

# Health Report

## Independent review of the 2019 measles outbreak

**Date due to MO:** 17 July 2020      **Action required by:** 24 July 2020

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**Security level:** IN CONFIDENCE      **Health Report number:** 20200956

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**To:** Hon Chris Hipkins, Minister of Health  
Hon Julie Anne Genter, Associate Minister of Health

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### Contact for telephone discussion

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### Action for Private Secretaries

**Return** the signed report to the Ministry of Health.

**Date dispatched to MO:**

# Independent review of the 2019 measles outbreaks

## Purpose of report

This report outlines the findings of an independent review of the 'Health sector response to the 2019 measles outbreaks' (the Review) commissioned by the Director-General of Health and outlines actions that are underway or planned to address recommendations from the Review.

## Key points

- In 2019, an overlapping series of measles outbreaks, predominantly in the northern region, infected more than 2000 people, and resulted in the hospitalisation of more than 700.
- The Director-General commissioned an independent review into the health system's response to the measles outbreaks from Dr Gerard Sonder and Dr Suitafa Debbie Ryan.
- The Ministry received the final Review report on 7 July 2020 (see Appendix 1).
- The Review includes recommendations to improve the health system's ability to prevent and respond to measles outbreaks and address challenges in vaccine supply and coverage.
- The review recommendations have been grouped into the following themes:
  - improving immunisation coverage and service delivery
  - improving outbreak management
  - strengthening governance and oversight
  - enabling technologies.
- The Ministry notes the findings and recommendations which highlight issues that are common to other recent outbreak responses and key challenges, including inequities for Māori and Pacific peoples.
- The Ministry has a range of work underway or planned that respond to the Review recommendations including building on lessons and progress from the COVID-19 response.
- Examples of actions the Ministry is taking include:
  - implementing a national measles immunisation campaign to address immunity and equity gaps and increase overall coverage
  - developing an outbreak management plan and strengthening contact tracing capacity and capability at both a national and local level
  - s 9(2)(g)(i) [REDACTED]
  - modernising the National Immunisation Register to ensure it is fit for the future.

- The terms of reference for the Review include publishing the final report.
- The Ministry will work with your offices on timing of the release of the Review.

## Recommendations

The Ministry recommends that you:

- a) **note** the contents of this report describing work underway to implement the recommendations of the *Health Sector Response to the 2019 Measles Outbreaks Review*.
- b) **note** the Ministry will develop a structured work programme and provide regular updates to Ministers on progress with its implementation.

Deborah Woodley  
Deputy Director-General  
**Population and Public Health**

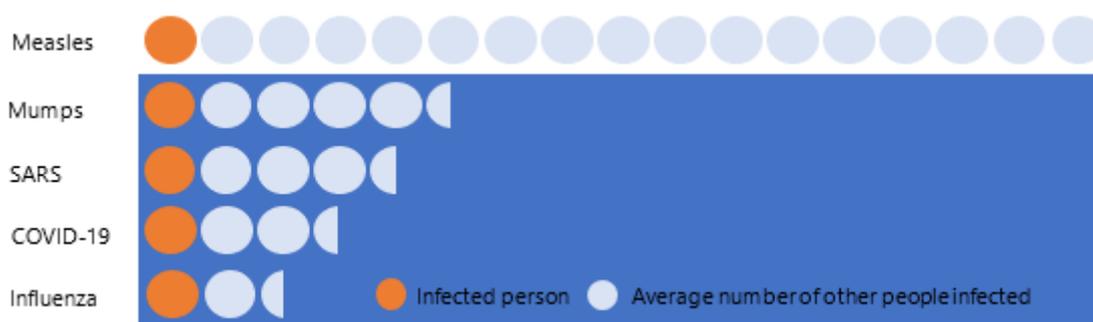
Hon Chris Hipkins  
**Minister of Health**  
Date:

Hon Julie Anne Genter  
**Associate Minister of Health**  
Date:

## About measles and its impact

1. Measles is a highly infectious airborne virus which affects both children and adults. It can be life threatening and around one in ten people with measles will need hospital treatment. Measles can also lead to other complications, such as ear infections (which can cause permanent hearing loss), diarrhoea, pneumonia, seizures, and swelling of the brain (this is rare, but can cause permanent brain damage or death).
2. The reproduction number (R0) of measles is among the highest in communicable diseases. It is estimated one person with measles can infect around 16 other people (if they are not vaccinated). Figure 1 illustrates the highly contagious nature of the disease relative to a number of other communicable diseases.

