PUBLIC HEALTH COMMUNICATION CENTRE AOTEAROA

Protecting hapu māmā and newborn babies through immunisation during pregnancy in Aotearoa New Zealand

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Summary

Vaccinations during pregnancy are an unborn child's first immunisation event. They are a safe, effective way of protecting hapū māmā (pregnant people) and pēpi (babies) against whooping cough (pertussis), influenza, and Covid-19 which are more likely to be severe during pregnancy and in early life. Despite being recommended for many years, fewer mothers receive pertussis (48% in 2020) and influenza (44% in 2020) immunisation in Aotearoa New Zealand (NZ) than in Australia and the United States. Importantly, although the risk of these diseases is highest among Māori, Pacific Peoples, and people living in areas of high deprivation, these groups are less likely to be immunised during pregnancy. Thus, to protect pēpi and hapū māmā from severe disease, urgent steps are needed to boost maternal immunisation particularly for Māori, Pacific Peoples, and those living in marginalised communities. Such steps will complement the recently announced health target of 95% of children receiving all recommended immunisations by 24 months of age.

Maternal vaccination protects māmā during pregnancy and are the first immunisation event for pēpi, protecting them during the first months of life when they are vulnerable to infection but not yet old enough to be immunised themselves.[1] This briefing outlines how we are performing in equitable maternal immunisation coverage in Aotearoa New Zealand (NZ) within the context of childhood immunisation targets, and reviews opportunities for raising immunisation coverage in this key group.

Why is maternal immunisation important?

In NZ, deaths from pertussis occur almost exclusively in unimmunised infants.[2] Among infants who require intensive care, permanent brain or lung damage is common.[2] In 2023, 20 infants under 5 months old were hospitalised with pertussis, most of which were Māori or Pacific pēpi[3]. Three of these infants died[4].

The risk of complications from influenza infection in pregnancy is substantial for hapū māmā[2; 5]. Influenza in pregnancy increases the likelihood of preterm birth and low birth weight[6] and may also be associated with an increased risk of maternal[6], fetal, and neonatal death.[5]

Covid-19 vaccination is also recommended and funded for all hapū māmā in New Zealand, but is not included in this study.[1]

Maternal immunisation coverage: current evidence

Maternal immunisation coverage in NZ is below 50% and Māori and Pacific people are significantly less likely to be immunised than other groups.[7] Those from areas of high deprivation are also less likely to be immunised, with Māori and Pacific māmā living in these areas at greatest disadvantage. These findings reflect stark inequities in access to maternal health care and signal the need for system change.

Geospatial analyses from 2013 to 2020 found the low overall maternal immunisation coverage meant that more than 90,000 women and their babies were not protected.[8] Significant regional variation in maternal immunisation coverage for influenza and pertussis was also concerning.[8] Areas such as Canterbury, Auckland and Capital & Coast have relatively high levels of immunisation coverage compared to Tairāwhiti, Waikato, Northland, Bay of Plenty, West Coast and Taranaki (Figure 1). These findings are available in our interactive app (Figure 2) at: https://geohealthlab.shinyapps.io/hapumama/ and a summary of immunisation coverage from 2013–2020 can be found in the Appendix below. Many areas with low maternal immunisation rates also have persistently low childhood immunisation coverage.[9] However, there are further intra-regional variations as declining and stagnating coverage can be found even in more affluent areas.[10]

Figure 1. Overall level of maternal immunisation coverage for Influenza and Pertussis from 2013 to 2020 by District Health Board.

