Protecting children from COVID-19: more urgent than ever

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This update is an addition to our previous advice entitled "Protecting children from COVID-19 and making schools and childcare safer" (Oct 2021) and is in response to the emergence of the Omicron Variant.

Highlights

- Early evidence relating to the new Omicron variant suggests that younger, immune-naive populations including children under 5 years old, are experiencing higher rates of moderate-to-severe disease and hospitalisation than with previous strains of COVID-19.
- Global advice and evidence continues to mount in favour of protecting children from COVID-19 through the use of masks, enhanced indoor air ventilation, and vaccines.
- Poor protection in high-risk settings, such as school classrooms, continues to leave children vulnerable.
- COVID-19 is a leading cause of non-accidental death in children in the USA.

Recommendations

Federal, state, and territory governments of Australia should:

- Protect unvaccinated children from aerosol transmission of COVID-19 given the increased transmissibility and potential for increased disease severity of Omicron, and because the long-term consequences of infection are unclear. Long COVID has the potential to adversely impact the normal, healthy development of children and increase their risk of chronic disease later in life.

- Implement OzSAGE's previously recommended non-pharmaceutical interventions and aerosol mitigations over the Christmas school holidays to prevent transmission of COVID-19 in the school setting. Being safe at school is about physical and psychological safety and wellbeing for children. It also forms part of the social contract between parents and the Government/school in regard to the attendance of children at school.

- Children and all School Staff should move to wearing high quality, well fitted N95 level masks. N95 level masks for all School Staff and N95 level masks suitable for children should be funded and freely available at schools.

- Implement Rapid Antigen Testing (RAT) recommendations. RAT should only be used in addition to non-pharmaceutical interventions and aerosol mitigations (see full RAT recommendations at the end of this document). Funding of RAT for schools to ensure equitable access to testing for all. See our more detailed guidance on RAT at the end of this document.

- Provide additional resources and public health messaging to encourage and support the vaccination of children aged 5-11 years.

- Provide a remote learning option for school from 2022 for vulnerable children or parents who judge risk as unacceptable or due to other reasons. *Further related measures for implementation can be found in OzSAGE's previous advice document.*

While implementing these and previous recommendations no reduction should be made to previously implemented health measures at schools including hand hygiene stations, mask wearing, keeping children in class groups / limit larger group gatherings to outdoors, no gatherings indoors other than class groups , QR codes, reduced external school visitors

While this update relates to children, teachers also have the right to a safe workplace. The pandemic is likely to continue for a number of years and schools need different models (face-to-face and remote learning) to run concurrently to limit the constant need to switch between school exposures/remote teaching and face-to-face learning. OzSAGE advises parents, teachers and schools to consider:

- Planning friend / schooling bubbles in advance to combat social isolation and limit opportunity for exposure.

- Encouraging age-appropriate conversations with children to understand that living with COVID means adapting to COVID-19 mitigations in the least invasive manner – it is not panicking but rather it is planning. Plans help alleviate confusion, distress and allow people to make informed decisions.

Background

The wellbeing of children must be a primary consideration for decision makers and governments in responding to the changing landscape of this pandemic. By taking preventive action, in the face of an unknown risk to children, we protect the rights and wellbeing of children and their communities.

On Dec 7th 2021, Dr Hans Kluge (Regional Director for Europe, World Health Organisation), indicated that protection of children and school environments was an urgent global priority and "the use of masks, ventilation and regular testing should be standard at all primary schools". Further, the importance of safe indoor air, and ventilation in schools has been demonstrated by the findings of a study undertaken in Graubünden, Switzerland. This study of 150 primary school classrooms demonstrated poor air quality in classrooms and that "more students and teaching staff were infected with the coronavirus in classrooms with poor air quality than in rooms that are regularly ventilated". Additionally, an Italian study found that "real-time visualisation of CO_2 levels enabled teachers to maintain lower overall CO_2 levels in classrooms." OzSAGE again emphasises the benefits for children and staff in monitoring and improving indoor air quality for ensuring safety and aiding cognition and learning.

Statistics Canada recently reported that the mental health of young people was more likely to be adversely impacted by the spread and impact of the virus, rather than public health measures designed to limit transmission. Others have also argued that an elimination strategy, underpinned by the precautionary principle, "minimises both direct and indirect impacts upon children, and removes the requirement for children and adults to take on unquantified risks from this novel and incompletely-understood infectious disease."

