n=4, 8% respectively) or pertussis vaccine (n=1, 2% and n=2, 4% respectively). No midwives felt *not at all confident.*

Open responses from "comments on confidence discussing vaccination" were categorised into two themes: i) information to support discussions and ii) ongoing education. Six midwives appreciated and used leaflets and/or websites as tools to support discussions. However, five midwives were concerned they could not provide useful supporting information when it was needed. For example, when trying to counter misinformation, one midwife said "I try to give balanced information, but for couples entrenched in their views, I do not always have the information at my fingertips to counter some of those inaccurate 'facts' they quote" (P35).

Ten midwives kept up to date with best practice and ongoing education to remain confident to discuss recommended vaccinations in pregnancy. However, they found the changing recommendations over time could be difficult to stay up to date with.

Enablers to effective discussions about vaccination in pregnancy

When asked what factors facilitate communication about vaccination, most considered "having a good relationship" (n=49, 96%) and "ability to communicate together easily" (n=49, 96%) enabled discussions. Next came "having time to discuss vaccination" (n=48, 94%), "access to resources to help discussions" (n=43, 84%) and, similarly to "remaining confident", 35 participants (69%) considered "access to learning resources to improve their own knowledge" important. Most (n=31, 61%) also thought that pregnant women/people already knowing about vaccination recommendations in pregnancy helped facilitate communication. Other factors identified in open responses were: being able to easily recommend accessible vaccination locations, high levels of trust through continuity of care, respecting pregnant women/people as decision-makers, and going to peoples' homes to talk with them and their whānau. Also a cultural understanding of a Māori worldview is important, with one participant commenting "Having a Māori view point, we have many risks in pregnancy including systemic racism" (P45).

Barriers to effective discussions about vaccination in pregnancy

Most midwives thought that people having negative preconceptions about vaccination in pregnancy (n=41, 80%) and communication difficulties (e.g., cannot speak English fluently) (n=35, 69%) were the most common barriers to discussions about recommended vaccines.

Some midwives also identified that lack of an established relationship (n=19, 37%), difficulty in finding resources to support discussion (n=7, 14%), and lack of educational resources to support knowledge (n=6, 12%) negatively affected vaccination discussions.

In open responses, a lack of engagement in maternal health services, due to the potential for a lack of respect and cultural insensitivity to mothers, was also noted as a barrier. One midwife described how this may undermine any progress they have made with recommending vaccination"… We have formed a relationship we [are] whakapapa, they trust me, however don't trust the system... They don't trust the doctors, or feel disrespected… Māori are not stupid, yet [we are] spoken to like we are" (P45).

Time pressures

A lack of time was commonly identified (n=23, 45%) as an issue. Reasons for lack of time were explored in open responses and three themes were identified: i) expectations to give information on many topics; ii) limited resources and prioritisation; and iii) complex and/or time-consuming communication required. Seven midwives expressed concern that there is an expectation that midwives are required to give information on a growing range of topics, which is causing pressure on meaningful conversations about vaccination.

> *…everyone who specialises in one particular field expects us to be the one stop shop for everything all at once. i.e. smoking, drugs, alcohol, social support, counselling, sexual health, screening, vaccinations. Whilst most of that is seen to, women do not absorb it all if done at the same time, and everyone thinks we should talk about their specialty first.* (P13)

Other pressures causing time constraints were lack of resources, such as staff shortages and support for those who do not speak English. Also, when complex health and social issues are present, discussing vaccination takes a lower priority, particularly if pregnant women/people present late to services: "When other complexities and acute issues arise, sometimes vaccines can be overlooked" (P22).

