



**To: House of Representatives Standing Committee on Health, Aged Care and Sport**

**Inquiry into Long COVID and Repeated COVID Infections**

**A Submission by COVID Safe Schools Inc.**

Contact: [hello@covidsafeschools.org.au](mailto:hello@covidsafeschools.org.au)

Written by Dr Kerry Wardlaw (PhD) on behalf of COVID Safe Schools Inc.

The section on ventilation is adapted from a NSW submission written by Peter Vogel on behalf of CSS, personal stories are from members of COVID Safe Schools (with the exception of one story).

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Note: Pseudonyms are used for the personal stories included in this document.

# Contents

<b>1.</b>	<b>ABOUT COVID SAFE SCHOOLS INC:</b>	<b>3</b>
<b>2.</b>	<b>INTRODUCTION</b>	<b>3</b>
<b>3.</b>	<b>EMERGING SCIENTIFIC EVIDENCE OF COVID RISKS TO CHILDREN AND TEENS</b>	<b>5</b>
<b>4.</b>	<b>HEALTH IMPLICATIONS OF COVID INFECTION FOR SCHOOL STAFF</b>	<b>8</b>
<b>5.</b>	<b>PRECAUTIONARY PRINCIPLE</b>	<b>10</b>
<b>6.</b>	<b>LITERATURE AND DEBATES ON TRANSMISSION IN SCHOOLS</b>	<b>10</b>
<b>7.</b>	<b>LEGAL AND ETHICAL OBLIGATIONS FOR SCHOOLS AND EDUCATORS TO PROVIDE A SAFE ENVIRONMENT.</b>	<b>13</b>
A.	DUTY OF CARE	13
B.	DISABILITY DISCRIMINATION	15
C.	CATERING TO STUDENTS OR FAMILIES WITH CHRONIC ILLNESS	16
D.	OCCUPATIONAL HEALTH & SAFETY	17
E.	OBLIGATIONS UNDER THE CONVENTION ON THE RIGHTS OF THE CHILD	18
<b>8.</b>	<b>MEASURES TO MITIGATE RISKS FROM COVID-19 IN SCHOOLS</b>	<b>20</b>
A.	VENTILATION MEASURES	21
B.	MASKS PROVIDE ANOTHER DEFENSIVE BARRIER AGAINST COVID-19 INFECTION	22
i.	<i>Masks are effective</i>	22
ii.	<i>Schools as specific sites that make them more risky</i>	24
iii.	<i>Masks and younger children</i>	24
iv.	<i>Masks: social and cultural factors, and government messages</i>	25
v.	<i>Education and enforcement of masking by schools and educators</i>	28
C.	AIR PURIFIERS	28
D.	MOVING BEYOND HALF-HEARTED IMPLEMENTATION OF COVID-SAFE MEASURES IN AUSTRALIAN SCHOOLS	29
E.	VACCINES AND BOOSTERS	31
F.	REMOTE LEARNING	31
<b>9.</b>	<b>CONCLUSION</b>	<b>31</b>
<b>10.</b>	<b>RECOMMENDATIONS</b>	<b>32</b>
<b>11.</b>	<b>REFERENCES</b>	<b>34</b>

## 1. About COVID Safe Schools Inc:

COVID Safe Schools Inc. (CSS) is an association of Australian parents, teachers, and school staff advocating for the provision of safe education during the COVID-19 pandemic through ventilation, air-testing, filtering, and other mitigations. We are making this submission on behalf of COVID Safe School members.

## 2. Introduction

COVID Safe Schools is concerned that schools are sites of high COVID transmission which present risks of repeated exposure and infection of young people and school staff. This submission focuses on **Term of Reference 6: Prevention of long COVID and repeated infections**. Emerging medical research indicates *we should do all we can to protect our young people from COVID-19*. Ensuring schools are safe for young people should be of paramount concern so that they can live a long, healthy and prosperous life. Importantly, COVID-19 mitigation measures in schools will also reduce COVID-19 morbidity and mortality for Australians of all ages.

This submission includes a discussion of medical science literature on health impacts and long COVID in children and adolescents. It includes demographic factors that put teachers at high risk of long COVID and the impacts on their ability to work. We argue that governments should apply the precautionary principle to management of risks of this magnitude, and we show there is enough evidence that schools are sites of transmission to require urgent action to protect students and staff.

Schooling is compulsory for all school-aged children. In the current context of lack of mitigations in most Australian schools, this becomes a policy of forced infection on children spanning ages 5-18 and their families, including their younger siblings. Infection should not be a consequence of a mandatory activity that is essential to participate in our society and economy. Access to schooling is a basic human right. It should not come at the expense of another human right – the right to health and development.

Additionally, a lax approach to COVID infection in schools is contrary to basic professional duties: Duty of Care, Disability Discrimination and OHS/WHs in schools. Schools need to protect against infection and reinfection for all children and teens in their care. Currently, COVID-19 mitigation measures are inadequate in Australian schools.

A vaccine-only strategy is risky when the evidence points towards vaccines only lowering the risk of long COVID after infection by about 15% according to a study of more than 13 million people (Reardon, 2022). This is compounded by a few factors: lack of access to boosters for school aged children; slow uptake of vaccines for children; lack of provision of the 'latest' vaccines for the

general population; waning immunity from vaccines (Chemaitelly, H et al., 2022); and increased breakthrough infections with new variants that can evade immunity from prior infections and vaccines.

*COVID Safe Schools supports a Vaccine-plus approach.* Mitigations to limit transmission in schools requires a combination of ventilation measures, air purifiers in all school spaces, mandatory masks (when there is high level of transmission within a school or the broader community in a wave), CO2 monitoring, routine RAT testing and mandatory isolation to match the science around the infectious period.

Importantly, all these measures need to be implemented through follow up, training, education and monitoring to support schools to become safer spaces to prevent transmission. Furthermore, schools require additional training and education to support students and school staff who have long COVID and post-COVID health impacts.

Recent national studies estimate that more than two-thirds of Australians, and up to 90% of children have been infected (Aubusson, 2022). Another wave has started, with students and staff facing reinfections in schools, with little or no protection. Governments do not know the long-term health impacts of COVID-19 on children, but there is enough emerging medical science to indicate this level of exposure and infection should be deeply concerning.

Limiting transmission in schools is the only way to minimise long COVID and reinfection via schools. Schools should be safe spaces that students and staff can attend without risking their long-term health or the health of family members. We argue prevention of transmission in schools needs to be an urgent priority of all Australian governments. Emerging scientific evidence of COVID risks to children and adolescents

Throughout the pandemic some experts and groups have downplayed the health impacts of COVID on children. There were claims that children would not spread the virus, that schools were safe and that children would not get very sick from COVID. These claims have all been proven wrong.

We should not make the same mistake in denying the potential for long-term health impacts on our young people.

We want Australian governments to move away from magical thinking around schools and children. The youngest members of our society deserve a protective approach to their health.

### 3. Emerging scientific evidence of covid risks to children and teens

Considering emerging medical science on COVID-19, there needs to be much greater care taken to protect young people in schools.

There are several health concerns around kids and COVID infections:

- Estimates for long COVID in kids vary from 2% to 10% of those children who are infected (Gurdasamy et al., 2022). Research from the UK office of National Statistics shows that there was an increase of self-reported long COVID among children under the age of 16, from 77,000 in October 2022 to 119,000 in January 2022 (Cox, 2022a & 2022b). The symptoms include fatigue, loss of concentration, heart and lung disease, and many others.
- The UK Office for National Statistics found 7-8% of children had symptoms lasting at least 12 weeks, and that these symptoms have had significant impacts on daily activities (OzSage 2021b, p. 3). Long COVID kids in the UK has highlighted government data showing there are 34,000 kids who have had long COVID symptoms for more than 12 months (2022).
- The disease burden is so significant that the National Health Service in England announced 15 new paediatric hubs to care for kids with long COVID.
- The US American Academy of Pediatrics takes infection of children and adolescents seriously, noting that 'long-term effects from SARS-CoV-2 infection may be significant, regardless of the initial disease severity', and there is a need for follow up to monitor health impacts from COVID infection (AAP, 2022b).
- A study of US health data on children and adolescents concludes that there are increased risks of acute pulmonary embolism, myocarditis, cardiomyopathy, venous thromboembolic vents, renal failure and type 1 diabetes for 31-365 days after diagnosis of COVID infection (Kendall et al., 2022). Children aged 2-4 and adolescents were found to be more likely to have new respiratory symptoms after COVID-19 infection compared to those who had not had COVID (Kompaniyets et.al., 2022)
- PIMS-TS (or MISC) is a multisystem inflammatory syndrome that is life threatening. Since the beginning of the pandemic until 2 July 2022 most cases have been primary aged children (5 to <12 years old), followed by 6 months to pre-school age children, the younger siblings of primary age children (CDI, 2022, p. 12). Most kids with PIMS-TS require hospitalisation, and some require ICU level care (CDI, 2022, Figure 5, p. 11). It should be noted that in Australia most of these cases occurred during the Omicron wave when children returned to schools and many protective measures were removed.

- According to a study of a million patients aged 0-18 in the US with new diagnoses, COVID infection increases the risk of developing diabetes among children by 172% (Lee, 2022a: Neuroscience News, 2022).
- A large study in the US shows that children are at risk of neurological complications from COVID-19 infection such as fever-related seizures and encephalopathy (Van Beusekom, 2022a). The study only includes a short period with the Omicron strain circulating. Other studies confirm viral persistence in the brain (Chertow et al., 2021; Morand, 2021).
- A German research MRI study of paediatric lung impacts of COVID-19 shows that there is direct damage to the lining of blood vessels and inflammation with observable lung changes in children and adolescents that is similar to adults (Imaging Technology News, 2022; Van Beusekom, 2022b).
- There are numerous studies that raise concerns around COVID-19 infection and immune system exhaustion, dysfunction or damage after COVID-19 infection (Herrero, 2022; Ryan et al., 2022). Even if this research is at the early stages, the impact of ongoing ill health for children is deeply concerning in terms of disrupted education, challenges for family finances, and making families more vulnerable to other viruses.

Despite claims that Omicron is mild, and it would end the pandemic, the evidence from overseas and in Australia has proven this claim is incorrect. Paediatric hospitalisation rates skyrocketed in some paediatric hospitals in the UK and the US, with a significant increase in the Omicron wave (CNN, 2021; Cox, 2022). The spread of Omicron increased the number of kids with long COVID.

In summary, reinfection studies of adults show a cumulative burden of disease with a number of infections (Bowe, Xie & Al-Aly 2022). COVID-19 increases risks of blood clots, strokes, heart arrhythmia, POTS and immune system damage (Barber, 2022; Al-Aly, Xie & Bowe, 2021). Additional concerns are that diagnosis of long COVID is difficult with children, leading to under diagnosis and lack of support (Ault, 2022; Katella, 2021). This is compounded by most studies on long COVID being on adults (Biddle & Korda, 2022; Lewis, 2021). Furthermore, children have a longer time for future potential exposure and consequently greater risk burden in later life from repeated infections. There is insufficient evidence to conclude that this will not lead to a significant level of chronic disease and early mortality for this generation of young people. The emerging medical science of serious health risks from COVID infection and reinfection (Ontario Public Health, 2022b) should give pause to policy makers to apply the precautionary principle to protect our children and adolescents from repeat infections in schools.

