

# COVID-19 in schools – the experience in NSW

Prepared by the National Centre for Immunisation Research and Surveillance (NCIRS)  
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## Overview

- This report provides an overview of investigation into all COVID-19 cases in New South Wales (NSW) schools.
- In NSW, from March to mid-April 2020, 18 individuals (9 students and 9 staff) from 15 schools were confirmed as COVID-19 cases; all of these individuals had an opportunity to transmit the COVID-19 virus (SARS-CoV-2) to others in their schools.
- 735 students and 128 staff were close contacts of these initial 18 cases.
- No teacher or staff member contracted COVID-19 from any of the initial school cases.
- One child from a primary school and one child from a high school may have contracted COVID-19 from the initial cases at their schools.

## Background

Globally, the control of COVID-19 (caused by the virus, SARS-CoV-2) has been focused on public health measures, including improving hygiene and ensuring social distancing. Some countries have closed schools as part of their response. The strategy of closing schools has previously been recommended to control influenza pandemics<sup>1</sup> because we know children with influenza are likely to spread and become ill from influenza. However, COVID-19 appears to be a less common infection in children than is influenza and in studies done overseas, many of the infected children had only mild symptoms. It has been suggested that children are also less likely to spread the virus. Thus, it has not been clear how common it is for SARS-CoV-2 to transmit among school children or school staff, and if school closures are an effective measure to control COVID-19. Prolonged school closures can have negative consequences for the community and for children.

The emergence of COVID-19 and early spread globally coincided with the start of school term 1 in Australia. The first NSW school with a COVID-19 case was identified on 5 March 2020. The National Centre for Immunisation Research and Surveillance (NCIRS), with the support of the NSW Ministry of Health and NSW Department of Education, started this schools investigation in early March. Through this investigation, we aimed to understand the transmission of SARS-CoV-2 in schools and childcare centres in NSW. This report summarises the preliminary findings (to 21 April 2020) of this work in NSW primary and high schools.

## Methods

COVID-19 is a notifiable disease in Australia. When a person is diagnosed with COVID-19 a public health response is initiated that involves follow up of each case to identify the person's close contacts and when these contacts may have last been exposed to the infectious person (or case). A 'close contact' is defined as a person who has been in face to face contact for at least 15 minutes or in the same room for 2 hours with a case. In schools, close contacts of

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<sup>1</sup> Cauchemez S, Ferguson NM, Wachtel C, Tegnell A, Saour G, Duncan B, Nicoll A. Closure of schools during an influenza pandemic. *The Lancet Infectious Diseases*. 2009;9(8):473–481.

cases were usually found either to be students and teachers who shared the same class/classes or extracurricular activities as the case or in their close circle of friends.

Once the close contacts are identified, they are required to isolate themselves at home for 2 weeks from the date of last exposure to the infectious case, watch for any symptoms and if they become unwell, go to the doctor or a fever clinic to get a nose/throat swab to test for COVID-19. NSW Health and NCIRS monitor the results of all positive and negative tests in close contacts from schools. We have also followed up close contacts of COVID-19 cases in the 10 high schools and 5 primary schools where a COVID-19 initial (also known as index) case or cases were identified. We also collected additional data (nose/throat swab testing to detect the virus and blood sample serology testing to detect antibodies to the virus as well as a symptom questionnaire) from some schools that agreed to participate in enhanced surveillance. A positive antibody test means the person has been infected by the virus.

## Results

In the 15 schools (10 high school and 5 primary schools) a total of 18 COVID-19 cases (9 students and 9 staff) were identified between 5 March 2020 and 3 April 2020 (refer to Figure 1). The public health staff identified 863 close contacts in these 15 schools. Of the 863 close contacts, only two students have been identified as secondary cases. One of these was diagnosed by nose/throat swab testing and one had a positive antibody test 4 weeks after their exposure. A review showed that it was most likely, but not certain, that these two children were infected by transmission in the school environment.

### High schools

A total of 12 COVID-19 cases (8 students and 4 staff) were identified in 10 high schools. The date of last exposure in the first high school case was 5 March 2020. The most recent (10th) school case was identified on 26 March 2020. The total number of close contacts in these 10 high schools was 598 students and 97 staff. We took nose/throat swabs from one third (n=235) of contacts, all of which tested negative. In one high school, of the 75 close contacts who underwent blood testing at approximately 1 month post exposure, only 1 student had antibodies detected, indicating prior infection.

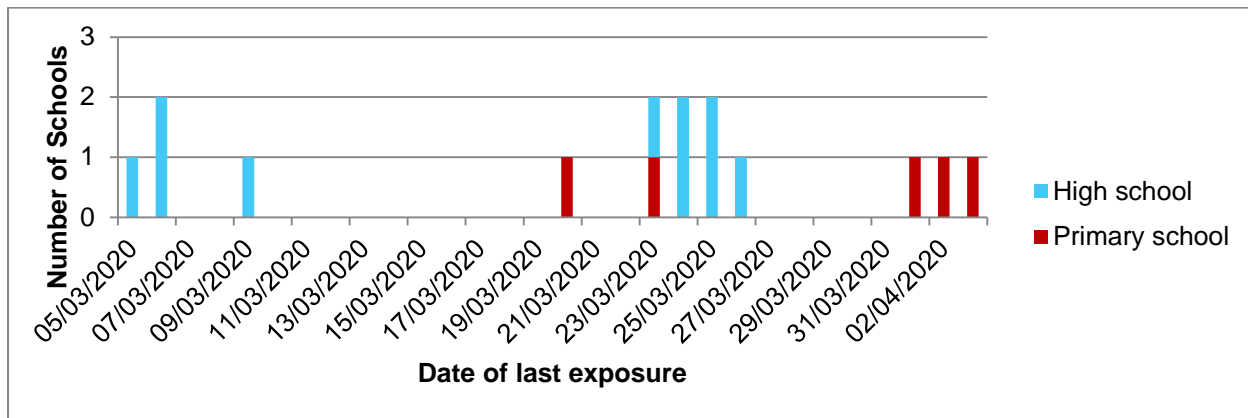
Overall, as shown in Figure 2, only one of 695 individuals was identified to have been infected following close contact with a school case in these 10 high schools.

