

Influenza vaccine supply chain report

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Influenza Vaccine Supply and Distribution Chain Final Report.

Kia ora Grant,

Thank you for the opportunity to assist the Ministry of Health with identifying ways to improve the influenza vaccine supply and distribution chain. The support you have shown during the influenza vaccine project, and the time invested by Kath and Sarah during our ongoing conversations was greatly appreciated.

This final report has been prepared in line with our letter of engagement approved on **14 May 2020**, with a slight amendment as agreed with you at our first client virtual meeting on 20 May. This report focuses on identifying improvements for the supply and distribution chain of the influenza vaccine – with a particular focus on the issues of access and equity for priority populations, as is improving the experience of those involved throughout the process of providing the influenza vaccine. As agreed, an area of focus was changed from “develop an adjusted operating model, a sector engagement strategy and an implementation outline” to “provide advice on a sequence of activities or a roadmap to deliver on the recommendations”.

To complete the review we:

- completed a desktop review of relevant documents;
- held interviews with the Ministry Immunisation Team, and
- held virtual interviews with key stakeholders of the supply and distribution chain, including health sector frontline staff.

This report includes the current state assessment, recommended interventions and next steps. The draft report was presented to the interviewees who provided positive feedback and welcomed the findings, recommendations and next steps.

We would like to take this opportunity to thank all those who freely gave their time and insights to contribute to this report. It has been a privilege working with the Immunisation Team and we very much hope to work with you again in the future. Please do not hesitate to contact us if you have any questions or require any further information.

Yours sincerely,



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Executive summary

Sector and strategic context

The New Zealand Health Strategy outlines a vision that supports wellness and prevents illness. A system that empowers people to manage their own health, and provides quality and easily accessible community based services is important.

Vaccination programmes, including annual influenza vaccinations, are a critical public health component that enables the realisation of the New Zealand Health Strategy. New Zealand's influenza vaccination programme operates in complex operating environment, with a range of of public and commercial stakeholders.

Influenza vaccination programme background

The annual influenza vaccination programme aims to equitably reduce influenza morbidity and mortality for all populations in New Zealand.

Government funded vaccines are available for people over 65 years, those under 65 years with serious health conditions (such as heart disease and cancer), pregnant women, and young children with a history of serious respiratory illness.

Last year the programme vaccinated approximately 700,000 eligible people. A further 768,000 people received vaccinations through privately funded avenues.

Globally, the demand for influenza vaccines is expected to grow considerably over the next five years. In 2020 the existing demand pressures were compounded by increased demand associated to the COVID-19 pandemic, the supply interruption in the 2019 programme, and heightened public awareness of immunisation following the 2019 measles outbreak.

Despite these challenges the programme has sourced 2.128m doses of vaccine – an increase of over 600,000 vaccines on previous years.

The current challenge

In 2020 New Zealand experienced early demand for vaccines, and an earlier start to the influenza season. When challenges emerged in March 2020 the Ministry intervened and worked with the sole distributor to review and approve all orders, ensuring supply would be targeted to priority populations.

In order to ensure that the priority populations eligible for publicly funded vaccines were served, the Ministry ran a prioritisation exercise. As a result, occupational health vaccinations were

redirected to pharmacies and GPs. This was managed at a regional level by DHBs.

Despite the overall success of the 2020 influenza vaccination programme in a season with unprecedented demand, a number of supply and distribution challenges still remain. This has prompted the Ministry to look at current supply and distribution arrangements.

A core component of this work will be engaging and consulting with key stakeholders to ensure buy-in and commitment to any proposed changes.

Our approach

To complete this project we:

- completed a desktop review of relevant documents;
- held interviews with the Ministry Immunisation Team, and
- held virtual interviews with 33 key stakeholders across the supply and distribution chain, including Health Services frontline staff.

This report includes the current state assessment, recommended interventions and next steps.

Executive summary

We identified ten themes under three broad headings

1. Authorising and political environment

1 Ambiguous policy settings

2 Equity of uptake

2. Strategic goals of programme

3 Equity of access for service users

4 Unclear communications

5 Barriers for service providers

3. Organisation and system capabilities

6 Unclear roles and responsibilities

7 Limited demand planning

8 Lack of product visibility

9 Lack of prioritisation controls

10 Limited information and data

We explored the shifts required to address the themes

With the insights, recommendations from interviews, and emerging themes from this review process a plan for Phase Two has been developed. We have structured Phase Two to include the following four distinct workstreams.

Workstream 1: Authorising and Political Environment - redefine problem statements and identify constraints and criteria that exist. Ensure that policy, regulatory and commercial settings enable collective outcomes to be achieved. Identify cultural and behavioural shifts required to ensure equity of access by vulnerable populations is achieved.

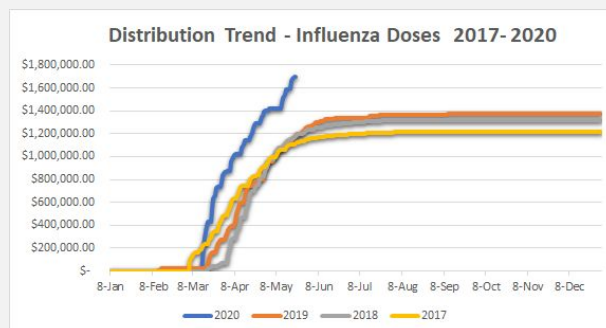
Workstream 2: Strategic goals - develop an outcomes framework that adds value for all parties. Ensure that the values, mission, and purpose of all organisations involved are sufficiently aligned to support a collaborative and integrated approach.

Workstream 3: Organisation and system capabilities - shift from “As Is” to “To Be” competency or capability level which is sustainable and is fit for purpose. Map the best case system for the future, including new or improved services within the business functions of all parties.

Workstream 4: High Level Operating Model - design an operating model that improves the sourcing and distribution of the vaccine to achieve agreed outcomes effectively and efficiently. We propose that this model be developed over the next six months.

Introduction

Despite increasing global demand and challenges to the global supply chain, the New Zealand influenza vaccination programme will have sourced over 2.1m doses of vaccine. This is an increase of over 600,000 vaccines from previous years.



Sourced from PHARMAC

The global demand for influenza vaccine is expected to grow at a considerable rate over the next five years. The Ministry of Health (the Ministry) anticipated increased demand for the influenza vaccine in 2020 as a result of the COVID-19 pandemic, the supply interruption in the 2019 programme, and the heightened public awareness of immunisation associated to the 2019 measles outbreak.

In New Zealand there are two distribution markets - publicly funded for eligible people (as per the PHARMAC schedule - see Appendix 1), and privately funded. New Zealand's influenza programme aims to equitably achieve a reduction in morbidity and mortality due to influenza, for all populations in New Zealand.

In normal circumstances it is generally acknowledged that the influenza season starts in mid May. In response to the COVID-19 pandemic, the Ministry brought the start date for the influenza immunisation programme for the publicly funded recipients forward to 18 March to ensure those with the highest priority received the vaccine. By 18 March approximately 900,000 influenza vaccines were available in New Zealand for eligible people. The vaccines for eligible children aged six months to thirty-five months were made available from 1 April, aligning with the original start date for the programme.