**Personal story: Kaz, Parent, Regional NSW**

*Four days after her return to school in February, my 10-year-old daughter (V) woke up with a high fever and with excruciating ocular pain. She immediately tested positive on a rapid test. In the acute phase, she experienced fatigue, severe headaches, fevers, runny nose and later protracted nose bleeds, sore throat, cough, nausea, vomiting, diarrhoea and muscle aches. Several weeks passed and some of these symptoms resolved, but many persisted.*

*When we advised the school, we discovered for the first time that there was a large cluster in her cohort. Parents were not informed of the cluster until almost two weeks later, during which time a school camp was held where several dozen students also contracted COVID.*

*We sent V back to school in March, but she only managed a few hours each day before she was sent home due to fatigue or other symptoms. She was now experiencing rashes all over her body, including large red welts (almost like insect bites) that would come up and go down within hours.*

*V was once a voracious reader but now she would cry when she tried to read because she couldn't make sense of the words.*

*Our GP diagnosed her with long COVID. We tried to get a referral to a long COVID clinic or a private paediatrician. We were told by the local hospital and paediatric clinic that they were too busy to see her. They gave advice to our GP. It amounted to 'wait and see'. Her symptoms did not ease between February and April when she was infected a second time. Again, it was from school where her older brother had been infected in a significant cluster that the school did not inform us about until it was too late to protect our family.*

*V developed the same symptoms as her first infection with the addition of losing her sense of smell. She was acutely unwell for almost a month on reinfection.*

*V was a healthy child prior to her first COVID infection. She was rarely ill. After infection she picked up multiple bouts of tonsillitis, chest infections, gastric bugs and mysterious 'colds' that would make her sick for weeks on end. She also had a bad bout of Influenza B that has seen her bed bound for 2 full weeks, despite receiving the flu vax this year. She has had more than 25 GP visits.*

*This is in addition to persistent COVID symptoms which she deals with daily – 'ice pick' and other headaches, reflux, diarrhoea, muscle aches, a near-constant sore throat, odd rashes and eczema, chronic nasal congestion and nose bleeds, and probably worst of all – ongoing fatigue and what most would call brain fog – although she doesn't use that term. She just says things like "I used to be smart but now I can't keep up" and "I've read this page 3 times, but I still don't know what it's about".*

#### **4. Health implications of COVID infection for school staff**

The demographics of the teaching profession are relevant to assessment of risks of long COVID and acute COVID-19 risks. In 2021, the average median age of teachers was 46 years, and 73% of teachers were aged between 30 and 59 years old. 16% of the workforce was aged over 60 years old. Another notable demographic feature of the teaching workforce is that it is predominantly female with male teachers making up only 33% of total staff in secondary schools and 16% in primary schools (AITSL, 2021; ABS, 2022).

This demographic data combined with crowded schools has significance for risks of hospitalisation, reinfection and long COVID. There is consistent emerging evidence that women between the ages of 40-60 are at higher risk of experiencing long COVID (CDC, 2022c; Lewin, 2020; Torjesen, 2021). A comparative study of longitudinal studies found women are 50% more likely than men to have long COVID (Thompson et al., 2022a). ONS data in the UK shows teachers are at high risk of long COVID (Bunce, 2022).

**Teaching is now more dangerous than the construction industry.** (SIRA NSW worker's compensation claims, for example: 1,293 claims by teachers vs 1041 by construction workers in May 2022).

Fatigue, brain fog and breathlessness are debilitating symptoms for teachers to have whilst carrying out the duties and responsibilities of their work. Furthermore, the physical, emotional and mental demands of the job are incompatible with the need to rest — to give teachers a chance of fighting off the acute infection to prevent ongoing health issues. Rest is considered an important factor in preventing and managing long COVID (Ducharme, 2022). The teacher shortage and teacher culture are likely to exacerbate the prevalence of long COVID when teachers feel obliged or are pressured to go back to work quickly.

School environments are crowded with no potential for social distancing and lots of mixing of the population, making them risky environments for COVID-19 transmission. The implications of not providing adequate workplace safety for teachers will be felt across school communities by colleagues, school leaders and students. Waves of COVID-19 through schools, and ongoing illness of staff with long COVID, is disruptive to learning outcomes and morale.



***Personal story: Peter, Teacher, Melbourne***

*I had brain fog and the inability to concentrate over long periods of time in the first three months after my COVID infection. This negatively impacted on my ability to teach Yr.12 Maths subjects. For example, on occasions I would simply have to tell my students during the last period of the day that my brain had basically shut down and that I would have to help them with their questions the next morning. Luckily that did not happen too often.*

*Due to extreme exhaustion for 3 months after COVID infection, I was unable to work at night which had been my main mode of operation for many years. As a result, I often felt underprepared for class and was also not able to mark assessment tasks as quickly as I would have normally done, which significantly increased my stress levels.*

*My wife contracted COVID at the same time as me (January 2022) and majorly suffered from Long-COVID symptoms until a few weeks ago (and*

*getting the occasional relapse. Doing more work around the house and more parenting added to my inability to do schoolwork at home.*

*Colleagues in my Yr.12 team, who suffered from Long-COVID or repeated infections, were consistently late with their marking. This had a significant, negative impact on my mental health as it meant that we could not do the required cross-marking and moderation back quickly and my students did not get the required feedback in a timely manner. For example, one major assessment task from early in Term 2 could not be given back to students until Term 3. This meant that there was no closure for me, and new tasks kept piling up while old tasks had not yet been finished off.*

Schools are making do during waves of illness with casual relief teachers, combined classes, split classes, library supervision—all decisions that amplify the spread of COVID-19 (ABC, 2022a; ABC, 2022b; ABC, 2022c). **This is disrupted learning.** Teacher absences are upsetting for younger students and result in teachers without subject expertise filling in for secondary classes. Outbreaks have led to school closures across Australia (Cassidy, 2022; Kelly, 2021; Rose, 2022). The ending of isolation requirements will only turbo-charge infection and undermine safety in schools for teachers, children and families.

Australia needs to take note of overseas experience such as the United States where teachers are leaving the profession due to repeated infection and health risks during the pandemic (DiTrolino, 2021; Wilson, 2022). It is also likely that repeat infections increase the health risks to students and staff in schools (Al-Aly, Bowie & XIE, 2022). *The evidence of damage to multiple organs, increased risks of heart attack and strokes, excess mortality data and long COVID should mean COVID-19 is taken seriously as an occupational hazard.*

## **5. Precautionary principle**

COVID Safe Schools opposes a ‘natural experiment’ on school populations as deeply unethical considering schooling is compulsory and necessary to participate in society. We support the need to apply the precautionary principle and maximise mitigations in schools to limit transmission. The precautionary principle is based on the idea that when there is a large risk and danger exists action is taken, even in the absence of full scientific evidence. It is based on recognising uncertainty is a part of complex science and consensus takes time. Sometimes the consequences of inaction are so dire that we need to apply caution to mitigate potential risks. At a most basic level, it is ‘first, do no harm’. It is particularly relevant when an activity raises a major threat to human health or the environment (Gollier & Treich, 2013).

It is the position of COVID Safe Schools that the balance has shifted away from caution and protective shielding of young people to abandonment of the objective to protect them in schools.

It is increasingly clear that there are serious health risks from infection and reinfection from COVID-19, even if the acute phase of infection appears mild. We need to assume and prepare for poor outcomes and manage the risks properly. Too much is at stake.

## **6. Literature and debates on transmission in schools**

The Victorian CHO Brett Sutton views schools as sites of transmission and community hubs. He has been a strong advocate for multiple measures in schools such as masking from G3-12, air purifiers and ventilation measures (ABC, 2021). White, Murray and Chakravarty debunk assumptions around school transmission chains and children not being infectious. They provide evidence that with surveillance testing (not just those with symptoms), school-aged children had comparable prevalence of infection across the UK, Italy, Utah and Wisconsin. They point out some studies were conducted when schools were closed so they are misleading in claims that transmission is limited in schools (2022). This was the flaw of the influential NCIRS study in NSW that was conducted during a period with a greatly reduced student population due to remote learning, and a period of low general community transmission between 16 June to 31 July (OzSage, 2021a).

Furthermore, White, Murray and Chakravarty argue that: ‘chains of infection, once seeded inside schools, would spread rapidly into the surrounding communities’ (2022). They have modelled how this can occur with rapid transmission across the community from schools. They also point to other supporting evidence such as a new spike in cases in the school-age population in the UK Autumn in 2021 that was soon followed by a spike in cases in the 30-40 age group, most likely family members infected by their children (2022). Furthermore, an Italian study with surveillance

data for around 1000 exposures found students were a higher proportion of those infected and caused significantly more onward transmission than the general public (Johnson 2022; Manica et al., 2022). A Californian case study demonstrating an attack rate of 50% within a classroom outbreak provides further evidence of transmission within classrooms, contrary to claims that schools are safe places (OzSage, 2021a).

Recently, Bonnie Henry, the Canadian BC Provincial health officer, has been criticised for providing false public assurances that risks of transmission in schools are low, and for lack of transparency over data collected on transmission in schools. The lack of information caused more absenteeism as parents second-guessed the level of risk in schools and removed kids in BC Province (Basu & Gangdev, 2022).

***Personal story: Penny, Parent, Brisbane QLD***

*As a parent of two young children, I'm very concerned about the lack of protective measures in schools. I feel we don't yet know enough about the long-term health impacts of COVID to be careless in exposing kids to repeat infections. Furthermore, I know of young children who've suffered from Long COVID fatigue and sporadic fevers ever since contracting COVID. Consequently, I chose to keep my children home from school for most of this year.*

*This decision was also largely because there was no dissemination of case numbers at the school to evaluate the risk. I could only assume that if my kid's teachers were away with COVID or many classmates absent then viral transmission was rife and it was unsafe to send my kids. Had this data not been shrouded in secrecy, I may have felt a little more comfortable returning my kids to the classroom earlier.*

*My children only returned to school in Term 4 due to the pressures of home schooling while running my business. It was detrimental to my health and not sustainable. Subsequently, my marriage has since fallen apart from the exhaustion and stress placed upon us.*

COVID Safe Schools is concerned about a similar lack of transparency and data on infections in Australian schools. This means parents are unable to make risk assessments to protect their families. There has been no real consistency of reporting of cases within schools, and now the data will be even less reliable due to messaging that there is no mandatory requirement to report COVID-19 RATs or need to isolate (unless you have symptoms).

Mike Honey noted education clusters were the biggest category for the Victorian wave in November 2021 from collation and analysis of Victorian publicly available data (2021). The Victorian government published the sites of clusters and there was an obvious pattern with long lists for schools and childcare centres. On November 24<sup>th</sup>, 2021, Mike Honey noted on Twitter:

‘Astonishing to me that this repeated pattern of large education clusters has been ignored for so long – entering its 7<sup>th</sup> straight week now... clean air is not rocket science – would we tolerate infected water in schools for 7 weeks’. The clusters were 600 compared to the next biggest cluster sector of aged care with less than 100 (Twitter)

The lack of data collection, analysis or publication of in-school transmission by governments provides false assurances to parents through ignoring the problem.

Initially, studies on transmission in schools were quite limited globally, due to school closures and other protective measures. The dubious claim was made that schools were not sites for transmission. As community cases rose and people circulated widely outside schools, it was more difficult to establish the origins and site of infections. Asymptomatic cases in children and limitations in testing children may have been a factor in the idea that children under 10 years old were less susceptible to spreading and getting COVID-19. The same could not be said for adolescents who were considered to have similar risks to adults (Goldstein, Lipsitch & Cevik, 2020). *Later studies disputed the assumption that children had lower viral loads than adults* (Jones et al., 2021; Hyde, 2021a).

A recent private sector review of Australian COVID measures (Shergold et al, 2022) has criticised governments for closing universities and schools during outbreaks (Grattan, 2022). It uses a study on Sweden to make a problematic claim that schools are low transmission sites (Campbell, 2022). The Swedish study that is quoted focuses exclusively on children and teachers in ICU (Ludvigsson et al., 2021). *Notably, it does not account for long-term health impacts of COVID-19 infection.* Even more concerning are claims that the lead author deliberately excluded key data that was later exposed through an email exchange about excess mortality of children being up by 68% (Vogel 2021b).

