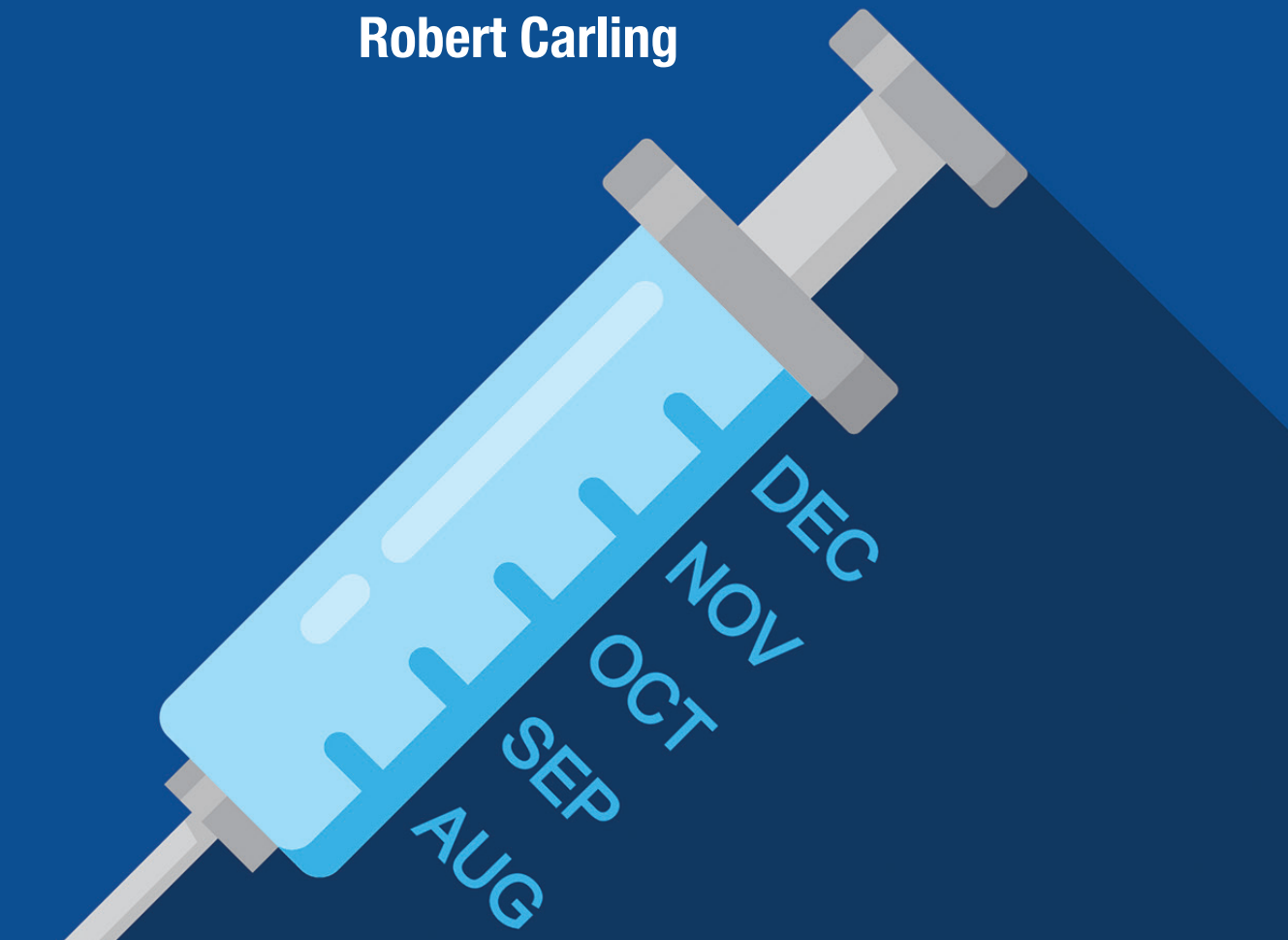
POLICY PAPER

No. 43 • August 2021

90 Days to Freedom? Why Australia can learn from Canada's vaccination success

Robert Carling



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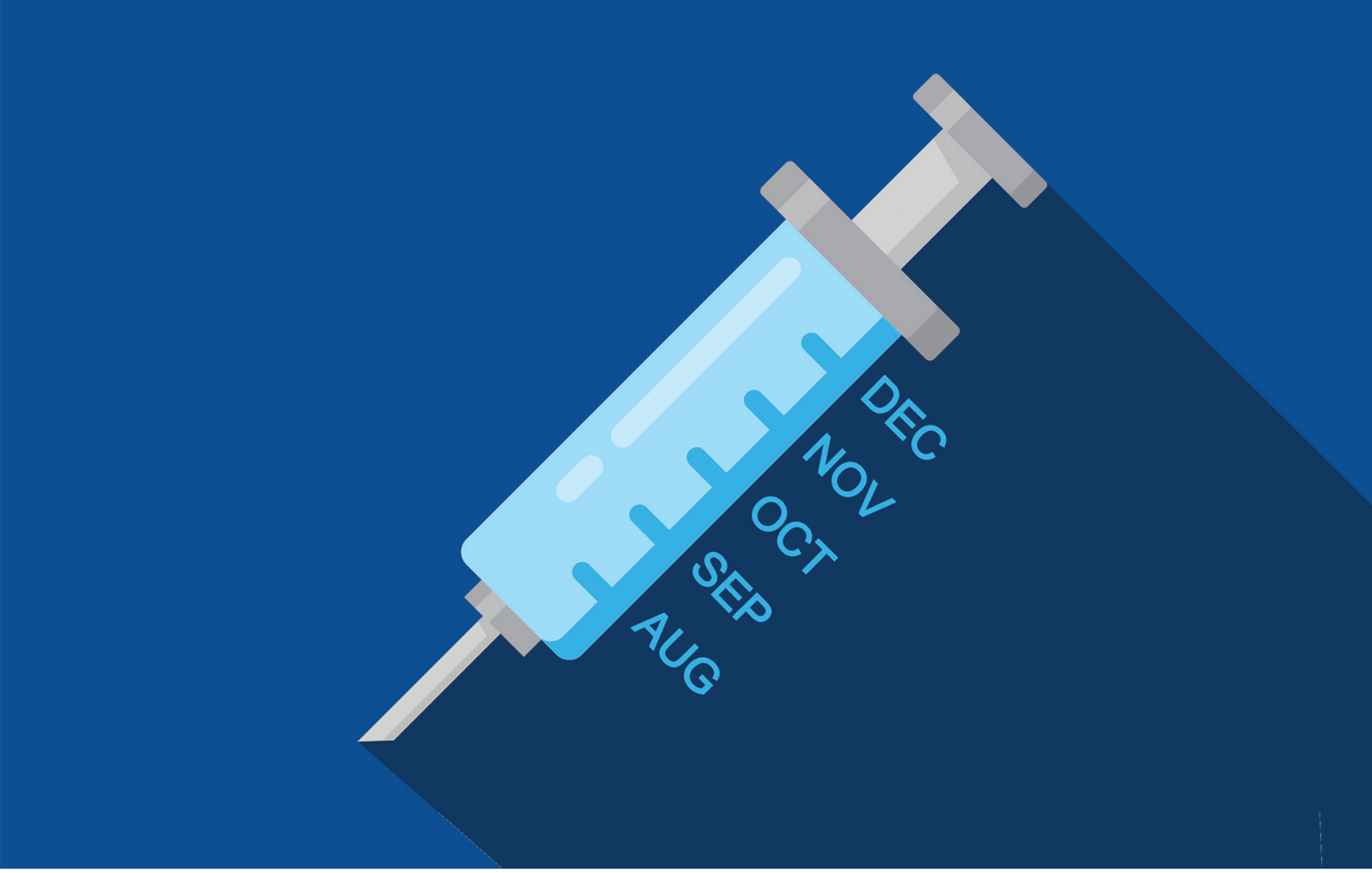


Introduction

On 30 July 2021, the national cabinet announced an in-principle agreement on thresholds of 70% and 80% full vaccination of the eligible Australian population (age 16 and above) to trigger phases B and C of a four-stage plan to phase out economic and social restrictions while living with some ongoing level of Covid-19 infection in the community.[1] It did not take long for doubts to be expressed by some experts in epidemiology and general commentators that 80% coverage — or even 70% — could be achieved this year or ever, implying that the current national purgatory of short and long lockdowns, gross uncertainty and huge economic and social disruption will continue into 2022.

This bleak assessment stands in contrast to the modelling by the Peter Doherty Institute for Infection and Immunity that informed the national cabinet's decision.[2] The modelling estimates that under current parameters for the vaccine distribution the 70% threshold will be reached on 1 November and 80% on 22 November. With some tweaking of the parameters — such as making the Astra Zeneca (AZ) vaccine widely available at all ages down to 40 and shortening the interval between AZ doses from 12 weeks to 8 — these dates could be brought forward by two weeks.

