Reflections on One of the World’s Harshest COVID-19 Lockdowns, and on the Possibility of Eliminating COVID-19 in Australia

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“T
his cannot be more serious, and it’s not about anything other than being ... absolutely straight up: if we don’t make these changes, then we’re not going to get through this” – Daniel Andrews, Premier of Victoria, Australia, announcing the Stage 4 COVID-19 lockdown on August 02, 2020 (Australian Broadcasting Corporation, 2020b).

The first case of COVID-19 in Australia was diagnosed on January 25, 2020 (Australian Government Department of Health, 2020), at about the same time as the first case in the US. Within a fortnight, the virus was present in at least three of Australia’s eight major states/territories, and community transmission was occurring (Liebig et al., 2020). By March 18, Australia had recorded a cumulative total of 567 COVID-19 cases and 5 deaths, and the federal government declared the virus to be a biosecurity emergency (COVID-19 Data, 2020; Our World in Data, 2020; Parliament of Australia, 2020a). All of Australia’s state/territory government subsequently implemented lockdowns, asking people to work and study from home, closing non-essential businesses, banning unnecessary travel, and prohibiting mass gatherings (Parliament of Australia, 2020b). Australia also implemented a variety of other responses – for example: vigorously tracing the contacts of known cases, forcibly isolating those contacts, limiting and quarantining international travellers, undertaking extensive testing (including of asymptomatic people), and limiting access to high-risk groups (including those in residential care settings). By the first week of April, we had effectively ‘flattened the curve’ (COVID-19 Data, 2020). Our COVID-19 response was celebrated as “among the most successful in the world” (Duckett & Stobart, 2020).

By the end of June 2020, however, Australia’s ‘second wave’ of COVID-19 was beginning (COVID-19 Data, 2020), after the virus escaped from a mis-managed hotel quarantine program in Victoria. There was a resurgence in COVID-19 community transmissions in Victoria and, from early July, a re-implementation of the earlier Stage 3 lockdown in ‘hotspot’ areas (Saul et al., 2020). By mid-July, the Stage 3 lockdown was extended across Victoria, but COVID-19 case numbers – including ‘mystery’ cases, where contact tracers were unable to identify a source – continued to surge (COVID-19 Data, 2020; Saul et al., 2020).

On August 02, 2020, a state of disaster was declared in Victoria, and Stage 4 lockdown was implemented for the approximately 5 million people in the state’s metropolitan areas (Parliament of Victoria, 2020). Stage 4 lockdown involved strategies such as limiting to one the number of people who could leave a residence per day to shop for essential supplies, limiting to one the number of times they could leave, restricting people’s movement to 5 kilometres (3 miles) from their residence, preventing gatherings of >2 people from different residences, applying an 8pm-5am curfew, and making face coverings mandatory in outdoor areas. These strategies were stringently enforced by the police and defence force personnel. Penalties for non-compliance included A$5,000 fines and, for repeat offenders, jail time.

According to Oxford University’s COVID-19 Government Response Tracker, Victoria’s Stage 4 lockdown is among the toughest COVID-19 lockdowns seen to date (Butt, 2020). However, Australia is certainly not the only country to have implemented lockdowns in response to COVID 19; indeed, in the first half of 2020, 85% of US states/territories – in addition to at least 40 other countries globally – issued some type of COVID-19 lockdown (Chaudhry et al., 2020; Han et al., 2020; Moreland et al., 2020). In some cases, these lockdowns were strict. For example: Paris banned daytime outdoor exercise, and Milan prevented people travelling >200 metres from their residence (BBC News, 2020; Ren, 2020). In Santiago, people could leave their residence just twice per week (Al Jazeera News, 2020). In some cases, these lockdowns were strict. For example: Paris banned daytime outdoor exercise, and Milan prevented people travelling >200 metres from their residence (BBC News, 2020; Ren, 2020). In Santiago, people could leave their residence just twice per week (Al Jazeera News, 2020).

