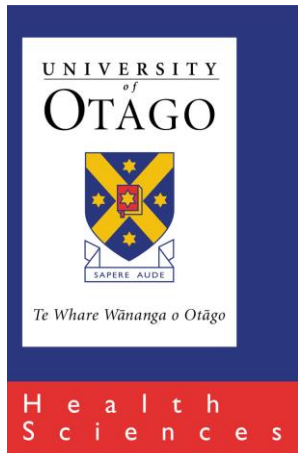


The Covid-19 pandemic and response: What it means for life & work in NZ in the months ahead

Professor Michael Baker
University of Otago, Wellington



Community Networks Wellington AGM
17 November 2021

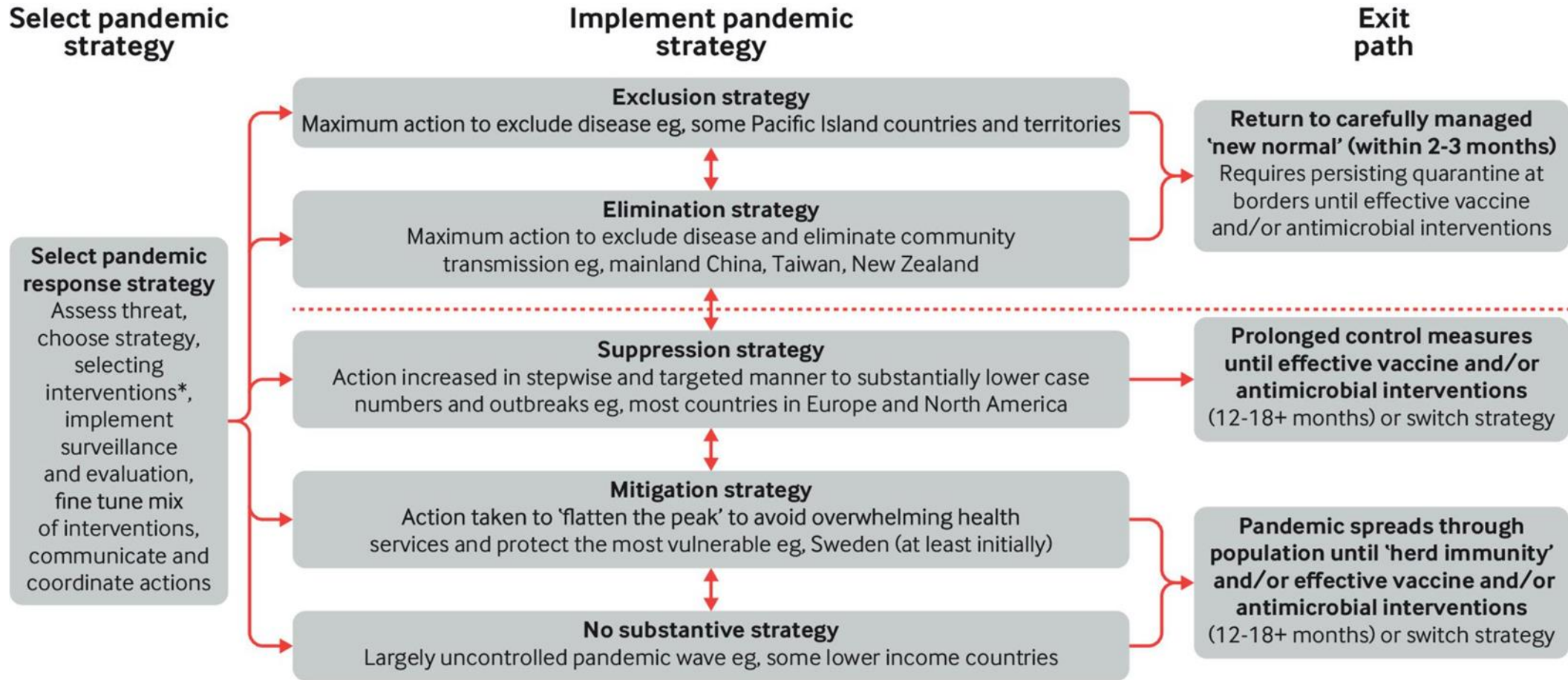


Outline

- **Pandemic strategies**
- **Strategy 1: Elimination**
- **NZ experience with Covid-19 elimination**
- **Strategy 2: Suppression**
- **Where to from here**
- **Vaccination**
- **Reducing Covid-19 transmission**
- **Information and disinformation**
- **Future scenarios**
- **Conclusions**



Pandemic strategies



* **Pandemic interventions:** Border controls to “keep it out”; testing, contact tracing, case isolation and contact quarantine to “stamp it out”; improved hygiene behaviours and use of masks; physical distancing; movement restrictions; combinations including “lockdown”; vaccines; antimicrobials
NB. There are multiple other interventions to reduce harm, including protecting vulnerable populations, reorienting health services, social and economic support



Choosing an elimination strategy

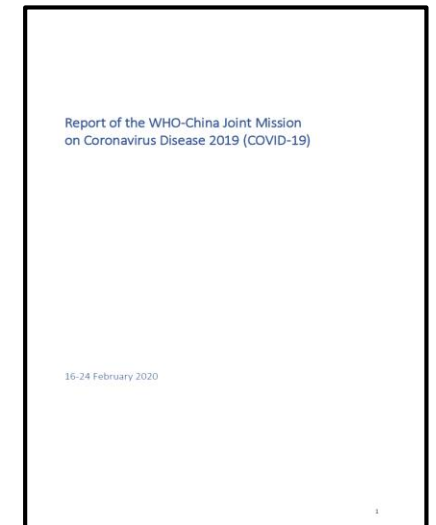
1. January 2020 - It's a serious global pandemic

2. February 2020 - It can be contained/eliminated

3. March 2020 - NZ is not ready, 'lockdown' needed



Source: Wu et al.
Lancet 31 Jan 2020



Source: Aylward et al,
WHO, 28 Feb 2020

Elimination Strategy in NZ

Effectively adopted by NZ Gov on 23 March 2021
with decision to pursue rapid lockdown with ~100
COVID-19 cases, no deaths

New Zealand's elimination strategy for the COVID-19 pandemic and what is required to make it work

Michael G Baker, Amanda Kvalsvig, Ayesha J Verrall, Lucy Telfar-Barnard, Nick Wilson

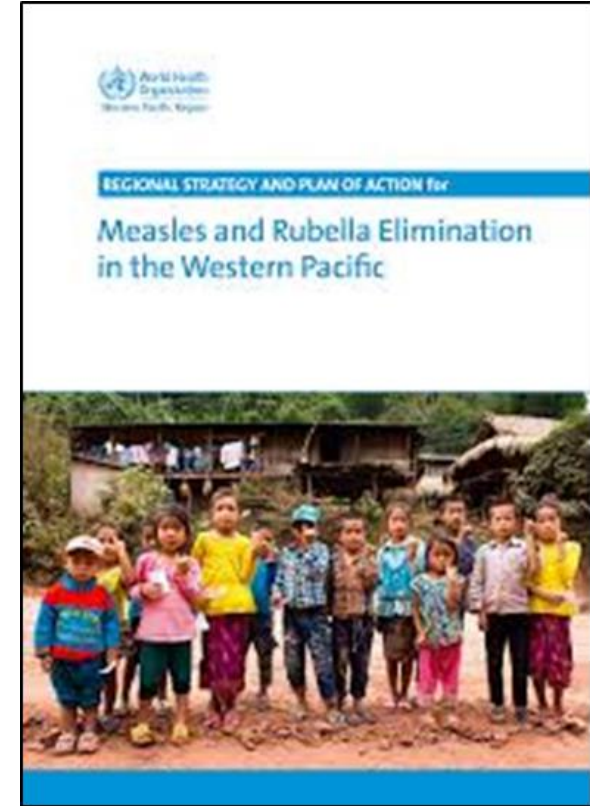
In this editorial we summarise the threat posed by the COVID-19 pandemic, the justification for the elimination strategy adopted by New Zealand, and some of the actions required to maximise the chances of success.

What is the size and nature of the threat?

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, has shown a relentless ability to infect the world's population. The virus is highly infectious, with each case typically infecting 2–3 others (a reproduction number [Ro] of about 2.5). Consequently, it has the potential to infect

the fact that populations take measures to protect themselves.³ Under one of the more likely scenarios if the country's current elimination strategy fails, New Zealand could expect approximately 14,400 deaths.³ In addition, large numbers of people who are ill and hospitalised could swamp health services at all levels and prevent the delivery of elective services and preventive care.

A poorly controlled pandemic will greatly increase health inequities. Like seasonal influenza in New Zealand, risk is particularly concentrated in older people and those with severe comorbidities.⁴ Therefore Māori and Pacific peoples could be more



Source: Baker et al. NZ Med J, 3 April 2020
First published Covid-19 elimination strategy

Elimination Strategy in NZ

1. Exclusion of cases

- *Keep it out* – Border Management

2. Case and outbreak management

- *Stamp it out* – Testing, contact tracing, isolation/quarantine

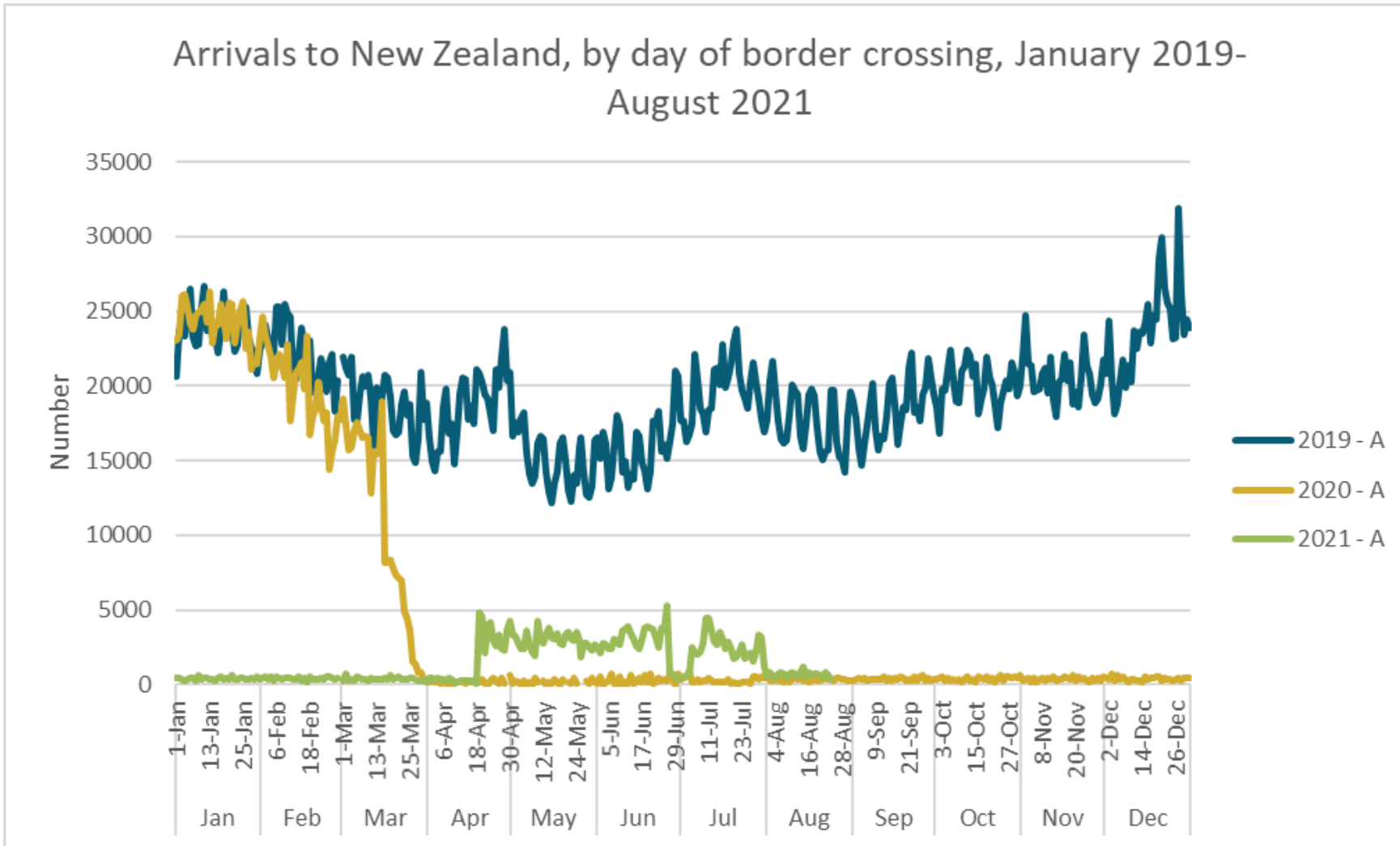
3. Preventing community transmission

- Hygiene measures, masks
- Physical distancing & travel restrictions
- Vaccination (increasingly available in year 2 of pandemic)