So yes, according to Doherty, 80% could be reached as soon as 8 November. The analysis by Doherty envisages that some social distancing measures could continue to be needed even with 80% vaccinated, but broad lockdowns would become a thing of the past and international travel freed up at least for vaccinated people.

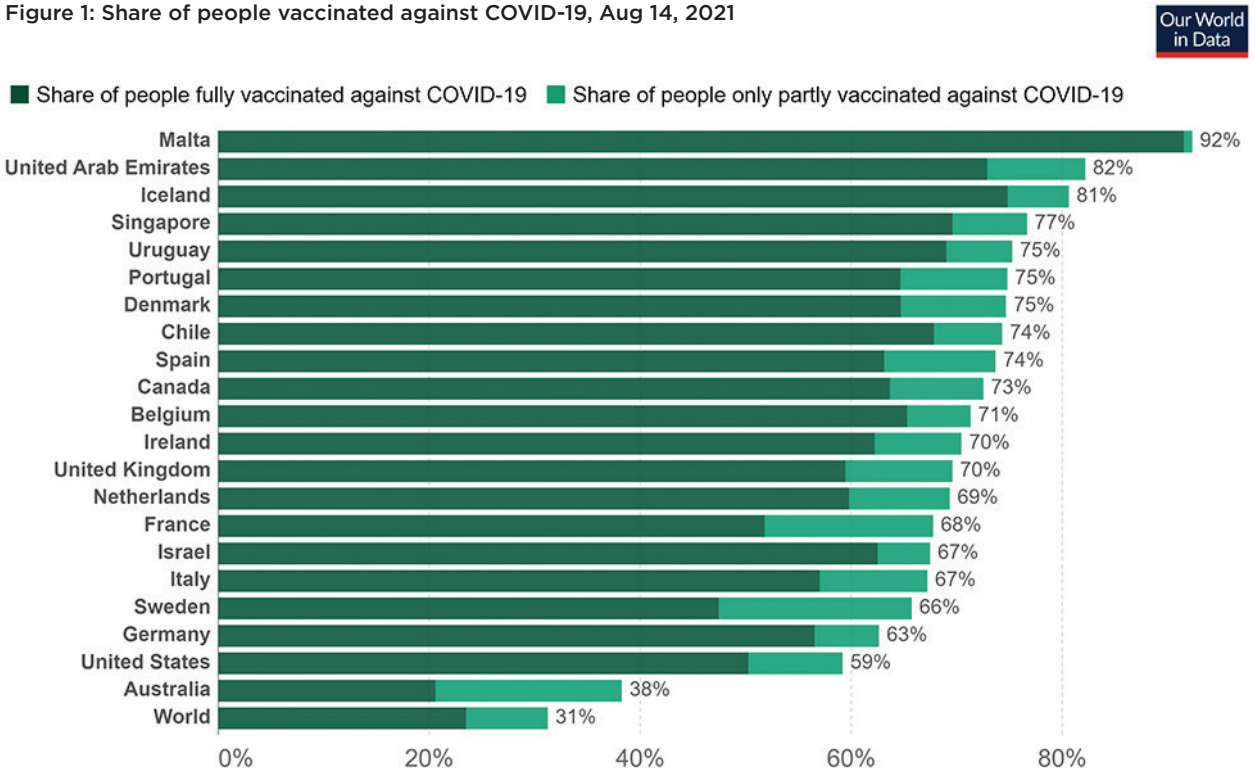
The matter of who is right — Doherty or the doubters — is of utmost importance because for every day normalisation is delayed the costs are extremely high. Indeed, the costs are so high that if it were possible for governments to accelerate the vaccination process by incurring additional budgetary expenses the pay-off would be very high.

International comparisons

One way of assessing the conflicting assessments of the rate of vaccination is to look at what other countries have achieved. Precise international comparisons are difficult because it is not possible to obtain vaccination results for all other countries for the same age group as Australia's eligible population as currently defined. However, data on vaccinations as a percentage of total populations are readily available. For Australia, 70% and 80% of the eligible population (20.6 million) translates to 56% and 64% respectively of the total population (25.7 million).

Many countries have already vaccinated 56% of their total populations and a few have passed the 64% mark (see Figure 1). However, many are of limited comparability to Australia because they are small and/or have geographically concentrated populations that make vaccine distribution easier (for example, Malta, United Arab Emirates, Iceland, Israel, Uruguay and Singapore).

Figure 1: Share of people vaccinated against COVID-19, Aug 14, 2021



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.
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The Canadian example

One country that stands out for its rapid vaccination rate and comparability with Australia is Canada, which reached the 56% mark for full vaccination on 26 July and 64% on 15 August. Canada and Australia are similar in area, population size and spread, and federal system of government.

