

25th June 2021

[REDACTED]
[REDACTED]
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Email: [REDACTED]

[REDACTED]

Official Information Act Request for – Incentives in Vaccination Outreach

I write in response to your Official Information Act request received by us 10th May 2021, you requested the following information:

- **A copy of the report and/or findings resulting from the “Evaluation of the Use of Incentives in the Counties Manukau Health Outreach Immunisation Service”**

Counties Manukau Health Response:

For context Counties Manukau Health (CM Health) employs over 8,500 staff and provides health and support services to people living in the Counties Manukau region (approx. 601,490 people). We see over 118,000 people in our Emergency Department each year, and over 2,000 visitors come through Middlemore Hospital daily.

Our services are delivered via hospital, outpatient, ambulatory and community-based models of care. We provide regional and supra-regional specialist services i.e. for orthopaedics, plastics, burns and spinal services. There are also several specialist services provided including tertiary surgical services, medical services, mental health and addiction services.

- **A copy of the report and/or findings resulting from the “Evaluation of the Use of Incentives in the Counties Manukau Health Outreach Immunisation Service”**

In Counties Manukau, the majority of childhood immunisations are delivered in primary care with a small percentage delivered via our contracted Outreach Immunisation Service (OIS). Outreach Immunisation Services are funded by CM Health however are contracted out. We currently have four contracted providers who deliver OIS with, Plunket as the main provider in Counties Manukau currently.

The Outreach Immunisation Programme is aimed at children 0-6 years across Counties Manukau. Within this group there is a heightened focus on Maaori children who have well documented lower rates of immunisation as well as a prioritisation process to support young Maaori babies particularly those under 2 years of age.

An equity gap continues with rates of immunisation lower among Maori compared with non-Maori across all age points. An evaluation framework was developed to demonstrate whether using incentives could contribute to the likelihood of receiving timely immunisation for whaanau. Attached (Appendix 1) is a copy of the evaluation report into the use of the incentives programme which was piloted over the course of one year delivered by the Plunket Outreach Immunisation Service.

The CM Health Planning and Funding Team (the 'funder') are currently undertaking a wider review of the delivery of childhood immunisation under Counties Manukau Health. This evaluation will provide useful information to inform the development of approaches that are culturally safe and responsive to the needs of whaanau Maori. Current new strategies include the development of an 8-week sprint specifically focused on Maori peepi. This approach provides an opportunity to test/prototype whaanau engagement strategies, particularly with kaupapa Maori health providers, and leverage the roll-out of the COVID-19 vaccination programme (and other immunisation programmes as appropriate) to improve childhood immunisation timing and ensure processes for maintaining relationships with whaanau across the immunisation journey. This approach will be coupled with activities to ensure those who have not yet been vaccinated are reached.

The funder will also work with existing providers to address the evaluation findings regarding cultural safety within the service with a view to immediate improvements. Opportunities to make more substantive changes will also be explored and we are planning on working closely with Maaori providers to explore alternative options, drawing on the learnings from our planned sprint, including supporting whaanau to access primary care. Additionally, the DHB is becoming the main provider of OIS and will now be able to increase the number of community Saturday clinics and test innovative approaches. This work is integrated internally with the CM Maaori Health team.

I trust this information answers your request. You are entitled to seek a review of the response by the Ombudsman under section 28(3) of the Official Information Act. Information about how to make a complaint is available at www.ombudsman.parliament.nz or Freephone 0800 802 602.

Please note that this response or an edited version of this may be published on the Counties Manukau Health website. If you consider there are good reasons why this response should not be made publicly available, we will be happy to consider this.

Yours sincerely



Fepulea'i Margie Apa
Chief Executive Officer
Counties Manukau Health

Evaluation of the Use of Incentives in the Counties Manukau Health Outreach Immunisation Service



Evaluation of the Use of Incentives in the Counties Manukau Health Outreach Immunisation Service

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Summary

Background

Currently, despite overall coverage in Counties Manukau being above the national average, an equity gap continues with rates of immunisation lower among Maaori compared with non-Maaori across all age points.

An evaluation framework was developed to demonstrate whether using incentives could motivate whaanau to engage with OIS for their immunisation appointment to contribute to the likelihood of receiving timely immunisation. A pilot over one year used incentives including nappies and a \$20 grocery or petrol voucher. These incentives, delivered by Plunket, were to be offered during the first immunisation appointment and follow up visits in the lead up to the eight month immunisation milestone.

Methods

A spreadsheet was set up to collect data across the course of the pilot OIS programme. For each of the immunisation periods (six weeks, three months, five months) the following data was collected:

- Demographic details (Date of Birth, Sex, Ethnicity, Suburb)
- Dates that contact took place
- Date incentive given
- Final outcome (immunisation received or declined, immunisation carried out by OIS or GP)

Retrospective data from the OIS programme in the period before incentives were used was reviewed to compare with pilot data (pre-post design).

Eight qualitative interviews were carried out with OIS whaanau and six with Outreach Immunisation (OIS) Plunket staff. After the interviews a thematic analysis was conducted with initial coding framework developed from the eight whaanau and six staff interviews

Results

The aim of the Incentives for Immunisation Programme is to use incentives to motivate whaanau to engage with OIS for their immunisation appointment, to contribute to the likelihood of receiving timely immunisation.

At six weeks, however, there was no significant difference in the proportions of peepe who were immunised by either OIS or their GP before and after the pilot incentive programme for six week immunisation ($p=0.51$). There was also no significant difference in the proportions of peepe who were immunised by the OIS before and after the pilot incentive programme ($p=0.52$).

At three months, significantly more peepe received immunisation by either GP or OIS in the OIS incentive pilot period than in the pre-period for three month immunisation ($p=0.02$). Significantly more Peepe also received immunisation by the OIS alone in the OIS incentive pilot period than in the pre-period ($p<0.0001$).

At five months, there was no significant difference in the proportions of peepe who were immunised by either OIS or their GP before and after the pilot incentive programme ($p=0.39$). Significantly more

people however received immunisation by the OIS alone in the OIS incentive pilot period than in the pre-period ($p=0.0008$).

It was not possible to state the optimal size and timing of incentives because those who received an incentive were also immunised at the same time, so there were no groups to compare as to which incentives were most effective. However, qualitative data indicated that the favoured incentive type was nappies as these were considered most useful. The second most preferred type of incentive suggested by qualitative data was kai vouchers. Another suggestion was winter pyjamas for baby.

However, some whaanau also suggested that they would have obtained immunisations anyway, even without an incentive, and that funding might be better used to expand the service to greater serve the Maaori population.

In their interviews, some staff highlighted a lack of education as the paramount reason as to why Maaori immunisation rates are low and whaanau are hard to reach. There was an underlying assumption that if Maaori understood why it is important to immunise then they easily and simply would.

However, while the OIS incentives pilot aimed to improve services engagement with whaanau by offering koha, it did not acknowledge or address the distal factors that continue to disadvantage Maaori. It also takes the onus from a failing and culturally incompetent system, viewing Maaori as outputs or objects of the health system, rather than acknowledging the whaanau as a system, with its own objectives, autonomy, and health indicators.

Addressing staff unconscious attitudes and uninformed beliefs is an essential action to improve the programme, as these create barriers to whaanau engagement with health services.

Conclusion

In general, while this evaluation supports the continuation of an ongoing outreach programme for immunisation due to some of the positive quantitative outcomes found, the qualitative data did not appear to directly support the incentives aspect in terms of motivation for immunisation, engagement or timeliness. Interviews also revealed criticisms of racism in General Practice, as well as the OIS Plunket service.

Overall it is difficult to make a conclusion about the degree to which incentives were an important part of the OIS as almost all whaanau who received an immunisation were notified of the incentive at the same time they received it. It may be the simple fact that it was outreach itself that improved some of the immunisation rates.

Recommendations

With this in mind, the recommendations below would support non-Maaori capacity to deliver Incentives for Immunisation by disrupting systemic business as usual and enhancing cultural safety best practices for future engagement with whaanau.

- 1) Establish a Tiriti rights-based leadership position as an equal decision maker within the OIS service. While this pilot targets Maaori, a clear understanding from OIS staff relating to**

Maaori rights as the Tiriti partner was not demonstrated. Maaori health gains in the past have coincided with the emergence of Maaori leadership¹ which provides traditional expertise, guidance and a voice to the significant needs of Maaori. To date there is no Maaori leadership within the OIS. The introduction of a Tiriti rights-based leadership Key role would be to ensure Maaori voice, priority and aspirations are at the forefront of decision-making, would validate matauranga Maaori alongside technical and clinical expertise, and provide strategic and operational thinking in developing a culturally safe service

- 2) Recognise and challenge ethnic biases among staff, and in the processes of the OIS system through the development of a framework for institutional cultural change.** This should aim to decolonise dominant discourse and biases, and operationalise Maaori responsiveness strategies. Such as framework should recommend or mandate training for staff that addresses issues such as cultural microaggressions, white privilege, stereotyping and prejudice. Education will support OIS staff to understand the rights-based positioning of the Maaori. Understanding of the journey from historical trauma to the manifestation of Maaori health status today is integral for staff to increase cultural competency and responsiveness.
- 3) Honour maatauranga Maaori by establishing a meaningful and ongoing relationship across the entire immunisation journey.** Whaanau expressed the need to be valued through Kaupapa Maaori paradigms and practice. Whaanungatanga is a cultural imperative generally unrecognised and neglected through the process and time constraints of the service. This could begin with hapū maamaa immunisations (e.g. flu & whooping cough) following the full immunisation timeline and extend into whole whaanau health checks. Kaupapa Maaori processes are a meaningful way to engage and connect with whaanau. Examples from whaanau included using waiata as a way of reminding whaanau to reinforce the immunisation timing, and wānanga as an appropriate forum to engage and build relationships. Rongoaa in place of the incentive voucher was also suggested as a sign of respect and acknowledgment that Western medicine is not the only or preferred form of healing and prevention from Maaori.
- 4) A system needs to be developed for tracing whaanau that are lost to follow-up.** The Ministry of Social Development may be able to support this as they have data on most needy families utilising their service, and in migration data.
- 5) Continue ongoing monitoring and evaluation of the service as it continues.**

Evaluation of the Use of Incentives in the Counties Manukau Health Outreach Immunisation Service

Background

A well-executed, universal immunisation programme is a cornerstone of public health and a highly effective way to prevent infectious disease². A national target for immunisation was first conceived in New Zealand (NZ) 1993/1994 as a mechanism to reduce vaccine preventable diseases, and to support engagement with primary care³.