Further, Sweden is notable for the failure to collect data on infections in schools (Vogel, 2020). Despite claims that schools were not an issue for transmission, Swedish newspapers reported major outbreaks in schools, such as a school where 18 out of 76 teachers tested positive, a teacher died, and no students were tested. There were other schools where teachers died, schools remained open and there was no attempt to trace the spread of disease. Evidence of antibody prevalence in children and teenagers suggests there has been significant spread within Swedish schools (Vogel, 2020). Another study found that keeping schools open without masks doubled the risks of infection for Swedish teachers and increased the risks for their partners (Vogel, 2021a). A study of Georgian (US) elementary schools demonstrated that the incidence of

COVID-19 cases was 39% lower in 87 schools that had improved ventilation compared to 27 schools that did not (Hellard et al., 2022).

The initial claims that children would not transmit COVID, schools would be safe, and kids do not get sick from COVID have been shown to be problematic (Hyde, 2020; Hyde 2021a; Hyde, 2021b). A study in Finland has medium level confidence that when schools were open it led to higher transmission and then term break slowed transmission (Children's Task and Finish Group, 2020).

Schools should be considered high risk sites for COVID transmission and protective measures put in place to protect our young people in Australia. Since going to school is not an optional activity, there is a strong obligation on governments to ensure schools are safe.

Children and teens deserve a right to both health and education, and teachers deserve a safe workplace. Due to unknowns about the long-term health impacts of COVID-19, the Precautionary Principle needs to be applied to protect young people. Also, children and adolescents are dependents who depend on families to flourish. The prospect of bringing home a virus that can have life-changing impacts is a heavy burden that should not be handed over to our kids. Children and adolescents deserve to not face a Russian Roulette with each wave of new variants. Australian children and adolescents deserve schools that are as safe as possible to reduce transmission of COVID-19.

## **7. Legal and ethical obligations for schools and educators to provide a safe environment**

### **a. Duty of Care**

Schools have a legal duty to provide a safe environment for all students. It is a fundamental part of the training and professional obligations of staff to understand a legal and ethical Duty of Care to students. This includes taking reasonable steps to reduce the risk of foreseeable harm to students. This responsibility cannot be diminished due to the actions of third parties and Departmental policies. Ultimately, school leaders and teachers have responsibility to students who attend their school.

These include providing safe premises and risk assessments for school activities. Schools are used to creating documentation and risk assessments for camps, activities, lice outbreaks, anaphylaxis training and first aid treatment. Yet, when it has come to risk management of COVID-19, many schools have been negligent and doing the absolute minimum to prevent COVID-19 infection.

Schools have put COVID risk management into the too-hard basket, as they have carried the burden of adjustment to remote schooling and played catch up education. Ultimately, the

responsibility should lie with relevant State and Federal bureaucracies to support schools to be safer for our children and teens.

Even in Victoria with the best mitigations in place, there is variation on the degree to which schools take COVID management seriously. The provision of air purifiers in every classroom, shade sails for outdoor activities, and protocols to open windows and doors for 10 minutes every hour have been commendable. The problem is with implementation within schools; and shifting school cultures to take this as seriously as anaphylaxis. The removal of mandatory masks in Victorian schools to 'highly recommended' had a big impact on masking and schools taking COVID seriously.

Other states have not even done the bare minimum to protect kids in schools. While NSW parliamentarians are guaranteed a safe workplace with 'eight exchanges of fresh air in the chamber every hour', NSW children do not have basic safety measures in schools (Smith, 2022). The Federal Labor Party made an election promise to look at ventilation audits and air purifiers for Australian classrooms. These measures are essential to protect young people, their family members and the broader community from ongoing health problems that will be deleterious to individuals, teachers, families and the broader economy.

We are now in the absurd position where schools still have legal responsibilities to help manage infectious diseases *other than COVID*. They need to manage outbreaks of ringworm, chicken pox, conjunctivitis, hand, foot and mouth disease (Education Victoria, 2022). This is a direct result of the National Cabinet decision to not include schools as high-risk sites requiring mandatory isolation for COVID-19 (ABC, 2022d).

***Personal story: Claire, Parent, South Australia***

*I am petrified of our daughter getting reinfected with COVID. I am 100% certain she caught COVID at school because we had limited activities besides school and only interact outdoors. My daughter was told by the unmasked student sitting next to her all day that her mum had COVID, then the student was absent the following days.*

*My 9-year-old daughter was infected with COVID a few days after close contacts isolating was scrapped by the SA government. She woke screaming in pain in the early hours of the morning. She had a burning fever, headache and vomiting. She needed hospital at home care to stop the gastrointestinal inflammation and vomiting, and to avoid hospitals that were under stress. A month later we had to call an ambulance due to a relapse of inflammation in her tummy. She was taken by ambulance to hospital. She had vivid nightmares for weeks after her infection. Fortunately, she has made a recovery. For good reason, I am worried about her getting it again. I don't think it was acceptable for COVID to be pushed on our children with such lack of regard for their health.*

**b. Disability Discrimination**

Schools are also obligated under Disability Discrimination legislation. Schools must offer students with a disability, reasonable adjustments for them to be able to participate in education. Disabilities are defined as distinct from chronic illness, as an ongoing condition that lasts at least 6 months and restricts everyday activities.

In this context, it is astonishing how lax the risk assessment is for preventing COVID infection in schools for different activities — to protect families with higher risks from COVID infection and reinfection. Planning should occur for music classes, special events, school camps and excursions. Schools need Departmental support and education around how to manage COVID risks more effectively with mandatory teacher training, templates, checklists and management models.

***Personal story: Rachel, Inner West Sydney***

*My family has significant health risks, and the school has been less than responsive and supportive.*

*I feel like the school principal doesn't want my daughter at the school, even though I have not pushed much on COVID safety. I have even been sent a threatening letter from the principal about my daughter's school attendance, despite there being valid medical reasons.*

*It has added stress for our family at a really difficult time. My daughter has been going through medical testing to eliminate brain or spine tumour, and to find out the reasons for her muscle spasticity. Shielding was advised by her neurologist and GP. This is on top of my mum having breast cancer, my dad with dementia and our son being diagnosed with Crohn's disease. The school knows about our family circumstances.*

*I am an ex-nurse who worked in critical care for infectious diseases, so I am well aware of the health implications of a COVID infection. We have tried to create a protective strategy for our family.*

*Our daughter was infected a week on return to school and was falling asleep in class. The teacher caught COVID a week after face-to-face interviews with parents. The school seems to put disability adjustments and COVID management into the too hard basket, despite being connected to a support unit for kids with disabilities.*

*They do say they care about the kids and their community. If they did, they would do more. It is not hard. They are simple measures.*

**c. Catering to students or families with chronic illness**

There are already substantial numbers of children who have chronic health conditions that put them at higher risk from a COVID-19 infection. We should aim as a society to limit the additional numbers of children who struggle with daily life, exercise and school, due to ongoing health impacts from COVID-19 infection. Provision of meaningful education requires minimising disruption from illness during SARS-CoV-2 waves and prevention of ongoing health problems from COVID-19 infection and reinfection.



***Personal story: Bianca, Parent, NSW***

*My 6-year-old twins contracted COVID from their primary school classroom in June this year. Porter is non-verbal autistic and attends a support unit. Fisher is also autistic and attends a mainstream classroom. Fisher was admitted to hospital at home as there were no beds at the John Hunter Hospital. He was hypoxic and extremely unwell requiring large amounts of steroids, both liquid and inhaled. Both twins then developed COVID pneumonia that required antibiotics. Administering medication to a non-verbal autistic child three times a day for 10 days was extremely traumatic for him. Fisher now needs an extra preventer asthma medication, as well as oral asthma medication. He has just returned to class this term after his illness in June. This is unsustainable. For their protection, I will continue to remove both children from the classroom when the number of COVID cases within the school rises.*

Chronic illness disrupts learning and leads to poor academic outcomes. Missing out on school creates gaps in learning. A study from University of Sydney and UNSW Sydney has found that children hospitalised due to chronic illness has impacts on school absenteeism, motivation and engagement with school learning, and also on peer relationships (Vukovic, 2021). Chronic illness of children or carers adds additional stressors on families and can lead to economic hardship (Van der Werf, 2019). We need to recognise that physical health has broader consequences for education, economic circumstances and psychological well-being.

There is also limited research on successes in therapies and clinical management of long COVID in Australia or globally (Lopez-Leon et al, 2022). Consequently, we need to err on the side of caution and be proactive in the prevention of long COVID through limiting transmission in schools.

**d. Occupational Health & Safety**

Schools are also workplaces that have specific legal obligations ‘to ensure the health and safety of workers so far as is reasonably practicable’ (OzSage, 2021b). Schools should assume there will be many teachers or staff with specific vulnerabilities and risks to COVID infection. More broadly, the well-being of school communities requires that school leaders manage COVID risks to teachers and their families. Many of the measures to protect worker safety requires government support to provide funding for ventilation assessments and measures, air purifiers and protocols based on levels of community transmission and risks.

***Personal story: Sarah, Teacher, Southeast Queensland***

*I had multiple colleagues come to school unwell and unmasked this week. They told me they were fighting off a cold all week and were now regretting having come to work. I know a member of staff has been told they needed to come to work and wear a mask due to having too many days off, despite them feeling sick. I am the mother to one high risk child and a Year 12 about to sit exams. I have made it clear about my concerns, yet colleagues are still attending school when sick and not wearing masks*

***Personal story: Larni, Teacher, Western Australia***

*I would like to know that I'm working in an environment that is as safe as possible, for all staff as well as the students. I am already immunocompromised as I have ME/CFS along with other autoimmune issues and I am sure there are other staff members and students with similar conditions. I have spent many months severely unwell and bedridden in the past, with the same symptoms as Long COVID sufferers. As a woman over 50 with these pre-existing conditions I am at a high-risk for contracting Long COVID.*

*I feel that contracting COVID in schools is accepted as an inevitable part of the job, but personally I think we need to take the utmost care to prevent transmission as much as possible. I have seen multiple staff come back to school looking exhausted after COVID-infection. I think schools need to plan around supporting staff to rest enough to prevent long COVID. Teachers and education staff are at the equal highest risk of any profession for contracting long COVID.*

Messaging from governments is crucial for schools to take the management of COVID-19 mitigation seriously. The main messages have been that COVID is mild for children and adolescents, and that vaccinations fully protect adults. This belief leads to lax measures in schools where staff believe students will just have cold symptoms and that they themselves are invulnerable to long COVID or organ damage. Clearly, there is an onus to provide additional practical measures to ensure schools are safe as outlined in the section on mitigations in this submission (pages 20-31).

**e. Obligations under the Convention on the Rights of the Child**

Australia is a signatory to the Convention on the Rights of the Child (CRC) (UNHRHC, 2022). Under the convention, a key feature is recognition of the right to health and education, and recognition of children as dependents who need protective families and communities.

In Australia, some advocates have argued that we should not sacrifice children's educational needs to protect adults and in-school attendance is essential. The CRC clearly allows for children's rights to be restricted to protect public health in circumstances like a global pandemic in Article 15 (2). The idea that kids were kept out of school to protect adults downplays the direct health impacts of COVID infection on children.

***Personal story: Kaz, Parent, Regional NSW***

*V has been very ill since her initial and second COVID infection. The impact of being sent to a demonstrably unsafe school environment every day has been catastrophic to V's mental health. She also faces stigma and ostracism over wearing a mask, particularly at school. We are considering applying to distance education due to the risks of reinfection, but V will not qualify for this as we do not have access to a specialist to support the application due to lack of services in regional NSW.*

*Many of the activities and groups V might participate in —if the risk of reinfection was sensibly reduced through ventilation measures, masking, etc — are out of reach for now because of the risk of reinfection. Australia's current approach to COVID means V and all children like her are excluded from fully participating in society*

Just as surprising is conceptualising children as individuals whose wellbeing is separate from their families and community. The CRC acknowledges that the 'child by reason of his physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth'. The CRC refers to families as essential for enacting children's rights, and states stepping in if needed to protect children.