### Primary schools

A total of 6 COVID-19 cases (1 student and 5 staff) were identified in 5 primary schools. The date of last exposure in the first primary school was 20 March 2020 and the date of last exposure in the most recent (5th) school was 3 April 2020. The total number of close contacts in these 5 primary schools was 137 students and 31 staff. We took nose/throat swabs from one third (n=53) of contacts. Only ONE secondary case (nose/throat swab positive) was identified in the 168 close contacts. In the same primary school that had this secondary case, 21 close contacts underwent blood testing. The same student whose nose/throat swab tested positive also had antibodies detected through serology testing, consistent with their known recent infection.

Overall, as shown in Figure 3, only one of 168 individuals was identified to have been infected following close contact with a school case in these 5 primary schools.

**Figure 1: NSW primary and high schools with a COVID-19 index case/s from March – mid April**



**Figure 2: Cases and close contacts among teachers and students in 10 NSW high schools showing one secondary case in a student**

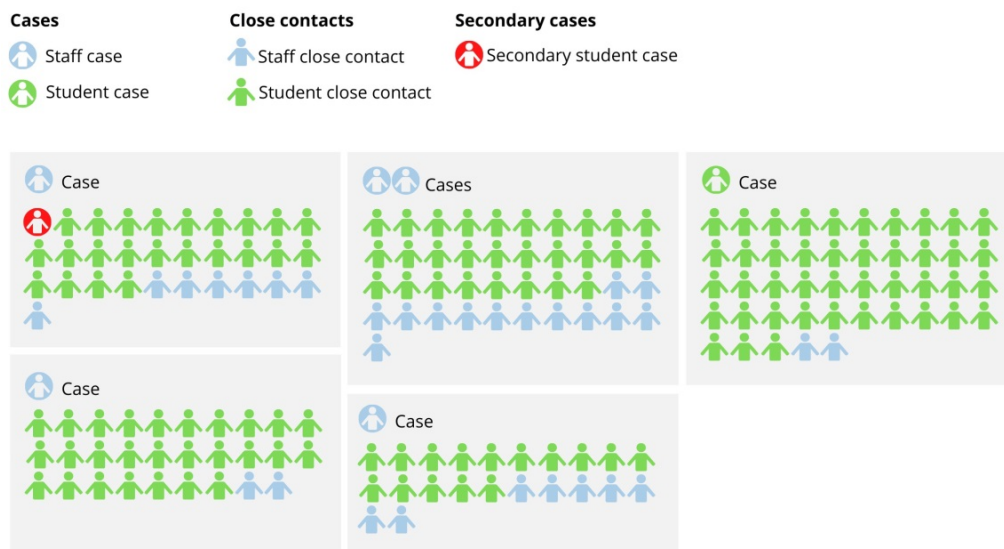
**Cases**  
 Staff case (blue person icon)  
 Student case (green person icon)

**Close contacts**  
 Staff close contact (blue person icon with red outline)  
 Student close contact (green person icon with red outline)

**Secondary cases**  
 Secondary student case (red person icon)



**Figure 3: Cases and close contacts among teachers and students in 5 NSW primary schools showing one secondary case in a student**



## Conclusion

Our detailed investigation of COVID-19 cases in 15 NSW primary and high schools found only 2 secondary cases, both in students. This was despite initial cases occurring in 9 students (including 2 students in 2 schools) and 9 teachers. Very detailed follow-up, including additional testing for the presence of the virus and for antibodies to the virus, occurred in a large proportion of the total 863 close contacts identified from the school setting.

Our investigation found no evidence of children infecting teachers. One secondary case (in the child in a high school) was presumed to have been infected following close contact with 2 student cases. The other secondary case was presumed to have been infected by a staff member (teacher) who was a case.

It is notable that half of the initial cases that occurred in schools were in staff. This is consistent with the higher rate of COVID-19 seen in adults than in children. This reinforces the need for both adults and children to ensure they do not attend school when ill and if they become ill to promptly isolate themselves and seek medical attention. It is also important for all adults, including teachers, to follow the social distancing practices while at school and in the community.

The findings from this detailed investigation are preliminary. However, they do suggest that spread of COVID-19 within NSW schools has been very limited.

SARS-CoV-2 transmission in children in schools appears considerably less than seen for other respiratory viruses, such as influenza. In contrast to influenza, data from both virus and antibody testing to date suggest that children are not the primary drivers of the transmission of SARS-CoV-2 in schools or in the community. This is consistent with data from international studies showing low rates of disease in children.<sup>2</sup> Data from the whole of NSW also demonstrate children (aged <19 years) represent 4% of all cases of COVID-19 despite being approximately 23% of the population.

<sup>2</sup> World Health Organization (WHO). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). 16-24 February 2020. <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>

It is notable that on 23 March 2020 the NSW Premier advised that although schools remained open, parents were encouraged to keep their children at home for online learning. After this date face-to-face attendance in schools decreased significantly and this may have impacted the results of this investigation. Furthermore, school holidays commenced in NSW on Friday 10 April for 2 weeks.

Analysis of data collected here is ongoing and a full peer reviewed report is being prepared for publication. As a phased re-introduction of face-to-face learning in schools is planned for early Term 2 from 11 May 2020, it will be very important to continue these detailed investigations to monitor the transmission of COVID-19 in schools.

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