Due to the unique circumstances, health care and emergency response workers were able to be vaccinated from 18 March, as were other essential workers from 22 April. This is not funded by the influenza programme but is often paid for by the employer or District Health Board (DHB) through a workplace vaccination programme.

Privately funded influenza vaccines became available to general practices, pharmacies and occupational health providers on 27 April. When the decision was made to change the publicly funded vaccination dates, it was recognised it would put pressure on early supplies of privately accessed vaccinations.

A total of 2.128 million vaccines will be available to New Zealanders this season. This is comprised of 1.768 million southern hemisphere vaccines that were originally ordered, and a further 360,000 doses of northern hemisphere vaccines. The acquisition of the additional northern hemisphere vaccines was a response to the increased demand in 2020.

Overall, the influenza programme has been successful in sourcing the required volume of vaccines. However, there are a number of supply and distribution challenges which has prompted the Ministry to look at the current supply and distribution arrangements.

Our approach to this work

We analysed the data provided and undertook interviews with a broad range of stakeholders across the Health sector.

This report was informed by four phases of data collection and analysis:

- interviewed 33 stakeholders from across the sector to establish the current state,
- mapped the supply and distribution chain to identify key themes and opportunities
- assessed issues and opportunities then validated these with interviewees, and where possible modelled the financial impacts, and
- understood operational impacts of any suggested change to components.

Interviews were conducted with a range of stakeholders including:

- Māori and Pacific health providers
- professional bodies,
- Primary Healthcare Organisations (PHOs),
- District Health Boards (DHBs),
- pharmacies,
- Seqirus (2020 vaccine supplier)
- distributor, and
- occupational health providers.

Quantitative analysis was informed by open source data and documents provided by the Ministry, distribution data provided by HealthCare Logistics Ltd (HCL), historic trends analysis from PHARMAC.

During this work, we were directed to information in the public domain and prior studies. This information was used where applicable, however, the underlying evidence or analysis in these documents were not reviewed during in the analysis.

The report provides a set of recommendations under the broad headings of: authorising and political environment; organisational and system capabilities; and the strategic direction or outcomes sought from the influenza vaccination programme.

These recommendations are intended to shape the future management of the programme to ensure there is effective and equitable access for vaccinations to the identified priority populations.

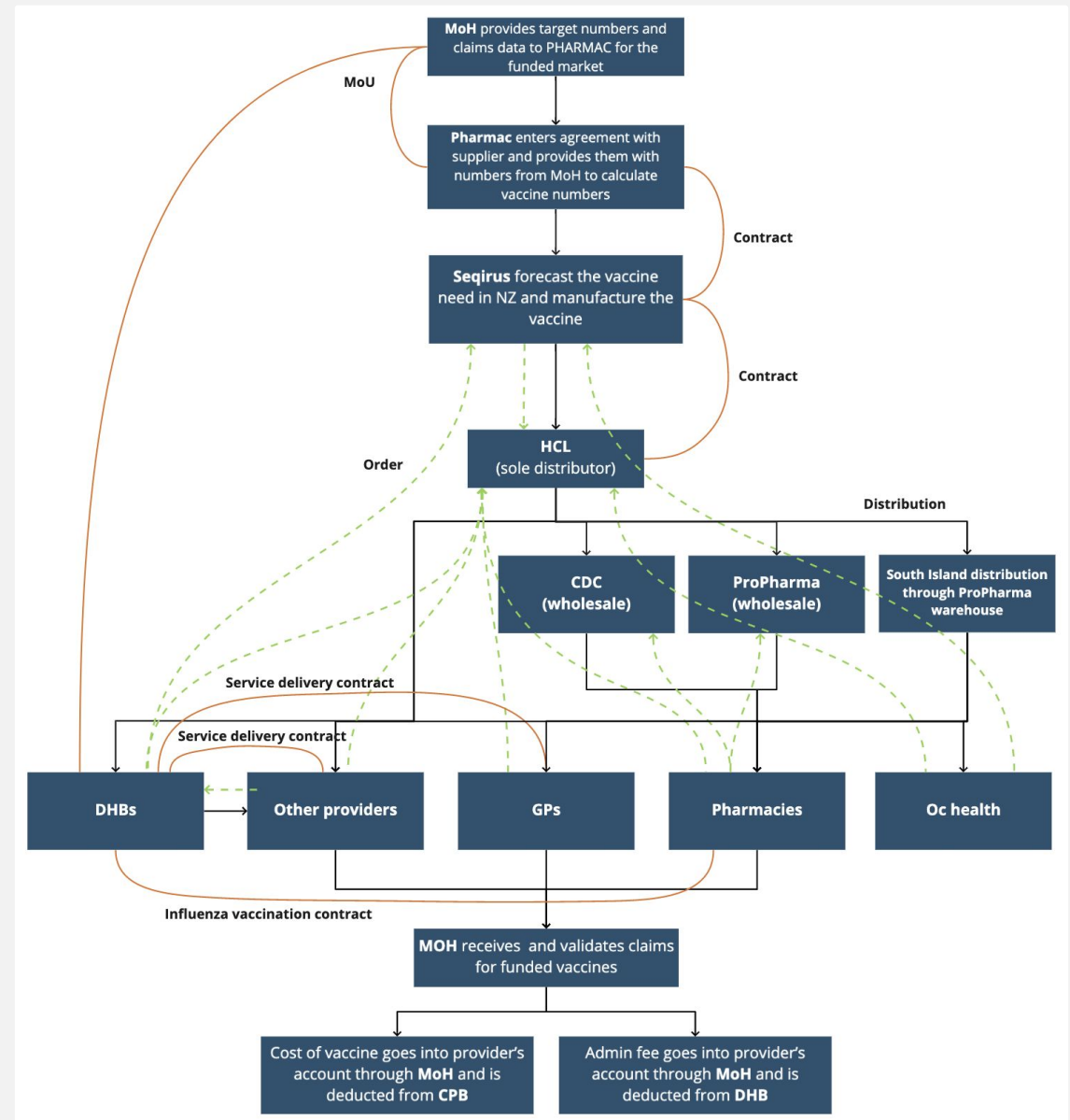
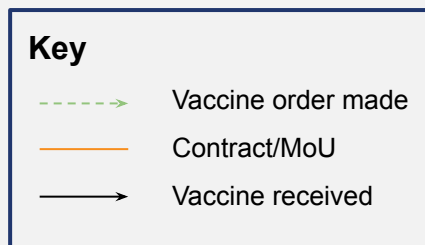
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The supply chain

2020 - Current state supply chain

The diagram summarises the influenza vaccine supply chain for 2020. There are a number of unclear roles and responsibilities across the supply and distribution chain and there are workarounds to achieve timely distribution through formal and informal channels.

In response to the COVID-19 context the Ministry and DHBs introduced an additional step to improve vaccination of priority populations.



The current supply chain

With increased demand and global supply challenges there were a number of people doing good work to ensure those who most needed the vaccine could access it.

Ensuring equitable distribution of vaccines is challenging because of inflexible ordering and distribution processes, including a lack of real time data on vaccine locations or stock on hand.