COVID protections through lockdowns and remote learning periods in Australia has limited our awareness of the phenomenon of COVID orphans experienced overseas (Hillis et al., 2022). Having a parent in hospital can be a traumatic experience for kids. Losing a parent is even more devastating. It is linked to increased risk of substance abuse, dropping out of school, poverty and suicide. In the US alone, 200,000 American children lost parents or caregivers to COVID-19. On average there are two children in every public school who have lost a caregiver (Requarth, 2022). The CDC considers it a 'hidden and ongoing secondary tragedy caused by the COVID-19 pandemic' (2021).

***Personal story: Michelle, Regional NSW***

*We haven't sent our kids back to school and there is no distance education option. Our eldest child has severe asthma and my husband had 4X Coronary bypass in July 2019. We live in Armidale, rural NSW. We were concerned he would die when he was sent to ICU. Our family and his cardiac team are worried about post COVID sequelae and cardiac risk from COVID-19 infection. We have a 10- and 12-year-old who still need a father. As a social scientist, I very much understand the research about losing a parent in childhood. My husband was told to expect a "good 20 years" after his surgery. COVID could reduce that significantly. Home schooling and running a rural intermediary NDIS service has been a big burden on our family, and long COVID would make this even worse. We have been pushed out of the school system due to safety concerns for our family.*

The Convention on the Rights of the Child includes obligations to protect the health and safety of children and adolescents. State parties are required to ensure to the maximum extent possible the survival and development of the child. Article 24 has a focus on health with a particular focus on primary health care, combating disease and malnutrition. It was written with the needs of developing countries in mind. Now the pandemic has put children and adolescents in developed countries at greater risk of disease that undermines their right to development and health.

It is the position of COVID Safe Schools that it is important for children and adolescents to access education without sacrificing or risking their long-term health, or the health of their family members. As a developed, resource-rich country, Australia should balance both the right to education and the right to health for our young people. **This requires stemming infections in schools to prevent reinfection and long COVID through mitigation measures.**

**8. Measures to mitigate risks from COVID-19 in schools**

*COVID Safe Schools* recommends mitigation measures for every classroom across Australia. Our schools should be safe places because we cherish our young people and want to protect their health. The best way to prevent secondary transmission is to have layered protections in place.

We support OzSage recommendations for layered protections in schools with ventilation, air purifiers, masks and online learning options during periods of high community transmission (2021b).

In addition to using layered protections, there needs to be better implementation of COVID-safety measures by educating the educators about why this is important and how to manage the risks. Our children deserve better, and teachers need safe workplaces.

### a. Ventilation measures

Ventilation measures have co-benefits for health of teachers and students to support good learning outcomes, as well as reduce transmission of COVID-19 in schools (RCPCH, 2020). The benefits include: fewer missed school days by teachers and students due to respiratory illness; increased teacher retention; less disruption and learning gaps due to illness; ability to concentrate due to cleaner air; and better academic performance. “COVID-19 cases and mitigation strategies were tracked in schools in two cities in Missouri in December 2020. Schools that improved indoor air ventilation were found to have lower rates of transmission compared to the rest of the community” (Corsi et al., 2021, p. 3). Similar low case rates were found in Baden-Württemberg Germany in schools and childcare settings that improved ventilation (Corsi et al., 2021, p. 3).

Once infectious aerosols are released into the indoor environment, ventilation and air cleaning play critical roles in reducing infection risk by diluting, removing and inactivating infectious respiratory particles that accumulate in indoor air (Corsi et al., 2021, p. 7).

The WHO and all international air quality authorities recommend monitoring CO<sub>2</sub> in classrooms (when children are present over a day) to understand how much exhaled breath is being re-breathed. Ideally CO<sub>2</sub> should be below 800 ppm. Ventilation must be assessed by qualified engineers or industrial hygienists. It is not sufficient to simply say "open windows where possible" and hope for the best. Dutch classrooms have CO<sub>2</sub> monitors to track carbon dioxide levels indoors and monitor risks of infection (Dutch News, 2022).

COVID Safe Schools produced a submission to the NSW Parliamentary Inquiry on planning and delivery of school infrastructure in New South Wales. The document presents evidence of the NSW Education Department failure to conduct adequate safety audits, and to properly measure ventilation in schools.

For instance, the NSW Minister for Education and Early Childhood, Sarah Mitchell told parents they should be confident about sending their kids back to school because ‘the advice from experts is that maximising natural ventilation is the most effective method of minimising the spread of COVID-19’ (NSW Press Release 2021 cited in COVID Safe School submission). This is in direct contradiction to expert advice that confirms that: ***“sufficient natural ventilation cannot be guaranteed at all times... Mechanical ventilation systems can ensure a continuous air exchange throughout the year”*** (COVID Safe Schools 2022, p. 2).

Families have been given similar false assurances that schools are safe across Australia. In NSW alone, over 31,000 NSW teachers contracted COVID, 1 out of every 2 teachers (COVID Safe Schools 2022, point 46, p. 9). The majority of Australian children have been infected with the Omicron variant of SARS-CoV-2 in 2022 (ATAGI, 2022; Aubusson, 2022).

***Personal story: Jessica, Parent, Western Sydney***

*We moved our kids from a public to a private school purely based on ventilation measures to protect them from COVID infection. The public school has 100+ year old buildings relying exclusively on opening windows for ventilation. Initially, when we moved our kids to the new school they erred on the side of caution. Now, I feel duped as they were so good and proactive last year and not as stringent this year. They only told Senior students to mask to protect HSC students. It feels as if they only really care about results not the students themselves. They also sent out a notice for parents not to send kids to school if they are sick after a school leader contracted COVID. It feels like they only want to appear to care for our kids' health – and only when it suits them to do so.*

***Personal story: Rachel, Parent, Inner West Sydney***

*I am concerned about safety at the school. My daughter's classroom has no air purifiers, windows on one side that are often not open, and a door closed most of the time. The middle wall was knocked out so there are 60 kids and 2 teachers in the one space. My child's teacher returned from COVID isolation with a surgical mask that had been removed by the end of the day.*

**b. Masks provide another defensive barrier against COVID-19 infection**

Masks provide an important additional layer of defence against transmission of COVID-19 in schools. They are a relatively inexpensive option and can be normalised like wearing sunhats in summer. We argue that due to cultural factors, behavioural psychology, peer issues and science of one-way masking versus majority masking — there needs to be a traffic light system developed for making them mandatory in periods of high transmission. Optional masking is not working to create safe schools. We also present the evidence that masks work to limit transmission of COVID-19, with the additional co-benefit of prevention of the spread of other viruses.

**i. Masks are effective**

During the Victorian second wave, masks were essential in impacting the 'disease vector and infection reservoir' to contain spread across the population (Trauer, 2021). Public health Ontario (2022) concluded that there is a lower incidence of COVID-infection in schools with masking policies compared to schools without mask mandates for children — based on a substantial review of numerous studies from different countries on masks and schools. For instance, a review across all US counties showed nearly double the paediatric COVID-19 case rates for counties that

did not have mask mandates in schools. Boutzoukas and colleagues (2022) found districts with *optional masking* had 3.6 times the rate of secondary transmission versus districts *with mandatory masking*. Secondary transmission was limited where masking was mandatory. The study was based on contact tracing of over a million staff and students across primary and secondary schools.

A multi-variable German study of preschools and schools found masking among teachers and masking in children was a strong predictor of fewer secondary cases from infection. The Ontario Public health paper also notes heightened risks in transmissibility in new variants, risks of reinfection and increased risks of breakthrough infections and waning immunity (Ontario Public Health, 2022). This is the situation Australia is now facing with new variants.

A large review and synthesis of the literature on masks supports mask wearing to reduce the transmission of COVID-19 respiratory particles. It is supported by evidence from both clinical and laboratory contexts, as well as sociological considerations (Howard et al, 2021). The authors conclude that ‘public mask wearing is *most effective at reducing the spread of the virus when compliance is high*’ and *for control of the source of infection through masking* (p. 1). Due to ethical dilemmas in creating control groups, they suggest going back to first principles of avoiding and diminishing unacceptable harm, adhering to scientific understanding of the transmission properties of the disease, understanding biophysical contexts and analysing natural experiments. The focus is on the *population level of reducing risks as opposed to the individual level*. They cite a large study that shows transmission was 7.5 times higher in countries that did not have a mask mandate (pp. 3-4).

Another study by Kai et al. modelled at least 80% of the population wearing a mask compared to only 50%. They compared their modelling with empirical datasets to create a stronger evidence base for how masks suppressed expected growth rates of case numbers. Their models showed that 80-90% mask wearing could drastically reduce disease transmission (Cited in Howard et al, 2021, p. 4). This is supported by the real-world experiment in Victoria during the second wave where cases were brought down to 0 from 700 per day, with the qualification that better quality masks are required for Omicron (Hellard et al., 2022)

Furthermore, the science around transmission supports wearing masks since people are infectious prior to developing symptoms for many days, and they are infectious when symptoms are mild or not present (Howard et al. 2021, p. 5). Talking produces enough respiratory aerosols to stay airborne for them to be inhaled. Importantly, laboratory studies on source control found masks to be essential for reducing the risk of spreading viruses to others. *The science of masking*

*confirms the effectiveness of masking of the source of infection, and majority masking for preventing transmission. One-way masking is not nearly as protective (Howard et al. 2021).*

Another factor worth considering is masks reducing viral load exposure to give a better chance of fighting off infection quickly (Mackay 2022). **We are relying too much on the idea that children and teens have healthy immune systems to fight off COVID-19 quickly.** The evidence is emerging that even healthy people can end up with long COVID and organ damage, and that each COVID infection "rolls the dice" again . Masks are a physical barrier to the virus.

Omicron's increased transmissibility requires improved mask wearing and the quality of masks worn such as well-fitted N95 masks or equivalent (Reidiker, 2022). This requires education, enforcement and people understanding the nature of the risks of infection.

## **ii. Schools as specific sites that make them more risky**

Masks are particularly important for preventing transmission in schools.

- Schools have large populations where normal school activities can turn into superspreader events, such as concerts and weekly assemblies. With large primary schools (1000 students) and large secondary schools (2000 students) there is significant potential to seed spread through families into different workplaces and the wider community.
- Physical distancing is not possible in classrooms, crowded locker bays and corridors.
- Students and staff spend many hours in indoor environments
- Students and staff mingle across cohorts, increasing risk of spreading COVID.
- Many behaviours in school contexts inadvertently maximize the distribution of infectious aerosols: for example, loud vocalizations from talking and choir singing (Peng et al., 2022).
- Children and teens are more likely to have mild or no symptoms, increasing the risk of an infectious person attending school – even more so now that mandatory isolation has been removed

Students and teachers can be silently spreading COVID prior to staying home or masking. According to the science around COVID-19 transmission, people can be infectious if they have mild symptoms, no symptoms and prior to developing symptoms. This makes it even more imperative for masks to be an essential part of the arsenal in fighting transmission in schools, families and the wider community.

## **iii. Masks and younger children**

There is a debate around the efficacy of wearing masks, especially for younger children. A study of data from 1000 pre-K-2 students and 1048 school days based on reporting in multiple schools



across a school district in a major city in North Georgia in the US showed that *mean for mask usage was about 76.9% of full compliance*. Teachers were also asked to report on challenging times of the day or week for mask usage, and adverse events such as anxiety or stress, headaches, ears hurting or hearing difficulties due to mask wearing. The teachers did spend effort on getting younger students to wear masks properly. The authors conclude that younger primary students can reliably wear masks for significant periods of the school day (Mickells et al. 2021).

According to the American Academy of Pediatrics (AAP) 'face masks can be safely worn by all children 2 years of age and older' and masks prevent the spread of other respiratory infections (2022a). In response to recent CDC (US Centre for Disease Control) guidelines, the AAP is still advising of the need to protect young children who are not immunised or children with waning immunity in high transmission environments (2022c).

