

Lessons for aged care from COVID-19

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Summary

This is a submission to the Royal Commission into Aged Care Quality and Safety, made on behalf of consumers. Our objectives are to

- analyse the available data on COVID-19 infections in aged care
- suggest ways to reduce the numbers of infected staff and residents
- discuss the potential relevance of computer modelling
- suggest ways to deal more effectively with future pandemics.

Early COVID-19 cases in residential aged care were largely in New South Wales. All the growth since 14 May has been in Victoria. At 5 July, 44% of infected residents had died. There were 605 infected residents reported up to 30 July, of whom 105 had died, and more are likely to die soon.

In Victoria, the media report of 30 July notes 877 active cases in residents and staff. About 63% of the cases are in for-profit facilities, and 99% are in Melbourne. The average size of facilities with infections is 98 approved places, compared with 74 places for all Victorian facilities.

The Victorian media reports show many aged care facilities have had only one infection, but others have had up to 111 cases. This may be due to large differences in safety practices between residential care providers, leading to failures to contain outbreaks.

Most the responsibility for the lax safety practices at some nursing homes must lie with the Australian Department of Health. The Department provides 80% of the revenues of nursing homes, and is largely responsible for licensing, inspecting and sanctioning them.

Apart from the financial costs resulting from sanctions, other penalties for providers may be loss of existing and new residents, workers compensation and criminal prosecutions, and common law class actions.

Some infections are inevitable, as about 40% of staff and visitors who are infected may have detectable symptoms. Regular checks of residents for COVID-19 symptoms, such as fever and coughs, should help slow the spread of infections within a facility. Automated monitoring may help.

1. Data on COVID-19 in aged care in Australia

1.1 Infections in residential aged care

Date	Facilities	Infected residents	Infected staff	Total infected	Deaths	Deaths as % of infected residents
19-Apr	24	53	37	90	11	21%
5-Jul	37	71	68	139	31	44%
30-Jul		605			105	17%

Data up to 5 July are from Australian epidemiology reports [1]. Subsequent data are from coronavirus current situation reports [2]. Deaths often take several weeks after infections, so the ratio of deaths to infected residents may return to about 40% when infection numbers stabilise.

1.2 Numbers of infected residents in each state and territory

Date	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
14-May	61	0	1	0	0	1	0	0	63
30-Jul	61	542	1	0	0	1	0	0	605

Numbers of infected residents are from coronavirus current situation reports [2]. All the growth since 14 May has been in Victoria.

1.3 Victorian data on infections of staff and residents since 8 May 2020

Type	Number homes with cases	Number homes in state	% with cases	Number cases	Mean cases per infected home	Mean places per infected home	Mean places per home in state
For-profit	33	328	10.1%	519	15.7	103	92
Government	5	159	3.1%	6	1.2	40	33
Not-for-profit	27	281	9.6%	331	12.3	102	76
Total	65	768	8.5%	856	13.2	98	74

Numbers of infections are from [3], and numbers of homes of each type in Victoria are from the 30 June 2019 service list [4]. About 10% of for-profit and not-for-profit homes have been reported in the Victorian coronavirus media releases as having infected staff or residents. Only 3% of government homes have been reported as having cases, but this lower rate may reflect their smaller size - on average 33 approved places per home, compared with 92 for for-profit and 76 for not-for-profit.

Note that the Victorian media releases are not a complete listing of all cases. The release of 30 July referred to 878 "active cases", so that some recovered cases would have been excluded. The releases have noted there have been approximately equal numbers of staff and resident infections. The release of 30 July showed the reported numbers to date for the

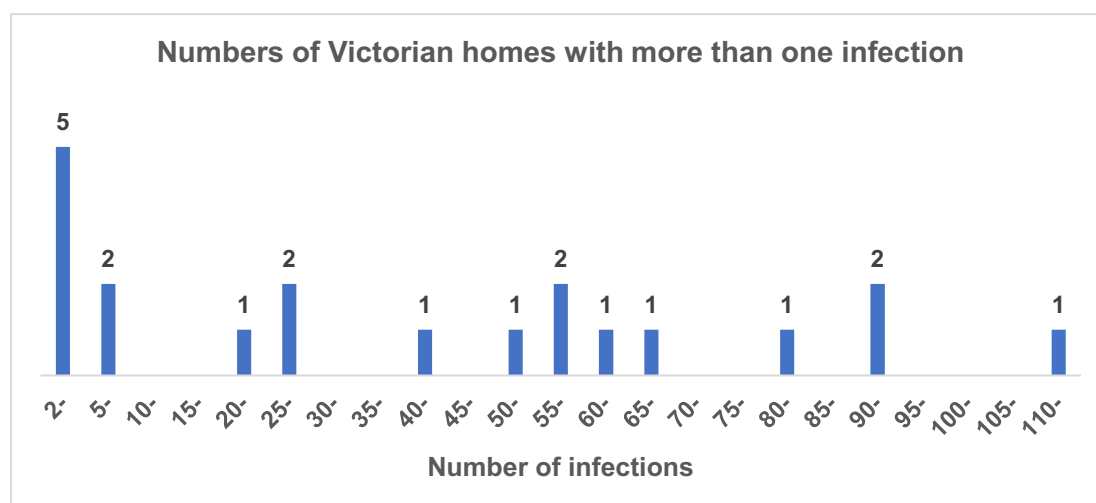
homes with the ten highest number of infections, but did not give updated totals for other homes.