Omicron

There is still much uncertainty about the virulence of the Omicron variant. Early data from Guateng province in South Africa suggests it may be more likely to cause moderate-to-severe disease in younger and immune-naïve populations. An increased number of hospitalisations in children including the 0-5 year age cohort has recently been observed, compared to previous waves of COVID-19. An increase in virulence would not be surprising given the known and suspected biological effects of the mutations present in the Omicron variant. It would also be consistent with previous experience. The Delta variant is also more virulent than the original strain of the virus, appearing to more than double the risk of children being hospitalised. Long COVID and Multisystem Inflammatory Syndrome in Children (MIS-C) remain a possible outcome of COVID-19 infection in children irrespective of disease severity.

The UK Health Security Agency has reported has reported that the Omicron variant:

- is at least as transmissible as the Delta variant;
- displays a growth advantage over the Delta variant, most likely through a combination of increased transmissibility and immune evasion;
- achieves a real-world reduction in vaccine-effectiveness, lowering immune protection against symptomatic infection;
- requires a third dose booster to confer adequate protection from symptomatic infection; and,
- its intrinsic virulence remains unknown.

The United Kingdom has mobilised their Armed Forces to assist with Omicron Emergency Boost program to deliver 3rd doses of vaccine in response to the "tidal wave of Omicron coming"

In November OzSAGE called for the use of a ventilation and vaccine-plus strategy and expedited 3rd dose boosters to protect Australia against Omicron and other variants that may emerge and noted that reliance on two doses of vaccination only is not adequate.

OzSAGE also called for an immediate shortening of the third dose interval and continues to strongly recommend Australia reduce the third dose interval to any time from 2 months since the second dose and conduct a communication campaign to encourage 3rd dose vaccination. OzSAGE notes again that the waning of vaccine-induced immunity begins 2-3 months after the second dose against Delta, and baseline effectiveness against Omicron is low. An Omicron epidemic may be mitigated with high and rapid 3rd dose coverage.

The Argyle House nightclub outbreak in Newcastle is currently the world's largest Omicron superspreader event. On Wednesday 8 December it is believed one person who had recently travelled from Sydney was positive with Omicron at the beginning of the party. By Friday 17 December over 210 people had tested positive with COVID-19 and thousands of people are now in isolation as close and secondary contacts. The Argyle House nightclub serves as a warning to Australia for what can happen in large indoor setting and should serve as a warning for Omicron transmission risk in school settings.

Risk to children

While the severity of disease caused by the Omicron variant remains unknown, it is already clear that COVID-19 is more dangerous for children than several diseases that we already vaccinate against. This year in Australia, 2% of children who tested positive were admitted to hospital, although some of these admissions were for social reasons. Children may also experience persistent symptoms after infection, known as long COVID.

A recent large matched cohort study of 157,135 people (including 11,950 children) found substantial new-onset post COVID-19 morbidity in paediatric and adult populations based on routine health care documentation. Further investigation is required to assess the persistence and long-term health impact of post COVID-19 conditions, especially in children and adolescents.

A British study suggested that vaccination reduces the risk of long COVID by 50% and notes that COVID-19 vaccination is protective against long COVID. Nonetheless, there is some emerging evidence that even though vaccines reduce the chance of getting infected with COVID-19, long COVID can still occur in fully vaccinated people who have breakthrough infections. This supports our recommendation to move to higher quality masks in high-risk school settings.

Children can also readily transmit the virus that causes COVID-19 to their family members, who may then experience breakthrough infections resulting in hospitalisation. While schools are doing their best to fill a Public Health role, they also acknowledge that Omicron is impacting transmission. More broadly, a lack of Public Health support to school is contributing to failing to adequately suppress transmission which could have substantial consequences for children and their families. Prior to the advent of the Omicron strain, in October 2021, the Centers for Disease Control and Prevention noted that more than 140,000 children in the US have lost a primary or secondary caregiver, over 16,500 children have been in ICU, and over 5,000 children have needed mechanical ventilation.

In November 2021, a Victorian child under 10 years became the youngest reported death from COVID-19 in Australia. Previously, the youngest death was a 15 year old from NSW.

Vaccines

Australia's COVID-19 vaccination program will be extended to all children aged 5 to 11 years from 10 January 2022, after the Australian Government accepted recommendations on 10 December 2021 from the Australian Technical Advisory Group on Immunisation (ATAGI).

The Prime Minister and the Minister for Health have said that the Comirnaty (Pfizer) vaccine will help prevent serious illness in children aged 5 to 11 years from COVID-19. ATAGI have recommended an eight-week interval between the two doses, noting that the interval can be shortened to three weeks in special circumstances such as outbreak settings. The eight week interval in dosing may potentially increase the effectiveness of the vaccine while also reducing the possibility of the rare side effect of pericarditis/myocarditis.