**Figure 1. Transmission (average reproduction number) of selected communicable diseases**



## Protecting the population from measles

3. Although measles is highly contagious it is preventable through vaccination. Two doses of the measles vaccine provides the most effective protection for individuals and the wider community. After one dose of the MMR vaccine, about 95 percent of vaccinated people are protected from measles. After two doses, more than 99 percent of people are protected.
4. Vaccine coverage is therefore a key priority for preventing measles and providing herd immunity (95% of the population). The measles vaccine (part of the measles, mumps and rubella (MMR) vaccine) is available for free for infants and children as part of the National Immunisation Schedule and is also free for people born since 1969 who have not already had two recorded doses (to reduce known immunity gaps in the population).
5. While immunisation rates for young children have increased in the last 15 years, they have never reached 95 percent, and rates remain lower for Māori than for any other ethnic group. Provisional quarter four 2019/20 results for the two year old immunisation indicator show that 91 percent of all children who turned two years of age in the three months preceding 30 June 2020 are fully immunised and have therefore received one dose of MMR vaccine. The immunisation rate for Māori for this period was 86 percent and for Pacific, 95 percent.
6. An under-immunised cohort of teenagers and young adults remains as a result of low immunisation rates in the 1990s and early 2000s. A campaign is scheduled to begin in late July 2020 to improve MMR immunisation rates for this group, particularly Māori and Pacific young people. The campaign will be DHB-led with supporting national promotional activity. This campaign is the fourth (and most significant) phase of the Ministry's response to improving overall MMR vaccine coverage which started during the measles outbreak. Phases one, two and three

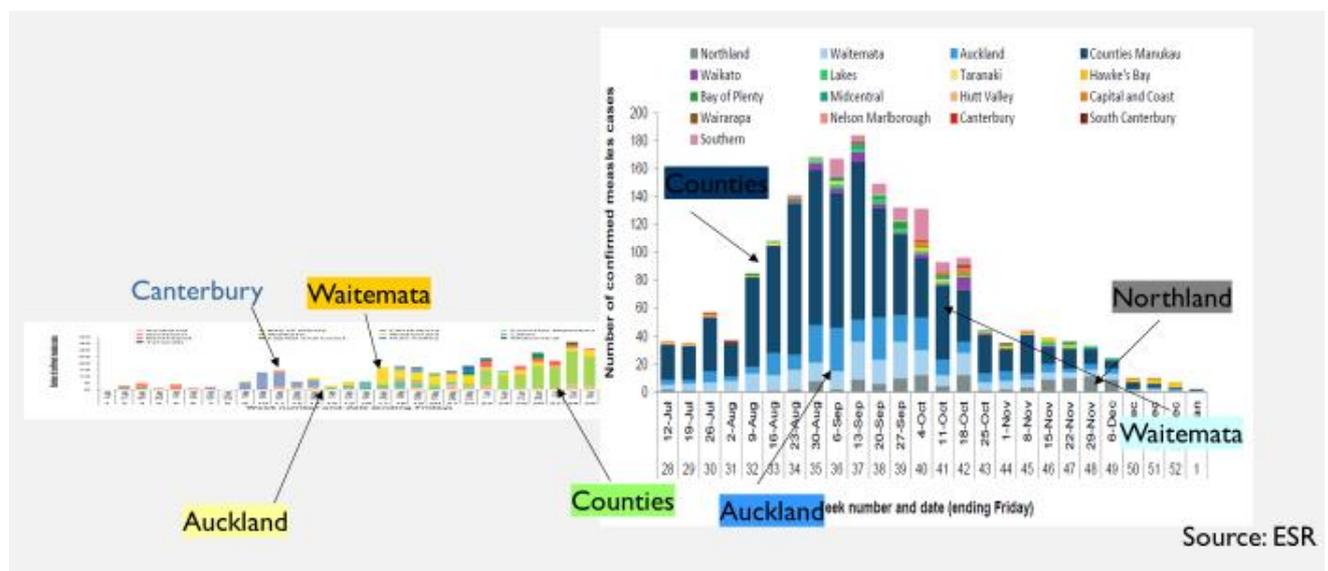
focused on under fives, targeted groups within DHBs with active outbreaks, and the active recall of 5 to 14 year olds.