Five midwives thought that late presentation to midwifery services meant that it was more difficult to build a trusting relationship for impactful recommendations. Some midwives identified that conversations about vaccination can be difficult and time-consuming, particularly for those who have negative preconceptions about vaccine safety. Restricted time for consultations can make it difficult to engage with pregnant women/people and have effective discussions: "Sometimes [we] have a lot to get through and, for the vaccine hesitant, must revisit [these] conversations several times and offer material, links to information" (P43). This may be particularly difficult for those who require additional support:

> *These are often people who have been itinerant, or who are unable to access GP services due to their immigration and financial status. They need a rapid amount of input and often vaccination is one of the lower priorities in favour of things like adequate housing, social support, working with Oranga Tamariki/police/corrections/immigration.* (P1)

Barriers to vaccination perceived by midwives

Midwives were asked what might negatively influence pregnant women/people from being vaccinated during pregnancy. Midwives perceived that concern about the safety of the vaccine (n=47, 92%), worry about side-effects for the baby (n=45, 88%), and not believing they are at risk of disease (n=30, 59%) were the most common reasons to remain unvaccinated. Less than half of the midwives thought pregnant women/people worrying about getting side-effects themselves (n=23, 45%) or doubting the effectiveness of vaccines (n=20, 39%) would negatively influence their decision to vaccinate.

The most common barriers to vaccination in pregnancy identified by midwives were people's lack of awareness about recommended vaccinations (n=37, 73%), cost to access services (e.g., travel cost, outstanding fees at GP surgery; n=27, 53%) and competing commitments such as work (n=27, 53%) or childcare (n=26, 51%). Other barriers that some identified were women/people not being engaged with health services during pregnancy (n=24, 47%) and limited access to vaccination services (n=14, 27%). Other perceived barriers described in the open responses were lack of available vaccinators due to the COVID-19 pandemic, difficulty in enrolling or accessing GP services due to staff shortages, and worry that there was a fee to pay for accessing services.

Groups less likely to be vaccinated in pregnancy

Midwives were asked if they thought certain groups would be less likely to be vaccinated. This was to help identify harder-to-define barriers to vaccination that may be in place in primary care. Most midwives (n=40, 78%) thought there were particular groups who were less likely to receive vaccinations in pregnancy and three were identified: i) Māori or ethnic minority groups; ii) vulnerable groups who have less engagement with healthcare services; and/or iii) individuals who are against vaccination.

Fourteen respondents thought certain ethnic groups were less likely to receive vaccinations. Of these respondents, 11 (79%) thought that Māori and six (43%) thought that Pacific people would be less likely to receive vaccines. For hapū Māori, participants most commonly attributed lower likelihood of vaccination to inequitable health systems and lack of trust in the health system. One participant said, "Māori community [would be less likely to be vaccinated], especially if they have already had poor experiences with healthcare, snowballing effect of colonisation for distrust of Pākehā institutions" (P9).

Twelve respondents thought that more vulnerable groups would be less likely to be vaccinated. These groups were described as

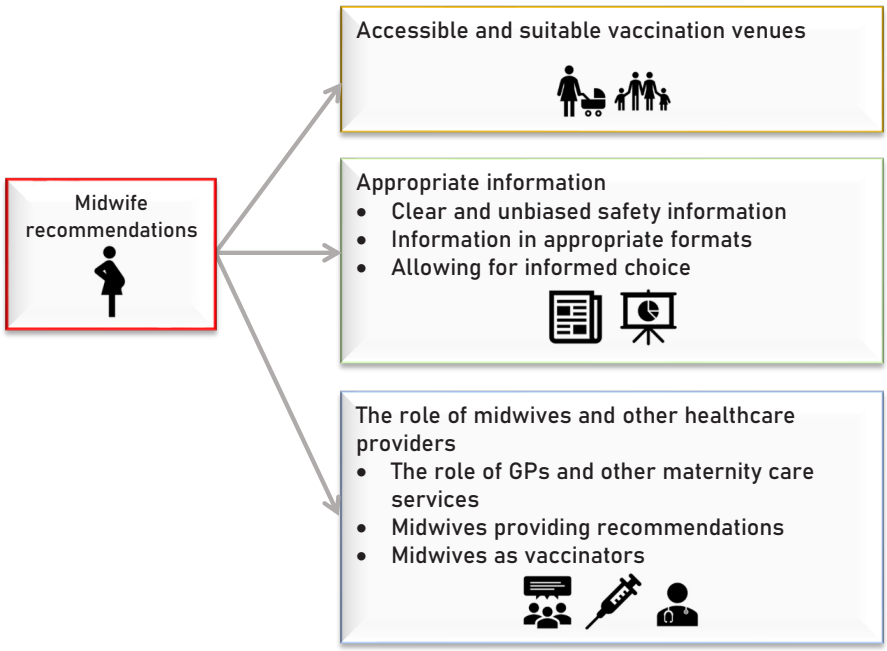
low socio-economic groups (n=5), younger mothers (n=3), those with lower health literacy or difficulty communicating in English (n=6), those with less engagement with healthcare services (n=3), and those who the GP has expressed concern for (n=1). Three midwives also thought Māori or Pacific people were more likely to be over-represented in these groups, with one saying "…people at the bottom end of the socio-economic scale, who are not usually opposed to vaccination, but for whom logistics of access are a challenge" (P22).