However, as Canada has already fully vaccinated some of its population down to age 12, the figure of 64% of the entire population does not translate to 80% of adults. On 7 August (latest available), 71% of those aged 18 and above had been fully vaccinated. The tally for Canadians that have received their first dose and are awaiting their second dose indicates that the percentage of adults fully vaccinated will rise above 80% in the next few weeks.

Some facts about Canada's vaccine procurement and roll-out

Unlike Australia, Canada has not adopted vaccination thresholds or dates to trigger normalisation of economic and social life. Rather, its aim is to fully vaccinate by 30 September 2021 the entire population that is willing to be vaccinated. Surveys suggest this will be above 80% of the entire population. On 7 August, more than 90% of those aged above 69 and 85% of the 60–69 age group had been fully vaccinated.

As in Australia, the national government has been responsible for procurement of vaccines and allocation to the provinces. Unlike Australia, the government placed early and large orders for all the vaccines under development in 2020, including AstraZeneca (AZ), Pfizer, Moderna, Johnson & Johnson and Novavax. If all orders are filled, there will be enough to vaccinate the entire population three times over. Australia is now in a comparable situation — but arrived there much later.

While work is under way to create domestic production capacity, to date all the vaccines have been imported. Although the relevant Canadian authorities were quick to authorise various vaccines and the roll-out started in December 2020, supplies were limited in the initial months and were plagued by the same problems as those that have slowed Australia's roll-out. In fact, the political debate in the early months of 2021 was not unlike that in Australia in recent months. However, supplies to Canada accelerated in the second quarter, helped by the early placement of large orders and the willingness of the Biden administration in the United States to allow exports of Pfizer and Moderna vaccines to its northern neighbour.

Thus, because of missteps and supply problems, the rate of increase in full vaccination did not gather strong momentum until May, some time after countries such as the US and the UK. Canada then used plentiful supplies effectively to catch up with other countries and even overtake some of them. The question is whether Australia will be able to do the same over the next three months.

The Canadian provinces have played a larger role than Australia's states in the administration of vaccines, with each province setting its own parameters. In general, the roll-out has been age-based with oldest first, but by May it had been opened to all ages. Some flexibility has been applied to the interval between doses to optimise usage; and mixing of vaccines has been approved. Interestingly, a few provinces have used lotteries to stimulate demand, and one has even offered scholarships to the younger population. There have also been 24 hour 'vaxathons'. To date so-called vaccination passports are not being used domestically, but there is a debate about their future use like that going on in Australia.

Australia on 14 August had 21% per cent of its population fully vaccinated (26% of the eligible population).[3] Canada started earlier and reached that threshold on 21 June. It then took another five weeks (to 26 July) to reach 56 per cent and another three weeks (to 15 August) to reach 64 per cent (see Figure 2).

At the peak daily rate of vaccination averaged over a week, Canada was administering doses to almost 1.5% of its entire population in late May. An equivalent rate of vaccination scaled to Australia's population would be 370,000 per day, whereas the highest daily rate we have seen so far is 220,000 in the week to 14 August. However, Australia's rate has been increasing rapidly in recent weeks (from 168,000 a day in the last week of July) and now exceeds Canada's per capita rate as it inevitably declines (see Figure 3).

