

Supporting Notes to Suppression Strategy Map

Draft (As at 21 December 2021, supporting Version 9 of the strategy)

Note: The document below is an internal scoping document; it is not a report; it has not been edited or referenced. It is frequently updated, based on new data or thinking. It is provided as supporting notes to the suppression strategy to help provide more information on the current situation and the probable direction of travel.

KEY TAKEAWAYS:

1. The healthcare system has had a number of waves that have significantly hit it over the last 20 months, including COVID-19 followed by an elective surgery surge, RSV and then Delta. Personal communication, NZNO (6 October 2021).
2. Main demand will fall on primary health care (e.g. GPs), who will need to determine quickly who is:
 - (i) C+ versus C-,
 - (ii) who is well enough for home care versus who needs hospital care,
 - (iii) daily triage care for those at home, and
 - (iv) provide ongoing care for long COVID-19.

GPs need to remain open and be well supported; if they are not ... the surge will happen at ED. The UK found ED became overwhelmed easily due to COVID-19 and COVID-19 protocols (reducing space/resources). They have still not recovered; see Figures 1 and 2.
3. Inaccurate COVID-19 tests will create more problems (rather than less). However, it is hoped tests will become faster, more reliable, and more mobile.
4. Obesity is a big factor in hospitalisations. Specific targeted vaccination initiatives can help: e.g. focus on vaccinating patients of VCLAs., focus on Pacific and Māori communities, and focus on older individuals.
5. Consider potential strategic options to take pressure of healthcare (e.g. how would a North/South Island divide work?). We think quality testing is more important than vaccinations as people can still pass on Delta once vaccinated. As people move from a higher level to a lower level, they need a quality test and isolation (we do not think whether they are vaccinated or not matters, other than moving the risk of hospitalisation to another health board).
6. A suppression strategy will require a two-pronged approach: (i) Continued management at the border to limit new variants and Delta outbreaks as well as (ii) stringent friction and controls in the community so the virus finds it difficult to spread.
7. The June 2022 reforms to the healthcare system should be delayed – as healthcare system is in ‘COVID ready’, is already dealing with COVID in Auckland, and there needs to be consultation (many comment there is no or little consultation to date)
8. The 2022 Budget will require increases in Pharmac funding, investment in hospital infrastructure and investment in research.
9. An effective response requires the ability to make decisions fast, on the ground, to take risks and to have support and resources. For example, Lord Beaverbrook, who was appointed by Churchill to build planes (and no one was allowed to get in his way). It requires letting go of power to the right person (and that means judgement).

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BACKGROUND

McGuinness Institute publications on COVID-19

- Discussion Paper 2021/03 – *A COVID-19 Situational Report: Beyond Aotearoa New Zealand's Fortress as at 1 September 2021*. Retrieved 7 October 2021 from <https://www.mcguinnessinstitute.org/publications/discussion-papers/>
- Think Piece 37 – *The gap between doses matters!* (June 2021). Retrieved 7 October 2021 from <https://www.mcguinnessinstitute.org/publications/think-pieces>
- Think Piece 35 – *Where next? A Garden of Eden or a Slough of Despond? Sir Michael Cullen*. (June 2020). Retrieved 7 October 2021 from <https://www.mcguinnessinstitute.org/publications/think-pieces>
- Working Paper 2020/12 – *An analysis of the responses to the 'Open Letter to District Health Boards* (dated 25 March 2020) Retrieved 7 October 2021 from <https://www.mcguinnessinstitute.org/publications/working-papers>
- Working Paper 2020/06 – *Letter to the Minister on AgResearch's approval for GM animals in light of pandemic risk*. Retrieved 20 October 2021 from <https://www.mcguinnessinstitute.org/publications/contributing-papers/>
- *Survey Insights: An analysis of the 2020 NZNO PPE Survey*. Retrieved 20 October 2021 from <https://www.mcguinnessinstitute.org/publications/surveys/>
- Working Paper 2020/01 – *Analysis of options if P2/N95 masks are no longer available*. Retrieved 20 October 2021 from <https://www.mcguinnessinstitute.org/publications/working-papers>
- Contributing Paper 2015 – *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience* Roger Dennis, Wendy McGuinness and Rick Boven (May 2015). Retrieved 7 October 2021 from <https://www.mcguinnessinstitute.org/publications/contributing-papers/>
- Think Piece 33 – *The Long Normal: Preparing the National Reserve Supply (NRS) for pandemic cycles*. Retrieved 20 October 2021 from <https://www.mcguinnessinstitute.org/publications/think-pieces/>
- *Managing the risk of a 'Bird Flu' pandemic: A chartered accountant's perspective*. Retrieved 20 October 2021 from <https://www.mcguinnessinstitute.org/publications/articles/>
- Also our COVID timeline can be found here: <https://www.mcguinnessinstitute.org/projects/pandemic-nz/covid-19-timeline>. It is currently being updated.

A: THE RISK OF OVERRIDING OUR HEALTHCARE SYSTEM: THE UK EXPERIENCE

Recommendations:

- 1: Focus on the whole healthcare system
- 2: Dashboard for the whole healthcare system
- 3: Delay July 2022 'Health New Zealand' healthcare system reform and consult (time to be careful and not add more stress to a stressed system)

The British Medical Association (BMA) estimates that, between April 2020 and July 2021, there were: 3.79 million fewer elective procedures and 26.02 million fewer outpatient attendances. See British Medical Association. (16 September 2021). *Pressure points in the NHS*. Retrieved 6 October 2021 from <https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/pressures/pressure-points-in-the-nhs>

Figure 1: UK elective procedures - 2019-2021

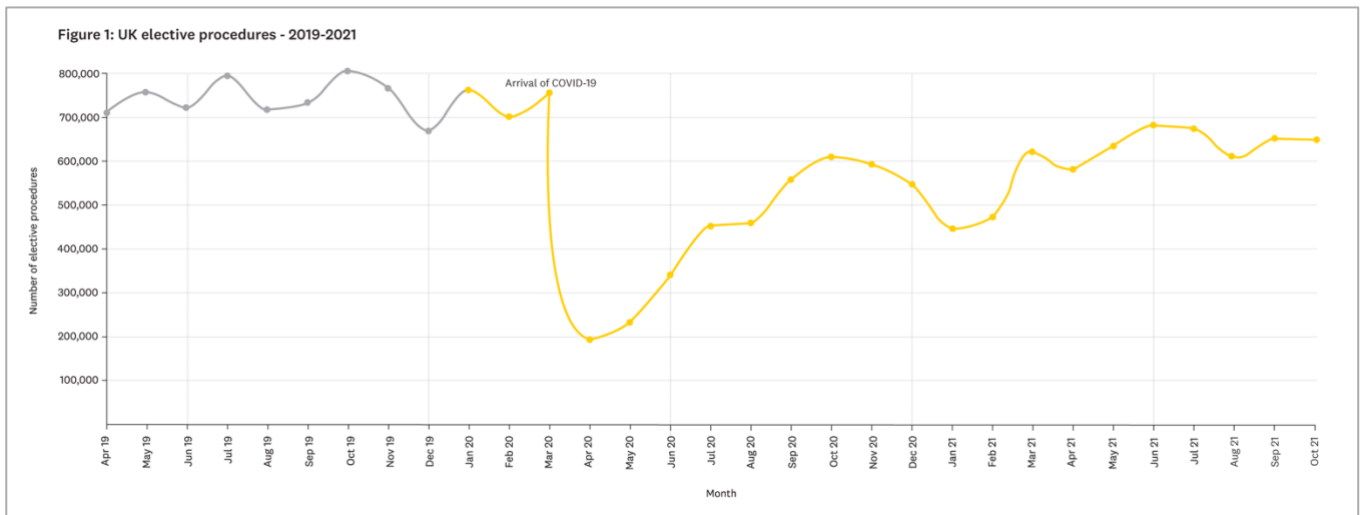
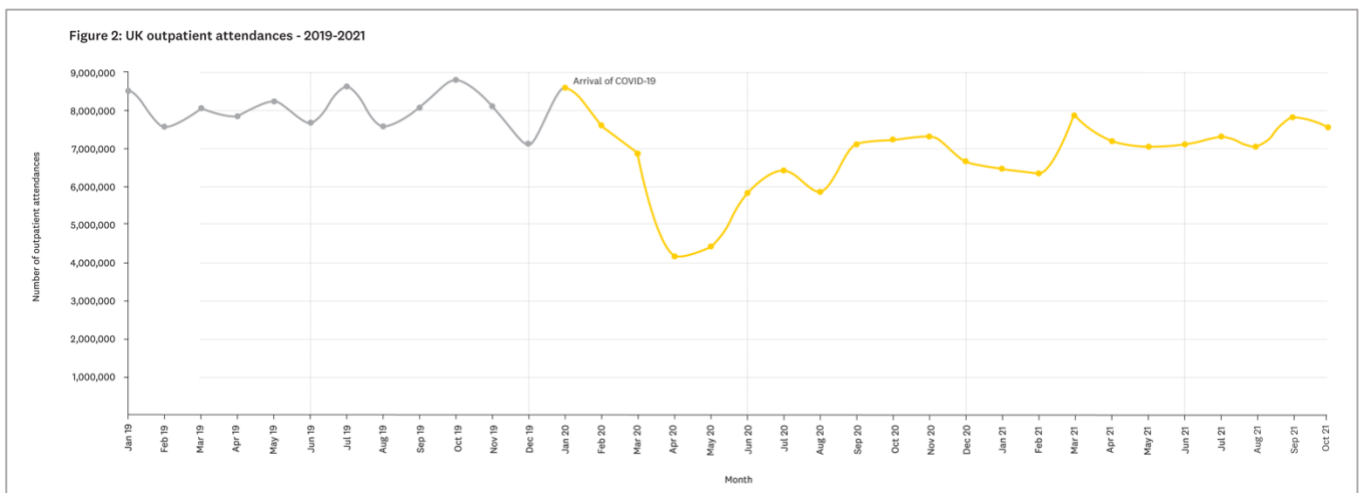
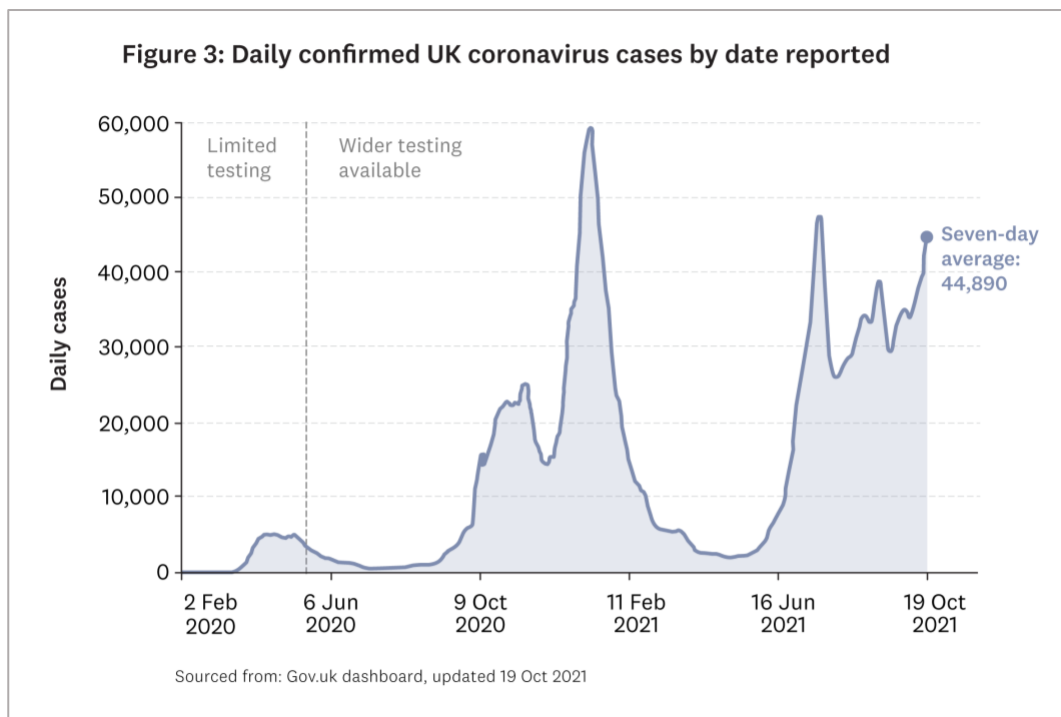


