focus

One-two jab: Virus on the back foot, but not a knock-out blow

Gloucester, New Jersey, USA, 28 January 2021: Line of people waiting for vaccination covid treatment.

COVID-19 vaccines are being rolled out around the world. New Zealand's vaccination programme is now officially underway. Today around 320 million people globally have received at least one dose. The good news is the early evidence suggests that vaccines are at least as effective as the clinical trials concluded. Optimists may be forgiven for therefore thinking the end of COVID-19 is in sight. Unfortunately however, whilst vaccine rollouts are undoubtedly a positive step in the fight against the virus, we do not expect they mean a return to a pre-COVID world any time soon.

To end the COVID-19 pandemic a large percentage of the world's population needs to be immune. The safest way to achieve this is with vaccines. Time to develop vaccines is generally measured in years or decades, but the unprecedented scientific response to COVID-19 has produced numerous options in record time. There are currently a dozen that are approved for general or emergency use, and are being rolled out across different jurisdictions.

Whilst this is a very significant step toward managing COVID-19 many uncertainties remain: How quickly can the vaccine be distributed? What portion of people will willingly take the vaccine? Do vaccines reduce transmission? How quickly will the virus mutate? How effective will vaccines be against new strains? Will we need booster jabs? And how often? Without the answer to all of these, it remains difficult to answer the biggest question, when will the world start to return to normal?

The New Zealand rollout is underway

This week we had the positive news that New Zealand had secured an additional 8.5 million doses of the Pfizer/BioNTech vaccine Comirnaty. The country's total supply of 10 million is now enough to vaccinate five million people with the required two jabs. Comirnaty is one of the most effective vaccines available, and having enough doses of the one vaccine for the entire population should make the rollout easier and more efficient.

New Zealand's vaccine supply

	PFIZER/ BIONTECH	JANSSEN/ JOHNSON & JOHNSON	UNIVERSITY OF OXFORD/ ASTRAZENECA	NOVAVAX
Doses ordered	10,000,000	5,000,000	7,600,000	10,720,000
Doses per person	2	1	2	2
Approval Status	Approved	Application lodged	Application lodged	Still in clinical trials
Efficacy in clinical trials	95%	72%	72%	89.3% (initial results)
Estimated Delivery	Over 2021	2 million from July 2021. Option to buy up to 3 million over 2022.	c.250,000 before July	Late 2021

Source: WHO, Ministry of Health, Company statements, Forsyth Barr analysis

The first stage of the rollout is underway and will see around 50,000 border and managed isolation and quarantine (MIQ) workers, and their household contacts vaccinated. After priority groups, it is planned for vaccinations to begin, free of charge, for the general population from July. Director-General of Health, Dr Ashley Bloomfield has said he wants 90% of New Zealanders to be vaccinated by the end of 2021.

What is required to reach herd immunity?

In order to break a virus's chain of transmission a population must reach herd immunity – essentially the threshold where enough people are immune that the virus can't find enough hosts and is unable to spread. It does not mean there won't be virus outbreaks, but that when they occur it won't spread through the community. The threshold for herd immunity depends on factors such as the disease's transmissibility, effectiveness of the vaccine (no vaccine is 100% effective), and population density.

The level of population immunity required to control COVID-19 is not yet known. Estimates range from 60% to 85%. The New Zealand

Vaccine distribution plan

GROUP ONE	50,000+ border and managed isolation and quarantine (MIQ) workers, and their household contacts. Targeting most to have received at least the first dose this month.
GROUP TWO	Around 480,000 frontline healthcare workers and people living in high-risk settings (e.g. living in aged care homes, or those with underlying health issues or aged over 65 living in South Auckland given the many border operations and MIQ facilities and workers based in the area). Started in February and expected to be completed in May.
GROUP THREE	Around 1.7 million people who are at higher risk if they catch COVID-19. Plan to start in May.
GROUP FOUR	The rest of the general population – around 2 million people. Plan to start in July.

Source: New Zealand Government, Forsyth Barr analysis

Government has said it hopes it can vaccinate 70% of the population. Whilst it's not certain 70% will be sufficient, even reaching this figure won't be easy.

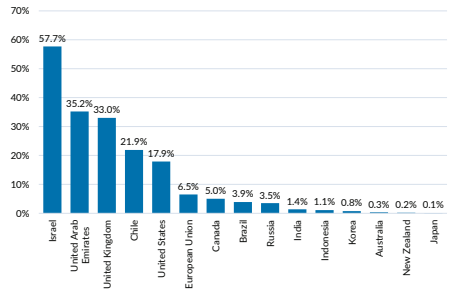
Firstly, at this stage, vaccines aren't yet approved for those under 16 years' old — currently around 20% of the population — or pregnant women. Pfizer and Moderna are currently trialling vaccines on children 12 years and older. Initial signs are positive, however, final results are still months away and further trials will be required for those under 12.

Longer term, greater hurdles are effective distribution, potentially including ongoing boosters, and vaccine hesitancy. In a February research poll, 10% of respondents said they would not receive a "well-tested and approved" COVID-19 vaccine if offered, and a further 20% weren't sure.