Twenty-three midwives believed that individuals who were against vaccination prior to pregnancy were the group least likely to be vaccinated. This included those who usually refuse vaccinations and "conspiracy theorists", those who distrusted government recommendations (particularly about COVID-19 vaccination, and those who searched social media and online forums for health information). One participant said, "Alternative medicine communities [are less likely to be vaccinated], they have found Western medicine to be ineffective for them and have found the alternative medicine community to be more helpful; some have fallen deep into conspiracy and anti-vax spaces" (P9). Other groups identified were "alternative lifestylers" and "non-interventionists" who want control over their body, and conservative or religious groups.

Midwives' recommendations to support vaccination

Midwives were asked what might support pregnant women/people to be vaccinated and three themes and six sub-themes were identified (Figure 1).

Figure 1. Midwives' recommendations to support pregnancy vaccination



Eight midwives thought that *accessible and suitable vaccination venues* would encourage vaccination. This included locations that supported women/people to bring along other children they were caring for, outpatient clinics, and locations such as drop-in vaccination centres for those who may not be able/willing to book appointments (as was being done with COVID-19 vaccines), pharmacies and workplaces (for influenza vaccine). Also, two midwives suggested that being vaccinated at the general practice when already attending other appointments was a good strategy.

Twenty-three midwives thought that *appropriate information* was important. Eight midwives thought *that clear* and *unbiased information* would help and must be simple and pitched to the individual's health literacy. Two respondents would like specific information about proof of safety that could debunk fears that people may have. Another two asserted that information should not appear biased or coercive; one participant commenting "Great comm[unication]s, messaging, and information that is presented as not biased… Māori women in particular do not like to feel coerced otherwise you lose them immediately" (P13).

Four midwives felt that their recommendations were being undermined by vaccine mis- and disinformation spread on social media and via other means. They thought that reducing misinformation would help support pregnant women/people to be vaccinated.

Six midwives described *appropriate formats* of information (two suggesting multiple languages) might help support vaccination, including written information and posters, as well as pictograms and online resources with pictorial and video messaging, e.g., "Visual statistical representation of complications/side effects in pregnancy without the medical jargon" (P2).

Three midwives thought that *allowing for informed choice* was important, ensuring that enough information was given but understanding that, ultimately, the decision to vaccinate is a personal one. As one respondent commented, "… the more women are 'pushed' into vaccinating increases resistance. It seems to work better if women feel they have made the decision themselves rather than being pushed/coerced/bullied into vaccination" (P20).

Regarding *the role of midwives and other healthcare providers*, eight midwives thought that vaccination support from others involved in maternity care services would boost vaccination efforts, such as GPs taking responsibility for booking vaccinations. One midwife suggested that increasing trust in other maternity care services would help, saying, "Without doubt increasing women's trust in the maternity care services outside of their LMC... women need to know that they are valued as mothers and consumers of wraparound maternity services" (P27).

Four thought that midwives providing clear recommendations would help, with one advocating for early conversations about vaccination to give time for decision-making and further discussions. Two respondents thought that midwives providing vaccinations themselves would support the provision of vaccination in pregnancy.

DISCUSSION

This study examined enablers and barriers the participant midwives experienced to discussing vaccinations during pregnancy and supporting informed decision-making. Enablers identified were having effective communication with pregnant women/people, sufficient time to discuss vaccination, supporting resources, and access to ongoing education to improve and update their own knowledge. Establishing trusted relationships was also an important enabler to effective discussions and a cultural understanding of Te Ao Māori was identified as important for hapū Māori. Midwives noted difficulties with building relationships when people presented late to services or if other priorities took precedence. Other identified barriers to effective discussions were pregnant women's/people's pre-existing negative ideas about vaccinations, previous poor experiences with health services, communication barriers and, similarly to midwives participating in other recent Aotearoa NZ and Australian studies, lack of time (Frawley et al., 2020; Gauld et al., 2022b).