Figure 2: UK outpatient attendances - 2019- 2021



The NHS letter sent to UK healthcare workers on how to manage an overloaded healthcare system in March 2020 may be useful. See NHS. (17 March 2020). Letter from Simon Stevens (NHS Chief Executive) and Amanda Pritchard (NHS Chief Operating Officer): *Next Steps On NHS Response To COVID-19*. Retrieved 6 October 2021 from <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/urgent-next-steps-on-nhs-response-to-covid-19-letter-simon-stevens.pdf>

Figure 3: Daily confirmed UK coronavirus cases by date reported



‘The seven-day average of new Covid cases in the UK has risen from around 34,000 a day at the beginning of October to 44,145 cases per day.

And the number of people in hospital across the UK who have Covid has risen by 10% in a week, from 7,039 on 11 October to 7,749 on Monday. The number of deaths within 28 days of a positive coronavirus test reported on Tuesday was the highest since 9 March, although due to reporting lags over the weekend daily figures are often higher on a Tuesday.’ See BBC. (20 October 2021). *Covid: No 10 'keeping a close eye' on rising cases*. Retrieved 20 October 2021 <https://www.bbc.com/news/uk-58973185>

MI Comment:

Given the very high numbers in the UK- both in terms of people fully vaccinated [67%, Figure 7 below] and cases currently with COVID-19 (almost 1 in 60), it is worth considering that vaccinated people can spread the virus more than initially envisaged. See this September review by CDC:

‘For the Delta variant, early data indicate vaccinated and unvaccinated persons infected with Delta have similar levels of viral RNA and culturable virus detected, indicating that some vaccinated people infected with

the Delta variant of SARS-CoV-2 may be able to transmit the virus to others.(163, 164, 177-180) However, other studies have shown a more rapid decline in viral RNA and culturable virus in fully vaccinated people (96, 177, 180-182). One study observed that Delta infection in fully vaccinated persons was associated with significantly less transmission to contacts than persons who were unvaccinated or partially vaccinated.(181)' [Bold added]

Centers for Disease Control and Prevention (CDC). *Science Brief: COVID-19 Vaccines and Vaccination* (15 September 2021). Retrieved 21 October 2021.

<https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/fully-vaccinated-people.html>

Feedback and comment from the UK

Person from the UK said:

'We have not had a return to 'normal' GP surgeries here – doctor appointments are by phone in the first instance and even getting a phone appointment is a tall order! Online application for an appt is always full. Other illnesses and conditions must be slipping through the cracks. A prime example here is mental health. Such GPs are so stretched that mild / medium Covid+ cases should not require their attention.' Personal communication (13 October 2021).

Another UK person said:

'Covid Tracer App - that was a disaster in the UK - it resulted in a ping-demic and even law-abiding citizens like me just turned it off except when I checked into a restaurant and even then, once I had demonstrated that I had scanned in, I clicked 'no - incorrect venue' to make sure I wasn't pinged if some other random person in the restaurant tested positive. [and]

'Their home care quarantine packages sound great - but we have 40K people testing positive per day at the moment...if/when numbers get high, they couldn't possibly provide all of those things to everyone and really, most (vaccinated) people don't need any of them - they just need a day or two on the sofa!' Personal communication (13 October 2021).

And another UK person said:

'Our TV each night shows no. of cases per day & no. of deaths & no. of hospitalisations & no. of vaccinated. I think it would be valuable to show no. of hospitalised / no of deaths together with information as to whether these people were vaccinated or not. That way we could see how vaccination may not stop a person getting Covid+, but how it keeps people out of hospital / from dying. Thereby re-educating New Zealand who have thought an elimination policy was possible but now need to understand that NZ is part of the global pandemic.

Personal travel information:

We travelled abroad to Mallorca 3 weeks ago, now that travel abroad is opening up here. The positive gains from going abroad having been locked down are fantastic as I am sure you will appreciate!

Going to Mallorca we needed to supply proof of double vaccination and complete a passenger locator form only. We were on holiday from the moment we landed. I tell you this to cf to your Arrival: vaccinate, test, test, test paragraph! Like NZ Mallorca depends highly on tourism and is a small island.

Coming back into the UK was more complicated, 5 things needed... passport / boarding pass / passenger locator form / negative lateral flow test done whilst abroad / evidence confirming PCR test will be done 2 days after return. I felt very sorry for the airline staff having to check all passengers had all information. Queues were lengthy! I think UK Govt should have been responsible for providing staff for additional checks at foreign airport if their rules were to be adhered to. I felt most at risk of getting Covid in the indoor and very lengthy queue to passport control at Luton airport.' Personal communication (13 October 2021).

Recent Research/Articles

See discussion about how the UK is trying to fix damage created by COVID-19 to healthcare BAU.

Pym, H. (12 August 2021). *NHS waiting list in England hits record 5.45 million*. BBC News. Retrieved 6 October 2021 from <https://www.bbc.com/news/health-58186708>

NHS. (13 May 2021). *NHS's £160 million 'accelerator sites' to tackle waiting lists*. Retrieved 6 October 2021 from https://www.england.nhs.uk/2021/05/nhss-160-million-accelerator-sites-to-tackle-waiting-lists/#utm_campaign=1797939_Political%20Update%2014.05.21&utm_medium=dotmailer&utm_source=emailmarketing&dm_i=4D4N,12JAR,117UT4,4V12M,1

MI Comment:

Health New Zealand: Propose delaying the proposed Health New Zealand healthcare reform (July 2022), which will allow time for consultation and will reduce risk of potentially restructuring our healthcare system during a future peak in COVID-19 community cases. See DPMC. *Frequently asked questions*. Retrieved 20 October 2021 from <https://dpmc.govt.nz/our-business-units/transition-unit/response-health-and-disability-system-review/faqs#next-q1>

See Health New Zealand. Retrieved 20 October 2021 from <https://www.futureofhealth.govt.nz/>

“The Pae Ora Healthy Futures Bill replaces the 20 District Health Boards with a new Crown organisation, Health New Zealand, providing a national health service with a strong focus on primary health care.

The bill also establishes an independent Māori Health Authority that will work in partnership with Health New Zealand.

“For too long the kind of healthcare you receive has depended on where you live and our health system has been about trying to treat people in hospitals for conditions that could have, and should have, been dealt with sooner,” Andrew Little said.

“We need a system that works for everyone, and that is what we are building.”

“These changes will transform Māori health,” Associate Health Minister (Māori Health) Peeni Henare said.

“Experiences with the health system stop many Māori going to the doctor when they should, and that costs lives.

“These changes recognise the role of Iwi-Māori Partnership Boards and that Māori should be able to exercise tino rangatiratanga and mana motuhake when it comes to planning and decision-making for health services at a local levels,” Peeni Henare said.

“Giving people a real say in the type of services they have is critical, and the bill provides for communities to come together in locality networks, which can work with Health New Zealand and the Māori Health Authority to develop services that work for local people,” Andrew Little said.

The legislation also establishes an expanded Public Health Agency within the Ministry of Health to lead public health strategy, as well as an expert advisory committee on public health.

The Ministry of Health will continue to act as the health system’s chief steward, providing policy advice to the Government and regulating and monitoring the way the health system works.

The bill will have full select committee consideration, is expected to be passed next year, and will come into effect on July 1.’