What has the world learned so far?

Today the number of people who have received at least one dose of a vaccine is approaching three times the number of people reported to have caught the virus. Israel leads the way with 58% of the population having received at least one dose as at 8 March. The United Kingdom at 33% and United States at 18% are the leaders of the major economies.

SHARE OF PEOPLE WHO HAVE RECEIVED AT LEAST ONE DOSE OF COVID-19 VACCINE (SELECTED COUNTRIES)

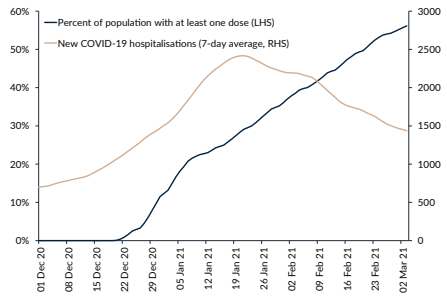


Source: Our World in Data, Forsyth Barr analysis

For New Zealand and other countries commencing vaccination programmes these early leaders provide useful insights for what may lie ahead.

In Israel initial vaccinations focused on the over 60s. Vaccines were well received by this vulnerable cohort, with nearly 80% having received both doses. Hospitalisations from the virus has decreased. Importantly, it appears vaccines also reduce a person's ability to transmit the disease. Israel highlights that even if herd immunity isn't achievable there are benefits from vaccination – protecting the most vulnerable and reducing strain on the healthcare system.

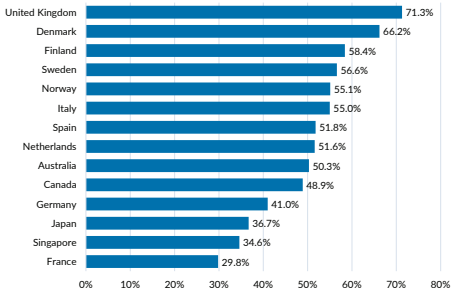
ISRAEL VACCINATIONS AND HOSPITALISATIONS: THE EARLY SIGNS ARE POSITIVE



Source: Our World in Data, Forsyth Barr analysis

After starting strongly, some of the challenges of achieving widespread inoculation have surfaced. Coaxing vaccine sceptics and younger Israelis to get their shots has not proved as easy. Many, viewing themselves as low risk, are choosing to wait and see if vaccines produce any adverse reactions. Unless enough of these abstainers can be convinced to be vaccinated, Israel may struggle to reach herd immunity. Additionally, 29% of Israel's population is under the age of 16, making the prospect of short-term success all the more difficult

SURVEY (SELECTED COUNTRIES): "IF A COVID-19 VACCINE WERE MADE AVAILABLE TO ME THIS WEEK, I WOULD DEFINITELY GET IT." (DECEMBER/JANUARY)



Source: Our World in Data, Forsyth Barr analysis

Without herd immunity the virus could resurge

The Israeli experience highlights that completely stamping out the virus will be difficult. Even if the virus is controlled in one country, it is unlikely to be controlled in all. It will be most difficult in developing countries, with high-density populations and limited access to vaccines. Borders will remain a vulnerability.

Without herd immunity the virus will still live in communities. And the nature of the COVID-19 virus (like the common flu) means it can mutate into new strains.

...Vaccines are a very significant and positive step in combatting COVID-19...

Vaccine effectiveness against new strains is unknown. Already, we have seen that not all vaccines are effective against some newer strains, like the South African variant. AstraZeneca has said it could take between six and nine months to produce vaccines for new strains when they emerge.

In addition to inoculating against new strains, boosters may also be required to maintain a vaccine's effectiveness. UK Health Secretary, Matt Hancock, suggested people might need a new vaccine every six to 12 months to remain protected. Vaccines have not conquered the flu – a new vaccine is required each year. It is likely to be similar for COVID-19.

Where to from here?

"I have been surprised how many think we can live with elimination as a permanent strategy: it is not realistic long-term ... (the) ultimately unavoidable decision will be when and how to move beyond eliminating the virus ... and potentially accept a level of endemism."

Sir Peter Gluckman: Director, Koi Tū: The Centre for Informed Futures, University of Auckland. President-elect of the International Science Council. Former Chief Science Advisor to the Prime Minister

Vaccines are a very significant and positive step in combatting COVID-19, however, unfortunately we're not anticipating a knock-out blow.

Economies which have operated under tight restrictions will relax controls. Shut borders will start to reopen (likely with vaccine passports). And use of non-pharmaceutical interventions such as masks, social distancing, and border closures will reduce.

But herd immunity is unlikely to be achieved around the world, Vaccinations are likely to be an ongoing requirement, rather than a one-off solution. Outbreaks (including new strains) will occur, potentially requiring restrictions to be periodically re-imposed. Countries like New Zealand, Australia, and China, that currently have zero-tolerance approaches to COVID-19, face the tough decision – when to reopen to the world and accept the virus will enter. The world is moving to a new phase in the fight against COVID-19, but unfortunately we suspect 2020's unwelcome visitor will influence our lives and investment decisions for a while yet.

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