

Making sure the New Zealand border is not our Achilles heel: repeated cross-sectional COVID-19 surveys in primary care

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ABSTRACT

AIM: Quick COVID-19 Surveys are an international collaboration designed to rapidly analyse and disseminate a primary care perspective on the pandemic and associated health response. In this paper we present results from surveys relating to opening the New Zealand border.

METHOD: Three surveys were distributed to primary care practices between May and December 2020. A range of primary care member organisations distributed the survey augmented by snowballing. Quantitative data were analysed using descriptive statistics and qualitative data through an inductive process and grouped into themes.

RESULTS: Respondents became increasingly supportive of opening a trans-Tasman border but not internationally. Two broad themes were evident: (1) making sure that the border is not an Achilles heel and (2) effective strategies to reduce local transmission. These themes highlight primary care's concerns around management of the border and the management of local spread respectively.

CONCLUSION: The results highlight concerns around border control from a primary care perspective. The border control issues raised by primary care have proven to be prophetic at times and reflect the role that primary care has as observers of society. The survey mechanism provides a template for rapidly eliciting a primary care voice for future health issues.

As is well-known, in December 2019 the Chinese authorities advised the World Health Organization of cases of pneumonia of unknown cause, originating in Wuhan, Hubei province. This was subsequently identified as caused by a severe acute respiratory syndrome coronavirus 2 (named SARS-CoV-2), and a pandemic of coronavirus 2019 (COVID-19) was declared on 11 March 2020.

In parallel with researchers from the United States,¹ Canada² and Australia,³ from May 2020 we conducted regular (fortnightly or monthly) surveys of New Zealand general practices on the impact of the pandemic on primary care.⁴ Each fortnightly or monthly survey was termed a 'Series' and sequentially labelled.

Our surveys were supported by a number of primary care organisations, including the Royal New Zealand College of General Practice (RNZCGP), the Royal New Zealand College of Urgent Care (RNZCUC), General Practice New Zealand (GPNZ), the Rural General Practice Network (RGPN) and the Practice Managers and Administrators Association of New Zealand (PMAANZ). Summary findings were rapidly available after each survey closed and disseminated to key policymakers, including the Chief Science Adviser for the Ministry of Health and the Director-General of Health, and the New Zealand media.

The participants were not intended to be representative of all New Zealand primary care practices. As indicated above, there are

many organisations that represent aspects of New Zealand primary care, as well as the 30 primary health organisations (PHOs) to which practices may belong, but no single organisation speaks for all. The overall aim of the project was to provide an opportunity for the voices of primary care practice staff to be heard by policymakers.

The first line of defence against COVID-19 is border control, and once elimination has been achieved, ongoing primary healthcare approaches (public health and primary care), particularly COVID-19 testing and contact-tracing, are required to prevent or address border breaches from incoming travellers.⁵

Our borders were restricted on 16 March 2020, and then closed to all but New Zealand citizens and residents on 20 March. By 23 May 2020 (Series 1) New Zealand had moved down to Alert Level 2 and the curve had flattened. There had been 1,473 community and 31 managed isolation and quarantine (MIQ) cases, with 21 deceased. By 5 June (Series 2) there had been no more community cases for two weeks, and the country moved down to Alert Level 1 on 9 June. In August a community cluster from a border breach led to the Alert Level being raised (Auckland to 3, the rest of the country to 2), until it returned to Alert Level 1 on 8 October. By 9 December (Series 10) community spread had again ceased, and all cases were in MIQ.⁶

The aim of this paper is to present the findings of responses from New Zealand primary care doctors, nurses and practice managers regarding border control issues on 23 May, 5 June and 9 December 2020.

Method

The overall project uses a repeated cross-sectional survey design with a mixture of quantitative and qualitative data.

Ethical approval

Approval was granted by the University of Auckland Human Participants Ethics Committee on 11/05/20 for three years. Reference 024659.

Participants

Participants were doctors, nurses, nurse practitioners and practice managers working in New Zealand general practice, urgent care or other primary care settings. Secondary care clinicians were excluded.