The basic aim of lockdown is to reduce human movement and interaction and, thus, to decelerate the spread of COVID-19 (Gollwitzer et al., 2020). This, in turn, prevents the collapse of healthcare systems due to an over-demand of hospital – and, in particular, intensive care – services (Gollwitzer et al., 2020). Until a COVID-19 vaccine is developed, intermittent, regional lockdowns are likely to be the key public health strategy used to control COVID-19 in most countries. And there is evidence that lockdowns are highly effective – for example: one modelling study found that in the US, 3 weeks’ of lockdown resulted in a 48.6% reduction in COVID-19 cases and a 59.8% reduction in fatalities (Fowler et al., 2020). Another modelling study concluded that without lockdowns taking place in the US, COVID-19 case numbers may be 14 times higher (Hsiang et al., 2020). Similar positive results have been obtained from modelling studies applied to other countries significantly impacted by COVID-19 including China (Hsiang et al., 2020), Italy (Hsiang et al., 2020), Spain (Alves dos Santos Siqueira et al., 2020), France (Roques et al., 2020), and Germany (Flaxman et al., 2020). Analysis of historic data from the 1918-19 influenza pandemic – the most recent comparable in scale to the COVID-19 pandemic – shows a strong correlation between lockdowns and delayed peak mortality rates and reduced total mortality (Markel et al., 2007).

Indeed, Victoria’s Stage 4 lockdown was highly effective. Within 1 week of its commence-ment, COVID-19 case numbers began to fall. Within 6 weeks, 7-day rolling average daily COVID-19 case numbers were consistently <4, down from a peak of 573 (see Figure 1).
However, the major negative socioeconomic impacts of lockdowns must be acknowledged. A study conducted with nearly 14,000 Australians in April/May 2020, during the Stage 3 lockdowns, concluded that anxiety and depression were at least twice as prevalent as before the pandemic (Fisher et al., 2020). Similar results have been seen in studies from the US (Stijelja & Mishara, 2020). After three decades of economic growth, Australia entered a technical recession in March, and >300,000 jobs may be lost in Victoria in 2020 – although modelling suggests that no lockdown may have resulted in an even higher economic toll (City of Melbourne, 2020; Grafton et al., 2020; Reserve Bank of Australia, 2020).

Lockdowns also have a multitude of other impacts. They may cause paradoxical increases in preventable deaths due to avoidance of medical care, increases in substance abuse, domestic violence, and civil unrest, and the magnification of social inequalities (De Filippo et al., 2020; Khubchandani & Price, 2020; Metzler et al., 2020). As most COVID-19 deaths occur in people with limited life expectancy (Metzler et al., 2020), there are difficult questions about the value of saving these lives, and also questions about violations to civil liberty.

In Australia, however, the benefits of lockdown have far outweighed the detriments. For the past month (at November 23, 2020), our national 7-day rolling average daily COVID-19 case numbers have been <1.0, and for the past week they have been 0.0 (see Figure 2). There are suggestions that Australia might be on the cusp of eliminating COVID-19 entirely (Australian Broadcasting Corporation, 2020a, 2020c). ‘Elimination’ is not clearly defined in the literature, but it will likely involve a period of absence of COVID-19 infection of at least 28 days, twice the minimum 14-day COVID-19 incubation period (Baker et al., 2020). If Australia were to achieve this, we would join the small number of other nations which have reached ‘COVID-free status’, including our neighbour New Zealand (Lee et al., 2020).

There are a number of reasons why it may be possible to eliminate COVID-19 in Australia – and why elimination may be more complex in other countries, including in the US. Australia is an island nation divided into a small number of states/territories, and we have easily-controllable national and international borders. Our population is small and of a low-density, even in our urban centres. We have a well-funded public healthcare system, with a high rate of testing per capita and efficient communication, contact tracing, quarantine, and self-isolation systems. Our population is generally supportive of, and compliant with, harsh COVID-19 containment measures, as shown by recent landslide elections in Queensland and the Northern Territory. Support is bolstered by generous government financial aid.
But total elimination of COVID-19 is an immense task. In the month it has taken to compile this paper, there have been multiple events in Australia which challenge the likelihood of elimination: a new community outbreak of COVID-19 in South Australia (Government of South Australia, 2020), detection of ‘mystery’ COVID-19 fragments in wastewater in three other states (Victoria State Government, 2020b), and the publication of seroprevalence testing results which suggest COVID-19 rates in Australia may be twice as high as official reports, with extensive asymptomatic transmission (Hicks et al., 2020). It must also be remembered that New Zealand’s apparent ‘COVID-free status’ was broken at the end of August by a surprise COVID-19 cluster, with no known international links (Lee et al., 2020). In striving for elimination, we must avoid complacency which could lead to a ‘third wave’.

The use of lockdowns to control COVID-19 is complex, and elimination is a lofty goal. Lockdowns may not be suitable for all nations, or acceptable to all populations. In Australia, however, lockdowns have been a highly beneficial public health strategy. Already, for many Australians, our social and economic lives are normalizing, albeit to a new ‘COVID-normal’.

References


