TARANAKI
District Health Board

Preventing a second wave of COVID-19 in Taranaki

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ABSTRACT

Background: The aim of this report is to identify groups once we move from Alert Level 4 who have a high likelihood of reintroducing COVID-19 in Taranaki which would then result in a large number of cases.

Methods: A population health risk assessment matrix was created in consultation with various stakeholders and a review of current literature.

Results: We identified 31 groups that pose a risk of re-introduction and this included nine groups who were assessed as having a high overall population health risk. The highest risk group was New Zealanders visiting family/whānau (Māori and Pacifika). Other high-risk groups were: New Zealanders visiting whānau (non-Māori), students returning home, young people coming home after losing jobs in major centres, drug dealers/traffickers, organised crime, offshore oil and gas workers, and locum healthcare workers.

Conclusions: The best way to prevent a second wave of COVID-19 in Taranaki is by early detection and the use of non-pharmacological measures such as isolation and quarantine. Early detection of COVID-19 needs to target groups who are at high risk of bringing the virus into Taranaki and pose the highest overall population health risk. This report provides guidance on the highest risk groups in Taranaki and the following recommendations are made:

- Actively testing symptomatic people in the identified high-risk populations
- Regularly applying an equity lens to the testing data to ensure that high risk groups are being tested.
- Carrying out focused testing of asymptomatic people for those at high-risk of exposure.
- Taranaki District Health Board and other agencies involved with the COVID-19 response in Taranaki partner with high risk populations in order to co-design interventions that are appropriate and acceptable for those groups.

INTRODUCTION

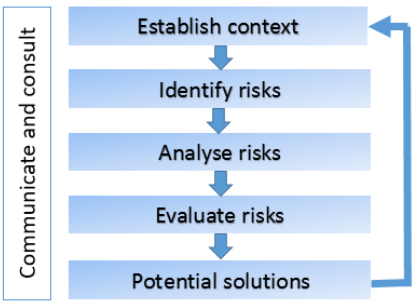
COVID-19 is the disease occurring as a result of the Novel Coronavirus first discovered in Wuhan, China in December 2019. Since then, the Novel Coronavirus has resulted in a worldwide pandemic, infecting upward of 2.4 million people (1, 2).

In New Zealand, because of our rapid and effective response aiming for elimination of COVID-19 within the borders, as of the 21 April there have been 1445 confirmed and probable cases, and 13 deaths (1, 2). Taranaki has seen a small number of confirmed COVID-19 cases since March 2020. All of the cases so far were either directly linked to overseas travel, or were as a result of being a close contact with a confirmed case (1, 2, 3). The good work completed in the initial wave of infection could be undone if the region saw a significant and undetected second wave of transmission.

As New Zealand moves from Level 4 of the National COVID-19 Alert System to level 3 and/or 2, restrictions on travel, social gatherings and work are loosened allowing for a greater potential for spread of COVID-19. This report is to examine the groups of people that pose the highest risk for reintroduction of COVID-19 into Taranaki, and the specific risk profile they pose to the overall population of the region.

METHODS

A risk assessment matrix was constructed which included a number of variables in order to determinate the population health risk of COVID-19 reintroduction into Taranaki. Population health risk was defined as the likelihood of a large number of people becoming infected with the risk of adverse health outcomes.



The variables used in the risk assessment matrix were:

- The relative size of the group
- Risk of exposure outside of Taranaki in areas where there is community transmission of COVID-19
- Transmission risk within Taranaki
- The barriers for early detection
- Community vulnerability of the exposed population

These terms are defined in the appendix.

To develop the risk assessment matrix there was consultation with various stakeholders and agency representatives including New Zealand Police, the TDHB Public Health Unit, Civil Defence Emergency Management Taranaki, and Venture Taranaki (4, 5, 6, 7). The Medical Officer of Health, Dr Jonathan Jarman, also contributed to the development of the risk assessment matrix. There was also consultation with other members of the TDHB Public Health Unit; this occurred early on in the development of the risk assessment matrix. Groups

identified from these discussions were further defined beneath the domains; Community/Social, Justice, Economic and Health respectively. These domains reflect the broad nature of groups identified. Risk estimations are based on worst case scenarios.