Reasons for under-immunisation in children

Turner et al (2017)⁴ stated that New Zealand historically has had mediocre childhood immunisation coverage and has seen impressive gains in coverage with fully immunised 2-year-old rates improving by more than 15% in just over 10 years and “almost complete closure of traditional socioeconomic status and ethnicity equity gaps.” However, they argued that while healthcare providers frequently assume vaccine-hesitancy is mainly related to family and community influences: ‘the New Zealand experience has shown that provider and provider systems are likely to have the greater influence.’⁵⁶. They also argued that: “family and local community belief systems, effects of local anti-immunisation lobbyists, misinformation and the use of private research on the internet, anxiety of vaccines, lack of awareness of diseases and barriers to accessing the practice.’ contribute to under-immunisation.⁷⁸⁹

Roberts et al (2017) reviewed Outreach Immunisation Services (OIS) in the context of children in community settings in New Zealand and made recommendations around service effectiveness. They stated that children from areas of higher deprivation and children of Maaori and Pacific ethnicity are least likely to be immunised on time. They also emphasised that this numerically small group is also most likely to be at risk of contracting vaccine-preventable diseases.¹⁰

In an Australian evaluation of community-based child immunisation, Thomas et al (2019)¹¹ stated that reasons for under-immunisation include: access barriers to health services, hesitancy among parents and, to a lesser extent, parent’s refusal. Social isolation, psychological distress and large families were identified as contributing factors to incomplete immunisation in a longitudinal study by Pearce et al. (2015).⁸

Finally, Comrie et al (2010) found health literacy to be a significant barrier in terms of immunising children, as well as fear or anxiety about immunisation complications, and negative experiences with GPs.¹²

Factors contributing to Effectiveness of OIS Programmes

A number of studies show the importance of community engagement, service access, and assisting families to overcome socioeconomic barriers can be used to contribute to an effective OIS Service. The use of incentives to encourage immunisation has also been encouraged as a positive approach to increasing immunisation for tamariki and peepe.¹³¹⁴

Roberts et al (2017)¹⁰ stated that for large urban areas with high volumes of referrals (DHB populations of >20,000 children aged 0–4 years), OIS operates most effectively as a stand-alone service based on referrals received directly from the NIR (National Immunisation Register), but for

smaller urban and rural areas, an OIS is best co-located with NIR services and in close relationship to allied child-health services, immunisation coordinators and the local Medical Officer of Health. However, Roberts et al (2017) also argued that outreach services are “time intensive and relatively expensive”. They stated that a systemic review on home visiting showed increases in immunisation coverage from 2 to 20% (median 13%)¹⁵ but stated that there are adjusted cost-effectiveness ratios ranging from US\$513 to US\$13,020 per additional vaccination.

Roberts et al (2017)¹⁰ stated that home visits are more likely to be most cost-effective when used as part of a multicomponent intervention.¹⁶ Multicomponent approaches include enrolment and engagement of new-born infants with a general practice, good recall and audit systems,¹⁷ good access to services with extended hours of access where possible, and minimising missed opportunities.¹⁸ Similarly, Thomas et al (2019) found that factors influencing the success of community-based child immunisation included: allowing time for complex system change to take place, building capacity of services and individuals and involving key stakeholders such as community representatives in the programme via co-design and co-implementation.¹¹

Beard et al (2016) stated that factors contributing to improved immunisation rates include: improving service access, assisting families to overcome socioeconomic barriers, providing opportunistic immunisation, using reminders and incentives and requiring complete vaccination before entry to childcare.¹⁹ Similarly, Turner et al (2017) stated that time commitment by healthcare providers to follow-up on children overdue for vaccination and engage in communications with caregivers regarding their vaccine hesitancy was needed to contribute to immunisation programme effectiveness. They also stated that decline rates were lowered in practices where the Practice Nurse had been in the role for a very long period of time and were experienced parents themselves.⁴

Rumball-Smith & Keneally (2016) found that actively engaging with caregivers who had previously declined vaccinations prior to the 3-month and 5-month vaccinations was identified as important in primary care in the context of increasing immunisation coverage in Northland. They also suggested that incentives for caregivers and vaccination providers could be explored as potential policies for increasing immunisation rates.²⁰

Finally, Comrie et al (2017) stated that timeliness was a key factor in the effectiveness of immunisation communication with the authors recommending the information be presented at 28 to 30 weeks in the antenatal period and at 3 to 4 weeks post-birth.¹²

Incentivising engagement with immunisation services has shown evidence of effectiveness internationally [5] through financial or material incentives. Therefore, a pilot that incentivises engagement with the OIS was proposed. Piloting with the OIS means the pilot is targeted and restricted rather an incentive programme for those already regularly receiving immunisation through primary care.

A paper ‘Addressing Inequity in Maaori Childhood Immunisation Coverage’ was presented to the CM Health Executive Leadership Team in September 2018 and recommended a multifaceted approach to address inequity in Maaori immunisation coverage in Counties Manukau. This proposed an incentive scheme pilot to increase attendance at Outreach Immunisation Service (OIS) appointments. It was also proposed that the OIS could work more closely with Maaori health providers to further improve whaanau engagement and integration with community Whaanau Ora

services. Finally, a range of systems approaches were considered including enhancing general practice models of care and increasing opportunistic immunisations. In January 2019, a paper was provided to update ELT on new initiatives to address the disparities in immunisation coverage for Maaori peepe/tamariki compared to total population in CM Health at the 8-month milestone.

Outreach immunization services (OIS)

Outreach immunisation services (OIS) are an important tool for increasing childhood immunisation coverage. The services ensure that immunisation is available to children who are unable to access a general practice in a timely fashion for their immunisation events. The Ministry of Health Tier Two Service Specification defines what services are required to be delivered by OIS and expected outcomes, but not *how* they will be delivered. OIS is currently delivered by Plunket.

The proposed pilot targeted Maaori whanau who are not engaging in their immunisation appointments with primary care and have therefore have been referred to the OIS service. For the previous 12 months to November 2018, there were 964 Maaori peepe and tamariki referred to the OIS. On average the OIS contacts whanau 7-13 times before a peepe is immunised (this includes phone calls, text messages, and home visits). Of the 964 referrals, 804 would need rigorous follow up and only 160 would be easily engaged (source: OIS correspondence). Only 154 (16%) of the cases referred to OIS return to their GP for future immunisations.

With current information available it is difficult to segment and identify which of the 964 referrals are most likely to not attend their appointment with OIS. However, as the clear majority require vigorous follow up and multiple contacts with OIS before baby is immunised, it was proposed that all Maaori babies who are referred to the OIS be eligible to receive an incentive for attending their appointment.

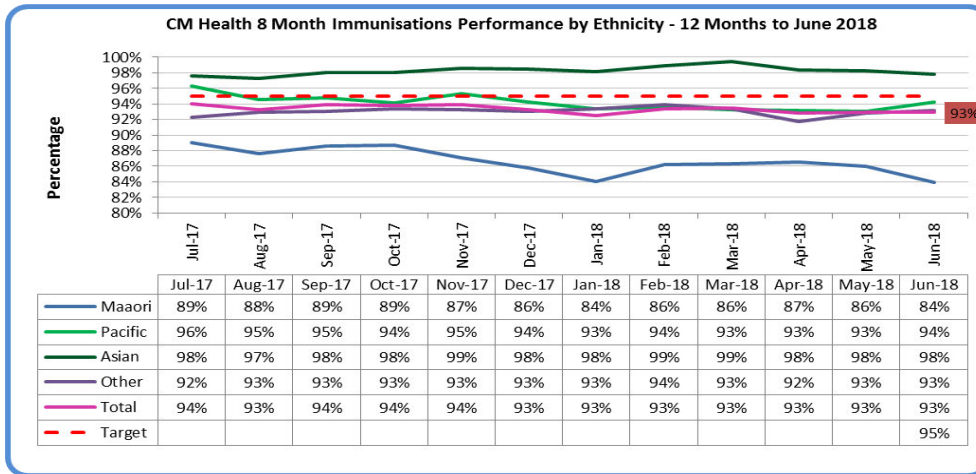
It was decided that this initiative would seek to demonstrate whether using incentives can motivate whaanau to engage with OIS for their immunisation appointment which can contribute to the likelihood of receiving timely immunisation. A pilot over one year would seek to streamline the incentive schedule and report on the efficacy of the incentives.

