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Covid-19: Keeping schools as safe as possible

## A growing menu of effective measures can and should be deployed

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A year into the pandemic, and confronted with continued resurgence in transmission, over 800 million schoolchildren, more than half the world's student population, still face substantial disruptions to their education. These range from full school closures in 31 countries to reduced or part time academic schedules in another 48 countries.<sup>1</sup> Some countries, such as Norway and France, chose largely to keep their schools open (only 7 and 10 weeks of school closure, respectively), whereas countries such as Germany and the UK have relied more often on school closure for epidemic control (19 and 21 weeks, respectively).<sup>1</sup>

Although evidence has accumulated that school outbreaks are limited in number and size and that mitigation measures are effective,<sup>2</sup> the emergence of variants with increased transmissibility<sup>3</sup> raises uncertainty. It is therefore important to revisit how schools can be kept open without becoming centres of SARS-CoV-2 transmission.

Outbreaks in schools have been described throughout 2020—for example, in Israel<sup>4</sup> and Chile<sup>5</sup>; however, these outbreaks tend to be limited,<sup>6</sup> partly because children are 30-50% less susceptible to infection than adults<sup>7 8</sup> and have no or mild symptoms when infected.<sup>29</sup> Transmission has been described between pupils, between teachers and pupils, and among teaching and non-teaching staff.<sup>10</sup>

As children have mild forms of disease and teachers are able to protect themselves effectively-their rate of infection is similar to that of adults of the same age and sex<sup>2</sup>-the biggest risk associated with schools lies in transmission of the virus from children to parents and grandparents vulnerable to developing severe forms of covid-19. Infected children, particularly those younger than 10 years, are probably less contagious than infected adults.<sup>78</sup> Nonetheless, schools may contribute to community transmission, and some,<sup>11</sup> but not all,<sup>12</sup> models consider school closures an important component of epidemic control. The emerging consensus is that schools do not seem to be amplifiers of transmission, and that cases in schools simply reflect prevalence within the local community.<sup>2</sup>

## **Minimising harm**

A decision to maintain in-person learning goes beyond strict epidemic control, however. Children and adolescents are suffering from the effect of repeated lockdowns and disruptions to schooling,<sup>1314</sup> as shown by the latest updates of the Mental Health of Children and Young People Survey and the YoungMinds survey in the UK,<sup>15 16</sup> and by increases in anxiety disorders and suicide attempts.<sup>1718</sup> Closing schools risks detrimental effects on children's educational attainment and their social and mental development. For many children, schools are also a source of food or security from domestic violence. The economic implications of closing schools must also be considered, including loss of parental income linked to childcare or supervision of online learning, particularly for younger children. These economic effects fall disproportionately on women. School closures augment existing social inequities, compounded by the fact that areas of social deprivation, often associated with multigenerational housing and public facing occupations, tend to be areas of greater transmission.<sup>19</sup>

The decision to reopen schools or keep them open despite community transmission must be accompanied by effective risk mitigation measures.<sup>20</sup> Most importantly, children and staff with symptoms must be kept out of school, although this alone cannot stop transmission by those who are asymptomatic or presymptomatic.<sup>2</sup> This needs to be accompanied by contact tracing and quarantine of close contacts. Compliance with quarantine can be particularly challenging for children with parents who cannot work from home, so supporting parents or guardians to care for isolating or sick children may prove beneficial.

Most European countries have introduced measures<sup>220</sup> to reduce transmission such as cohorting of pupils, physical distancing, improving ventilation of indoor settings, moving physical activities outdoors, regular cleaning of surfaces, and improving hand hygiene and respiratory etiquette. These measures also need to apply beyond the classroom, particularly transport to and from school, during pick-up and drop-off times for both children and adults, and during meal times in the school day. The use of face coverings, particularly for primary school children,<sup>20 21</sup> and blended learning (a mixture of online and in-person learning) in secondary schools have been more contested, but may help to keep schools open in the presence of more transmissible variants. Use of saliva testing or lateral flow testing for surveillance in schools and prioritisation of teachers for immunisation should also be considered.

The most important thing we can do to keep schools safe is to reduce transmission in the community,<sup>20</sup> particularly in areas of social deprivation. Reopening of schools should be phased, at a time when community transmission of the virus is controlled, and with primary school aged children prioritised for returning to the classroom to minimise both transmission within schools and the disruption caused by school closures. Although the roll-out of effective vaccines has begun, controlling transmission is even more important to keeping

## children in the classroom as viral variants with increased transmissibility gain hold in many countries around the world.

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