The vaccination program for children will likely coincide with greater demand on vaccine hubs and primary care settings due to individuals aged 16 years and over presenting for a 3rd dose (as a greater number of adult second doses occurred in July and August 2021). On 12 December 2021 the interval for adult 3rd doses was reduced to five (5) months and Spikevax (Moderna) was included with Comirnaty (Pfizer) as the preferred vaccines for adults. This shortening of dose interval will increase the number of adults eligible from about 1.75 million people to more than 4.1 million people (by 31 December 2021), which will put increased pressure on vaccine delivery infrastructure for over 2 million vaccines being delivered children aged 5 – 11 years.

First Nations Australians continue to require a dedicated strategy and approach regarding vaccinations. OzSAGE refers to our advice "Protecting the people of regional, rural and remote Australia in the next phase of the COVID-19 pandemic " and note that children in regional, rural and remote areas live in significantly underserviced populations. Aboriginal and Torres Strait Islander children and their communities, children who are socially disadvantaged, and children who live remotely and their communities do not have the same access to vaccinations through primary care, mobile services or regional vaccination hubs. Limited access to healthcare delivery networks means that once the virus does start to circulate, even small numbers of cases will place health care services under extreme pressure.

Infections and school closures

Children, schools and childcare continue to see increasing cases of transmission of COVID-19. These are not always reported in a timely or transparent way. In Australia to date there have been over 73,000 confirmed cases of COVID-19 in the 0 – 19 age range.

OzSAGE notes there are data and quantification gaps which must be addressed with respect to the true impact of infections within school settings, particularly in those states hardest hit by community transmission. The gaps which must be addressed by state and territory governments relate to:

- No national approach to school outbreak data collection
- Changes to reporting of closure of schools
- Lack of transparency on school closures and on individual classes being isolated due to exposures
- Lack of transparency on cases in schools, particularly in the non-government sector

- Lack of reporting of school closures (e.g. in NSW there have been over 874 schools experience incursions in term 4, many of which had multiple incursions)
- No Australian State Education Department has included a plan for clinically vulnerable children to remain safe at school
- Changes to definitions of close contact in school settings
- Inconsistencies in state guidelines around the threshold or outbreak status that would necessitate closure
- Changes to processes involving who or when a student is deemed a personal close contact of someone testing positive to COVID-19 (e.g. often determined by school employees with varying levels of support from public health units and often based on inaccurate information about how COVID-19 spreads)
- Insufficient supply of Rapid Antigen Tests in some states and inequity between private and public schools in access/affordability
- No compliance monitoring or centralised recording of Rapid Antigen Test results

OzSAGE calls for these gaps to be addressed before opening of schools in 2022.

Appendix: Rapid Antigen Testing Recommendations for Schools and Childcare

Recommendations

- Screening testing with RATs during periods of community transmission or for specific risk settings such as special needs education is recommended.
- Government should fund testing for all schools.
- A standardised protocol should be developed for schools for activating a pre-planned screening program to start at a specified level of community transmission.
- The school or childcare management should liaise with public health team and laboratory for advice about the significance of the cases found, as the specific circumstance of the cases may mean less or more risk.
- In any significant community transmission (or sewerage detection), ongoing alternate day (daily whilst ideal less likely practical or realistic at current cost) rapid testing of students and staff, together with urgent PCR confirmation.
- Following education sessions, staff may test at home but facilities for testing on site are recommended in case they miss home test. Some employers are relaxing screening for fully vaccinated staff, but this may not be appropriate for workplaces with staff/students at high risk because it is still possible for vaccinated individuals to be infected and transmit the virus. Have system of contact tracing, testing and review of disease controls (involves OHS, Occupational Physician/ Occupational Hygienist/ Ventilation engineers) in place for outbreaks.
- Testing all prior first entry to a dormitory and on regular basis if unvaccinated/high risk individuals reside there. In significant community transmission, if not feasible to have universal ongoing testing of dormitory students (staff best remain as above), then program of regular testing of all unvaccinated students be offered (at least twice weekly). System of contact tracing and testing of all in dormitory site in an outbreak recommended.
- Testing all students, visitors and staff within 24 hours of first site entry for semester where there is no or low community transmission. Ongoing regular testing of unvaccinated students, or all students if possible, be offered on site in any significant community transmission where feasible and practical.
- Testing of all prior to entry to large mass events such as multischool gatherings/exams.
- Processes should be put in place to ensure that employees or students do not return to the site while unwell, even if a test is negative; further testing may well be appropriate under medical/public health guidance.
- Ensure that the provision of RAT screening is not instead of other control measures, including vaccines, adequate safe indoor air ventilation and air cleaning/exchange, and the use of masks as the primary tools to prevent disease transmission.