#### **iv. Masks: social and cultural factors, and government messages**

The idea that people can 'choose' to mask is dismissive of sociological and psychological factors. Political leaders have also conveyed strong messages that masks are no longer needed.

- Politicians do not model wearing masks in public.
- The message has been conveyed that the pandemic is over, and that masks are only for those who have vulnerabilities. Consequently, masks are now viewed as a sign of weakness or people being overly anxious, rather than individuals being informed by medical science and knowledge of risks.
- The mantra of personal responsibility has created potential conflicts within families and on a personal and workplace level, as individuals try to do protective behaviours against the societal view that the risk is over.
- The removal of isolation requirements means mask-wearers are viewed as potential virus carriers. It also means there is a stigma of wearing a mask when sick with COVID-19.
- As mask-wearers have become a minority, the level of hostility increases. Psychologically a mask is a reminder of the continuing threat.
- The message around personal choice for individuals to wear masks undermines the earlier perceptions that mask wearing was about protecting others and the community (Lee, 2022b)
- The science is clear: one-way masking is insufficient to protect the mask-wearer over extended periods exceeding 1.25 hours (Vogel, 2022).

Just as concerning is the inadequacy of public health messages on how to wear masks properly.

***Personal story: Mary, Parent, NSW***

*My kids are virtually the only ones masking at school. The one teacher that did mask has now left due to her own health vulnerabilities & changes to COVID rules putting her health at even more risk. She was a great teacher who had to remove herself for her own good/well-being.*

‘Perception of risk plays an important role in mask use’ (Howard et.al. 2021, p. 8), as does government messaging (Seale, 2022). Some countries like Hong Kong have high levels of mask wearing without mandates due to previous experience with SARS and cultural norms around mask wearing. Fortunately, Australians have not had the experience of SARS-1 and have been relatively protected for two years of this pandemic. The downside is the population does not take the risks of COVID-19 infection as seriously as they should.

***Personal story: Victoria, Parent, NSW***

*Our family experienced our first infections in December 2019 after my husband went to a party in London where there were people from Milan. We uprooted from the UK and moved to Australia to escape the lax approach to infection in schools.*

*Our 3-year-old had a 45-minute seizure that was terrifying when she was infected in 2019. Days later she was hospitalised again for croup, and she was hospitalised a third time when she became lethargic and floppy. I lost my sense of smell. By March of the following year, I had chest pains and was losing a lot of weight. I was hospitalised with suspected stroke. I experienced ongoing chest pains, choking (dysphagia) and pain/tingling down one side. At a doctor’s appointment I was told I had anxiety. I have now had long COVID for 2 and a half years. I had no prior underlying health conditions. My husband has Stage 4 kidney disease, so he is severely immunocompromised. The risk to our family from another COVID infection is significant.*

*The changes to isolation in Australia have been extremely difficult. We are watching the situation closely and will pull our kids out as soon as we need to. Our kids are masking, but one way masking is not enough to protect our family. We are now living a nightmare for a second time around with the rush to normal undermining public safety.*

The removal of protective measures has amplified lack of risk assessment. Additionally, some people assume that with vaccination they are protected and that they cannot be reinfected with COVID-19 (Cunningham, 2022).

In this context, mask mandates are important to protect the population during high transmission periods, and for shifting the culture to masking to protect others.

There are additional factors at play with mask-wearing including social pressures, peer pressure, altruism and community sentiment, free-riding, pandemic fatigue, COVID denialism and non-compliance (Bir & Widmar 2021; Betsch et.al., 2020). Rural doctors Australia put out a media release calling for a mask mandate again to reduce the pressure on the hospital system:

“Most people seem happy to wear a mask but when they go out somewhere and no-one else is wearing one, it can be a little intimidating being the only person with a mask on. We need to take peer pressure out of the equation “(RDAA, 2022).

This is even more of an issue for children and adolescents navigating social and peer pressure in schools. Families who want to maintain protective behaviours are increasingly in the minority. They are given the choice to either opt out of schooling to home school or send kids to schools where masking is not the norm with potential social or health risks.

***Personal story: Sarah, Teacher, Southeast Queensland***

*My kids and I still mask. The school psych recommended my child should remove her mask because she was being bullied. I imagine there is about 3 of us that continue to mask in a staff of 200. As restrictions have eased my children are reluctant to socialise indoors. My husband and I disagree often about risks and he sits near us in the house when he is unwell without thought because “this is the new norm”.*

***Personal story: Penny, Parent, Brisbane QLD***

*At my children’s school of 800+ students, there are no teachers wearing masks and only one other child besides my two wearing masks daily. I wear my mask for drop-offs and pick-ups each day, but I feel ostracised by the school community as no other parents wear masks, despite regularly passing kids coughing. One parent even confronted me to say that I need to move on.*

Mask-optional schools places immense pressure on kids to not wear masks. The impetus is towards social conformity and kids no longer wearing masks (Woodcock & Schulz, 2021).

- Making masks mandatory relieves the social pressures on kids and teachers through normalisation of protective behaviours for the whole school community.
- The majority wearing masks provides extra protection to students who are unable to wear masks for medical reasons.
- Mandatory masks are a small price to pay for safety in schools where one-way masking is not a protective enough measure for families during major waves.
- Furthermore, mandatory masking is even more necessary with the removal of mandatory reporting of RATS and mandatory isolation.
- There is evidence that mandatory masks in schools limit transmission. An American study on masking discovered districts with optional masking had 3.6 times the rate of secondary transmission to districts with mandatory masking. Secondary transmission was limited where masking was non-optional. The study was based on contact tracing of over a million staff and students across primary and secondary schools (Boutzoukas 2021).

There is limited data on the impact of changing government advice, from mandatory masks to 'highly recommended', on the level of mask-wearing in Australian schools. Anecdotally, there is evidence of widespread dropping of masks in schools as soon as they were no longer mandated in Victoria.

***Personal story: Tania, Teacher, Melbourne***

*It was an extreme shift. We had 100% compliance when it was compulsory, and it went down to between 5-10% once only highly recommended. Very low rates of mask wearing since then.*

One-way masking is not enough protection (Shihpar, 2022; Vogel, 2022). Masking instils a sense of community and the idea of caring for each other within schools.

Even if not mandated by public health order, schools (like any workplace) should require masking at times of elevated risk, supported by education as to purpose and effective types and usage.

**v. Education and enforcement of masking by schools and educators**

Unlike many other social contexts, schools have greater ability to enforce mask wearing and communicate expectations of compliance. Mandating masks is like enforcing other rules such as uniforms or wearing sunhats over summer in Term 1 and Term 4.

Schools could potentially be a source of information and education to promote COVID protective behaviours in families. A traffic light system of community levels of transmission and government notices of waves could be used to move from optional to highly recommended to mandatory masking in schools

This will only be effective if governments follow through with clear communication. Schools need to be informed about the dangers of this virus to young people, Duty of Care obligations and basics of science on COVID-19 transmission.

**c. Air purifiers**

Cold winter months, bushfire season and pollen seasons limit the ability of schools to continuously open windows and doors for ventilation of classrooms. There are also many school spaces and buildings where ventilation is poor, and solutions are difficult and expensive. All Victorian classrooms and staffrooms have air purifiers although it is uncertain whether they are adequate for the spaces and number of people crammed into them. They are a necessary addition to layered measures. Victorian schools were informed they should open windows every hour for 10 minutes in combination with turning air purifiers on high throughout the school day.

This measure needs to be extended to every classroom and staffroom across all Australian states and territories, at least until ventilation has been properly addressed.

**d. Moving beyond half-hearted implementation of COVID-safe measures in Australian schools.**

As with all measures, implementation is important. School teachers need to know why it is important to keep their community safe. Preventing COVID transmission should be seen as an extension of other professional duties to protect children’s health and safety, protect staff and follow basic protocols. This requires government leadership, developing protocols, training, and provision of resources to schools.

***Personal story: Michelle, Parent, Western Australia***

*Two kids out of 24 in the class haven’t had COVID. We have home schooled when there are lots of cases. Teachers do not understand scientific principles and close the windows if it is “too cold”. As a journalist, I am informed about the health risks to my kids and family. Lots of kids are getting very sick with RSV. Parents are not connecting the dots to prior COVID infection. I feel like I am viewed as an overprotective mother.*

The goal should be to reduce transmission of COVID-19 in schools as much as possible to reduce the numbers of long COVID sufferers. Nonetheless, there are many Australian students and school staff who will already be suffering from long COVID and other health impacts.

Teachers and schools will need information and training to address the needs for families and staff members who develop long COVID. Schools should be caring communities that cater for all learners and families. They need to be able to adjust expectations, learning environments and learning tasks to cater for students who are struggling with ill health due to COVID infection.

**Personal story: Kaz, Parent, Regional NSW**

*We've had little additional support from the school until very recently, despite multiple requests through her classroom teachers, the school psychologist, and the deputy principal. These requests have been ignored or dismissed. I know the staff want the best for V, but their understanding of the dangers of COVID is severely lacking and there is a great deal of cynicism about long COVID.*

*One administrator said to me "if long COVID was real, the government would never let us catch COVID over and over again". On more than one occasion, school staff have suggested to me that her illness is actually "just anxiety" despite the provision of multiple medical certificates that say otherwise.*

*It's clear our school leadership has no understanding about long COVID, and the onus has been on us to educate them. This is unacceptable given how common long COVID is and given we are allowing rampant infection and reinfection in schools. Soon every class will have multiple children who suffer from long COVID. The health and mental health of those kids is a looming crisis that needs urgent intervention.*

*Teachers, principals and school counsellors must be educated better about the risks of COVID infection and how to support kids with long COVID.*

Schools also need to be better at dealing with families who are trying to be protective during a pandemic, or parents who are concerned about worsening health consequences of reinfection.

**Personal story: Mary, Parent, NSW**

*Our family is being pressured by the school about attendance despite our family having known medical reasons for absences.*

*Our 18-year-old daughter has an autoimmune thyroid disease and requires radioactive iodine treatment after not successfully being able to sustain remission from her disease. Our 12-year-old son has an autoimmune eye disease and has had 6 eye surgeries in the last two years. Having 2 children within the family with health challenges requiring ongoing treatment and surgical interventions has impacted the whole family unit.*

*The emphasis on attendance with the return to face-to-face learning has added stress to our family. The Assistant Principal advised our 16-year-old daughter she will not achieve her HSC if she has one more day off school, despite good medical grounds for her absences to protect herself and her younger brother. The threat has diminished her motivation. We feel we have done well to get our oldest and youngest children with medical issues through COVID unscathed, and to navigate the health system at a time it was buckling. It was like threading a needle whilst riding a roller coaster, and still is!*

The messages that children and teens do not get sick from COVID has significant implications for how schools have been addressing the real needs of families with sick children. There is a major information deficit on long COVID and other longer term health impacts of COVID in schools. This needs to be redressed.

#### **e. Vaccines and boosters**

Vaccines are important for reducing the risk of severe disease, hospitalisation and mortality. Unfortunately, new variants mean we cannot just rely on a vaccine-only strategy. Presently, vaccines are only available for children 6 months to 4 years for children who are immunocompromised, children with a disability and some other children with complex health conditions. Children aged 5-11 and 12-15 years old can only access two doses of vaccines. They are not eligible for a booster dose unless they have complex or multiple medical conditions. Teenagers over 16 can access booster doses.

The message that COVID is mild in children may be one factor in the slow uptake in COVID-19 vaccination of children and adolescents. As of 26 October 2022, vaccine coverage for people aged 5-15 is 61.6% for first doses and 53.1% for the second dose nationally (Department of Health and Aged Care, 2022). Many children and teens of families that want to take up vaccines now have waning immunity. Additionally, countries that are relying on vaccination only (like the US) have recommended that children 5-17 have 2 doses and stay up to date with boosters – including the latest bivalent vaccines – meaning that US kids who are up to date have had at least 4 doses (CDC 2022d; PBS, 2022).