There was a search of current literature and policies in place in order to analyse the risk assessment and its significance. This included an epidemiological review of COVID-19. A number or databases were searched including PubMed and the Cochrane database. Epidemiological data from the daily Taranaki PHU (Public Health Unit) COVID-19 Surveillance reports and Ministry of Health (MoH) data was also used (1, 2). Further, daily Civil Defence reports were consulted (3).

The population health risks were then evaluated qualitatively, with suggested potential recommendations, based on current literature, evidence from overseas and New Zealand epidemiology. Throughout the process, a health equity focus was taken, focussing on our vulnerable communities including our Māori population.

FINDINGS

In total, 31 categories of population were identified as being potential infection pathways for the reintroduction of COVID-19 into the Taranaki region post-elimination. It was noted that there is possible overlap between groups. The groups assessed as having high population risk were spread across different domains, with at least one high-risk group identified in each domain.

The group with the highest population risk associated with the reintroduction of COVID-19 into Taranaki was assessed as being “New Zealanders visiting family/whānau (Māori and Pacifika). Other groups identified as having high population health risk were New Zealanders visiting whānau (non-Māori), students returning home, young people coming home after losing jobs in major centres, drug dealers/traffickers, organised crime, offshore oil and gas workers, and locum healthcare workers. See Table One.

Table One – Population Health Risk Assessment Matrix

Category of people travelling to Taranaki	**Number of people within category** [large, medium, low]	**Exposure risk outside of Taranaki** (area with community transmission of COVID-19, size of bubble, transmission risk – duration and degree of exposure) [high, medium, low, very low]	**Transmission risk within Taranaki** (size of bubble, transmission risk – duration and degree of exposure) [very high, high, medium, low]	**Barriers for early detection** [high, medium, low]	**Community vulnerability of the exposed population in Taranaki** [high, medium, low]	**OVERALL POPULATION HEALTH RISK** [very high, high, medium, low, very low)
Community/Social						
New Zealanders visiting family/whānau (Māori and Pacifika)	Large	High	High	High	High	Very High
New Zealanders visiting family/whānau (Non-Māori)	Large	Medium	Medium	Medium	Medium	High
Students coming home for the holidays (during educational facility closure) (8)	Large	High	High	Medium	Medium	High
Young people coming home after losing jobs in major centres	Medium	High	High	High	Medium	High
Students who board in Taranaki	Low	High	High	Medium	Medium	Medium
New Zealanders on holiday (not visiting whānau)	Medium	Medium	Medium	Medium	Medium	Medium
People returning to Taranaki after lockdown	Medium	High	Medium	Medium	Medium	Medium

Category of people travelling to Taranaki	**Number of people within category** [large, medium, low]	**Exposure risk outside of Taranaki** (area with community transmission of COVID-19, size of bubble, transmission risk – duration and degree of exposure) [high, medium, low, very low]	**Transmission risk within Taranaki** (size of bubble, transmission risk – duration and degree of exposure) [very high, high, medium, low]	**Barriers for early detection** [high, medium, low]	**Community vulnerability of the exposed population in Taranaki** [high, medium, low]	**OVERALL POPULATION HEALTH RISK** [very high, high, medium, low, very low)
Out of province funerals and tangi	Low	Medium	High/Medium	Medium	High	Medium
Iwi based travel • Food gathering- fishing, hunting, diving for iwi that straddle regional boundaries • Note: iwi based travel is limited as iwi are using Huirangi (Zoom meetings)	Low	Low	Medium	High	High	Medium
Sports people	Low	Medium	Medium	Low	Low	Low
Shopping trips	Low	Medium	Medium	Low	Low	Low
Justice						
Drug dealers/ traffickers	Low	High	Medium	High	High	High
Organised Crime (Gangs)	Low	High	Medium	High	High	High
Prison releases	Low	Low	Medium	High	High	Medium
Disorganised Crime	Low	Low	Medium	High	High	Medium