Roles and responsibilities

The roles and responsibilities for all vaccines management is set out in a Memorandum of Understanding (MoU) between the Ministry, PHARMAC and the DHBs dated 1 July 2014.

Under this MoU PHARMAC is responsible for vaccine prioritisation and purchase of vaccines. The funding of vaccines is the responsibility of the DHBs under the Combined Pharmaceutical Budget, while funding for vaccine management is part of PHARMAC's operational baseline funding.

The influenza vaccination purchasing and funding process varies to other vaccinations. PHARMAC list it on the Pharmaceutical Schedule, therefore vaccination providers can purchase the influenza vaccine in the same manner as other funded medicines. Vaccination providers submit a claim to the Ministry. The Ministry processes the claim and deducts an administration fee from the DHB, and repays vaccinators if it has been provided to an eligible person.

The Ministry is responsible for implementation of the programme, working closely with PHARMAC. PHARMAC is responsible for procurement of the influenza vaccine and setting the vaccine eligibility criteria in the Pharmaceutical Schedule (refer Appendix 1).

The Immunisation Advisory Centre (IMAC) is contracted by the Ministry to deliver the influenza promotional campaign and deliver information and training to vaccination providers.

Supply

PHARMAC contracts with one supplier (Seqirus in 2020) to meet the demand for all funded influenza vaccines (approximately 700,000) provided in New Zealand each year. The sole contracted supplier for the funded market also competes with other suppliers for a share of the private market. The supplier is responsible for the storage and distribution of these vaccines.

PHARMAC contributes to the forecast of the quantity of vaccines of all suppliers (public and private) are planning to supply New Zealand. This year, for the first time, there was a sole supplier (Seqirus) for both funded and private markets.

The current supply chain

Forecasting supply needs

In addition to the supply of the vaccine itself, the funded supplier is responsible for forecasting vaccine need, storage of the vaccine and distribution to vaccination providers; and ensuring there are sufficient doses to meet the forecasted need for publicly funded vaccinations.

Predicting how much vaccine to bring to New Zealand for both the funded and private market is complex. Several factors are taken into account by Seqirus to support this forecasting, for example the previous seasons' numbers and disease presentation, including the northern hemisphere season. PHARMAC provide the contracted supplier with data on funded vaccines, while the contracted supplier and other suppliers (if applicable) completes their own research on the private market.

The forecasting of supply needs is a significant risk for suppliers and providers. Ordering and manufacturing the next season's influenza vaccine takes place in August of the preceding year. As manufacturing and delivery to New Zealand takes time, it is not possible for manufacturers to make more vaccines if demand exceeds the forecast. The only option in this case is to see if there is stock available in other countries that has not been used. In all likelihood, this will be Northern Hemisphere countries. If stock is not used by the

end of the season there is a commercial risk for the supplier and providers who won't get paid for their leftover stock.

If there is a situation where demand begins to outstrip supply, PHARMAC will ask the contracted supplier and the private market to source additional stock for New Zealand. In the 2020 season PHARMAC contracted Mylan to supplement stock.

Distribution

Vaccine providers order the influenza vaccine directly from the supplier or it's contracted distributor Health Care Logistics (HCL) via a website, facsimile or email, just like other medicines. All orders are distributed by HCL. Vaccinators include DHBs, general practices (doctors or nurses), pharmacists, and occupational health providers.

If an order is received before midday from Monday - Thursday, HCL dispatches the same day and the product is delivered within 24 hours. Orders received on a Friday are held until Monday for dispatch.

HCL's cold chain storage capacity determines the quantity and sequencing of vaccine shipments from the supplier to verify sufficient space is available for receipt. Packaging is also important, with ten pack vials seen as optimal compared to single pack pre-filled syringes that reduce storage capacity.

Note, pharmacies can also receive vaccines from pharmaceutical wholesalers.

Service delivery

DHBs mainly give funded vaccinations to inpatients and their own staff. They also play a coordination role in the delivery of vaccines to other healthcare providers, including Māori and Pacific agencies who provide government funded influenza vaccinations. Broader service delivery contracts between DHBs and PHOs support the vaccination programme.

General practices and pharmacies provide vaccinations to the funded and private market. Occupational health providers vaccinate through private market employee programmes although a number of these employees may have been eligible for funded vaccines.

Medsafe audits the integrity of the cold chain transportation and storage of vaccines for distributors, wholesalers and pharmacies. DHB Immunisation Coordinators audit the integrity of cold chain practices for other vaccination service settings, including general practice. Most influenza vaccinations are administered during April and early May, with a million doses usually distributed to practices by mid-May. Some providers prefer to begin vaccination earlier to manage the significant workload over a short space of time.

The current supply chain

Vaccination reporting

DHBs, general practice (GPs), and pharmacists are able to record their vaccination in the National Immunisation Register (NIR). The NIR system does not include records of those vaccinated by occupational health nurses, due to access restrictions or people not opting to update their records. At present, the only current public health targets for the influenza vaccine programme are the number of vaccines given to over 65 years and the number of DHB healthcare workers vaccinated which may influence reporting trends.

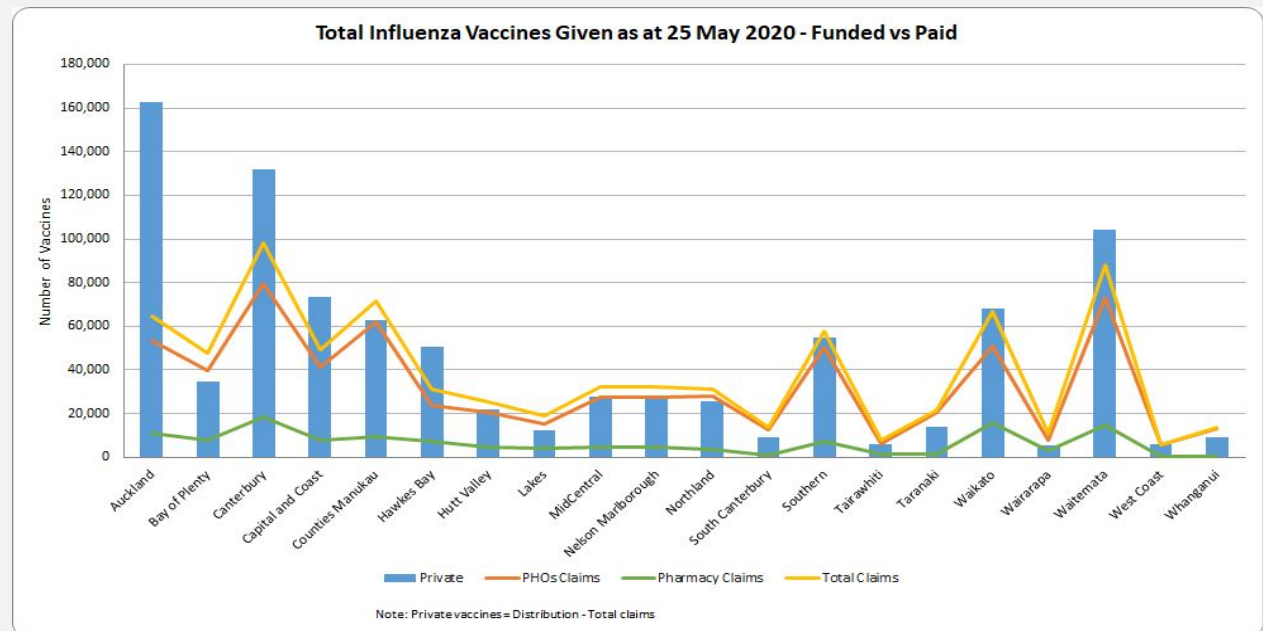
The figure to the right presents the total number of funded and private influenza vaccinations by region from April to 25 May. The analysis uses data sets gathered from provider claims submitted to the Ministry and an extract from the NIR system. This is the first analysis that both funded and private vaccination records have been collated.