Informed decision-making

Previous research on vaccination coverage in pregnancy has consistently identified that lack of knowledge and of information provision about vaccine recommendations are barriers to vaccine uptake (Gauld et al., 2016; Wilson et al., 2015). This was also recently described in an Aotearoa NZ study where over half of the 15 hapū Māori and Pacific people interviewed were unaware of one or both vaccine recommendations (Young et al., 2022). Midwives in our study thought that pregnant women's/people's concerns about vaccine safety and side-effects in their baby, and not believing they are at risk of disease, might prevent them from choosing to be vaccinated. These concerns have been frequently found in previous studies and cited as reasons why pregnant women/people do not get vaccinated (Gauld et al., 2016; Young et al., 2022). Although not raised in our study, other studies have shown that some healthcare providers also share these views, i.e., they do not support vaccination in pregnancy and avoid discussing vaccinations or actively recommend against them (Krishnaswamy et al., 2018; Wilson et al., 2019).

A positive recommendation to vaccinate in pregnancy from a trusted healthcare provider, alongside information about vaccines, can improve vaccine uptake (Mak et al., 2015; Wilson et al., 2015). Midwives in our study identified suitable and appropriate information must be provided, i.e., unbiased and in a format that is clear and easy to understand. Some midwives in our study liked using information resources (e.g., pamphlets and/or websites) to support their discussions about vaccination recommendations. The provision of resources to aid discussion is well-known to enhance counselling practices and individuals' understanding (Raynor et al., 2007) and is best practice to support informed decision-making.

To support time-poor midwives, easy-to-access resources are necessary. These tools must be tailored to the preferences of pregnant women/people (including the use of multimodal forms, such as short videos), up-to-date and easily accessible for use at point-of-care. Furthermore, healthcare provider misconceptions and knowledge gaps must be addressed to ensure appropriate information is provided to pregnant women/people about safety and efficacy of vaccinations in pregnancy.

Vaccination conversations can be challenging

Although almost all participants felt they had sufficient knowledge about vaccination in pregnancy to support discussions, only a third felt *extremely confident* to discuss influenza vaccination and only half to discuss pertussis vaccination in pregnancy. This is similar to results in a United Kingdom study where only 55% of midwives were *very or moderately confident* discussing vaccines (Wilcox et al., 2019). Findings from an Australian qualitative study differed, as some midwives described not feeling confident or capable to discuss vaccination in pregnancy due to a lack of education about the topic (Frawley et al., 2020). Although midwives in our study felt they had sufficient knowledge, one of the ways they identified to support their confidence in discussions included keeping up-to-date with vaccine information (e.g., through ongoing education) which was also suggested by healthcare providers in another Aotearoa NZ study (Gauld et al., 2022b).

Midwives in our study also perceived that a barrier to discussions was pregnant women/people having negative preconceptions about immunisations in pregnancy. Pre-existing attitudes and beliefs were found to lead to general vaccine hesitancy in a 2022 review, shown to correlate with the situation of individuals living in areas of high deprivation (Tafea et al., 2022). A 2020 Australian study found that if midwives thought patients had already made up their minds, they would not try to give them further information to support informed decision-making (Frawley et al., 2020). Furthermore, midwives in our study and another Aotearoa NZ study (Gauld et al., 2022b) were concerned about the prevalence of vaccine misinformation and the difficulties of countering this in practice. Conversations with vaccine-hesitant individuals, or those experiencing other barriers to discussions about vaccines, would need more time allocated and possibly require multiple conversations, which may be difficult for midwives who are already overextended. It is evident that the midwife workforce is stretched, with some pregnant women/people struggling to find access to midwifery care (Priday et al., 2021). Opportunities for continuing education, training and skills in countering misinformation and disinformation could support midwives' confidence and time efficiencies when discussing maternal vaccination. These opportunities must be widely disseminated and promoted for continuing education and practice support.