The pilot included a range of incentives that included baby products (ie nappies) and a \$20 grocery or petrol voucher as a practical and useful incentive that whaanau respond to positively. These incentives were offered during the first appointment and follow up visits in the lead up to the eight month immunisation milestone.

Counties Manukau Health

Currently, despite overall coverage in Counties Manukau being above the national average, an equity gap continues with rates of immunisation lower among Maaori compared with non-Maaori across all age points. Data for the 8-month-old target is presented in Figure 1. Lower rates of immunisation place these children at greater risk of contracting vaccine-preventable diseases such as pneumococcal meningitis or pertussis.^{21, 22}

Figure 1. CM Health 8 month immunisation coverage, by ethnicity, 12 months to Jun 2018



Analysis of progress towards achieving the eight-month immunisation in 2017/18 (Quarter 1 to Quarter 4), showed that the service are missing an average of 43 Maaori children each quarter (9.6% of the eligible population) which contributes to the equity gap in coverage (Table 1).

Table 1. Maaori immunisation coverage in Counties Manukau (Quarter Q1 to Q4 17/18)

Quarter (2017-2018)	1	2	3	4	Total	Coverage %
Eligible	470	455	438	423	1786	
Fully Immunised by target age	420	388	380	357	1545	86.5%
Declined Immunisations	15	21	13	20	69	3.9%
Cohort which we have the ability to influence						
Fully Immunised but after target age	27	22	26	17	92	5.2%
*Not Fully Immunised target age-passer (catching up on earlier missed immunisations)	8	24	19	29	80	4.4%
Total missed by target age	35	46	45	46	172	

Aims and Objectives

An evaluation framework was developed to demonstrate whether using incentives can motivate whaanau to engage with OIS for their immunisation appointment to contribute to the likelihood of receiving timely immunisation. A pilot over one year sought to streamline the incentive schedule and report on the efficacy of incentives including nappies and a \$20 grocery or petrol voucher as a practical and useful incentive that whaanau respond to positively. These incentives were to be offered during the first appointment and follow up visits in the lead up to the eight month immunisation milestone. OIS team members provided the incentive to whaanau who attend the scheduled appointments. The objectives of this evaluation were:

- To identify whether the incentives programme is meeting its stated objectives of improving immunisation timeliness for Maaori.
- To extract learning that can be incorporated to future development of the programme
- To contribute to the evidence base of whether incentives support whaanau to engage in immunisation appointments
- To identify the optimal type, size, and timing of incentives.
- To identify whether there is improved engagement with whaanau through an incentives scheme
- To showcase programme outcomes to inform wider sector implementation
- To inform decision making about progressing from a pilot trial.
- To identify unintended consequences (i.e. appropriate countermeasures) of the programme (eg. Increase in referrals to OIS, reduction in immunisations completed in primary care)
- To understand how implementation of the programme has an impact on equity for immunisation.

Specifically, evaluation questions relating to these objectives were:

1. Is the incentives programme meeting its stated objectives?
2. Do incentives improve immunisation timeliness (ie 6 weeks, 3 months, 5 months milestones)?
3. Do incentives improve performance in meeting the target (ie 8 month milestone)?
4. What is the optimal size, type, and timing of incentives?
5. Is the programme reaching its target audience?
6. What are opportunities for programme improvement?
7. What are the potential unintended consequences of the programme (ie appropriate countermeasures such as whether whaanau go back to the GP for immunisation after OIS incentives)?
8. What are the challenges in implementing the programme? (eg offering incentives to one peepe in the house, but not another because they're not Maaori (a concern from the OIS))
9. How does the programme impact on equity for immunisation?

Methodology

Methods

Ethics Approval

Ethics approval for the project was obtained from the Auckland Health Research Ethics Committee (AHREC), Ref: AH1111.

Pilot Programme Data

A spreadsheet was set up to collect data across the course of the pilot OIS programme. For each of the immunisation periods (six weeks, three months, five months) the following data was collected:

- Demographic details (Date of Birth, Sex, Ethnicity, Suburb)
- Dates that contact took place
- Date incentive given
- Final outcome (immunisation received or declined, immunisation carried out by OIS or GP)

All referrals received from 01/05/2019 to 30/04/2020 were included as part of the pilot data. The data was analysed from 25 June 2020; this timeframe allowed follow-up to be achieved for the later referrals.

File review

Retrospective data from the OIS programme in the period before incentives were used was reviewed to compare with pilot data (pre-post design). File where the patient that had been referred between 02 November 2017 to 28 November 2018 were collected as baseline. It was calculated that 160 files for each immunisation point (6 weeks, 3 months and 5 months) would need to be reviewed to detect a 15% difference in immunisation rate between the pilot data and the retrospective data, with a 71% rate of being immunised. Therefore data was collected from 160 randomly selected files for each of the immunisation points. Random selection was achieved using Microsoft Excel's random case selection function. The same data as for the pilot programme (described above) was collected from these files, to enable a comparison to be made with data from the incentives programme.

Interviews with whaanau

Interviews were arranged from service database at random by the OIS administrator. From a total of 68 whaanau contacted (via telephone): five declined, 40 were an invalid number, 12 did not respond and 11 interviews were scheduled. Consistent with the initial interviews, whaanau were asked to indicate their preference for an interview via telephone or face to face at home. Six of the eleven interviews opted for a home interview with five preferring a phone interview. From this, three scheduled interviews were not conducted after three rescheduling texts or visit attempts. Subsequently eight interviews were completed with one interview at home and seven via telephone.

Interviews with Plunket Staff

A total of six semi-structured face to face interviews with nine OIS staff (seven team and two management members) at two office locations in South Auckland took place. These were coordinated by the OIS administrator. Some interviews were arranged in pairs, resulting in six staff interview sessions (with three pair interviews). Management were interviewed as individuals. A total of nine female staff members participated, one a Maori team member. After the interviews a

thematic analysis was conducted with initial coding framework developed from the eight whaanau and six staff interviews. NVivo 10 software was used to compare across the transcripts and the descriptive codes were organised into themes.

Results and Analysis

Total numbers of referrals for immunisation at each time period during the pilot programme were:

- Six week immunisation: N=561
- Three month immunisation: N=553
- Five month immunisation: N=695

All referrals received from 01/05/2019 to 30/04/2020 were included in analysis. This allowed time for follow up from all referrals, as data analysis took place from 25/06/2020.

Sex of Peepe referred for Immunisation

The table below shows the sex of peepe referral to the OIS Service before and during the pilot programme.

Six week immunisations

Table 2: Sex of Peepe referred for six week immunisation

	Before pilot programme		During pilot programme	
	n	%	n	%
Male	91	56.9	288	51.3
Female	69	43.1	268	47.8
Missing	0	0	5	0.9
Total	160	100	561	100

Table 2 shows the percentage of male and female peepe referred for six week immunisation before and during the pilot programme. There was no significant difference in percentages of males and females referred before or during the programme ($p=0.29$).

Table 3: Sex of Peepe referred for three month immunisation

	Before pilot programme		During pilot programme	
	n	%	n	%
Male	78	48.8	279	50.5
Female	82	51.3	267	48.3
Missing	0	0	7	1.3
Total	160	100	553	100

Table 3 shows the percentage of male and female peepe referred for three month immunisation before and during the pilot programme. There was no significant difference in percentages of males and females referred before or during the programme ($p=0.66$).

Table 4: Sex of Peepe referred for five month immunisations

	Before pilot programme		During pilot programme	
	n	%	n	%
Male	79	49.4	367	52.8
Female	79	49.4	325	46.8
Missing	2	1.3	3	0.4
Total	160	100	695	100

Table 4 shows the percentage of male and female peepe referred for five month immunisation before and during the pilot programme. There was no significant difference in percentages of males and females referred before or during the programme ($p=0.54$).

Age of Peepe at referral for Immunisation

The graphs below show the minimum, lower quartile, upper quartile and maximum age of peepe at referral to the OIS Service before and after the pilot programme.

Six week immunisations

Figure 2: Age of peepe (months) at referral before pilot programme (n=160)

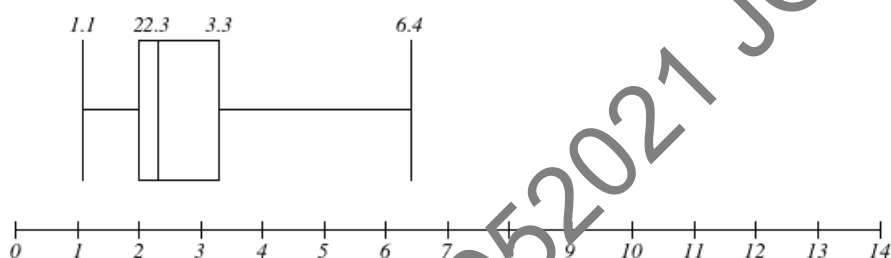
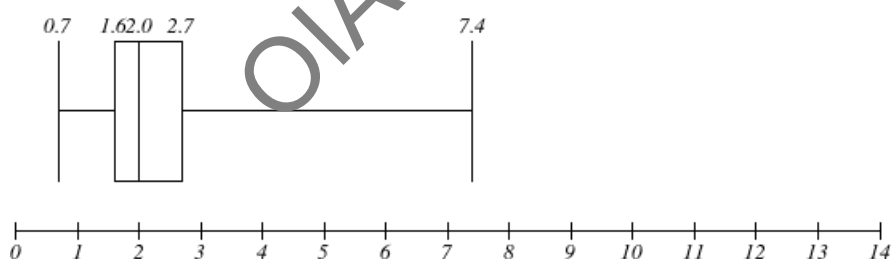


Figure 3: Age of peepe (months) at referral during pilot programme (n=558)



Before the pilot programme the central 50% of peepe were referred for six week immunisation between 2 and 3.3 months of age, with the median being referred at three months of age. In comparison, during the pilot programme, the central 50% of peepe were referred for six week immunisation between 1.6 and 2.7 months of age, with the median being at two months of age, which was significantly younger ($p=0.004$).

