

Immunisation for Pregnant Women

Audience research with pregnant women

Prepared for the Ministry of Health

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Preface

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If you have any questions about this report, please contact Sally Duckworth, Sally@litmus.co.nz.

1. Executive Summary

This report summarises 59 pregnant women and women who have given birth in the last 12 months' beliefs about immunisation in pregnancy, their motivations and enabling factors to immunise and the barriers to immunise in pregnancy. The research was conducted between February and April 2015. The overall goal of the research was to target segments and tailor communications and interventions to raise the uptake of vaccines during pregnancy.

Key findings

Pregnant women's beliefs about immunisation in pregnancy

Most women are confident immunising their infants and themselves when they are not pregnant (e.g. tetanus and travel vaccinations). However, they feel less comfortable immunising themselves when they are pregnant. Women's confidence to immunise stems from a range of beliefs about their vulnerability to infection, the severity of infection and the benefits of immunisation. Women are concerned about the safety of immunisation for their unborn baby.

Pregnant women's motivations to immunise in pregnancy

Pregnant women's motivations to immunise against influenza and whooping cough would be to protect their unborn babies from the consequences of severe infection and give them the best possible start in life. Pregnant women are less motivated to protect themselves from infection, unless they are asthmatic and see immunisation as being important for their health and wellbeing.

Pregnant women's awareness of immunisation entitlement

Most women's key point of contact for pregnancy-related information and advice is from their Lead Maternity Carer (LMC). The quality of the information and advice given by LMCs to pregnant women on the availability of free immunisations against influenza and whooping cough is variable.

Approximately one half of women say they had a conversation with their LMC about immunisation against influenza and/or whooping cough. Women more likely to recall having had a conversation about immunisation in pregnancy with their LMC are Pākehā.

Women are more likely to be motivated to immunise against influenza and/or whooping cough if their LMC recommends it as being important for protecting their unborn babies. Had they known they could be immunised in pregnancy and it was recommended and safe for their unborn child, most women were likely to have opted to be immunised.

Most pregnant women say they went infrequently to their general practice during pregnancy for their own health needs and therefore had few opportunities to receive information about immunisation from their general practice.

Pregnant women's access to immunisation

The pathway for pregnant women receiving immunisation is not convenient and women face many barriers accessing immunisation through their general practice. Māori and Pacific pregnant women face more barriers to accessing immunisation through their general practice than Pākehā pregnant women. These barriers include transportation, arranging childcare and time off work. Some women are also reluctant to visit their general practice, if they owe money for consultations and prescriptions.

There is a strong preference amongst pregnant women for LMCs to deliver immunisations within routine antenatal appointments. Women who went to their general practice to be immunised said they would have found the process more convenient if their LMC could have administered the vaccination.

Free immunisation for pregnant women is a significant enabler, particularly for Māori and Pacific women.

Immunisation messages

Messages that talk about immunisation protecting unborn babies from the consequences of infection are more persuasive than messages that talk about immunisation being effective at protecting the woman. Messages that say immunisation is safe in pregnancy provide reassurance. However, generic vaccine safety messages are not compelling, and cause concern. Messages that say influenza is serious for unborn babies make pregnant women take notice. Messages that say immunisation is free for pregnant women resonate strongly with Māori and Pacific women.

Communicating immunisation content

Most pregnancy-related information provided by LMCs, general practices, and antenatal educators to pregnant women is in print format (pamphlets, fact sheets and posters), and pregnant women feel overwhelmed by the amount of print material they receive. There is a general feeling amongst pregnant women that reaching them with pregnancy and health information almost exclusively through print is an outmoded form of communication.

Most women are accessing information online to support and complement the verbal information they receive from their LMC or in place of pamphlets. They are also using social media for pregnancy and child-related health information. For Māori and Pacific women in particular, social media is a less intimidating channel for receiving information and asking questions, and provides an opportunity for receiving and sharing information in more interactive ways (e.g. photos, videos, and stories).

Provider perspectives

A small number of providers (community midwives, hospital midwives, general practice nurses, and antenatal educators) were interviewed as part of the main study to understand provider perspectives on pregnant women's attitudes to immunisation, and the enablers and barriers to immunisation. These discussions suggest that with the exception of general practice nurses, providers often do not feel informed, confident, or comfortable informing and discussing immunisation against influenza and whooping cough with women, and therefore many women are missing out on important information. Providers also support pregnant women's views that immunisation delivered outside of antenatal appointments is not convenient for women.

Conclusions

The findings from this research conclude that the most significant barrier to immunisation uptake in pregnancy is a lack of accessible information and advice on immunisation from LMCs and structural barriers for accessing services through general practices.

The research found that Māori and Pacific pregnant women face more barriers to immunisation in pregnancy than Pākehā pregnant women. They are less likely to receive effective immunisation information from their LMCs, and face more barriers accessing immunisation through general practices. The challenges the researchers had finding Māori and Pacific pregnant women who had immunised for this research also indicates that actual immunisation uptake is low for Māori and Pacific pregnant women. Therefore the research concludes that segments that need to be targeted are Māori and Pacific pregnant women and LMCs who work with these women.

The findings from the research conclude that persuasive messages that talk about immunisation protecting unborn babies from the consequences of infection are persuasive. Messages that say immunisation is safe in pregnancy provide reassurance to pregnant women who are concerned about the safety of vaccines for their unborn babies. Messages that say influenza is serious for unborn babies make pregnant women who do not consider influenza serious to take notice. Messages that say immunisation is free for pregnant women resonate particularly strongly with Māori and Pacific pregnant women.

The findings from this research also conclude that traditional print media is not cutting through to all pregnant women and social media tools need to be considered for sharing relevant immunisation content.

