COVID-19 and early childhood education and care

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Maximilian de Courten, Peter Hurley, Jora Broerse
Melinda Hildebrandt, Hannah Matthews, Sue Pennicuik

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The Mitchell Institute for Education and Health Policy at Victoria University is one of the Australia's leading think tanks and trusted thought leaders. Our focus is on improving our education and health systems so more Australians can engage with and benefit from these services, supporting a healthier, fairer and more productive society.

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Cover image

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Abbreviations

COVID-19	Disease caused by the SARS-CoV-2 virus
ECEC	Early Childhood Education and Care

Glossary

Asymptomatic	A patient who is carrier for a disease or infection but experiences no symptoms.
Delta strain	A variant of the COVID-19 virus that emerged in late 2020 due to a mutation (or mutations) in the virus's genetic structure. It is categorised as a more contagious strain of the COVID-19 virus that spread rapidly after its emergence and posed a severe public health threat, especially to unvaccinated populations.
Modelling	In the context of predicting the spread, control and management of COVID-19, a statistical model used to simulate options for easing of restrictions over a set time period. Model inputs include data on demographics, contact networks, workforce composition, contact tracing systems and age-specific vaccination rate to determine specific points in time when a staged easing of restrictions can be considered and implemented.
Reproduction number	The reproduction or R number could refer to either the basic reproduction number, known as the R nought or zero (R_0), which is how many people each infected person will infect on average assuming that there is no pre-existing immunity in the community, or the effective reproduction number (R_e), which is the number of people that can be infected by an individual at any specific time, and it changes as the population becomes increasingly immunised.

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Introduction

COVID-19 has caused enormous disruption to the lives of Australians, including young people. The good news is that young children are at very low risk of developing severe illness from COVID-19 infection and are even less likely to be hospitalised. There have been no COVID-19 fatalities in the very young in Australia, though they have occurred overseas.

As the pandemic continues to evolve so should Australia's response.

During the March quarter 2021, 1,317,010 children attended an approved early childhood education and care (ECEC) service (DESE, 2021b). Australia needs, as a matter of urgency, a national plan for ECEC that addresses the fact that children will become the largest group of unvaccinated people in Australia's population.

Compared to the school sector, early childhood education and care does not have the same protections provided by vaccinations (currently approved for young people aged 12 and over), or funding to support improved ventilation systems to guard against more serious outbreaks. This is not a short-term problem as it is unclear when children under 5 years old, for whom ECEC represents an important early educational experience, will be eligible for a COVID-19 vaccine. This report outlines some of the challenges facing the sector and highlights the need for a response that will ensure Australian children and families can continue to benefit from the valuable education and care that ECEC services provide.

What is childcare, preschool, early childhood education and care and why is it important?

The term early childhood education and care (ECEC) covers services that are provided for children aged up to 12 years. ECEC includes long day care, family day care, outside school hours care (OSHC), in-home care, and preschool. There are important educational and other benefits to children who attend early childhood education and care services.

While not compulsory, it is expected that most Australian children will attend preschool in the year before school (usually four-year-olds) and increasingly in the two years before school. Delivery of preschool programs varies across states and territories, and they are often integrated with other ECEC services or schools (Pilcher, Noble, & Hurley, 2021).

Attendance at other forms of ECEC is demand driven. The Australian government provides financial support through subsidies, primarily for parents who are working or studying. This report focuses on ECEC services that receive the Commonwealth Childcare Subsidy (CCS), particularly long day care, which is the largest form of provision in the ECEC sector for children under 5 years of age.

Key points

- The rates of illness, hospitalisations and death for COVID-19 are lower for children than for older age groups, although children can still catch and transmit the virus.
- There is emerging evidence that younger children are about 40% more likely to transmit COVID-19 than older children.
- As rates of vaccinations increase among adults, the proportion of COVID-19 cases involving children is likely to rise.
- While children 0 to 4 years old make up about 6% of Australia's population, they will make up 19% of the unvaccinated population when Australia reaches its current vaccination targets. If the Australian government approves extending COVID-19 vaccination eligibility to 5 to 11 year olds and vaccination rates are high, children 0 to 4 years old will make up about 39% of the unvaccinated population.
- Over 1.3 million children use early childhood education and care services every year. These services are where large groups of unvaccinated people will mix on a regular basis.
- The funding model for services eligible for the Child Care Subsidy (CCS) mean that closures or measures that reduce attendance threaten the financial viability of providers.
- Early childhood education and care services need special support to implement measures that assist in reducing the spread of COVID-19. These measures include cohorting (children attend in consistent groups) and ventilation to improve air quality.

What do we know about children and COVID-19?

The rates of illness, hospitalisations and death are lower for children than for older age groups, although children can still catch and transmit the virus. There is emerging evidence that younger children are more likely to transmit the virus than older children. Increasing rates of vaccination among adults mean that the proportion of COVID-19 cases involving children is likely to rise.

Children and adolescents can catch COVID-19, can get sick, and can transmit the virus to others. Research shows that children are less likely to develop severe illness or die from COVID-19 than adults, especially compared to adults over 40 years old. Rates of severe outcomes among children, such as hospitalisation and death, are low.

The table below shows the proportion of people who become symptomatic to early strains of COVID-19 by age group. These fractions were used in the Doherty Institute modelling which informed the National Plan to transition Australia's National COVID-19 Response.

Table 1: Probability of symptomatic disease to COVID-19 by age group

Age group	Symptomatic fraction
0 to 9	0.28
10 to 19	0.2
20 to 29	0.26
30 to 39	0.33
40 to 49	0.4
50 to 59	0.49
60 to 69	0.63
70 +	0.69

Source: Davies et al. (2020); Doherty Institute (2021b).

This table shows young people are less likely to show symptoms of COVID compared to some other age groups.

The modelling undertaken by the Burnett Institute for the Victorian Government uses the assumptions that for every 100,000 0 to 4 year olds infected with COVID-19, 55,000 would be symptomatic, 200 would be severe cases requiring hospitalisation, 6 would be critical cases requiring ICU, and there would be 4 deaths (Burnett Institute, 2021).

The research literature suggests that the most common symptoms among children who did show symptoms of COVID-19 include fever, stuffy or runny nose, cough and fatigue (Ibrahim et al., 2021; Say et al., 2021).

A prospective cohort study from the United Kingdom that analysed 1,734 5 to 17 year olds who had tested positive to COVID-19 reported the dominant symptoms were headache and fatigue (Molteni et al., 2021). The median illness duration was six days in children 5 to 11 years old, and in older children 12 to 17 years old one or two days longer. A small percentage (4%), more commonly older than younger children, had symptoms for about a month, mostly fatigue, headache, and loss of smell.

Australian research on COVID-19 cases involving 393 children who had COVID-19 and who had presented to hospital found that 44 children (or 11%) were admitted to hospital, of whom two developed inflammatory multisystem syndrome, a serious condition in which multiple bodily organs become inflamed. A further 17 children received hospital care from home (Ibrahim et al., 2021).

In an Australian study involving 171 children from 137 households who had COVID-19 and attended a dedicated COVID-19 follow-up clinic at the Royal Children's Hospital (RCH) in Melbourne, 58% had mild disease, 36% were asymptomatic and 5% of the children reported moderate disease (Say et al., 2021). Of the 8% of children in the study who had a hospital admission, most were brief admissions that were for observation or fluid rehydration. This study reported that one child with complex congenital heart disease experienced severe illness with acute respiratory failure. Two children (1%) were reported to have COVID-19 associated post-acute inflammatory conditions. Both children had underlying health conditions and one child was admitted to intensive care (Say et al., 2021).

Similarly, the National Centre for Immunisation Research and Surveillance (NCIRS) has found that 78 of 2,864 (2%) of children and young people (under the age of 18) diagnosed with COVID-19 in NSW between 16th June 2021 and 19th August 2021 required hospitalisation (NCIRS, 2021). Of those admitted to hospital, 2 were born in hospital and 68 were admitted from the community. 25 cases were admitted for social and vulnerable reasons, and 43 were hospitalised for medical reasons. Of these 43, 5 young unvaccinated people (aged 15 to 18 years) required intensive care, some of whom had medical conditions other than COVID-19 that influenced their ICU admission.

Overall, the prevalence of serious illness in these studies is lower than similar studies for adults. Nevertheless, they also indicate that COVID-19 can pose risks for young children that demand a proactive, coordinated public health response.