Category of people travelling to Taranaki	**Number of people within category** [large, medium, low]	**Exposure risk outside of Taranaki** (area with community transmission of COVID-19, size of bubble, transmission risk – duration and degree of exposure) [high, medium, low, very low]	**Transmission risk within Taranaki** (size of bubble, transmission risk – duration and degree of exposure) [very high, high, medium, low]	**Barriers for early detection** [high, medium, low]	**Community vulnerability of the exposed population in Taranaki** [high, medium, low]	**OVERALL POPULATION HEALTH RISK** [very high, high, medium, low, very low)
Economic travel						
Offshore oil and gas workers(9)	Medium	High	Very High	Medium	Medium/Low	High
Shipping crew on shore leave	Low	High	Low	High	Medium	Medium
Seasonal workers such as shearers	Low	Medium	Low	Medium	Medium	Medium
Airline staff (if flights start up again)	Low	High	Medium	High/ Medium	Low	Medium
Farmers / farm stock movement	Medium	Medium/Low	Low	Medium	Low	Low
Long haul and freight truck drivers	Low	Low	Low	Medium	Medium	Low
Business people	Low	Medium	Medium	Low	Low	Low
Traders or people picking up out-of-province goods	Low	Very Low	Medium/Low	Medium	Medium/Low	Low
Lifeline utility maintenance staff e.g. Powerco staff, water plant maintenance staff	Low	Low	Low	Medium	Low	Low

Category of people travelling to Taranaki	**Number of people within category** [large, medium, low]	**Exposure risk outside of Taranaki** (area with community transmission of COVID-19, size of bubble, transmission risk – duration and degree of exposure) [high, medium, low, very low]	**Transmission risk within Taranaki** (size of bubble, transmission risk – duration and degree of exposure) [very high, high, medium, low]	**Barriers for early detection** [high, medium, low]	**Community vulnerability of the exposed population in Taranaki** [high, medium, low]	**OVERALL POPULATION HEALTH RISK** [very high, high, medium, low, very low)
Overseas tourists (not many now)	Low	Very Low	Low	High	High	Low
Health						
Health care locum workers e.g. GPs	Low	High	High	Low	Medium	High
Out-of-town medical specialists	Low	Medium	Medium	Low	Medium	Medium/Low
Ambulance transfers	Low	Medium	Low	Low	High	Low
Children travelling to Starship hospital	Low	Medium	Low	Low	High	Low
Chemotherapy/ radiation/ immunotherapy treatment patients	Low	Medium	Low	Low	High	Low

DISCUSSION

The aim of this report is to identify groups once we move from Alert Level 4 who have a high likelihood of reintroducing COVID-19 in Taranaki which would then result in a large number of cases. The highest risk group identified in this risk assessment was New Zealanders visiting family/whānau (Māori and Pacifika). Other high-risk groups were: New Zealanders visiting whānau (non-Māori), students returning home, young people coming home after losing jobs in major centres, drug dealers/traffickers, organised crime, offshore oil and gas workers, and locum healthcare workers.

There is no international evidence of a response to a second-wave of COVID-19 in a country that has previously eliminated the disease. It is thought, however, that the best way to prevent a second wave is by early detection and effective use of non-pharmacological measures. Rapid case detection and contact tracing, combined with other basic public health measures, has over 90% efficacy against COVID-19 at the population level, making it as effective as many vaccines. This intervention is considered to be central to COVID-19 elimination in New Zealand (10).

Early detection of COVID-19 within Taranaki therefore requires us to actively test the above identified groups because they pose the highest overall population health risk for COVID-19 infection. This means having a low threshold for testing people with symptoms and actively testing within populations where there are barriers for early detection and community vulnerability. It is recommended that an equity lens is applied regularly to the testing data to ensure that high risk groups are being tests. Focused testing of asymptomatic people is also recommended for those at high-risk of exposure.