Three month immunisations

Figure 4: Age of peep at referral before pilot programme (n=160)

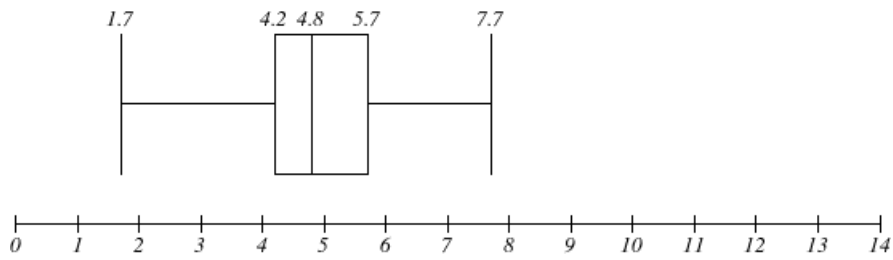
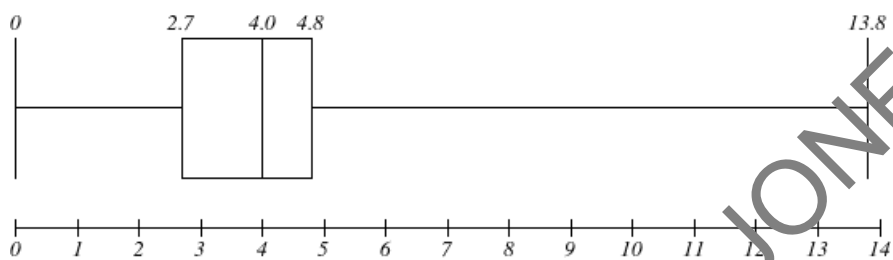


Figure 5: Age of peep at referral after pilot programme (n=552)



Before the pilot programme the central 50% of peep were referred for three month immunisation between 4.2 and 5.7 months of age, with the median being referred at 4.8 months of age. In comparison, during the pilot programme, the central 50% of peep were referred for three month immunisation between 2.7 and 4.8 months of age with the median being at 4 months of age, which was significantly younger ($p < 0.0001$).

Five month immunisations

Figure 6: Age of peepe at referral before pilot programme (n=160)

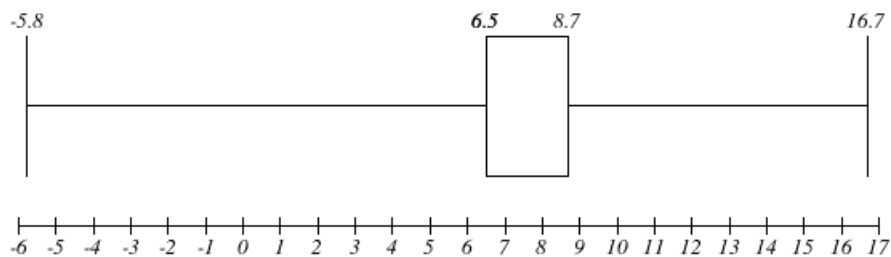
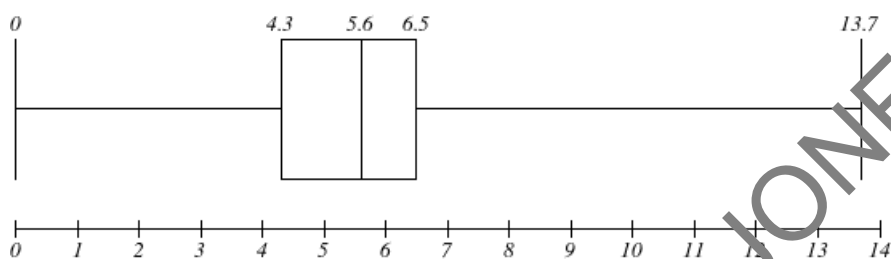


Figure 7: Age of peepe at referral after pilot programme (n=694)



Before the pilot programme the central 50% of peepe were referred for five month immunisation between 6.5 and 8.7 months of age, with the median also being referred at 6.5 months of age. In comparison, during the pilot programme the central 50% of peepe were referred for five month immunisation between 4.3 and 6.5 months of age with the median being at 5.6 months of age, which was significantly younger ($p < 0.0001$).

Number of contacts made with families

The graphs below show the number of contacts that were made with whaanau in relation to immunisation.

Figure 8: Number of contacts attempted for six week immunisations (N=561)

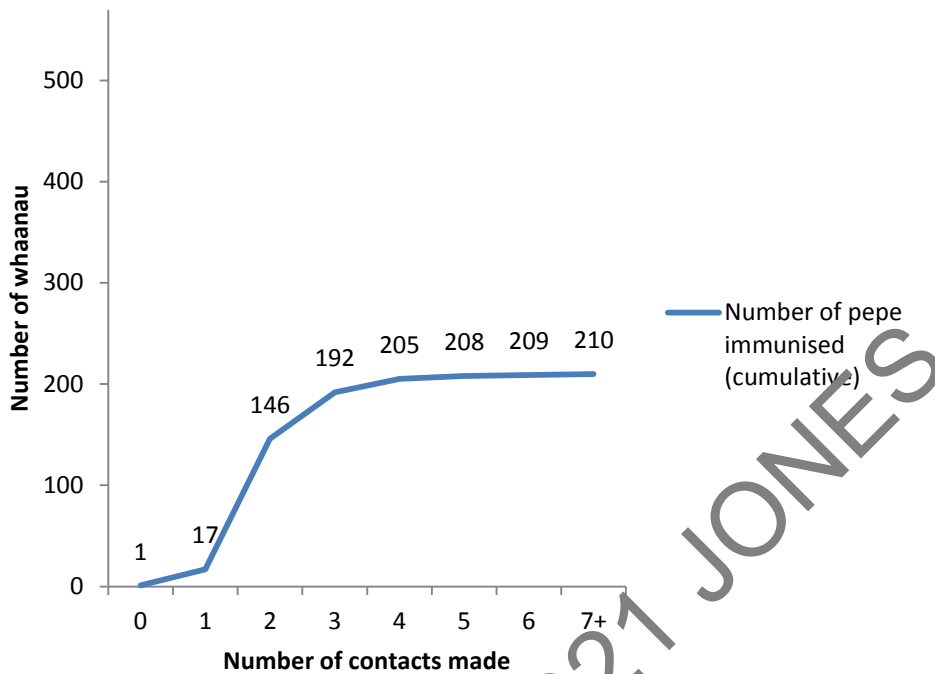


Figure 8 shows that three contacts or fewer resulted in 34% (n=205) of pepe being immunised. Carrying out more than three contacts only resulted in a further 3% (n=18) of pepe being immunised. It was found that the number of contacts made with the whaanau of pepe had a significant impact on whether or not pepe received an immunisation ($p < 0.0001$).

Figure 9: Number of contacts attempted for three month immunisations (N=553)

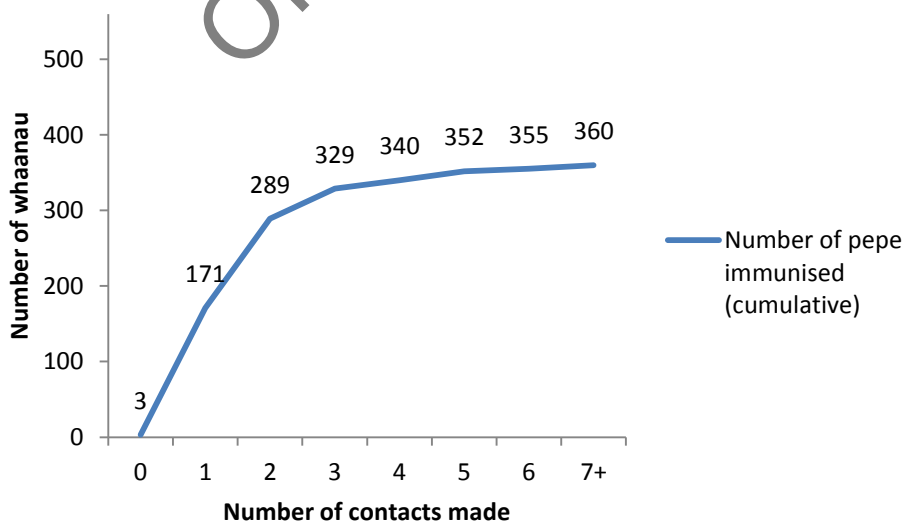


Figure 9 shows that three contacts or fewer resulted in 59% (n=329) of peepe being immunised. Carrying out more than three contacts only resulted in a further 6% (n=31) of peepe being immunised. It was found that the number of contacts made with the whaanau of peepe had a significant impact on whether or not peepe received an immunisation ($p=0.0003$).