4. Social safety net

- Wage subsidy scheme & many other forms of support

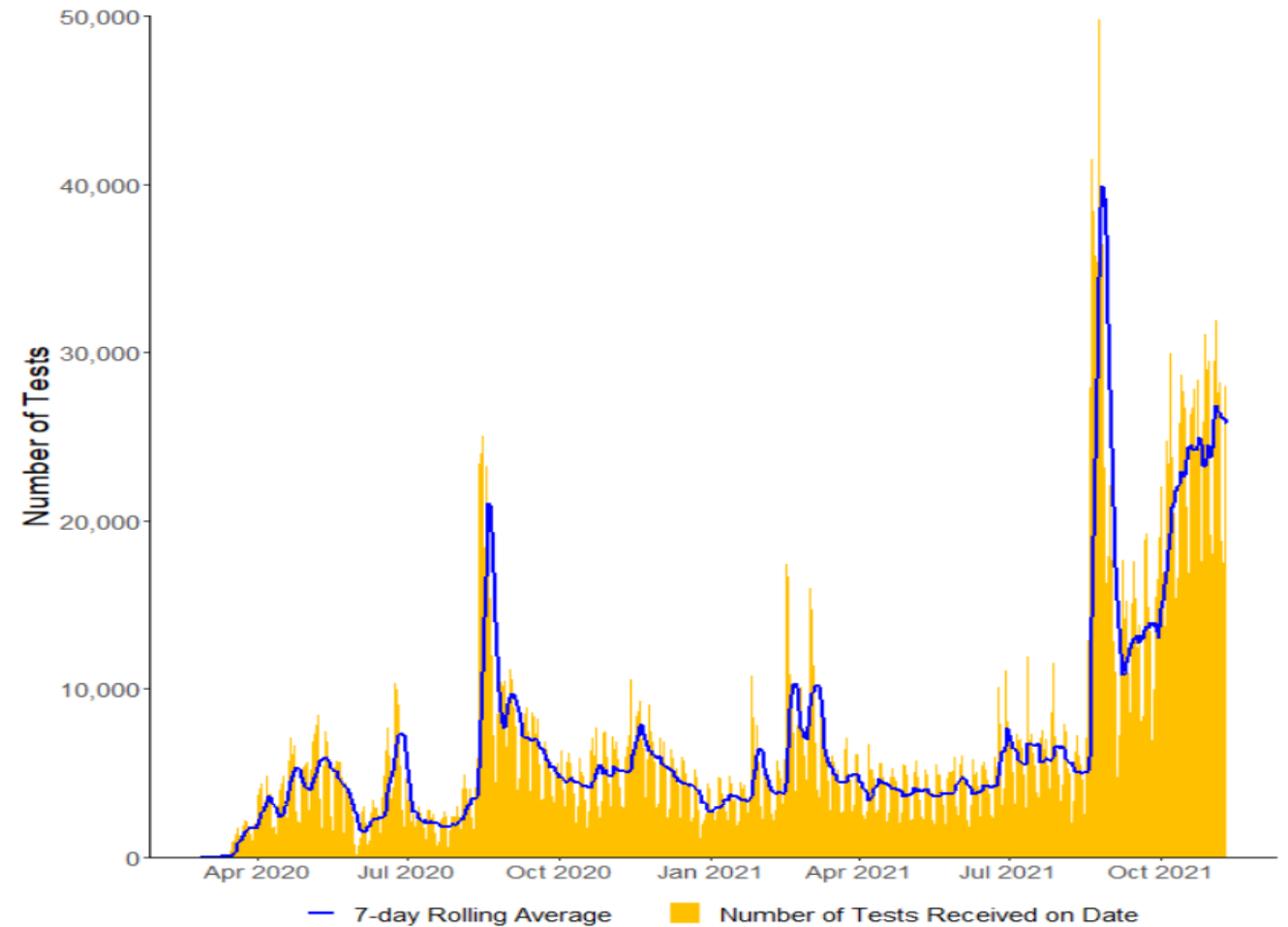
Elimination: Border Management



Elimination: Testing & Contact Tracing



Swabbing for COVID-19, Wellington, May 2020



Daily number of tests completed for COVID-19 (with seven-day rolling average)

Source: MoH website.

Elimination: Hygiene measures

Traditional infectious disease hygiene:

- Stay at home if sick
- Wash your hands
- Cough & sneeze into tissue/elbow

COVID-19 transmission:

- Asymptomatic/Presymptomatic source
- Respiratory droplets and aerosols



- **Masks** (Mass Masking = source control & personal protection), plus
- **Improved ventilation/filtration**

Te Papa Face Mask



Elimination: Physical distancing (lockdown)

New Zealand COVID-19 Alert Levels Summary

Unite
against
COVID-19

- The Alert Levels are determined by the Government and specify the public health and social measures to be taken in the fight against COVID-19. Further guidance is available on the [Covid19.govt.nz](https://www.covid19.govt.nz) website.
- The measures may be updated based on new scientific knowledge about COVID-19, information about the effectiveness of control measures in New Zealand and overseas, or the application of Alert Levels at different times (e.g. the application may be different depending on if New Zealand is moving down or up Alert Levels).

- Different parts of the country may be at different Alert Levels. We can move up and down Alert Levels.
- Essential services including supermarkets, health services, emergency services, utilities and goods transport will continue to operate at any level. Employers in those sectors must continue to meet health and safety obligations.
- Restrictions are cumulative (e.g. at Alert Level 4, all restrictions from Alert Levels 1, 2 and 3 apply).

Updated 5 June 2020

ELIMINATION STRATEGY – New Zealand is working together to eliminate COVID-19

Alert Level	Risk Assessment	Range of Measures (can be applied locally or nationally)
Level 4 – Lockdown Likely the disease is not contained	<ul style="list-style-type: none"> Community transmission is occurring. Widespread outbreaks and new clusters. 	<ul style="list-style-type: none"> People instructed to stay at home in their bubble other than for essential personal movement. Safe recreational activity is allowed in local areas. Travel is severely limited. All gatherings cancelled and all public venues closed. Businesses closed except for essential services (e.g. supermarkets, pharmacies, clinics, petrol stations) and lifeline utilities. Educational facilities closed. Rationing of supplies and requisitioning of facilities possible. Reprioritisation of healthcare services.
Level 3 – Restrict High risk the disease is not contained	<ul style="list-style-type: none"> Community transmission might be happening. New clusters may emerge but can be controlled through testing and contact tracing. 	<ul style="list-style-type: none"> People instructed to stay home in their bubble other than for essential personal movement – including to go to work, school if they have to, or for local recreation. Physical distancing of two metres outside home (including on public transport), or one metre in controlled environments like schools and workplaces. People must stay within their immediate household bubble, but can expand this to reconnect with close family/whānau, or bring in caregivers, or support isolated people. This extended bubble should remain exclusive. Schools (years 1 to 10) and Early Childhood Education centres can safely open, but will have limited capacity. Children should learn at home if possible. People must work from home unless that is not possible. Businesses can open premises, but cannot physically interact with customers. Low risk local recreation activities are allowed. Public venues are closed (e.g. libraries, museums, cinemas, food courts, gyms, pools, playgrounds, markets). Gatherings of up to 10 people are allowed but only for wedding services, funerals and tangihanga. Physical distancing and public health measures must be maintained. Healthcare services use virtual, non-contact consultations where possible. Inter-regional travel is highly limited (e.g. for essential workers, with limited exemptions for others). People at high risk of severe illness (older people and those with existing medical conditions) are encouraged to stay at home where possible, and take additional precautions when leaving home. They may choose to work.
Level 2 – Reduce The disease is contained, but the risk of community transmission remains	<ul style="list-style-type: none"> Household transmission could be occurring. Single or isolated cluster outbreaks. 	<ul style="list-style-type: none"> People can reconnect with friends and family, and socialise in groups of up to 100, go shopping, or travel domestically, if following public health guidance. Keep physical distancing of two metres from people you don't know when out in public or in retail stores. Keep one metre physical distancing in controlled environments like workplaces, where practicable. No more than 100 people at gatherings, including weddings, birthdays and funerals and tangihanga. Businesses can open to the public if following public health guidance including physical distancing and record keeping. Alternative ways of working are encouraged where possible. Hospitality businesses must keep groups of customers separated, seated, and served by a single person. Maximum of 100 people at a time. Sport and recreation activities are allowed, subject to conditions on gatherings, record keeping, and – where practical – physical distancing. Public venues such as museums, libraries and pools can open if they comply with public health measures and ensure 1 metre physical distancing and record keeping. Event facilities, including cinemas, stadiums, concert venues and casinos can have more than 100 people at a time, provided that there are no more than 100 in a defined space, and the groups do not mix. Health and disability care services operate as normally as possible. It is safe to send your children to school, early learning services and tertiary education. There will be appropriate measures in place. People at higher-risk of severe illness from COVID-19 (e.g. those with underlying medical conditions, especially if not well-controlled, and seniors) are encouraged to take additional precautions when leaving home. They may work, if they agree with their employer that they can do so safely.
Level 1 – Prepare The disease is contained in New Zealand	<ul style="list-style-type: none"> COVID-19 is uncontrolled overseas. Isolated household transmission could be occurring in New Zealand. 	<ul style="list-style-type: none"> Border entry measures to minimise risk of importing COVID-19 cases. Intensive testing for COVID-19. Rapid contact tracing of any positive case. Self-isolation and quarantine required. Schools and workplaces open, and must operate safely. No restrictions on personal movement but people are encouraged to maintain a record of where they have been. No restrictions on gatherings but organisers encouraged to maintain records to enable contact tracing. Stay home if you're sick, report flu-like symptoms. Wash and dry hands, cough into elbow, don't touch your face. No restrictions on domestic transport – avoid public transport or travel if sick. No restrictions on workplaces or services but they are encouraged to maintain records to enable contact tracing.

Source: NZ Government

Elimination Strategy: Social Safety Net

- Elimination **protects vulnerable populations** from pandemic infections
→ inherently pro-equity
- But, vulnerable populations exposed to **unintended consequences**:
 - Direct effects of interventions, such as lockdowns
 - Indirect effects from economic recession
- Need for economic & social support Eg,
 - Income support
 - Food security
 - Healthcare access