During analysis, a number of limitations with the data and wider processes that inform the data collection were identified, including:

- an inconsistent definition of the targeted vulnerable population
- the lack of a comparison for vaccination distribution throughout New Zealand
- incomplete records in the NIR system for all people in New Zealand

- an incomplete picture of vaccinations by ethnicity, and
- an incomplete picture of vaccinations by age, except the 65+ age group.

These data limitations mean that target populations are not clearly identified, nor can vaccination rates for these populations be accurately reported.



Current funding model

The current funding model is functional, it is timely for a review. Any consideration of the funding model should ensure that there is equitable funding across the sector for those who are doing good work but are not appropriately funded.

PHARMAC is funded for influenza vaccines for priority population by the DHBs, as part of pool funding Combined Pharmaceutical Budget (CPB). The subsidy for the influenza vaccines is decided by PHARMAC, currently \$9.00 per dose.

Providers can claim for the cost of the vaccine, and an administration fees for eligible funded populations via the Ministry's claim process, which is funded by their region's DHB. The administration fees are \$21.37 for General Practice (GPs) and \$19.57 for pharmacies. In comparison, private patients are charged between \$35-\$45 inclusive of the vaccine cost.

Claims data shows that, on average, 52% of influenza vaccines reached the eligible funded population. As at 25 May, the total amount paid by DHBs for 2020 vaccine claims submitted by pharmacies and GPs is \$16.6 million.

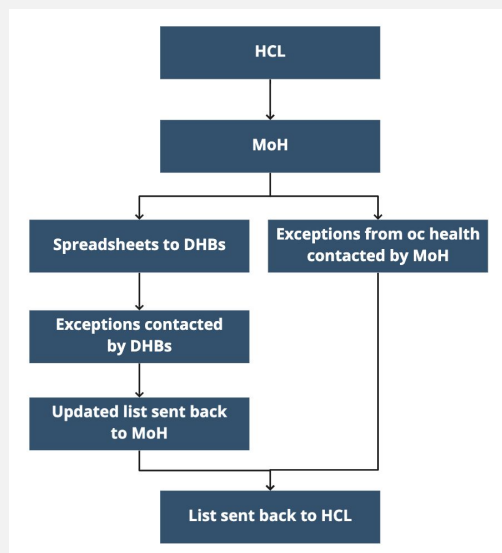
The current funding mechanisms have operational implications across the sector. For DHBs, there is insufficient data for each DHB to accurately forecast the number of influenza vaccinations required for the funded eligible population. This will have flow on effects to DHBs forecasting the administration costs claimed by providers in their regions.

For providers of vaccinations, there are some scenarios where providers are not funded for the services they deliver. For example, some Māori and Pacific providers cited administrative barriers and difficulty in claiming for people that have never been registered in the NIR system or with a GP practice. In some cases providers vaccinated the whole whānau due to socio-economic reasons, rather than strictly clinical reasons which they may not be reimbursed for. Occupational health providers are vaccinating eligible people but are unable to claim reimbursement for these or record them on the NIR.

The 2020 season was different

The prioritisation approach included manual approvals through the Ministry and DHBs to enable the influenza vaccines to be distributed to the providers who had increased demand from their priority population.

Diagram showing the prioritisation process of orders during the 2020 influenza season



Due to increased early demand and an earlier start to the influenza season, the Ministry worked with HCL to review and approve all orders in an effort to ensure supply to priority populations. Orders were also capped at 60 doses. This new approvals process, combined with delivery conditions under COVID-19 restrictions resulted in the delivery time increase to around 84 hours (48 hours for approval, plus 24-36 hours for stock receipt).

In previous years the ability for the distributor to differentiate the funded and private market was dependent on different suppliers. This enabled the individual brand to be the differentiator of markets – which had the effect of protecting the funded supply. Influenza is usually distributed on a first-come-first-served basis and this was the case from 12 March until the intervention of the Ministry in late March.

This year, the Ministry and DHBs reprioritised vaccines for the regional general practice and pharmacies to ensure supplies were distributed to the providers who had increased demand from priority populations. If required, phone calls were made to individual providers to understand the mix of their order between priority and private population. The orders were manually amended and emailed to HCL for revised orders. There was some evidence of informal redistribution within local geographical boundaries to meet need.

The GP sector has cited this as a factor negatively impacting their revenue in 2020. On the other hand, pharmacies increased their revenue as people got vaccinated at the pharmacies instead.

By close of business on 2 June, 1,744,390 doses had been distributed. 1,004,212 doses had been recorded on the NIR to 29 May 2020 and 814,000 claims to 3 June 2020.

NIR data shows that New Zealand has immunised:

- 55% of Māori aged 65+
- 66% of Pacific aged 65+
- 46% of Asian aged 65+
- 67% of non-Māori, non-Pacific, non-Asian aged 65+
- Total coverage for people aged 65+ at 29 May 2020 was 64%.

The over 65s is the only measurable target population group based on census data. However, there is low confidence that all vaccines provided are entered into the NIR i.e. vaccines provided by occupational health.

2

**Insights and
themes**

People told us

The Pākehā to Māori ratio is 5:1 when it comes to being vaccinated.

– Te Hau Ora o Ngapuhi

The funding model sets competition and nothing encourages collaboration in the current system.

– Greencross

They haven't contacted us asking how many vaccines we do – it seems like we're not even in the picture... We vaccinate many vulnerable people but have no access to the NIR to document this.

– MedPro

Pharmacies are a great way to increase access to the vaccine but when you are remote, logistics get a lot harder – e.g. training and staff numbers... Only 40% of the pharmacies vaccinate people.

– PGNZ

There is lack of transparency from distributors on cancelled orders and delivery of ordered vaccines.

– Greencross

There is a disconnect between the Ministry's public health outcomes and PHARMAC's buyer funded model.

– MoH

This season we have taken away learnings from where the commercial risk sits.

– PHARMAC

There are inconsistent comms on IMAC website vs announcements from Ministers.

– IMAC

When there isn't enough vaccine, there needs to be better processes built to ensure what we have goes to the right people – and we would like to have a role in this.

– DHB

The inventory system is not smart. It is unable to track and trace vaccines... We need smarter ways to communicate, deliver, and contract these services.

– ProCare

We need to incentivise finding the hard arm.

– PSNZ

There are people who are priority but do not have access to GPs. This includes their whole household.

– South Seas Health Care

If PHARMAC orders too much vaccine, Seqirus wear the loss – this is unlike any other vaccine.

– IMAC

We need to be able to track who in the vulnerable groups are being vaccinated – right now we can't measure success.