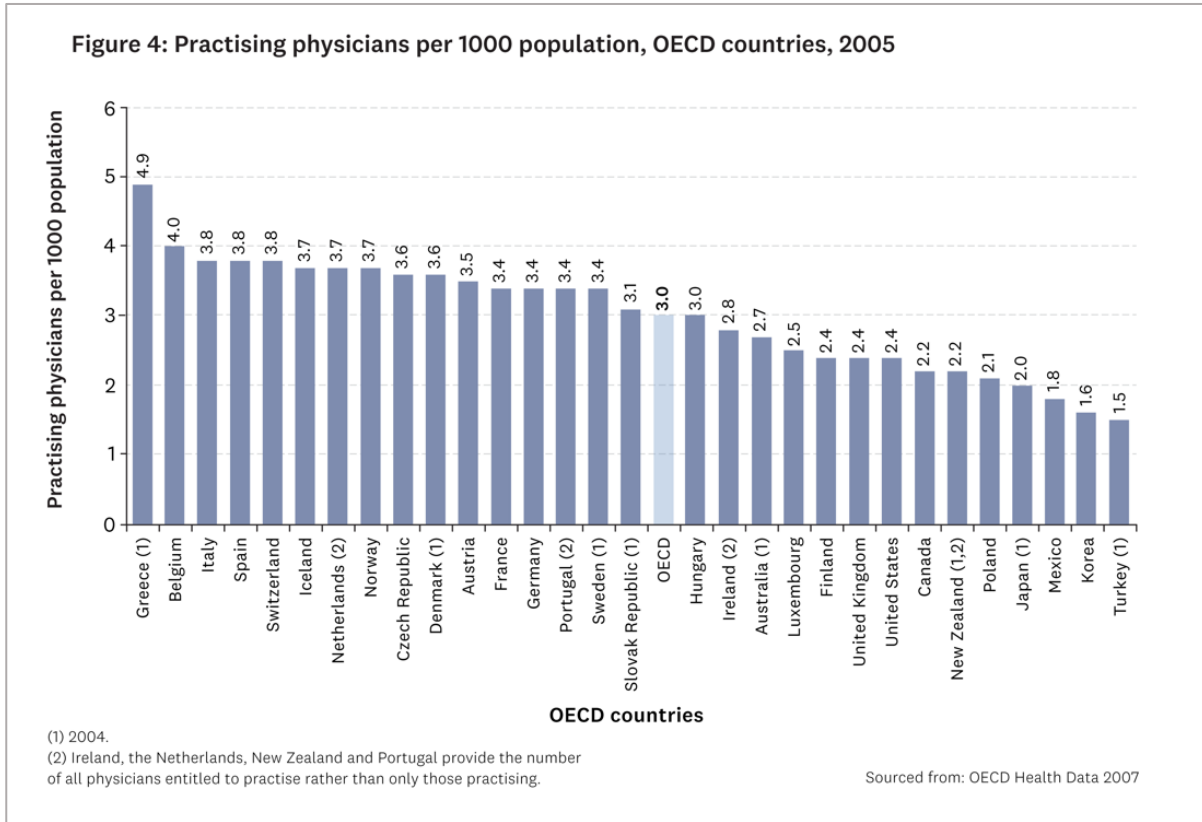
Little, A and Henare, P. (20 October 2021). *Health reforms bill introduced in Parliament* [press release]. Beehive. Retrieved 20 October 2021 from <https://www.beehive.govt.nz/release/health-reforms-bill-introduced-parliament>

MI Comment:

A decentralised approach is considered by UK (Cardiff & Vale) to be better than a centralised approach. They have been investing in system-wide approaches to improvement, building on the model based on the Canterbury DHB.

Powell, I. (4 October 2021). *Health System’s Ships Passing in the Night*. Retrieved 20 October 2021 from <https://businessdesk.co.nz/article/health/health-systems-ships-passing-in-the-night>

Figure 4: Practising physicians per 1000 population, OECD countries, 2005



See OECD. (18 July 2007). *OECD Health Data: specialists outnumber GPs in most OECD countries*. Retrieved 20 October 2021 <https://www.oecd.org/newsroom/oecdhealthdataspecialistsoutnumbergpsinmostoecdcountries.htm>

B: MANAGED ISOLATION AND QUARANTINE

Recommendations:

1. Charge the same fee for at home or managed isolation (on arrival) or quarantine (if test positive).
2. If positive, distribute Home Care Quarantine Package to people at home.

Charges

The charge for citizens and permanent residents is currently \$3100 for 14 days at MIQ, but the actual cost is about \$5,520. We suggest those choosing household managed isolation should be equivalent (being \$3,100). We expect the 'home isolation' option costs will be lower and that this will help balance out overall costs.

Home Care Package (delivered when tested COVID-19 positive)

This would cost about \$150.00 each (an investment of one million dollars would provide about 6,500 kits). This is so people feel safe (and are safe) at home because they can measure themselves or each other and only go to C+ hospitals when they are needed.



The contents could include:

A: Testing

1. Fingertip Oxygen Pulse (Oximeter)
2. Thermometer
3. COVID-19 test (MOH to provide)

B: Treatment

4. Aspirin/paracetamol
5. Rehydration sachets
6. Throat gargle
7. Cough and mucus mixture
8. Antibacterial throat lozenges
9. Nasal spray

C: Protection

10. Antibacterial gel/wipes
11. Tissues
12. Gloves
13. Disposable masks
14. Face shield

D: Information

15. Paper explaining what to expect in terms of symptoms
16. Key contacts, explaining:
 - a. how to contact Healthline (0800 611 116)
 - b. how you will be triaged daily
 - c. number to call if you want to contact your primary care provider
 - d. number to call if you want a C+ ambulance
 - e. number to call if you need food delivered (if required)

Recent Research/Articles

See Managed Isolation and Quarantine (MIQ). (21 May 2021). *Charges for NZ citizens and permanent residents*. Retrieved 7 October 2021 from <https://www.miq.govt.nz/being-in-managed-isolation/charges-for-managed-isolation/charges-for-nz-citizens-and-permanent-residents/>

‘Animation Research chief executive Sir Ian Taylor believes companies can be trusted to manage their own strict home isolation, in turn freeing up spots in MIQ for other returning New Zealanders.’ See RNZ. (27 September 2021). *MIQ a bigger risk to businesses than COVID-19 – business leader*. Retrieved 6 October 2021 from <https://www.rnz.co.nz/news/national/452435/miq-a-bigger-risk-to-businesses-than-covid-19-business-leader>

C: COVID TESTING

Recommendation:

- 1: Only use tests that are accurate (e.g. do not allow the use of tests that are, say, less than 90% accurate).**

Testing a population of 5 million twice a week would produce more than 20,000 false positive results each month, with relatively few infected people detected at low prevalence of SARS-CoV-2.

Note: Check latest research.

Recent Research/Articles

See for example, Taylor-Phillips, S., and Dinnes, J. (2021). Asymptomatic rapid testing for SARS-CoV-2. *British Medical Journal (BMJ)*. 374, pp 1-2. Retrieved 6 October 2021 from <https://www.bmj.com/content/374/bmj.n1733>.

There are risks of false negative rapid antigen tests: ‘Infectious diseases physician and microbiologist Associate Professor Paul Griffin of the University of Queensland says that while he thinks the tests should be used more widely, he has concerns about the impact of an incorrect result. A false negative in someone who was potentially infectious, if they were not mindful of the limitations of this type of testing, could have very significant consequences in terms of contributing to the onward transmission of the virus...’ Attwooll, J. (13 September 2021). *Rapid antigen testing guidelines published*. The Royal Australian College of General Practitioners (RACGP). Retrieved 6 October 2021 from <https://www1.racgp.org.au/news/gp/clinical/rapid-antigen-testing-guidelines-published>

In the near future, there is a high likelihood that a mobile, fast and accurate PCR testing device is created. See for example: Biomeme. (n.d.) *Real-time PCR anywhere you need it*. Retrieved 11 October 2021 from <https://biomeme.com>.

Another example is Spitfire (a product from a Dunedin company), but we are unsure if this has a high-level of accuracy. See Kennedy, R. (4 October 2021). *Saliva test developed in Dunedin quick and simple to use*. Otago Daily Times. Retrieved 11 October 2021 from <https://www.odt.co.nz/news/dunedin/saliva-test-developed-dunedin-quick-and-simple-use>.

There should be some consideration of how people are compensated if a test comes back as a false positive. Some form of compensation is necessary to prevent people lying or dodging testing. See Yates, C. (9 October 2021). *COVID: why are people testing positive on lateral flow tests then negative on PCR?*. The Conversation. Retrieved 12 October 2021 from <https://theconversation.com/covid-why-are-people-testing-positive-on-lateral-flow-tests-then-negative-on-pcr-169502>

Providing hospital emergency departments rapid PCR testing with rapid turnaround (say 25 minutes) would seem to deliver better outcomes for patients and healthcare workers. See Anthes, E. (4 October 2021). *How Accurate Are At-*

Home Covid Tests? The New York Times. Retrieved 7 October 2021 from <https://www.nytimes.com/2021/09/29/health/at-home-covid-tests-accuracy.html>

To what extent is New Zealand's testing capability already being reduced? For example, BPAC state (9 April 2020) under *Reducing non-essential laboratory testing*:

'Laboratory services have redirected resources to COVID-19 testing, including restricting tests that use the same molecular reagents and swabs. Clinicians have been asked to reduce the frequency of laboratory tests that are non-essential, discretionary, routine, or can be safely delayed.'

Examples of these types of tests include:

- Screening tests (e.g. HbA_{1c}, lipids)
- Thalassaemia screens in non-anaemic patients, unless pregnant
- Routine liver function tests or thyroid tests in patients on stable treatment
- Faecal tests, especially *Helicobacter pylori* antigen and faecal calprotectin'

See bpacnz better medicine. (8 April 2020). *COVID-19 bpacnz Bulletin #4*. Retrieved 11 October from <https://bpac.org.nz/bulletin/covid-19/8-4-2020.aspx#3>

D: OBESITY AND COVID

Recommendations:

- 1: Focus on vaccinating VLCA patients**
- 2: Undertake a strategy to reduce obesity across New Zealand (e.g tax sweet drinks etc).**

Note: Check latest obesity/COVID research – the table below is September 2020.

COVID hospitalisations are about four times more common amongst obese people. Singaporeans have an obesity rate of 8.9% whereas NZ Pasifika have an obesity rate of 63%.