Figure 10: Number of contacts made for five month immunisations (n=695)

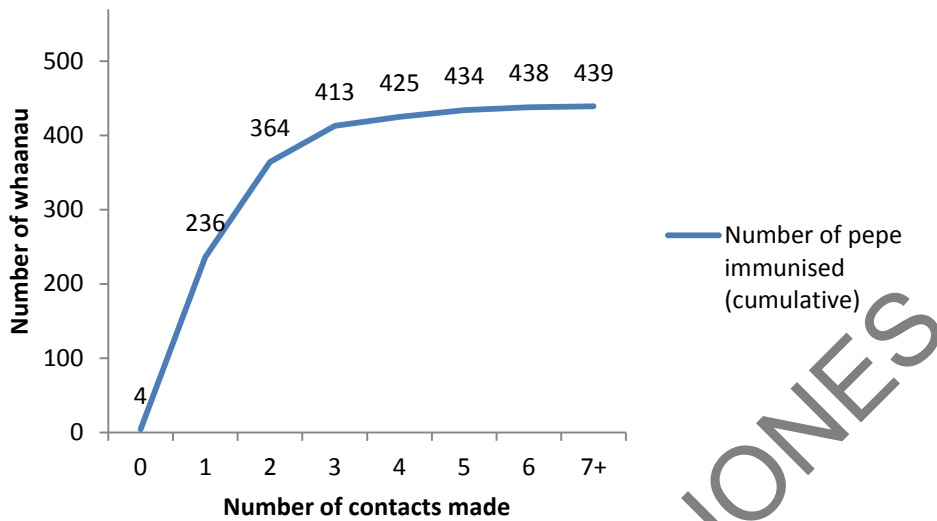


Figure 10 shows that three contacts or fewer resulted in 59% (n=413) of peepe being immunised. Carrying out more than three contacts only resulted in a further 4% (n=26) of peepe being immunised. It was found that the number of contacts made with the whaanau of peepe had a significant impact on whether or not peepe received an immunisation ($p=0.0002$).

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The intervention sought to demonstrate whether using incentives can motivate whaanau to engage with OIS for their immunisation appointment, which could then contribute to the likelihood of receiving timely immunisation. The table below shows the final outcomes that were recorded in relation to immunisations at each time period.

Table 5: Final outcomes for six week immunisations

	Pre-pilot period (N=160)		OIS Pilot (N=524)	
	n	%	n	%
Immunisation by OIS	73	46	224	43
Immunisation by GP	37	23	145	28
Immunisation Booked	0	0	1	0
Declined Immunisation	22	14	60	11
Declined OIS	6	4	13	3
Gone from area or lost to follow up	19	12	58	11
No response	2	1	22	4
Deceased	1	1	1	0

Table 5 shows that the majority (71%; n=370) of peepe in the OIS Pilot referred for six week immunisations were either immunised by the OIS or their GP or booked an immunisation. There was a slightly smaller percentage (69%; n=110) of peepe in the pre-pilot period in the same categories. Fourteen percent (n=73) of the whaanau of peepe in the OIS pilot were categorised as having either declined immunisation or declined the OIS. This was 18% (n=28) for peepe in the pre-pilot period.

Fifteen percent of patients' whaanau (n=80) had either gone from the area or were lost to follow up, did not respond or had deceased in the OIS Pilot. This was 14% (n=22) for whaanau in the pre-pilot period. There was no significant difference in the proportions of peepe who were immunised by either OIS or their GP before and after the pilot incentive programme for six week immunisation (p=0.51). There was also no significant difference in the proportions of peepe who were immunised by the OIS before and after the pilot incentive programme (p=0.52).

Table 6: Final outcomes for three month immunisations

	Pre-pilot period (N=160)		OIS Pilot (N=530)	
	n	%	n	%
Immunisation by OIS	83	52	353	67
Immunisation by GP	40	25	103	19
Immunisation Booked	0	0	0	0
Declined Immunisation	6	4	3	1
Declined OIS	3	2	14	3
Gone from area or lost to follow up	23	14	34	6
No response	5	3	23	4
Deceased	0	0	0	0

Table 6 shows that the majority (86%; n=456) of peepe referred for three month immunisations in the OIS pilot were either immunised by the OIS or their GP. This was lower for peepe in the pre-pilot period (77%; n=123). Four percent (n=17) of the whaanau of peepe in the OIS pilot were categorised as having either declined immunisation or declined the OIS. This was 5% (n=9) for the whaanau of peepe in the pre-pilot period. The remainder of the whaanau of peepe (10%, n=57) in the OIS pilot were gone from the area or lost to follow up. This was 17% (n=28) for patients' whaanau in the pre-pilot period. Significantly more peepe received immunisation by either GP or OIS in the OIS incentive pilot period than in the pre-period for three month immunisation (p=0.02). Significantly more Peepe also received immunisation by the OIS alone in the OIS incentive pilot period than in the pre-period (p<0.0001).

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Table 7: Final outcomes for five month immunisations

	Pre-pilot period (N=160)		OIS Pilot (N=680)	
	n	%	n	%
Immunisation by OIS	87	54	465	68
Immunisation by GP	43	27	100	15
Immunisation Booked	0	0	0	0
Declined Immunisation	2	1	4	1
Declined OIS	8	5	22	3
Gone from area or lost to follow up	10	6	31	5
No response	10	6	58	8
Deceased	0	0	0	0

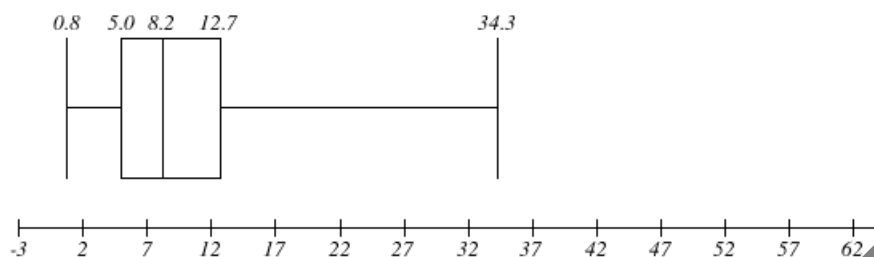
Table 7 shows that the majority (83%; n=565) of people referred for five month immunisations in the OIS Pilot were either immunised by the OIS or their GP or booked an immunisation. Similarly, 81% (n=130) were in these categories in the pre-pilot period. Four percent (n=36) were categorised as having either having declined immunisation or declined the OIS in the OIS Pilot. There were 6% (n=10) in the pre-pilot period. The remainder of the whaanau of people (13%, n=89) in the OIS Pilot had gone from the area or were lost to follow up. This was 12% (n=20) in the pre-pilot period. There was no significant difference in the proportions of people who were immunised by either OIS or their GP before and after the pilot incentive programme (p=0.39) for five month immunisation. Significantly more people also received immunisation by the OIS alone in the OIS incentive pilot period than in the pre-period (p=0.0008).

Timeliness of Immunisations

Six weeks

During the period before the pilot incentive programme, the date of immunisation was recorded for 72 out of 72 (100%) of cases who received the immunisation by the OIS. Figure 11 shows how many weeks this was late for these patients.

Figure 11: Number of weeks by which six week immunisations were late in the period before the pilot incentive programme



The minimum amount of time that the six week immunisation was delivered late was 0.8 weeks (just over five days). The median time that six week immunisations were delivered late was by 8.2 weeks. The middle fifty percent of immunisations (between the bottom 25% and upper 75%) were delivered between 5.0 and 12.7 weeks late. The maximum number of weeks by which immunisations were delivered late was by 34.3 weeks.

During the period of the pilot incentive programme the date of immunisation was recorded for 198 out of 224 (88.3%) of cases who received the immunisation by the OIS. Figure 12 shows how many weeks this was late for these patients.

Figure 12: Number of weeks by which six week immunisations were late in the pilot incentive programme



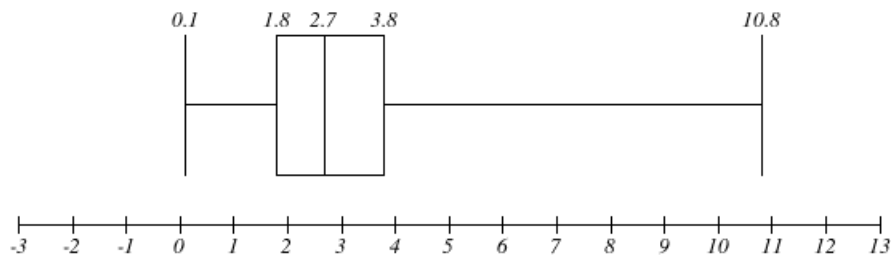
The minimum amount of time that the six week immunisation was delivered late was -2.4 weeks (that is, 2.4 weeks early). The median time that six week immunisations were delivered late was by 6.1 weeks. The middle fifty percent of immunisations (between the bottom 25% and upper 75%) were delivered between 3.6 and 12.3 weeks late. The maximum number of weeks by which immunisations were delivered late was by 63.7 weeks.

There was no significant difference in the number of weeks by which six week immunisations were late before and after the pilot incentive programme ($p=0.36$).

Three months

During the period before the pilot incentive programme, the date of immunisation was recorded for 77 out of 77 (100%) of cases who received the immunisation by the OIS. Figure 13 shows how many months this was late for these patients.