– DHB

The most obvious change we would suggest from 2020 is the avoidance of the MOH approval process. It is not clear that this labour intensive and lengthy process did anything to manage supply of vaccines.

– HCL

We want more forecasting support and assurance that we are supported by MoH and PHARMAC.

– Seqirus

Ten themes from conversations with stakeholders

Authorising and political environment

1

Ambiguous policy settings - there is a clear disconnect between the programme aim, the common understanding of vulnerable communities, and the more specific definition in the Pharmaceutical Schedule.

2

Equity of uptake - there are vulnerable communities, including Māori and Pacific people, that are not engaged or registered with the health system and miss out on a funded vaccination.

Strategic goals of programme

3

Equity of access for service users - there are barriers, including isolation and poverty, for vulnerable communities that disincentivises the provision of service delivery.

4

Unclear communications - there is no pre-agreed and partnered communications strategy and promotional campaign for the programme.

5

Barriers for service providers - there are a number of infrastructure and funding challenges to providing vaccination services, reducing the number of potential providers.

Organisation and system capabilities

6

Unclear roles and responsibilities - there is no shared understanding of respective roles and responsibilities in and outside the supply chain.

7

Limited demand planning - responsibility for estimating demand sits with the supplier who, along with providers, carries the commercial risk of stock not being used.

8

Lack of product visibility - there needs to be better tracking and tracing of ordered stock to enable workload and public expectations to be better managed by service providers.

9

Lack of prioritisation controls - there is no regulatory or commercial framework to support the development of a prioritisation or redistribution process for vaccine stocks to priority populations.

10

Limited information and data - there is limited information and data to support demand forecasting or reporting against outcomes. There is no real time data to support operational decision making.

1

Ambiguous policy settings

Issue

There is a tension in the sector between public and private interests. This tension is impacting on the ability to have a collaborative and integrated national vaccination programme that sees both interests met. For example, the Ministry's reactive prioritisation of the funded market this year interrupted the supply to occupational workplace providers and frustrated their scheduled vaccination programmes.

Influenza vaccinations are an important public health preventive tool. Older Māori and Pacific peoples are two to three times more likely to die prematurely from influenza compared to other ethnicities (Khieu & Baker, 2017). While Pacific Peoples vaccination rate for 65 years plus (66%) compares favourably with the general population (67%) Maori rates for the same age group are significantly lower (55%).

There is a clear disconnect between the programme aim, the common understanding of "vulnerable communities", and the more specific definition in the Pharmaceutical Schedule. An example cited was travelling to vaccinate a large vulnerable rural family and only two members being eligible for funded vaccination. This has the potential to create differing expectations of what a successful programme looks like and how success is measured.

Options

The policy, regulatory and commercial contract settings need to be realigned to meet the aim of equitably achieving a reduction in morbidity and mortality of influenza for all populations in New Zealand.

The Crown has a Te Tiriti o Waitangi obligation to actively protect Māori and address any inequities including health outcomes. Consider incorporating equity of outcomes for Māori and Pacific peoples as part of the eligibility criteria.

Understand the impacts that lowering the eligibility age for Māori and Pacific Peoples would have.

Impacts

Would increase access to funded vaccinations for Māori and Pacific peoples. The size of this impact would depend on the criteria established.

2

Equity of uptake

Issue

There are vulnerable communities, including Māori and Pacific people, who are not engaged or registered with the health system and miss out on funded vaccinations.

The root causes of low levels of uptake are: lack of transport, practice opening hours and waiting time, financial constraints and size of family.

Poorer health outcomes and recovery from infections cause greater mortality rate.

Low trust and confidence in the health system and practitioners.

The benefits and government funding of influenza vaccinations to vulnerable populations may not be known to those most in need.

Options

Increase outreach programmes to socially disadvantaged populations, areas experiencing poverty, or people living in remote or socially isolated communities.

Build a greater understanding of the challenges faced by each population in accessing vaccinations.

Use all engagements by public health providers to vaccinate, educate and promote the value of the vaccination programme.

Impacts

Increased number of vaccinations given to vulnerable populations.

Better evidence base to remove barriers to vulnerable populations getting vaccinated.

Improve trust and confidence in public health providers by vulnerable populations.

3

Equity of access for service users

Issue

Primary care models are principally designed and funded to suit the majority of the population who are registered with the health system, able to be contacted and make their own way to the service provider. This can disadvantage more vulnerable populations and reduce their equitable access to services.

The influenza vaccination programme funding model reflects this inequity by applying a fixed rate to all funded vaccinations. This can disincentivise providers who incur additional costs in servicing these often isolated communities; and may also provide little incentive for individual providers to increase their overall vaccination rates.

Options

Support outreach programmes with additional funding for increased mobile services and for vaccine administrators.

Incentivise the provision of service to isolated and/or vulnerable communities by introducing variable administrative fees based on effort.

Incentivise providers to improve their year on year performance for both the funded and private market.

Impacts

Increased mobile services will have a greater reach to those living in low cost housing, with low income, or who are culturally not aware of funded vaccine programmes.

Increased vaccinators and vaccine supply to the Māori and Pacific providers who have greater access to these vulnerable populations.

Increased number of vaccinations given to priority populations.

Fair compensation for effort and improved business viability.

Increased total number of vaccinations per season.

4

Unclear communications

Issue

There is no pre-agreed communications strategy, including an aligned promotional campaign that is agile enough to respond to any sudden change to the operating environment.

This season's communications often put service providers in difficult positions with patients encouraged to get vaccinations and arriving to find their was no stock. This had a disproportionate impact on occupational health providers who received conflicting advice about when and who they could vaccinate.

Options

A pre-agreed and partnered communications strategy, co-designed with key stakeholders, is required to avoid confusion and tension within the sector and with the public.

Public-facing communications that are regularly updated, agile and aligned. This will enable public health staff and the public to receive consistent and timely messages.

Impacts

Key stakeholders will be able to better manage the public's expectations and support the messaging of the Ministry.

Increased trust and confidence from key stakeholders and the public.

5

Barriers for service providers

Issue

There is a tension between providers from the recent change that enables pharmacies to vaccinate for influenza.

To May 2020 pharmacies have claimed for over three times as many funded influenza vaccinations (27,958 to 121,829) compared to the same time last year (Pharmacy Today, June 2020).

However, there remains a number of infrastructure challenges to ensuring all providers have equal access to both funded and private vaccines.

This appears to disproportionately affect pharmacies and it may be for this reason that only around 40 percent (400 pharmacies) currently provide this service.

Occupational health is marginalised to providing vaccines only to the private market, but they have infrastructure and capability to provide large scale vaccination services to the funded market.

Options

Review the Pharmacy Guild survey that looks at the issues facing community pharmacies and preventing them from offering influenza vaccines. This report will be available in late June.

Use occupational health to augment funded service provision to locations where funded service delivery is constrained. This has the potential for economies of scale.

Impacts

An increase in pharmacies' willingness to vaccinate in rural areas will improve reach to vulnerable people and increase in the number of vaccinators.

An increase in vaccinators will mean greater reach to the "unknown" vulnerable population and to the 65+ population.

Funding is required to include the occupational health capacity in the funded programme.