2. Background

Influenza and whooping cough

Influenza circulates in New Zealand seasonally each year. Pregnant women and their babies are at increased risk of severe disease and complications from influenza. Pregnant women are up to 18 times more likely to go to hospital because of problems from getting sick with influenza than non-pregnant women¹. Women who catch influenza when they are pregnant have higher rates of pregnancy complications, such as premature birth, still birth and poor baby growth during pregnancy².

Whooping cough epidemics occur in New Zealand every three to five years³. If a baby gets whooping cough it can cause severe, prolonged attacks and lead to serious problems, including pneumonia and brain damage. Babies can catch whooping cough from their parents or older siblings. Babies are not fully protected against whooping cough until they have had the first three immunisations. Pregnant women who are immunised against whooping cough can help protect their babies through passing on some of their immunity to their babies⁴.

Pregnant women have been able to access fully funded influenza and whooping cough vaccines during pregnancy since 2010 and 2012 respectively. It is not possible to quantify the number of pregnant women currently being immunised against influenza and/or whooping cough, because pregnancy is not defined as a category on the National Immunisation Register. Furthermore, no research has been published in New Zealand on pregnant women's knowledge, attitudes and behaviour to immunisation in pregnancy.

¹ Schanzer, D.L., J.M. Langley, and T.W.S. Tam, Influenza-attributed hospitalization rates among pregnant women in Canada 1994- 2000. *Journal of Obstetrics and Gynaecology*, 2007. 29(8): p. 622.

² Shiota, K. and J.M. Opitz, Neural tube defects and maternal hyperthermia in early pregnancy: Epidemiology in a human embryo population. *American Journal of Medical Genetics*, 1982. 12(3): p. 281-288.

Griffiths, P.D., C.J. Ronalds, and R.B. Heath, A prospective study of influenza infections during pregnancy. *Journal of Epidemiology and Community Health*, 1980. 34(2): p. 124-128.

Irving, W.L., et al., Influenza virus infection in the second and third trimesters of pregnancy: a clinical and seroepidemiological study. *BJOG: An International Journal of Obstetrics & Gynaecology*, 2000. 107(10): p. 1282-1289.

³ Institute of Environmental Science and Research Ltd. 2013. Pertussis Report: Oct–Dec 2013. URL: https://surv.esr.cri.nz/PDF_surveillance/PertussisRpt/2013/PertussisreportOct-Dec2013.pdf (accessed 18 January 2014).

⁴ Amirthalingam, G et al., Effectiveness of maternal pertussis vaccination in England: an observational study. *The Lancet*, 2014. 384 (9953) : p. 1521–1528.

Audience research

The Ministry of Health commissioned Litmus Ltd to undertake audience research on pregnant women to understand their knowledge, attitudes and behaviour with respect to immunisation in pregnancy. The overall goal of the research was to target segments and tailor communications and interventions effectively to raise the uptake of vaccines during pregnancy.

The research explored pregnant women's beliefs and attitudes about immunisation and their skills and confidence to immunise during pregnancy. It also investigated the role of family/whānau, maternity and health providers in immunisation, and environmental factors that enable or act as barriers to women immunising in pregnancy. The research also tested potential messages aimed at encouraging pregnant women to immunise. Focus groups and interviews were conducted with 59 pregnant women and women who had given birth in the last 12 months. Fifteen supporting interviews were also undertaken with maternity and health providers. The research was conducted February to April 2015.

Research questions

The key research questions were as follows:

1. What are pregnant women's knowledge, feelings and opinions about the influenza and whooping cough vaccines?
2. What are the key factors that motivate pregnant women to immunise against influenza and whooping cough?
3. What are the key factors that enable pregnant women to immunise against influenza and whooping cough?
4. What are the key factors that act as barriers to pregnant women immunising against influenza and whooping cough?

Method and sample

Focus groups and interviews with pregnant women and women who had given birth in the last 12 months

Seven focus groups and 16 in-depth interviews were conducted with Pākehā, Māori and Pacific women living in urban and provincial areas with both higher and lower rates of whooping cough. Focus groups were structured by ethnicity and immunisation status. Fieldwork was conducted in Counties Manukau, Waikato (Hamilton and Tokoroa), MidCentral (Palmerston North, Bulls and Linton), Capital and Coast

(Wellington, Paraparaumu and Raumati), Nelson Marlborough (Nelson, Richmond and Motueka), and Canterbury District Health Board (Christchurch city and suburbs) catchment areas. Women were recruited for the research from qualitative research panels, health, education and social services NGOs, Student Job Search and by asking recruited participants to nominate other eligible women.

The sample was designed to include pregnant women who had been immunised against influenza and/or whooping cough, and women who had not received either of these vaccines in pregnancy. Women who rejected immunisation for religious or moral grounds either for themselves or their children were excluded from the research.

Finding Māori and Pacific women who had been immunised in pregnancy was challenging, with many Māori and Pacific women contacted to take part in the research saying they did not know about the vaccines, and had not been given information on the vaccines by their LMC or general practice. In some cases, Māori and Pacific women were unsure whether they had been immunised for influenza and/or whooping cough. Conversely, finding Pākehā women who had not been immunised against influenza and/or whooping cough during pregnancy was also challenging. The final sample interviewed was 44 women who had not been immunised during pregnancy against influenza and/or whooping cough and 15 women who had received at least one of these vaccines in pregnancy.

Table 1: Women who participated in the research

District Health Board	Ethnicity	Whooping cough only	Influenza only	Whooping cough <u>and</u> influenza	Non-immunised	Total
Capital and Coast	Pākehā	3	2	2	8	15
Nelson Marlborough	Pākehā	1		1	6	8
MidCentral	Māori			1	9	10
Christchurch	7 Māori and 1 Pacific			3	5	8
Counties Manukau	Pacific		1		7	8
Waikato	Pacific		1		9	10
TOTAL		4	4	7	44	59

Focus groups and in-depth interviews were conducted face-to-face in community meeting rooms, qualitative meeting rooms, and women's homes. Focus groups lasted two hours and in-depth interviews lasted 60 minutes. Women received a koha to acknowledge their time and contribution to the research.