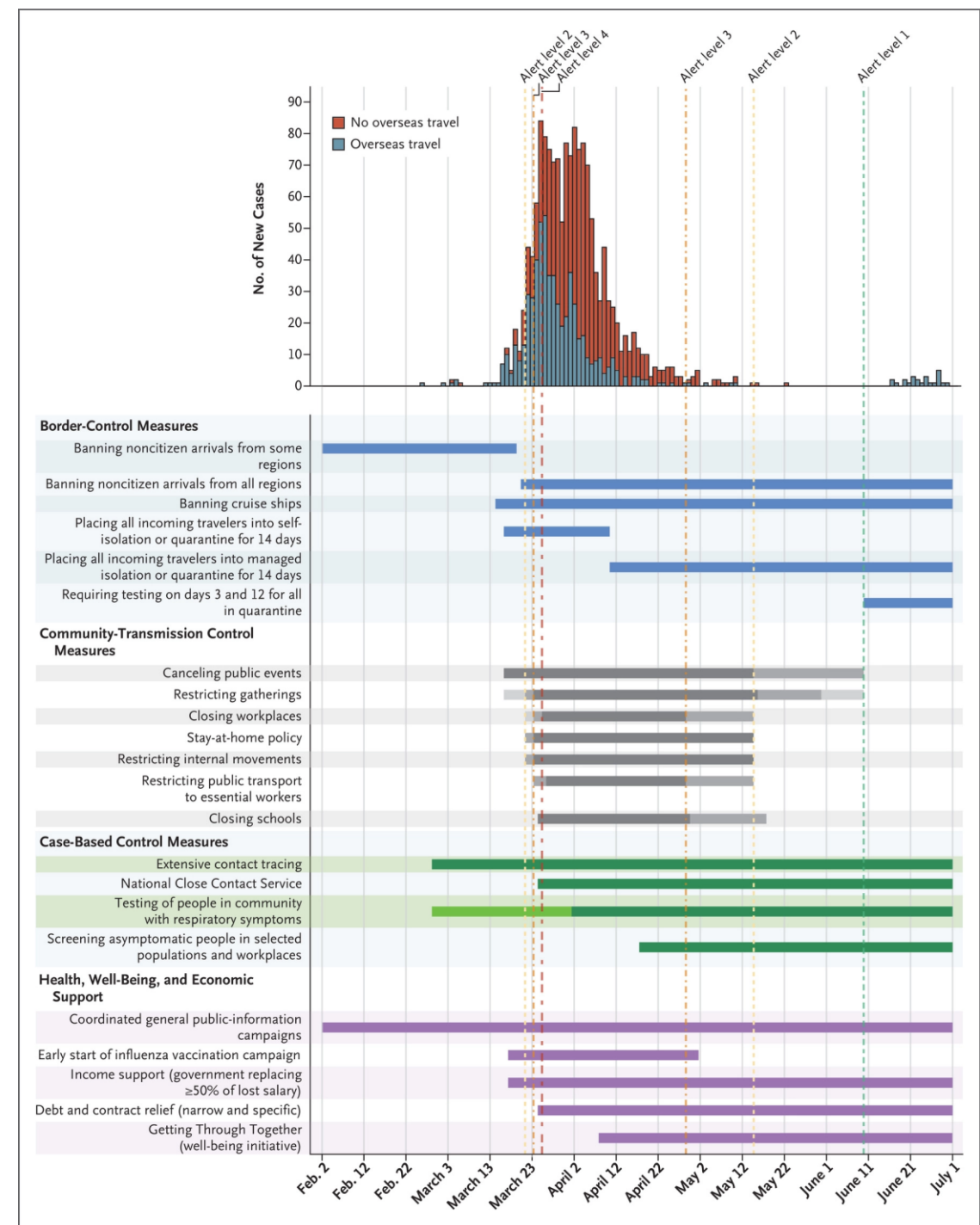
Food Bank at Kokiri Marae, Wellington



Elimination Strategy: Impact on cases

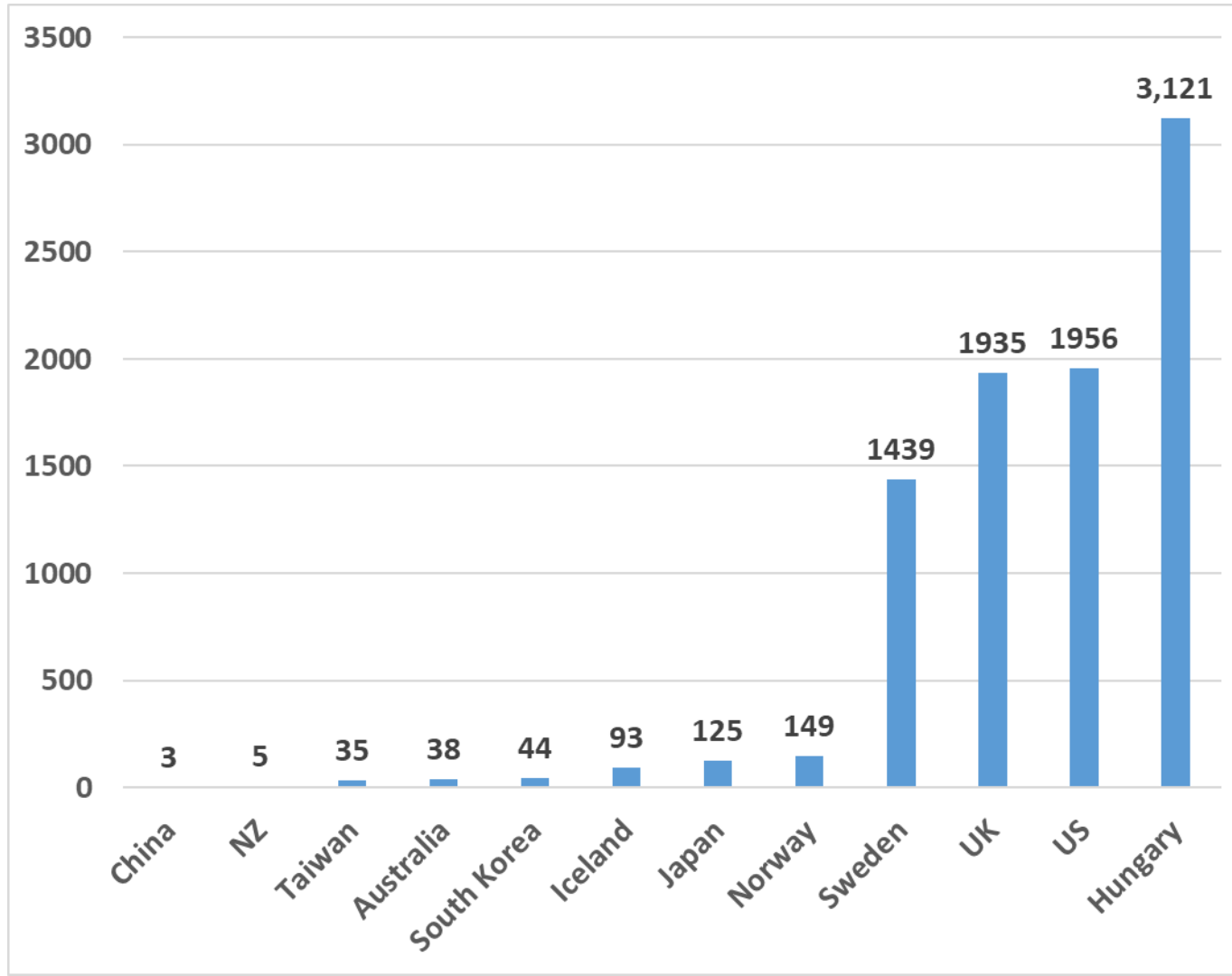
Rapid decline & end of community transmission of COVID-19

Source: Baker, Wilson, Anglemyer. NEJM e56 DOI:
202010.1056/NEJMc2025203, 20 August 2020



Elimination Strategy in NZ: Mortality impact

Death rate from COVID-19 (per million pop, 27 Aug 2021)



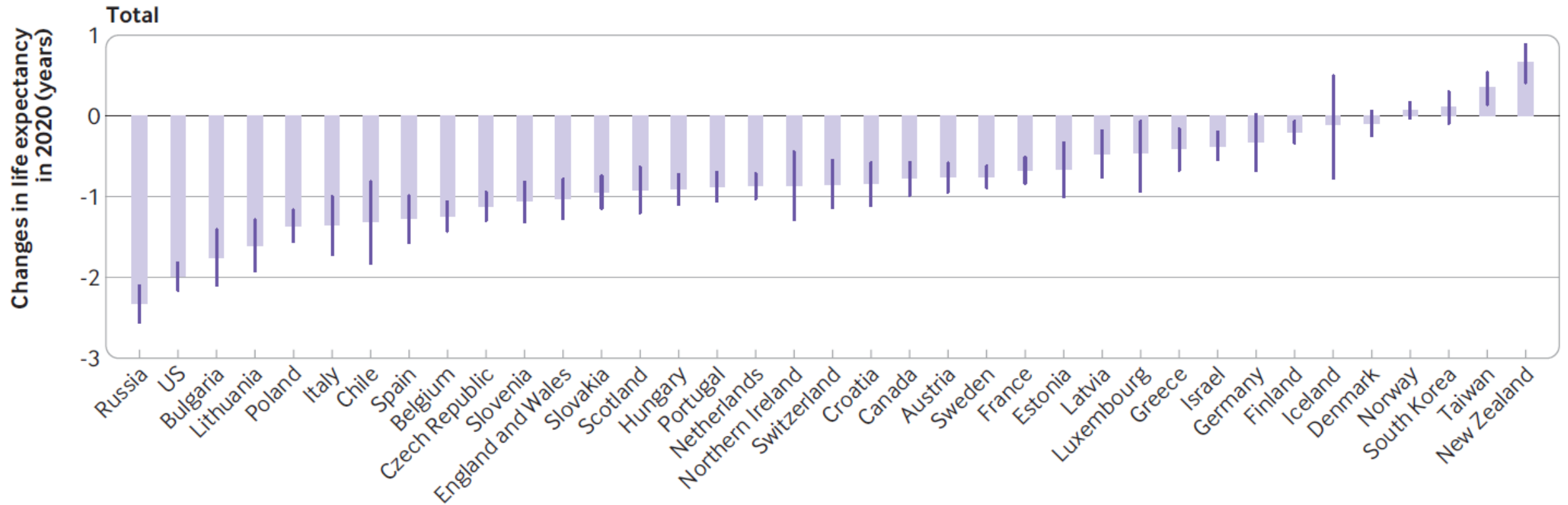
**NZ Lives saved
by elimination
~9,600
(based on UK
mortality =
0.19%)**