7. In 2017 New Zealand was officially recognised by the World Health Organization as having eliminated measles as outbreaks were associated with imported cases and there had been no measles cases originating in New Zealand for the previous three years.

## The Ministry commissioned a review into the 2019 Measles outbreaks

8. In 2019, an overlapping series of measles outbreaks predominantly in the northern region, infected more than 2000 people, and resulted in hospitalisation of more than 700. The outbreaks coincided with a 300 percent surge in measles cases internationally. The figure below outlines the course of the outbreaks including the different DHB populations affected (note Counties Manukau DHB is the DHB with the greatest cases in the graph on the right).

**Figure 2. Measles outbreaks 2019, by DHB**



9. At the beginning of 2020 the Director-General of Health commissioned an independent review into the health system's response to the measles outbreaks from Dr Gerard Sonder (Public Health Physician, Epidemiologist Infectious Diseases) and Dr Suitafa Debbie Ryan (Principal, Pacific Perspectives). The review was tasked with:
  - a. reflecting on how the system responded, and continues to respond, to the outbreak, and to identify opportunities to strengthen future responses
  - b. identifying what went well and what could be improved to help manage future disease outbreaks.
10. Completion of the review was delayed due to the impact of COVID-19. The Ministry received the final Review on 7 July 2020. The Review includes a set of recommendations to improve the health system's ability to prevent and respond to measles and other disease outbreaks (see Appendix One).

## Findings from the Review

11. A number of key findings emerged from the Review (informed by stakeholder interviews, key informants, and data), including:
  - a. low immunisation coverage and immunity gaps in the population (insufficient to prevent outbreaks)
  - b. significant inequities in immunisation coverage and outcomes for Māori and Pacific peoples
  - c. a need for stronger national leadership and coordination of communicable disease control (including contact tracing)
  - d. a need for improved outbreak management planning across the system
  - e. improvements in vaccine management and distribution
  - f. need for integrated national databases and technology enabled solutions.
12. The reviewers presented a number of these early findings to the Ministry in May 2019. This was timely and helped to inform and validate the Ministry's ongoing response to the COVID-19 outbreak, and preparation for the forthcoming national measles immunisation campaign.

## Addressing key recommendations

13. The report includes a set of recommendations to address the key findings. The Ministry has grouped recommendations into the following areas: improving immunisation coverage and service delivery; improving outbreak response; strengthening governance and oversight; and enabling technology.
14. Many lessons learned from the measles outbreak have been implemented in the Ministry's response to COVID-19 and through other work that is underway or planned to strengthen the system, including actions to respond to the New Zealand Health and Disability System Review, notably, strengthening national public health services.

## Theme one: improving immunisation coverage and service delivery

Key recommendations in this theme relate to increasing immunisation coverage to prevent outbreaks and the emergence of new immunity gaps in adults. Recommendations also cover the need to consider outreach vaccination for at risk Pacific and Māori children combined with catch-up vaccinations for adults.

### Actions being taken

#### *Implementing the national measles immunisation campaign*

15. A national measles immunisation campaign is being launched by Hon Julie Anne Genter in Counties Manukau on 24 July 2020. The campaign runs through to August 2021 and will address many of the issues raised in the recommendations above. The Measles Immunisation Campaign 2020 aims to equitably improve measles immunity in under 30-year olds across New Zealand to reduce the risk of future measles outbreaks and strengthen the immunisation system. The campaign is being led by DHBs, supported by the Ministry.
16. The campaign was delayed by COVID-19, but DHBs have now submitted their plans to the Ministry for their local programmes. The three Auckland DHBs and Whanganui DHB will begin their

programmes in July, with Wairarapa and Canterbury starting in August, and other DHBs across the country beginning various local rolling immunisation activities in the regions over the year.

17. To deliver on the immunisation campaign, DHBs are planning a variety of ways to close the immunity gaps within their populations, which include alternative ways to deliver immunisation and forms of outreach immunisation, including school-based programmes. All DHB plans will have a strong equity focus with a particular focus on Māori and Pasifika peoples.
18. PHARMAC has sourced more than 350,000 additional doses of the MMR vaccine for the campaign. There are currently more than 430,000 doses of MMR vaccine in the country.