Interviews with maternity and health providers

Fifteen interviews were conducted with maternity and health providers (community and hospital midwives, general practice nurses and antenatal educators) across the same six District Health Boards to understand providers' views on women's attitudes to immunisation in pregnancy and the enablers and barriers pregnant women face to immunisation. Providers were recruited for the research from public online directories and from providers nominating other eligible providers. Interviews were conducted by telephone and lasted 20-30 minutes.

Table 2: Maternity and health providers who participated in the research

District Health Board	Community and hospital midwives	General Practice Nurses	Antenatal Educators	Total
Counties Manukau	1	1	1	3
Waikato	1	1	1	3
MidCentral	1	1	1	3
Capital and Coast	1	1		2
Nelson Marlborough	1	1		2
Christchurch	1	1		2
TOTAL	6	6	3	15

Analysis

All focus group and interview data was analysed to find patterns and themes to answer the research questions. This involved reviewing transcripts and field notes to identify common patterns in knowledge, feelings, opinions and behaviour with respect to immunisation in pregnancy, building an argument for selecting the themes and their relative weighting, and selecting supporting evidence (quotes and examples) to include in the report. The fieldwork team also participated in analysis workshops to interpret the data and draw conclusions.

Caveats

The information contained in this report represents the views of 59 women and 15 maternity and health providers in Counties Manukau, Waikato, MidCentral, Capital and Coast, Nelson Marlborough and Canterbury District Health Board catchment areas. Given the research was qualitative, the research findings cannot be generalised to the wider population of pregnant women and providers. However, key research themes described in this report were consistent across the focus groups and interviews, increasing the dependability and rigour of the findings.

3. Pregnant women's beliefs about immunisation in pregnancy

Most women are confident immunising their infants and themselves when they are not pregnant (e.g. tetanus and travel vaccinations). However, they feel less comfortable immunising themselves when they are pregnant. Women's confidence to immunise when they are pregnant stems from a range of beliefs about their vulnerability to infection, the severity of infection and the benefits of immunisation. Women's concerns about the safety of immunisation to their unborn babies also contribute to their views of immunising in pregnancy.

Beliefs over their vulnerability to infection

Most pregnant women living in areas that have outbreaks of whooping cough believe their babies are susceptible to whooping cough. Pregnant women do not understand that immunity to whooping cough gets weaker over time, and most Pākehā and some Pacific pregnant women assume that if they were immunised against whooping cough as a child they are immunised against the infection for life. Most women do not understand that babies are not protected from whooping cough until they have had their first three immunisations.

Pregnant women also feel vulnerable if they have had a personal experience of whooping cough. For example, two women immunised against whooping cough as they had a family member with whooping cough, and another one immunised because she remembers having whooping cough as a child. Some women are also motivated to immunise after reading or hearing local tragedies involving parents and children who were not immunised against whooping cough.

'Not long before I immunised I read something in the paper. A father had whooping cough and he passed it onto the baby and the **baby may have passed away**. This was a huge motivator to me.' (Pacific, Canterbury)

Most pregnant women believe they are healthy and do not understand that their immune system is compromised in pregnancy, and therefore susceptible to influenza. They believe influenza mainly affects older people and chronically ill people. However, the case in Nelson Marlborough of a pregnant woman dying from influenza was poignant and resulted in local women feeling vulnerable.

'There was a young pregnant woman here in Nelson who died of flu. It was two or three years ago now, and it was around the time I had the flu jab. She had been encouraged to get the immunisation but she didn't and **she died in bed at home at 32 weeks pregnant**. They (doctors) aren't saying that the immunisation would have saved her life, but they might have had. Reading this makes you think more about the vaccines.' (Pākehā, Nelson Marlborough)

Some Māori women also doubt the necessity of immunisation against whooping cough and/or influenza, as they didn't immunise in their previous pregnancies and their babies were healthy. Another view that was raised was that previous generations (including their mothers) had not immunised and their babies were fine.

'Back in the day my ancestors didn't have immunisations.' (Māori, Canterbury)

Beliefs there are consequences to infections

Most pregnant women consider whooping cough is a serious infection, particularly for infants. Videos of infants with whooping cough struggling to breathe are particularly effective at reminding pregnant women of the seriousness of the infection, and the importance of immunising their infants. Women with asthma believe there are maternal consequences to infection.

With the exception of Pākehā pregnant women living in Nelson Marlborough, most do not consider there are serious consequences to influenza. Most pregnant women (particularly Māori) believe if they are unfortunate to contract influenza, they just need to suffer and get over it.

Beliefs over the benefit to immunisation

Pregnant women tend to have high trust in the efficacy of the whooping cough vaccine and women have either immunised or intend to immunise their infants against whooping cough to protect them from infection. On the other hand most pregnant women have low trust in the efficacy of the influenza vaccine. Some women believe it is not as effective as other immunisations, meaning it does not reliably prevent influenza, and other women believe the vaccine can give people influenza.

'I wouldn't do it. **It makes you sick before you get better.** Both midwife and my doctor suggested it. Nah you get over the flu.' (Māori, MidCentral)

'I know if you get the flu vaccine **you can get the flu as a result of the injection.**' (Pākehā, Nelson Marlborough)

Safety concerns

Women commonly believe that they cannot be immunised in pregnancy, as it may be unsafe for their unborn baby.