‘Based on the 2017 National Population Health Survey, the prevalence of obesity among adult Singaporeans aged 18 to 59 years was 8.9%, and that among seniors aged 60 to 74 years was 6.9%. This has remained stable since 2013.’ See Ministry of Health Singapore. (6 January 2020). *Obesity Trend and Programmes*. Retrieved 11 October 2021 from <https://www.moh.gov.sg/news-highlights/details/obesity-trend-and-programmes#:~:text=1%20Based%20on%20the%202017,has%20remained%20stable%20since%202013.>

‘The New Zealand Health Survey 2019/20 found that: around 1 in 3 adults (aged 15 years and over) were obese (30.9%); the prevalence of obesity among adults differed by ethnicity, with 63.4% of Pacific, 47.9% of Māori, 29.3% of European/Other and 15.9% of Asian adults obese’ and ‘adults living in the most socioeconomically deprived areas were 1.8 times as likely to be obese as adults living in the least deprived areas.’ See Ministry of Health (MoH). (19 November 2020). *Obesity statistics*. Retrieved 11 October 2021 from <https://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/obesity-statistics>

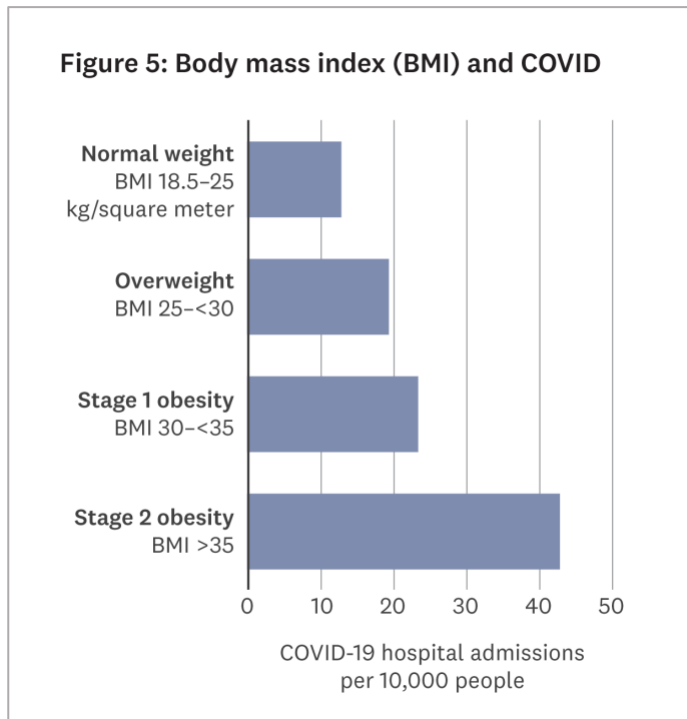
‘After covariate selection, our final adjusted model included the covariates displayed in Figure 1. We note a J-shaped association between BMI and risk for death. In adjusted analyses, high BMI was strongly associated with higher risk for death, with more than 4 times the risk (Figure 1) for the highest BMI measures.’ Tartof, S. et al. (17 November 2020). *Obesity and Mortality Among Patients Diagnosed With COVID-19: Results From an Integrated Health Care Organization*. *Annals of internal medicine*, 173(10), pp 773-781. Retrieved 6 October 2021 from <https://www.acpjournals.org/doi/10.7326/m20-3742>

Recent Research/Articles

See Wadman, M. (8 September 2020). *Why COVID-19 is more deadly in people with obesity—even if they're young*. Science. Retrieved 6 October 2021 from <https://www.science.org/news/2020/09/why-covid-19-more-deadly-people-obesity-even-if-theyre-young>

Figure 5: Body mass index (BMI) and COVID

Source: Wadman, M, *Why COVID-19 is more deadly in people with obesity—even if they're young.*



See Ministry of Health (MoH). (9 September 2020). *Very Low Cost Access scheme (VLCA)*. Retrieved 6 October 2021 from <https://www.health.govt.nz/our-work/primary-health-care/primary-health-care-subsidies-and-services/very-low-cost-access-scheme>

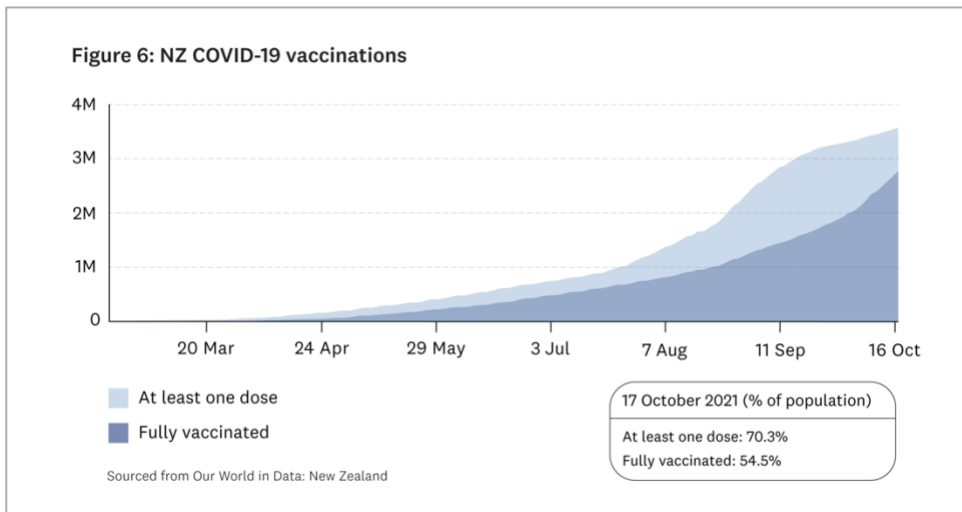
E: VACCINES AND VACCINATIONS

Recommendations:

- 1: Provide other vaccine options: Janssen (Johnson & Johnson) COVID-19 vaccine and the AstraZeneca
- 2: Open-up when fully vaccinated make up 65% of the population (this is to protect children from needing to be vaccinated).
- 3: Implement a digital vaccination certificate

Figure 6: NZ COVID-19 vaccinations

Source: Our World in Data to 17 October 2021



See Our World in Data. (10 October 2021). *Statistics: Vaccinations NZ*. Retrieved 12 October 2021 from

https://www.google.com/search?q=nz+vaccination+rate&rlz=1C5CHFA_enNZ965NZ967&sxsrf=AOaemvLFRq2l4ZabFXolCrPtmtUn0wh2g%3A1634012068665&ei=pAtYbL_J5Pb9QOr8ruoBg&ved=0ahUKEwiy4aSngcTzAhWTbX0KHSv5DmUQ4dUDCA4&uact=5&oq=nz+vaccination+rate&gs_lcp=Cgdnd3Mtd2l6EAMyBAgjECcyCwgAEIAE ELEDEIMBMgQIABADMgsIABCABBCxAxCDATILCAAQgAQQsQMgQwEyCwgAEIAE ELEDEIMBMgIABCxAxCDATIFCAAQgAQyCwgAEIAE ELEDEIMBMgUIABCABDoHCCMQsQIQJzoGCAAQBxAeOgcIABCABBAKSgQIQRgAUJ8fWP8mYOYraABwAXgAgAHwAogBogaSAQcwLjEuMS4xmAEaOAEbwAEB&scient=gws-wiz

The 90% Project is an NZ Herald initiative that aims to reach all New Zealanders to get the word out about vaccination so we can save lives and restore freedoms. See NZ Herald (23 September 2021). *Covid 19 Delta outbreak: How the Herald's Covid 19 vaccine tracker works*. Retrieved 10 October 2021 from <https://www.nzherald.co.nz/nz/covid-19-delta-outbreak-how-the-heralds-covid-19-vaccine-tracker-works/QUB3AXVC5IC2DPO53B7OL5A4MQ/>

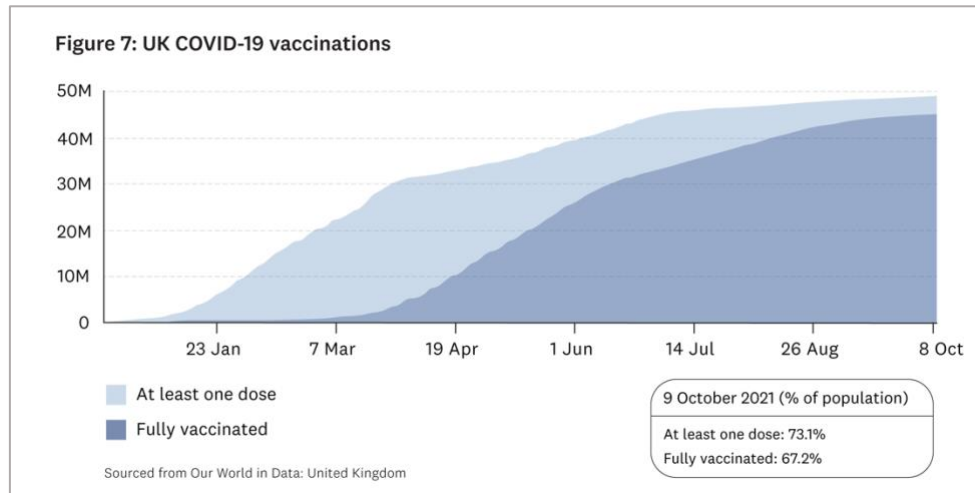
Employers have a justifiable basis for instituting a mandatory vaccination policy. 'With the current Delta variant issues facing New Zealand, we consider more employers will have a justifiable basis for instituting a mandatory vaccination policy. It will be important for employers seeking to implement such a policy to run a thorough

consultation process with its staff on the policy. The consultation process will also be a good opportunity to engage with vaccine hesitant staff and to encourage them to get vaccinated.’ See Drake, A. (27 August 2021). *Can employers require employees to get the jab?* Wynn Williams. Retrieved 11 October 2021 from

<https://www.wynnwilliams.co.nz/Publications/Articles/Can-employers-require-employees-to-get-the-jab>

Figure 7: UK COVID-19 vaccinations

Source: Our World in Data to 9 October 2021

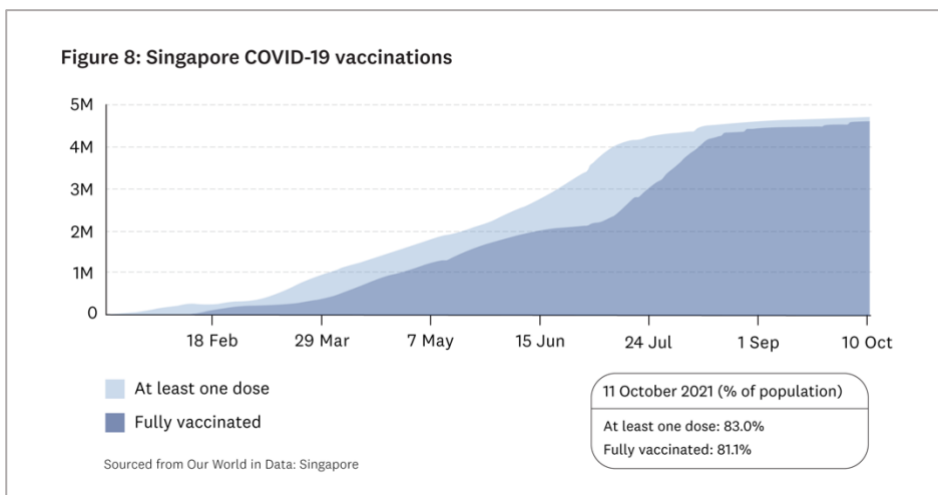


See Our World In Data. (9 October 2021). *Statistics: Vaccinations UK*. Retrieved 12 October 2021 from

https://www.google.com/search?q=vaccination+rates+in+the+UK&rlz=1C5CHFA_enNZ965NZ965&oq=vaccination+rates+in+the+UK&aqs=chrome..69i57j0i10l2j0i10i395j0i10i22i30i395.4418j1j7&sourceid=chrome&ie=UTF-8