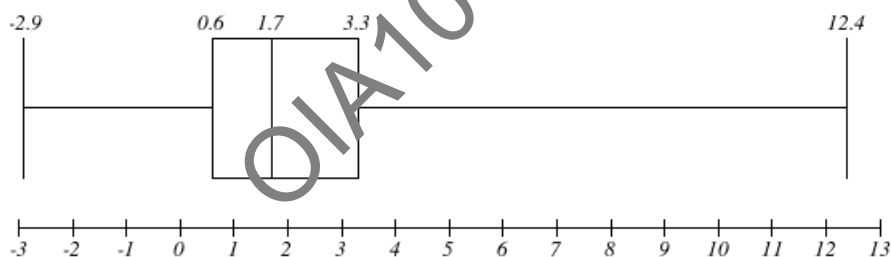
Figure 13: Number of months by which three month immunisations were late in the period before the pilot incentive programme



The minimum amount of time that the three immunisation was delivered late was 0.1 months. The median time that three month immunisations were delivered late was by 2.7 months. The middle fifty percent of immunisations (between the bottom 25% and upper 75%) were delivered between 1.8 and 3.8 months late. The maximum number of weeks by which immunisations were delivered late was by 10.8 months.

During the period of the pilot incentive programme, the date of immunisation was recorded for 341 out of 353 (96.6%) of cases who received the immunisation by the OIS. Figure 12 shows how many months this was late for these patients.

Figure 14: Number of months by which three month immunisations were late in the pilot incentive programme



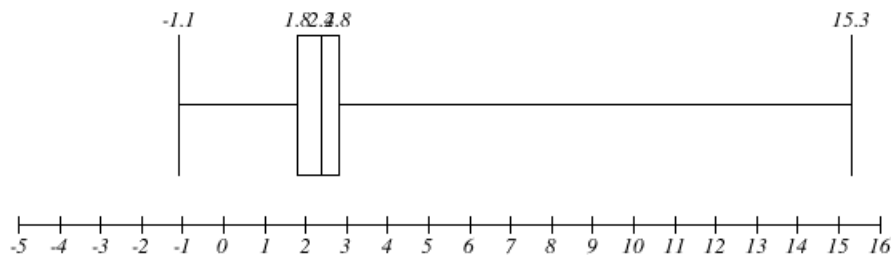
The minimum amount of time that the three month immunisation was delivered late was -2.9 months (that is, 2.9 months early). The median time that three-month immunisations were delivered late was by 1.7 months. The middle fifty percent of immunisations (between the bottom 25% and upper 75%) were delivered between 0.6 and 3.3 months late. The maximum number of months by which immunisations were delivered late was by 12.4 months.

Three months immunisations were delivered significantly earlier in the period of the pilot incentive programme than before this was introduced ($p=0.002$).

Five months

During the period before the pilot incentive programme, the date of immunisation was recorded for 86 out of 86 (100%) of cases who received the immunisation by the OIS. Figure 15 shows how many months this was late for these patients.

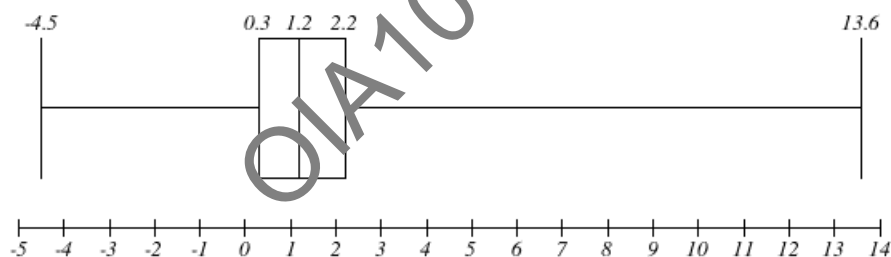
Figure 15: Number of months by which three month immunisations were late in the period before the pilot incentive programme



The minimum amount of time that the five month immunisation was delivered late was -1.1 months (that is 1.1 months early). The median time that five month immunisations were delivered late was by 2.4 months. The middle fifty percent of immunisations (between the bottom 25% and upper 75%) were delivered between 1.8 and 2.8 months late. The maximum number of weeks by which immunisations were delivered late was by 15.3 months.

During the period of the pilot incentive programme, the date of immunisation was recorded for 431 out of 465 (92.7%) of cases who received the immunisation by the OIS. Figure 16 shows how many months this was late for these patients.

Figure 16: Number of months by which five month immunisations were late



The minimum amount of time that the three month immunisation was delivered late was -4.5 months (that is, 4.5 months early). The median time that five months immunisations were delivered late was by 1.2 months. The middle fifty percent of immunisations (between the bottom 25% and upper 75%) were delivered between 0.3 and 2.2 months late. The maximum number of months by which immunisations were delivered late was by 13.6 months.

Five month immunisations were delivered significantly earlier in the period of the pilot incentive programme than before this was introduced ($p=0.0003$).

Themes from qualitative data

The following section describes themes constructed from interviews with the fourteen whaanau and six staff interviews. The findings are reported together as it was felt this would make most logical sense so as not to fragment discussion of the various topics that arose.

Significant and on-going stress

Each whaanau interviewed described circumstances or outcomes of compounded stress and discrimination within their korero. For example, whaanau shared experiences of the wider health system where they did not feel they were informed, receive adequate care or information support. When referring to the GP service, one Maamaa shared her feeling that adequate information was provided:

"...no they just say when it's due, come in. Dr's don't really explain much to people. I just heard you got to do it. I guess I did it just so I don't have Oranga Tamariki on my toes. They'd be asking me why didn't you do this?" (Koromiko)

Recognition that Maaori suffer intergenerational and continued effects of colonisation are compounding where considering immunising their peepee. Maaori describe immunisation as "disconcerting, anxiety inducing, confusing and off putting".²³ Maamaa also expressed their experiences of post-natal depression and anxiety and the importance of having whaanau around them for safety and support compounded by the stress of immunisation.

"I was quite an anxious mum first time round so having them done at home with family and not having to travel in the car with the screaming baby because baby was quite colicky it was really helpful to have the outreach team come over." (Harakeke)
"...especially for me because I picked up post natal depression." (Ngaio)

Avoidance of the General Practitioner environment

When discussing immunisation at the General Practitioner (GP), the majority of whaanau described experiences that left them feeling uncomfortable, unwanted and uninformed.

"...it's so hard to book in the GP - so why would you?" (Kawakawa)
"...I spoke to my GP when I rang to book an appointment to immunize but they never spoke to me." (Karumu)
"...I feel like the doctors should actually do their job properly because they treat people like they're numbers instead of actually seeing what's wrong."
"Well I would if that's the last resort, then I'd have to take her to the GP She would have to be really really sick in order for us to go to a GP" (Kowhai).
"They don't talk about it. They just do it. They'll do the injection and then they just tell you to wait for 20 mins just so we see if there are any reactions and then that's it." (Hoheria)

This adds to the stress already experienced by whaanau, as described in the previous theme. Whaanau were unanimous in their desire not to attend the General Practitioner (GP). Whaanau reported a number of noted barriers to GP-centric services. These included the lack of choice in provider (often due to full enrolment, or lack of a suitable GP within walking distance), inflexibility of

appointment times, lengthy waiting room times, wanting to keep their babies away from other sick people, and the individualistic service delivery.

Several of the whaanau spoke about their reluctance to wait in the GP waiting room. When queried as to why, they described feeling judged and unwelcome by the GP staff. For some this meant they would rather wait until a whaanau member is unwell before going to a GP. Whaanau responses included:

“Interviewer: What makes it difficult for you to attend an immunisation appointment with your GP or with the Outreach immunisation Service?”

Whaanau: If I have to go there. It's easier if they come. I don't want to wait hours at the doctors in the waiting room. I don't like waiting there.

Interviewer: Why you don't like waiting there?

Whaanau: We could get sick, yeah and, really though it's the people like they can't say our names right, they stare at the kids and just like aren't very nice. They are to other people that come in though. It's a vibe, you know. Yeah it's the staff. They don't know us and don't really want to get to know us. Yeah that's why I only ever go in [to the GP] if I really really have to” (Kumarahou).

Ethnic Bias and Racism

Whaanau were in a constant state of stress forced to engage in a system that is inherently racist. Implicit and explicit biases, as forms of racism were present in both whaanau and staff interviews.

One OIS staff member shared that it would be helpful for the service to know what items whaanau were purchasing with the vouchers provided by the service, saying:

“...it (the incentive vouchers) should go towards, you know towards a good cause. Like we don't want to give them a voucher that the family would be tempted to go and buy booze or something...I'm just saying, like there's smokers in the household. And anybody could be tempted to go and, go and you know, use. We don't know we give them, we don't know what, where it's going. We give people in good faith that they will use for what's needed. I mean, maybe I, I sound a little but judgemental but, we just don't have any evidence of where the twenty dollars going, we don't.” (Pipi)

Another staff member shared:

“And because they're Maaori all of them, this is like this assumption, all of them are high needs. But they weren't all, you'd see some with two story houses, nice cars and stuff and we're like really? We were out and they've got a flash house and you know.” (Kutai)

Instances of internalised racism were also present in the whaanau interviews. Racism tools such as cultural distancing, stereotyping and the blood quantum were described in this statement from a Maaori maamaa who was interviewed:

“I think they just get lazy to immunise their kids because when you mention you're going to get something free like treasures and stuff.” (Pohutakawa)

“They need a big reality check....they don't have Maaori blood in them anymore. That was four generations ago.” (Rata)

Implicit bias refers to the attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner and is a key contributor to health inequity.²⁴ Many staff members provided examples of implicit bias, or associated beliefs and attitudes towards a social group without conscious knowledge or evidence. These biases can have an impact on how staff interact with Maaori accessing the service and negatively impacts on Maaori engagement and experience. This was particularly evident in this pilot with Maaori frequently assumed to have a lack of understanding and education and at times was broadened to wider stereotypical associations. As described by one staff member:

“Because they, they lack the understanding of the importance of it. You know, it’s just education – and it’s not a priority I guess, to immunise their babies. So, they’ve got more, social problems going on.” (Kina P2)

The safety of home

Counteracting previous themes, whaanau reported that the biggest benefit for them in using the OIS incentives pilot was the safety and comfort of home as it enabled a more whaanau-centred environment. This allowed them to have important whaanau members with them, allowed the peepe to stay away from other potentially unwell strangers, and eliminated the stress of travel (finances, and the pressure to be at a place at a certain time). All whaanau shared that the best place for immunisations for Maamaa, peepe and the whole whaanau is the familiarity and safety of home.