Some Pākehā pregnant women are concerned that if they were immunised, they would not be able to tell if their unborn babies experienced side effects from the immunisations, and seek help or provide a remedy. A few Pākehā pregnant women would be fearful of getting sick from the influenza vaccine, which could harm their unborn babies and mean they would be less able to care for their older children.

‘It wasn’t mentioned to me until about two weeks from my due date. I had heard of people getting sick from it. **I thought what if it happens to me and I just drop.** Being that pregnant all you want to do is sit on the couch, and you don’t want to have to deal with a cold and feeling miserable as well.’ (Pākehā, Nelson Marlborough)

Some Māori and Pākehā women are skeptical of the ‘newness’ of immunisation in pregnancy, and believe they are being treated as guinea pigs, or that the long term effects of immunisation on pregnant women and their unborn babies are not known.

Desire for a healthy pregnancy

All pregnant women desire a healthy pregnancy, and women often take a number of steps to achieve this, including watching what they eat, keeping fit, avoiding alcohol, reducing caffeine, taking care of their emotional health, and being careful about using medicines and supplements. Some women feel that injecting vaccines in pregnancy goes against their views of wanting to do the right thing for their unborn baby.

‘I mostly controlled my diet. I cut everything out, coke, takeaways. At restaurants I made sure everything was well cooked. **I didn’t want to put something in my body that I couldn’t control.** I didn’t know exactly what the vaccine was. I know that they say it is completely safe, but **I’m a bit funny when I am pregnant.** (Pākehā, Capital and Coast)

4. Pregnant women's motivation to immunise in pregnancy

Pregnant women's motivation to get immunised against influenza and whooping cough would be to protect themselves so their unborn babies could be protected from the consequences of severe infection and to give them the best possible start in life.

Most pregnant women would not be motivated to immunise if it was for personal protection and did not result in protecting their unborn babies. However, a few pregnant women who are asthmatic immunised against influenza as they saw it as important for their health and wellbeing. However, before immunising these women sought assurance from their LMC or general practice that immunisation was safe for their unborn baby.

'For me the protection of my baby was more important than me getting influenza. **My motivation was to protect her.**' (Pākehā, Capital and Coast)

'I wasn't told about it for any of my 5 kids and I have a 2 and a 3 year old. If I had information I would have forced myself to do it. **I don't get into that sort of stuff for myself but I would have done it for my tamariki.** I would have pushed myself to do it for my babies. (Māori, Canterbury)

5. Pregnant women's awareness of immunisation entitlement

Information provided by LMCs⁵

Pregnant women trust their LMC to impart information that is of relevance to their pregnancy, and to steer them with decisions that are in the best interest of their and their unborn baby's health and wellbeing. The role of LMCs in imparting immunisation information is critical and can either facilitate or prevent uptake.

Women who had a conversation with their LMC about immunisation

Approximately one half of women say they had a conversation with their LMC about immunisation against influenza and/or whooping cough for pregnant women with their LMC. Women more likely to have had a conversation about immunisation in pregnancy with their LMC are mainly Pākehā and Pacific.

Very few women who had a conversation with their LMC about immunisation in pregnancy were aware they could get immunised against both infections. While seasonality may be a factor in knowledge of immunisation against influenza, it is not known why women knew about the availability of the influenza vaccine but not the whooping cough vaccine.

In most cases the conversation was initiated by the LMC and in a few cases the conversation was initiated by the woman, as she had seen a poster, pamphlet or seen or heard an advertisement promoting immunisation for pregnant women.

Some of these women experienced informed conversations with their LMC about their susceptibility to infection, the severity of the infection and its impact on their unborn babies and the benefits of immunisation. In these cases, LMCs recommended immunisations. As a result, these women thought immunisation was important for the health of their unborn baby, and were motivated to take the next steps to make an appointment with a general practice for immunisation.

'My midwife was great. She has experience with lots of different people and cultures and a good worldview on things. **I felt I could definitely trust her advice on the vaccines.** She gave me the information I needed. The thing I liked was that she explained the importance of it, but

⁵ All 59 women had an LMC. In all but three cases, women's LMCs were community midwives.

she didn't make me feel pressured. She didn't push her own opinions. She just gave me the information so I could ask questions if I needed to.' (Pacific, Canterbury)

In other cases, women reported that LMCs gave them information on immunisation without explaining their susceptibility and severity of infection and the benefits of immunisation. They presented immunisation as an option they might like to consider, without recommending it.

'The context that the midwife gave the information was that that you needed them if you were **high risk** – poor diet, poor housing or pre-existing condition.' (Pākehā, Nelson Marlborough)

Some Pacific women who have large families said their LMCs didn't fully explain things to them when they were pregnant, as their LMCs may have assumed they knew everything. These women felt their midwives did not fully explain how immunisation protects their unborn babies, and therefore thought it was to protect the woman. As a result, in spite of being told of the availability of the free vaccines, these women were not motivated to take the next steps to make an appointment with a general practice for immunisation.

'Sometimes I feel like because it is **my seventh baby** it's like 'oh you are alright you know everything'. You have had so many babies so we don't need to go over everything again. It would have been helpful if I was told that this was important, as it would help me make better informed decisions.' (Pacific, Waikato)

'My midwife gave me heaps of pamphlets and said 'you need this and this and this'. However, when we talked about the injections **it didn't seem like I needed them**. They didn't seem important because she didn't enforce it. I basically got a pamphlet for me to read myself. If she had spoken to me for a little longer about how important they are for my baby, because I don't care about myself, I would have considered it. (Pacific, Waikato)

Women who did not have a conversation with their LMC about immunisation

Most Māori women say they were not provided with information about immunisation from their LMC, and are disappointed that their LMC did not disclose this information to them. By far the majority of these women indicate that had they been provided with information about the benefits of immunisation during pregnancy they would have wanted to be immunised. Effective targeting of this group with accessible information would likely lead to an increased uptake of immunisation.