The long-term impact of COVID-19 on children also remains unclear. The duration of illness and low hospitalisation rates indicates that children do not get long lasting COVID-19 as commonly as adults. It is, however, too early to tell if there are long-term effects of exposure to COVID-19 on children.

While infected children may remain asymptomatic or experience only mild symptoms, they can still transmit the virus to others, albeit “potentially at lower rates than fully symptomatic individuals” (Davies et al., 2020).

There is also emerging evidence that very young children are more likely to transmit the virus than older children, with the Delta strain being even more transmissible (McLaws, 2021). Paul et al. (2021) found that children aged 0 to 3 years were about 43% more likely to transmit COVID-19 than 14 to 17 year olds, and 4 to 8 year olds were 40% more likely to transmit the virus than 14 to 17 year olds.

While children are overall less likely to show symptoms of COVID, they can get sick and can die. Table 2 below shows the number of deaths by various age groups in the United States due to COVID-19 since the start of the pandemic in January 2020. This table also includes deaths from other diseases such as pneumonia and influenza.

Table 2: Deaths related to COVID-19 and other causes in the United States, January 2020 to October 2021

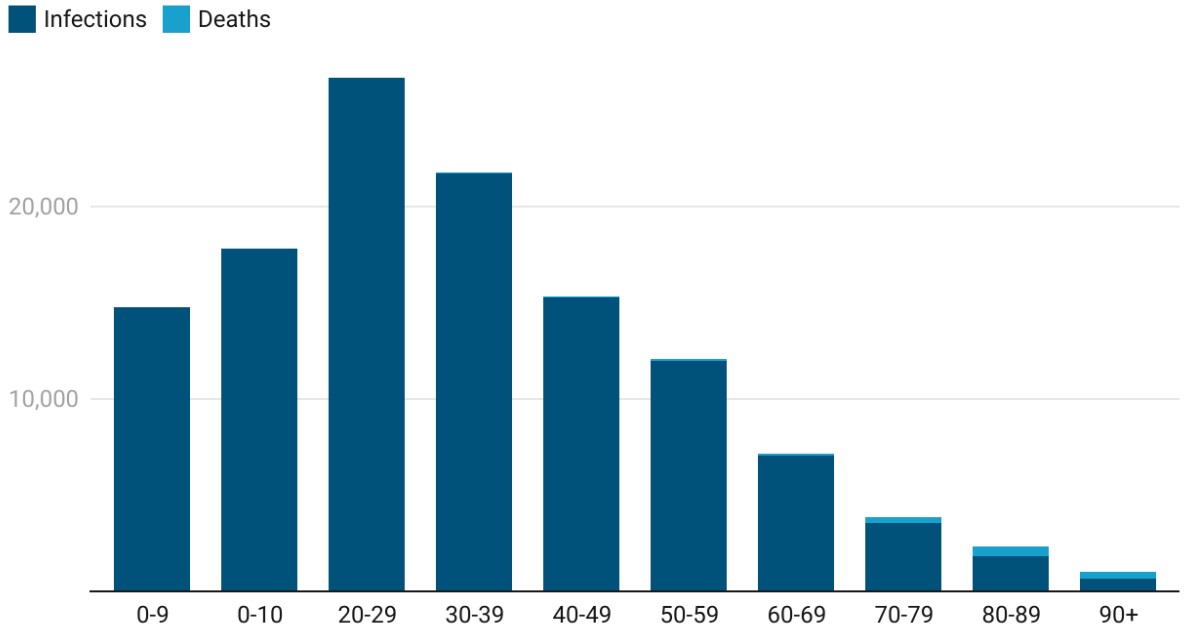
Age Group	COVID-19 Deaths	Total Deaths	Pneumonia Deaths	Pneumonia and COVID-19 Deaths	Influenza Deaths	Pneumonia, Influenza, or COVID-19 Deaths
Under 1 year	121	32866	357	16	22	484
1-4 years	60	6116	206	14	65	317
5-14 years	161	9733	294	49	80	486
15-24 years	1542	62720	1514	652	80	2479
25-34 years	6712	130872	5945	3342	236	9533
35-44 years	16911	190010	14129	8714	369	22654
45-54 years	42626	340121	35643	23091	805	55857
55-64 years	96649	772723	88734	53355	1734	133481
65-74 years	157673	1179532	147976	86998	2028	220341
75-84 years	185180	1403946	171250	96413	2023	261754
85 years and over	193317	1679455	164486	82646	1901	276815
All Ages	700952	5808094	630534	355290	9343	984201

Source: CDC (2021). Data from 1st January 2020 to 2nd October 2021.

This table shows that 0 to 4 year olds make up a very small percentage of total deaths caused by COVID-19. In the United States, there were 181 deaths recorded among 0 to 4 year olds recorded as involving COVID-19, which is 0.0258% of the total recorded COVID-19 related deaths in the United States.

In Australia, children make up a significant percentage of the total case numbers. Figure 1 shows the total number of COVID-19 cases by age group in Australia to 10th October 2021.

Figure 1: Total reported COVID-19 cases in Australia by age group



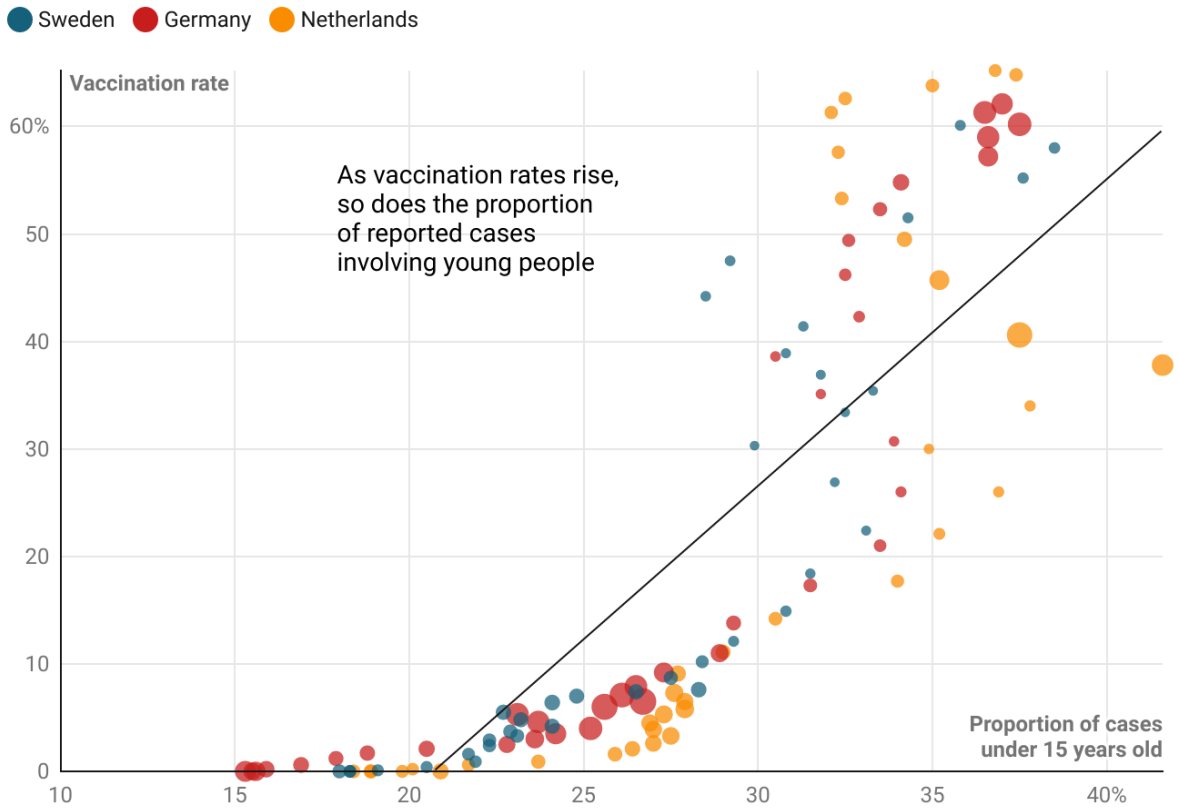
Source: Australian Department of Health (2021). Data to 10th October 2021.

Since the beginning of the pandemic to 10th October 2021, there have been almost 15,000 reported COVID-19 cases involving children, about 12% of total reported cases.

The experience of other countries helps demonstrate how, as vaccination rates rise among adults, children become an increasing proportion of reported COVID-19 cases.

