TOI TE ORA
PUBLIC HEALTH
Bay of Plenty + Lakes Districts

Medical Officer of Health Report
May 2019

Measles in the Bay of Plenty and Lakes

Notes and reflections (as at 17 May 2019)

In January and February this year there were measles outbreaks involving twelve cases in the Waikato while two cases were notified in the Bay of Plenty. Unrelated to these cases and since then there have been sizeable outbreaks in Canterbury (39 cases), the Auckland region (59 cases) and Bay of Plenty (19 cases) and Lakes (4 cases). In total, and as at 17 May this year, there have been 142 confirmed cases in New Zealand affecting ten District Health Board (DHB) areas.

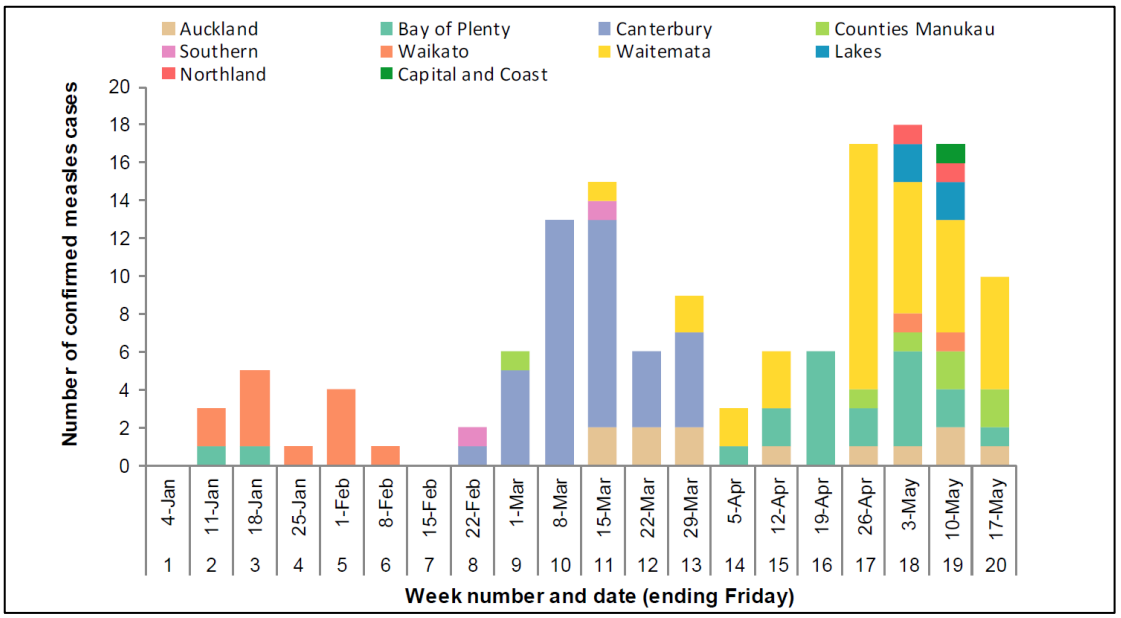

Figure 1. Number of confirmed measles notifications by week and District Health Board (1 January – 17 May 2019). Source: ESR.

There have been 23 cases in the Bay of Plenty and Lakes related to the current outbreak, which is actually four distinct outbreaks or clusters. The first reported case in the Bay of Plenty was notified in the first week of April. On further investigation this person likely acquired their infection from a traveller who, in turn, most likely acquired their infection elsewhere in New Zealand. Two further cases in this cluster were found to have occurred through social contact but most notably there were eight cases that occurred through two exposure events related to clinic waiting rooms.

Another cluster of three cases in one household related to a traveller who had recently returned from the Philippines and so represents a coincidental introduction from overseas. A third cluster occurred in a family group where it was not possible to determine with certainty the source of infection, while a fourth cluster was linked to the Auckland outbreak and was contained within a family group.

Of note, eight of the 23 cases in this outbreak have had a hospital admission. This hospital admission rate of 35% or approximately 1 in 3 is similar to the national hospitalisation rate which has been 39% (or 55 of the 142 cases to date) and provides some indication of the potential severity of measles and impact on health services. Severity of illness in hospitalised Bay of Plenty and Lakes cases has varied with some needing hospitalisation simply for rehydration with intravenous fluids through to more severe presentations such as pneumonitis, and one young patient requiring a period of ICU level care.

The case-fatality rate for measles is strongly associated with a country's prevailing socio-economic conditions and in particular nutrition and access to medical services. In developing countries, especially where there is a high prevalence of malnutrition, case-fatality rates can be as high as 1 in 50. In developed countries such as New Zealand the case-fatality rate would be expected to be about 1 in 1000. However, the risks for particular groups such as those that are immune-compromised can be much higher than for the general population, and because measles itself has a significant impact on the immune system even young and healthy people can experience the more severe complications related to secondary bacterial infections. While this impact on the immune system is a well-known feature of the acute and convalescent stages of the illness, relatively recent research has found that the immune system may take a number of years to recover and that there is a so-called 'measles shadow' with an increased risk of severe bacterial infections for a number of years following a measles infection.