Participant recruitment

Links to the survey were disseminated via the RNZCGP, the RNZCUC, GPNZ, RGP, the PMAANZ, the New Zealand Medical Association, several PHOs not aligned with GPNZ and Facebook groups, including GPs Down Under, New Zealand Women in Medicine, GPs for GPs and Health Forum NZ. Respondents could also sign up for alerts to be sent each new survey link. A snowballing method was used—participants are invited to pass the link on to their primary care colleagues. Should they receive invites from multiple sources, they were asked to complete the survey only once.

Survey design

The survey in each series was based on the United States core questions plus one to three additional ('flash') questions determined by local contexts. Both quantitative responses, such as Likert scales and free-text options, were included. Demographics included their professional role (doctor, nurse, nurse practitioner, practice manager) and the size and nature of the practice (general practice, urgent care, rural or urban).

Survey delivery

The participant information sheet was accessed at the start of the survey. Completing the survey was implicit consent. Surveys were launched by the United States team at the Larry A Green Center using SurveyMonkey. No stored information is identifiable. Secure results were shared in a password-protected file using Filelocker. All analyses of New Zealand data were conducted by the New Zealand research team.

Questions analysed in this paper

Series 1, Series 2 and Series 10 surveys included the flash question, 'Do you think it is safe to open up the country?' In Series 1 the options were 'No', 'Yes', 'It depends', and 'Unsure'. In Series 2 and Series 10, the choice of answers was refined to 'No', 'Yes for domestic travel', 'Yes for trans-Tasman travel', 'Yes for Pacific Islands travel' and 'Yes for all international travel'. In all cases a free-text box was available for comments regarding the reasons for their response.

The surveys started after the New Zealand State of Emergency had been lifted on 14 May and community spread had been virtually eliminated. Series 1 was launched when New

Zealand was under Alert Level 2 (23 May); Series 2 when stepping down from Alert Level 2 to 1 (5 June); and Series 10 after New Zealand had been under Alert Level 1 for some weeks, following a second community outbreak in August (9 December). At Alert Level 1, the disease is contained in New Zealand but uncontrolled overseas, with sporadic imported cases and possible occasional isolated community transmission. Key events are shown in Figure 1.

Analyses

The quantitative responses were analysed using descriptive statistics. The free-text responses to the question about opening up the border in the three surveys were collated and coded independently by two researchers (KE and FG). An inductive content analysis approach was taken to coding with text categorised and then organised into themes through an abstraction process. Differences in coding were discussed between KE and FG before finalising the themes.

Results

There were 170, 153 and 64 participants in Series 1, Series 2 and Series 10 respectively (Table 1), with free-text responses to the question made in 100%, 65% and 30% of their responses.

Quantitative responses to the question about whether it was safe to open up the country are shown in Table 2. Free-text responses to the option 'It depends' in Series 1 led to qualifying 'Yes' with 'domestic', 'trans-Tasman' or 'international travel' in Series 2, and in Series 10 a Pacific Islands option was also added. It can be seen that by December 2020 just over a quarter were comfortable to open up to Australia and 42% to the Pacific, but none wished to open the border further.

During analysis of the qualitative data, two main themes were identified: (1) making sure that the border is not an Achilles heel and (2) effective strategies to reduce local transmission.

Making sure that the border is not an Achilles heel

Participants were uniformly opposed to opening up the country to international travel (Table 2). The border was generally seen as a significant risk in

allowing COVID-19 to re-enter the country. There were three broad approaches, or sub-themes, to managing the border suggested by participants:

- stopping it before the border
- strengthening border controls
- opening with restrictions.

'Stopping it before the border' related to participants' concerns that there is too much COVID-19 overseas or that global control needs to occur first before New Zealand can allow people to enter: for example, "International situation still unstable, NZ locally stable" [GP participant]. Often participants expressed fear, uncertainty or anxiety that our health system would not cope with another wave of COVID-19: "We are not ready for the second wave" [GP participant]. The experiences from the first wave of COVID-19 in New Zealand meant that participants would prefer to avoid further lockdowns, maintain a strict border and wait until vaccination enabled more open travel.

"Too risky to lose the gains we have made. Not sure the country could cope with a level 4 lockdown again."
[GP participant]

This latter quote, pertaining to losing the gains, related to other concepts of sacrifice or suffering that led to greater outcomes, and that opening the border would undo the hard work done by so many people.