Figure 2 illustrates the relationship between the proportion of reported cases that are under 15 years old and vaccination rates in three countries: Germany, Netherlands and Sweden. This figure uses weekly data from January 2021 to September 2021. During this time, all three countries had significant outbreaks of COVID-19. These countries also embarked on a vaccination program where, as of early October, vaccination rates of over those over eighteen years of age were 77.4 % in Germany, 78.8% in Sweden, and 78.6% in the Netherlands.

Figure 2: Vaccination rates and proportion of weekly reported COVID-19 cases aged under 15 in Germany, Sweden and Netherlands



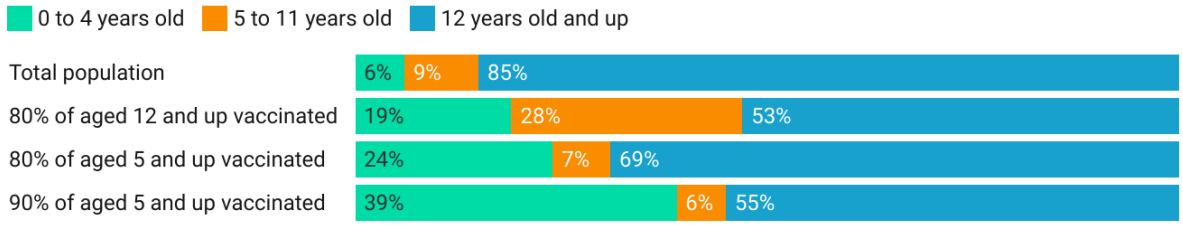
Source: ECDC (2021).

This figure highlights that as vaccination rates increase, so does the proportion of COVID-19 cases involving young people. Prior to the vaccination program, those under 15 years of age contributed to about 15 to 25 per cent of reported cases in Germany, Sweden and the Netherlands. As vaccination rates amongst adults have increased, those aged under 15 years now make up about 35 to 40 per cent of the reported cases.

The Australian government has approved two COVID-19 vaccines (Moderna and Pfizer) for children aged 12 years and older in Australia, in line with most other countries. In the United States, Pfizer has requested the United States Food and Drug Administration (FDA) to authorise its COVID-19 vaccine for children 5 to 11 years old. In Australia, there are also reports that Pfizer will seek authorisation of its COVID-19 vaccine for children 5 to 11 years old.

To explore how eligibility for vaccination affects the composition of the unvaccinated population, Figure 3 shows the proportion of the unvaccinated population by age group and different vaccination rate scenarios. There are three age groups shown: 0 to 4 year olds, 5 to 11 years old and 12 years old and above. 0 to 4 year olds are most likely to attend ECEC.

Figure 3: Unvaccinated population by age group and scenario in Australia



Source: Mitchell institute analysis of ABS (2021) data.

Data from the Australian Bureau of Statistics (ABS) show that children aged 0 to 4 years of age make up 6% of the total Australian resident population. If 80% of Australians aged 12 and up are vaccinated, children aged 0 to 4 years of age will make up 19% of the unvaccinated population. If children aged 5 to 11 years of age become eligible for vaccination and 80% of the eligible population are vaccinated, children aged 0 to 4 years will make up 24% of the unvaccinated population. If children aged 5 to 11 years of age become eligible for vaccination and 90% of the eligible population are vaccinated, a rate achieved in Singapore and Portugal, 0 to 4 year olds will make up 39% of the unvaccinated population.

This figure illustrates the growing importance of policies aimed at 0 to 4 year olds as they will increasingly become one of the largest unvaccinated cohorts in the population. While the impact of COVID-19 infection appears less likely to be serious for young children than it is for adults, any risk to our youngest citizens requires a proactive, coordinated public health response.

The four phase National Plan

The agreed National Plan suggests that public health safety measures will continue to be an important component of Australia's management of COVID-19. The modelling that informed the National Plan highlights the importance of measures directed at unvaccinated groups. There is a lack of information about how any ongoing, targeted or temporary restrictions will affect young children and the ECEC sector.

In July 2021, the National Cabinet agreed to a four-step National Plan to transition Australia's National COVID-19 Response. The four steps are designed to lead Australia to a post-vaccination situation "focussed on prevention of serious illness and fatalities, whereby the public health management of COVID-19 is consistent with other infectious diseases" (DPMC, 2021). An outline of each phase of the plan appears in Table 3 below.

Table 3: Four Step National Plan

Phase	Outline
Phase A (current phase)	The aim of this phase is to continue to control the spread of the virus through locally determined degrees of lockdowns.
Phase B: *Vaccination transition phase*	Australia will enter this phase when 70% of the population has received two vaccination doses. In this phase, the aim is to minimise serious illness, hospitalisation and fatality managed with higher resistance as a result of vaccination and the use of low-level restrictions (lockdowns and restriction of movement).
Phase C: *Vaccination consolidation phase*	Australia will enter this phase when 80% of the population received two vaccination doses. The focus of this phase is the same as the previous period, whereby ongoing baseline restrictions are the norm and lockdowns are only implemented in targeted areas only.
Phase D: *Post-vaccination phase*	In this phase, COVID-19 will be treated as any other infectious disease, such as influenza, and the aim is to 'live with COVID-19'. Measures include opening of international borders with quarantine for high-risk inbound travel and the so-called 'booster shots' (vaccination on top of the two doses may be introduced as necessary. Countries including Israel, U.S. Hungary and European countries have already rolling out or plan to roll out third shots.

Source: DPMC (2021).

The modelling that informs the National Plan emphasises the importance of reducing the transmission potential of COVID-19 to minimise its spread among the population.

Transmission potential is similar to the reproduction number and refers to the average number of secondary infections produced by a typical case of infection.

Vaccination plays an important role in reducing the spread of the virus because as vaccination rates increase, the overall transmission potential of the virus decreases. The Doherty Institute modelling uses estimates where the overall reduction in onward transmission of infected individuals is 86% following two doses of the AstraZeneca vaccine and 93% of the following two doses of the Pfizer vaccine (Doherty Institute, 2021b).

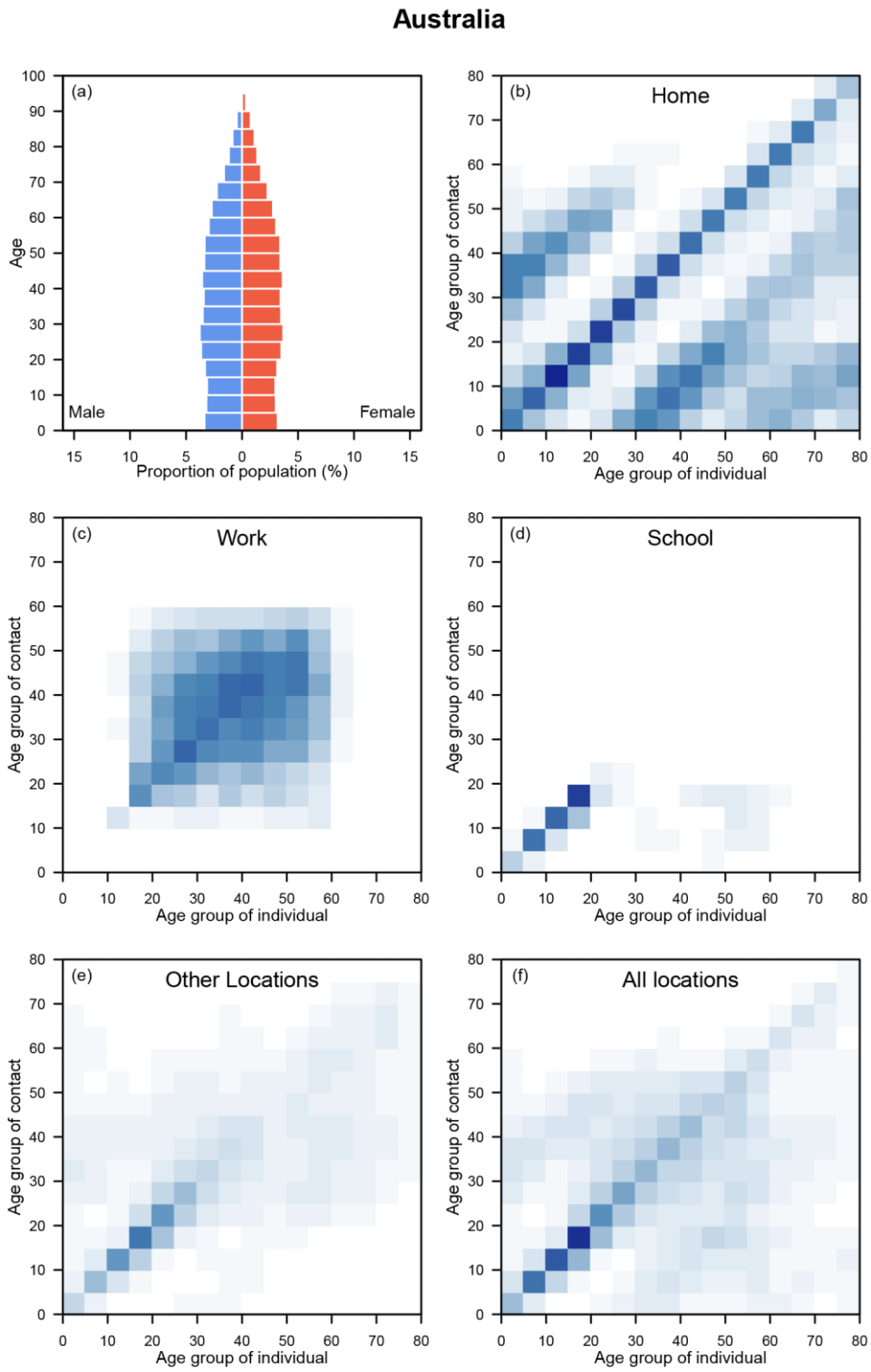
As there is no vaccine for children under 5 years old, their transmission potential is not reduced due to vaccinations.