#### **f. Remote Learning**

A common complaint of many Covid Safe Schools parents is that they were denied the choice to keep children away from school at times of high COVID risk. Reasons for wanting to "learn from home" include children with medical conditions that elevate their risk of serious outcomes from COVID infection, children who live with family members at high risk due to medical issues or old age, or simply that parents choose caution over good luck. While school principals have the authority to grant leave on a case-by-case basis, it is unacceptable that a decision with potentially life-changing consequences should be left to the whim of individuals who are not qualified to make medical decisions. CSS believes that there should be a consistent policy that "pandemic leave" should be granted unless there are compelling reasons to deny an application.

### **9. Conclusion**

COVID Safe Schools believes that governments need to take protective action to prevent long COVID through reducing transmission in schools with a combination of mitigation measures and better messaging. At this stage teachers believe that the vaccine protects them against significant illness and parents think that their children are not vulnerable to health risks from COVID infection. Governments need to lead with messaging about risks and how to manage those risks.

Government policies should prioritise making schools safer to limit transmission and to protect families.

Government policies have progressively put families at greater risk from reinfection, long COVID and long-term sequelae of COVID infection. 'Hybrid immunity' through infection combined with vaccines is a risky strategy in terms of health impacts, and is proving elusive with new variants getting better at evading immunity. It is time for Australia to lead again on reducing infections to protect the health of our population. Schools need to be safe spaces, not a risk to health. Otherwise, we can only conclude that compulsory schooling has become part of forced infection with wilful ignorance to the consequences for our young people and school staff, who deserve better.

## **10. Recommendations**

**Recommendation 1:** Governments need to prioritise protecting young people from infection and reinfection whilst they attend school, a compulsory activity that is a requirement for participation in society and the economy. Australian schools need to implement measures to reduce transmission to minimise harm, and to reduce the numbers of students and staff with long COVID due to infection.

**Recommendation 2:** Governments should commit to a Vaccine-Plus strategy of ventilation, filtration and masking when required, since new variants are racing ahead of vaccine development.

**Recommendation 3:** Schools should adopt a consistent policy of granting pandemic leave for students on request, unless there are compelling reasons for refusal. Existing distance education options should be expanded to allow for children on pandemic leave to enrol.

**Recommendation 4:** Schools should require masks at times of elevated risk for all students and staff unless exempted, accompanied by education about effective types and usage.

**Recommendation 5:** Conduct ventilation audits and real-time CO2 monitoring of classrooms and implement appropriate indoor air quality measures, designed by engineers and occupational hygienists. Air purifiers should be installed in the short term.

**Recommendation 6:** Students or staff with symptoms must not attend school, and should use RAT or PCR tests. If COVID positive, negative RATs for two consecutive days should be required before return.



**Recommendation 7:** Governments should provide enough sick leave to encourage a protective culture, so teachers rest properly to try to avoid long COVID. Schools should encourage students to rest after COVID to avoid long COVID.

**Recommendation 8:** The Federal government should provide funding for air purifiers in every classroom and staffrooms across Australia.

**Recommendation 9:** COVID-safety measures for school camps and excursions to include two RAT tests and with forms signed by parents on the day of departure, validate camp building and school ventilation, mandatory masking on transport, preference for eating outdoors and ventilation of dining areas. Schools need to be supported with checklists and protocols.

**Recommendation 10:** Promote COVID safe education in schools based on scientific principles of transmission, management of risks and links to professional principles, including:

- Communicate the real risks of long COVID on students and staff so whole-school staff take pandemic management seriously.
- Training on mask-wearing, how to use air purifiers and the how and why of ventilation/outdoor lessons.
- Education on airborne disease mitigation by qualified educators who follow core modules and protocols developed by Health and Education departments with consistency across Australia.
- Emphasis on school's responsibilities in Duty of Care, Disability Discrimination, OHS/WHS, and broader values of caring for families and communities.

**Recommendation 11:** Effective implementation of mitigation measures is key to limiting transmission in schools. Governments need to lead through a change in messaging around the dangers of COVID-19 infections and how to prevent them in schools. This needs to be tailored specifically to school contexts, as well as public messaging for a collective effort to protect young people in schools.

**Recommendation 12:** Creating a COVID safety inspection and support workforce for schools.

- Training school nurses and leaders on COVID-safe scientific principles
- Creating a COVID safety inspection and support workforce for schools.
- Funding and providing ventilation audits and upgrades for schools
- Collecting data on school implementation of measures and identifying gaps and solutions

**Recommendation 13:** Schools and governments should develop a traffic light type system for schools to implement protective measures based on varying risk. A preventative and proactive

approach should underpin this system. Long-COVID and reinfections of children can no longer be ignored and the best way to prevent these is to reduce transmission in schools.

**Recommendation 14:** Develop information, resources and protocols about long COVID for schools. This should include information to parents, school administrators, school counsellors, school nurses and medical professionals specific to the needs of children and teens with long COVID, who need more flexibility with attendance, accommodations for testing, rest periods, modified tasks and online schooling options to meet their educational and health needs (CDC 2022b).

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## 11. References

ABC, 2021, Victorian school student mask mandate widens as state records 1838 COVID cases and five deaths, *Australian Broadcasting Corporation website*, 9 October 2021,

<https://www.abc.net.au/news/2021-10-08/victoria-COVID-cases-school-student-mask-mandate-vaccine-target/100522902>

ABC 2022a, Victorian schools hit with staff shortages amid COVID-19 and flu outbreaks, *Australian Broadcasting Corporation website*, 18 May 2022,

<https://www.abc.net.au/news/2022-05-18/victorian-schools-deal-with-flu-COVID-crisis/101075754>

ABC 2022b, More than 4,500 students reported COVID-19 infections last week as Victoria records seven new deaths, *Australian Broadcasting Corporation website*, 7 February 2022,

<https://www.abc.net.au/news/2022-02-07/victoria-records-new-COVID-deaths-hospitalisations-cases/100809372>

ABC, 2022c, Omicron has already affected 107 WA schools, and that's just the start as COVID-19 takes hold, *Australian Broadcasting Corporation website*, 22 February 2022,

<https://www.abc.net.au/news/2022-02-23/wa-schools-are-facing-an-omicron-wave/100852626>

ABC, 2022d, Mandatory COVID-19 isolation periods scrapped from October 14, emergency response "finished" says national cabinet, *ABC website*, 30 September,

<https://www.abc.net.au/news/2022-09-30/COVID-19-isolation-period-dropped-national-cabinet/101489566>

Al-Aly, Z, Xie, Y & Bowe, B 2021, High dimensional characterization of post-acute sequelae of COVID-19, *Nature*, 594, 10 June, pp. 259-283. <https://doi.org/10.1038/s41586-021-03553-9>

Al-Aly, Z, Bowe, B & Xie, Y, 2022, Long COVID after breakthrough SARS-CoV-2 infection, *Nature Medicine*, 28, pp. 1461-1467. <https://www.nature.com/articles/s41591-022-01840-0>

AAP — see American Academy of Pediatrics

American Academy of Pediatrics, 2022a, Face masks and other prevention strategies, *Critical Updates on COVID-19, COVID-19 Interim Guidance*, 30 June, <https://www.aap.org/en/pages/2019-novel-coronavirus-COVID-19-infections/clinical-guidance/face-masks-and-other-prevention-strategies/>

American Academy of Pediatrics, 2022b, Post-COVID 19 conditions in children and adolescents, *Critical Updates on COVID-19, Clinical Guidance*, Accessed 7 October 2022. <https://www.aap.org/en/pages/2019-novel-coronavirus-COVID-19-infections/clinical-guidance/post-COVID-19-conditions-in-children-and-adolescents>

American Academy of Pediatrics, 2022c, Media release: American Academic of Pediatrics offers new masking recommendations for families following updated CDC guidance', *Critical Updates on COVID-19, COVID-19 Interim Guidance*, 3 January, <https://www.aap.org/en/news-room/news-releases/aap/2022/american-academy-of-pediatrics-offers-new-masking-recommendations-for-families-following-updated-cdc-guidance/>

American Conference of Government Industrial Hygienists (ACGIH), 2022, COVID-19 Fact sheet: workers need respirators, *ACGIH website*, <https://www.acgih.org/COVID-19-fact-sheet-worker-resp/>

AITSL, 2021, *Australian Teacher Workforce Data: National Teacher Workforce Characteristics Report*, December 2021, Australian Institute for Teaching and School Leadership Website, [https://www.aitsl.edu.au/docs/default-source/atwd/national-teacher-workforce-char-report.pdf?sfvrsn=9b7fa03c\\_4](https://www.aitsl.edu.au/docs/default-source/atwd/national-teacher-workforce-char-report.pdf?sfvrsn=9b7fa03c_4)

ATAGI, 2022, *ATAGI recommendations for a booster dose of a paediatric Pfizer COVID-19 vaccine in children aged 5 to 11 years*, 24 October 2022, <https://www.health.gov.au/news/atagi-recommendations-for-a-booster-dose-of-the-paediatric-pfizer-COVID-19-vaccine-in-children-aged-5-to-11-years>

Aubusson, K, 2022, Up to 90% of Australian children have had COVID, *The Sydney Morning Herald*, 3 November, Accessed 3 November 2022, <https://www.smh.com.au/national/up-to-90-per-cent-of-australian-children-have-had-COVID-20221102-p5buxs.html>

Ault, A, 2022, Diagnosing kids with long COVID can be tricky: experts, *WebMD*, 15 August, <https://www.webmd.com/lung/news/20220815/diagnosing-kids-long-COVID-tricky-experts>

ABS — see Australian Bureau of Statistics

Australian Bureau of Statistics (ABS), 2022, Schools: data on students, staff, schools, rates and ratios for government and non-government schools, for all Australian states and territories, Reference period 2021, Released 23 February 2022, <https://www.abs.gov.au/statistics/people/education/schools/latest-release>

Barber, C, 2022, Strokes, heart attacks, sudden deaths: Does America understand the long-term risks of catching COVID?, *Fortune*, 7 October 2022.

Basu, B & Gangdev, S, 2021, Investigation: emails show Bonnie Henry knew of concerns over BC's COVID-19 data and school exposures while publicly downplaying them, *Capital Daily*, 24 October.

Betsch, C, Korn, L, Sprengholz, P & Böhm, R, 2020, Social and behavioural consequences of mask policies during the COVID-10 pandemic, *PNAS*, 8 September, 117, 36, pp. 2185`-21853. <https://www.pnas.org/doi/epdf/10.1073/pnas.2011674117>

Biddle, N & Korda, R 2022, The experience of COVID-19 in Australia including long-COVID – evidence from the COVID-19 Impact Monitoring Survey Series, August, ANU, Centre for Social Research and Methods.

Bir, C & Widmar, NO, 2021, Social pressure, altruism, free-riding and non-compliance in mask wearing in US residents in response to COVID-19 pandemic, *Social Science and Humanities Open*, 4, pp. 2590-2911. <https://www.sciencedirect.com/science/article/pii/S259029112100125X>

Bjorklund, K & Ewing, A, 2020, The Swedish COVID-19 response is a disaster. It shouldn't be a model for the rest of the world, *Time*, 14 October, <https://time.com/5899432/sweden-coronavirus-disaster/>

Bunce, K 2022, Teachers are disproportionately affected by long COVID according to new data, *Birmingham Eastside*, 14 January, <https://birminghameastside.com/teachers-are-disproportionately-affected-by-long-COVID-according-to-new-data/>

Campbell, E, 2022, COVID-19 review used 'misleading' data, says epidemiologist, *Campus Review*, 24 October 2022, <https://www.campusreview.com.au/2022/10/pandemic-review->

[used-misleading-data-says-infectious-diseases-expert/?fbclid=IwAR2U9\\_ZnesItTrAcLTnb0qUx-GYj3rH42kL4YNgJxhw7tzfy9oXKg96iAI0](https://www.theguardian.com/world/2022-mar-26/cassidy-rising-covid-cases-force-some-schools-in-nsw-and-victoria-to-return-to-remote-learning)

Cassidy, C, 2022, Rising COVID cases force some schools in NSW and Victoria to return to remote learning, *The Guardian*, 26 March.