1.4 Melbourne cases are about 99% of all Victorian cases

Region	Number homes with cases	Number homes in state	% with cases	Number cases	% of Victorian cases	Mean cases per infected home
Melbourne	56	476	11.8%	846	98.8%	15.1
Inner regional	8	216	3.7%	9	1.1%	1.1
Outer regional	1	74	1.4%	1	0.1%	1.0
Total	65	766		856		

Inner regional areas with infections include Ballarat and Bendigo, and the outer regional home with an infection is at Bright.

1.5 Victorian homes with more than one infection recorded



There were 45 homes with only one infection shown in media releases, and 20 with more than one infection. Homes with only one infection are omitted from the above chart. Numbers for the 10 homes with the most infections are from the 30 July media release, with the lowest total being 42, and the highest 111. Some homes with less than 42 infections may be omitted from the above chart, as homes appear to be listed when first infected, but not necessarily relisted when more infections emerge.

Of the 36 homes initially reported with only one infection, where the type of person infected was known, 31 had a staff member infected. This strongly suggests that most initial infections are acquired by staff externally. Infections of residents by visitors may be less common than infections by staff.

2. Ways to reduce COVID-19 infections in aged care to COVID-19

2.1 Different providers have very different risk attitudes

We sometimes visit residential care facilities, for business or family reasons. We have noticed very different attitudes towards COVID-19. Some facilities take COVID-19 very seriously. Some other facilities have only token adherence to the health codes. For example, one home invites visitors to take and record their own temperatures, and to record their responses to the four risk questions. No attempt may be made to ensure hands are sanitised. Resident temperatures are not routinely monitored. Reception desks are sometimes unmanned, so that persons can enter unchecked. Use of masks by staff is uncommon. We suspect that some staff are unconvinced of the need for precautions against COVID-19.

2.2 Who is responsible for aged care providers?

Nearly all the responsibility for the lax safety practices at some nursing homes must lie with the Australian Department of Health. The Department provides 80% of the revenues of nursing homes, and is largely responsible for licensing, inspecting and sanctioning them. While the Department sensibly consults with the aged care provider associations and state governments, the Department has the responsibility to take prompt initiatives to deal with emerging problems.

2.3 Potential penalties for providers

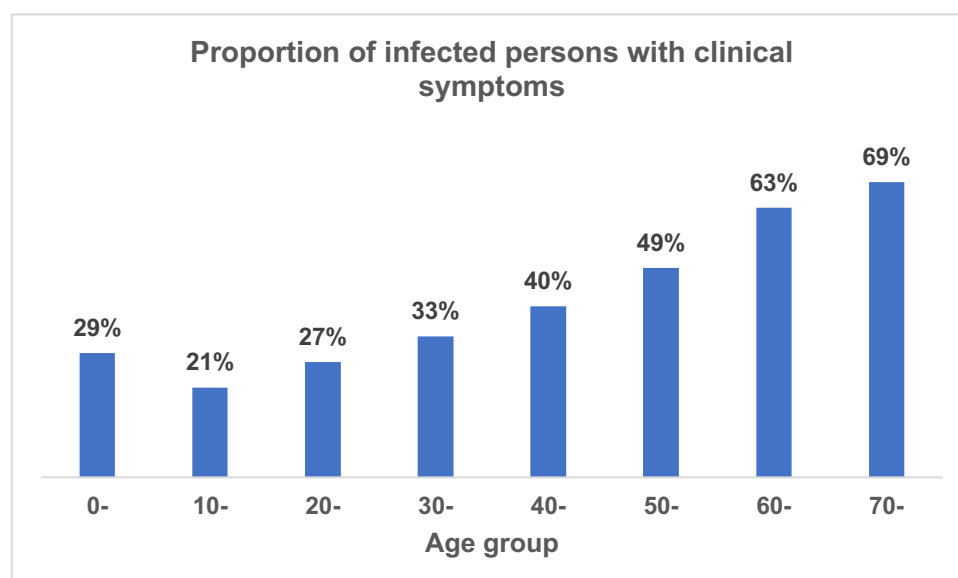
The numbers of cases for some providers may be large enough to justify class actions. Some providers operate many large homes in several states, making them a tempting target for plaintiff lawyers if they have multiple infections. The Department can impose various sanctions, in particular banning a home from accepting any new residents for the next 6 months. Criminal prosecutions may be feasible against the owners of negligent providers. Worksafe Victoria was reported to be investigating a national law firm about 6 cases in its Melbourne office (Australian Financial Review 24 July 20 p6).