6

Unclear roles and responsibilities

Issue

There is tension between public and private interests and no common understanding of the distribution process or framework as to how it is being managed.

Due to there being a number of different stakeholders in the supply and distribution chain, there is often a misunderstanding of the roles and responsibilities.

There is also a disjunct in accountabilities with the contracted supplier being solely responsible for forecasting and making vaccines available for the funded market.

Options

Facilitate a workshop (or workshops) with the broad range of stakeholders including Māori, Pacific and private market providers for the 2021 influenza vaccination programme. Clearly define and document the roles and responsibilities of all stakeholders.

Identify the gains achieved for each party through an increased level of collaboration.

Impacts

Provide greater confidence and certainty in both markets.

Build stronger relationships between key stakeholders.

Increased trust and confidence from key stakeholders and the public.

Improved alignment of business and public communications.

Increased resilience of the system and its stakeholders to manage disruption.

7

Limited demand and season planning

Issue

There is limited flexibility to increase the number of vaccines produced by the contracted supplier if there is a disruption such as the COVID-19 pandemic.

Currently, the contracted supplier is responsible for forecasting demand, based on inputs provided by PHARMAC.

A number of stakeholders spoke about the commercial risk that exists for the supplier and all service providers. This is particularly the case prior to them being reimbursed for stock purchased, or in the event that stock is not used. This risk for smaller providers is more significant and can be an impediment to them entering the market.

Options

Improve planning and preparedness for the season ahead. This could be achieved by bringing together a broad range of stakeholders including Māori, Pacific and private market providers.

This would aim to:

- understand the mechanics of forecasting demand within the priority populations and private market, and
- plan the delivery and distribution of vaccines supported by an integrated communications and campaign strategy.

Early consideration could be given to taking a similar approach to other vaccines, where they are pre-purchased by PHARMAC.

Impacts

Minimises the commercial risk of the funded market.

Encourages the supplier and providers to take a larger risk on the private market, thereby increasing the total number of vaccines available.

8

Lack of product visibility

Issue

There is extreme frustration at the inefficiencies in the distribution chain. Examples include the cancellation of orders, delays in delivery, being placed on backorder, and an overall lack of visibility of where orders sit in the distribution chain. This results in providers having difficulties in managing workload and people's expectations.

There is also a lack of near-real-time information about the geographic location of unused stock, resulting in unmet demand. This is particularly acute in the earlier part of the season when demand is at its peak.

Options

Invest in tracking and tracing functionality that supports end-to-end visibility for all orders from receipt until arrival and use.

Invest in reporting technologies that accurately reconcile distributed stocks with the number of vaccinations given.

Impacts

Enables purchasers to be in the best possible position to manage their workloads and the expectations of their patients.

Near-time visibility of where vaccine stocks are held at a national, regional, and local level, to inform prioritisation decisions.

9

Lack of prioritisation controls

Issue

There is a tension between commercial and public health interests. The supply chain operates to standard turnaround times for vaccine stocks, while the public health priority is the vaccination of people at high risk of mortality or morbidity from influenza.

There is no framework to prioritise the initial distribution or redistribution of vaccines to priority populations.

This presents commercial and legal risks to participants outside of the contracted supply chain intervening in a commercial process.

Options

Review the regulatory and commercial arrangements to ensure they support the equitable reduction in morbidity and mortality of influenza for all populations in New Zealand.

Formalise a prioritisation process and determine its accountability.

Impacts

Provide greater confidence and certainty in both markets.

Build stronger relationships between key stakeholders.

Increased trust and confidence from key stakeholders and the public.

Improved alignment of business and public communications.

Increased resilience of the system and its stakeholders to manage disruption.

10

Limited information and data

Issue

There is a lack of integrated real time information, including tracking and tracing of vaccines. This is needed to enable a common operating picture at the national, regional and local level.

It is not possible to reconcile eligible funded population data, with distribution and reporting data.

This impacts decision making at all levels, from the forecasting of demand, through to prioritising the distribution or redistribution process and ultimately to understanding if the desired outcomes have been achieved.

This lack of a common operating picture can also have a significant impact on communications and confidence in the sector and with the public, particularly in times of crisis.

Options

Gather baseline population data to enable progress to be tracked against outcomes. For example:

- Total Māori and Pacific population from census by region
- Total 65+ by ethnicity and region
- NIR, pharmacies, occupational health, Māori and Pacific providers list of vulnerable population.

Invest in the National Immunisation Register (NIR) to better identify eligible funded populations and provide reporting access to all providers.

Develop system information requirements, map current information and data flows, undertake gap analysis, and develop an investment map to build, integrate or configure technology platforms.

Impacts

Improved and consistent common operating picture (COP).

Improved forecasting.

Improved prioritised distribution decisions, supported by real time information.

Improved performance monitoring and reporting of outcomes.

Improved stakeholder and public confidence.

3

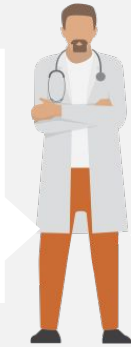
Recommendations

Five key shifts needed to address the ten identified themes

From

I know my patients and who is at risk, but I can only give free vaccinations to the ones specified in the Pharmaceutical Schedule.

1 2 3



To

I'm able to use my clinical judgement about who most needs a free influenza vaccination. It has made it easier to ensure those that need it are getting it.

From

I guess I put in an order and wait for the stock to arrive. I'm not sure how my needs are prioritised and it makes it hard to deal with people who come in for vaccination when I have no stock.

4 6 7 9 8 10

To

I know when I'm going to get my order and I know how my patients will be prioritised if there are any stock shortages. I'm in a better position to manage my workload and my patients' expectations.



From

I often vaccinate over 65 year olds in workplaces, but can't report it. I make orders for vaccines but I don't know why they don't arrive.

8 10 1

To

I'm able to report all the vaccines I give and I'm able to track and trace my orders.



From

Regardless of the time and effort I spend to vaccinate an individual high needs patient, I get the same amount of money.

5 3

To

For most of my patients the standard fee is fine but it's great I have some flexibility around claiming costs for the ones I have to go out and see.



From

I don't have a doctor and I can't afford an influenza vaccination for myself.

3 1 2



To

I wasn't able to get in to get a vaccination but they contacted me and came out and gave it to me and my kids for free.