Figure 2: Share of the population fully vaccinated against COVID-19

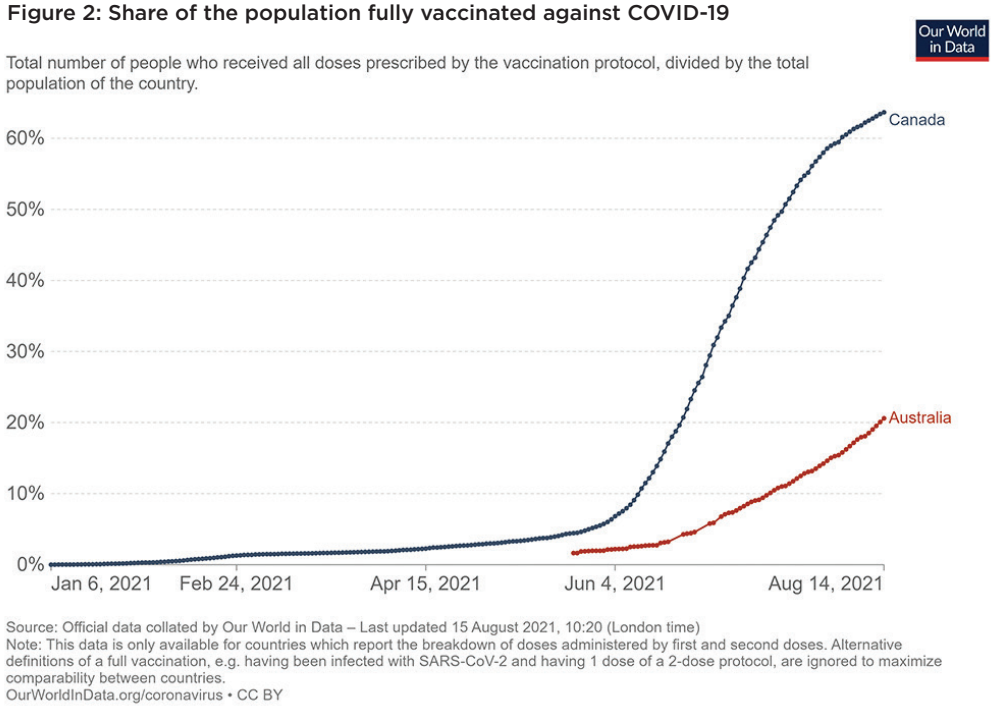
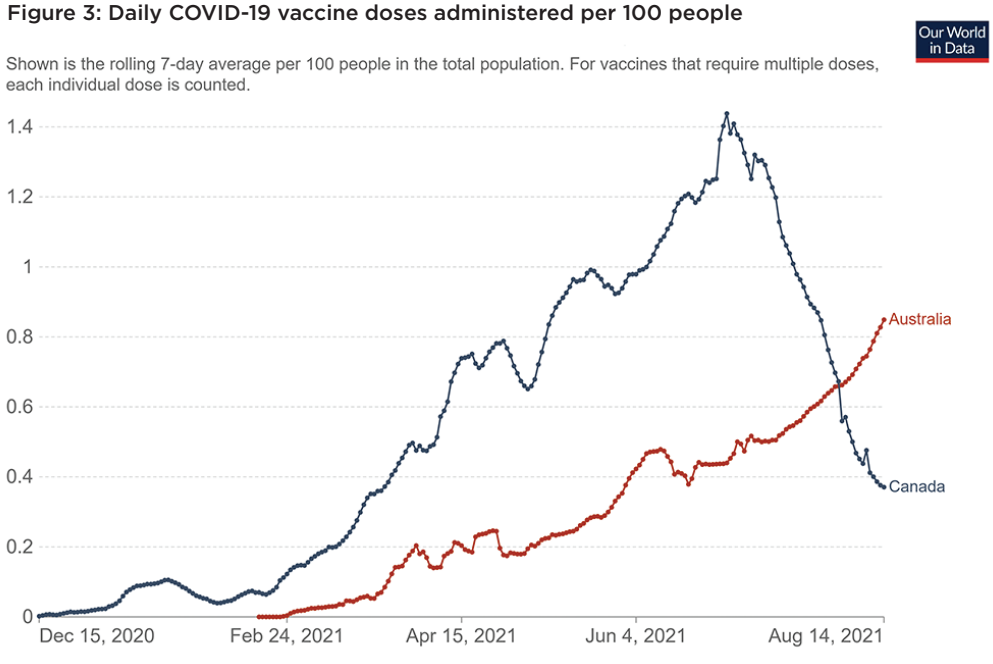