"The risk of bringing a covid case to NZ is too high. It will jeopardise all we have sacrificed and achieved so far." [Practice manager participant]

Concerns around the permeability of the border led to calls for greater strengthening of border controls for returning residents and border workers. Air crew and people entering on special work visas were identified as risks. The importance of strict quarantine procedures for everyone, as well as ongoing monitoring of returnees after leaving quarantine, was highlighted.

"I do not believe quarantine or self isolation is monitored appropriately in Auckland. There are many anecdotal instances... of the laxity of Auckland quarantine. Is close ongoing monitoring of these people occurring after they leave quarantine/isolation?"
[Practice manager participant]

Figure 1: Key events relating to New Zealand border controls and social restrictions.

29 Dec 19	2019 Chinese authorities advise the WHO of cases of pneumonia of unknown cause, originating in Wuhan, Hubei province
7 Jan 20	China isolates a novel coronavirus, at first called 2019-nCoV and later SARS-CoV-2
30 Jan 20	WHO declares the epidemic a global health emergency
3 Feb 20	NZ temporarily bans entry of foreigners from, or who have travelled through, mainland China. Homecoming NZers exempt but must self-isolate for 14 days
7 Feb 20	Ministry asks arrivals from or via China to register their 14-day self-isolation with Healthline
12 Feb 20	Disease renamed COVID-19
20 Feb	6 NZers enter quarantine facility after evacuation to NZ by air from the Diamond Princess cruise ship in Japan. 4 NZers from the ship admitted to hospital in Japan with the virus
28 Feb 20	NZ's 1st confirmed case reported to Ministry of Health. Entry ban on foreigners from/via China extended to Iran. Returning NZers exempt but must self-isolate
2 Mar 20	People arriving from northern Italy and South Korea must self-isolate for 14 days
11 Mar 20	WHO declares the outbreak a pandemic
16 Mar 20	All passengers arriving in NZ, except those arriving from 17 Pacific Island countries/territories, must self-isolate for 14 days. Government bans non-essential outdoor gatherings of 500-plus people; schools and universities exempt
19 Mar 20	Government bans indoor events with more than 100 people; exemptions for workplaces, schools, supermarkets and public transport. Advises NZers not to travel overseas and urges those travelling overseas to consider returning home immediately
20 Mar 20	Border closed to most foreigners. Exempted categories include essential health workers
21 Mar 20	Alert Level system announced. NZ at Level 2
23 Mar 20	Government lifts country to Alert Level 3
25 Mar 20	Alert Level 4 lockdown
27 Apr 20	Alert Level reduced from 4 to 3
14 May 20	Alert Level 2. State of National Emergency expires
9 Jun 20	New Zealand steps down to Alert Level 1
12 Aug 20	Community cluster means Auckland goes to Alert Level 3, and rest of NZ to Level 2 for 3 days
14 Aug 20	Alert Levels extended
31 Aug 20	Auckland steps down to Alert Level 2, informally called Level 2.5 because of smaller permitted gathering sizes than the rest of the country
23 Sep 20	Auckland down to Alert Level 2 without restrictions on travel and gatherings, rest NZ Alert Level 1
8 Oct 20	Auckland moves down to Alert Level 1 - all of NZ now at Alert Level 1.
15 Feb 21	Auckland put into Alert Level 3 lockdown and the rest of the country raised to Level 2 in response to three community cases shown to be UK variant
18 Feb 21	Auckland drops down to Alert Level 2, the rest of the country to Level 1
19 Feb 21	NZ's 1st vaccination against COVID-19, using Pfizer-BioNTech vaccine Comirnaty. Vaccinators are 1st recipients
23 Feb 21	Auckland drops to Level 1, all of NZ now at Level 1
28 Feb 21	Auckland moves to back to Alert Level 3 lockdown, rest of NZ Level 2

Data extracted from *NZ Doctor's* timeline (<https://www.nzdoctor.co.nz/timeline-coronavirus>) and the history of COVID-19 Alert System on [covid19.govt.nz](https://covid19.govt.nz/alert-system/history-of-the-covid-19-alert-system/) (<https://covid19.govt.nz/alert-system/history-of-the-covid-19-alert-system/>).

Table 1: Participants in Series 1, 2 and 10.