#### *Improving infant immunisation coverage*

19. The measles immunisation campaign is part of a wider work programme to improve infant immunisation coverage and prevent future immunity gaps. The work is informed by the Ministry's Immunisation Expert Advisory Group and evidence on interventions and policy settings to improve immunisation rates.<sup>1</sup>
20. From 1 October 2020, the age of the first dose of measles vaccination is being brought forward to 12 months (from 15 months) and the second dose will be brought forward to 15 months (from 4 years). This change will ensure that children are protected earlier. General practices will be asked to recall children aged between 15 months and 4 years so they receive their second doses earlier than 4 years.

#### *Addressing potential immunisation coverage gaps from COVID-19 lockdown*

21. The Ministry reports on immunisation rates quarterly, by certain milestone ages. As noted above, for the quarter ending 30 June 2020 approximately 91 percent of children received their first MMR vaccine by their second birthday. This is a small drop compared to the rate achieved in the previous two quarters of approximately 92 percent and was likely impacted by the COVID-19 Alert Level 4 lockdown. The Ministry is working on several projects to support the sector to catch up on missed immunisations, including: a promotional campaign; a childhood immunisation projected data set to support with Ministry planning and service demand management; and making National Health Index level data easier to access to support service delivery.
22. In addition, the Ministry is working with DHBs, the Immunisation Advisory Centre and key sector stakeholders to widen access to funded vaccinations. Reactive measures include developing an accelerated vaccinator course and amending guidelines to remove barriers to offsite vaccinations. We have provided DHBs specific annual planning guidance which was developed alongside the Māori Health and Pacific Health teams to reinforce the Ministry's strong equity focus, and we are working with the Pharmaceutical Society of New Zealand to expand the funded vaccines pharmacists can access and provide their patients.
23. The Ministry is also developing a central register of trained and authorised vaccinators to support policy decisions and prioritisation of resources to areas in need.

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<sup>1</sup> Allen + Clarke. 2019. Improving New Zealand's childhood immunisation rates: Evidence review. <https://www.health.govt.nz/publication/improving-new-zealands-childhood-immunisation-rates>

## Theme two: improving outbreak management

Key recommendations in this theme include revising outbreak management plans, making them generic (not for specific pandemics or diseases) and uniform to facilitate upscaling under national coordination (with modules for different diseases and mass vaccination campaigns). Recommendations also cover implementing outbreak exercise recommendations (from 2018), evaluating/reviewing every outbreak in a standardised manner and updating plans in response, and consider (for every outbreak threat) convening an initial entire outbreak management team meeting at an early stage to ensure all possible expertise is represented and informed.

### Actions being taken

#### *Strengthening emergency management and public health preparedness across the system*

24. The *National Health Emergency Plan: A Framework for the Health and Disability Sector 2015* (NHEP) currently provides the strategic framework to guide the health and disability sector in its approach to planning for, responding to and recovering from health-related risks and consequences of significant hazards in New Zealand. There are a number of action plans supporting the NHEP, which include the *New Zealand Influenza Pandemic Action Plan* (NZIPAP). The NZIPAP was used by the Ministry to guide both the measles outbreak and COVID-19 responses.
25. During 2020/21, the Ministry is working to strengthen a range of elements in emergency management and public health emergency preparedness, including reviewing the NHEP, developing the National Health Security Action Plan, and an outbreak management plan (see below). This work reflects the actions carried out in response to the recommendations from: the 2018 World Health Organization's Joint External Evaluation of the International Health Regulations 2005; the Controller and Auditor General's report on the *Ministry of Health: Management of personal protective equipment in response to COVID-19*; lessons captured from the COVID-19 response; and the Review.

#### *Developing an outbreak management plan*

26. The Ministry is developing both a surveillance strategy and an outbreak management plan by the end of 2020 that is scalable from a local disease outbreak to the activation of the Ministry's National Health Coordination Centre inclusive of the triggers for activation to the next levels. The outbreak management plan will be accompanied by a stakeholder engagement plan, which will guide any specific outbreak communications strategy and ensure all key stakeholders are informed in a timely manner.

#### *Strengthening contact tracing*

27. Contact tracing, case management and isolation are fundamental components of communicable disease control. These interventions help to stop the spread of viruses, such as measles, and support those who become unwell. A comprehensive contact tracing system ensures the rapid identification and isolation of new cases.
28. In April 2020, Dr Ayesha Verrall undertook a rapid audit which set out recommendations to strengthen the contact tracing response to COVID-19. The Ministry has implemented all the audit's recommendations. The Ministry is also progressing recommendations from the 8 May 2020 Public Health Unit Contact Tracing 'Deep Dive' Rapid report undertaken by Allen+Clarke.
29. The contact tracing systems and processes strengthened for COVID-19 will be able to be used for managing other communicable diseases outbreaks, including for measles.

