



IDENTIFYING HIGH-RISK COVID-19 HOLIDAY HOTSPOTS IN TARANAKI THIS SUMMER

Dr Rachel Bol
Senior House Officer (Public Health Unit attachment)
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ABSTRACT

Background: The aim of this report is to identify shared accommodation providers in the Taranaki region to assess the risk of transmission and potential for large outbreaks should a COVID case visit over the summer holiday period. This information will be used to guide recommendations for reducing this risk.

Methods: A population health risk assessment matrix was created in consultation with various stakeholders and site visits to assess the individual risk. Population health risk in this study is defined as a combination of the likelihood of a large number of people being infected and the risk of adverse health outcomes of the collective community. A literature review was completed to further advice risk in outdoor and sleep settings.

Results: Six campgrounds were identified as being very high risk based on size, vaccine passport requirements, presence of emergency housing, shared facilities available, and access to healthcare and testing. We identified a further six as high risk, three at moderate risk and none at low risk. DOC tramping huts and private huts were assessed as moderate risk. The hostels were assessed as moderate and low risk.

Conclusions: A number of shared accommodation providers in the Taranaki are high risk for COVID-19 introduction and transmission during the 2021/22 summer period due to size, lack of vaccine passport utilisation, shared facilities and barriers to early detection. Some of these are located within our most vulnerable communities. Accommodation with shared sleeping quarters increase the risk of transmission. To reduce this risk, social distancing measures should be encouraged and access to COVID testing in remote areas needs to be improved to ensure early detection to prevent spread to fellow visitors and vulnerable communities. Vaccination and use of vaccine passports should be encouraged.

INTRODUCTION

At the time of writing, the majority of New Zealand's COVID-19 cases have been centered in the Auckland region. New Zealand has moved from the Alert Level System it has maintained since March

2020 to the new Traffic Light System, to reflect the significant increase in vaccination numbers since the return of COVID in August 2021. Auckland's boundaries have lifted to allow movement in and out of the region with evidence of double vaccination or a negative COVID-19 test in the prior 72 hours. This relaxation of boundaries and move to the Traffic Light system coincides with the Christmas period and summer school holidays. During this time every year we would expect high volume of inter-regional travel to visit whanau and popular vacation destinations.

The Ministry of Health has recently released data examining the Secondary Attack Rate for COVID-19 in New Zealand¹, identifying households and private gatherings as the most high-risk situations for COVID-19 transmission. There are concerns popular holiday destinations in Taranaki over this summer period could provide similar conditions to households and private gatherings and result in transmission within these locations. While New Zealand has reached 90% eligible double vaccination overall, vulnerable pockets in the Taranaki community remain with low vaccination coverage. Approximately 17% of the total Taranaki population is aged under 12 who are ineligible for vaccination at this time².

The purpose of this report is first to examine popular holiday locations in the Taranaki region that provide overnight accommodation with shared facilities, and then to assess the risk of transmission and potential for large outbreaks should a COVID case visit over the summer holiday period. This information will be used to guide recommendations for reducing this risk.

METHODS

On consultation with various stakeholders, a list of popular overnight visitor sites in Taranaki was compiled including hostels, campgrounds, Department of Conservation (DOC) tramping huts and private tramping huts. A risk assessment matrix was constructed using several variables in order to determine the population health risk of COVID-19 to Taranaki communities. Population health risk in this study is defined as a combination of the likelihood of a large number of people being infected and the risk of adverse health outcomes of the collective community.

The variables used in this risk assessment included:

- The potential number of attendees at each location
- Vaccine passport requirements
- The presence of emergency housing
- The vulnerability of the community in which the site is located
- Transmission risk within the location based on its unique facilities
- Barriers for early detection and access to healthcare

The number of attendees reflects the chance an infected individual may be present, and the risk of a large outbreak should a case occur. Community vulnerability was assessed using a Risk Rank score, considering the vaccination rate, level of deprivation, and percentage of Maori in the community which the accommodation is located. Transmission risk of each location was a subjective assessment, considering the density of gathering, ventilation, number of people and duration spent in the shared facilities. Barriers to early detection and healthcare were assessed as time by road to hospital (Taranaki Base or Hawera Hospital). A subjective assessment of risk was also taken into consideration for some measures based on local knowledge and a literature review of transmission in different settings.

To develop the risk assessment matrix, consultation with stakeholders including

- GP Liaison
- Maori health
- Public Health Medical specialists and Population Health Analyst
- Campground and Hostel Accommodation staff

Finally, to help inform the risk matrix, site visits were made to two campgrounds and phone or email contact made with the remaining accommodation providers and a small literature review completed. The author also used their own personal experience of staying in campground accommodation during previous summers to inform the assessment

FINDINGS

In total, 32 locations were identified in Taranaki where people may visit for overnight stays and utilize shared facilities which could result in COVID-19 transmission between groups. This included two hostel accommodation, fifteen campgrounds, nine DOC tramping huts, and six privately owned tramping huts. See Table One.