The number and type of contacts between individuals is also important in managing the spread of COVID-19. In the early stages of the pandemic, particularly before the availability of vaccines, testing and public health measures focused on limiting household activities, mask wearing, social distancing, school and ECEC closures, and remote work arrangements. Outbreaks in residential aged care facilities drew attention early in the pandemic as there are higher rates of sickness, hospitalisation and mortality among older people.

Understanding the different types of contacts between age groups and the settings in which these contacts occur is important to any model that simulates the spread of COVID-19. To estimate these contacts, the Doherty Institute modelling configures population mixing within and between age groups based on widely accepted social contact matrices published in the epidemiological research literature (Prem, Cook, & Jit, 2017).

These social contact matrices provide an average number of contacts between age groups in different settings. These settings include home, work, school and other settings. Figure 4 below shows the age-based social contact matrices for Australia that informed the Doherty Institute modelling.

Figure 4: Social contact matrices used in Doherty Institute modelling



Source: Prem et al. (2017). Reproduced under Creative Commons licence CC BY 4.0.

This figure illustrates how those aged 5 to 19 have some of the highest number of average contacts, as shown in the 'All locations' matrix on the bottom right of the figure. School settings play a large role in contributing to the higher number of average contacts for young people

compared to other age groups. However, the above figure suggests that the social contacts calculated for schools do not include ECEC settings, as school-based contacts are calculated for those aged 5 years and above. This may mean that the unique settings of ECEC services that influence transmission potential have not been adequately considered.

The Burnett Institute modelling used in the *Victorian Roadmap to Deliver the National Plan* does identify childcare settings as a unique contact network (Burnett Institute, 2021). Similar to the Doherty Institute modelling, measures that reduce the transmission of the virus are built-in to the Burnett Institute modelling. For instance, there is an assumption that "Schools and childcare can achieve a 50% reduction in transmission risk through ventilation and other mechanisms" (Burnett Institute, 2021, p. 13).

However, it is not clear that the same strategies used in schools to reduce transmission potential will work to the same degree in ECEC settings.

Indeed, the differences between primary school and ECEC are vital to consider when determining possible reductions in transmission potential across the population. For instance, Table 4 shows the educator-to-child ratio in ECEC settings. Whereas primary school settings can have one or two teachers per classroom group, children in ECEC settings can have higher educator-to-child ratios. This suggests that children can have more contacts with adults in ECEC settings compared to primary school settings.

Table 4: National educator to child ratios in early childhood education and care settings

Age of children	Educator to child ratio	Jurisdiction
Birth to 24 months	1:4	All states and territories
Over 24 months, less than 36 months	1:5	All excluding VIC
	1:4	VIC
36 months up to and including preschool age	1:11	ACT, NT, QLD, SA, VIC
	1:10	NSW
	1:10 (2:25 for preschool program)	TAS
	1:10	WA

Source: ACEQA (2021).

The National Plan describes 'targeted' public health safety measures (PHSM) as a core component of Australia's strategy to reduce transmission of the virus. What these public health safety measures consist of remains unclear, and they are not described in detail.

The revised modelling by the Doherty Institute, provided to National Cabinet on September 17 2021, forecasts that the pandemic will rapidly become a pandemic of the unvaccinated, with 54% of new infections occurring in children 0 to 15 years old (Doherty Institute, 2021a). This modelling was undertaken before 12 to 15 year olds became eligible for a vaccine and, along with the possible approval of vaccine for 5 to 12 year olds, would impact the forecasts.

The table below shows the results from the Doherty Institute modelling the impact on infections, hospitalisations and deaths from COVID up to 180 days after opening by age group. This data uses the assumption of 80% vaccination rates for 16 year olds and above, and a 'medium' seeding event (where there are 100-1000 cases per day at the outset), and where there is partial effectiveness of test, trace, isolate and quarantine (TTIQ) measures.

Table 5: Doherty Institute modelling of number of infections, hospitalisations and deaths from COVID-19 up to 180 days after opening by age group

	<16 years	<16 years	16-39 years	16-39 years	40-59 years	40-59 years	60+ years	60+ years
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Symptomatic infections	-	499,071	58,703	162,229	57,176	88,575	33,916	14,687
Ward admissions	-	5,325	1,449	5,725	3,514	8,682	5,154	5,473
ICU admissions	-	425	240	966	982	2,432	1,219	1,347
Deaths	-	179	59	337	410	1,459	1,619	2,339

Note: Assumes 80% vaccination of 16 years and above, 'medium' seeding, 'baseline' PHSM, and partial effectiveness of TTIQ. 'Vacc'd' refers to vaccinated individuals, and 'Unvac" refers to unvaccinated individuals.

Source: Adapted from Table 2.3, Doherty Institute (2021a).

This table shows how young people are forecast to be the largest group of those with symptomatic infections. While the rates of hospitalisations, ICU admissions and deaths are lower than older age groups, a significant number of young people would still become very sick with COVID-19.

Using the assumption that case rates are spread equally among young people 0 to 15 years old, then children 0 to 4 years old would make up about 34% of the caseload described in the above table.

If, however, public health and social measures move from 'baseline' to 'low', then according to scenarios published in the Doherty Institute modelling, infection rates in young people are reduced by around 79%,[1] Rates of hospitalisations, ICU admissions and death would also reduce in young people by around 80% to 85%. This reduction highlights the importance of effective measures designed to control the spread of COVID-19, and the need for effective mitigation measures in settings such as childcare and schools.

[1] See Table ES2 of Doherty Institute (2021a), 'Low' PHSM are defined as moving from the rules that applied in NSW in March 2021 to those that applied on 23 August 2020 with higher caps on retail, hospitality and events with a 2 square metre rule.

Children, ECEC and COVID-19

ECEC settings are different from schools and require a specialised policy response. Techniques to minimise the spread of COVID-19, such as 'cohorting', can be more difficult to implement in ECEC settings. The funding model for ECEC services that depend on Childcare Subsidies (CCS) also puts pressure on ECEC providers as closures threaten basic funding streams.

Several studies have investigated the spread of COVID-19 in early learning and school settings (Ismail, Saliba, Lopez Bernal, Ramsay, & Ladhani, 2021; NCIRS, 2021). In Australia, the NCIRS undertook a study of the spread of COVID-19 in ECEC and primary schools settings in NSW between 16th June and 31st July 2021 (NCIRS, 2021).

This study used data from 59 individuals (34 students and 25 staff members) from 51 educational settings (19 schools and 32 ECEC services) who were primary COVID-19 cases who had an opportunity to transmit COVID-19 to others in their school or ECEC service.

It found that 2,347 individuals (1,830 students [77.9%] and 517 staff members [22.0%]) were identified as close contacts of these 59 primary cases. Almost all close contacts (96%) underwent testing for COVID-19.