'**I feel like I didn't get told anything**. If I had of, I would have done it. It would have been good to have an option.' (Māori, Canterbury)

Information provided by general practices

Most pregnant women say they went infrequently to their general practice during pregnancy for their own health needs and therefore had few opportunities to receive information about immunisation from their general practice. Māori were the least likely group of pregnant women to visit a general practice for their own health needs. Most women said they engaged with their general practice to confirm their first pregnancy, but were less likely to engage with their general practice to confirm later pregnancies. Occasionally, pregnant women engaged with their general practices when they were sick or injured.

A few first-time pregnant women who visited their general practice in early pregnancy recall their doctors being proactive in recommending immunisation against influenza and/or whooping cough later in pregnancy. However, they couldn't recall their general practices reminding them about immunisation.

Pregnant women often visited their practice because their older children were sick or needed immunising. None of these women who visited their practice because of their children recall being informed about the vaccines.

Information provided by others

A few pregnant women were recommended by an older member of their family/ whānau to be immunised against influenza. One woman spoke of receiving information from family/ whānau about eligibility to the whooping cough vaccine for pregnant women. However no family/ whānau mentioned the immunisations were to protect the woman to protect her baby.

6. Pregnant women's access to immunisation

Receiving immunisation from a general practice

In most instances, pregnant women are required to get their immunisations from their general practice. This pathway for immunisation is not convenient and women (particularly Māori and Pacific) face many barriers to accessing immunisation. These include transportation to their general practice, arranging childcare and time off work. Furthermore, some women do not have a general practice, live in different towns from their general practice, or would be reluctant to visit their practice, if they owe money for consultations and prescriptions. A number of women (particularly Māori) also identified that having to take a number of children to their general practice and the waiting prior to and after the immunisation is a disincentive. Due to the above challenges, women have a strong preference for their LMC to be able to deliver immunisations, during routine antenatal appointments.

'It would be great if the midwife could do the vaccine right then and there at the antenatal appointment. I have five children so I am pretty busy and have to try and squeeze the vaccines in.' (Pākehā, Nelson Marlborough)

Pregnant women who overcame these logistical barriers and immunised were mainly Pākehā. They were more confident to take their LMC's advice, had stable relationships with general practice, and experienced fewer practical difficulties accessing services than women who were not immunised in pregnancy. Most women received appointments within a few days of request, and the immunisations were performed professionally.

Opportunistic immunisation

Two Pākehā pregnant women were immunised opportunistically at their general practice. The first woman received the whooping cough vaccine when her practice nurse recommended the vaccine during a dressing change and the second woman received both vaccines shortly after visiting her doctor because she was sick. A third Pākehā woman who had a high risk pregnancy received both vaccines at a hospital appointment. All three women found the process of immunisation more convenient, than women who made a specific appointment for immunisation at their general practice.

Employer initiated immunisation

A few Pākehā, one Māori and one Pacific pregnant woman received immunisation against influenza through a work based programme. Women were immunised because their employers were promoting it, because their colleagues were being immunised, because the vaccinators came to their workplace and because it was free. Women did not get immunised because they felt vulnerable to the seriousness of influenza infection in pregnancy. Some women questioned with the vaccinator whether it was safe to immunise in pregnancy, and were reassured it was safe. Women found the process of immunisation convenient and say they would be unlikely to proactively seek immunisation against influenza from their general practice.

‘There were no barriers to getting the immunisations. I did it one day at work. It was very convenient.’ (Māori, MidCentral)

Home visits

A number of Māori women, especially in Canterbury, noted that an “in-home” service had vaccinated their children, which was far more convenient than taking a number of young children to their general practice. These women would find a similar service for immunisations in pregnancy more convenient.

‘What made it easier for me was the **convenience**, you are already there and you just do it.’ (Māori, Canterbury)

Free immunisation

Māori and Pacific women express that being told by the LMC or general practice nurse that immunisations were free played an important part in their decision to get immunised, and those who did not immunise say that free immunisations would enable them to get immunised. These women are not working or on low incomes, and spending money on their own health needs is neither feasible or

a priority. Immunisation for pregnant women being free signals to all women that immunisation is recommended, and is an entitlement that all pregnant women are eligible for.

‘Having it **free** made it an easier decision.’ (Māori, MidCentral)

Women who got their partners and other family members immunised were generally those who could afford to, and in a few cases Pacific women stretched their family’s finances so partners could be

immunised. Māori women in particular feel that immunisation for whānau members (in particular Dads) should also be free and that women should be able to get immunised after they have given birth for a specified time (such as while they are breast feeding).

'I've always got the kids immunised as it does protect them. My midwife bought it up at about 25 weeks and encouraged me to get it done around 30 weeks at local doctors. There was no charge. My midwife encouraged us to get husband immunised as well because he's a teacher. **He had to pay \$40.'** (Māori, Canterbury)

While immunisation is fully funded, some women experienced costs getting to their general practice for immunisation (petrol, parking, and bus fares), and in at least one case a woman paid a surcharge on top of her vaccine.

In spite of most immunised women having to make a specific appointment for immunisations at their general practice, all but one woman (who believes the influenza vaccine gave her the flu) says they would get immunised in future pregnancies.

7. Immunisation messages

Messages to encourage women to immunise in pregnancy were tested with women to see which ones are most effective⁶. Messages tested included protecting pregnant women and unborn/newborn babies from infection, vaccine safety and efficacy and immunisation access.