All campgrounds but three were identified at being high or very high risk. Very high-risk campgrounds included: Urenui Beach Camp, Onaero Bay Holiday Park, Waitara Holiday Park, Stratford Kiwi Holiday Park, Patea Motorcamp and Waverly Beach Camp. The most common factors increasing the risk for campgrounds included large size, shared facilities, lack of vaccine passport requirements and vulnerable communities. Of the two campsites located in the most vulnerable communities in Taranaki – Patea Beach Motor camp has chosen to use vaccine passports, however Waitara Holiday park has not.

DOC tramping huts all had the same moderate risk given they are all similar size, shared basic facilities and are all located some distance from both swabbing and healthcare. All DOC tramping huts will require visitors to have a vaccine passport this summer. Private camping huts were also assessed as moderate risk but will not be requiring vaccine passports.

Of the Hostel's analyzed, Ariki Backpackers had a moderate risk of transmission and Ducks & Drakes Backpackers had a low risk. Despite both having high risk shared facilities, they both are small and have easy access to testing and healthcare.

Table One: Population Health Assessment Risk Matrix

	Number of attendees ^{a,b}	Vaccine passport requirement	Emergency Housing on site ^c	Transmission risk within facility ^d	Barriers for early detection ^e	Barriers to afterhours healthcare ^e	Community vulnerability if exposed ^f	Overall Population Health Risk
	[Small, medium, large]	[Yes, No]	[Yes, No]	[Low, moderate, high]	[Low, moderate, High, very high]	[Low, moderate, high]	[Low, moderate, high, very high]	[Low, moderate, high, very high]
Hostel Accommodation								
Ariki Backpackers	Small	No	No	High	Low	Low	Moderate	Moderate
Ducks & Drakes Backpackers	Small	Yes	No	High	Low	Low	Moderate	Low
Campground								
Seaview Holiday Park – Mōkau	Medium	Yes	No	Moderate	Very high	High	Moderate	High
Waitoetoe Campsite	Small	Yes	No	Low	Moderate	Moderate	Moderate	Moderate
Urenui Beach Camp	Large	No	No	Moderate	Moderate	Moderate	Moderate	Very high
Onaero Bay Holiday park	Large	No	No	Moderate	Moderate	Moderate	Moderate	Very high
Waitara Holiday Park	Large	No	No	Moderate	Low	Moderate	Very high	Very high
Egmont Eco Leisure Park, New Plymouth	Medium	Yes	No	High	Low	Low	Moderate	Moderate
Fitzroy Top Ten Holiday Park	Large	No	Yes	Moderate	Low	Low	Lower	High
Belt Road Seaside Holiday Park	Large	No	No	Moderate	Low	Low	High	High

Oakura Beach Holiday park	Large	No	No	Moderate	Moderate	Low	Lower	High
Hawera Holiday Park	Medium	No	No	Moderate	Low	Low	Moderate	Moderate
Opunake Beach Holiday Park	Large	No	No	Moderate	Low	Moderate	High	High
Ohawe Beach Motor Camp	Medium	Unavailable ⁷	No	Moderate	Moderate	Low	Moderate	High
Patea Beach Motorcamp	Medium	Yes	Yes	Moderate	Moderate	Moderate	Very high	Very high
Waverley Beach Campground	Large	No	No	Moderate	High	Moderate	Moderate	Very high
Stratford Kiwi Motel and Holiday Park	Medium	No	Yes	Moderate	High	Moderate	Moderate	Very high
DOC huts								
Pouakai hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Holly hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Ngapurua hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Pouri Hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
The Camphouse	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Kahui Hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate

Waingongoro Hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Waiaua Gorge Hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Maketawa Hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Syme Hut	Small	Yes	No	High	High	Low – moderate	Low	Moderate
Private tramping huts								
Tahurangi Lodge	Small	Unavailable	No	Moderate	High	Low – moderate	Low	Moderate
Waiweranui Trust Hut	Small	Unavailable	No	Moderate	High	Low – moderate	Low	Moderate
Aotuhia Hut	Small	Unavailable	No	Moderate	High	Low – moderate	Low	Moderate
Kapuni Lodge	Small	No	No	Moderate	High	Low – moderate	Low	Moderate
Pikawakawa Family Hut	Small	No	No	Moderate	High	Low – moderate	Low	Moderate
Manganui lodge	Small	Unavailable	No	Moderate	High	Low – moderate	Low	Moderate