**Av 16 YLL per
death**

**Source: Sci
Rep 2021; 11,
3504**

Impact of Elimination Strategy: Life expectancy

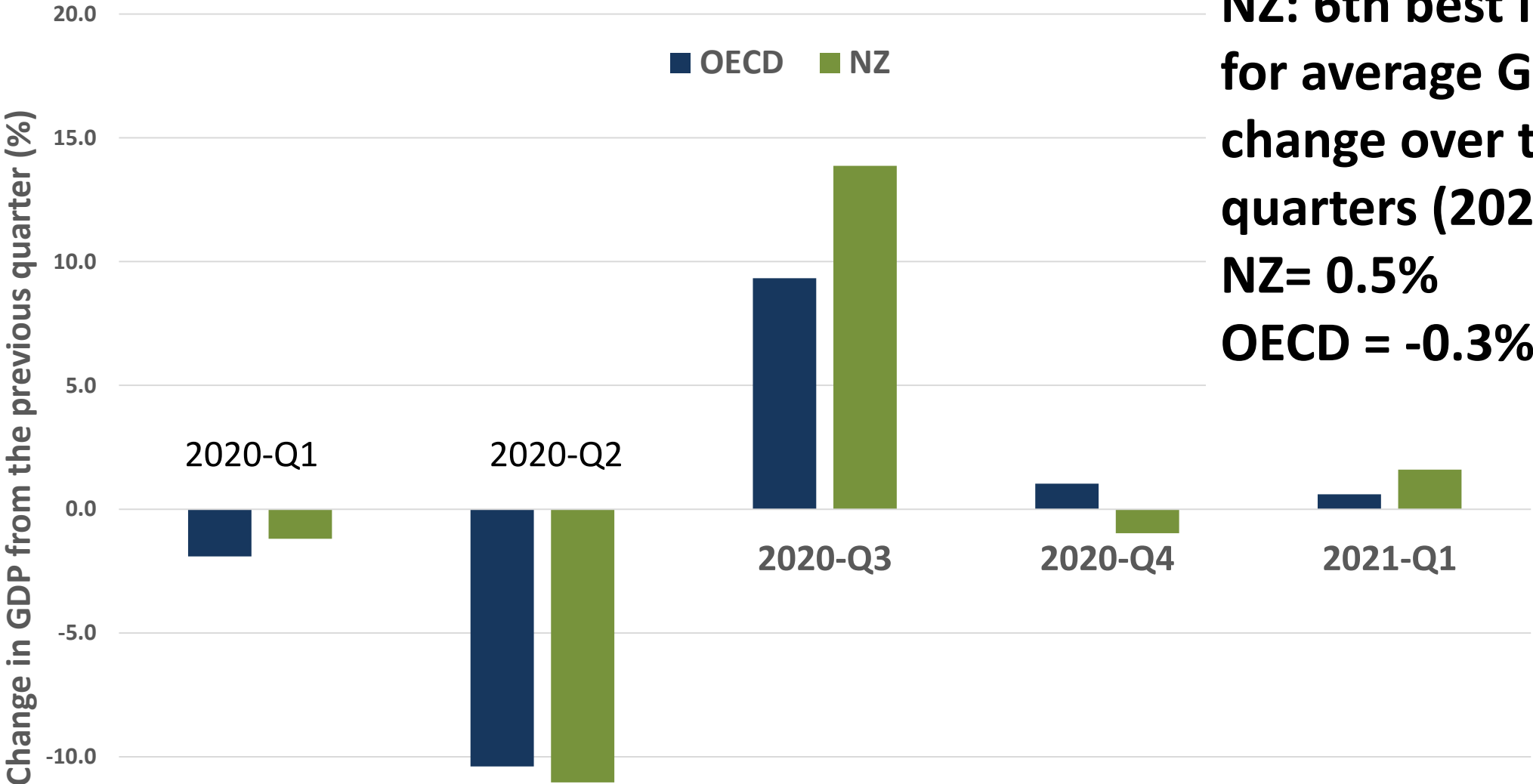
Change in life expectancy 2020



Source: Islam BMJ 2021;375:e066768

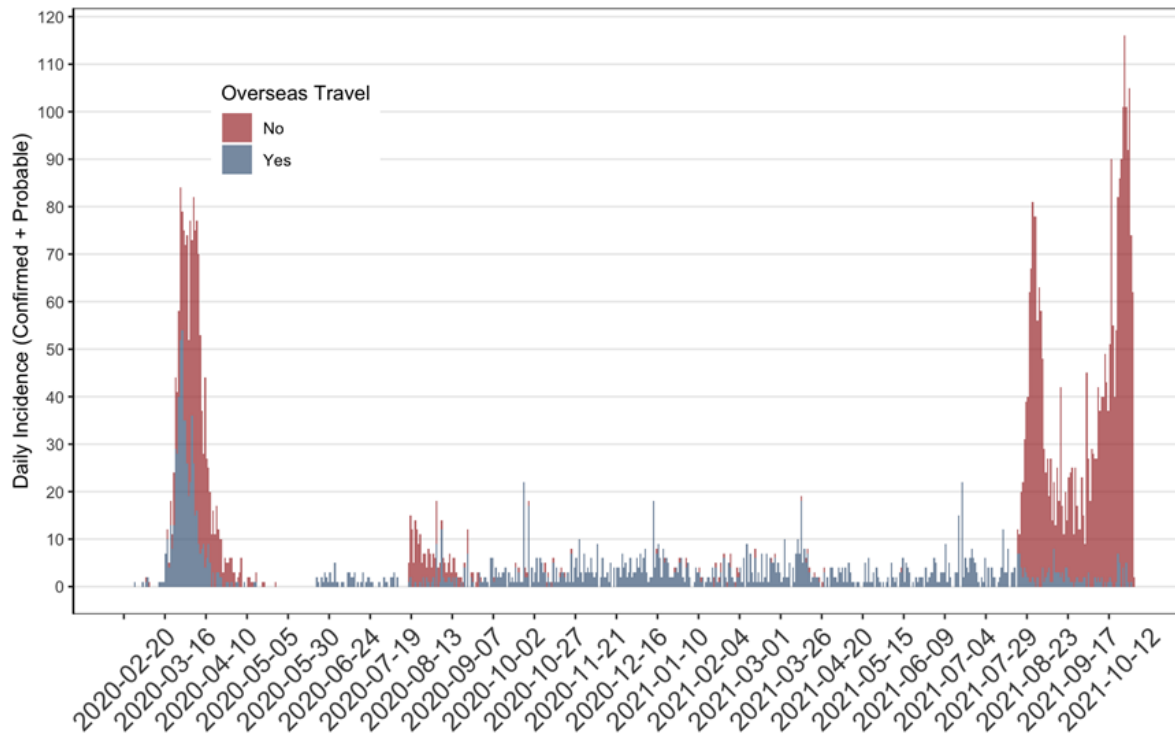
Elimination Strategy in NZ: Economic impact

**NZ: 6th best in OECD
for average GDP
change over the 5
quarters (2020-2021):
NZ= 0.5%
OECD = -0.3%**



Elimination Strategy in NZ: Sustainability

NZ Epidemic curve of Covid-19 cases



NZ Border failures

1. Auckland August **Community** outbreak – 179 cases (incl. 3 deaths)
2. Auckland **MIQ** facility maintenance worker (Aug) – 1 case
3. Auckland **MIQ** facility nurse infected (Sept) – 1 case
4. Christchurch **MIQ** facility cluster (Sept) – 6 cases
5. Auckland **Marine employee** cluster (Oct) – 3 cases
6. Christchurch **MIQ** facility nurse #1 (Nov) – 2 cases
7. Christchurch **MIQ** facility nurse #2 (Nov) – 1 case
8. Auckland **MIQ** armed forces cluster (Nov) – 5 cases (incl. Case D + E)
9. Auckland **MIQ** Pullman case (Jan) – 1 case
10. Auckland **MIQ** Pullman cases (Jan) – 3 cases
11. Auckland Valentines day **Community** outbreak (Feb) – 15 cases
12. Auckland **Aircrew** (Feb) – 1 case
13. Auckland **MIQ** (March) – 3 cases
14. Auckland August **Community** outbreak (Aug→) – 879 (incl 1 death)

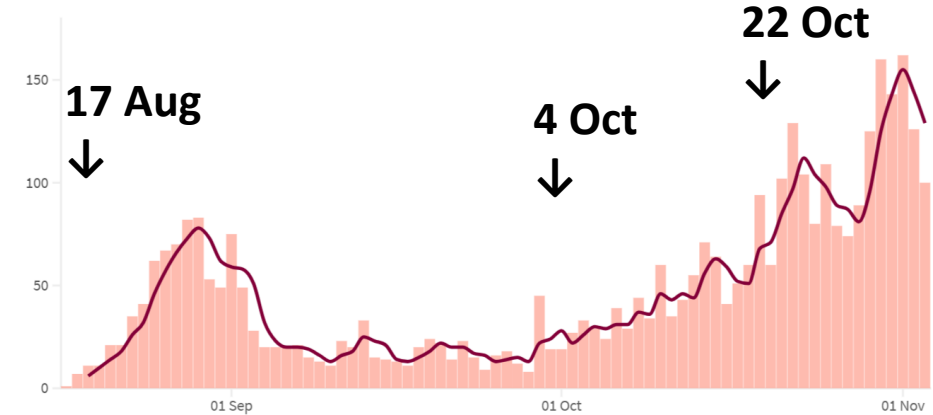


Suppression strategy

- **17 August 2021** – Delta variant outbreak detected in Auckland
- **4 October 2021** – entrenched in marginalised groups
Elimination → Suppression with high vaccine coverage + Public Health & Social Measures (PH&SM)
- **22 October 2021** – Traffic light system announced, once 90%+ vaccinated

Reported community cases, NZ delta outbreak

Daily case count and three-day rolling average



Source: Ministry of Health
Chart by The Spinoff

TRAFFIC LIGHT SYSTEM AT A GLANCE

A new system for Covid-19 response will take effect when all DHBs across New Zealand have 90 per cent of their population vaccinated.



Red

- Working from home encouraged. Hospitality, retail, and gatherings allowed for vaccinated but with limits similar to level 2.
- For venues that don't use vaccine certificates - contactless pickup only for hospitality, gathering limit of 10, no gyms or hairdressers.

Orange

- Close to normal life for the vaccinated, with more masks required and some capacity limits.
- For venues that don't use vaccine certificates - contactless pickup only for hospitality, stricter gathering limits, no gyms or hairdressers.

Green

- Essentially normal life for the vaccinated, with schools, retail, hospitality all open with no limits.
- For venues that don't use vaccine certificates - some gathering limits, similar to level 2.

Suppression Strategy in NZ

1. Exclusion of cases

- *Keep it out* – Border Management ↓

2. Case and outbreak management

- *Stamp it out* – Testing, contact tracing, isolation/quarantine ↓
- Self testing (Rapid Antigen Testing), self isolation ↑

3. Preventing community transmission

- Hygiene measures, masks ~
- Physical distancing & travel restrictions ↓
- Vaccination – Traffic Lights System, Vaccine Passes ↑
- Ventilation ↑