Figure 8: Singapore COVID-19 vaccinations

Source: Our World in Data to 11 October 2021



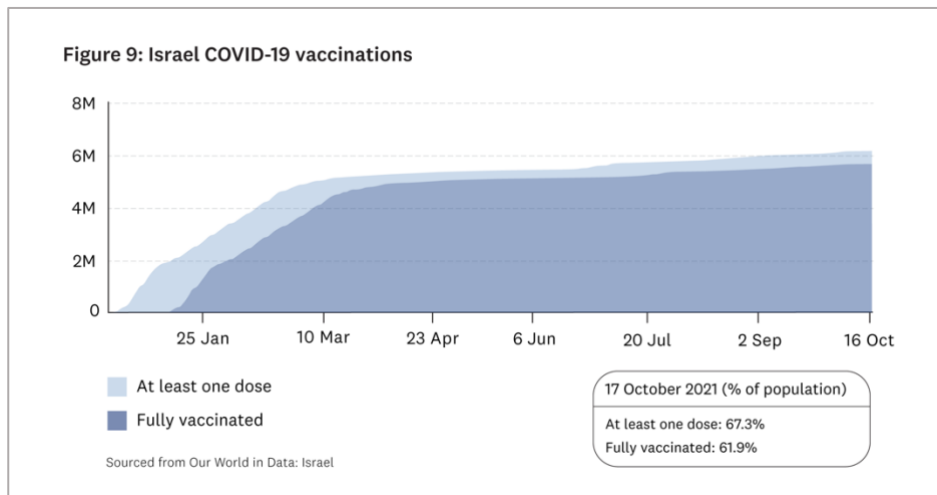
See Our World In Data. (11 October 2021). *Statistics: Vaccinations Singapore*. Retrieved 14 October 2021 from

<https://www.google.com/search?q=singapore+vaccinations&oq=SINGAPORE+VACCINATIONS&aqs=chrome.0.0i20i263i512j0i10i131i433j0i10l8.4837j0j4&sourceid=chrome&ie=UTF-8>

Singapore has over 80% of citizens fully vaccinated and the results are very promising: ‘Over the last 28 days, of the 49,658 infected individuals, 98.4% had no or mild symptoms, 1.3% required oxygen supplementation, 0.1% required ICU care, and 0.2% has died.’ See Ministry of Health Singapore. (8 October 2021). *Update On Local COVID-19 Situation (8 Oct 2021)*. Retrieved 11 October 2021 from [https://www.moh.gov.sg/news-highlights/details/update-on-local-covid-19-situation-\(8-oct-2021\)](https://www.moh.gov.sg/news-highlights/details/update-on-local-covid-19-situation-(8-oct-2021))

Figure 9: Israel COVID-19 vaccinations

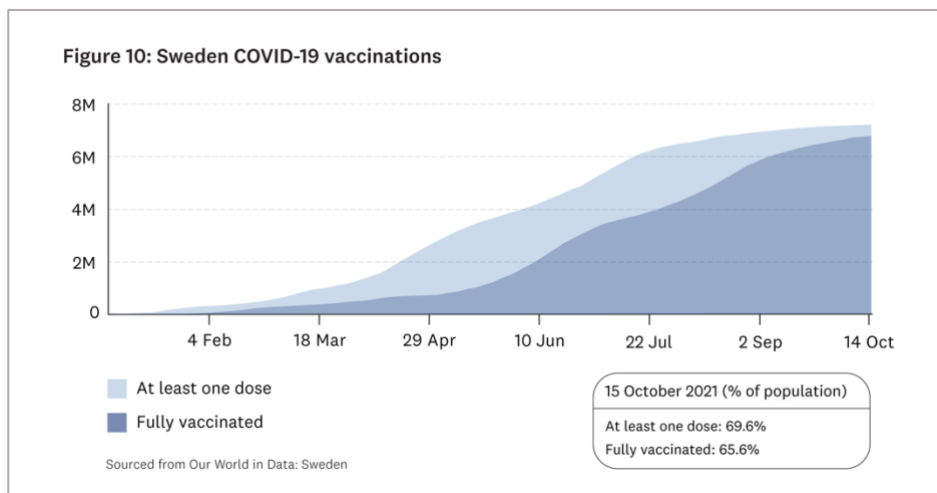
Source: Our World in Data to 17 October 2021



See Our World In Data. (17 October 2021). *Statistics: Vaccinations Israel*. Retrieved 17 October 2021 from [https://www.google.com/search?q=israel+vaccinations&oq=israel+vaccinations&aqs=chrome..69i57j0i131i433i512j0i433i512j0i512j0i512l5.2264j0j4&sourceid=chrome&ie=UTF-8](https://www.google.com/search?q=israel+vaccinations&oq=israel+vaccinations&aqs=chrome..69i57j0i131i433i512j0i433i512j0i512j0i131i433i512j0i512l5.2264j0j4&sourceid=chrome&ie=UTF-8)

Figure 10: Sweden COVID-19 vaccinations

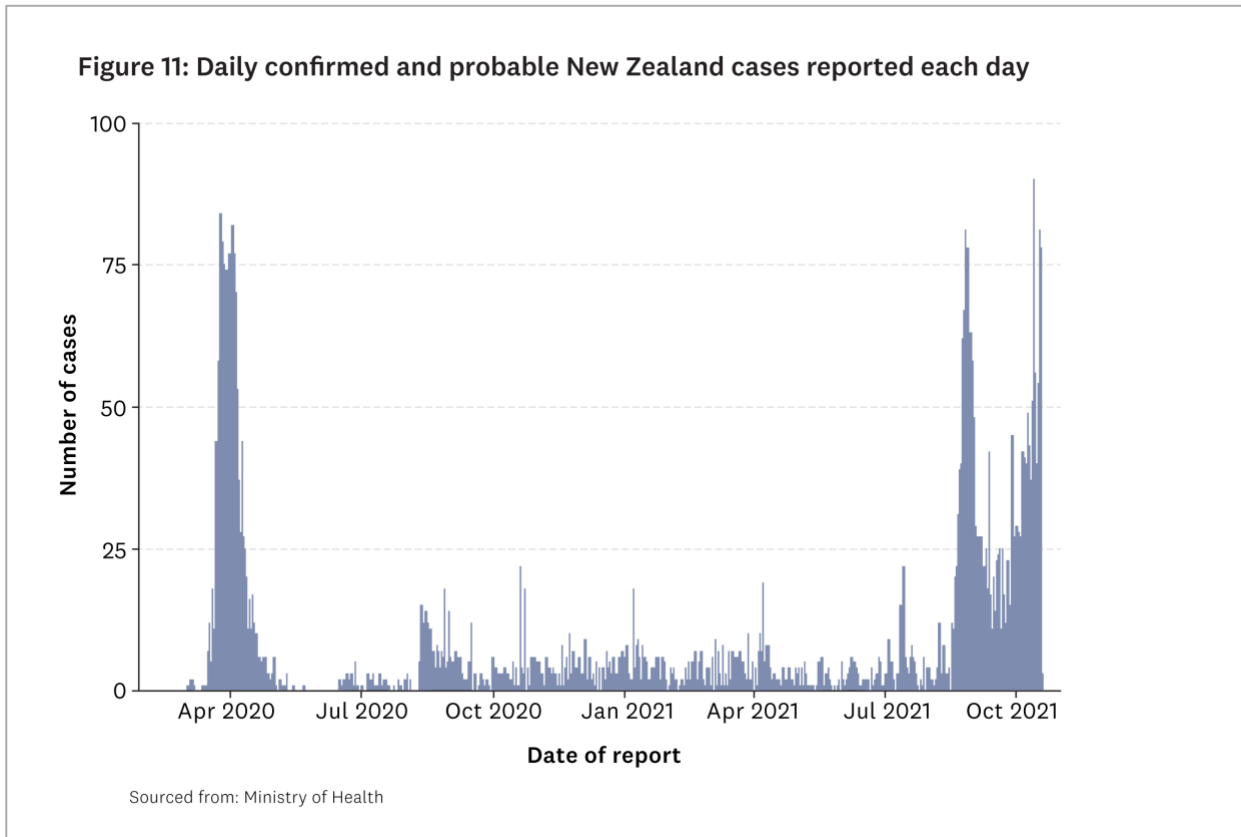
Source: Our World in Data to 15 October 2021



See Our World In Data. (15 October 2021). *Statistics: Vaccinations Sweden*. Retrieved 17 October 2021 from https://www.google.com/search?q=Sweden+vaccinations&sxsrf=AOaemvIpvYNAZJOG1cTcHU1qKv_8_ewh4g%3A1634691354329&ei=GmlvYeywE_nG4-EPmPSY8Aw&ved=0ahUKEwjspffr49fzAhV54zgGHRg6Bs4Q4dUDCA4&uact=5&oq=Sweden+vaccinations&gs_lc p=Cgdnd3Mtd2l6EAMyBwgAEFcQsAMyBwgAEFcQs