Notes

- a. Campsites assumed to be 2.5 people, however, keep in mind many are allowed up to 6-8 people
- b. Small <50 people, Medium 50-200 people, Large >200 people
- c. As per MSOD 6th December 2021
- d. Assessment of the shared facilities available, size, ventilation, assumed time spent in area
- e. Low – walkable or brief drive, medium – drive <20 minutes, high – drive 20-45 minutes, very high – drive >45 minutes
- f. A score generated based on vaccination rate, level of deprivation, and percentage of Maori in a defined area
- g. If unavailable, assumed to be highest risk category

DISCUSSION

A review by the New Zealand Ministry of Health determined the secondary attack rate (SAR) of COVID-19 in New Zealand to be 45.6% within households, 10.4% for private gatherings, and very low (<1%) for other contact scenarios including outdoor gatherings and exercise². With the opening of Auckland's borders and anticipated movement over the summer holidays, the aim of this report is to identify accommodation settings in the Taranaki region which may become surrogate "households" during this time which could be high risk for COVID-19 transmission.

The accommodation providers identified as *very high population health risk* are Urenui Beach Camp, Onaero Bay Holiday Park, Waitara Holiday Park, Stratford Kiwi Holiday Park, Patea Motorcamp and Waverly Beach Camp. Other *high-risk* locations include Seaview Holiday Park (Mōkau), Fitzroy Holiday Park, Belt Road Seaside Holiday Park, Oakura Beach Holiday Park, Opunake Beach Holiday Park and Ohawe Beach Motorcamp.

Size was a significant contributor to their risk. Larger campgrounds have an increased risk for both a case arriving and potential for large numbers should an outbreak occur. Most campgrounds also are not using vaccine passports, during consultation with camp managers they acknowledged it would be exceptionally challenging to enforce the passports.

Most campgrounds in Taranaki are located rural settings. This increases the distance to medical care, COVID testing, and is associated with higher levels of community vulnerability. The Risk Rank score was used to assess the vulnerability to a COVID-19 outbreak and/or poor outcomes from disease should a case or outbreak occur³. It is reassuring Patea Motorcamp has chosen to use vaccination passports given it is located in one of the highest risk areas evaluated.

All campgrounds but one have shared facilities available for campers - kitchens, bathrooms and laundries were standard. These were assessed as moderate risk. When considering the risk of transmission and gatherings, it is important to consider the density of people, the duration of exposure and the ventilation of the area⁴. A large number of people are eligible to use these facilities and there is a risk for mingling of different groups, however we consider it is likely only 1-2 people per group would be making meals and some campers may choose to cook on their own cookers. Limited seating and the tendency to return to your campsite to enjoy your meal would help reduce the duration spent indoors. Finally, the ventilation was considered reasonable with large windows and open doors allowing a breeze. Many campsites contacted had or planned to place signage asking campers to be considerate of their time in the kitchens and to use QR codes for contact tracing.

Visitors from outside the region, specifically Auckland, are at an increased risk of introducing COVID to the Taranaki region. During the consultation process, campsite predicted between 60-90% of their guests would be from the Taranaki region which is reassuring. Visitors aged over 12 years from Auckland should be either fully vaccinated or should have provided a negative test prior to traveling out of the region, however it is likely COVID will become more disseminated during the risk time period.

The two hostel accommodation providers were considered moderate risk and low risk. Both hostels score well for their small size, lack of emergency housing, and access to medical care and testing centers as are centrally located. Both are in moderate risk communities. The shared facilities in the hostels were considered higher risk than those in campgrounds. Indoor kitchens are less well

ventilated; people visiting a hostel are more likely to cook and consume their meals in the kitchen/dining area and socialize in common areas compared to a campsite.

DOC tramping huts were all considered to have a *moderate population health risk*. All huts were considered small and require vaccine passports to attend, reducing the chance of introduction or a large outbreak. The shared spaces however are high risk. The shared areas of huts are small, often with bunkrooms sleeping up to 16 people. In poor weather these areas could become crowded for the duration of the night. Reducing risk of transmission is single outdoor toilets without enclosed bathrooms and the anticipation that in good weather, people are likely to cook and socialize outdoors. Risk of spread to the surrounding community was considered low from DOC huts as trampers usually travel to a trail head prepared for their tramp without the need to interact with the surrounding community, and DOC huts do not routinely have occupying staff. Despite some distance to healthcare, this risk was considered low as we assumed you must be well in order to hike to a hut therefore unlikely to deteriorate during your visit.

A literature review to estimate risk of transmission in shared accommodation was conducted, no studies investigating the transmission or secondary attack rate in camping grounds or public hostels specifically were found. The search was widened to include summer camps, school/university accommodation to see if this research was applicable to our setting.

