



Perspective

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The future of COVID–19 vaccination rates for children

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The COVID-19 pandemic has been ongoing for over two years since the first case was reported in the end of January 2020. Vietnam has successfully controlled the pandemic through its vaccination campaign, targeted messages and applications of various public health interventions including social distancing, quarantining, masking, and hand washing, which have made some significant achievements in reducing hospitalizations and deaths[1].

Mass COVID-19 vaccinations became available in Vietnam in the middle of March 2021 for individuals aged 18 and older. The Vietnam Government has put forward various strategies to enhance the vaccination rate, such as making vaccinations available to the population free of charge and easily accessible in convenient locations. The COVID-19 vaccine has been demonstrated to be safe and effective in protecting against severe disease, hospital admissions, and death, in addition to reducing the transmission of new variants[1]. Millions of individuals have been safely vaccinated with the COVID-19 vaccines. Vaccines were approved for adolescents aged 12 years and older in October 2021 and for children ages 5 to under 12 years in April 2022. As of August 2022, almost all adolescents aged 12-17 years have received a series of two doses, while 82.0% and 52.9% of children aged 5-11 years received the first dose or are fully vaccinated respectively[2]. While the Vietnam Government issued booster dose guidance for children aged 12 years and older, 50.9% of this age group received a booster dose[2]. Despite declining COVID-19 morbidity and mortality due to increased vaccination coverage, hesitancy toward the vaccine persists, particularly toward the booster vaccine, even though it can protect against the new variants. Previous studies found that the main reasons for parental vaccine hesitancy for their children were beliefs regarding side effects of the vaccine, a desire to delay and follow up on the safety of the vaccine, and fear of new vaccines[3,4].

Generally, children and adolescents are at lower risk of infection as compared to adults and their signs and symptoms tend to be milder than adults[5]. However, children have an increased risk for severe

morbidity and mortality if they have risk factors including older age, obesity, and current morbidity conditions [type 2 diabetes, severe asthma, heart and pulmonary diseases, seizure disorders, and other neurologic diseases, neurodevelopmental (*e.g.* Down syndrome)] and neuromuscular illness[6]. Furthermore, children infected by SARS-CoV-2 may have experienced prolonged clinical symptoms, known as long COVID-19[7]. Because of the low percentage of children receiving the COVID-19 vaccine, along with the re-opening of schools for face-to-face teaching and the relaxing of public health measures (such as physical distancing, suspension of screening for students in schools), it is possible that COVID-19 cases will increase in the community, especially the new Omicron variant and its subvariants, which are more transmissible due to its shorter incubation period. As a result, it is more likely to cause reinfection, particularly among the unvaccinated population, overwhelm an already overloaded healthcare system, and cause interruptions to the other essential services[8]. Therefore, the high risk of having another government shut down is likely[9]. Experiences from other countries show that decreased immunization (*i.e.* measles vaccines) has led to a significant increase in the incidence and mortality of vaccine-preventable diseases[10]. Furthermore, children may be exposed to the virus in daycare centers or schools and may subsequently spread the virus to their family members and community. Evidence showed COVID-19 outbreaks were more likely to occur in secondary

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schools and daycare centers where preventive measures such as social distancing and masks were not practiced[11].

The Vietnamese Government has strengthened vaccination coverage efforts for children and adolescents, including implementing many mobile vaccination teams to allow for vaccination to occur in convenient locations such as schools, health stations. This will also offer more opportunities for delivery on weekdays, by collaborating with schools and also using social media to remind parents about upcoming vaccinations, which means translational research is required. It is likely that SARS-CoV-2 will continue to evolve, and it is not possible to predict how infectious or severe new variants of the virus will be. Therefore, it is critical to achieve and maintain the high rate of vaccination coverage across all communities in Vietnam. Moreover, vaccination reduces the risk of shutting down schools and education facilities, causing disruptions to educational services, and affecting the children's mental health. As a result, it is strongly recommended that children and adolescents be vaccinated against COVID-19 as soon as they are eligible (including booster doses) to protect their health as the CDC recommendation.

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Authors' contributions

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