Protection messages

1. **'If you're pregnant, influenza can be particularly risky. Immunisation is a great way to protect you and your baby. It will also give some protection to your new-born baby.'**

This influenza-specific message has universal appeal and comes across as positive and friendly. While influenza is not an everyday term, most women know what it is, and it sounds more serious than "flu". This message introduces the idea that the influenza infection can be particularly severe for pregnant women. The second sentence resonates strongly, as it taps into women's desire to protect their unborn/newborn babies from infection. Pacific women think the message should be shortened, as they feel the second and third sentences are saying the same thing.

'This message stands out to me the most. It's just the way it is worded and letting me know that **she is protected** before and after her first immunisation is due to roll around.' (Māori, MidCentral)

'This message gives you just the right amount of information and it doesn't use too many words like vaccine and vaccinated. It gives you the information that you need to know. It tells you that vaccinations are a good way to **protect your baby**. And it also tells you that it gives them protection after they are born.' (Pacific, Counties Manukau)

2. **'Using whooping cough and influenza vaccines in pregnancy are an effective way of reducing the risks to mother and baby of these diseases.'**

Most women like this message, as it is authentic. It talks about reducing the risk of infection, rather than overselling immunisation. This message also highlights that immunisation in

⁶ The Ministry of Health developed the messages for the purpose of message testing. The Immunisation Advisory Centre (IMAC) also contributed to the wording of the messages tested.

pregnancy benefits both mother and child. However, this message is more distant and does not speak directly to pregnant women.

'I like the way it says **"an effective way of reducing risks"**. It makes it sound like there is a definite risk whether you vaccinate or not, but vaccinating reduces the risk.' (Pākehā, Capital and Coast)

3. 'Immunisation helps to protect your baby, before and after they are born, your family and our community.'

Most women had to read this message several times to understand it. It doesn't say immunisation is given to pregnant women, so women are unsure how immunisation is going to protect their baby before he/she is born. Furthermore, the link between immunisation and protecting the community is not well understood.

'The whole thing doesn't make sense to me, especially the part that says **'our community.'** Why would the community be interested in whether I am immunised?'(Pacific, Waikato)

'I had to read it a few times to think...how is it going to make **my community safer?**' (Māori, MidCentral)

4. 'Pertussis and influenza can be serious when you're pregnant. For best protection, talk to your midwife or family doctor about immunisations.'

This message is weak. Most women do not know what pertussis is, and coupled with the unfamiliar term influenza, this message sounds medical/technical. Pacific women say they would 'skip over' pertussis if they saw it on a poster or in a pamphlet. This message doesn't resonate, as it implies protection is for the pregnant woman, not for her unborn/newborn baby. While the second sentence of this message gives women 'permission' to bring up immunisations with their midwife or doctor, due to the medical terminology, most Pacific women would not feel confident bringing it up with their midwife or doctor.

5. 'Pregnant women and new-born babies are at particularly high risk of severe outcomes from influenza.'

Women consider this message is serious. It introduces the fact that influenza is severe for pregnant women and unborn babies. While this message catches women's attention, it is seen negatively, in that some women (particularly Pacific) find it scary and others find it scaremongering.

6. **'You need two MMR vaccinations to be protected against Measles, Mumps and Rubella. Talk to your family doctor about immunisation BEFORE you get pregnant.'**

Women consider this message important, as Measles, Mumps and Rubella are considered serious. This message is also considered to impart good advice, as most women would prefer to immunise before they are pregnant or after they give birth, rather than when they are pregnant due to safety concerns. However, the reality is that while some women plan their pregnancies and can take advantage of this advice, many do not plan their pregnancies.

Vaccine safety and efficacy messages

7. **'The influenza vaccine has an excellent safety record and has been proven to provide effective protection both for most vaccinated people, including pregnant women and their unborn or new-born babies.'**

Some women like the positive and reassuring statement "excellent safety record". However, this message misses the mark, as it doesn't alleviate most women's concerns about vaccine safety in pregnancy. Some Māori and Pacific women found this message too long and wordy, and that it wasn't talking to them personally. Some Pākehā women who made a conscious decision not to immunise in pregnancy say this message oversells the safety of immunisation and therefore doubt this message's authenticity. In spite of this message's weakness in regard to safety, most women like the positive efficacy sentiment of this message.

'This message is too wordy. Providing effective protection for pregnant women is confusing. It's also not talking to you. It's talking to others.' (Māori, MidCentral)

'Excellent safety record' sounds more definitive and scaremongering. **It makes me shut my mind off.** (Pākehā, Capital and Coast)

8. **'Vaccines against influenza and whooping cough are used internationally safely in pregnancy.'**

While this message aims to tackle women's concerns over vaccine safety in pregnancy, its international framing, and its lack of mention of the safety of the unborn baby makes this message weak. Women are more interested in knowing whether immunisation in pregnancy is proven to be safe for the unborn baby in New Zealand and Australia, and are less interested in knowing what happens internationally. For some women, this message infers that immunisation in pregnant women is used in other countries, which is welcomed.

'It doesn't give me the information I need in that it doesn't say it protects my baby and is going to be safe. **I don't care that overseas people getting it.** I care more about what is happening here with our people.' (Pacific, Waikato)

Access message

9. **'The immunisations you need when you're pregnant are free. Talk to your midwife, family doctor or nurse about getting immunised.'**

This message resonates strongly with women on low incomes and/or with big families. It therefore has high resonance amongst Māori and Pacific women. Being free also signals that immunisation is recommended in pregnancy, and is an entitlement that all pregnant women are eligible for. The second sentence gives women more confidence to ask for their free immunisation from their midwife or doctor. While being free is a powerful message, women also want to know that immunisation is important for protecting their unborn babies/newborns against infection and safe in pregnancy. This message is not popular with all women, however. The words "the immunisations you need when you're pregnant" is not liked by women who made a conscious decision not to immunise in pregnancy. The term family doctor is not familiar.