Figure 3: Daily COVID-19 vaccine doses administered per 100 people



Australia's vaccine supply situation and outlook

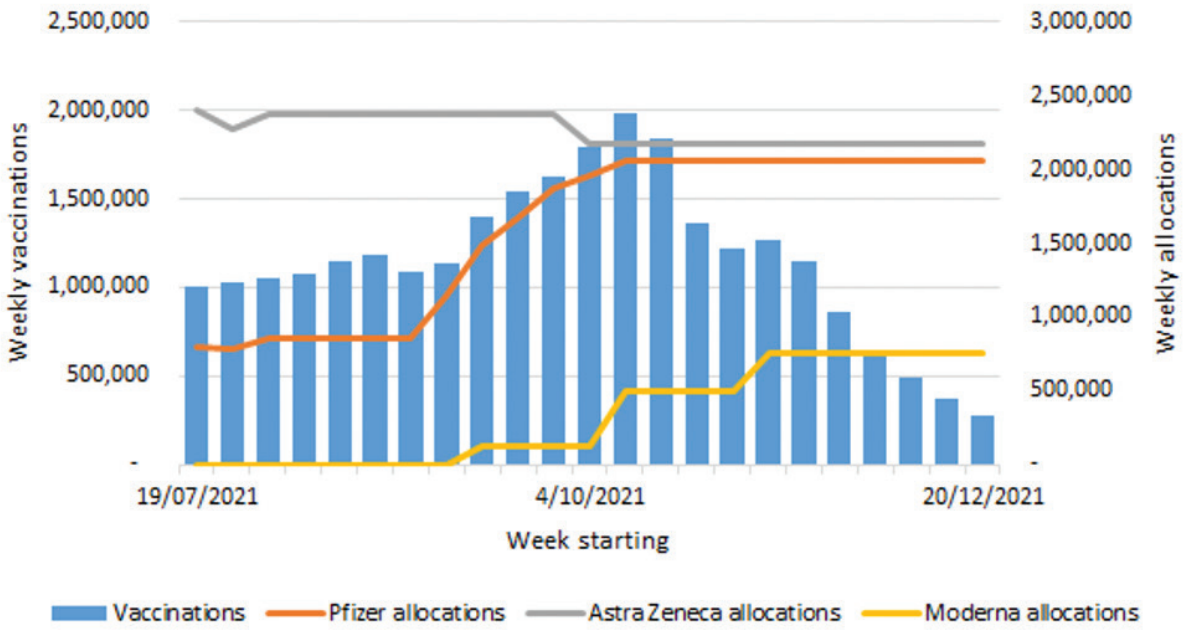
There are several reasons why Australia cannot yet match Canada's record; the main one being that Canada has enjoyed a plentiful supply of the preferred Pfizer and Moderna vaccines since March and has not had to rely much on the AZ vaccine. The shorter recommended intervals between first and second doses of Pfizer and Moderna (three weeks) than AZ (up to 12 weeks) enable more rapid progress to full vaccination.

Nevertheless, Australia could have made more progress already, had greater use been made of our plentiful supply of domestically manufactured AZ vaccine. However, concerns about the blood-clotting risk stand in the way. Not only do younger people prefer the Pfizer vaccine, many above age 59 are choosing to wait for Pfizer even though the official guidance gives them no encouragement to do so. Relief from vaccine supply constraints will have to await a ramp-up in supply of the Pfizer vaccines and the similar Moderna product now that it has been approved for use in Australia.

The good news is that these Pfizer and Moderna supplies are expected to increase dramatically during September and then be available at an average rate of 11 million doses a month in the October-December quarter, compared with 5.5 million doses this month and much less in earlier months. In the meantime, AZ will continue to flow at an average of 4 million doses a month to satisfy whatever demand there is for it. Figure 4 taken from the Doherty Institute report illustrates the weekly availability and use of the three vaccines to the end of 2021.

As discussed in Box 2, it is this expected enlargement of vaccine supply that makes it possible for Australia to reach the 70% threshold in October and 80% in November.

Figure 4: Weekly allocations and modelled vaccinations for oldest first, AZ 12 weeks dose interval and AZ 60+ years strategy.



Dates for reaching 70% and 80% thresholds

The Doherty Institute's base case is that 70% will be reached on 1 November and 80% on 22 November. However, if AZ were to be recommended for all above age 39, and doses administered 12 weeks apart, these dates would become 25 October and 15 November; and with an 8-week interval between doses, 18 October and 8 November. The 50% mark would be reached some time between 20 September and 4 October.

The following table from the Doherty modelling report sets out the dates under various scenarios.

Table 1: Date of achieving a given vaccine coverage threshold by any age-based allocation strategy (oldest, 40+ years first or all adults), assuming a start date and population completed doses (AIR) as of 12th July 2021

AZ recommendation		Date by which coverage target achieved			
Age	Interval	50%	60%	70%	80%
60+ years	12-weeks	4 October	18 October	1 November	22 November
	8 weeks	27 September	11 October	1 November	22 November
	4 weeks	27 September	11 October	1 November	22 November
40+ years	12-weeks	4 October	11 October	25 October	15 November
	8 weeks	20 September	4 October	18 October	8 November
	4 weeks	6 September	4 October	18 October	8 November

Those doubting the realism of Doherty's estimates should consider the following.