Engagement and building trust

The health system being inequitable and there being a lack of trust in the health system were identified by some midwives in our study as disadvantaging Māori. An Aotearoa NZ study investigating vaccination coverage in pregnant women/people across the country identified that hapū Māori and Pacific people are close to half as likely to be vaccinated compared to other ethnicities, and coverage was lowest in those living in areas of highest deprivation (Howe et al., 2020). Another Aotearoa NZ study from 2014 investigating young Māori mothers' experiences of care in pregnancy also found they experienced barriers to accessing maternal care, such as a lack of information and assistance with accessing LMC services and a lack of available midwives (Makowharemahihi et al., 2014). A 2022 review also identified that poverty is "strongly associated with low vaccination uptake" amongst Pacific families, as were the attitudes and beliefs held by Māori and Pacific communities (Tafea et al., 2022). Furthermore, a health professional's inability to communicate with Pacific and migrant people has been identified as a barrier to vaccination (Tafea et al., 2022). International studies

have also identified groups experiencing lower rates of vaccination in pregnancy, including Aboriginal and Torres Strait Islander people who have lower vaccination coverage in Australia (Rowe et al., 2019), Black (British, African, Caribbean) people in London, UK (Donaldson et al., 2015), and Hispanic and Black/African-American pregnant women/people in the United States (Frew et al., 2014). Lack of engagement with health services was also flagged by the study midwives as a potential barrier. This has been shown previously in Aotearoa NZ where inability or reluctance to engage with healthcare services to receive vaccinations in pregnancy disproportionately affects hapū Māori and Pacific people (Nowlan et al., 2016; Tafea et al., 2022). Other studies have also identified that vaccination coverage is reduced with increasing parity (Howe et al., 2020; Rowe et al., 2019) but this was not mentioned by midwives in our study. Vulnerable groups, such as very young mothers, those from areas of high deprivation and those with low health literacy or ability to speak English, were thought to be less likely to be vaccinated in our study.

Building trust between people and their healthcare provider takes time, a precious commodity in an already stretched health system. However, if vaccination coverage in pregnancy is to improve, it is essential that changes are put in place to support the necessary time needed to build relationships in order to deliver effective discussions around vaccination.

System improvements to support vaccination

The study midwives identified many ways vaccination coverage could be supported. Participants identified that accessible and suitable venues for vaccination were important to improve patient-centred care and facilitate vaccination, and that child-friendly environments and easy-to-access drop-in centres would be of use for some pregnant women/people. Other Aotearoa NZ studies also found that pregnant women/people needing to take time off work or arrange for childcare whilst they go to an appointment to receive vaccination may be barriers too difficult to overcome (Duckworth, 2015; Gauld et al., 2022a). Furthermore, a lack of transport and costs for accessing services (e.g., buses, taxis, and accounting for unpaid bills) have also been previously described as barriers (Duckworth, 2015; Healy et al., 2015). With the extension of healthcare providers offering vaccination services such as kaiāwhina and local community pharmacies, these barriers may be reduced. Some midwives in this study also advocated for midwives providing vaccines as a way to improve coverage and this has been previously shown to increase uptake (Bisset & Paterson, 2018; Nowlan et al., 2015; Skirrow et al., 2020). However, this may not be an option for many midwives due to workforce shortages (Broughton & McKenzie-McLean, 2019; Collins, 2022) and lack of access to necessary resources (Dixon et al., 2017). Therefore, it is important for midwives to know about other "easy access" services in the community, such as pharmacies, Māori healthcare providers and other vaccine drop-in clinics, so these services can be recommended when discussing the importance of vaccination with pregnant women/people.

This study showed that the participant midwives understand the barriers faced by pregnant women/people in their day-to-day lives. Because of their experiences and knowledge of barriers in the community, midwives must be involved in policy and strategy consideration for vaccination programmes, including the widespread promotion of vaccines in the community (Wilson et al., 2019).

Overall, system changes are needed to support access to services for those who struggle to engage with them and those who may be hesitant to reach out. Resources, e.g., outreach services and increased primary care service support, must be made available to reach groups that have been identified as disengaged and/or less likely to be vaccinated in pregnancy, to ensure equitable vaccination coverage in Aotearoa NZ.