	Series 1		Series 2		Series 10	
	Total	Qualitative responses	Total	Qualitative responses	Total	Qualitative responses
GPs and urgent care doctors	123 (72%)	121 (71%)	85 (55%)	52 (34%)	50 (78%)	14 (22%)
Nurse practitioners	2 (1%)	2 (1%)	0	0	0	0
Practice nurses	21 (12%)	21 (12%)	16 (11%)	9 (6%)	7 (11%)	3 (5%)
Practice managers	27 (16%)	27 (16%)	58 (40%)	38 (25%)	7 (11%)	2 (3%)
Total*	170 (100%)	170 (100%)	153 (100%)	99 (65%)	64 (100%)	19 (30%)

*There are several respondents who indicate multiple roles.

Table 2: Responses to, 'Do you think it is safe to open up the country?'

	Series 1	Series 2	Series 3
No	71 (42%)	18 (12%)	10 (16%)
Yes	23 (14%)	-	-
It depends...	68 (40%)	-	-
Unsure	7 (4%)	-	-
Yes, domestic	-	116 (76%)	47 (73%)
Yes, trans-Tasman	-	15 (10%)	17 (27%)
Yes, Pacific Islands	-	-	27 (42%)
Yes, international	-	4 (2%)	0
Total	170 (100%)	153 (100%)	64

The risks of the border were identified by one participant as being the Achilles heel of New Zealand's elimination strategy: "the border is the Achilles heel of the plan for elimination failing" [GP participant].

Despite proposals to open travel bubbles with Australia and Pacific nations, the majority of participants were hesitant and wanted to see restrictions in place before opening. Key to this was ensuring that there was adequate control in Australia before a travel bubble could be considered. Ongoing sporadic cases in Australia meant a general reluctance to allow travel, and, when combined with the fatigue caused by lockdowns that many of the participants were seeing in the public, this meant that the risks of further COVID-19 cases arising from Australia were perceived as being too high.

"I'd like to see a trans-Tasman/Pacific bubble, but with ongoing new infections in Australia, and a significant relaxation/fatigue with lockdown, not sure this will be achieved." [GP participant]

A further concern for at least one participant was the prospect of New Zealanders spreading COVID-19 into the Pacific and the impact that might occur on a fragile health system.

"Would be scared of NZ taking it into Pacific Islands after measles problems." [GP participant]

Although overseas travel within bubbles was seen as potentially fraught, a few participants in Series 2 felt that it was necessary to open up travel in order to protect the economy.

Effective strategies to reduce local transmission

This theme related to three interconnected areas, or sub-themes, of eliminating COVID-19 in the community before border opening could be considered:

- community control
- tracing and testing individuals
- vaccinating population.

Participants' views of community control were around ensuring that COVID-19 was effectively eliminated, primarily by being certain that adequate time occurred between decisions around Alert Level changes.

"We need to be clear about the effects of going to Level 2, particularly in opening bars to ascertain if that will flush out further cases and possibly lead to clusters as has happened in overseas countries with similar low to zero numbers at the time. We need 2 x 2 weeks of zero cases to be certain because of the incubation/ duration of infection period." [Practice manager participant]

Workplaces and general practice waiting rooms were potential sites where ongoing transmission could occur and participants were reluctant to see a delayed spike in cases occurring: "We don't want a delayed spike" [GP participant]. Of concern to a couple of participants was the observation that New Zealanders had become quite complacent towards COVID-19 and this could lead to further outbreaks.

"Those of us who have worked throughout can see that so many people have relaxed their standards already, so we could have an outbreak quite easily." [Practice manager participant]

Effective tracing and testing individuals was deemed a critical component of reducing local transmission prior to border opening. One important element that related to this was gold standard contact tracing: for example, "Contact tracing needs to be perfect" [Practice manager participant].

Other elements included ongoing surveillance testing and strict guidelines on when to self-isolate and get tested. One participant identified the need for adequate provision of sick leave to enable people to self-isolate and not feel pressured to come into work.

"Government leadership to ensure workers/population supported to self-isolate with even minor respiratory symptoms (eg, extended access to sick-leave)." [GP participant]

The final sub-theme of effective strategies was vaccination. Participants did not see any hope on the horizon with opening up the border until an effective vaccination programme had been rolled-out. Opening the border in the absence of vaccinations

would mean that the sacrifices would be for nothing.