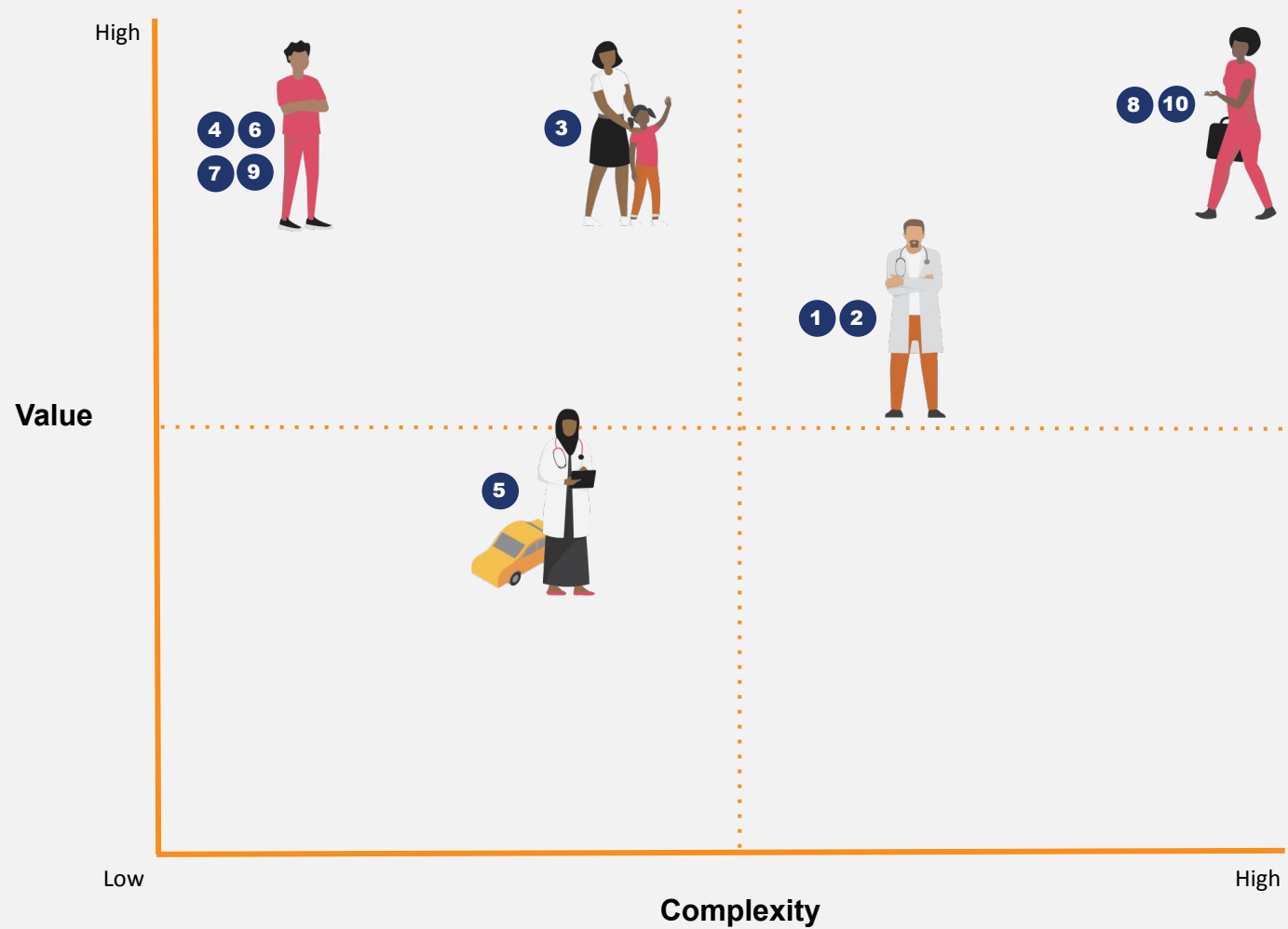
Key

- 1 Ambiguous policy settings
- 2 Equity of uptake
- 3 Equity of access for service users
- 4 Unclear communications
- 5 Barriers for service providers
- 6 Unclear roles and responsibilities
- 7 Limited demand planning
- 8 Lack of product visibility
- 9 Lack of prioritisation controls
- 10 Limited information and data

x Principle theme

x Secondary theme

Complexity versus value for the five key shifts



Key

- 1 Ambiguous policy settings
- 2 Equity of uptake
- 3 Equity of access for service users
- 4 Unclear communications
- 5 Barriers for service providers
- 6 Unclear roles and responsibilities
- 7 Limited demand planning
- 8 Lack of product visibility
- 9 Lack of prioritisation controls
- 10 Limited information and data

Four proposed work streams for Phase 2

Authorising Environment

Redefine problem statements and identify constraints and criteria.

- Facilitate a workshop that enables key stakeholders to share their understanding of the problem.
- Use an investment logic mapping session to redefine the problem statement and discuss the outcomes and benefits for all parties.
- Ensure a Te Tiriti o Waitangi lens is applied.

Strategic goals

New framework that adds value and meets the expected outcome.

- What is the aim of the programme?
- Who will provide what services?
- Which customer groups will receive what vaccines at what stage?
- Channels distributed by and to whom?
- How will funding be sought?
- Review of MoU/contracts/regulations.
- Design principles.

Organisation and System Capabilities

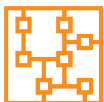
Ensuring the shift from “As Is” to “To Be” is sustainable and is fit for purpose.

- Programme Management
- Governance
- Information Management/Infrastructure
- Communication
- Finance/Procurement
- Policy
- Continuous improvement and Change Management.

High Level Operational Model

Improving how vaccine is sourced and distributed effectively and efficiently.

- Process - value chain
- Organisation - stakeholders and governance
- People - number and capabilities
- Information technology - access.



Strategy



Problem definition
Redefine problem statements and identify constraints/criteria



Facilitate workshop
Bring in key stakeholders to share their understanding of the problem



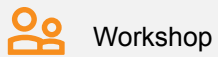
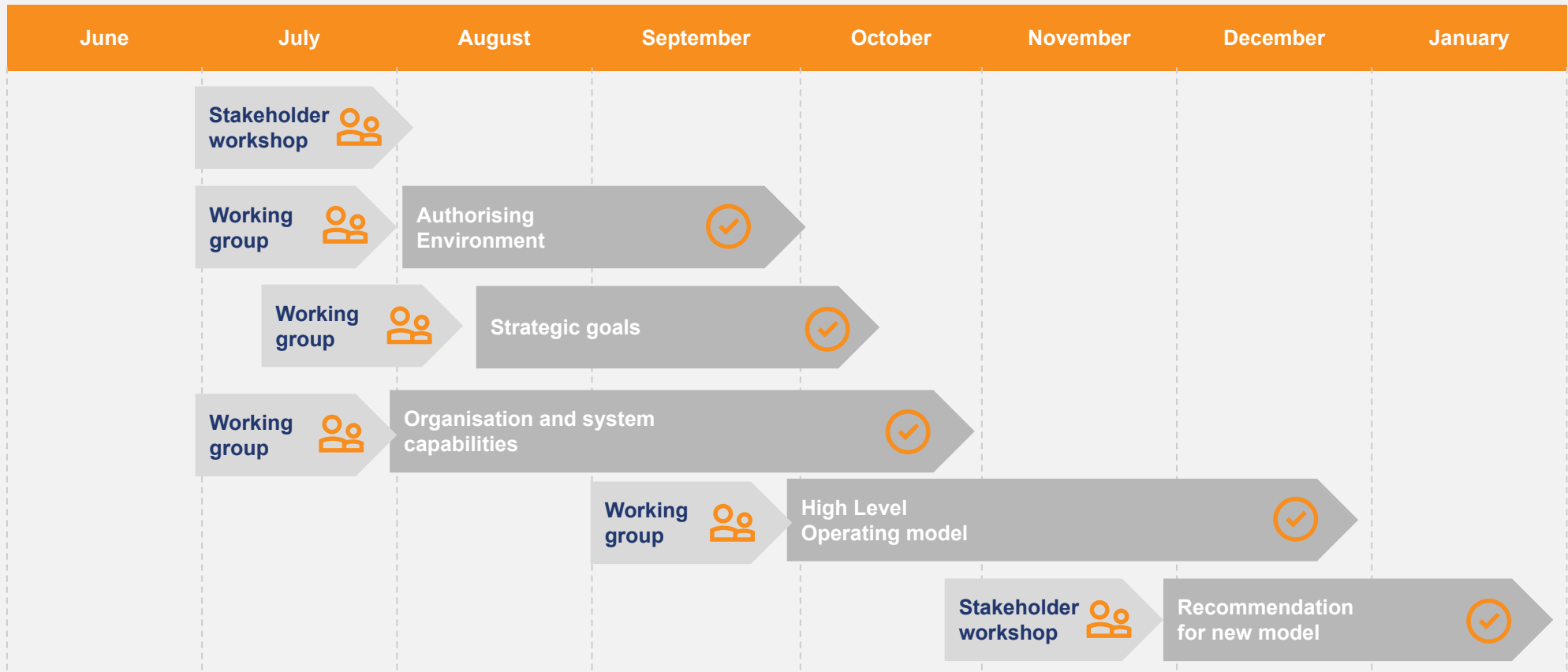
Investment Logic Mapping