106 secondary cases (69 students and 37 staff members) occurred in 19 of the 51 educational settings (37%; 3 primary schools and 16 ECEC services), resulting in a secondary attack rate (the number of people who become infected with a disease after exposure to an infected individual) of 4.7%. The highest transmission rate occurred in ECEC services between staff members (16.9%).

The study found that the attack rate between children (where child-to-child transmission occurred) was low – around 2%.

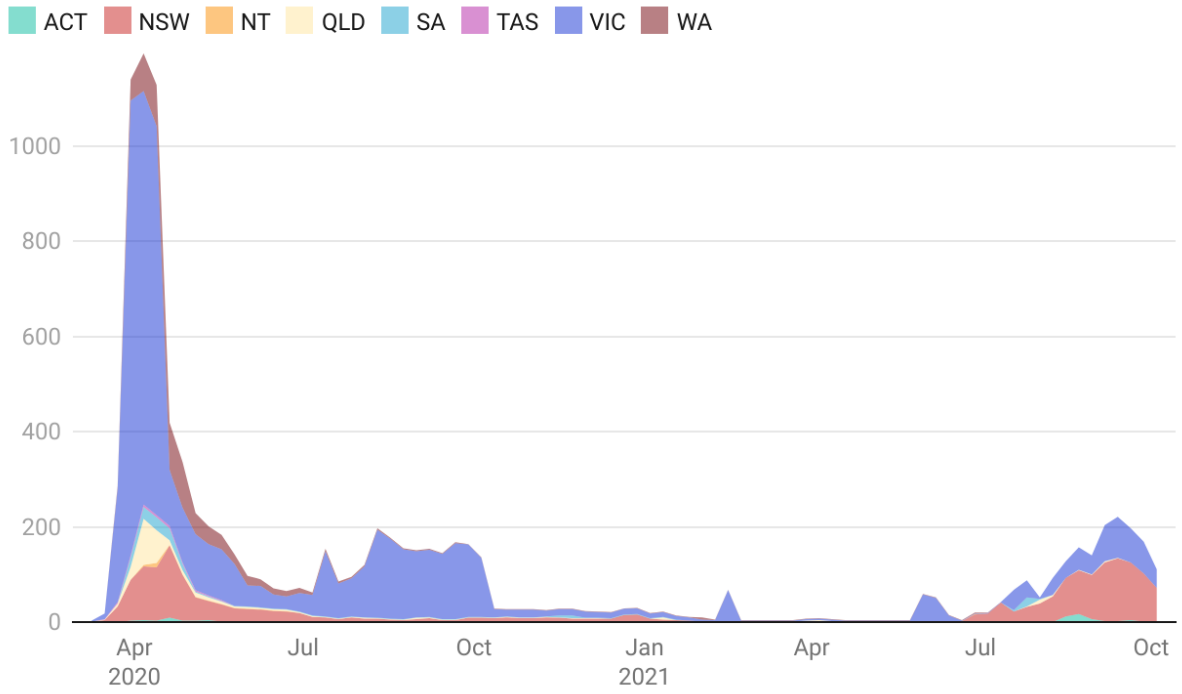
This NCIRS study outlines the transmission potential of the virus in various settings. Households usually have a smaller number of individuals than schools or ECEC settings, but transmission is more likely to occur between individuals in households. For instance, in the NCIRS study, 181 household tertiary cases occurred following exposure to the secondary case from the school or ECEC service, resulting in a household tertiary attack rate of 70.7%. The median number of uninfected household contacts was 3 people. Classroom and childcare settings generally have a much higher number of contacts than households.

The NCIRS study covers the period from 16th June and 31st July 2021 where there were 3,443 locally acquired COVID cases, and 753 cases in children and young adults 0 to 18 years old. Since then, a further 62,348 coronavirus cases have been reported in NSW, 20,336 of these in 0 to 19 year olds.

As children can catch and transmit the virus, closure of ECEC services and schools have been regarded as effective public health measures to prevent transmission of COVID-19.

Figure 5 shows the number of ECEC services that have been closed every week since March 2020 for closures recorded as being related to the impact of COVID-19.

Figure 5: ECEC service closures due to COVID-19 by state and territory



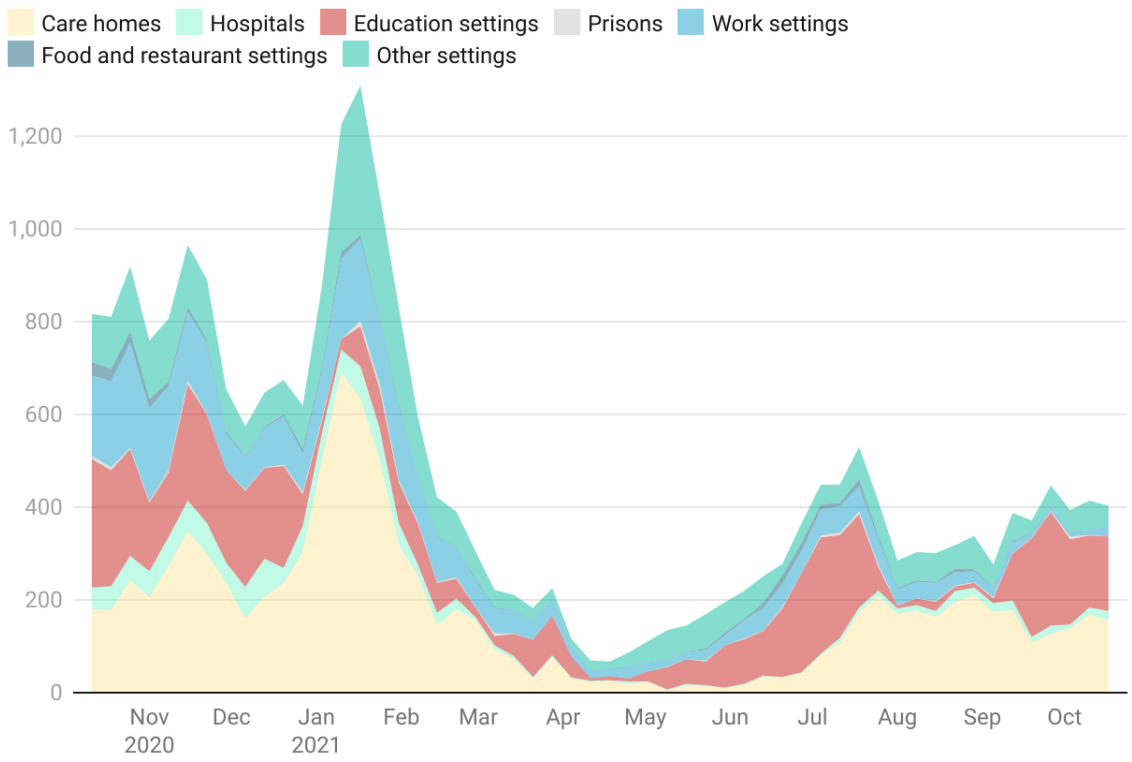
Source: Mitchell Institute analysis of ACEQA data (unpublished).

This figure illustrates that the number and proportion of service closures have varied since the onset of the pandemic. This may be due to differing approaches to precautionary measures, such as ECEC and school closures, at the state and territory level.

The timing, duration and extent of public health safety measures directly impacts the demand for children's education and care services, as well as the decisions of service providers to keep services operating.

Data from the UK shows the increasing role of ECEC and schools as sites of transmission. The figure below shows the number of outbreaks by setting in the United Kingdom over the past 12 months. Data from the first week of June 2021 to October 21 is also listed in Table 6.

Figure 6: Number of COVID-19 outbreaks by setting in the UK, October 2020 to October 2021.



Source: UK Health Security Agency (2021).

Table 6: Number of COVID-19 outbreaks by settings in the UK, July to October 2021.

Week ending	Care homes	Hospitals	Education settings	Prisons	Work settings	Food and restaurant settings	Other settings
4-Jul-21	81	3	251	4	56	11	42
11-Jul-21	109	9	222	5	57	7	40
18-Jul-21	174	10	201	6	55	14	70
25-Jul-21	209	11	51	6	54	7	75
1-Aug-21	170	12	6	1	34	3	59
8-Aug-21	177	12	14	0	36	3	61
15-Aug-21	163	13	20	2	39	2	62
22-Aug-21	195	24	10	2	29	7	51
29-Aug-21	210	17	10	1	24	4	72
5-Sep-21	174	19	10	3	20	2	49
12-Sep-21	179	20	101	1	24	2	61
19-Sep-21	109	11	213	1	10	2	25
26-Sep-21	127	18	245	2	11	0	44
3-Oct-21	139	8	184	6	11	0	46
10-Oct-21	169	15	155	1	11	0	63
17-Oct-21	156	20	161	0	22	0	44

Source: UK Health Security Agency (2021).