Fortunately the MMR (measles, mumps and rubella) vaccine is very effective in preventing measles with about 95% of those who have had one dose of MMR being immune to measles, and 99% of those who have had both doses. Those that are 50 years and older are considered immune as measles was very common prior to an effective vaccine being introduced in 1969. However, anyone under the age of 50 years needs to ensure they have been immunised. While each individual has a responsibility to protect their own health and their children's health with immunisation, immunisation also protects others and helps prevent outbreaks. There are a number of groups in our communities that are at risk and susceptible to measles - these include children where immunisation opportunities have been missed or whose parents have denied them the protection of immunisation, those under 15 months of age who have not yet had their first routine dose of MMR, and those who are not able to be immunised or who have a weakened immune system through illness or medication. The approximately 1% who have had both doses of MMR but remain non-immune also represent a sizeable number of people in the population who are at risk. With the historically lower rates of childhood immunisation in those that are now aged 15 to 30 years, there is a significant proportion of the New Zealand population that is susceptible to measles and we are well short of the 95% immunity level required to achieve 'herd immunity', that is, the protective effect arising from the collective immunity of a community.

Because we do not have an immunisation rate of 95% across all age groups at risk, the occurrence of a single measles case can rapidly become an outbreak and this therefore requires a robust public health response to shut down possible ongoing transmission and protect those at risk. The essential public health tools and measures to do this include:

- Timely notification of suspected cases by doctors to public health;
- Isolation of cases while they are infectious;
- Identification and assessment of contacts of cases and then quarantine of any susceptible contacts so that they do not spread it further should they become sick; and,
- Encouraging anyone who has not yet been immunised to catch up on their MMR immunisations.

As an indication of the scale of response necessary, in this most recent outbreak of measles in the Bay of Plenty and Lakes, Toi Te Ora Public Health has:

- Received and followed up 93 notifications of illness suspected to be measles, 70 of which were later confirmed not to be measles;
- Individually followed up 480 contacts of cases, provided advice and if necessary supervised quarantine for those that may be susceptible;
- Arranged post exposure immunisation for a number of contacts and also protection with post-exposure immunoglobulin for two pregnant women at risk of getting measles;
- Followed up ten clinic waiting room exposure events; and,
- Issued ten media releases providing advice on measles, case numbers, prevention, and encouraging immunisation – and managed 54 media enquiries.

Of note, nine of the 23 cases occurred in people who were already in quarantine, and so in these instances any onward transmission in the community was prevented.

There have been no cases involving health care workers, which is what is expected as every health care worker should be fully immunised. There have also been no instances where an infectious person has attended school. However, waiting room transmission has been a notable feature of this outbreak with eight cases acquired from exposure to another case while waiting in a doctors' waiting room. Preventing waiting room transmission is particularly challenging as the air in a room where a person with measles has been may remain infectious for at least an hour after that person has vacated the room. Furthermore, both patients and medical staff may rightly not suspect measles with some of the early non-specific or less typical early symptoms of measles, such as vomiting. This was certainly the case with the one waiting room transmission event that resulted in six secondary cases. A key focus of the health sector response has been ensuring that waiting room transmission is prevented as much as reasonably possible with anyone who suspected they may have measles being asked to phone ahead before going to their doctor, and with general practitioners, hospital emergency departments, and laboratories making careful arrangements to identify and assess potentially infectious patients in a way that does not expose other clients.

It is not yet known if we will have further cases in this outbreak, however, it is certain that there will be further outbreaks in New Zealand and the Bay of Plenty and Lakes as there is currently a global resurgence of measles.

In the last twelve-month period there has been an increase in measles in most regions across the globe, with many countries experiencing significant outbreaks. A number of European countries have been affected with notable outbreaks in France, Italy, Poland, and Greece while in the Ukraine there have been more than 70,000 cases reported. South America has also had large outbreaks with Brazil reporting more than 10,000 cases, while in North America there have been 880 cases in the United States so far this year, most being in the New York area. The Philippines has reported nearly 20,000 cases while India has reported 60,000. Several African countries have reported large numbers of cases and Madagascar has had nearly 70,000 cases with reportedly more than 1,200 deaths.

Measles is not endemic in New Zealand, that is, there is not ongoing, sustained transmission within New Zealand. However, periodic outbreaks in New Zealand occur when travellers acquire the infection overseas and then become ill and infectious when visiting or returning home to New Zealand. The virus can then spread rapidly wherever non-immune people are exposed. Public health interventions including timely notification of cases, isolation of cases, and quarantine of non-immune contacts are essential to help control this spread, however the most important way to prevent measles transmission is to ensure high rates of community immunity through immunisation.

Sixteen of the 23 Bay of Plenty and Lakes cases (or about 70%) were between the ages of 10 and 29, likely reflecting the fact that this age band has had the lowest rates of immunisation and is most at risk. A catch up immunisation programme for the under thirties would be an effective national strategy to prevent or limit future measles outbreaks in New Zealand - along with awareness that anyone planning to travel overseas should be up to date with all their routine childhood immunisations, especially the MMR vaccine.

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References

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