Working with Māori and Pacific communities

Equitable access to healthcare and culturally safe health services must not be left to one group of healthcare providers to shoulder. In particular, the Māori world view must be recognised and incorporated into health system delivery. Co-design with Māori is necessary to ensure the health system is built in a way that supports the hauora of whānau Māori (MOH, 2020b). Until this is done we will continue to see a lack of trust and disengagement with services that will lead to continued poor vaccination coverage and worse health outcomes. More research is needed to develop interventions and health services that uphold the mana of whānau Māori to make decisions about immunisation and to access immunisation services.

STRENGTHS AND LIMITATIONS

This study offers insights into some midwives' perceptions around enablers and barriers for discussions and provision of vaccination to pregnant women/people. Unfortunately, because of the increased pressure facing midwives working in Aotearoa NZ in 2021 due to the COVID-19 pandemic (L. Dixon, personal communication, October 13, 2021), we were unable to send follow-up requests for participation and enrolment into the study was ceased. This contributed to the low response rate. A limitation of this study is the small sample size, which affects the ability to draw concrete conclusions from the quantitative data.

There is also potential for selection bias where only participants with more interest in vaccination in pregnancy, and its promotion, responded to the survey (Bethlehem, 2010). This, along with the low response rate, limits the generalisability of the quantitative findings of the study. However, many findings do correlate with those from other Aotearoa NZ and international literature, and the qualitative data captured in the open responses lent strength to the study overall, providing insight into midwives' views and experiences in practice.

This study identified that midwives may face challenges in talking with pregnant women/people about vaccination in pregnancy. Future research is needed to identify ways to best support midwives in these discussions. This includes increased support from the wider healthcare team, resources to support information provision, and specific education and tools to support conversations with people who are vaccine-hesitant. Research is also needed into interventions to support culturally safe approaches to provide recommendations to hapū Māori and Pacific people to vaccinate in pregnancy.

CONCLUSION

Midwives who participated in this study understand the importance of vaccination in pregnancy but some may not have the confidence, time or resources to effectively engage in discussions with the pregnant women/people under their care. Furthermore, barriers to accessing any healthcare provider, particularly GPs, may exist for many pregnant women/people, particularly those from areas of high deprivation. Access to wraparound healthcare for pregnant women/people may not be universally available and some people are left behind. It is imperative that, with changes currently underway in the Aotearoa NZ health system, all pregnant women/people are able to be accommodated in vaccination services to ensure adequate coverage and optimal health outcomes for them and their pēpi.

Having a trusting relationship is important when discussing health needs and sometimes this can be affected by disengagement with healthcare services, the effects of systemic racism or late presentation to healthcare services. Pre-existing negative ideas pregnant women/people have about vaccination and communication barriers make conversations difficult. It is imperative that the Aotearoa NZ government prioritises the provision of resources to help counter these issues and support midwives in their ability to provide useful information about vaccination in pregnancy. Midwives need resources in suitable formats for all pregnant women/people, the time to facilitate open and transparent discussions, and additional support from the wider healthcare team by them also providing this information. Furthermore, respect and cultural understanding of hapū Māori and their needs will enhance their ability to make informed decisions about vaccination in pregnancy.

GLOSSARY OF MĀORI TERMS

Māori word or phrase	English translation
Aotearoa	New Zealand
Hapū	Pregnant
Hauora	Health and wellbeing
Kaiāwhina	Helper, assistant, advocate
Mana	An individual's prestige, authority, influence, status, spiritual power and strength
Māori	Indigenous people of Aotearoa New Zealand
Oranga Tamariki	Ministry for Children
Pākehā	New Zealander of European descent
Pēpi	Infant
Tamariki	Child or children
Te Ao Māori	The Māori world, including language, protocols and customs, and the Treaty of Waitangi
Te Kāreti o ngā Kaiwhakawhānau ki Aotearoa	New Zealand College of Midwives
Whakapapa	Genealogy, lineage, descent
Whānau	Extended family, family group

Key points

- Appropriate resources are needed to support midwives to provide accurate and useful information about vaccination in pregnancy.
- Negative preconceptions about vaccination in pregnancy can make conversations difficult and adversely affect informed decision-making.
- Vaccination venues must be easily accessible and welcoming to encourage vaccination in pregnancy.

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