The above table and figure show that educational settings are increasing as sites of transmission in the UK. In 2020, care homes were the locations with the largest number of outbreaks. In 2021, during the teaching periods of July and September, educational settings were the locations with the largest number of outbreaks.

The consensus is that mitigation measures will be important to minimising the spread of COVID-19 in educational settings, particularly as Australia moves into the next phase of the pandemic (Murdoch Children's Research Institute, 2021).

In exploring the role of educational settings as sites of transmission, and appropriate mitigation measures, it is important to highlight the unique features of ECEC compared to schools.

One of the most important differences between schools and ECEC services is funding. Schools receive most of their funding per enrolment, through a combination of government support and parental contributions, such as fees. While school closures are extremely disruptive, schools still receive income from enrolments.

Childcare functions on a subsidy-based model, where payment is more closely tied to physical attendance. Childcare providers usually charge on a per-hour or daily basis. The Australian government provides the Childcare Subsidy (CCS), paid directly to ECEC services, who then pass it on to families as a fee reduction. State governments fund preschool programs through a range of mechanisms, and many programs are located in ECEC services that also depend on CCS funding. Preschool programs are most often located in CCS-funded ECEC services in the eastern states that have been most heavily affected by COVID-19 so far. This means that children and families are at risk of losing valuable early learning opportunities when demand for ECEC is reduced.

The amount of the subsidy, and the amount parents pay out-of-pocket, depends on family income and the fees that childcare providers charge. Normally, childcare providers must charge a gap fee to receive the Australian government subsidy.

Closures are a much greater threat to the viability of ECEC providers than schools. This is because the ability for providers to collect fees is severely compromised if children do not physically attend. Similarly, measures that result in a decline in the number of children attending a service have a negative impact on provider revenue.

This is part of the reason there have been various measures announced by the Australian government to support the ECEC sector since the start of the pandemic. These have included ‘free childcare’ during the first wave of the pandemic in 2020.

These extra support measures have not been required in the primary or secondary school system because, while the pandemic has caused enormous disruption, the public health safety measures do not threaten the viability of the schools in the same way that they threaten childcare providers.

Table 7 below shows other differences between childcare and primary schools that indicate the need for a distinctive response to the COVID-19 crisis.

Table 7: Differences between childcare services and primary schools relevant to COVID-19

Childcare		Primary school
Typically funded on a usage basis with a co-contribution requirement from parent or caregiver.	**Funding**	Funded on an enrolment basis.
Children usually grouped by age and children attending can vary by day.	**Groups**	Usually students are grouped by class and have the same classmates
Varies by age group (see above)	**Educator – child ratio**	Usually one or two teachers per class
Rates of participation vary by age: 0 years old – 9.3% 1 years old– 43.0% 2 years old – 57.6% 3 years old – 63.8% 4 years old - 57.1% 5 years old – 38.4%[2]	**Participation**	Compulsory schooling generally for 5 year olds and above

As the pandemic progresses, ECEC services will play an increasingly important role in managing the spread of COVID-19. There are over 16,000 ECEC providers and more than 1 million approved ECEC places for children. If children aged 5 to 11 years old become eligible for COVID-19 vaccinations, ECEC services will become the location where the greatest number of unvaccinated people are regularly mixing with each other on a daily basis. There are measures that are possible to implement to minimise the spread of COVID in ECEC settings, some which are described below.

Cocooning

While we cannot yet vaccinate children under 12 years, we can vaccinate those around them. This approach is known as 'cocooning', which means ensuring that the close contacts of children are vaccinated. This can include staff in ECEC services as well as parents and household contacts of children attending an ECEC service.

Vaccination practices are not new to the ECEC sector. The Australian government's 'No Jab, No Pay' law requires children up to 19 years to be fully vaccinated to be eligible for payment of childcare benefit, childcare rebate, or the family tax benefit. Additional state local laws, such as the Queensland *Public Health 2005*, protects ECEC services who refuse enrolment or

[2] Productivity Commission (2021). Includes all ECEC services eligible for CCS

attendance of children who do not have full immunisation status, though this law is discretionary rather than mandatory.

The National Health and Medical Research Council (NHMRC) recommends a number of vaccinations for ECEC staff, and many ECEC providers mandate these vaccinations for educators (NHMRC, 2013). Recognising the high risk factor of unvaccinated children, some jurisdictions have mandated vaccinations for educators in ECEC and teachers in schools. Australia's largest ECEC provider, Goodstart, has mandated vaccination for all of its staff and publicly called on other states to mandate vaccinations (Goodstart, 2021).

We may expect to see similar requirements and restrictions placed on family members of children attending ECEC services in the context of COVID-19 vaccination. This can be a very complicated issue. For instance, if there are lower vaccination rates in low socio-economic status areas, parents and carers may be discouraged to send their children to ECEC services if parents do not receive benefits. This may lead to these children becoming at risk of missing valuable support for their early learning and development.

Pick and drop-off of children outside the centre minimises the risk of parents interacting with other staff and children in the centres. Combined with mask wearing, external pick and drop off is a crucial social distancing measure. However, this practice requires additional staffing in the centre for a staff member to sign a child in at the door and walk the child to the room, adding to operating costs.

Ventilation

Ventilation is the deliberate introduction of fresh air and removal of stale air from a space. The virus that causes COVID-19 can be spread from person to person through contact with airborne droplets, which are produced when a person sneezes or coughs, or through other small particles produced when people talk, sing or shout.

Open or well-ventilated spaces reduce the risk of COVID-19 transmission because infectious particles are more quickly diffused in the open air than in spaces with less ventilation (NSW Government, 2021).

According to advice from Baxter et al. (2021), in the context of COVID-19:

> "… ventilation means provision of safe, clean indoor air... Respiratory aerosols from breathing and speaking accumulate in indoor spaces, much like cigarette smoke but invisible.... Good ventilation is one of the most effective ways to reduce the risk of COVID-19 infection."

Schools have benefited from government programs that promote the installation of improved ventilation in classroom settings. For instance, the Victorian government has supported a program where about 51,000 air purification devices will be rolled out to all government and low-fee Catholic schools in Victoria (Thorne, 2021). The Victorian government is also offering grants of up to $4,500 to around 1,700 not-for-profit kindergarten services to improve ventilation (Victorian School Building Authority, 2021).

Providing effective ventilation is just as important in ECEC services as it is in schools. ECEC providers need support to ensure that proper ventilation occurs in all ECEC settings to reduce the risk of transmission. This will require governments to work in partnership with ECEC providers, to ensure that dedicated funding is available, and to coordinate efficient, sector-wide strategies to upgrade facilities to meet new standards.

Cohorting

Cohorting involves identifying small groups and keeping them together in school and ECEC settings as much as possible. In primary schools, cohorting means students in a particular class group are kept together as much as possible. In ECEC settings, especially long day care, cohorting can be more difficult because there is not always a consistent or regular group of children attending and the mix of children attending can change every day.

Many centres practice 'family grouping' to reduce staffing costs as attendances increase in the morning and decrease in the afternoon. Family grouping means grouping children by mixed ages instead of by the same age. It is called family grouping because the mixed age composition more closely resembles that of a family. Cohorting requires earlier separation of children into their room and age groups, and can increase staffing costs.

Most ECEC services are designed to meet the needs of parents' work or study, so children may attend for a few hours one day a week or several days over the course of a week. The difference in ECEC usage from school highlights the challenge for providers when looking to create a 'bubble' or group of children to minimise exposure to others. Whereas schools have already been proactive on this front and have introduced measures such as different drop-off and pick-up zones for grades and reorganised timetables, ECEC providers are not working within the same structure. Being able to group children together and limit their exposure to others outside of this group may help contain any infection. Providers will need to look at this on a case-by-case basis to see what is viable for their context.