'This message would probably **make me pick up the phone** and talk to my midwife and say "can I organise a free immunisation"?' (Pacific, Counties Manukau)

'**I really don't like the word "need"**. Who says we need it? Do we need it, or is it for the baby? Where is the evidence that we really need it?' (Pākehā, Capital and Coast)

8. Communication channels

Print information

Most pregnancy-related information provided by LMCs, general practices and antenatal educators to pregnant women is in print format (pamphlets, fact sheets and posters), and pregnant women feel overwhelmed by the amount of print material they receive. There is a general feeling amongst pregnant women that reaching them with pregnancy and health information almost exclusively through print is an outmoded form of communication.

While some women (particularly Pākehā women pregnant with their first child) read most of what they receive, other women are more selective over what they read, and women who have low English literacy read little of the information they receive. Most Māori and Pacific pregnant women feel particularly overloaded with the amount of written information they receive.

Online information and social media

Most women are accessing information online to support and complement the verbal information they receive from their LMC or in place of pamphlets. They are also using social media for pregnancy and child-related health information.

For Māori and Pacific women in particular, social media is a less intimidating channel for receiving information and asking questions, and provides an opportunity for receiving and sharing information in more interactive ways (e.g. photos, videos, and stories). Some of these women lack trust in public health information, or immunisation advice given to them by LMCs and general practices, and have a history of poor experience of maternity and health services. Women who use this channel note that the 'anti-immunisation' perspective is strong while the 'pro-immunisation' perspective is silent.

'I wouldn't read it [a pamphlet]. I don't want to read it now. If I was handed this – It would go in the car and I wouldn't read it. Why don't they make a YouTube video? **Everyone watches YouTube.**' (Māori, Canterbury)

'If you **make your own channel about immunisations**, you can see it. Instant. Quick fix. Facebook and YouTube and Snapchat. On demand. I would tag all my pregnant friends.'

(Māori, Canterbury)

'On Facebook I've seen a lot of stuff on certain sites; a lot of controversy that **immunising your kids and adults is not good.**' (Pākehā, Mid Central)

9. Brochure test

‘Immunisation for Pregnant Women’ draft pamphlet

Pregnant women were asked to read and provide feedback on a draft pamphlet developed by the Ministry of Health titled ‘Immunisation for Pregnant Women’. The pamphlet is an early draft, and contains information on immunisation before women become pregnant and when they are pregnant. The draft pamphlet also mentions immunisation in children. The draft is not formatted and has no pictures.

Most women comment that information about immunisation before pregnancy and immunisation in pregnancy should not be combined in the one pamphlet. Pregnant women who are not immunised against Rubella and Chickenpox became distressed on finding out that it is too late for them to be immunised against these infections. Often pregnancy is not planned, and therefore women cannot take advantage of this advice. However, brief information about Rubella and Chickenpox immunisations could be put at the end of the pamphlet for women to consider after they have given birth.

The draft pamphlet lacks a prominent and compelling ‘call to action’ (instruction) for women to act e.g. “Protect your unborn baby from whooping cough, *call your doctor today and ask for your free immunisation.*”

The draft pamphlet contains important messages that encourage women to immunise. Women particularly like the influenza content that informs them of the seriousness of influenza in pregnancy (increased likelihood of hospitalisation, premature birth and stillbirth) and that the vaccine will not harm their unborn baby. However, key messages such as immunisation being free are not prominent.

Most women (particularly Māori and Pacific) consider the pamphlet is too long for what they need to know to immunise in pregnancy, and do not find it engaging. While women understand it is a draft pamphlet without pictures, women have a strong preference for the final pamphlet to contain pictures, shorter paragraphs and key facts/statistics rather than lengthy text.

‘This is too long. You would probably give it to your kids to play and make an airplane with.’
(Pacific, Counties Manukau)

‘Avoiding Flu during Pregnancy’ pamphlet

Women were also given a copy of the National Influenza Specialist Group’s ‘Avoid Flu during Pregnancy’ pamphlet for their information at the end of the interview. None of the women had seen this pamphlet before.

While this pamphlet was not formally tested, feedback is positive. Women like the engaging pictures of the pregnant woman and child. They also like the bold headings, the short paragraphs and the bulleted text. Contributing to this positive feedback is the fact that the pamphlet effectively ‘nails’ many of the key messages for encouraging women to immunise in pregnancy e.g. ‘pregnant women are more susceptible to influenza’, ‘influenza is severe for pregnant women and their unborn babies’, ‘immunisation against influenza is effective protection against infection’, ‘immunisation in pregnancy is safe’ and ‘immunisation is free’. The pamphlet also has a good ‘call to action’ on the front page ‘Avoid Flu during pregnancy, *make sure you get your free influenza vaccine.*’

‘The whole thing is great. **It answers heaps of questions**, and there is stuff in here that I didn’t know. **It’s direct and has key points**. I like the bullet point page. **It’s really simple.**’ (Pākehā, Capital and Coast)

‘**The attractive thing about the pamphlet was the picture.** It was nice and colourful and bold. I especially like the one on the inside which had a likable picture. It was nicer. The information was good too.’(Pacific, Canterbury)

10. Provider perspectives

A small number of interviews were undertaken with community midwives, hospital midwives, general practice nurses, and antenatal educators across the same six District Health Boards to confirm or expand on the experiences of pregnant women in regards to immunisation in pregnancy.

Informing women on immunisation

Amongst the four community midwives spoken to, two actively encourage their clients to be immunised against influenza (in season) and whooping cough, while the other two are more reactive and refer clients to do their own research, if their clients bring it up with them. Midwives mention that their clients' main concern is whether immunisation in pregnancy is safe. They also worry about whether the influenza vaccine will make them sick, and some clients don't like needles. In general, midwives say they don't follow up whether their clients have received the immunisations, so they are not sure who has and has not had them.