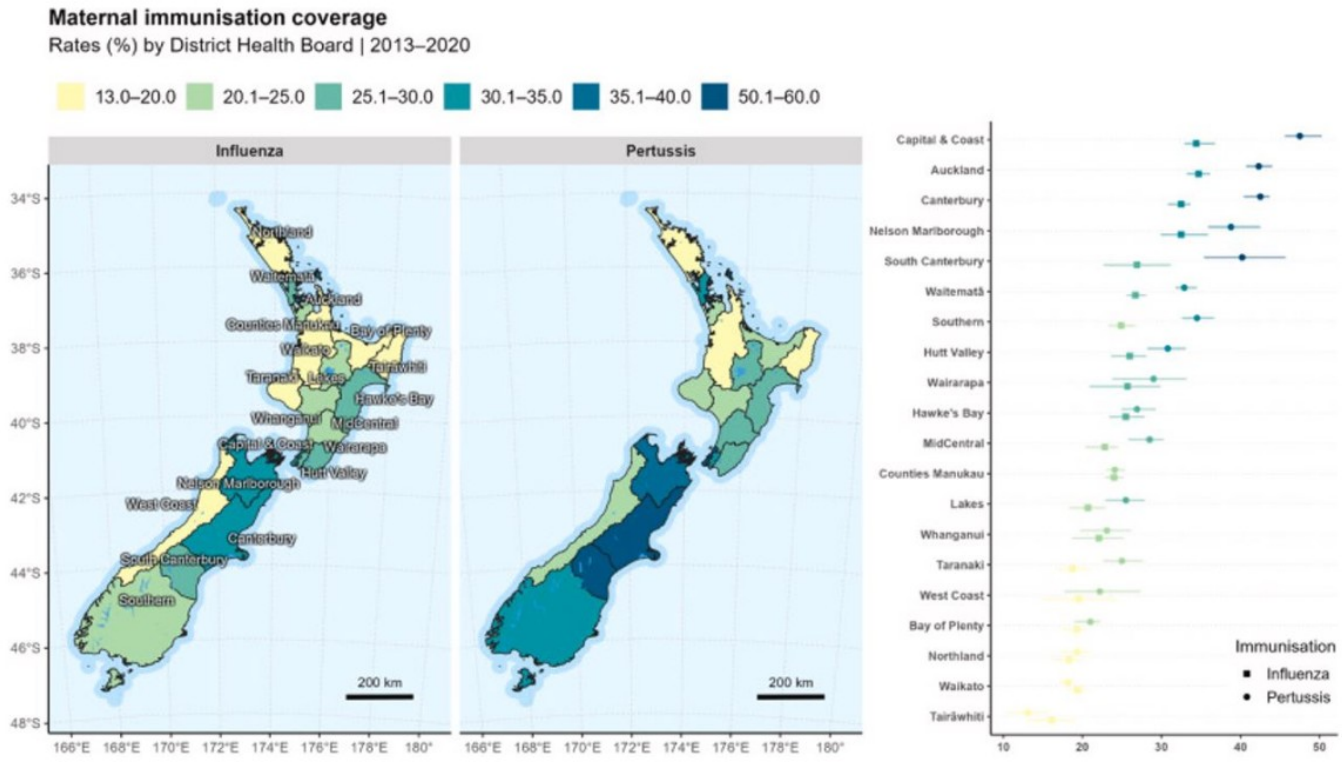
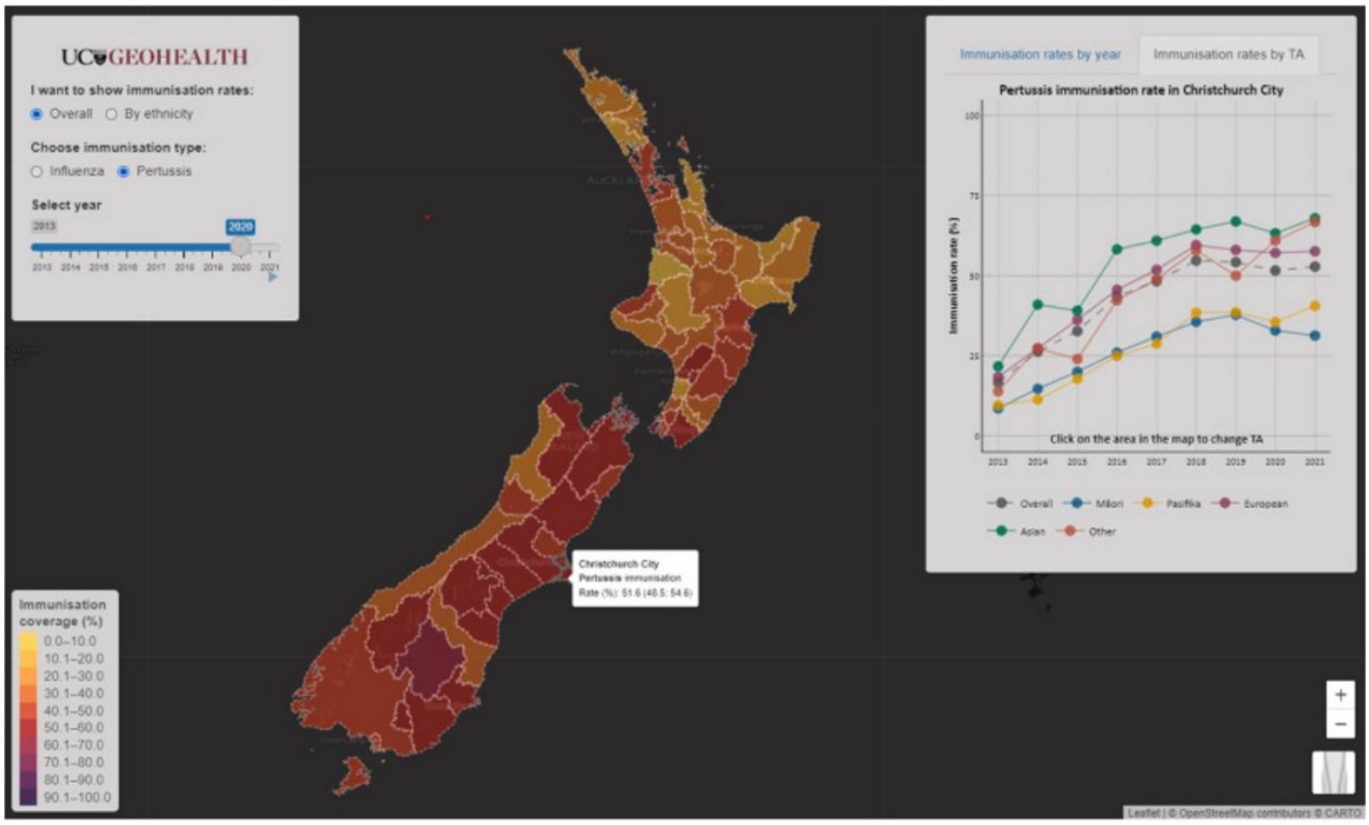