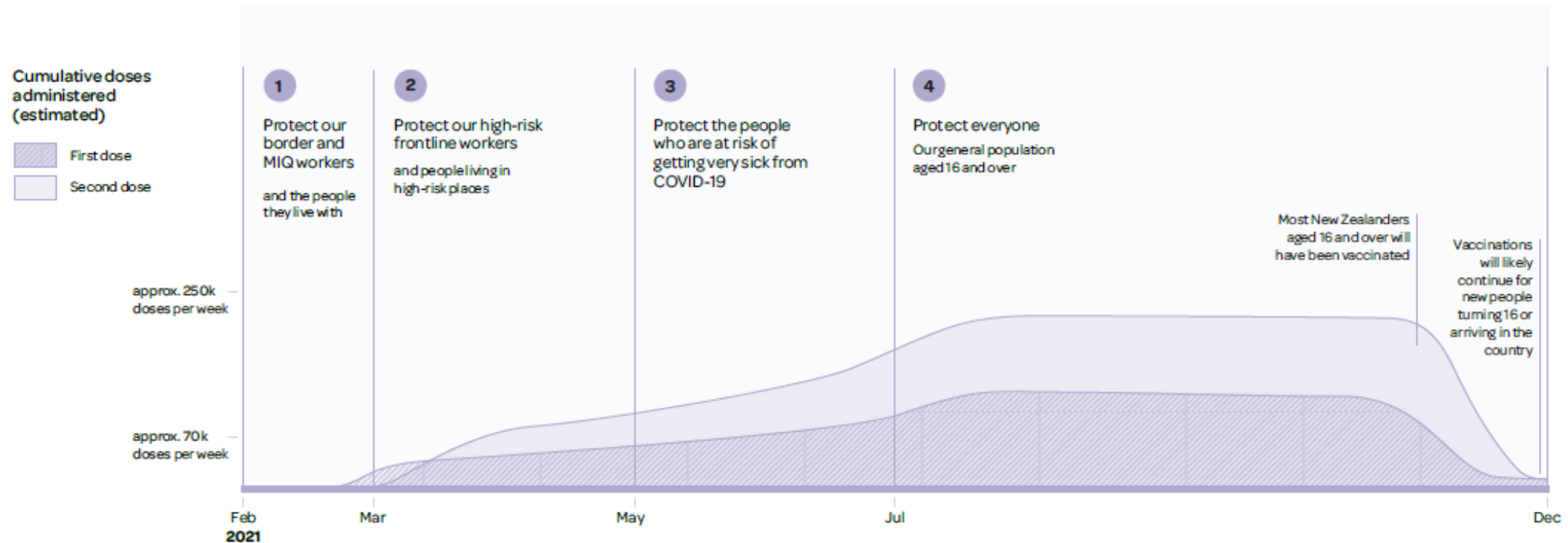
4. Social safety net

- Wage subsidy scheme & many other forms of support ↓

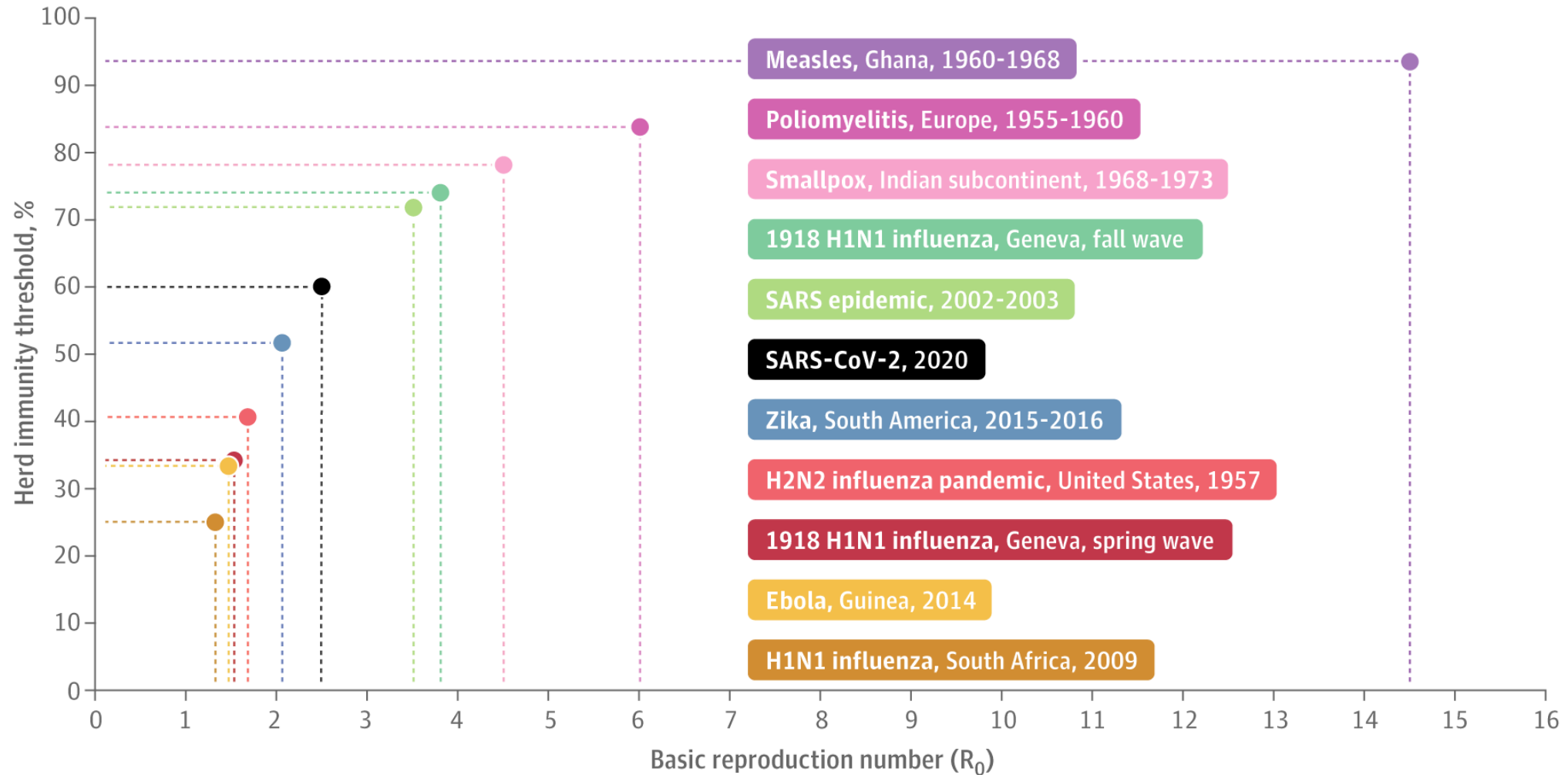
Vaccines: NZ rollout

COVID-19 vaccine:
**Illustration of volumes and
timing of vaccination rollout**

Pfizer-BioNTech COVID-19 vaccine
2 doses, 3-6 weeks apart
12 years and above
Booster being considered
5-11 years olds being considered



Vaccination: Herd Immunity Threshold



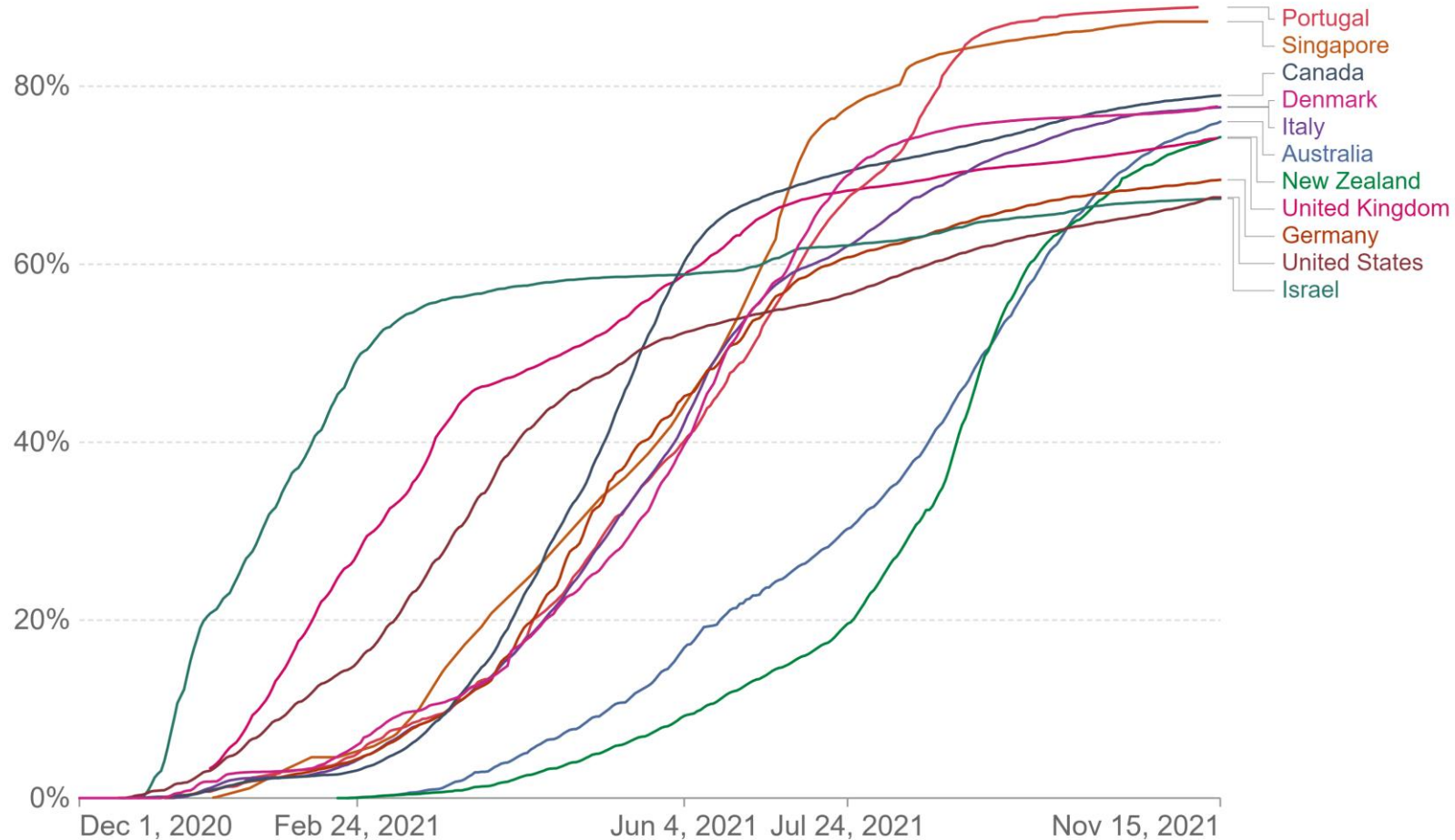
Source: JAMA. 2020;324(20):2095-2096. doi:10.1001/jama.2020.20892

Vaccination: Coverage

Share of people who received at least one dose of COVID-19 vaccine

Total number of people who received at least one vaccine dose, divided by the total population of the country.

Our World
in Data



Source: Official data collated by Our World in Data.

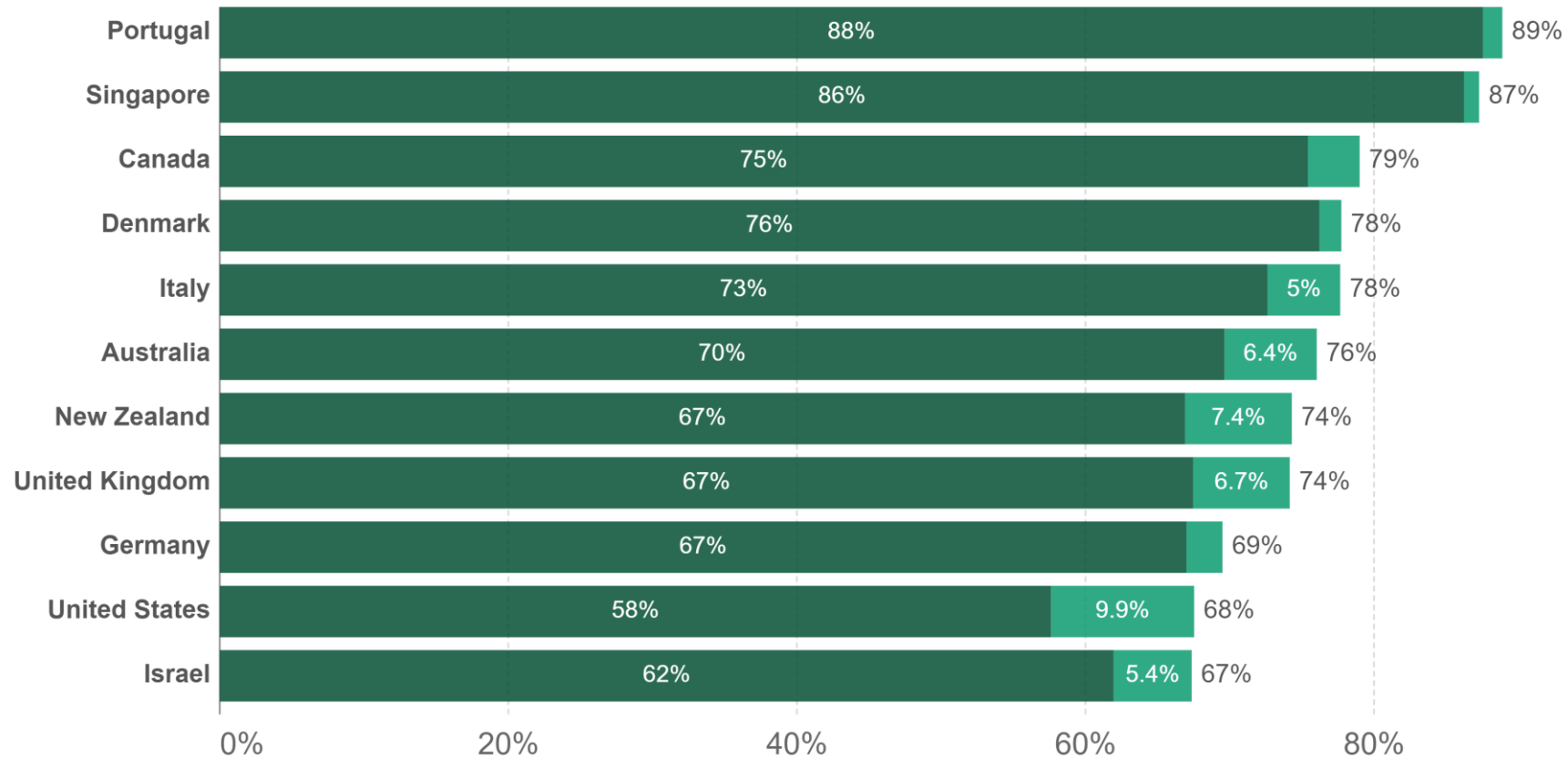
Vaccination: Coverage

Share of people vaccinated against COVID-19, Nov 15, 2021

Alternative definitions of a full vaccination, e.g. having been infected with SARS-CoV-2 and having 1 dose of a 2-dose protocol, are ignored to maximize comparability between countries.



■ Share of people fully vaccinated against COVID-19 ■ Share of people only partly vaccinated against COVID-19



Source: Official data collated by Our World in Data. This data is only available for countries which report the breakdown of doses administered by first and second doses in absolute numbers.

CC BY

Vaccination: Equity

Cumulative vaccinations by ethnicity

Ethnicity *	First dose administered	First doses per 1,000 people	Second dose administered	Second doses per 1,000 people
Māori	423,189	741	323,035	566
Pacific Peoples	248,163	866	207,376	723
Asian	611,380	>950	560,451	936
European / Other	2,435,162	892	2,169,247	794
Unknown	34,317	-	29,724	-
Total	3,752,211	891	3,289,833	782

New Zealand COVID-19 Protection Framework

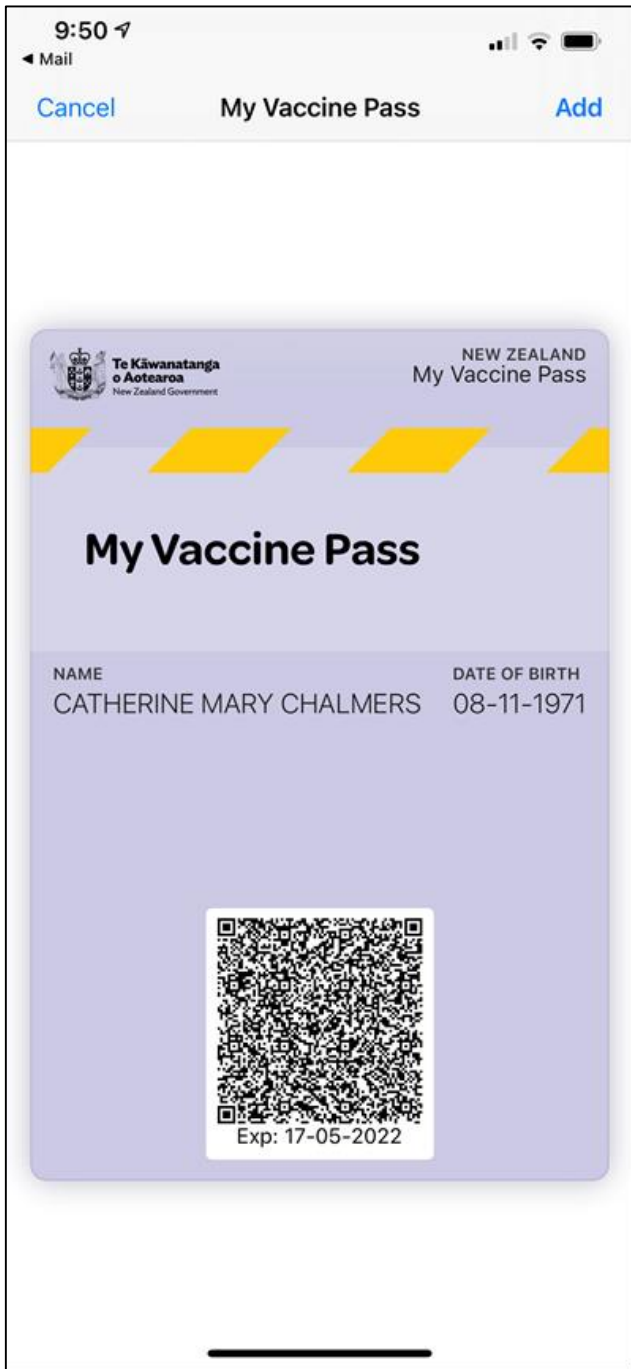
Factors for considering a shift between levels: vaccination coverage; capacity of the health and disability system; testing, contact tracing and case management capacity; and the transmission of COVID-19 within the community, including its impact on key populations.