1. On 14 August, 5.4 million people had been fully vaccinated, or 26% of the eligible population, and another 4.5 million had received first doses. Administration of the second dose to the partly vaccinated group — which should be largely completed by the end of October — will increase the fully vaccinated number to 48%. This will leave 6.6 million to be fully vaccinated to reach 80%, requiring 13.2 million doses in addition to the 4.5 million needed to complete the currently part-vaccinated group. Some of these 17.7 million doses will be AZ, but even if none of them were, the supplies of Pfizer and Moderna from August to October of 22 million doses would be more than enough.
2. The rate of vaccination has increased sharply from 168,000 a day in the last week of July to 220,000 in the week to 14 August. It is noteworthy that weekly vaccinations have exceeded the levels assumed in Doherty's modelling (see Figure 4 on page 5) by an increasing margin. These are not all second doses, but the proportion of the eligible population fully vaccinated has increased from 19% to 26% in the two weeks since end-July. At this rate of increase, full vaccination would reach 50% of the eligible population on 2 October, 70% on 13 November and 80% on 4 December. However, this makes no allowance for a further increase in the rate of vaccination as supply constraints ease.
3. At the rate of increase in Canada's fully vaccinated population once it had reached where Australia is now, it would take only five weeks for us to reach 70% (20 September) and another three weeks to reach 80% (11 October). However, this is far too optimistic as Australia is not yet in the plentiful supply situation Canada enjoyed at that stage of its roll-out and will not be for some weeks yet.
4. A hybrid of scenarios 2 and 3 assumes that full vaccination continues to increase as it has in the past two weeks until 5 October[4], and then accelerates to the rate of increase Canada delivered at the same stage of its roll-out. The result is that 70% would be reached on 22 October and 80% on 12 November.

This is not granular modelling, but it arrives at much the same conclusion as the more sophisticated and informed modelling by the Doherty Institute — that the 70% threshold can be reached before the end of October and 80% before mid-November provided those aged under 60 make effective use of all the available vaccines including AZ. If they do not, the 80% threshold can still be reached before the end of November.

Demand and supply risks

What can be achieved is one thing — but whether it will be achieved is another. Several things could go wrong with both demand and supply.

While there is currently unsatisfied demand for vaccines other than AZ, demand could peter out before the 80 per cent threshold is reached. In other countries, the rate of progress has typically been rapid up to 50–60% of the total population as those most motivated are vaccinated and then slowed down as the roll-out encounters indifference, reluctance, hesitancy, or outright opposition.

These constraints have been most apparent in the United States, where attitudes to vaccination have become entwined with political preferences. However, attitudes in Australia are more likely to match those in Canada, where demand constraints have not prevented a high level of vaccination even though the rate of vaccination has slowed. A recent survey by the Australian Department of Health revealed that 79% of the population had either already been vaccinated or were likely to be — an increase from 70% in June and July and 66% in May.[5] A similar recent survey in Canada showed that 82% were willing.

This is consistent with research suggesting there is a positive demonstration effect whereby vaccine hesitancy diminishes as more people are known to be vaccinated — until a hard core of reluctance or opposition is reached.[6] The same research suggests that vaccine hesitancy diminishes as the perceived gravity of the health risk from Covid-19 increases.

Both factors are working to reduce vaccine hesitancy in Australia. If additional coaxing is needed to achieve 80% or higher, steps are available to our governments short of compulsion. These include:

- targeting of laggard areas and cohorts;
- advertising;
- monetary incentives such as lotteries; and
- making vaccines easier to access by adding to distribution channels and outlets and their opening hours.

On the supply side, there is always a risk that Pfizer and Moderna — for any number of reasons — will be unable or unwilling to meet their supply projections for Australia this year. There will be plenty of the AZ alternative available from domestic production, but limitations on demand are such that the substitution for any Pfizer or Moderna shortfalls will not be one-for-one.

Another supply risk comes from shortages of medical professionals authorised to administer vaccines at a higher rate than currently. An 'all hands on deck' approach is needed, drawing on trainee and retired medical professionals. If additional government expenditure is required, it would be money well spent and perhaps more effective than monetary incentives on the demand side.

Governments should have been planning for the past year to mitigate these demand and supply risks but — given the lack of a sense of urgency apparent earlier in 2021 — we cannot be sure they have.

Another risk is that the 80% threshold may prove insufficient to keep the infection rate at an acceptably low level — particularly as the delta variant of SARS Cov-2 has become established. It is a figure based on modelling, which is always fallible. A higher percentage and/or broader eligibility (such as down to age 12 instead of 16) may be required to reach acceptable transmission and health outcomes. However, vaccine supplies should be sufficient to stretch coverage with a short delay beyond the November dates projected by the Doherty modelling.

Attitudes of state leaders and health bureaucrats

The biggest risk to reaching the 'living with Covid' scenario this year is not supply or demand, but that some Premiers and their health advisers find the health outcomes from 'living with Covid' unacceptable and renege on the in-principle national cabinet agreement of 30 July. The Doherty modelling projects that even with 80% vaccination coverage and the associated easing of restrictions under the four-phase plan, there could be 16,000 hospital admissions in six months following an outbreak (90 per day), 3,500 ICU admissions (20 per day), and 2,300 deaths (13 per day).

