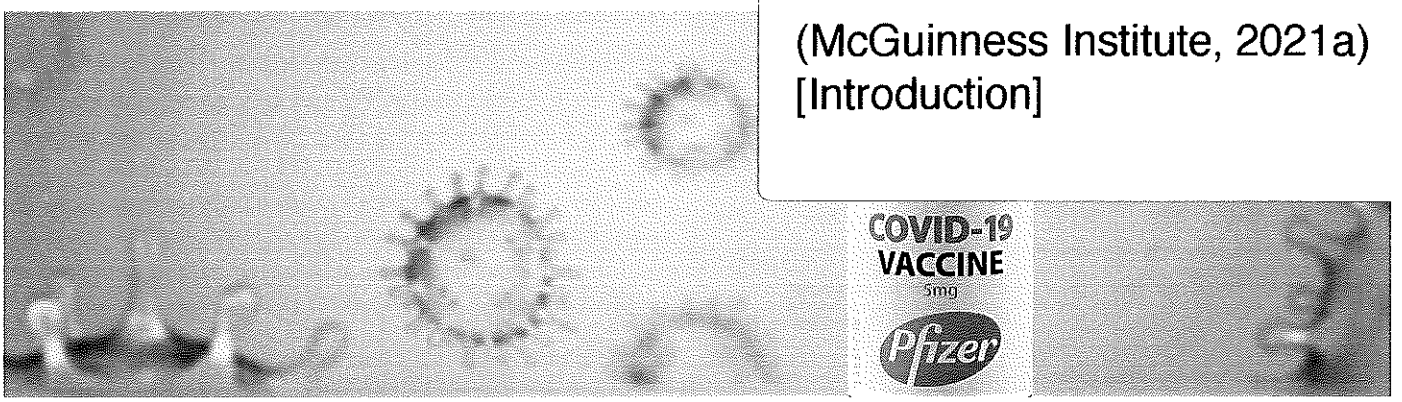
The gap between doses matters!

Think Piece 37: June 2021



(McGuinness Institute, 2021a) [Introduction]

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This think piece explains why our current vaccination strategy delivers poor value to New Zealanders over the long term.

In a recent article published in Singapore,[1] the authors identified four key components to getting life back to normal: vaccination, testing, treatment and social responsibility. While the article focused on Singapore, the same key components are applicable to New Zealand.

Over the past few weeks there have been growing concerns in the media about New Zealand's slow vaccine rollout. This included a comment in the OECD's May 2021 Economic Outlook that: '[t]he pace of vaccination needs to accelerate to reduce the risks of new outbreaks and pave the way for full border reopening in 2022'.[2] This point was not lost on ACT leader David Seymour, who noted:

> After saying we would be at the front of the queue, New Zealand is now officially last in the OECD for the vaccine rollout ... According to "Our World in Data" [see Figure 1] New Zealand has fewer vaccinations per person than any other country in the OECD.[3]

New Zealand's first COVID-19 vaccination occurred five weeks after the UK's first vaccination, on 19 January 2021, but six months later, the difference between rollouts is stark.[4,5] See Figures 2 and 3.

Kim Hill interviewed UK scientist Dr Chris Smith on 26 June 2021 on RNZ.[6] Smith explained that what saved the UK was a strategy which focused primarily on getting one dose in the arms of as many citizens as possible. The goal was to follow up with a second dose later (when supply amped up, approximately two to three months later).[7]

This approach has recently been shown to provide a second benefit: that, as suspected in December 2020, the bigger the gap between vaccinations, the better the immune response. Smith said they found '12 weeks was de rigueur';[8] a 12 week gap delivered the most robust, durable and resilient immune response.

Having a 12-week gap between doses would not only make it possible for New Zealand to rollout the vaccination to more people, but most importantly, would deliver more durable long-term protection. That is the message from the UK rollout – a 12-week gap will ensure New Zealand is in the best position to live with emerging COVID-19 variants for years to come.

On 31 December 2020 (updated on 26 January 2021), the UK's Joint Committee on Vaccination and Immunisation (JCVI) reported that:

- Short-term vaccine efficacy from the first dose of the Pfizer-BioNTech vaccine is calculated at around 90%
- Given the high level of protection afforded by the first dose, models suggest that initially vaccinating a greater number of people with a single dose will prevent more deaths and hospitalisations than vaccinating a smaller number of people with 2 doses
- The second dose is still important to provide longer lasting protection and is expected to be as or more effective when delivered at an interval of 12 weeks from the first dose.[9]

The report concluded:

> JCVI advises a maximum interval between the first and second doses of 12 weeks for both vaccines. It can be assumed that protection from the first dose will wane in the medium term, and the second dose will still be required to provide more durable protection. The committee advises initially prioritising delivery of the first vaccine dose as this is highly likely to have a greater public health impact in the short term and reduce the number of preventable deaths from COVID-19.[10]

The June 2021 guidance from Public Health England states:

> An interval of 28 days may be observed when rapid protection is required (for example for those about to receive immunosuppressive treatment). It may also be recommended that the interval between the two doses be shortened to less than 12 weeks in periods of high or increased disease incidence ... Evidence shows that delaying the second dose to 12 weeks after the first improves the boosting effect. Data from clinical trials shows that the efficacy of the AstraZeneca vaccine was higher when the second dose was given at, or after 12 weeks and a recent study of people aged over 80 years found that extending the second dose interval to 12 weeks for the Pfizer BioNTech vaccine markedly increased the peak spike-specific antibody response by three and a half times compared to those who had their second vaccine at three weeks.[11]

Figure 1: Vaccine doses administered per 100 people

Source: Our World in Data, as at 26 June 2021[12]