Figure 11: Daily confirmed and probable New Zealand cases reported each day

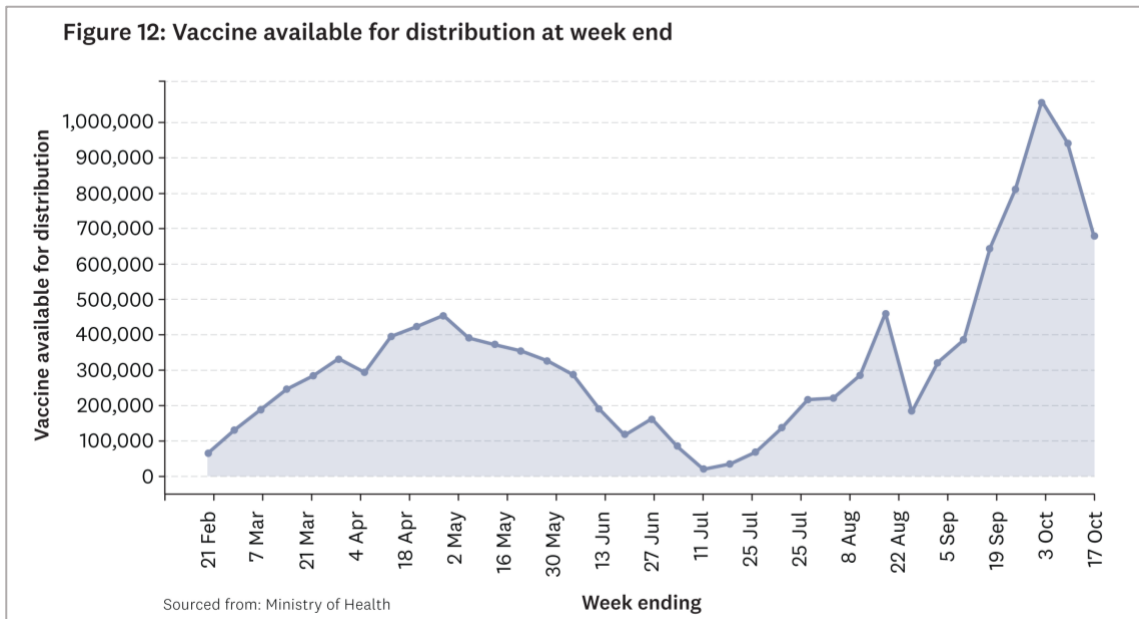
Source: Ministry of Health



See Ministry of Health. (19 October 2021). *Covid-19: Current cases*. Retrieved 20 October 2021 from <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-current-cases>

Figure 12: Vaccine available for distribution at week end

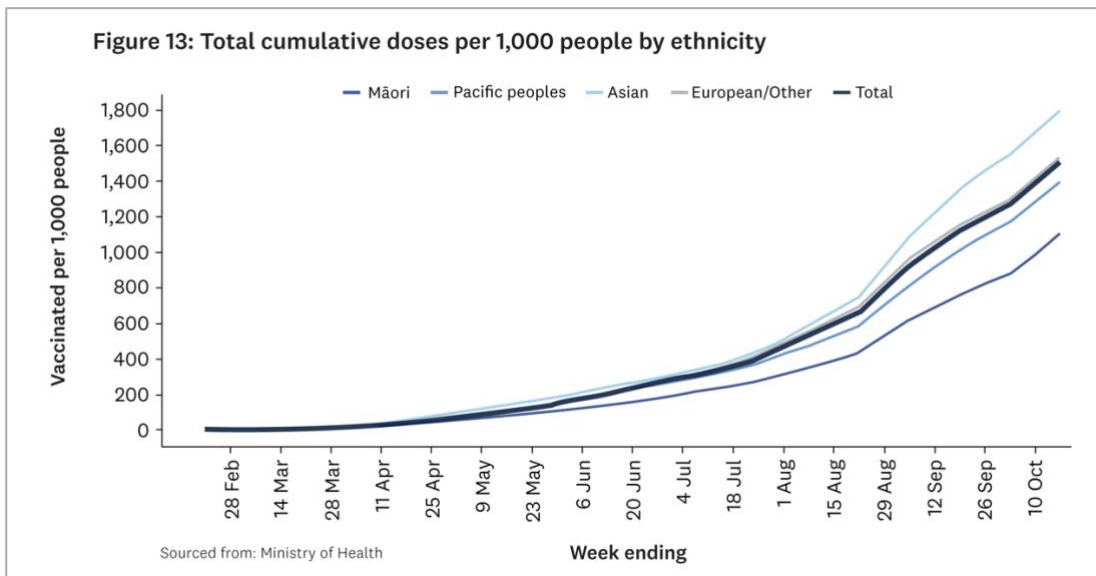
Source: Ministry of Health



See Ministry of Health. (20 October 2021). *COVID-19: Vaccine data*. Retrieved 21 October 2021 from <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-vaccine-data>

Figure 13: Total cumulative doses per 1,000 people by ethnicity

Source: Ministry of Health



See Ministry of Health. (20 October 2021). *COVID-19: Vaccine data*. Retrieved 21 October 2021 from <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-vaccine-data>

Recent Research/Articles

Medsafe – July 2021: Medsafe formally made the decision to provisionally approve the Pfizer vaccine in New Zealand on 3 February 2021. Provisional approval of two other vaccines have been given. ‘Medsafe has granted provisional approval of the Janssen (Johnson & Johnson) COVID-19 vaccine and the AstraZeneca COVID-19 vaccine for individuals aged 18 and over. Provisional approval does not mean that we have committed to using either of these vaccines in New Zealand. Medsafe’s provisional approval is the first step, with further consideration required by Cabinet on options for the use of these vaccines.’ Ministry of Health (MoH). (29 July 2021). *COVID-19: Assessing and approving the vaccines*. Retrieved 10 October 2021 from <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-vaccines/covid-19-assessing-and-approving-vaccines#janssen>

31 July 2021 Research: ‘Conclusion: The mRNA vaccines are highly effective at preventing symptomatic and severe COVID-19 associated with B.1.617.2 infection. Vaccination is associated with faster decline in viral RNA load and a robust serological response. Vaccination remains a key strategy for control of COVID-19 pandemic.’ See Chia, P. Y., et al. (31 July 2021). *Virological and serological kinetics of SARS-CoV-2 Delta variant vaccine-breakthrough infections: a multi-center cohort study*. MedRxiv. Retrieved 11 October 2021 from <https://www.medrxiv.org/content/10.1101/2021.07.28.21261295v1>

5 October 2021 Research: Vaccinations will not reduce the spread of Delta cases very much. The risk of spreading the Delta infection soon after vaccination with that jab was 42%, but [that chance] increased to 58% with time. People who receive two COVID-19 jabs and later contract the Delta variant are less likely to infect their close contacts than are unvaccinated people with Delta. [but] ‘The study shows that people who become infected with the Delta variant are less likely to pass the virus to their close contacts if they have already had a COVID-19 vaccine than if they haven’t. But that protective effect is relatively small, and dwindles alarmingly at three months after the receipt of the second shot.’

‘Unfortunately, the vaccine’s beneficial effect on Delta transmission waned to almost negligible levels over time. In people infected 2 weeks after receiving the vaccine developed by the University of Oxford and AstraZeneca, both in the UK, the chance that an unvaccinated close contact would test positive was 57%, but 3 months later, that chance rose to 67%. The latter figure is on par with the likelihood that an unvaccinated person will spread the virus.’

‘A reduction was also observed in people vaccinated with the jab made by US company Pfizer and German firm BioNTech. **The risk of spreading the Delta infection soon after vaccination with that jab was 42%, but [that chance] increased to 58% with time.**’

‘The authors found that although the vaccines did offer some protection against infection and onward transmission, Delta dampened that effect. A person who was fully vaccinated and then had a ‘breakthrough’ Delta infection was almost twice as likely to pass on the virus as someone who was infected with Alpha. And that was on top of the higher

risk of having a breakthrough infection caused by Delta than one caused by Alpha'. See Mallapaty, S. (5 October 2021). *COVID vaccines cut the risk of transmitting Delta — but not for long*. Nature. Retrieved 10 October 2021 from <https://www.nature.com/articles/d41586-021-02689-y>

6 October 2021: Equitable and just global distribution of vaccines is critical. See letter published in *Science Translational Medicine*: *No one is safe until we are all safe*. 'In the third quarter of 2021, we have reached a new phase of vaccine deployment to counter the SARS-CoV-2 pandemic. Greater efforts are needed to make vaccines available for the whole world and to supply the information to allow use of the vaccines to be optimized. Fortunately, the number of vaccine doses that we now foresee becoming available each month will increasingly provide opportunities to achieve this as long as all countries are prepared to receive and deliver these life-saving medical products. Ensuring that they can do so will be one of the most urgent challenges in the next phase of the COVID-19 pandemic.' Gilbert, S., and Hatchett, R. (6 October 2021). No one is safe until we are all safe. *Science Translational Medicine*, 13 (614), pp. 1-3. Retrieved 10 October 2021 from <https://www.science.org/doi/10.1126/scitranslmed.abl9900>

5 October 2021: 'New Zealand's "vaccine passport" is likely to be a digital Covid-19 vaccination certificate containing a QR code. A vaccine certificate is proof that you have been vaccinated and is now common overseas, Ardern says. More details will be shared in coming weeks, but for now the certificates will be used as a tool in high-risk settings including large events and the government is consulting on their use in places like hospitality. It will not be used for places like supermarkets or essential health services. It will be available either in digital form on smartphones or can be downloaded and printed out. They are likely to start being used in November.' RNZ. (5 October 2021). *PM announces COVID-19 vaccine certificate*. Retrieved 20 October 2021 from <https://www.rnz.co.nz/news/national/452941/pm-announces-covid-19-vaccine-certificate>

16 November 2021: 'Current clinical evidence shows that COVID-19 vaccination protects against severe symptoms of the disease but is also an important tool to decrease the spread of the virus and the rate of infection. At this point in time, the global COVID-19 pandemic is complex, some countries have vaccinated a large portion of their population, others have difficulty accessing vaccination, and there is a wide variety of measures put in place and closures between the countries. These discrepancies may bring out variants of the virus, and prolong the global pandemic phase. Vaccinated individuals are likely to be less likely to transmit the virus; however, it remains critical to continue to maintain responsible behaviors.' Vitiello, A., Ferrara, F., Troiano, V., and La Porta, R. (19 July 2021). *COVID-19 vaccines and decreased transmission of SARS-CoV-2*. Retrieved 16 November 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8287551/>

F: OTHER

Recommendations:

- 1: Create separate COVID-19+ hospitals and COVID-19- hospitals**
- 2: Dashboard on Healthcare system**
- 3: Situational reports on COVID-19**
- 4: An all-in-one plan across all DHBs.**

1. Create COVID-19 hospitals

This could be (i) prefab modular units, (ii) re-purposed private hospital/rest home or (iii) an existing arm of a large hospital. Each COVID-19 hospital to publish publicly a situational report every three months (signed-off by the chief executive). The report to identify key challenges, lessons and statistics (e.g., ICU beds, ventilators, medicines and oxygen). Reports to be collated to provide a national stocktake, enabling resources and staff to be shared. See, for example, Mari, G. et al. (2020). A 10-step guide to convert a surgical unit into a COVID-19 unit during the COVID-19 pandemic. *International journal of surgery*, 78, pp. 113–114. Retrieved 2 November 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7185019/>.