'I tell them that the vaccine is recommended and that it will protect the baby before the immunisation programme starts, and that Wellington is endemic with whooping cough.'

(Community midwife, Capital and Coast)

'It's a controversial subject. I would prefer not to be involved. I would want further training on immunisation and vaccines to be able to say yes vaccination is OK.'

(Community midwife, Waikato)

'We have 'pro immunisation' posters up and get enquiries from women asking what they should do, but I say **'it's your choice, it's your baby, check the information and make the decision based on what is right for you.'**

(Community midwife, MidCentral)

Hospital midwives working with women who don't have a LMC or have a high risk pregnancy say there is information on immunisation in waiting rooms. However, due to the high needs of many of these women, and the relatively limited time midwives have to engage with them they focus conversations around matters they consider most important, such as breastfeeding, nutrition, quitting smoking, family violence, and immunisation in pregnancy is rarely mentioned.

'The key messages I give to pregnant women when I speak to them are about smoking, screening for domestic violence, dietary advice because many of them have poor nutrition, promoting breastfeeding, safe sleeping. **Information about immunisation may be in the DHB leaflet we give to them, or in pamphlets and posters in waiting rooms.'**

(Hospital midwife, Counties Manukau)

Amongst the six general practice nurses spoken to, all are confident having discussions with patients in early pregnancy that immunisation against influenza and whooping cough is available and recommended, and most say they remind women when their immunisations are due. However, general practice nurses confirm they mainly have contact with first time pregnant women and have less contact with women who have been pregnant before who go directly to LMCs.

The few antenatal educators spoken to confirm that they don't include information on immunisation for pregnant women in their classes. There are many reasons for not including this information, including not feeling informed enough to discuss immunisation, not wanting to talk about it in a group setting (as they feel it is controversial), not wanting to be asked their opinion on immunisation in pregnancy (if they are opposed), or because their programme is full.

'I don't make a big thing of immunisation because it's very controversial. What I am trying to avoid is the situation where you get heated debate with parents on opposing views. I think it's a private decision that people should draw on their own experience, values and philosophies.

Immunisation for pregnant women is relatively new and I'm not required to talk about it.'

(Antenatal educator, MidCentral)

Accessing immunisation

Midwives confirm that pregnant women receiving immunisations through their general practice is not convenient. Midwives acknowledge that there are obstacles that would need to be overcome if immunisations were provided outside of general practice (e.g. transporting vaccines and conducting immunisations in a safe environment). However, they consider other ways to deliver immunisations need to be considered to make it more convenient for women e.g. LMCs providing vaccination, or placing services where women go for blood tests or scans.

General practice nurses believe that making a specific appointment with a general practice for immunisation in pregnancy is a structural barrier, as women often need to arrange transport, childcare and time off work. They also believe some women will be put off attending a practice for immunisations if they have debts with the practice.

'Another barrier is that women owe money to the practice and receptionists sometimes target these women for unpaid bills. **They may need to pay \$10 despite immunisation being free.** I can imagine women not coming because of that.' (General practice nurse, Waikato)

General practice nurses give priority to pregnant women who want to be immunised, do not make women wait long for an appointment, and immunise women without an appointment. General practice nurses also opportunistically immunise women, if they visit the practice for another matter.

'This practice is staunch on immunisation. At our practice everything gets dropped for an immunisation, even when patients do not have an appointment.' (General practice nurse, Waikato)

Providers endorse that free immunisations, particularly for low income women, is a significant enabler for pregnant women receiving immunisations.

Messages and communication

Midwives, general practice nurses and antenatal educators confirm that pregnant women are overwhelmed by the quantity of print information provided and most women do not read everything they are given, particularly women with low literacy. Providers confirm that messages to encourage pregnant women to immunise against influenza and whooping cough need to be short, positive and friendly. They believe messages that tap into women's desires to protect their unborn babies will be most compelling. They confirm that pregnant women generally put their baby's wellbeing above their own, and providers working in low socio-economic areas confirm that women often don't place value on their own protection from infection, and therefore messages about maternal health and wellbeing are likely to be less compelling.

11. Conclusions

The findings from this research conclude that the most significant barrier to immunisation uptake in pregnancy is a lack of accessible information and advice on immunisation from LMCs and structural barriers for accessing services through general practices.

Most pregnant women say that had their LMCs informed them about the benefits of immunisation, their susceptibility to infection, the severity of the infection and its impact on their unborn babies, and that immunisation in pregnancy was safe they would have opted to be immunised. Furthermore, if women's LMCs could have administered the vaccination this would have made the process of immunisation more convenient.

Māori and Pacific pregnant women face more barriers to immunisation in pregnancy than Pākehā pregnant women. They are more likely to say they did not receive effective information on immunisation from their LMCs, and face more barriers accessing immunisation through general practices. The challenges the researchers had finding Māori and Pacific pregnant women who had immunised for this research indicates that actual immunisation uptake is low for Māori and Pacific pregnant women.

The overall goal of the research was to target segments and tailor communications and interventions effectively and raise the uptake of vaccines during pregnancy. The research concludes that segments that need to be targeted are Māori and Pacific pregnant women and LMCs who work with these women.

The findings from the research conclude that persuasive messages that talk about immunisation protecting unborn babies from the consequences of infection are persuasive. Messages that say immunisation is safe in pregnancy provide reassurance to pregnant women who are concerned about the safety of vaccines for their unborn babies. Messages that say influenza is serious for unborn babies cause pregnant women who do not consider influenza serious to take notice. Messages that say immunisation is free for pregnant women resonate particularly strongly with Māori and Pacific pregnant women.

The findings from this research also conclude that traditional print media is not cutting through to all pregnant women and social media tools need to be considered for sharing relevant immunisation content.