Māori communities are extremely vulnerable to infectious pandemic diseases such as COVID-19 but also contain unique strengths and resilience. The Ministry of Health “Initial COVID-19 Māori Response Action Plan” sets out a strategic approach and suite of actions that the COVID-19 response can adopt to uphold Te Tiriti o Waitangi and to support the achievement of Māori health equity (11).

It is recommended that the Taranaki District Health Board and other agencies involved with the COVID-19 response in Taranaki partner with high risk populations in order to co-design interventions that are appropriate and acceptable for those groups. An example of this is the road checkpoints in Patea and Urenui where iwi are working in partnership with police; the PHU has developed educational flyers to give to people passing through.

Recommendations

1. Actively testing symptomatic people in the identified high risk populations - New Zealanders visiting family/whānau (Māori and Pacifika), New Zealanders visiting whānau (non-Māori), students returning home, young people coming home after losing jobs in major centres, drug dealers/traffickers, organised crime, offshore oil and gas workers, and locum healthcare workers.
2. Regularly applying an equity lens to the testing data to ensure that high risk groups are being tested.
3. Carrying out focused testing of asymptomatic people for those at high-risk of exposure.

4. Taranaki District Health Board and other agencies involved with the COVID-19 response in Taranaki partner with high risk populations in order to co-design interventions that are appropriate and acceptable for those groups.

Strengths and limitations

This paper was produced quickly and there was not time for widespread consultation. The authors of this paper are both participant observers in the response to COVID-19 within the TDHB Public Health Unit. We have prepared this report as final-year medical students completing an eight-week elective in Public Health. With this, we represent a privileged part of society and hold biases, conscious or unconscious, associated with our position that will impact on the attribution of risk to various populations. Further, although we are concerned with addressing equity within this report, we lack familiarity and expertise to competently comment on this.

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APPENDIX

Definitions;

Number of people within each category;

Subjective relative measure predicting potential movement of persons under levels 2 and 3 of the COVID-19 Alert Level system to the Taranaki region.

Exposure Risk outside of Taranaki

Relative risk of being exposed to the virus outside of Taranaki and subsequently becoming infected. Depends on many factors, including:

- *Size of 'bubble'*
- *Exposure type and duration with others, and*
- *Relative risk of efficacy of spread (ie. are contacts symptomatic or asymptomatic)*

Transmission Risk;

Population dependent, depends on many factors including:

- *size of 'bubble',*
- *exposure type and duration with others, and*
- *relative risk of efficacy of spread (ie. more likely to be symptomatic)*

Barriers to early detection;

Perceived or actual difficulties in accessing or navigating the health response required to detect a potential COVID-19 case. Informed by the 5 As of access to healthcare: accessibility, affordability, availability, accommodation, acceptability(12).

Community Vulnerability;

The conditions determined by physical, mental, spiritual, social, economic and environmental factors or processes which causes a decreased capacity to anticipate, cope with, resist, and recover from impact of a natural or man-made hazard.

This definition is based on two definitions that have been combined. These are sourced from the International Federation of Red Cross and Red Crescent, and from the Sendai Framework for Disaster Risk Reduction from the United Nations Office for Disaster Risk Reduction. Further, this definition aims to capture the model of Te Whare Tapa Whā to improve equity within the report.

- "*decreased capacity of an individual or group to anticipate, cope with, resist, and recover from impact of a natural or man-made hazard.*"(13)
- "Vulnerability is defined in the Hyogo Framework for Action as: "The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards"." (14)
- Te Whare Tapa Whā. To align with thoughts regarding a holistic and equitable approach to health and wellbeing. Accounts for prevalence of risk-factors; including SES, comorbidities, age, accessibility to medical and social support, and resiliency of the community. (15)

Overall Population Health Risk

Qualitative assessment of overall risk posed by this group at Levels 2 and/or 3.