Figure 2. A screenshot of the interactive app Shiny app example (condition, by year).



Unlocking opportunities for equitable improvements

Many factors contribute to poor and inequitable immunisation uptake including accessibility of maternal healthcare[11], transport and childcare costs, and time constraints.[12] Outstanding bills at general practices can prevent some māmā from seeking free immunisations[13] or they may assume there will be an associated charge.[14] Lack of awareness about disease severity and the availability and importance of maternal immunisation[15], particularly among Māori and Pacific whānau (extended families)[16], and a mistrust of the health system also contribute.[17]

Recent challenges with the Covid-19 immunisation rollout resulted in the spread of misinformation, mistrust and vaccine hesitancy which has extended to childhood and maternal immunisations.[18] Innovations in service delivery to improve coverage of the Covid-19 immunisation drive proved effective in the pandemic response, but these have largely not been carried over into the other funded immunisations in NZ.[19]

The government proposes immunisation targets and incentives for general practice to improve immunisation coverage so that 95% of tamariki are fully immunised at 24 months of age. It is not clear whether these targets will improve maternal immunisation as having targets only for childhood immunisation could divert attention away from immunising hapū māmā. Hapū māmā who are immunised may be more likely to vaccinate their pēpi[20], so including hapū māmā in targets could be beneficial.

Health targets have previously improved childhood immunisation coverage and significantly

reduced inequities for Māori and Pacific.[21] These targets were effective because the previous District Health Boards (DHBs) were accountable for meeting them and for coordinating the health services within their region.[22] However, if accountability for the new proposed targets is with general practice, this will put pressure on primary care and risk inadequate resources for an already stretched sector. Accountability at general practice level may also worsen outcomes for whānau who need additional support with immunisation, as they may have difficulty enrolling with a practice which is focused on reaching targets.[23]

A multifaceted approach is needed to improve immunisation uptake nationally. Our research team is collaborating with the healthcare sector in an HRC-funded project to co-design interventions with iwi healthcare providers to improve maternal immunisation coverage. We are taking a multisystem approach, developing tools and resources to support health systems to work effectively, healthcare providers provide services, and individuals to be vaccinated. If we can demonstrate success, our ambition is for the resources and tools developed during this project to be implemented across NZ to improve immunisation coverage and health outcomes for whānau.

What's new in this briefing?

- Maternal immunisation coverage needs to improve. With the ongoing threat of pertussis outbreaks and seasonal influenza, hapū māmā and pēpi continue to be at risk of severe infection.
- There is particularly low coverage for Māori and Pacific people and those in deprived communities that are likely to be more vulnerable to rapid spread of infectious diseases.
- Whilst immunisation targets can work to reduce inequities, providing monetary incentives for boosting coverage at the health provider level could drive further inequitable service delivery.

Implications for public health policy and practice

- Systems changes are needed to immunise the communities who need it most. Healthcare providers need to get the information and services to them so whānau are able to make informed decisions and then access the services they need.
- Immunisation targets and incentives, if used, need to also include maternal vaccination
- Interventions to improve immunisation coverage need to be multifactorial, tailored to communities and contribute to equitable outcomes.