30. The Government has provided funding during 2020 to support contract tracing. This included additional one-off funding of \$30 million for Public Health Units to strengthen and enhance contact tracing capabilities, and funding for the Ministry to establish the National Investigation and Tracing Centre.
31. The Ministry has also developed the National Contact Tracing Solution (NCTS) to support New Zealand's COVID-19 response, which can be adapted to support outbreak management for other communicable diseases. Eleven of the twelve PHUs are now on the NCTS with the remaining PHU on track to onboard by the end of July. The Ministry is scoping and implementing extensions of the NCTS to support the health response at the border, to ensure an end-to-end view of a person's journey. The development of the NCTS is supported by new national processes, policies and training materials for contact tracing and includes reporting dashboards and integration with health datasets for contact details.

#### *Potential future activity*

32. The Ministry acknowledges there are opportunities to strengthen engagement with Māori and Pacific people to better respond to public health emergencies, and that local Māori and Pacific providers are best placed to lead local community action and responsiveness activity. We are building on relationships developed through the COVID-19 response, in particular through the Māori influenza programme, and this will continue through the national measles immunisation campaign.

### **Theme three: strengthening governance and oversight**

Key recommendations in this theme relate to stronger national and regional leadership and coordination of communicable disease control across the system. This includes greater clarity and official mandating of roles and responsibilities of key organisations in outbreak management (including ESR, PHARMAC, IMAC and Healthline). Recommendations also covered the need to centralise and standardise functions and information to increase efficiency, uniformity, and to facilitate improved national coordination. This includes considering shared decision making by the Ministry, PHARMAC, ESR and regional distributors on vaccine stocks to deal with unexpected and emergency situations.

#### **Actions being taken**

##### *Health Leadership Council*

33. The Review recommends the urgent need for stronger national and regional leadership and coordination across the system. The Health and Disability System Review also highlighted the need for a better joined-up and stronger public health system overall.
34. The Ministry acknowledges there are opportunities to strengthen governance across the system. The Health Leadership Council, established in 2019 and chaired by the Director-General, is one example of this. Leaders from the Ministry, DHBs, Te Hiringa Hauora (HPA), PHARMAC, HQSC, and ACC are working together to advance system priorities and enhance coordinated efforts. Another example is the establishment of twice-weekly meetings between the Ministry and DHB Chief Executives as part of the COVID-19 response.

s 9(2)(g)(i)

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*Strengthening the immunisation system*

- 37. A strong immunisation system is vital to protecting health and promoting health equity for Māori, Pacific people and other groups. The Ministry is currently working to strengthen the immunisation system and provided recent advice on improvements in this area [HR20200699 refers]. Three main areas for improvement are:
  - a. decision-making at the system level including roles and responsibilities
  - b. implementation including distribution and delivery of vaccines
  - c. outcomes including equity and reaching vulnerable populations.
- 38. Reviewing the roles and responsibilities within the immunisation system, in particular vaccine funding, prioritisation and procurement, is a key piece of work and could result in a re-negotiated Memorandum of Understanding Relating to Vaccines Funding Arrangements between PHARMAC, the Ministry and DHBs. It is expected this work will lead to optimising decision-making about the quantity of vaccines kept in stock to respond quickly and manage disease outbreaks.
- 39. This work has been prioritised by the Ministry to be completed in the second quarter. The work will also assist with improvements to our annual influenza campaign and a potential mass COVID-19 immunisation programme, for which preparations are underway.

*Potential future activity*

- 40. In June 2020, the Ministry received a draft review on the process of influenza vaccine procurement and distribution, which the Ministry will report on separately once finalised. This review lays out clear actions that will support strengthened supply and distribution arrangements of all vaccines.
- 41. The Ministry acknowledges there are opportunities to strengthen the leadership of the system alongside the lessons that have been learned from the COVID-19 response and other recent communicable disease events. These opportunities include ensuring Māori and Pacific leadership and engagement are integral to the pursuit of equitable outcomes.