“it’s better in the comfort of my own home as well so we don’t have to leave the house so you know baby he can like go cry in the room in he’ll be OK he’s at home he’s comfortable. It’s more about just being comfortable I reckon and when you go to the doctors it’s kind of like, it’s a new thing for them [the baby] it makes them feel a bit uncomfortable as well and then on top of that they have to have injections and so they really unsettle whereas... at their own house be more comfortable in there in space.” (Rimu)

Benefits of Incentives

Describing the incentives as ‘a bonus’ or ‘surprise’, just over half of the whaanau interviewed stated they were unaware of the incentives offered by the OIS until they received them at their first home visit appointment. One whaanau member stated that they were informed staff would bring an incentive to the appointment but thought this was going to be a voucher only and was surprised to receive nappies as well. After receiving the first incentives, whaanau understood they would receive further incentives at subsequent immunisation visits for up to eight months. All whaanau conveyed great appreciation for the vouchers and support and said the visit was a helpful reminder of immunisation timings.

When asked if these offerings would increase whaanau interest in attending immunisation appointments most of the whaanau, although grateful for receiving them indicated the incentives would not increase their interest, as shown in the quotes below:

“No, doesn’t mean I won’t take them. Previous experiences not specifically related to immis but was on a quit smoking programme which have incentives. People who give incentives are generally quite pushy about taking the incentive and just say “Just take it” So you end up taking it even though you don’t need it. I will be grateful, incentives are appreciated, but I don’t need them to turn up.” (Karamu)

“I don’t need anyone to give me anything for me to do something.” (Koromiko)

"I was going to already get his immunisations done but it helped with the timing." (Kumarahou)

"I'm quite indifferent really. They just bought the nappies in with them and kind of afterwards when we're just observing baby." (Kawakawa)

"Not really. I would go without it." (Poroporo)

"Either, either. I would still get it immunised even anyway whether those things were there or not." (Puriri)

"Interviewer: so you would have used the OIS anyway, without the koha? Whaanau: Yes regardless of the vouchers and that (Kowhai)."

When asked if they would allow the service to continue to come to their home, but without the incentives, all whaanau agreed they would. One maamaa proposed that rather than providing koha through incentives, it would be better to use the funding to widen the service's ability to go to all Maori homes, as she has referred two family members to the OIS but for reasons unknown they were not able to be seen.

The favoured incentive type was nappies as it was considered the most useful incentive. The second most preferred response being kai vouchers. Other suggestions included winter pyjamas for baby and redirecting the funding from incentives into more staff for wider community coverage.

All whaanau stated that their preference to receive the incentives was at the time of appointment, after the immunisations are given and to receive the immunisation at home, from familiar OIS staff members.

Incentives as a form of bribery

There was a general narrative across the team of comfortability and scepticism the incentives pilot would be effective. Staff shared they regularly provided nappies prior to the pilot, when the service acquired and were unconvinced a twenty-dollar voucher could influence a historically hard reach population to engage and develop positive immunisation attitudes and behaviours.

"Who doesn't like a freebee? Doesn't matter how much you've got, you know...I think our whole team weren't too keen on having the incentive programme." (Kutai P1)

"I know my team hated the incentive programme." (Tio)

This was compounded by many of the team staff members being uncomfortable with giving incentives believing to be a form of bribery and could be offensive.

"so like bribing. That's exactly what we were doing." (Kutai P1)

"we kind of all felt like we were going to be bribing people." (Kutai P2)

"you, know it's like a bribe." (Ika)

"Because there are some people say oh no were okay, so it makes you think like, did they feel I'm giving this to them, is it because they, they don't have it am I, handouts, people don't like handouts. Like is it, is it making them feel like, what do you call, feel like they're not, they don't have it and I'm just giving it to them. Especially when you're coming from a different, if you look a little bit different. (Pipi)"

They felt that while incentives could help to meet the pilot objectives (increasing engagement, appointment presence) they would encourage whaanau to delay immunisations on purpose, to receive the incentives and the service at home. Several staff shared that they had expressed these concerns to management but felt unheard.

Staff stated that the OIS was a secondary immunisation service, arguing that General Practice as the primary source of immunisation administration. Several staff interviewed voiced concerns that the incentives initiative would encourage whaanau to disengage with their GP and make a conscious decision not to immunise on time, so that they were eligible for OIS appointment at home and expect incentives.

I think too you, you want to kind of empower people, you don't want to sort of like make them really dependable... you've got to try and encourage families that can go to the GP to go and that kind of thing. Make them feel responsible... they have like five cars and a boat in the driveway and we're like really? (Kutai P2)

Education and actively combating the Anti-Vaccination Movement

Two key barriers staff identified that impacted on immunisation rates for vulnerable groups were a lack of health literacy within the whaanau and the power of the Anti-vaccination movement, often interrelated. See quotes below:

"Education. Yeah, they really don't fully understand why they're declining. (inaudible) they've seen something on Facebook, they've gone to the wrong websites to look at things, if they, if they do, or they just fully just don't understand the importance of it. They really don't connect the dots. (Kina P1)

"We just need to be out there tackling the anti-vaxxers, you know vaccinators head on with our information, because they are, they are attacking them with their information, they're going hard. We need to be head on with them, we need to be out there, with our right information, and the ones who sitting on the fence, we need to be in there as well, and pulling them this side, instead of letting them fall on the other side." (Pipi)

"There's so much anti-vax rubbish out there that they leach onto. And if it was more, I think people would engage more. I know I would as a mother, if I understood things more I would be more inclined to want to do it. Rather than someone even saying oh here's twenty bucks or here's, you know like I'd rather that, know why I was doing as to what I'm going to gain from doing it." (Kutai)

Citing this movement as a heavy influence on Maaori and other priority population groups, staff identified the need for to counteract and discredit the anti-vaccination movement through social media and other web-based forums, where they believe mothers go to for their immunisation information. They suggested there be a full-time position for one or more staff who assist the team by focusing on combating the anti-vaccination movement and increasing health literacy by having allocated responsibility and time to engage with whaanau, attending community hui and building a rapport with priority groups.

Maaori engagement training

Staff relayed the giving koha helped to build confidence and was a nice way to engage with whaanau.

"it was a good tool for me to have on my hand when we, I walked in...I was feeling more confident when we had that."(Pipi)

"you feel great to be able to give a gift when we go." (Kina P2)

"I think it's a lovely thing, that it makes you feel great to give... I don't think we were given any, any education. All we were told was there's the nappies, there's the vouchers, go and engage. And that was it. And it was kind of limited to our ability to talk to the parents through what we know and try." (Kutai, p2)

Staff identified two Maaori staff members within the OIS team as sources of cultural support staff believed they would have benefited from training on how to engage effectively with Maaori as a more meaningful way to support both services targets and appropriate relationship with Maaori.

Target populations for immunisation

At the outset of the question, all staff members agreed that Maaori should be the targeted priority population due to the low immunisation rates. However, within deeper discussion most conveyed the need for a detailed selection criterion under ethnicity, as this as a singular selection criterion did not consider issues such as economic wellbeing.

"...because they're Maaori all of them, this is like this assumption, all of them are high needs... we're going to the ones that are not high needs, were spending a lot of time on the ones that would go to GP, and the ones that are high needs that we really need to you know put our time into, we're not. Yeah, we're getting stuck with these ones" (Kutai P1)

"sometimes we come across families that aren't Maaori, and we know that they could benefit with something, like the voucher, or the nappies. Sometimes it's really not fair that its only targeted at Maaori people" (Kina P1)

"just because yeah they're Maaori, it doesn't mean that they're not able to get to the GP (Kutai p2)

These quotes highlight the staff perceptions and beliefs around how they perceive equity-based responsiveness. Staff also specified Maaori were already a prioritised group before to the incentives pilot. When asked to describe the prior actions taken to prioritise Maaori staff shared, they would simply make more attempts to contact Maaori clients than other clients.

"We don't have any other thing, we just attempt, we keep going, we keep going, we keep going. So they are still our priority, Maaori families are still our priority." (Pipi)

Staff also identified Pacific and other "in need" families such as children with disabilities should receive the incentive programme as well and described the criteria unfair to other groups.

"didn't like it...like everyone should get it because everyone's part of our target age. Everyone deserves to get the voucher and nappies...didn't like the idea that it was just targeted to New Zealand Maaori families." (Ika)

Like we've, we've questioned, is it fair? I know Maaori are, people the, they're the tangata whenua, but, a lot of people see New Zealand as multi-cultural. (Kina)

Staff thought a detailed criterion is required to deliver equitable services and believed this criterion should be decreed through the National Immunisation Registry.

Discussion

Relevant evaluation questions are grouped together and answers to these provided below.

Is the incentives programme meeting its stated objectives?

Do incentives improve performance in meeting immunisation targets?

Is the programme reaching its target audience?

