



## Should Schools Reopen Early or Late? – Transmission Dynamics of COVID-19 in Children

Vijesh S Kuttiatt<sup>1</sup> · Ramesh P Menon<sup>2</sup> · Philip Raj Abraham<sup>1</sup> · Shilpa Sharma<sup>3</sup>

Received: 29 May 2020 / Accepted: 9 June 2020 / Published online: 16 June 2020  
© Dr. K C Chaudhuri Foundation 2020

*To the Editor:* Prolonged closure of schools during the COVID-19 pandemic is likely to have negative psychosocial effect in children besides secondary economic effects. Societal learning and grooming of children that happens in school environment cannot be supplanted by a virtual learning platform. In the current scenario, there is uncertainty regarding time line of school reopening. In our opinion, the unique disease characteristics and the transmission dynamics of COVID-19 in children favour calibrated early reopening.

A notable feature of COVID-19 pandemic is that children account for only less than 2% of total COVID-19 cases and most develop only mild illness [1, 2]. Even when children with co-morbidities are being reported at risk of severe disease, mortality was very rare. Many asymptomatic infections were noted. Most acquired infection from close contact with adults in family clusters. However, transmission from children to others was rare. In a recent report, mother of a two-year-old SARS-CoV-2 infected child was found to be uninfected despite having prolonged close contact [3]. Also, WHO-China Joint Commission did not find a single instance of children transmitting infection to adults [4]. An infected child linked to the cluster of COVID-19 in the French Alps, attended three schools while symptomatic, but did not transmit the virus to any of the close contacts [5]. This is in sharp contrast to the

reports of a few adults acting as ‘super-spreaders’ [6]. Experience from Sweden, which has not implemented strict lockdown and allowed schools to function, and Spain where schools were re-opened early, present a favourable picture.

In the light of above observations, it might be prudent to anticipate an optimistic scenario when schools open. However, caution is necessary; role of asymptomatic carriers in transmission dynamics in children should be prospectively reviewed. One study reported few children shedding virus for up to one month in stools [7]. Another concern is the practical difficulty in adherence to social distancing, wearing mask etc. in young children.

Weighing the pros and cons, high transmission of COVID-19 in school settings is unlikely to happen. However, strict adherence to preventive measures is desirable; “at risk” individuals (children/adults with co-morbid conditions and the elderly) should avoid contact with school going children. Studies on asymptomatic infection and possible protection by heterologous immunity by vaccines in universal immunization program in school settings are desirable.

### Compliance with Ethical Standards

**Conflict of Interest** None.

### References

1. Castagnoli R, Votto M, Licari A, et al. Severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) infection in children and adolescents: a systematic review. *JAMA Pediatr.* 2020. <https://doi.org/10.1001/jamapediatrics.2020.1467>.
2. Dong Y, Mo X, Hu Y, et al. Epidemiology of COVID-19 among children in China. *Pediatrics.* 2020;e20200702 [published online ahead of print, 2020 Mar 16]. <https://doi.org/10.1542/peds.2020-0702>.
3. Nassih H, El Fakiri K, Sab IA. Absence of evidence of transmission of coronavirus disease 2019 from a young child to mother despite prolonged contact. *Indian J Pediatr.* 2020. <https://doi.org/10.1007/s12098-020-03382-0>.

✉ Vijesh S Kuttiatt  
vijeshvrc.icmr@gmail.com

<sup>1</sup> ICMR-Vector Control Research Centre, Puducherry 605 006, India

<sup>2</sup> Cardio Thoracic Centre, All India Institute of Medical Sciences, New Delhi, India

<sup>3</sup> Department of Pediatric Surgery, All India Institute of Medical Sciences, New Delhi, India

4. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Available at: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>. Accessed 23 May 2020.
5. Danis K, Epaulard O, Bénet T, et al. Cluster of coronavirus disease 2019 (Covid-19) in the French Alps, 2020. *Clin Infect Dis*. 2020;ciaa424 [published online ahead of print, 2020 Apr 11]. <https://doi.org/10.1093/cid/ciaa424>.
6. Shim E, Tariq A, Choi W, Lee Y, Chowell G. Transmission potential and severity of COVID-19 in South Korea. *Int J Infect Dis*. 2020;93:339–44.
7. Cai J, Xu J, Lin D, et al. A case series of children with 2019 novel coronavirus infection: clinical and epidemiological features. *Clin Infect Dis*. 2020;ciaa198. <https://doi.org/10.1093/cid/ciaa198>.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.