**Theme four: Enabling technology**

Recommendations in this theme focus on making optimal use of digital solutions at all levels of the health system. This includes integrated national databases (EpiSurv, NIR, GP systems, personal health apps) that enable interoperability and functionality for efficient outbreak management. Recommendations also include developing a new comprehensive national vaccination register (including for non-funded and travel medicine vaccines) and ensure vaccinations are registered during

large scale campaigns, combined with patient access through app with options to record vaccination status.

## **Actions underway**

### *National Health Information Platform*

42. The Ministry supports the Review findings about the importance of improving information flows and greater use of digital solutions to improve outcomes and system efficiency. This is an important direction of travel and the Ministry has developed a business case for a National Health Information Platform (NHIP) for consideration by Cabinet (HR20200252 refers). With Cabinet support and funding the NHIP programme will be delivered in four tranches beginning in 2020/21.
43. The NHIP supports a transformational shift in the healthcare system that is fully aligned with the conclusions of the Health and Disability System Review. Transforming access to and use of health information will give the system a greater ability to identify and address disparities in health service provision and health outcomes by leveraging better data. It will enable improved equity of access and delivery of health services to disadvantaged populations, specifically Māori and Pacific peoples, and those in low socioeconomic groups.

### *Redeveloping the National Immunisation Register*

44. The Review recommends a new immunisation register be developed. This work is advancing with funding secured in contingency via two allocations of \$15 and \$23 million. The business case which is due for submission by the end of August 2020 will require the approval of the Ministers of Health and Finance to draw down on this funding which includes the cost of building the system and its ongoing operational cost.
45. The purpose of the new solution is to provide national and population-based information on immunisation coverage and assist in achieving immunisation targets. It will provide the capability to target providers and consumers using multiple digital channels to improve uptake and delivery of immunisation services. It will also provide improved analytics that will focus on service and equity improvements and will be responsive and adaptable to change. The first phase of the register's development will be to support delivery of a COVID-19 vaccine campaign.

### *Updating the national notifiable disease reporting system*

46. The national notifiable diseases reporting system, EpiSurv is being updated in July 2020. This newer technology will improve security and disaster recovery processes and allow for greater flexibility to incorporate additional functionality, for example to support contact tracing.

### *Potential future activity*

47. Planned improvements to the National Immunisation Register will make it easier to use in the event of large-scale immunisation campaigns. The Ministry's work with DHBs on the 2020 Measles Immunisation Campaign will assist in developing a picture of the remaining immunity gaps, however, a full evaluation of the 2019 MMR campaigns is not currently in the Ministry's work programme. We will consider what can be achieved within existing resources.

## Equity

The Review findings highlight that the burden of disease is inappropriately borne by Māori and Pacific peoples. It recommends the Ministry prioritise equity considerations with a focus on Māori and Pacific populations who continue to bear the heaviest burden of infectious disease outbreaks in New Zealand and this focus needs to be reflected in the implementation of the measles immunisation programme and emergency outbreak response management.

48. The Review highlights significant inequities in immunisation outcomes for Māori and Pacific peoples. Historically low immunisation rates and barriers to accessing healthcare among Māori and Pacific people (including in South Auckland) have meant these groups were affected most by the measles outbreak. These population groups will continue to be at greater risk of any future outbreaks throughout the country until their immunisation rates increase.
49. Equity in health outcomes and independence for Māori and all other people is a key priority for the Ministry and system (Pae Ora: Healthy futures). The Ministry is working with DHBs to ensure that equity and the principles of the Treaty of Waitangi are embedded in their plans to improve immunisation rates among Māori, including children and young people. The measles immunisation campaign is being designed specifically to improve immunisation outcomes for Māori and Pacific people.
50. As a matter of equity, the Review also includes a recommendation to the Ministry of Social Development (MSD) to remove the Work and Income New Zealand minimum 2-week stand-down period for emergency grants for all notifiable infectious diseases, if quarantine is necessary to facilitate outbreak control. The Ministry has advised MSD of this recommendation for its consideration.

## Communication

51. There was significant public interest in the measles outbreaks both domestically and in Samoa, and it is expected that there will be strong interest in the findings of the Review.
52. The Ministry proposes to publish the final report and the terms of reference on the Ministry's website in due course.
53. A draft press release for the launch of the 2020 measles immunisation campaign has been provided to Minister Genter's office.

## Next steps

54. The Ministry will develop a structured work programme and report back to Ministers on an ongoing basis on progress with its implementation.

**ENDS.**