The aim of the Incentives for Immunisation Programme is to use incentives to motivate whaanau to engage with OIS for their immunisation appointment, to contribute to the likelihood of receiving timely immunisation:

At six weeks, however, there was no significant difference in the proportions of peepe who were immunised by either OIS or their GP before and after the pilot incentive programme for six week immunisation ($p=0.51$). There was also no significant difference in the proportions of peepe who were immunised by the OIS before and after the pilot incentive programme ($p=0.52$).

At three months, significantly more peepe received immunisation by either GP or OIS in the OIS incentive pilot period than in the pre-period for three month immunisation ($p=0.02$). Significantly more Peepe also received immunisation by the OIS alone in the OIS incentive pilot period than in the pre-period ($p<0.0001$).

At five months, there was no significant difference in the proportions of peepe who were immunised by either OIS or their GP before and after the pilot incentive programme ($p=0.39$). Significantly more peepe however received immunisation by the OIS alone in the OIS incentive pilot period than in the pre-period ($p=0.0008$).

Therefore, **the incentives programme may be having some success in motivating meeting its objectives to meet immunisation targets and reach its target audience, especially at three months. At six weeks and five month however, there were no significant differences in immunisation rates, if GP immunisations are also considered, and so there is less success in this respect.**

Do incentives improve immunisation timeliness (i.e. 6 weeks, 3 months, 5 months milestones)?

There was no significant difference in the number of weeks by which six week immunisations were late before and after the pilot incentive programme ($p=0.36$). Three months immunisations were delivered significantly earlier in the period of the pilot incentive programme than before this was introduced ($p=0.002$). Five month immunisations were delivered significantly earlier in the period of the pilot incentive programme than before this was introduced ($p=0.0003$). **Therefore, it can be stated that the programme may have contributed to improvement in immunisation timeliness for three month and five month milestones.**

What is the optimal size, type, and timing of incentives?

It was not possible to state the optimal size and timing of incentives because those who received an incentive were also immunised at the same time, so there were no groups to compare as to which incentives were most effective. However, qualitative data indicated that the favoured incentive type was nappies as these were considered most useful. The second most preferred type of incentive suggested by qualitative data was kai vouchers. Another suggestion was winter pyjamas

for baby. However, **some whaanau also suggested that they would have obtained immunisations anyway, even without an incentive, and that funding might be better used to go to more Maaori homes.**

What are the potential unintended consequences of the programme (i.e. appropriate countermeasures such as whether whaanau go back to the GP for immunisation after OIS incentives)?

We cannot say from the data if receiving an incentive would make people more likely to go to their GP for their next immunisation (e.g. if an incentive at six weeks made it more likely that service users would visit GP for their three month immunisation). This is because those who received an immunisation and incentive at six weeks would be those who were more keen to be immunised generally, and this might have more to do with the personal characteristics of the group than whether or not the incentive caused them to seek further immunisations.

What are the challenges in implementing the programme? (e.g. offering incentives to one peep in the house, but not another because they're not Maaori (a concern from the OIS))

There is a growing body of evidence to suggest that implicit bias, or unconscious beliefs that reflect widely held stereotypes of particular groups result in the delivery of a poorer standard of healthcare to Maaori in comparison to any other ethnic groups.²⁴ In their narratives, staff highlighted a lack of education as the paramount reason as to why Maaori immunisation rates are low and whaanau are hard to reach. There was an underlying assumption that if Maaori understood why it is important to immunise then they easily and simply would. However, this is a Pakeha explanation.

The OIS incentives pilot aimed to improve services engagement with whaanau by offering koha without acknowledging or addressing the distal factors that continue to disadvantage Maaori. It also takes the onus from a failing and culturally incompetent system, viewing Maaori outcomes or objects of the health system, rather than acknowledging the whaanau as a system, with its own objectives, autonomy, and health indicators. In fact, in the whaanau interviews most maamaa knew very well that they immunised their tamariki to protect them from illness.

Addressing staff unconscious attitudes and uninformed beliefs is an essential action to improve the programme, as these create barriers to whaanau engagement with health services. Implicit biases are learned over long periods, pervasive and persistent, therefore recognising and addressing implicit bias requires structured and ongoing intervention to identify and disrupt biased behaviours, develop empathetic relationships and health improvement interventions.²⁵

How does the programme impact on equity for immunisation?

The historical and contemporary violence against Maaori is a traumatic legacy of racism and discrimination, with an ongoing cultural malaise that perpetuates inequities in the health system.²⁶ The effects of significant and on-going stress either in day-to-day life or handed down from tīpuna through realms such as wairua and epigenetics have led to well-documented mistrust and avoidance of western health systems as reflected in the whaanau korero.

The incentives programme tries to meet these challenges by targeting the ethnic group that most suffers from these systemic failures and has achieved some success in this regard. However, the

incentives programme exists within an inequitable health system and so is constrained by the same problems. It is essential to understand how trauma occurs within the context of culture, and how culture affects the ways in which meaning is attributed to trauma as extension of the colonial system.²⁷

For example, in New Zealand, Maaori are ten times more likely to experience racism and discrimination in three or more settings than European ethnic groups²⁸; Maaori pēpee are five times more likely than non-Maaori babies to be taken into state care than non-Maaori (OCC, 2019) a trauma which was described reflected in the interviews. The preference of Maaori not to attend the GP coincides with a large body of evidence highlighting the discrimination that Maaori experience from health services (Graham & Masters-Awatere, 2020). The barriers experienced by Maaori mothers from the GP environment are not new and disadvantage Maaori (Graham & Masters-Awatere, 2020).

Limitations of Evaluation

One major factor that may have impacted on the uptake of immunisation by the whaanau interviewed in this research is the impact of COVID-19 on willingness to seek immunisation. Of the 14 whaanau interviewed, nine had older tamariki. There were 42 tamariki across these nine whaanau, and all of them had been immunised at some point. This suggests that the whaanau had made decisions to immunise in the past, and so other factors such as COVID may have had more of an influence in this pilot. There is also a limitation in the fact that all whaanau who were received an immunisation also received an incentive at the same time, which makes it impossible to see the effect of the timing of the incentive. A measles outbreak in Auckland from 2019 to 2020 may have also had a positive impact on willingness of whaanau to carry out immunisations, although the degree to which this is the case is not known for certain.

What are opportunities for programme improvement?

In general, while this evaluation supports the continuation of an ongoing outreach programme for immunisation due to some of the positive quantitative outcomes found, the qualitative data did not appear to directly support the incentives aspect in terms of motivation for immunisation, engagement or timeliness. Interviews also revealed criticisms of racism in General Practice, as well as the OIS Plunket service. Overall it is difficult to make a conclusion about the degree to which incentives were an important part of the OIS as almost all whaanau who received an immunisation were notified of the incentive at the same time they received it. It may be the simple fact that it was outreach itself that improved some of the immunisation rates.

With this in mind, the recommendations below would support non-Maaori capacity to deliver Incentives for Immunisation by disrupting systemic business as usual and enhancing cultural safety best practices for future engagement with whaanau. Considerations should also be afforded to the recommendations of WAI2575 report²⁹ concerning the principle of options, where whaanau have the right to choose an OIS immunisation provider that is responsive to their needs. This may or may not be a Maaori provider, however, Maaori have the right to choose, and to experience culturally safe equitable and responsive care, in all areas of the health system.

- 1) Establish a Tiriti rights-based leadership position as an equal decision maker within the OIS service. While this pilot targets Maaori, a clear understanding from OIS staff relating to Maaori rights as the Tiriti partner was not demonstrated.** Maaori health gains in the past have coincided with the emergence of Maaori leadership³⁰ which provides traditional

expertise, guidance and a voice to the significant needs of Maaori. To date there is no Maaori leadership within the OIS. The introduction of a Tiriti rights-based leadership Key role would be to ensure Maaori voice, priority and aspirations are at the forefront of decision-making, would validate matauranga Maaori alongside technical and clinical expertise, and provide strategic and operational thinking in developing a culturally safe service

- 2) Recognise and challenge ethnic biases among staff, and in the processes of the OIS system through the development of a framework for institutional cultural change.** This should aim to decolonise dominant discourse and biases, and operationalise Maaori responsiveness strategies. Such as framework should recommend or mandate training for staff that addresses issues such as cultural microaggressions, white privilege, stereotyping and prejudice. Education will support OIS staff to understand the rights-based positioning of the Maaori. Understanding of the journey from historical trauma to the manifestation of Maaori health status today is integral for staff to increase cultural competency and responsiveness.
- 3) Honour maatauranga Maaori by establishing a meaningful and ongoing relationship across the entire immunisation journey.** Whaanau expressed the need to be valued through Kaupapa Maaori paradigms and practice. Whaanaungatanga is a cultural imperative generally unrecognised and neglected through the process and time constraints of the service. This could begin with hapū maamaa immunisations (e.g. flu & whooping cough) following the full immunisation timeline and extend into whole whaanau health checks. Kaupapa Maaori processes are a meaningful way to engage and connect with whaanau. Examples from whaanau included using waiata as a way of reminding whaanau to reinforce the immunisation timing, and waananga as an appropriate forum to engage and build relationships. Rongoaa in place of the incentive voucher was also suggested as a sign of respect and acknowledgment that Western medicine is not the only or preferred form of healing and prevention from Maaori
- 4) A system needs to be developed for tracing whaanau that are lost to follow-up.** The Ministry of Social Development may be able to support this as they have data on most needy families utilising their service, and in migration data.
- 5) Continue ongoing monitoring and evaluation of the service as it continues.**

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