Include Treaty of Waitangi obligations

Roadmap for delivering four workstreams

Months



Workshop



Deliverable

Appendix 1: Pharmaceutical Schedule

Inj 30 mcg in 0.25 ml syringe (paediatric quadrivalent vaccine) [Xpharm]

Afluria Quad Junior (2020 Formulation) 2581442 \$9.00 per 1

A. INFLUENZA VACCINE – child aged 6 months to 35 months

is available each year for patients aged 6 months to 35 months who meet the following criteria, as set by PHARMAC:

- a. have any of the following cardiovascular diseases
 - a. ischaemic heart disease, or
 - b. congestive heart failure, or
 - c. rheumatic heart disease, or
 - d. congenital heart disease, or
 - e. cerebo-vascular disease; or
- b. have either of the following chronic respiratory diseases:
 - a. asthma, if on a regular preventative therapy, or
 - b. other chronic respiratory disease with impaired lung function; or
- c. have diabetes; or
- d. have chronic renal disease; or
- e. have any cancer, excluding basal and squamous skin cancers if not invasive; or
- f. have any of the following other conditions:
 - a. autoimmune disease, or
 - b. immune suppression or immune deficiency, or
 - c. HIV, or
 - d. transplant recipients, or
 - e. neuromuscular and CNS diseases/disorders, or
 - f. haemoglobinopathies, or
 - g. on long term aspirin, or
 - h. have a cochlear implant, or
 - i. errors of metabolism at risk of major metabolic decompensation, or
 - j. pre and post splenectomy, or
 - k. down syndrome, or
- g. have been hospitalised for respiratory illness or have a history of significant respiratory illness;

B. Unless meeting the criteria set out above, the following conditions are excluded from funding:

- a. asthma not requiring regular preventative therapy,
- b. hypertension and/or dyslipidaemia without evidence of end-organ disease.

C. Doctors are the only Contractors entitled to claim payment from the Funder for the supply of influenza vaccine inj 30 mcg in 0.25 ml syringe (paediatric quadrivalent vaccine) to patients eligible under the above criteria for subsidised immunisation and they may only do so in respect of the influenza vaccine listed in the Pharmaceutical Schedule.

Source: <https://www.pharmac.govt.nz/wwwtrs/ScheduleOnline.php?osq=influenza%20vaccine>

Appendix 1: Pharmaceutical Schedule

Inj 60 mcg in 0.5 ml syringe (quadrivalent vaccine) - Only on a prescription - No patient co-payment payable

Afluria Quad (2020 Formulation) 2581434 \$90.00 per 10 Influvac Tetra (2020 formulation) 2584530 \$9.00 per 1

A. **INFLUENZA VACCINE – people 3 years and over**

is available each year for patients aged 3 years and over who meet the following criteria, as set by PHARMAC:

- a. all people 65 years of age and over; or
- b. people under 65 years of age who:
 - i. have any of the following cardiovascular diseases:
 - a. ischaemic heart disease, or
 - b. congestive heart failure, or
 - c. rheumatic heart disease, or
 - d. congenital heart disease, or
 - e. cerebo-vascular disease; or
 - ii. have either of the following chronic respiratory diseases:
 - a. asthma, if on a regular preventative therapy, or
 - b. other chronic respiratory disease with impaired lung function; or
 - iii. have diabetes; or
 - iv. have chronic renal disease; or
 - v. have any cancer, excluding basal and squamous skin cancers if not invasive; or
 - vi. have any of the following other conditions:
 - a. autoimmune disease, or
 - b. immune suppression or immune deficiency, or
 - c. HIV, or
 - d. transplant recipients, or
 - e. neuromuscular and CNS diseases/disorders, or
 - f. haemoglobinopathies, or
 - g. are children on long term aspirin, or
 - h. have a cochlear implant, or
 - i. errors of metabolism at risk of major metabolic decompensation, or
 - j. pre and post splenectomy, or
 - k. down syndrome, or
 - vii. are pregnant; or
- c. children aged four years or less (but over three years) who have been hospitalised for respiratory illness or have a history of significant respiratory illness;

B. Unless meeting the criteria set out above, the following conditions are excluded from funding:

- a. asthma not requiring regular preventative therapy,
- b. hypertension and/or dyslipidaemia without evidence of end-organ disease.

C. Contractors will be entitled to claim payment from the Funder for the supply of influenza vaccine to patients eligible under the above criteria pursuant to their contract with their DHB for subsidised immunisation, and they may only do so in respect of the influenza vaccine listed in the Pharmaceutical Schedule.

D. Contractors may only claim for patient populations within the criteria that are covered by their contract, which may be a sub-set of the population described in paragraph A above.

Appendix 2: Interviewees

Organisation	Contributor
Auckland Metro DHBs	Natalie Desmond
Canterbury & West Coast DHB	Bridget Lester
Capital and Coast DHB	Russell Cooke
Greencross	Trish Farrelly
	Rachael Newfield
Healthcare Logistics	Cristine Della Barca
	Sophie Prentice
IMAC	Nikki Turner
	Barbara McArdle
	Loretta Roberts
MedPro	Bella Winter
	Monique Vosslamber

Organisation	Contributor
Ministry of Health	Diana Murfitt
	Kath Blair
	Sarah Emerson
	Caroline McElnay
Pharmacy Guild NZ	Andrew Gaudin
	Alastair Shum
	Linda Joe
Pharmaceutical Society NZ	Chris Jayl
	Richard Townley
ProCare	Catherine Roscoe
	Gabrielle Lord
PHARMAC	Andrew Oliver
	Brian Roulston

Organisation	Contributor
Seqirus	Jill Desborough
	Kimia Hirantrner
	Catherine Murphy
South Seas Healthcare	Irata Passi
	Tepora Peseta
	Teuila Percival
	Andrew Chanmow
Te Hau Ora o Ngapuhi	Tia Ashby

Thank you

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