CDC— see Centers for Disease Control and Prevention

Centers for Disease Control and Prevention, 2021, Press release: The hidden US COVID-19 pandemic: orphaned children – more than 140,00 US children lost a primary or secondary caregiver due to the COVID-19 pandemic, *CDC Newsroom*, 7 October 2021, <https://www.cdc.gov/media/releases/2021/p1007-COVID-19-orphaned-children.html>

Centers for Disease Control and Prevention, 2022a, *Long COVID: Household Pulse Survey*, Accessed 5 October 2022. <https://www.cdc.gov/nchs/COVID19/pulse/long-COVID.htm>

Centers for Disease Control and Prevention, 2022b, *Caring for people with long COVID*, 1 September 2022, <https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/care-post-COVID.html>

Centers for Disease Control and Prevention, 2022c, *Nearly one in five American adults who have had COVID-19 still have “long COVID”*, National Centre for Health Statistics, Centers for Disease Control and Prevention, [https://www.cdc.gov/nchs/pressroom/nchs\\_press\\_releases/2022/20220622.htm](https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2022/20220622.htm)

Centers for Disease Control and Prevention, 2022d, Stay up to date with Covid-19 vaccines including boosters’, 1 November, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/stay-up-to-date.html>

CDI — see Communicable Diseases Intelligence

Communicable Diseases Intelligence, 2022, *COVID-19 Australia: epidemiology report 63*, Reporting period ending 3 July 2022, 46, 1 August.

Chemaitelly, H, Almkudad, M, Houssein, HA, Atarawneh, HN, Coyle, P, Tang, P, Yassine, HM, Hebah, A, Al-Khatib, HA, Smatti, MK, Hasan, MR, Al-Kanaani, Z, Al-Kuwari, E, et al, 2022, COVID-19 vaccine protection among children and adolescents, *The New England Journal of Medicine*, 2 November, DOI: 10.1056/NEJMoa2210058

Chertow, D, Stein, S, Ramelli, S, Grazioli, A ... Kleiner, D, 2021, SARS-CoV-2 infection and persistence throughout the human brain and body, *Research Square preprint*, 20 December, <https://www.researchsquare.com/article/rs-1139035/v1>

Children's Task and Finish Group, 2020, *Update to 4<sup>th</sup> November 2020 paper on children, schools and transmission*, 17 December 2020, Accessed 10 October.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/948617/s0998-tfc-update-to-4-november-2020-paper-on-children-schools-transmission.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/948617/s0998-tfc-update-to-4-november-2020-paper-on-children-schools-transmission.pdf)

CNN, 2021, New Omicron variant fills up children's hospitals in United States, *9 News*, 29 December, <https://www.9news.com.au/national/united-states-coronavirus-update-new-omicron-variant-fills-up-childrens-hospitals-in-new-york/3c8f26b5-9e0d-4f5b-8171-97394a8ec57d/>

Corsi, R, Miller, S, VanRy, MG, Marr, LC, Cadet, LR, Pollock, NR, Michaels, D, Jones, ER, Levinson, M, Yuguo, L, Morawska, L, Macomber J, Allen, JG, 2021, Designing infectious disease resilience into school building through improvement to ventilation and air cleaning, *The LANCET COVID-19 Commission Taskforce on safe work, safe school and safe travel*, April.

COVID Safe Schools, 2022, Submission to the NSW Parliamentary Inquiry on planning and delivery of school infrastructure in New South Wales, 7 September 2022.

Cox, D, 2022a, How children are being affected by long COVID, *BBC*, 1 March.

Cox, D 2022b, Long COVID symptoms in children rarely persist beyond three months, *Murdoch Children's Research Institute*, 17 September. <https://www.mcri.edu.au/news-stories/long-COVID-symptoms-children-rarely-persist-beyond-three-months>

Gurdasani, D., Akrami, A., Bradley, V.C., Costello, A., Greenhalgh, T., Flaxman, S., McKee, M., Michie, S., Pagel, C., Rasmussen, S. and Scally, G., 2022. Long COVID in children. *The Lancet. Child & Adolescent Health*, 6(1), p.e2, <https://www.thelancet.com/action/showPdf?pii=S2352-4642%2821%2900342-4>

Department of Health and Aged Care, 2022, Vaccination numbers and statistics, 26 October 2022, <https://www.health.gov.au/initiatives-and-programs/COVID-19-vaccines/numbers-statistics>

DiTrollo, M, 2021, For teachers, going to work can mean life or death, *Marie Claire*, 20 September 2021, <https://www.marieclaire.com/politics/a37465999/florida-teacher-COVID-essay/>

Ducharme, J, 2022, Why you should rest – a lot- if you have COVID-19, *Time*, 23 September 2022, <https://time.com/6215346/COVID-19-rest-helps/>

Dutch News, 2022, Dutch News: CO2 monitors to be mandatory in all Dutch classrooms, *Dutch News*, 30 September, Accessed 28 October 2022,

<https://www.dutchnews.nl/news/2022/09/co2-monitors-to-be-mandatory-in-all-dutch-classrooms/>

Education VIC, 2022, School operations: Infectious diseases', Victorian Department of Education, Accessed 30 October 2022, <https://www2.education.vic.gov.au/pal/infectious-diseases/policy>

Goldstein, E, Lipsitch, M & Cevik, M 2020, 'On the effect of age on the transmission of SARS-CoV-2 in household, schools and the community' Cited in WHO 2020, Update 39 – What we know about COVID-19 transmission in schools, Technical Document, 23 October 2020.

Gollier, C & Treich, N, 2013, 'Resources', In Encyclopedia of Energy, Natural Resource and Environmental Economics, <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/precautionary-principle/pdf>

Grattan, M, 2022, Australia's COVID response was 'overreach' and worsened existing inequalities, according to the independent review, *The Conversation*, 20 October, <https://theconversation.com/australias-COVID-response-was-overreach-and-worsened-existing-inequalities-according-to-independent-review-192849>

Hellard, M, Crabb, B, Toole, M, Baxter, N & MacIntyre, R, 2022, *Act on the evidence to improve COVID control*, Burnet Institute, 28 July, [https://burnet.edu.au/news/1656\\_act\\_on\\_the\\_evidence\\_to\\_improve\\_COVID\\_control](https://burnet.edu.au/news/1656_act_on_the_evidence_to_improve_COVID_control)

Herrero, L, 2022, 'I've had COVID and am constantly getting colds. Did COVID harm my immune system? Am I now at risk of other infectious disease?', *The Conversation*, 19 September 2022, <https://theconversation.com/ive-had-COVID-and-am-constantly-getting-colds-did-COVID-harm-my-immune-system-am-i-now-at-risk-of-other-infectious-diseases-188899>

Hillis, S, Ntwali N'konzi, J-P, Msemburi, W, Cluber, L, Villavaces, A, Flaxman, S, Unwin, JT, 2022, 'Orphanhood and caregiver loss among children based on new global excess COVID-19 death estimates', *Research Letter*, 6 September, 176, 11, pp. 1145-1148, doi:10.1001/jamapediatrics.2022.3157

Honey, M, [@MikeHoney], 2021, Astonishing to me that this repeated pattern of large education clusters has been ignored for so long – entering its 7<sup>th</sup> straight week now...Clean air is not rocket science [Tweet]. Twitter.

[https://twitter.com/Mike\\_Honey/status/1463347214214828032?s=20&t=E9WOiG3YjXDB-8G8-jZ-Hw](https://twitter.com/Mike_Honey/status/1463347214214828032?s=20&t=E9WOiG3YjXDB-8G8-jZ-Hw)

Howard J, Huang A, Li Z, Tufekci Z, Zdimal V, van der Westhuizen HM, von Delft A, Price A, Fridman L, Tang LH, Tang V, Watson GL, Bax CE, Shaikh R, Questier F, Hernandez D, Chu LF, Ramirez CM, Rimoin AW. An evidence review of face masks against COVID-19. *Proc Natl Acad Sci U S A*. 2021 Jan 26;118(4), <https://pubmed.ncbi.nlm.nih.gov/33431650/>

Hyde, Z 2020, COVID-19, children and schools: overlooked and at risk, *Medical Journal of Australia*, 213, 10, 25 October, Accessed 10 October 2022.

<https://onlinelibrary.wiley.com/doi/full/10.5694/mja2.50823>

Hyde, Z, 2021a, Children may transmit COVID at the same rate as adults: what we know about schools and COVID-19. Accessed 10 October 2022.

<https://onlinelibrary.wiley.com/doi/10.5694/mja2.50934>

Hyde, Z, 2021b, Letters: COVID-19, children and schools: overlooked and at risk, *MJA*, 214, 4, 1 March, pp. 190-191. Accessed 10 October 2022.

[https://www.mja.com.au/system/files/issues/214\\_04/mja250934.pdf](https://www.mja.com.au/system/files/issues/214_04/mja250934.pdf)

Imaging Technology News, 2022, Lasting lung damage seen in children and teens after COVID, *Imaging Technology News*, 20 September, <https://www.itnonline.com/content/lasting-lung-damage-seen-children-and-teens-after-COVID>

Johnson, K, 2022, Schools are significant sites of COVID transmission, *Medscape*, 3 October, <https://www.medscape.com/viewarticle/981770>

Jones, TC, Biele, G, Muhlemann, B, Veith, T, Schneider, J ... Drosten, C, 2021, Estimating infectiousness throughout SARS-CoV-2 infection course, *Science*, 25 May, 373, 6551,

<https://www.science.org/doi/10.1126/science.abi5273>

Katella, K, 2021, What happens when kids get long COVID?, *Yale Medicine*, 2 November,

<https://www.yalemedicine.org/news/long-COVID-in-kids>



Kelly, C, 2021, COVID outbreaks have shut more than 320 schools across NSW and Victoria in the past three weeks, *The Guardian*, 24 October, <https://www.theguardian.com/australia-news/2021/oct/24/COVID-outbreaks-have-shut-more-than-320-schools-across-nsw-and-victoria-in-past-three-weeks>

Kendall, EK, Olaker, VR, Kaelber, DC, Xu, R & Davis, PB, 2022, Association of SARS-CoV-2 infection with new-onset Type 1 Diabetes among pediatric patients from 2020 to 2021, *Research Letter: Infectious Diseases*, 23 September, 5, 9, doi:10.1001/jamanetworkopen.2022.33014

Kompaniyets, L, Bull-Otterson, L, Boehmer, TK, Baca, S, Alvarez, KH, Hsu, J, Harris, AM, Gundlapalli, AV, Saydah, S, 2022, Post-COVID-19 symptoms and conditions among children and adolescents – United States March 12020 – January 31, *MMWR Morb Mortal Wkly Rep*, 5 August, 71, 31, pp. 993-999.

Lee, B.Y, 2022a, COVID-19 associated with 72% greater risk of Type 1 Diabetes among children, study shows' *Forbes*, 26 September.

