

# Coronavirus Disease-2019 Infection among Children

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## Abstract

The emergence of the coronavirus disease-2019 (COVID-19) pandemic has changed the dynamics of almost everything across the globe. The available evidence and the reported trends suggest that the COVID-19 infection among children and adolescents generally manifests in the form of less severe illness and has less incidence of mortality as compared with the adult population. Although it is an encouraging thing that COVID-19 manifests in children in mild forms, we cannot ignore the very fact that the symptoms of the disease might be ignored owing to their mild nature. Children do play a role in the transmission of COVID-19 infection to other individuals, as outbreaks of the infection were reported in schools or summer camps. In conclusion, children are quite susceptible to the COVID-19 infection and also have the potential to transmit the causative virus to others. Even though the precise risk to acquire or transmit the infection by children is quite variable due to a number of factors, including the levels of community transmission, there is an immense need to strictly adhere to the infection prevention and control measures to minimize the incidence of infection or complications among them.

**Keywords:** Children, COVID-19 pandemic, vaccine

## INTRODUCTION

The emergence of the coronavirus disease-2019 (COVID-19) pandemic has changed the dynamics of almost everything across the globe. The disease continues to be a major global public health threat, with more than 260 million confirmed cases and 5.2 million deaths being attributed to the novel viral infection as of November 30, 2021 since its first detection.<sup>[1]</sup> Apart from the morbidity and mortality, the infection has been associated with a significant load on the health-care delivery system, impairment in the overall quality of life, and excessive financial load (direct and indirect expenditures) on the patients, their family members, and the community as a whole.<sup>[1,2]</sup>

## COVID-19 INFECTION AND CHILDREN

The available evidence and the reported trends suggest that the COVID-19 infection among children and adolescents generally manifests in the form of less severe illness and has less incidence of mortality as compared with the adult population.<sup>[3,4]</sup> The findings of a prospective observational

cohort study performed across 260 hospitals in England, Wales, and Scotland concluded that children tend to have less severe acute forms of infection than adults.<sup>[5]</sup> The possible reasons for such reported differences could be because of the functioning and maturity status of the immune system among young children as compared with adults.<sup>[3]</sup> In fact, children in the under 5 years of age group accounted for less than 2% of the global cases and only 0.1% of the reported deaths worldwide till September 13, 2021 since the commencement of the outbreak.<sup>[2]</sup>

Although it is an encouraging thing that COVID-19 manifests in children in mild forms, we cannot ignore the

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very fact that the symptoms of the disease might be ignored owing to their mild nature.<sup>[2,3,6]</sup> Subsequently, this accounts for the reduced number of laboratory testing being carried out and thereby identification of less number of cases among children population.<sup>[2,3]</sup> Furthermore, if children with mild or no symptoms can transmit the infection to others, they can prove to be a major factor in sustaining the transmission of infection in the community.<sup>[2-4]</sup> In addition, COVID-19 infection was found to be associated with multisystem inflammatory syndrome in children, which can significantly alter the overall recovery process.<sup>[7]</sup> This calls for the need to explore the symptoms, and infectivity in children, primarily because as of now vaccination against COVID-19 infection has not been recommended.<sup>[2-5]</sup>

## COVID-19 ACQUISITION IN CHILDREN

The risk of being infected with COVID-19 virus is determined by the susceptibility levels in the host, environmental factors (such as workplace, number of people, use of standard infection prevention, and control measures), and the intensity of exposure.<sup>[3-6]</sup> It becomes quite difficult to quantify the influence of these individual factors on the risk it poses towards the acquisition of the infection. The available evidence suggests mixed results with regard to children becoming infected with the causative virus in comparison with the adults, with some systematic reviews suggesting a higher risk among children while few suggesting lower risks.<sup>[8,9]</sup> These contrasting findings could be because of the varying extent of social distancing being practiced or varied levels of exposure to the virus.<sup>[2,8,9]</sup>

## ROLE OF CHILDREN IN COVID-19 TRANSMISSION

Children do play a role in the transmission of COVID-19 infection to other individuals, as outbreaks of the infection were reported in schools or summer camps, wherein the use of face masks or social distancing was not strictly adhered.<sup>[10,11]</sup> In a school in Israel, within 10 days of the reopening of school, 188 people (including 153 students and 25 staff) were diagnosed with the infection.<sup>[10]</sup> The findings of a systematic review done in school settings revealed that children might be less infectious in comparison with adults because of the lesser secondary attack rates.<sup>[12]</sup> However, the relative risk of transmission of the causative virus across different ages is difficult to ascertain owing to a wide range of biological, host, or environment-related attributes.<sup>[2]</sup>

## PREVENTION OF COVID-19 INFECTION AMONG CHILDREN

The best strategy to defeat the ongoing pandemic is by means of strengthening the preventive component, which essentially includes administration of vaccines to all the individuals.<sup>[13]</sup> As of now, COVID-19 vaccines have been

approved for administration to adults aged 18 years and above.<sup>[14,15]</sup> With regard to children, the clinical trials are on, and yet we have not arrived at adequate evidence warranting the safe use of vaccination among children.<sup>[14]</sup> Till the time we get any positive news, it has been envisaged that all children (like adults) should strictly adhere to the standard infection prevention and control measures (such as avoiding unnecessary visit to public places, use of face mask, practicing hand hygiene and cough etiquettes, and maintaining social distancing).<sup>[16-18]</sup>

## CONCLUSION

In conclusion, children are quite susceptible to the COVID-19 infection and also have the potential to transmit the causative virus to others. Even though the precise risk to acquire or transmit the infection by children is quite variable due to a number of factors, including the levels of community transmission, there is an immense need to strictly adhere to the infection prevention and control measures to minimize the incidence of infection or complications among them.

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## Conflicts of interest

There are no conflicts of interest.

## Ethical approval

Not applicable.

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