Localised lockdowns: will be used as part of the public health response in the new framework across all levels, and there may still be a need to use wider lockdowns (similar to the measures in Alert Level 3 or 4).

Vaccination certificates: Requiring vaccination certificates will be optional for many locations. There are some higher-risk settings where they will be a requirement in order to open to the public. Some places won't be able to introduce vaccination requirements, to ensure everyone can access basic services, including supermarkets and pharmacies.

<p>GREEN</p> <p>COVID-19 across New Zealand, including sporadic imported cases.</p> <p>Limited community transmission.</p> <p>COVID-19 hospitalisations are at a manageable level.</p> <p>Whole of health system is ready to respond – primary care, public health, and hospitals.</p>	<p>General settings</p> <ul style="list-style-type: none"> Record keeping/scanning required Face coverings mandatory on flights, encouraged indoors Public facilities – open 	<ul style="list-style-type: none"> Retail – open Workplaces – open Education (schools, ECE, tertiary) – open 	<ul style="list-style-type: none"> Specified outdoor community events – allowed
	<p>No limits if vaccination certificates are used for:</p> <ul style="list-style-type: none"> Hospitality Gatherings (e.g. weddings, places of worship, marae) 	<ul style="list-style-type: none"> Events (indoor/outdoor) Close contact businesses 	<ul style="list-style-type: none"> Gyms
	<p>If vaccination certificates are not used, the following restrictions apply:</p> <ul style="list-style-type: none"> Hospitality – up to 100 people, based on 1m distancing, seated and separated Gatherings (e.g. weddings, places of worship, marae) – up to 100 people, based on 1m distancing 	<ul style="list-style-type: none"> Events (indoor/outdoor) – up to 100 people based on 1m distancing, seated and separated Close contact businesses – face coverings for staff, 1m distancing between customers 	<ul style="list-style-type: none"> Gyms – up to 100 people, based on 1m distancing
<p>ORANGE</p> <p>Increasing community transmission with increasing pressure on health system.</p> <p>Whole of health system is focusing resources but can manage – primary care, public health, and hospitals.</p> <p>Increasing risk to at risk populations.</p>	<p>General settings</p> <ul style="list-style-type: none"> Record keeping/scanning required Face coverings mandatory on flights, public transport, taxis, retail, public venues, encouraged elsewhere 	<ul style="list-style-type: none"> Public facilities – open with capacity limits based on 1m distancing Retail – open with capacity limits based on 1m distancing 	<ul style="list-style-type: none"> Workplaces – open Education – open with public health measures in place Specified outdoor community events – allowed
	<p>No limits if vaccination certificates are used for:</p> <ul style="list-style-type: none"> Hospitality Gatherings (e.g. weddings, places of worship, marae) 	<ul style="list-style-type: none"> Events (indoor/outdoor) Close contact businesses 	<ul style="list-style-type: none"> Gyms
	<p>If vaccination certificates are not used, the following restrictions apply:</p> <ul style="list-style-type: none"> Hospitality – contactless only 	<ul style="list-style-type: none"> Gatherings (e.g. weddings, places of worship, marae) – up to 50 people, based on 1m distancing 	<ul style="list-style-type: none"> Close contact businesses, events (indoor/outdoor) and gyms are not able to operate
<p>RED</p> <p>Action needed to protect health system – system facing unsustainable number of hospitalisations.</p> <p>Action needed to protect at-risk populations.</p>	<p>General settings</p> <ul style="list-style-type: none"> Record keeping/scanning required Face coverings mandatory on flights, public transport, taxis, retail, public venues, recommended whenever leaving the house 	<ul style="list-style-type: none"> Public facilities – open with up to 100 people, based on 1m distancing Retail – open with capacity limits based on 1m distancing Workplaces – working from home encouraged 	<ul style="list-style-type: none"> Education – schools and ECE open with public health measures and controls Specified outdoor community events – allowed with capacity limits
	<p>With vaccination certificates, the following restrictions apply:</p> <ul style="list-style-type: none"> Hospitality – up to 100 people, based on 1m distancing, seated and separated Gatherings (e.g. weddings, places of worship, marae) – up to 100 people, based on 1m distancing 	<ul style="list-style-type: none"> Events (indoor/outdoor) – up to 100 people based on 1m distancing, seated and separated Close contact businesses – public health requirements in place 	<ul style="list-style-type: none"> Gyms – up to 100 people, based on 1m distancing Tertiary education – vaccinations required for onsite delivery, with capacity based on 1m distancing
	<p>If vaccination certificates are not used, the following restrictions apply:</p> <ul style="list-style-type: none"> Hospitality – contactless only Gatherings (e.g. weddings, places of worship, marae) – up to 10 people 	<ul style="list-style-type: none"> Close contact businesses, events (indoor/outdoor) and gyms are not able to operate Tertiary education – distance learning only 	

Vaccination: Promotion



Vaccination: Promotion

Reducing the risk of cases & outbreaks

Epidemiological Triad

Environment, eg Contact patterns, Ventilation

Covid-19 infection

Organism, eg R_0 , Infection Fatality Risk (IFR)

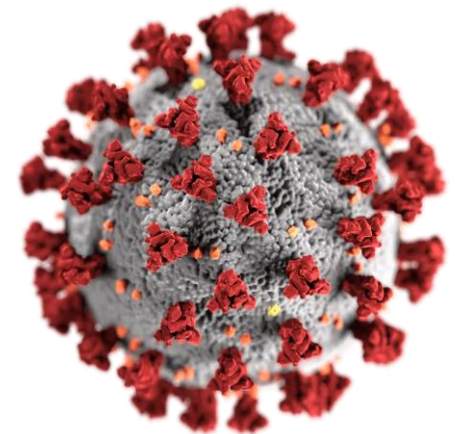
Host, eg Age, Vaccination status

Organism factors

SARS-CoV-2, RNA Virus

- Respiratory pathogen primary transmitted by droplets and aerosols and potentially from surfaces (fomites)
- Often transmitted from pre-symptomatic and asymptomatic cases
- Evolving through antigenic drift and shift (recombination events)

• VOCs	Reproduction No. (R_0)	Incubation period
• Original	2-3	5-6 days
• Alpha	4-5	5-6 days
• Delta	5-8	3-4 days
• Omicron	5-8+	?



Donald Trump

Covid-19 +ve, 2 Oct 2020

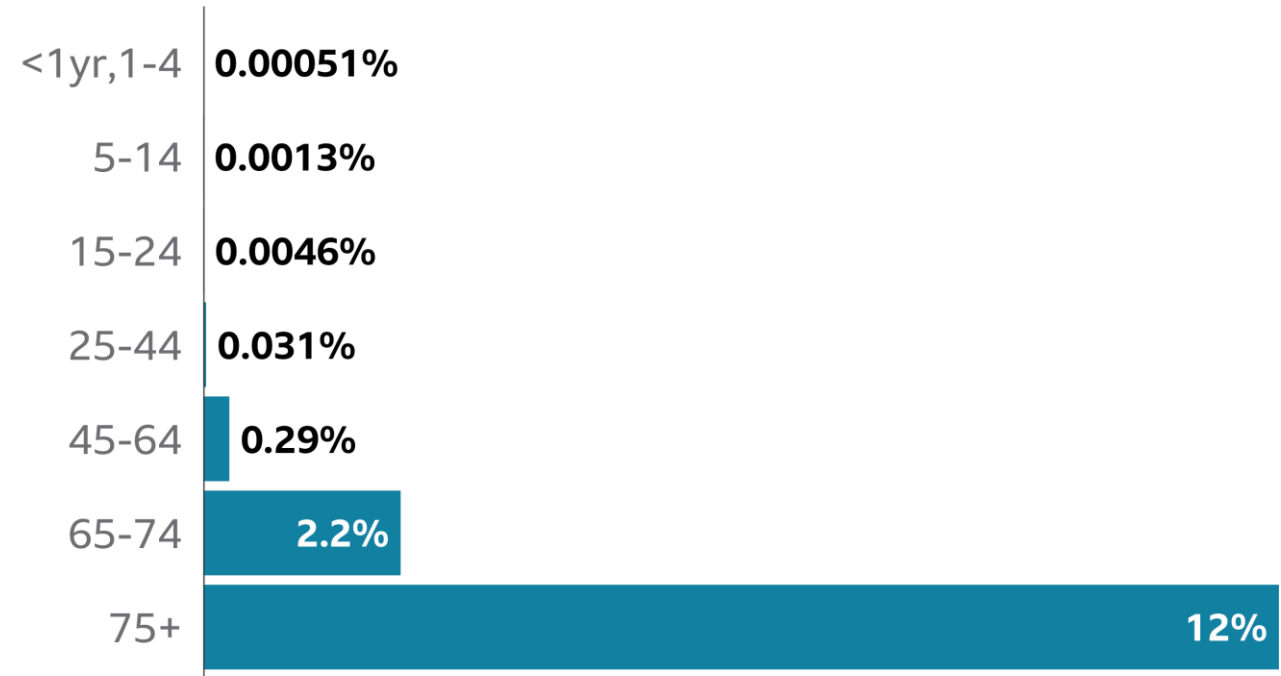
Risk factors for poor outcome:

- Age = 74 years
- BMI = 30
- Income = low (\$750 federal income tax return 2016)
- Housing status = Impending eviction



Host factors

Over-75s remain the most at-risk
Infection-fatality rate by age group in England



Source: MRC Biostatistics Unit, University of Cambridge (12 October)

Environmental factors

Three C's describe settings where COVID-19 virus spreads more easily:

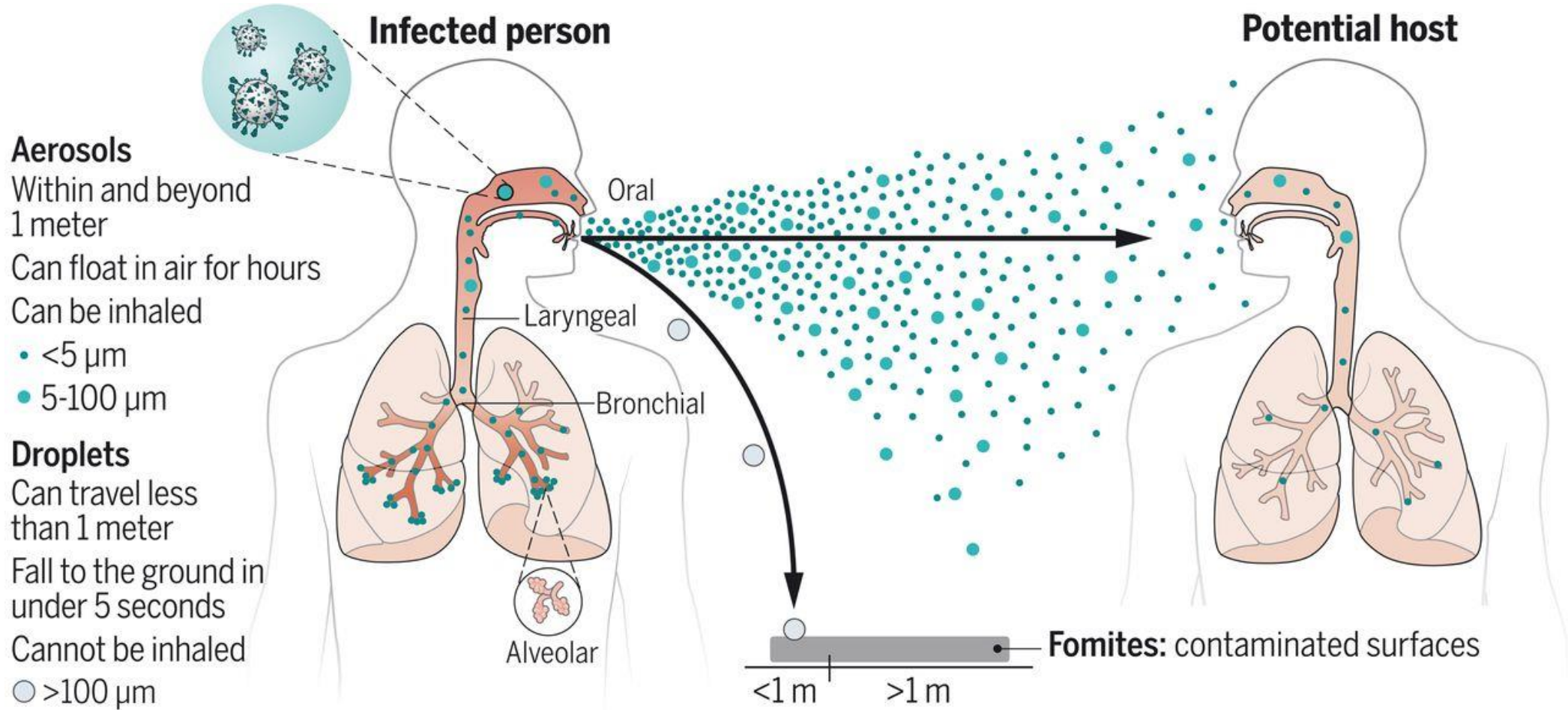
- **Crowded** places
- **Close-contact** settings, especially where people talk, laugh and sing near each other
- **Confined** and enclosed spaces with poor ventilation

Eg, Mangere AOG Church cluster

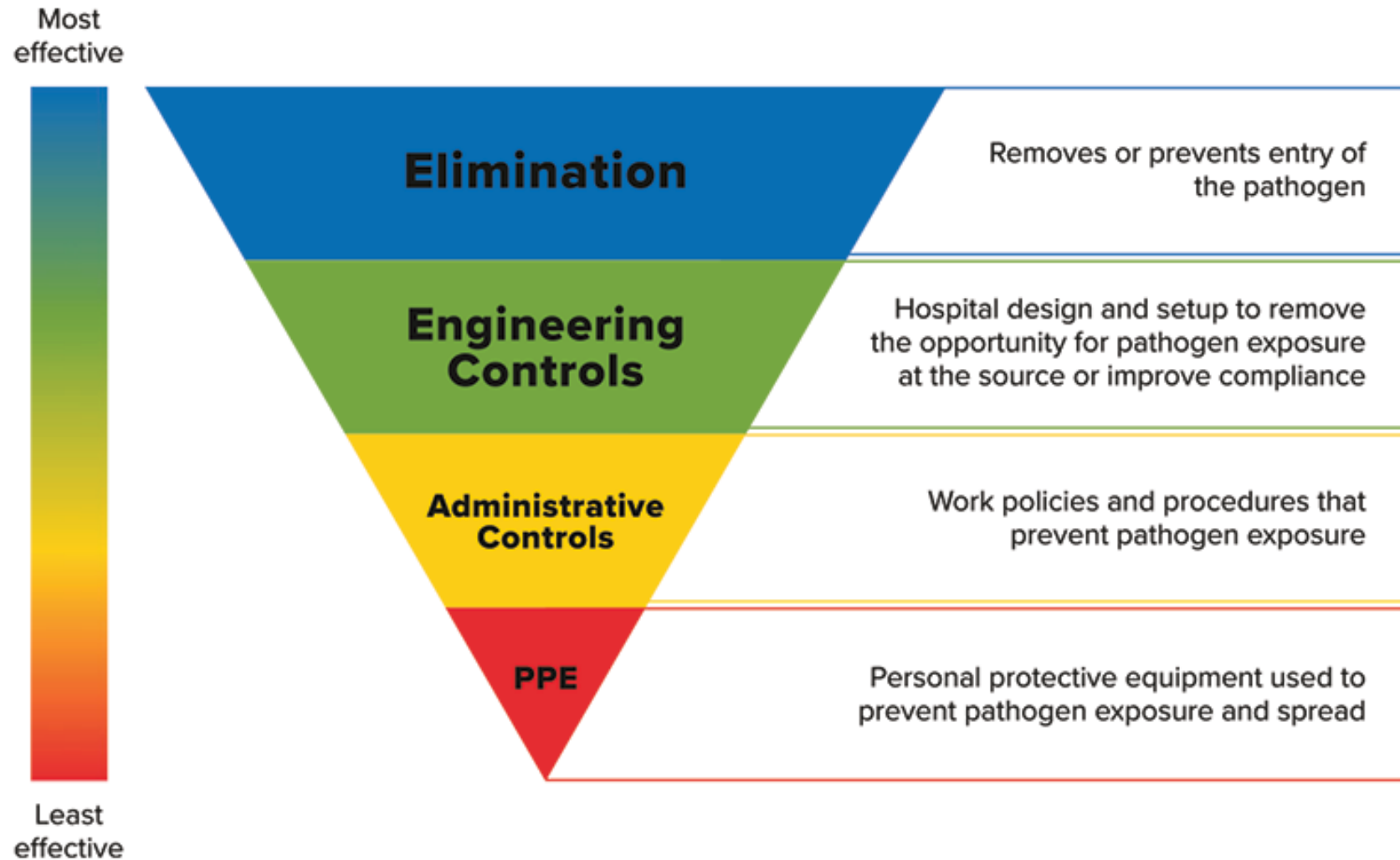
197 confirmed cases out of 429 total cases
(28 August 2021)



Masks and ventilation



Masks and ventilation



Masks and ventilation



Face masks available for use.

Avoid:

- Valve masks (image 2)
- Gaiters (image 11)
- Bandanas (image 12)

Information & misinformation

Misinformation = false information that is spread, regardless of intent to mislead

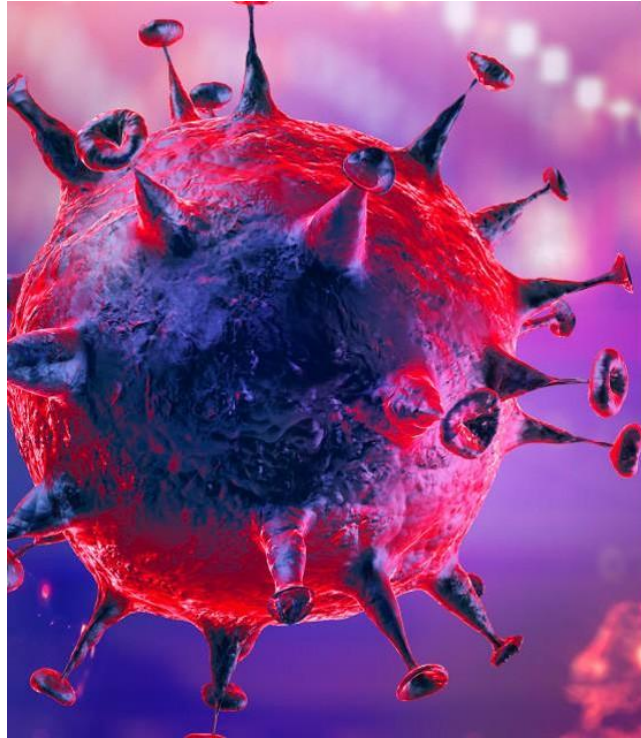
Disinformation = deliberately misleading or biased information; manipulated narrative or facts; propaganda.

*“We’re not just fighting an epidemic;
we’re **fighting an infodemic**”*

Tedros Adhanom Ghebreyesus, WHO DG



Information and misinformation



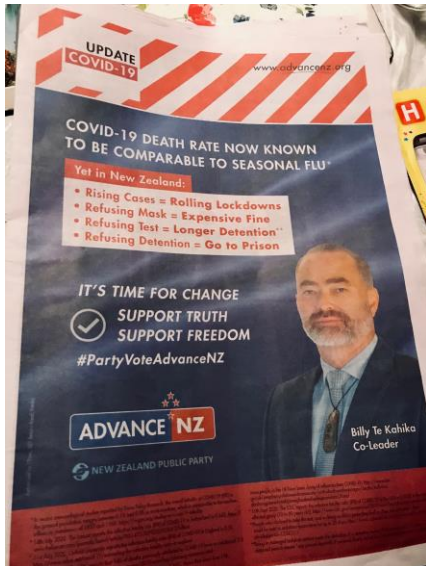
High-profile Norwegian conspiracy theorist, who said COVID-19 was a hoax, dies from the virus after hosting illegal house parties in Norwegian town of Gran. Hans Kristian Gaarder, 60, tested positive for COVID-19 after he died on April 6

Source: <https://www.newshub.co.nz/home/world/2021/04/high-profile-norwegian-conspiracy-theorist-who-said-covid-19-was-a-hoax-dies-from-the-virus-after-hosting-illegal-house-parties.html>

Information and misinformation



Jami-Lee Ross (+ Billy Te Kahika NZ Public Party)



COVID *Plan B*

COVID-19 SCIENCE AND POLICY SYMPOSIUM

17 AUGUST 2020



Information and misinforma

Naz Khanjani said on Instagram lockdowns, travel restrictions and quarantine wasn't "necessary" and that the virus is "just like any other flu".

"I can easily say I've had other 'normal' flus which have been 100 times worse than this one,"

ENTERTAINMENT

Covid 19 coronavirus: Professor Michael Baker criticises Naz Khanjani's Instagram post

8 Jan, 2021 02:11 PM

5 minutes to read



Naz Khanjani shared an Instagram post about her experience having Covid-19 on Instagram. Photo / Nazzfitness



By: **Lydia Burgham**

Entertainment writer, New Zealand Herald

lydia.burgham@nzme.co.nz

@LydiaBurgham



A former New Zealand Bachelor contestant and influencer has come under fire for an Instagram post about her experience with Covid-19.

Naz Khanjani said on Instagram lockdowns, travel restrictions and quarantine wasn't "necessary" and that the virus is "just like any other flu".