Several reviews examining studies investigating COVID-19 transmission in the outdoor setting have concluded that the data is generally limited, poor quality, and highly heterogeneous^{4,5}. These papers do agree outdoor transmission is generally lower than indoor, however can be increased by settings with loud singing or chanting, prolonged exposure time, more densely populated spaces, and in situations where cases may “circulate” a crowd – such as a music festivals and markets^{4,5}. A review of three papers by Tommaso et al. found outbreaks of COVID-19 were uncommon at single day outdoor events and more common at multiday events – suggesting increased duration of contact and likely sleeping arrangements contributed to this risk⁴. One campground reported most families stay for 7-10 days.

Shared sleeping areas appear to be a strong risk for virus transmission, placing tramping huts at risk. Szablewski et al. reviewed an outbreak of COVID-19 at an overnight summer camp for youths in Georgia, USA and found an association between increased numbers in cabins and higher secondary attack rates⁶. In historical analysis of the 1918 influenza virus, transmission between military troops was noted to be significantly lower between those who slept outdoors in hammocks than those who slept indoors on bunks⁷. Asymptomatic college students living in a twin share rooms were more likely to test positive for COVID-19 than those who lived in single rooms⁸.

What is encouraging from this literature review for campsites is most inter-campsite interaction is likely to occur outdoors in large open spaced areas, unlike a crowded music festival or market setting where outdoor transmission has been demonstrated. Most campground users would only share sleeping environments with those within their immediate travel group, which may limit transmission to smaller family groups should a COVID case occur. Multi-campsite gatherings will still carry risk due to sitting close together for a longer time, but we would expect the risk of transmission to be less than an indoor private gathering due to increased ventilation. These findings do suggest an increased risk for dormitory style sleeping in hostels or tramping huts where people are sharing sleep environments with those outside their party.

Conclusion

A number of high and very high-risk accommodation settings over the summer holidays were identified in Taranaki using a population health risk matrix approach. Risk factors include large

numbers of attendees, not using vaccine passports, emergency housing on site, shared facilities with poor ventilation that encourage crowding or prolonged exposure, increased distance from testing or healthcare, and residing in a vulnerable community. Some of these factors are modifiable. During consultation, camp owners were very motivated and happy to be guided by recommendations on how to make their camp safer.

The transmission risk within each campground's facilities cannot be eliminated; however, steps can be taken to reduce the risk by reducing the density of people, the duration of exposure and increasing the ventilation of the area.

Early detection has been identified as a large problem for almost all campgrounds based out of central New Plymouth. Increased availability of free testing needs to be implemented to reduce barriers to early testing and detection as this is key to reducing large-scale outbreaks.

The number of attendees largely relates to the risk of cases being brought into the campsite and risk of a large outbreak should a case occur. Limiting these numbers is an option, however, may be difficult to police and has an impact on campgrounds financially. Utilizing vaccine passports is one way of lowering the risk of large gatherings.

Strengths and Limitations

Strengths of this report include assessment of most campsites in the Taranaki region and an equity focus to reduce disparity in our region. Due to time limitations, this report was prepared quickly. Ideally on-site consultation with a larger number of accommodation providers would have been arranged rather than over the phone, as this would help individual assessment of each site.

Recommendations

1. All accommodation providers should place signage and encourage limiting large or long congregation events in indoor common areas such as kitchens, dining or lounge areas. Chairs could be removed from indoor areas. Socialising, cooking and washing dishes outside should be encouraged. Utilising a booking system or closing indoor TV rooms for this season is recommended.
2. When possible, ventilation to common areas should be maximized by opening windows/doors or the use of air conditioning units which bring in fresh air from outside (rather than recirculate air)
3. When not at full capacity and if more than one ablution/kitchen block available – campgrounds should consider distributing groups to reduce the numbers using each block.
4. Campers can be encouraged to cook on their own campsite
5. Testing needs to be easily available at or near all high-risk campsites
 - a. RAT testing onsite – “packs” available?
 - b. Mobile testing and education van
 - c. Consider RAT testing of staff – to prevent taking COVID home to families
6. Hostels should consider how guests are distributed between dorm rooms to reduce the number of people room sharing if possible
7. Posters informing visitors of symptoms of COVID-19 and advise on what to do should they become unwell should be distributed to all accommodation providers
8. Further evaluation into emergency accommodation is required to assess the risk of transmission in group emergency housing, mens' shelters etc.

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IMAGE GALLERY



Figure 1 Ngapurua Hut (hutbagger.co.nz)



Figure 2 Maketawa Hut (hutbagger.co.nz)



Figure 3 Waingongoro Hut (personal photo)



Figure 4 Campground kitchen (from website)



Figure 5 Campsite kitchen (site visit)



Figure 6 Campsite kitchen (site visit)



Figure 7 Campsite bathroom (site visit)



Figure 8 Campground laundry (site visit)



Figure 9 Campground laundry (from website)



Figure 10 Campground kitchen (from website)