2. Surgical Hospitals (COVID-free)

Learn more about the UK surgical hospitals, what they call surgical hubs: ‘The Royal College of Surgeons of England has today called on the government to agree a ‘New Deal for Surgery’, commit an additional £1bn for surgery every year for the next five years and create ‘surgical hubs’ across the country to reduce the ‘colossal elective surgery backlog’. See Royal College of Surgeons of England. (28 May 2021). *Surgeons call for a ‘New Deal for Surgery’ to reduce the ‘colossal’ elective backlog*. Retrieved 10 October 2021 from <https://www.rcseng.ac.uk/news-and-events/media-centre/press-releases/new-deal-for-surgery-2021>

3. Create Health and Safety Officer (HSO) for all events over 50.

HSO is to be responsible for completing a simple online register. This would include date, time, location and estimated number of individuals. The event organiser would agree to keep a record of attendees (ideally also online).

4. Track and Trace

Many citizens are challenged by poor internet coverage in rural communities or have the inability to fund or use smart phones for COVID-19 apps.

An alternative could be a national notification system based on mobile phone numbers that have been in the vicinity or used the same phone tower. This is different from Bluetooth tracing in, for example, the COVID-19 tracer app. See, for example, Privacy Commissioner – Te Mana Mātāpono Matatapu. (12 May, 2020). *Office of the*

Privacy Commissioner: Overview of COVID-19 Contact Tracing Apps – 12 May 2020. Retrieved 7 October 2021 from <https://www.privacy.org.nz/assets/2020-05-12-OPC-Comparison-of-COVID-19-Apps-colours.pdf>

5. GP Home Visits

There are likely to be cases where virtual GP visits will not work because of technology issues, which means GPs and/or healthcare workers will need to visit homes. In some cases, high viral loads will be expected in these homes where exemplary PPE will be required. Donning doffing management equipment will be difficult in high viral load environments and in many cases will require two or more staff.

See Ministry of Health (MoH). (12 August 2021). *All Alert Levels: PPE required when caring for a COVID-19 case in health and disability care settings including care provided in place of residence*. Retrieved 6 October 2021 from <https://www.health.govt.nz/system/files/documents/pages/hp7716-ppe-use-in-known-covid-19-health-and-disability-settings-12aug2021.pdf>.

For more information on donning doffing of PPE see Ministry of Health (MoH). (22 September 2021). *Personal protective equipment use in health and disability care setting*. Retrieved 6 October 2021 from <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-information-specific-audiences/covid-19-personal-protective-equipment-central-supply/personal-protective-equipment-use-health-and-disability-care-settings>

6. Reconnecting with the world (the traffic light system)

MI Comment:

The focus on countries does not feel ethically appropriate. Suggest instead focus remains on quality testing. Only those that have COVID can spread it.

Recent Research/Articles

Phillips, Alexaa. (27 August 2021). *COVID- 19 travel: Full list of updated green, amber and red countries - and the rules when you go abroad*. Sky news. Retrieved 19 October from <https://news.sky.com/story/full-list-of-updated-green-amber-and-red-countries-and-the-rules-when-you-travel-12372869>

Hickey, Bernard (18 October 2021). *14 more Super Saturdays to go? Or none?* Retrieved 19 October from <https://thekaka.substack.com/p/14-more-super-saturdays-to-go-or>

Chuan De Foo, et al. (4 October 2021). *Navigating from SARS-CoV-2 elimination to endemicity in Australia, Hong Kong, New Zealand, and Singapore*. The Lancet. Retrieved 6 October 2021 from [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02186-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02186-3/fulltext)

See Blum MR, Sallevelt BTGM, Spinewine A, et al. (21 July 2021). *Optimizing Therapy to Prevent Avoidable Hospital Admissions in Multimorbid Older Adults (OPERAM)*. BMJ, 374. Retrieved 12 October 2021 from <https://www.bmj.com/bmj/section-pdf/1052520?path=/bmj/374/8301/Research.full.pdf>. The paper states: “Test specificity was exceptionally high at 99.94% and is supported by similar results in other studies. However, the balance between benefit and harms from testing is dependent on prevalence. Testing a population of 50 million twice a week would produce more than 200 000 false positive results each month, with relatively few infected people detected at low prevalence of SARS-CoV-2.

This study, alongside previous Public Health England evaluations of the Innova lateral flow test, provides an excellent example of how early phase test evaluations overestimate test accuracy. The Innova test was one of the first to pass the tests set by PHE and was bought in large quantities by the UK government. Sensitivity was 96% in the manufacturer validation (in people with symptoms), 74% in known infected people from a community setting, but just 40% in the prospective evaluation by Garcia-Fiñana and colleagues in an asymptomatic community setting.

The observed deterioration in sensitivity is firstly because the test has been applied beyond its intended use in populations. The manufacturer recommends testing people with symptoms soon after symptom onset thus ensuring higher viral load and greater test sensitivity. It is worth noting that the US Food and Drug Administration has recalled the test and withdrawn it from sale, in part because of cited imprecision in the manufacturer’s accuracy claims. Secondly, the prospective study design used by Garcia-Fiñana and colleagues is less biased than some previous evaluations using retrospective designs with known cases and controls.

The most important question about community mass testing is whether it works to reduce transmission. Unfortunately, we do not yet know the answer. A study that randomised the offer of repeated testing in asymptomatic people versus no offer of testing by geographical area would be best placed to answer that, and any country considering implementation of mass testing would do a great service to knowledge by randomising the roll-out. The impact of testing depends on more than the accuracy of the test. Other factors at play include low adherence to self-isolation in those testing positive, limited uptake of testing skewed towards those at lowest risk of SARS-CoV-2, misuse of lateral flow tests (people with symptoms using the quicker lateral flow tests rather than the more sensitive PCR tests), and false negative rapid test results giving false reassurance.

This Liverpool pilot has delivered excellent data on test accuracy and at great speed as part of the roll-out. More studies such as this in the context of the covid-19 pandemic are crucial to delivering evidence-based government policy. Further studies are urgently needed to ascertain whether population mass

testing using lateral flow tests has any impact on transmission and to measure the harms of this massive scale screening.’ [Bold added]

“Of 5869 participants, 74 tested positive for SARS-CoV-2 using the PCR test (prevalence 1.3%). The overall sensitivity of the rapid test was 40.0% (95% confidence interval 28.5% to 52.4%), meaning that it detected only four in 10 people who tested positive by PCR.” [Bold added]

See, Blum MR, Sallevelt BTGM, Spinewine A, et al. (21 July 2021). *Optimizing Therapy to Prevent Avoidable Hospital Admissions in Multimorbid Older Adults (OPERAM)*. BMJ, at pp. 144-145. Retrieved 12 October 2021 from <https://www.bmj.com/bmj/section-pdf/1052520?path=/bmj/374/8301/Research.full.pdf>

The traffic light system assumes an elimination strategy. See Daalder, M. (25 September 2021). *How ‘traffic light’ system for reopening borders will work*. Newsroom. Retrieved 6 October 2021 from <https://www.newsroom.co.nz/how-traffic-light-system-for-reopening-borders-will-work>

See also Ardern, J. Rt Hon. (12 August 2021). *Government sets out plan to reconnect New Zealanders to the World*. Beehive.govt.nz. Retrieved 6 October 2021 from <https://www.beehive.govt.nz/release/government-sets-out-plan-reconnect-new-zealanders-world>

7. **Wage subsidy and deployed/furloughed staff**

The UK government ‘has been paying towards the wages of people who couldn't work, or whose employers could no longer afford to pay them, up to a monthly limit of £2,500. At first it paid 80% of the wages, but in August and September it paid 60%, with employers paying 20%. The most recent figures show 1.6 million people were on furlough at the end of July - the lowest level since the start of the pandemic and 340,000 fewer than a month earlier. Nearly one million workers were expected to still be on the scheme at the end of September, according to research by the Resolution Foundation. The numbers have dropped as the economy reopened. In May 2020, nearly nine million people were on furlough.’ See BBC. (30 Sep 2021). *Covid: What will happen when furlough ends?* Retrieved 10 October 2021 from <https://www.bbc.com/news/explainers-52135342>

8. **Attracting/retaining staff**

Recommendation: New Zealand should be careful to support pacific neighbours (rather than attract key healthcare workers away from our pacific neighbours).

Building the COVID-19 workforce and paying healthcare workers equivalent to Australia so that we retain healthcare workers in New Zealand.

See Satherley, D. (20 May 2021). *How much more nurses can earn in Australia than in New Zealand*. Newshub. Retrieved 6 October 2021 from <https://www.newshub.co.nz/home/money/2021/05/how-much-more-nurses-can-earn-in-australia-than-in-new-zealand.html>

9. **Mental Health**

It will be important to monitor and assess mental health tools and skills. The government has put tools and skills in place but these should be assessed and mental health monitored throughout this time. See the Government's response here: Ministry of Health (MoH). (30 August 2021). *COVID-19: Mental health and wellbeing resources*. Retrieved 11 October 2021 from <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-health-advice-public/covid-19-mental-health-and-wellbeing-resources>

10. **Insurance for health workers if they get COVID and can no longer work**

MI Comment:

We are not sure how this currently works in practice, but if people get sick or loose pay because they are looking after our sick, they should be recompensed (and not lose as a result of being a good citizen).

11. **Situational Reports and Dashboards**

MI Comment:

Both have proven a successful way to communicate the state of play to the public. See, for example, the Singapore government reports, Ministry of Health Singapore. (11 October 2021). *COVID-19 Situation Report*. Retrieved 11 October 2021 from <https://www.moh.gov.sg/covid-19/testing/situation-report-pdf>, and the United Kingdom government's reports, GOV.UK. (10 October 2021). *UK summary*. Retrieved 10 October 2021 from <https://coronavirus.data.gov.uk>).

Statistics are needed in real time to understand and learn impacts of lockdowns on the whole healthcare system. For example, it would be invaluable to know the differences between lockdowns on the Auckland healthcare system for the three DHBs compared with the rest of DHBs across New Zealand.