Lee, BY, 2022b, What new CDC COVID-19 school guidance says about bullying face mask wearers, *Forbes*, 14 August, <https://www.forbes.com/sites/brucelee/2022/08/14/what-new-cdc-COVID-19-school-guidance-says-about-bullying-face-mask-wearers/>

Lewin, E 2020, Women aged 50-60 most at risk of long COVID: research, *newsGP*, 29 October 2020, <https://www1.racgp.org.au/newsgp/clinical/women-aged-50-60-most-at-risk-of-long-COVID-resear>

Lewis, D, 2021, News: Long COVID and kids: scientists race to find answers, *Nature*, 14 July, <https://www.nature.com/articles/d41586-021-01935-7>

Long COVID Kids, 2022, Statistics: Long COVID March to November 21. Children with long COVID, *Long COVID Kids Website*, [https://www.longCOVIDkids.org/statistics?pgid=kkl2tuxu-c54868\\_76bd5c4172f34339a4bbe24f75dfd0f2mv2](https://www.longCOVIDkids.org/statistics?pgid=kkl2tuxu-c54868_76bd5c4172f34339a4bbe24f75dfd0f2mv2)

Lopez-Leon, S, Wegman-Ostrosky, T, Ayuzo Del Valle, NC, Perelman, C, Sepulveda, R, Rebolledo, PA, Cuapio, A, Villapol, S, 2022, Long-COVID in children and adolescents: a systematic review and meta-analyses, *Nature, Scientific Reports*, 22, 9950, pp. 1-12.

Ludvigsson, JF, Engerström, L, Nordernhäll, C & Larsson, E, 2021, Open schools, COVID-19, and child and teacher morbidity in Sweden, *The New England Journal of Medicine*, 18 February 2021, 384, pp. 669-671. <https://www.nejm.org/doi/full/10.1056/NEJMc2026670>

Manica, M, Poletti P, Deandrea, S, Mosconi, G, Ancarani, C, Lodola, S, Guzetta, G, d'Andrea, V, Marziano, V, Zardini, A, Trentini, F, Odone, A, Tirani, M, Ajelli, M, Merler, S, 2022, Estimating SARS-CoV-2 transmission in educational settings: a retrospective cohort study, *Influenza and other respiratory viruses*, <https://onlinelibrary.wiley.com/doi/10.1111/irv.13049>

Mickells, GE, Figueroa, J, Withers West, K, Wood, A & McElhanon, B, 2021, Adherence to masking requirement during the COVID-19 pandemic by early elementary school children, *Journal of School Health*, July, 91, 7, pp. 555-561.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8206918/>

Morand, A 2021, Similar patterns of [18F]-FDG brain PET hypometabolism in paediatric and adult patients with long COVID: a paediatric case series, *European Journal of Nuclear Medicine and Molecular Imaging*, 49, pp. 913-920.

<https://link.springer.com/content/pdf/10.1007/s00259-021-05528-4.pdf>

Neuroscience News, 2022, Press release: COVID-19 associated with increase in new diagnoses of Type 1 Diabetes in youth, by as much as 72%, *Neuroscience News*, 24 September 2022,

<https://neurosciencenews.com/COVID-19-diabetes-youth-21507/>

NSW Government (17 October 2021), *Additional investment to future proof indoor air quality in NSW schools [media release]*, NSW Government, [nsw.gov.au/media-releases/additional-investment-to-future-proof-indoor-air-quality-nsw-schools](https://nsw.gov.au/media-releases/additional-investment-to-future-proof-indoor-air-quality-nsw-schools)

Ontario Public Health, 2022a, *Synthesis: Mask-wearing in children and COVID-19...what we know so far*, Public Health Ontario, 2<sup>nd</sup> Edition, August 2022,

[https://www.publichealthontario.ca/-/media/Documents/nCoV/COVID-WWKSF/2021/08/wwksf-wearing-masks-children.pdf?rev=d626ccec08b843cda3708ef80eae0910&sc\\_lang=en](https://www.publichealthontario.ca/-/media/Documents/nCoV/COVID-WWKSF/2021/08/wwksf-wearing-masks-children.pdf?rev=d626ccec08b843cda3708ef80eae0910&sc_lang=en)

Ontario Public Health, 2022b, *Evidence brief: SARS-CoV-2 Omicron variant sub-lineages BA.4 and BA.5: evidence and risk assessment*, 8 July. <https://www.publichealthontario.ca/-/media/Documents/nCoV/voc/2022/07/evidence-brief-ba4-ba5-risk-assessment-jul-8.pdf>

OzSage, 2021a, OzSage comment on the NCRIS report "COVID-19 Delta variant in schools and early childhood education and care services in NSW, Australia: 16 June to 31 July 2021,

[https://ozsage.org/media\\_releases/ozsage-comment-on-the-ncirs-report-COVID-19-delta-variant-in-schools-and-early-childhood-education-and-care-services-in-nsw-australia-16-june-to-31-july-2021/](https://ozsage.org/media_releases/ozsage-comment-on-the-ncirs-report-COVID-19-delta-variant-in-schools-and-early-childhood-education-and-care-services-in-nsw-australia-16-june-to-31-july-2021/)

OzSage, 2021b, *Protecting children from COVID-19 and making schools and childcare safer*, OzSage, 1 October 2021, <https://ozsage.org/wp-content/uploads/2021/10/Children-and-schools1.pdf>

Peng, Z., Rojas, A.P., Kropff, E., Bahnfleth, W., Buonanno, G., Dancer, S.J., Kurnitski, J., Li, Y., Loomans, M.G., Marr, L.C. and Morawska, L., 2022. Practical indicators for risk of airborne transmission in shared indoor environments and their application to COVID-19 outbreaks. *Environmental science & technology*, 56(2), pp.1125-1137, <https://pubs.acs.org/doi/10.1021/acs.est.1c06531>

PBS, 2022, Health: experts say children should get a COVID-19 bivalent booster. Here's what you need to know, *PBS News Hour*, 25 October, <https://www.pbs.org/newshour/health/experts-say-children-should-get-a-COVID-19-bivalent-booster-heres-what-you-need-to-know>

RCPCH — see Royal College of Paediatrics and Child Health

Royal College of Paediatrics and Child Health, 2020, The inside story: health effects of indoor air quality on children and young people, 28 January, <https://www.rcpch.ac.uk/sites/default/files/generated-pdf/document/The-inside-story%253A-Health-effects-of-indoor-air-quality-on-children-and-young-people.pdf>

Reardon, S, 2022, Long COVID risk falls only slightly after vaccination, huge study shows, *Nature*, 25 May, <https://www.nature.com/articles/d41586-022-01453-0>

Requarth, T, 2022, America's pandemic orphans are slipping through the cracks, *The Atlantic*, 7 April 2022, <https://www.theatlantic.com/health/archive/2022/04/COVID-orphan-kids-lost-parent/629436/>

Rose, T, 2022, NSW school returns to remote learning as spiralling COVID cases hit classrooms, *The Guardian*, 15 March 2022, <https://www.theguardian.com/australia-news/2022/mar/15/nsw-education-officials-unmoved-on-return-of-masks-in-schools-despite-surg-ing-COVID-infections>

Ryan, FJ, Hope, CM, Masavuli, MG, Lynn, MA, Mekonnen, ZA, Yeow, AEL, Garcia-Valtanen, P, Al-Delif, Z, Gunnow, J, Ferguson, C, Reddi, BAJ, Hissaria, P, Shaw, D, Kok-Lim, C, [O'Connor, S](#), Gleadle, JM, Beard, MR, Barry, SC, Grubor-Bauk, B, Lynn, DL, 2022, *BMC Medicine*, 20, 23, DOI: <https://doi.org/10.1186/s12916-021-02228-6>

Rural Doctors Association of Australia (RDAA), 2022, Media release: it's time to mandate masks again!, <https://www.rdaa.com.au/documents/item/2066>

Seale, H 2022, Analysis: are mandates the only way to achieve high mask use?, *newsGP*, 18 July 2022, <https://www1.racgp.org.au/newsgp/clinical/are-mandates-the-only-way-to-achieve-high-mask-use>

Shergold, P, Broadbent, J, Marshall, I & Varghese, P, 2022, *Faultlines: An Independent Review*, Paul Ramsay Foundation, <https://www.paulramsayfoundation.org.au/news-resources/fault-lines-an-independent-review-into-australias-response-to-COVID-19>

Shihpar, A, 2022, Why one-way masking isn't a very good public health solutions, *Slate Medical Examiner*, 15 February 2022, <https://slate.com/technology/2022/02/one-way-masking-coronavirus-protection-vulnerable.html>

Jones, TC, Muhlemann, B, Veith, T, Biele, G, Zuchowoski, M, Hofmann, J, Stein, A, Endelmann, A, Corman, VM, Drosten, C, 2020, 'An analysis of SARS-CoV-2 viral load by patient age', MedRxiv preprint, cited in WHO, 2020, Update 39 – What we know about COVID-19 transmission in schools, Technical Document, 23 October 2020.

Thompson, E.J., Williams, D.M., Walker, A.J. *et al.* 2022a, Long COVID burden and risk factors in 10 UK longitudinal studies and electronic health records. *Nat Commun*, 13, 3528, <https://www.nature.com/articles/s41467-022-30836-0#citeas>

Torjesen, I, 2021, COVID-19: middle aged women face greater risk of debilitating long-term symptoms, *BMJ*, 272, 829, <https://www.bmj.com/content/372/bmj.n829>

Trauer, JM, Lydeamore, MJ, Dalton, GW, Pilcher, D, Mehan, MT, McBryde, ES, Cheng, AC, Sutton, B, Ragonnet, R, 2021, Understanding how Victoria, Australia gained control of its second COVID-19 wave, *MedRxiv* (preprint), 3 April, Accessed 11 October 2022. <https://www.medrxiv.org/content/10.1101/2021.04.03.21254866v2>

United Nations Human Rights Office of the High Commissioner (UNHRHC), 2022, *Human Rights Instruments: Convention on the Rights of the Child*, Adopted 20 November 1989, Entry into force 2 September 1990. <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child>

Van Beusekom, M, 2022a, COVID-19 neuro complications, long-term symptoms in kids, Centre for Infectious Disease Research and Policy, *CIDRAP News*, 11 August 2022.

Van Beusekom, M, 2022b, Some kids, teens have long-term lung damage after COVID-19, Centre for Infectious Disease Research and Policy, *CIDRAP News*, 22 September, University of Minnesota.

Van der Werf, H.M, 2019, Students growing up with a chronically ill family member: a survey on experienced consequences, background characteristics and risk factors, *BMC Public Health*,19, 1486. <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-019-7834-6#citeas>

Vogel, G, 2020, How Sweden wasted a 'rare opportunity' to study coronavirus in schools, *Science*, 22 May, <https://www.science.org/content/article/how-sweden-wasted-rare-opportunity-study-coronavirus-schools>

Vogel, G, 2021a, Keeping schools open without masks or quarantines doubled Swedish teacher's COVID-19 risk, *Science*, 15 February, <https://www.science.org/content/article/keeping-schools-open-without-masks-or-quarantines-doubled-swedish-teachers-COVID-19>

Vogel, G 2021b, Critics slam letter in prestigious journal that downplayed COVID-19 risks to Swedish schoolchildren, 2 March, *Science Insider Europe*

Vogel, L, 2022, Is one-way masking enough?, *Canadian Medical Association Journal*, 16 May, 194, 19, doi: 10.1503/cmaj.1095999

Vukovic, R, 2021, School success for kids with chronic illness, *Teacher*, 12 October 2021, [https://www.teachermagazine.com/au\\_en/articles/school-success-for-kids-with-chronic-illness](https://www.teachermagazine.com/au_en/articles/school-success-for-kids-with-chronic-illness)

White, LF, Murray, EJ, & Chakravarty, A, 2022, The role of schools in driving SARS-CoV-2 transmission: not an open and shut case, *Celle Respiratory Medicine*, February, 21, 3, 3, doi: 10.1016/j.xcrm.2022.100556.eCollection 2022 Mar 15.

Wilson, R, 2022, COVID-19 and schools: we're heading into a teacher shortage crisis. Omicron exacerbates existing teacher shortage, *The University of Sydney News*, 19 January 2022, Accessed 21 October 2022, <https://www.sydney.edu.au/news-opinion/news/2022/01/19/COVID-and-schools-australia-teacher-shortage-crisis-education-expert.html>

Woodcock, A & Schulz, PW, 2021, The role of conformity in mask-wearing during COVID-19, *PLoS ONE* 16(12): e0261321. <https://doi.org/10.1371/journal.pone.0261321>