RAT Background

Implementing a COVID-19 testing program, as part of a layer of disease controls, for employees, students and visitors, where practical, helps to prevent introducing COVID-19 into schools and childcare facilities.

RT-PCR (reverse transcriptase polymerase chain reaction) nose/throat swab is the reference standard test at this time, and is the test used most frequently in Australia to confirm the diagnosis of COVID-19. RT-PCR tests may take 24-48 hours or longer to return results, because of the need to send samples to centralised laboratories, during which time an infectious individual can spread disease. Also, RT-PCR tests usually require the supervision of a healthcare provider to administer, in addition to expensive equipment, making them more expensive and difficult to run across large numbers of facilities.

To add to testing capacity and accessibility, rapid antigen testing (RAT) kits were developed. RAT has been available for use in the community (including self-testing) from 1 November 2021 in Australia. RAT is a useful screening tool to help detect COVID-19 in people with or without symptoms. RATs are faster than RT-PCR tests and give results in as little as 10-15 minutes; and can be done at home (subject to Therapeutic Goods Administration (TGA) approval of kits for home use and public health in the area allowing). These tests perform very well compared to RT-PCR.

RAT are screening tests — they are designed for frequent, high-volume use as an additional check. It is extremely important that they are not used as a "good to go" test to rule out infection because of the significant risk of false negative rates (the test does not indicate disease when in actual fact the person is infected). If used for testing multiple members of a group on multiple days, the chance of missing an outbreak as a whole becomes low, so may enable early detection of a cluster, which can be followed up with RT-PCR testing. Universal access to low-cost RATs is crucial for equity and widespread access. To be successful, schools or individuals need to by large quantities for repeated use. Unfortunately the test is relatively expensive ($10-15 per test) at the moment and therefore out of reach of many.

RATs have both advantages and disadvantages

Advantages

- Frequent rapid testing complements other controls
- RATs can more readily be used frequently and work best when people are most infectious
- Self-testing is effective when performed properly
- There is some evidence that appropriate use of RATs may reduce transmission

Disadvantages

- Logistics can be challenging, given the scale and required frequency including oversight and staffing, registering and labelling, space, chairs and cleaning, personal protective equipment, kit resourcing, biohazard waste disposal
- Completing the tests correctly may not be possible for some people and young children
- The cost may be prohibitive for small and medium organizations/businesses
- If tests need to be done at home, people may not always get around to doing them or do them properly
- There is still some uncertainty regarding the effectiveness of approaches such as "test to stay", although recent modelling suggests that RAT screening / "test to stay" can reduce cases in secondary school settings when there is adequate compliance

Some examples of industries where RAT has been used include mining, construction, abattoirs, health and airlines.

RAT may be useful where:

- The test is performed on consecutive occasions on the same individual/group (e.g. every second day)
- There is a greater risk of contact between individuals
- Workers are in contact with at-risk individuals (e.g. elderly or with chronic diseases)

- Where other control measures may be highly variable or of uncertain effectiveness
- There is substantial community transmission
- Fast reassurance (in some locations RT- PCR is just too slow).

It is important to note that RAT screening programs serve as a complement to other control measures, and should not be instead of the other controls such as vaccines, adequate safe indoor air ventilation and air cleaning/exchange, and the use of masks as the primary tools to prevent disease transmission.

Outbreaks in schools and childcare are preventable, and in the event of a positive case, any breakdown in controls should be addressed, and workplace safety and health advice should be sought.

Guidance for RAT screening

When setting up RAT screening onsite:

- Check for State/Territory and TGA guidelines and requirements on screening testing, including staffing the screening.
- Select the rapid test for reliability with the assistance of the health authorities and meeting TGA requirements.
- Ensure that staff/volunteers are trained in the test and airborne PPE is used.
- The test having a result reader function is useful to minimize the need for staff to personally interpret the test. Some test kits can digitally communicate the result by use of smart phones.
- Any positive result must be followed up with health authorities and with an urgent/rapid PCR swab.
- False positive rates can be significant in low prevalence conditions. Therefore, urgent PCR confirmation is necessary so that the individual can be returned to site where required without significant delay. Follow up RT-PCR is likely to confirm (~90%) a reliable RAT result if the person is truly infectious. A confirmed positive result is best managed in conjunction with health authorities and the individual kept away from site until clearance to return.

The more testing that can be administered, alongside all the other controls, the better, to significantly decrease outbreaks.