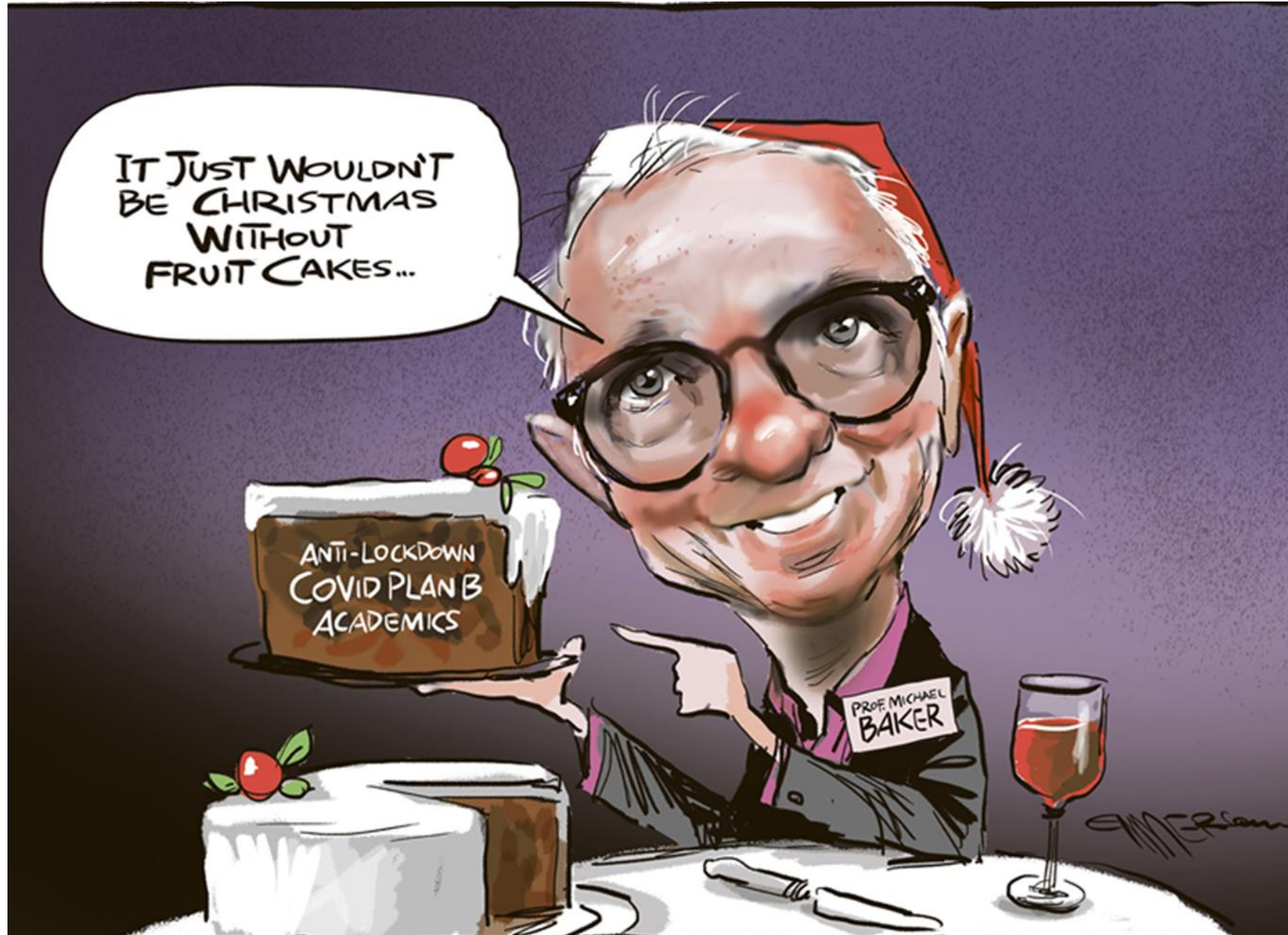
36

Top epidemiologist Professor Michael Baker says the post was a "fallacy" of generalisations and warned others against misinformation about the virus on social media.

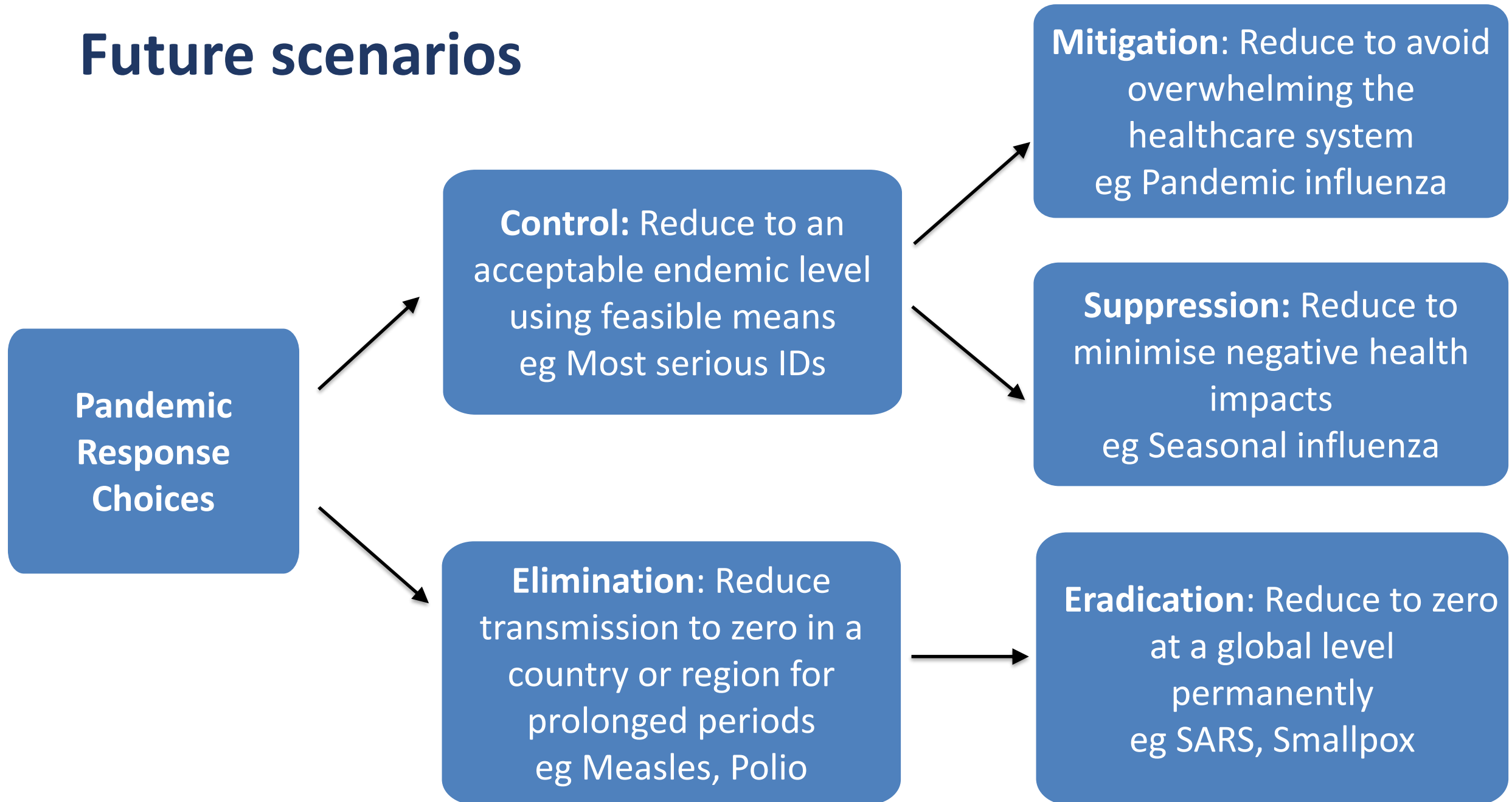
Read More

• [Covid 19 interactive: How do we compare? - NZ Herald](#)

Information and misinformation



Future scenarios



Future scenarios: Endemic infection

- **Endemic mild infection** – SARS-CoV-2 joins the other coronaviruses causing mild respiratory illness
- **Epidemic severe infection** – Like seasonal influenza, but probably worse:
 - Covid-19 highly infectious ($RO=6$ vs. $RO=1.5$ for influenza)
 - Seasonal influenza big killer (~500 deaths pa), fills hospitals (~2,500 hosps pa)
- **Escape variants of Concern** – Antigenic drift (mutations), Shift (in immune suppressed), Recombination events (potentially in animals)
→ ↑transmissibility, lethality, vaccine resistance

Sources:

- Taletti et al, Nature 2021: <https://www.nature.com/articles/s41586-021-03792-w>
- Report by the UK SAGE Group to Government there - Long term evolution of SARS-CoV-2, 26 July 2021

Future scenarios: Elimination

Feasibility of Covid-19 elimination

- Easier with more effective ‘sterilising’ vaccines and possibly antivirals, eg Molnupiravir, Paxlovid
- Easier with greater global coordination, eg WHO elimination strategies



Desirability of Covid-19 elimination

- Increased if chronic Covid-19 effects (‘long Covid’) common, severe, prolonged
- Potentially like measles, polio elimination

Need for global health leadership

Critical global public health leadership & coordination

Independent Panel for Pandemic Preparedness and Response report *“COVID-19: Make it the Last Pandemic”* 12 May 2021:

- Increase equity in vaccine production & distribution
- Prepare to prevent a future outbreak from becoming a pandemic
- Strengthen authority & financing of WHO

WORLD / COVID-19

Helen Clark-led Covid-19 independent review panel criticises China, WHO

12:50 pm on 19 January 2021

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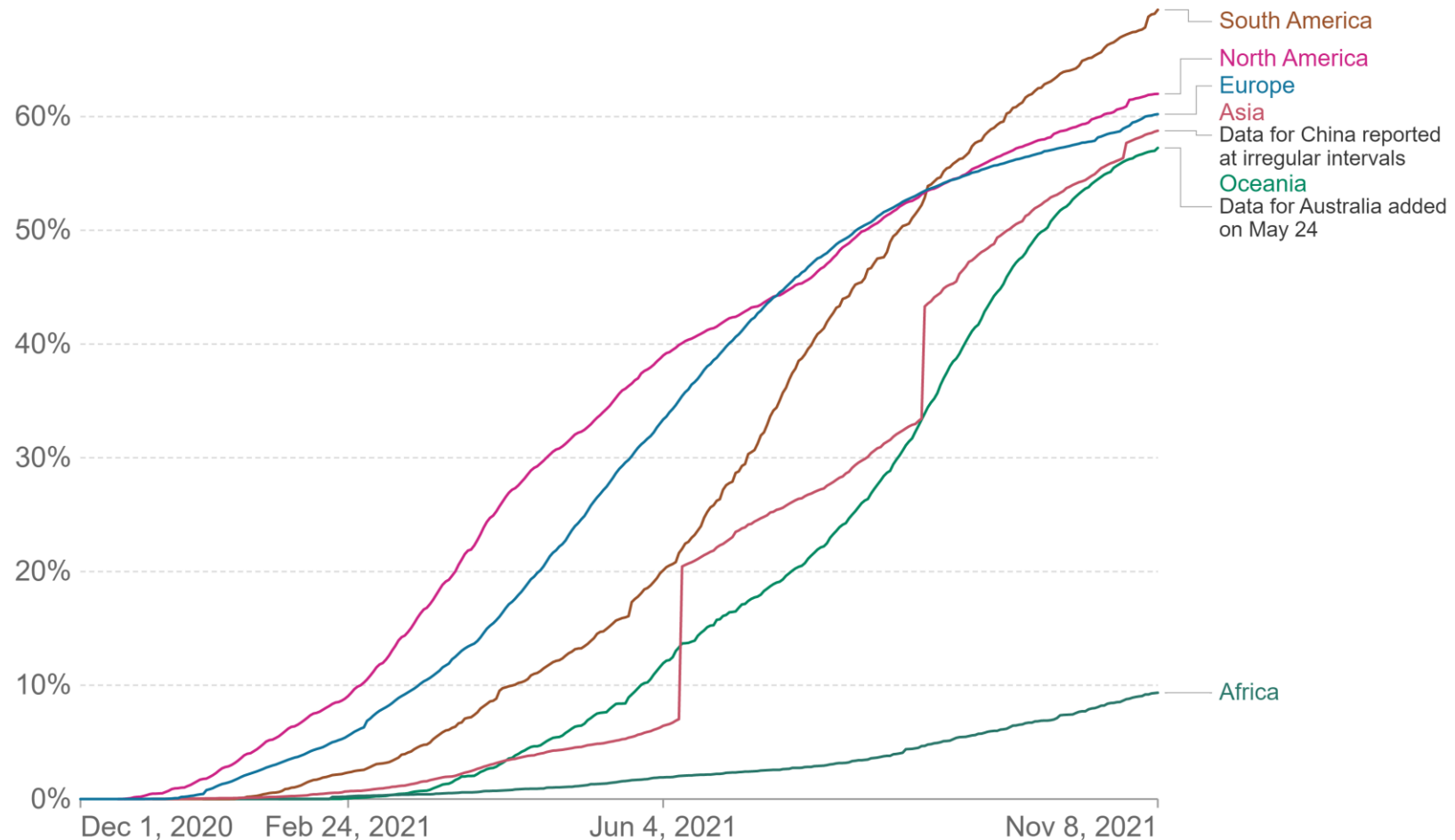
An independent panel says Chinese officials could have applied public health measures more forcefully in January to curb the initial Covid-19 outbreak, and criticised the World Health Organisation (WHO) for not declaring an international emergency until 30 January.



Need for global health equity

Share of people who received at least one dose of COVID-19 vaccine
Total number of people who received at least one vaccine dose, divided by the total population of the country.

Our World
in Data



Source: Official data collated by Our World in Data.

Summary

- 1. Elimination strategy appears an optimal interim response** for new emerging infectious diseases like Covid-19*
- 2. Need enhanced vaccines (and/or antivirals)** to make elimination more feasible & sustainable
- 3. Suppression strategy depends on uniformly high vaccine coverage** plus continuing use of public health and social measures
- 4. Need for global leadership** to help refine optimal strategies, coordinate regional & global responses, and promote equity

*Source: Baker et al. BMJ 2020;371:bmj.m4907