2.4 How can technology help with COVID-19?

Some of the possibilities are

- mask-wearing by staff could reduce infections of residents and other staff members, particularly where an infected staff member is subclinical
- temperature measurements of entering staff and visitors could be done automatically, together with facial recognition, so that a continuous record is maintained of each entrant
- where a temperature is excessive, entry of that person could be automatically prevented
- where a face is not recognised by the temperature monitor, entry of that person could be prevented automatically until identity details have been manually recorded
- temperature and pulse rate can be automatically recorded for each resident, by sensors on their beds
- coughing by residents can be automatically monitored, using microphones attached to their beds, and centrally analysed using artificial intelligence (67% of confirmed COVID-19 cases have coughs, compared with the 47% who have fever [1]).

2.5 Infected persons without symptoms



The above proportions are from Davies et al [5]. Only about 40% of persons of working age are likely to have clinical symptoms if infected with COVID-19. This makes it almost impossible to prevent the entry of infected persons into aged care facilities, even with strict screening. Mask wearing by staff should help reduce subsequent infections to residents and other staff. Regular monitoring of residents for symptoms could also very helpful in controlling infection spread.

3. Relevance of computer modelling of pandemics

3.1 COVID-19 modelling released by the Australian government

On 7 April 2020 the Australian government released modelling of the impact of COVID-19 in Australia [6]. The most optimistic of the four scenarios modelled estimated that 11.6% of the Australian population would be infected, ie about 3 million persons. These frightening projections helped government and public support for strong preventive measures.

3.2 Detailed regional modelling

Chang et al [7] created an agent-based model of all Australians, spread over about 2,300 statistical areas. They modelled infection spreads within households, schools, communities and workplaces. Their primary objective was evaluating the potential effects of several intervention strategies, such as school closures.

3.3 Regional modelling intended to help aged care decisions

We have created a similar regional model, examining potential infections of staff and residents in each residential care facility in Australia. This is intended to help examine the effects of potential interventions, such as entry screening and mask use by staff.

3.4 Limitations of computer models for new pandemics

Some of the potential limitations are

- initial assumptions may have to be based on previous pandemics, but a new pandemic may prove to have very different characteristics
- individual behaviours may change in response to a pandemic
- individuals are likely to compare their health risks with the personal costs of complying with counter-measures, and may not comply
- decisions on countermeasures may need to be taken quickly, before relevant data for modelling are available.

4. Ways to deal more effectively with pandemics

4.1 Sharing data

At the start of a new pandemic, little will be known about its characteristics, or about counter-measures. The geographic and culture of countries, and their ability to take decisive actions, will differ. It is essential that Australia collect as much data as possible about its own experience, and share that data as widely as possible.

4.2 Making data from each past day available

A widespread problem is publication of daily data, without any facility to allow access to earlier data. Often many days of data are required, to get statistical significance or detect trends. Valuable exceptions for COVID-19 have been

- The Australian Department of Health's epidemiology reports
- NSW's downloadable data files, for example giving the date, source and postcode for each confirmed case
- Victoria's media releases, identifying most residential care facilities with infections, and giving numbers of infections for the worst-affected facilities.

4.3 Making data available in forms suitable for analysis

Maps or bar charts are almost useless for analysis, unless accompanied by numbers.

4.4 Sharing information on successes and failures

We have noticed the very different approaches taken by different aged care providers towards COVID-19. The Victorian experience suggests that some of the larger providers are successfully limiting the numbers of infections, and the spread of infections within facilities. Early NSW experience, and very recent Victorian experience, suggests that transfer of residents to hospitals is appropriate when a facility's staff are overwhelmed. Sharing of information on successes and failures could help providers and governments learn.

4.5 Greater use of technology

In a submission to the Royal Commission into Aged Care Quality and Safety [8], we have proposed that reporting by aged care providers to the Aged Care Quality and Safety Commission be largely automated. This would reduce labour costs and fraud, and allow more rapid help to residents and more useful research. But measurements made automatically, and centrally collated, could be very helpful in pandemics. For example, temperature measurements could help detect intrusion of a virus into a facility. Staff clock-ons and offs could help detect staff shortages.

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