Staff surging

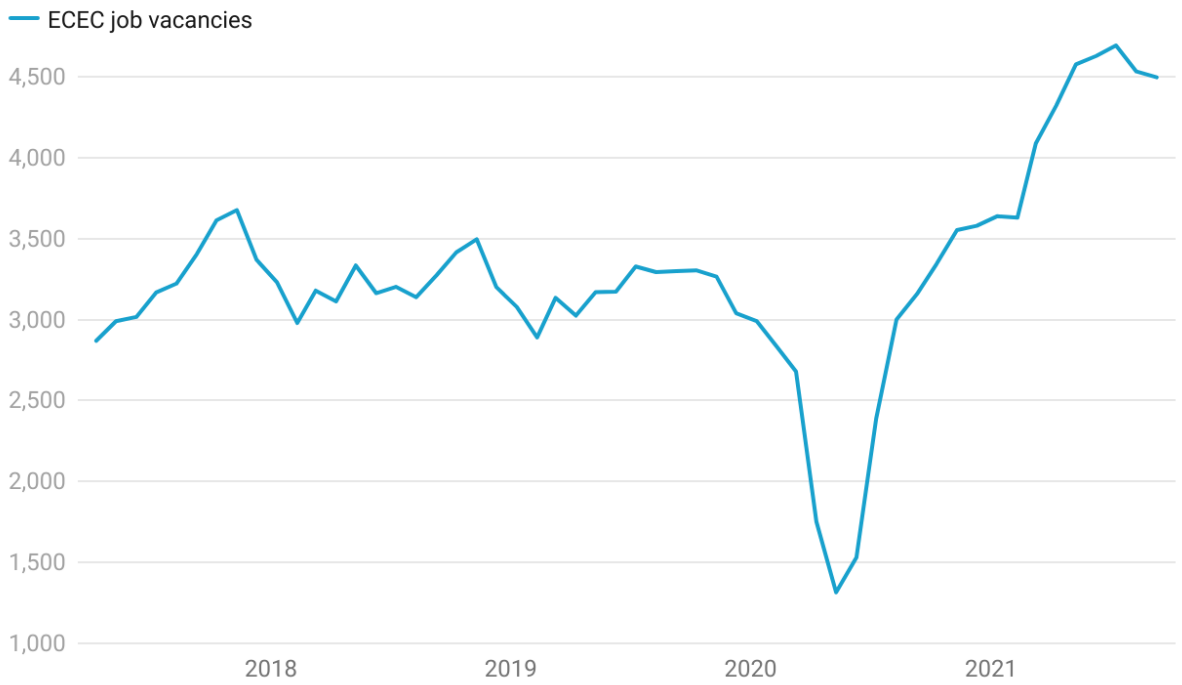
As infection rates rise in the community, it is inevitable that infections among ECEC staff will also rise. On current public health rules, infected staff and their close contacts in the centre are required to isolate for up to 14 days.

Centres with outbreaks can be left with insufficient staff to open all rooms in a centre, even after public health authorities have cleared a centre to open. A 'surge workforce' could assist such centres, but there are reports of extensive staff shortages, including shortages of casual staff.

Figure 7 below shows monthly job vacancy rates in the ECEC sector using Australian government data. It shows that job vacancy rates in the ECEC sector are currently at record levels, around 50% higher than pre-pandemic levels.

Such staff shortages will contribute to some centres being unable to care for children while staff are sick or isolating and, under standard CCS rules, with reduced ability to collect revenue if forced to close.

Figure 7: Monthly ECEC job vacancies



Note: Occupational vacancies in ANSZCO codes 1341, 2411, 4211.

Source: Labour Market Information Portal (2021).

Testing

Early learning centres in the UK have sought to minimise the need to isolate children who are close contacts by more frequent testing in centres using lateral flow device testing by staff (UK Department of Education, 2021b). Test kits, which typically cost $40-110 each, are provided free of charge by the NHS to facilitate twice weekly testing of staff and students (ABC News, 2021). While effective for monitoring the spread of COVID-19, the cost of twice weekly testing for an ECEC service of 100 children and 20 staff could cost around $10,000, which would be a significant cost burden for providers.

To ensure that rapid antigen testing can be part of the tools available to support ECEC services to remain open as long as possible, test kits can be provided free of charge to ECC services. No government has yet made this commitment to the ECEC sector, although Victoria has reported acquired two million test kits for schools (Durkin, 2021).

Cleaning & hygiene

Upgraded cleaning and hygiene are crucial to reducing infection in centres. This adds to staffing costs for centres, with additional rostered time needing to be allocated to these tasks. During the 2020 lockdown, the Victorian Government provided grants to centres to undertake enhanced cleaning (Business Victoria, 2021). The NSW Government provided no similar support during the 2021 lockdown. When a centre has an outbreak, it faces the cost of a ‘deep clean’ before being able to reopen. These deep cleans can cost more than several thousand dollars.

Child absences and childcare subsidies

Current rules generally require child who is infected by COVID or a close contact to isolate for up to 14 days. For families receiving the childcare subsidy (CCS), this is treated as an 'allowable absence', where the provider can continue to charge full fees while the child is absent. Many parents, also possibly off work for that period, object to being required to pay full fees while their child is unable to attend a childcare service due to COVID-19.

As part of measures to support the ECEC sector during the pandemic, the Australian government has given providers the option of waiving 'gap fees' while still receiving CCS for a child who was unable to attend due to a public health order. In some instances, where the pandemic has caused a reduction in attendance of greater than 50%, ECEC providers are also eligible for fortnightly payments equivalent to around 25% of pre-lockdown revenue. With CCS comprising typically around 55% to 60% of fee revenue, this gave some providers around 80% of pre-lockdown revenue (Hurley, 2021). By mid-October 2021, the Australian government has paid around $234 million to providers under the scheme (DESE, 2021a).

However, the scheme is scheduled to be phased out when NSW, VIC and the ACT move out of lockdown. The Australian government will allow providers to continue to waive 'gap fees' and collect CCS where the service is shut down due to a public health order, at least until 31 December (DESE, 2021c).

As Australia moves into the next stages of the National Plan, there is a lack of information about how parents and the ECEC sector will be supported if a child cannot attend an ECEC services, or an ECEC services is forced to close. Reverting to pre-pandemic arrangements leaves children, parents and ECEC services vulnerable to continuing issues that may arise.

The bottom line

Australia's early childhood education and care sector is about to become the front line of Australia's response to the COVID-19 pandemic. If children aged 5 to 11 become eligible for vaccines, children aged under 5 years will likely make up the biggest group of unvaccinated Australians. Over a million of these unvaccinated Australians will mix at these ECEC services on a daily basis.

Our ECEC sector is not set up to mitigate the risks that management of the virus poses. The funding system means that public health safety measures implemented to reduce the number of children attending ECEC services threatens the viability of providers.

Strategies such as cohorting can be more difficult to implement in ECEC settings compared to schools. The extra resources needed to make ECEC as safe as possible, such as with improved ventilation, are not available and have not yet been committed to by any Australian government.

This is about more than risks to children's health. There is a huge body of research highlighting the importance of high quality early learning and care in formal settings. The experience of the pandemic highlights many of the challenges facing the ECEC sector because of the way Australia has structured its early childhood education and care system. What it reveals is a structure and funding model that is particularly vulnerable to external shocks, and as has been shown in the past, that can require substantial additional government support to remain viable.

In the short term, Australia needs a plan specific to the operating reality of the ECEC sector. The sector requires immediate buttressing to not only prevent its collapse, but also so it can play a significant part in minimising the potential harm COVID-19 causes children and the wider population. Other countries have set up such plans. For instance, the UK Department of Education publishes a 'contingency framework' that describes the principles of managing local outbreaks of COVID-19 in education and childcare settings (UK Department of Education, 2021a).

In the medium- to long-term, Australia needs to rethink how it funds and delivers ECEC services, to ensure that this essential service for children and families is never again under threat.

References

ABC News. (2021). What is a rapid antigen test? Where can you buy them in Australia and how much do they cost? Retrieved from https://www.abc.net.au/news/2021-09-28/what-is-home-covid-test-kit-australia-where-to-buy-cost/100496924

ABS, A. B. o. S. (2021). *National, state and territory population*. Canberra: Commonwealth of Australia Retrieved from https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/mar-2021

ACEQA. (2021). *Educator to child ratios*. Retrieved from https://www.acecqa.gov.au/nqf/educator-to-child-ratios

Australian Department of Health. (2021). *COVID-19 cases by age group and sex*. Canberra Retrieved from https://www.health.gov.au/resources/covid-19-cases-by-age-group-and-sex

Baxter, N., Crabb, B., Cole, K., Davidson, A., Pulver, L. J., Flanagan, J., . . . Veness, B. (2021). *Protecting children from COVID-19 and making schools and childcare safer*. Retrieved from https://ozsage.org/wp-content/uploads/2021/10/Children-and-schools-V1.2.pdf

Burnett Institute. (2021). *Modelling the Victorian Roadmap*. Melbourne: Burnett Institute Retrieved from https://burnet.edu.au/system/asset/file/4929/Burnet_Institute_VIC_Roadmap_20210918_-FINAL.pdf

Business Victoria. (2021). *COVIDSafe Deep Cleaning Rebate*. Retrieved from https://business.vic.gov.au/grants-and-programs/covid-safe-deep-cleaning-rebate#:~:text=support%20is%20available%3F-,A%20rebate%20of%20up%20to%2080%20per%20cent%20of%20cleaning,through%20a%20grant%20application%20process.