While these numbers would be very low by the standards of most countries and should not lead to restrictions being reimposed, there is still doubt as to whether they will be accepted by Premiers and public opinion in Australia that has been conditioned to believe zero-Covid is an appropriate and realistic benchmark. The risk of aberrant behaviour by some Premiers will also increase as the 2022 federal election approaches.

It is also worth observing in this context that while this report has focused on national vaccination data,

the individual states and territories are moving at different speeds, with Queensland and Western Australia notable laggards.

In practice, notwithstanding in-principle agreements by the national cabinet, the easing of restrictions is likely to be a process over time rather than a discrete event at 70% vaccination and another at 80%. Some states will be eager to liberalise while others will adopt a wait-and-see approach. The Commonwealth government, as we have seen in recent months, will be little more than a bystander, but very importantly controls the keys to the locks on international doorways.

Results of Canada's vaccination roll-out

Finally, it is interesting to look at the health outcomes in Canada with its high vaccination rate and gradually reopening economy and society. The daily number of positive Covid test results (usually referred to as 'cases') fell dramatically from a peak of almost 9,000 in April to 370 in mid-July. As in other re-opening countries, there has been a resurgence in recent weeks, but at around 1,700 the daily count remains well below the April peak. Daily deaths peaked at 50 in April, fell to 7 in July, and have not yet increased even as positive test results have. It should be noted that these numbers of cases and deaths are still higher than Australia's on a per capital basis, even with the recent outbreaks in Australia's eastern states.

Social and economic restrictions in Canada remain but are now at the lowest level since the early days of the pandemic. The Oxford index of stringency of Covid restrictions shows that Canada, having been more stringent than Australia for most of the pandemic, is now significantly less stringent.[7] The index of normalcy developed by *The Economist* — which tracks several activity indicators such as shopping and public transport usage — shows Canada closer to normal than at any time since the pandemic began and much closer to normal than Australia.[8]

Conclusion

Predictions have been made by the Doherty Institute and others that Australia will achieve full vaccination of 70% of the eligible population by the end of October and 80% by mid-November, thereby meeting the thresholds for liberalisation of restrictions set by national cabinet.

Doubts that have been expressed about these predicted vaccination levels are unwarranted. Basic modelling and comparisons with other countries — particularly Canada — show that such projections are very plausible considering the recent strong acceleration in doses administered and the expected dramatic increase in vaccine supply during September and the remainder of 2021.

While there are risks to both demand and supply, these risks should not form part of the base case. The federal and state governments should be doing everything to manage the risks. With a more concerted effort, the dates projected by Doherty could be bettered. The costs of restrictions are such that every day counts.

The biggest risk to the outlook is not the failure to reach thresholds for full vaccination but that governments will be excessively cautious in easing restrictions once the thresholds are reached.

Endnotes

1 National Plan to Transition Australia's COVID-19 Response, pmc.gov.au

2 Doherty Institute Modelling Report for National Cabinet, 3 August 2021, doherty.edu.au

3 This and other data on Australia's vaccine roll-out are drawn from the Australian Department of Health's daily COVID-19 Vaccine Rollout Update, health.gov.au

4 Allowing for the public holiday in several states on 4 October.

5 Operation COVID Shield COVID-19 Vaccination Sentiment Summary, August 2021, health.gov.au

6 Vaccine hesitancy, The Economist, July 24 – 30, 2021, p 65.

7 Our World in Data, ourworldindata.org

8 economist.com/normalcytracker

About the Author

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Robert Carling is a Senior Fellow at The Centre for Independent Studies. He undertakes research into a wide range of public finance issues and regularly comments in the media on taxation and other budget issues. Before joining the CIS, he was a senior official with the New South Wales Treasury and the Commonwealth Treasury.

Related Works

Robert Carling, *The Economic Challenge of Covid-19*, CIS Policy Paper 32 (PP32), July 2020

Monica Wilkie, *Victims of Failure – How the Covid-19 policy response let down Australians*, CIS Analysis Paper 18 (AP18), December 2020

THE CENTRE FOR INDEPENDENT STUDIES

POLICY Paper 43 (PP43) • ISSN: 2209-2447 • ISBN: 978-1-925744-92-7

Published August 2021 by the Centre for Independent Studies Limited. Views expressed are those of the authors and do not necessarily reflect the views of the Centre's staff, advisors, directors or officers.

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