We believe there is a role for StatisticsNZ and OAG here to improve timeliness and quality/trusted of data in real-time. New Zealand needs to be clear about when a death is a COVID death. The UK has a variety of measures, including whether COVID is on the death certificate or when is it 28 days from a positive COVID test, which has caused confusion. Like the suggestion from a contact in the UK that data is made public on extent person who died was vaccinated or not. See for example: *Deaths solely from COVID-19 rather than deaths within 28-days of a positive test*. See

<https://www.ons.gov.uk/aboutus/transparencyandgovernance/freedomofinformationfoi/deathssolelyfromcovid19ratherthandeathswithin28daysofapositivetest>

Weekly Dashboard for the whole healthcare system is required; here is our tentative thinking
(more detail to come)

		Number in last month	Time taken	Target
(i) Testing	DNA			
	COVID-19 +/-			
	All other medical testing			
(ii) Surgeries	Waiting list			
(iii) GP consultations				
(iv) Supply of critical products				Minimum stock levels
[list key stock items]				

12. Role of DHBs

One COVID-19 plan is needed for all DHBs; areas requiring clarity are:

COVID-19 Protocols

1. How will patients be treated, by whom, and when hospital care is needed, how deaths in a surge will be managed?
2. How will healthcare workers be treated, deployed/standdown etc.

Non-COVID Protocols

3. Will a New Zealand-wide *HealthPathway* be provided for healthcare workers and the general public so that the system is understood and provided equitability across New Zealand? See for example:
<https://canterbury.communityhealthpathways.org/LoginFiles/Logon.aspx?ReturnUrl=%2f>
4. What are the visitor protocols for hospitals?

5. How will urgent surgeries progress? If yes, what was the protocol that determined whether something was urgent or what can be delayed?
6. How will elective surgeries progress?
7. How will testing (non-COVID) progress? If yes, what was the protocol that determined whether something was urgent or what can be delayed?
8. Number of fully oxygen beds available?
9. How will shortages be reported?

See Hamilton Family Medicine (HFAM). (n.d.). *COVID: Pathways, Evidence and Practical Supports*. Retrieved 7 October 2021 from <https://hfam.ca/clinical-pathways-and-evidence/>

Hutt Valley DHB. (n.d.). *HealthPathways*. Retrieved 7 October 2021 from <https://www.huttvalleydhb.org.nz/health-professionals/healthpathways/>

G: THE MEDIUM-TERM FUTURE

Recommendations

1. Strategic leadership team formalised and given more support

1. Risk of new COVID variants

MI Comment: Considered low by one expert (see below)

Recent Research/Articles

23 September 2021 recent research

Dame Sarah Gilbert said viruses tend to become less virulent, but there is no set timeframe. ‘There aren't many places left for the COVID-19 virus to mutate and evade immunity as it will only get weaker with time’, said the creator of the Oxford-AstraZeneca vaccine, the most widely distributed jab in the world.

“The virus cannot completely mutate because its spike protein has to interact with the ACE2 receptor on the surface of the human cell, in order to get inside it,” Dame Sarah Gilbert, the lead scientist from Oxford University, and the brain behind the vaccine manufactured in India as Covishield, said during a webinar titled: *Vaccines, variants, and infection: The position this winter* for the Royal Society of Medicine on Wednesday.

“If it changes its spike protein so much that it can't interact with that receptor, then it's not going to be able to get inside the cell. So, there aren't many places for the virus to go to have something that will evade immunity but still remain infectious,” she explained.

Comparing the SARS-CoV-2 with other flu viruses and the vaccine modifications made for them annually, she said:

“What tends to happen over time is there's just a slow drift, that's what happens with flu viruses. You see small changes accumulating over a period of time and then we have the opportunity to react to that.”

The expert said that such viruses, by their very nature tend to become less virulent over time, but there is no set timeframe for how long that would take. “We normally see that viruses become less virulent as they circulate more easily and there is no reason to think we will have a more virulent version of SARS-CoV-2,” she noted.

Ms Gilbert said the virus that causes COVID-19 will eventually become like the coronaviruses which circulate widely and cause the common cold.

“We tend to see a slow genetic drift of the virus and there will be gradual immunity developing in the population as there is to all the other seasonal coronaviruses. We already live with four different human coronaviruses that we don't really ever think about very much and eventually SARS-CoV-2 will become one of them. The question is how long it's going to take to get there and what measures we're going to have to take to manage it in the meantime,” she said.

The webinar also covered the topic of COVID-19 variants, with Professor Sharon Peacock, the executive director of the COVID-19 UK Genomics Consortium, flagging the Delta variant as “top of the list”.

"It has been pretty quiet since Delta emerged and it would be nice to think there won't be any new variants of concern. If I was pushed to predict, I think there will be new variants emerging over time and I think there is still quite a lot of road to travel down with this virus," she said. See NDTV. (23 September 2021). *Not Many Places Left For Covid To Evade Immunity: UK Vaccine Creator*. Retrieved 11 October 2021 from <https://www.ndtv.com/india-news/not-many-places-left-for-covid-19-virus-to-evade-immunity-says-uk-vaccine-creator-sarah-gilbert-2551542>

2. Risk of new viruses (new pandemics)

MI Comment:

We consider to be high in next 10 to 15 years.

Recent Research/Articles

23 September 2021 Recent research

More research is needed globally to help prepare for future pandemics. See discussion from Professor Dame Sarah Gilbert:

‘Work must be done to prepare for future pandemics, she warned, adding that small amounts of investment now could potentially save billions of pounds in the long run.’

She agreed that the lack of investment from governments and other research funding sources shows they have not learned lessons about the importance of [pandemic](#) preparedness.

“We’re still trying to raise funds to develop other vaccines that we were working on before the pandemic against diseases that have caused outbreaks in the past and will cause outbreaks in the future - Nipah virus, lassa fever virus and Mers coronavirus were three that I’m working on and still trying to raise funds to work on.”

Dame Sarah said there is still support for her Covid work, adding: "But when we try to return to projects that we were working on earlier and move them forward, we thought we'd be able to go faster but actually we're still waiting to raise the funds to get those projects moving again.”

The professor of vaccinology at Oxford's Jenner Institute and Nuffield Department of Clinical Medicine added: "We do need to start planning for a future pandemic.

“I don’t want to depress people by making them think that this is all going to happen again - it's really something that only a few people should have to think about.

“Those of us who work on pandemic preparedness really want to be able to put all plans in place so that we can respond better next time, so that we have a faster response, and maybe have the opportunity to stop a new virus spreading at the stage where it is an outbreak, rather than a pandemic.

“We need to be able to respond to outbreaks as soon as they're identified - vaccinate the local population, contain that outbreak and stop it going any further.

“Because with all of these outbreaks, they will spread if we can't respond to them and that's why we need to have the vaccines for these other viruses that we already know about so that we're able to bring those outbreaks to an end really quickly and then they don't spread to multiple countries and they don't become a pandemic.

“There's less cost in containing everything if we do it really early.”

‘Asked if this suggests that funders and governments have not learned lessons about the importance of pandemic preparedness, Dame Sarah said: “Yes, I think it does, and we should really be working now to do everything we can to prepare for a potential future pandemic, while we have all the knowledge.’ See Howie, M. (23 September 2021). *Covid will eventually become like the common cold, says Professor Dame Sarah Gilbert*. Evening Standard. Retrieved 11 October 2021 from <https://www.standard.co.uk/news/uk/covid-coronavirus-vaccine-common-cold-astrazeneca-oxford-sarah-gilbert-b956846.html>

2 Royal Commission of Inquiry into New Zealand’s response to the COVID-19 Pandemic

BBC. (12 May 2021). *Covid inquiry: What is it and how will it work?* Retrieved 6 October 2021 from <https://www.bbc.com/news/explainers-57085964>

Glossary

Elimination strategy (COVID-19)

‘Elimination of an infectious disease means reducing the number of cases of the disease being spread within a geographic area or country to zero.’ See ESR. (n.d.) *Eradication, Elimination, Suppression and Mitigation: what do they all mean?* Retrieved 11 October 2021 from <https://www.esr.cri.nz/our-expertise/covid-19-response/strategies-for-covid-19>

The elimination strategy is ‘Aotearoa New Zealand’s sustained approach to keep it out, find it and stamp it out, is continually evolving to keep New Zealanders safe from COVID-19. This has become increasingly important as the country carefully engages more closely with the world.’ See Ministry of Health (MOH). (12 August 2021). *COVID-19: Elimination strategy for Aotearoa New Zealand*. Retrieved 12 October 2021 from <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-response-planning/covid-19-elimination-strategy-aotearoa-new-zealand>

Mitigation strategy

See suppression strategy.

Suppression strategy (COVID-19)

‘Suppression is a control strategy that aims to keep the number of cases very low for as long as possible. This approach requires putting in place strong measures to reduce the opportunity for the infection to spread. This will include various forms of quarantine or isolation of infected people. There are many measures potentially available and it sometimes takes time before the effectiveness of these is known for a new pathogen. Although there will continue to be cases of infection under a suppression strategy, the aim is that numbers will be low enough that the healthcare system will not be overwhelmed.’

If a suppression does not work, it can over time become a mitigation strategy. ESR defines a mitigation strategy as a strategy that ‘aims to control an outbreak rather than eliminate the disease. The outbreak is controlled to ensure that the healthcare system isn’t overwhelmed by increasing the strength of measures as the outbreak progresses and number of cases increases.’ See ESR. (n.d.) *Eradication, Elimination, Suppression and Mitigation: what do they all mean?* Retrieved 11 October 2021 from <https://www.esr.cri.nz/our-expertise/covid-19-response/strategies-for-covid-19>

Abbreviations

BMA	British Medical Association
DHB	District Health Board
ECMO	Extracorporeal membrane oxygenation. The ECMO machine is similar to the heart-lung by-pass machine used in open-heart surgery. It pumps and oxygenates a patient's blood outside the body, allowing the heart and lungs to rest.
HSO	Health and Safety Officer. This is a role proposed by the McGuinness Institute as part of this strategy to manage events.
MOH	Ministry of Health
NRS	National Reserve Supply
PCP	Primary care providers. Māori & Iwi providers, Nurse Practitioners, community based nurses, GPs, etc.
PCR	Polymerase chain reaction. PCR is a test to detect genetic material from a specific organism, such as a virus.
PHO	Primary health organisation
PPE	Personal protective equipment
SAGE (UK)	Scientific Advisory Group for Emergencies. SAGE provides scientific and technical advice to support UK government decision makers during emergencies.
VCLA	Very Low Cost Access Schemes. The scheme enables PHOs and general practices [GPs] to gain extra financial funding in cases where they have 50% or more high need patients enrolled and where the practice agrees to maintain patient fees at a low level.