CDC, C. f. D. C. a. P. (2021). *Weekly Updates by Select Demographic and Geographic Characteristics*. United States: National Centre for Health Statistics

Davies, N. G., Klepac, P., Liu, Y., Prem, K., Jit, M., & Eggo, R. M. (2020). Age-dependent effects in the transmission and control of COVID-19 epidemics. *Nature medicine, 26*(8), 1205-1211. doi:10.1038/s41591-020-0962-9

DESE. (2021a). *$234 million to keep critical child care open during COVID lockdowns*. Retrieved from https://ministers.dese.gov.au/tudge/234-million-keep-critical-child-care-open-during-covid-lockdowns

DESE. (2021b). *Child Care in Australia report March quarter 2021*. Retrieved from https://www.dese.gov.au/child-care-australia-report-march-quarter-2021

DESE. (2021c). *COVID-19 information for the early childhood education and care sector*. Canberra: Commonwealth of Australia Retrieved from https://www.dese.gov.au/covid-19/childcare#toc-gap-fee-waiving

Doherty Institute. (2021a). *Doherty Modelling Interim Report to National Cabinet 17th September 2021*. Retrieved from https://www.doherty.edu.au/uploads/content_doc/DOHERTY_MODELLING_INTERIM_REPORT_TO_NATIONAL_CABINET_17TH_SEPTEMBER_2021.pdf

Doherty Institute. (2021b). *Doherty Modelling Report for National Cabinet - Revised*. Melbourne: Doherty Institute Retrieved from https://www.doherty.edu.au/our-work/institute-themes/viral-infectious-diseases/covid-19/covid-19-modelling/modelling

DPMC, D. o. P. M. a. C. (2021). *National Plan to transition Australia's National COVID-19 Response*. Retrieved from https://www.pm.gov.au/sites/default/files/media/national-plan-to-transition-australias-national-covid-19-response-30-july-2021.pdf

Durkin, P. (2021). Victoria orders 2.2m rapid tests and mulls local manufacture. *Australian Financial Review*. Retrieved from https://www.afr.com/policy/economy/victoria-orders-2-2m-rapid-tests-and-mulls-local-manufacturing-20211007-p58y0y

ECDC, E. C. f. D. P. a. C. (2021). *COVID-19*. Retrieved from https://www.ecdc.europa.eu/en/covid-19

Goodstart. (2021). *Goodstart mandates COVID vaccination for all employees to protect children and staff*. Retrieved from https://www.goodstart.org.au/news-and-advice/september-2021/goodstart-mandates-covid-vaccination-for-all-staff

Hurley, P. (2021). The government has again rescued the childcare sector from collapse. But short-term fixes still leave it at risk. *The Conversation*. Retrieved from https://theconversation.com/the-government-has-again-rescued-the-childcare-sector-from-collapse-but-short-term-fixes-still-leave-it-at-risk-166568

Ibrahim, L. F., Tham, D., Chong, V., Corden, M., Craig, S., Buntine, P., . . . Babl, F. E. (2021). The characteristics of SARS-CoV-2-positive children who presented to Australian hospitals during 2020: a PREDICT network study. *Medical Journal of Australia, 215*(5), 217-221. doi:10.5694/mja2.51207

Ismail, S. A., Saliba, V., Lopez Bernal, J., Ramsay, M. E., & Ladhani, S. N. (2021). SARS-CoV-2 infection and transmission in educational settings: a prospective, cross-sectional analysis of infection clusters and outbreaks in England. *Lancet Infectious Diseases, 21*(3), 344-353. doi:10.1016/S1473-3099(20)30882-3

Labour Market Information Portal. (2021). *IVI Detailed Occupational Data*. Retrieved from https://lmip.gov.au/default.aspx?LMIP/GainInsights/VacancyReport

McLaws, M. L. (2021). COVID-19 in children: time for a new strategy. *Medical Journal of Australia, 215*(5), 212-213. doi:10.5694/mja2.51206

Molteni, E., Sudre, C. H., Canas, L. S., Bhopal, S. S., Hughes, R. C., Antonelli, M., . . . Duncan, E. L. (2021). Illness duration and symptom profile in symptomatic UK school-aged children tested for SARS-CoV-2. *The Lancet Child & Adolescent Health, 5*(10), 708-718. doi:10.1016/S2352-4642(21)00198-X

Murdoch Children's Research Institute. (2021). *Research brief: COVID-19 in Early Childhood Education and Care and Schools* Retrieved from https://www.mcri.edu.au/sites/default/files/media/documents/covid-19_in_early_childhood_education_and_care_and_schools.pdf

NCIRS, N. C. f. I. R. a. S. (2021). *COVID-19 in schools and early childhood education and care services - the experience in NSW: 16 June to 31 July 2021*. Retrieved from https://ncirs.org.au/sites/default/files/2021-09/NCIRS%20NSW%20Schools%20COVID_Summary_8%20September%2021_Final_0.pdf

NHMRC. (2013). *Staying Healthy: Preventing infectious diseases in early childhood education and care services*. Retrieved from https://www.nhmrc.gov.au/sites/default/files/documents/reports/clinical%20guidelines/ch55-staying-healthy.pdf;

NSW Government. (2021). *COVID-19 guidance on ventilation*. Retrieved from https://www.nsw.gov.au/covid-19/business/covid-safe-business/ventilation

Paul, L. A., Daneman, N., Schwartz, K. L., Science, M., Brown, K. A., Whelan, M., . . . Buchan, S. A. (2021). Association of Age and Pediatric Household Transmission of SARS-CoV-2 Infection. *JAMA pediatrics*. doi:10.1001/jamapediatrics.2021.2770

Pilcher, S., Noble, K., & Hurley, P. (2021). *Stepping up: securing the future of quality preschool in Australia*. Melbourne: Victoria University

Prem, K., Cook, A. R., & Jit, M. (2017). Projecting social contact matrices in 152 countries using contact surveys and demographic data. *PLOS Computational Biology, 13*(9), e1005697. doi:10.1371/journal.pcbi.1005697

Productivity Commission. (2021). *Report on Government Services*. Retrieved from https://www.pc.gov.au/research/ongoing/report-on-government-services/2019

Say, D., Crawford, N., McNab, S., Wurzel, D., Steer, A., & Tosif, S. (2021). Post-acute COVID-19 outcomes in children with mild and asymptomatic disease. *The Lancet Child & Adolescent Health, 5*(6), e22-e23. doi:10.1016/S2352-4642(21)00124-3

Thorne, L. (2021). Victoria's plan for schools covers ventilation and vaccination — and experts say it's 'fantastic. Retrieved from https://www.abc.net.au/news/2021-09-23/victoria-melbourne-schools-plan-covers-ventilation-vaccination/100483622

UK Department of Education. (2021a). *Contingency framework: education and childcare settings*. London, United Kingdom: Government of the United Kingdom Retrieved from https://www.gov.uk/government/publications/coronavirus-covid-19-local-restrictions-in-education-and-childcare-settings/contingency-framework-education-and-childcare-settings

UK Department of Education. (2021b). *Managing coronavirus (COVID-19) in education and childcare settings*. Retrieved from https://www.gov.uk/government/publications/coronavirus-covid-19-local-restrictions-in-education-and-childcare-settings

UK Health Security Agency. (2021). *Weekly national Influenza and COVID-19 surveillance report*. Retrieved from https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season

Victorian School Building Authority. (2021). *Kinder Ventilation Support Funding*. Retrieved from https://www.schoolbuildings.vic.gov.au/Pages/Kinder-Ventilation-Support.aspx

Mitchell Institute for Education and Health Policy
300 Queen Street, Melbourne, Victoria 3000
+61 3 9919 1820
info@mitchellinstitute.org.au
mitchellinstitute.org.au