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Updated 31 May 2024: *An earlier version of this article noted that four infants died from pertussis in 2023, when it was actually three infants (in the last whooping cough epidemic in 2018, there were four deaths).*

Appendix 1 – A summary of influenza and pertussis coverage in pregnancy 2013-2020

INFLUENZA

IMMUNISATION COVERAGE IN

PREGNANCY

EXAMINING SPATIAL VARIATION IN AOTEAROA BETWEEN 2013 AND 2020

Percentage of pregnant women in Aotearoa who were vaccinated against influenza, who birthed between 2013 and 2020

While inflenza immunisation coverage increased from 2013 to 2020, rates are still suboptimal [1]

INFLUENZA VACCINATION STATUS BY ETHNICITY

Percentage of pregnant women in Aotearoa who were vaccinated for influenza, who birthed between 2013 and 2020 | by ethinicity

16.1%	21.8%	28.4%	29.6%	38.1%
MĀORI	PASIFIKA	NZ EUROPEAN	OTHER	ASIAN

BETWEEN 01 JANUARY 2013 AND 31 DECEMBER 2020 THERE WERE 429,985 PREGNANCIES IN NEW ZEALAND

BETWEEN 2013 AND 2020 ONLY 16.1% OF PREGNANT MĀORI WOMEN WERE VACCINATED AGAINST INFLUENZA

IN 2020 ONLY 43.6% OF PREGNANT WOMEN WERE VACCINATED AGAINST INFLUENZA IN NEW ZEALAND

59.5%

WELLINGTON CITY REGION HAD THE **HIGHEST** INFLUENZA IMMUNISATION RATES FOR **PREGNANT WOMEN IN 2020**

9.0%

KAWERAU REGION HAD THE **LOWEST** INFLUENZA IMMUNISATION RATES FOR **PREGNANT WOMEN IN 2020**

58.3%

QUEENSTOWN-LAKES REGION HAD THE **HIGHEST** INFLUENZA IMMUNISATION RATES FOR **MĀORI HAPŪ WOMEN IN 2020**

8.6%

MATAMATA-PIAKO DISTRICT HAD ONE OF THE **LOWEST** INFLUENZA IMMUNISATION RATES FOR **MĀORI HAPŪ WOMEN IN 2020**

Our findings indicate significant differences in maternal immunisation coverage due to systemic barriers, including access to maternal vaccination services [1]

USE THE QR CODE TO VIEW OUR INTERACTIVE MAP OF INFLUENZA IMMUNISATION COVERAGE IN AOTEAROA, FOR MORE REGION SPECIFIC DATA

References:
1. Examining spatial variation for immunisation coverage in pregnant women: a nationwide and geospatial retrospective cohort study in Aotearoa New Zealand. Social Science and Medicine. Hobbs, M.., Marek, L., Young, A., Willing, E., Dawson, P., and McIntyre, P.

PERTUSSIS

IMMUNISATION COVERAGE IN

PREGNANCY

EXAMINING SPATIAL VARIATION IN AOTEAROA BETWEEN 2013 AND 2020

Percentage of pregnant women in Aotearoa who were vaccinated against pertussis, who birthed between 2013 and 2020

While pertussis immunisation coverage increased from 2013 to 2020, rates are still suboptimal[1]

PERTUSSIS VACCINATION STATUS BY ETHNICITY

Percentage of pregnant women in Aotearoa who were vaccinated for pertussis, who birthed between 2013 and 2020 | by ethinicity

16.2%	20.3%	34.7%	37.2%	43.9%
MĀORI	PASIFIKA	OTHER	NZ EUROPEAN	ASIAN

BETWEEN 01 JANUARY 2013 AND 31 DECEMBER 2020 THERE WERE 429,985 PREGNANCIES IN NEW ZEALAND

BETWEEN 2013 AND 2020 ONLY 16.2% OF PREGNANT MĀORI WOMEN WERE VACCINATED AGAINST PERTUSSIS

IN 2020 ONLY 48% OF PREGNANT WOMEN WERE VACCINATED AGAINST PERTUSSIS IN NEW ZEALAND

70.8%
WELLINGTON CITY REGION HAD THE **HIGHEST** PERTUSSIS IMMUNISATION RATES FOR **PREGNANT WOMEN IN 2020**

9.4%
WAITOMO REGION HAD THE **LOWEST** PERTUSSIS IMMUNISATION RATES FOR **PREGNANT WOMEN IN 2020**

66.7%
QUEENSTOWN-LAKES REGION HAD THE **HIGHEST** PERTUSSIS IMMUNISATION RATES FOR **MĀORI HAPŪ WOMEN IN 2020**

7.8%
SOUTH TARANAKI DISTRICT HAD THE **LOWEST** PERTUSSIS IMMUNISATION RATES FOR **MĀORI HAPŪ WOMEN IN 2020**

Our findings indicate significant differences in maternal immunisation coverage due to systemic barriers, including access to maternal vaccination services[1]

USE THE QR CODE TO VIEW OUR INTERACTIVE MAP OF PERTUSSIS IMMUNISATION COVERAGE IN AOTEAROA, FOR MORE REGION SPECIFIC DATA

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