“I would expect a vaccine and a better funded and structured healthcare system first. We have no immunity and no vaccine; the risks would be the same for our population as at the beginning of the pandemic. If they open up before any of the above, then the lockdown and it all entailed was for nothing.” [GP participant]

Discussion

The importance of border control, along with quarantine, to curb the spread of pandemics has been recognised throughout history.⁷ Rapid border control is seen as the front-line strategy.⁵ Border control measures enforced in China have been shown to dramatically limit spread,⁸ and not instigating travel restrictions is likely to have led to accelerated spread in Spain, Italy and Central Europe.⁹

A study of different implementation strategies in seven Western-Pacific countries (Hong Kong Special Administrative Region, Japan, Malaysia, Shanghai, Singapore, South Korea, Taiwan) found that implementation of border control measures, along with case-finding by rapid tests and social distancing measures, was associated with bringing outbreaks under control,¹⁰ and a Taiwanese study records eliminating an early outbreak using border control along with enhanced surveillance, case detection with contact tracing, quarantine and population-based interventions, such as the use of face masks.¹¹

New Zealand researchers recognise that the border is our Achilles heel, and incoming cases may lead to re-emergence of community transmission. Kvalsvig et al¹² recommend increased risk management with strategies that minimise incoming infections, risk of missed cases or contacts and consequences of infected or susceptible individuals mixing with and infecting others. Other researchers identify that a surveillance system with a very high level of routine testing is required to detect ongoing breaches at our borders.¹³

Concerns around the Achilles-heel nature of the border has also led primary care

practices to reflect on the sacrifices that have occurred to eliminate COVID-19. Participants viewed the sacrifice in fragile terms, reflecting their position as observers of society. This framing is consistent with the proposition that solidarity becomes more tenuous when sub-groups of the population feel invulnerable and fail to adhere to public health messaging¹⁴ (eg, failure to social distance or border breaches) or are given certain privileges (eg, air crew).

New Zealand academics have not been unanimously supporting border controls and social restrictions, and since February 2020 a small group of scientists and clinicians have advocated ‘COVID-19 Plan B’, protesting that New Zealand should not ‘hunker in a bunker’ and shut ourselves off from the rest of the world.¹⁵ They continue to maintain a Facebook page promoting full opening of borders. Results from our study indicate that general practice staff are not convinced by the data promulgated by this group. Given that COVID-19 Plan B now also advocates against government roll-out of the COVID-19 vaccination programme,¹⁶ it is important to note that this vocal group appears to have had little influence on GP opinion.

Strengths and limitations

Our repeated Quick COVID-19 Surveys give primary care practices a voice. Rapid analyses and dissemination to key ministry officials, primary care organisations and the media has given them opportunity to impact on policy. Findings have been disseminated through TV, radio and written media and have included Ministry of Health responses on how some of the expressed concerns will be addressed, such as access to tests and personal protective clothing and funding for additional workload: for example, testing or vaccination delivery (see <https://covid-19-pc.auckland.ac.nz/media/>). However, it should also be noted that the sample size is relatively small and not representative of the whole practice staff population, and the rapid analyses are inevitably ‘rough and ready’.

Implications

Our participants have proved to be prophetic on occasion. For example, their concern that New Zealanders are too

relaxed about the possibility of community spread has recently come to pass, with the February/March 2021 lockdown due to those told to self-isolate breaking the rules. Other examples are their caution towards opening up to Australia (which also continues to have community outbreaks) and needing to keep borders closed with Pacific countries to protect them. Primary care health professionals are at the interface between the public and government. Utilising rapid surveys, such as the Quick COVID-19 Surveys, provides an opportunity for policymakers to understand a primary care perspective that is often grounded in pragmatic reality.

Conclusion

These Quick COVID-19 Survey results have highlighted concerns around border control from a primary care perspective. The border control issues raised by primary care have proven to be prophetic at times. Often a primary care perspective is lacking in policy decisions and the rapid analysis and dissemination of the surveys has the potential to address this to some degree. Greater attention could be applied to the use of rapid, repeated primary care-based surveys in the future, in order to understand a primary care position on an evolving public health matter.

Competing interests:

Nil.

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