

Editorials

Long COVID in Children: What Do We Know?

Anupma Wadhwa, MD, MEd, FRCPC, University of Toronto, Toronto, Ontario, Canada

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Long COVID is emerging as an important burden to communities and health care systems.¹ As outlined by Herman and colleagues in this issue of *American Family Physician*, 10% to 30% of people affected by COVID-19 experience persistent symptoms.² This condition is commonly referred to as long COVID, an umbrella term that likely encompasses more than one underlying process. To date, much of the literature about long COVID has focused on adults. Reliable data in children are sparse and largely reflect the condition before the emergence of the Omicron variant.³

A clear understanding of long COVID in children is needed to inform optimal management, health care resource planning, and risk-benefit discussions about preventive strategies such as COVID-19 vaccination for children. This editorial summarizes key points in the current understanding of long COVID in children and provides a suggested management approach.

Whether children can get long COVID has been debated. Some children present with persistent symptoms after acute COVID-19, but it is unclear whether these symptoms are directly caused by the infection or indirect effects of the pandemic (e.g., lost education time, increased stress, social isolation).^{4,5} Early studies examining long COVID in children were of limited quality.³ More recent higher-quality studies, however, have shown a trend toward higher rates of persistent symptoms in children with infection compared with control groups.⁶⁻¹¹ For example, a Danish study including data from more than 10,000 children 0 to 14 years of age with confirmed SARS-CoV-2 infection found persistent symptoms at two months to be higher in all ages compared with a matched control group (0 to 3 years: 40.0% vs. 27.2%; 4 to 11 years of age: 38.1% vs. 33.7%; 12 to 14 years: 46.0% vs. 41.3%).¹² The occurrence of other postviral syndromes in children (e.g., after Epstein-Barr virus infection) also supports the likelihood that children can be affected by long COVID.

The prevalence of long COVID in children appears to be lower than in adults. Evidence suggests the prevalence is 4% or less in children.^{6-9,11,13,14} Possible risk factors for long COVID in children include older age, female sex, allergic diseases, and poorer pre-COVID health.^{6,9-12,15}

To date, no studies have examined the impact of vaccination on the risk of developing long COVID in children. Vaccination has been shown to decrease severe disease in children.¹⁶ Because severity of acute illness is one risk factor for the development of long COVID, vaccination should contribute to a decreased risk. Studies to better quantify the degree of risk reduction are required to better inform the risk-benefit discussion of COVID vaccination in children.

Similar to adults, common post-COVID symptoms in children include fatigue, headache, mood symptoms, sleep disorders, respiratory symptoms, cognitive difficulties, altered smell, rash, muscle and joint pain, and loss of appetite.¹⁷ Other studies have found symptom groups consistent with dysautonomia (orthostatic intolerance, palpitations, constipation) and somatization disorder.^{14,17} Interestingly, although respiratory symptoms are reported in children, they may be less common than in adults,¹⁴ possibly reflecting the lower frequency of severe respiratory disease during the acute phase of COVID-19 in children.

Management of children presenting with persistent COVID-19 symptoms is based on expert opinion and extrapolation from consensus guidelines for adults, and builds on approaches to other conditions in childhood such as chronic fatigue, headaches, and somatization.^{9,18,19} An integrated approach combining medical, mental health, and rehabilitation strategies that is tailored to the individual child's presentation and symptoms is key. Pursuing a wide differential diagnosis and appropriate workup while avoiding the harms of overtesting is an important balance. Targeted symptom relief and rehabilitation strategies, which are comprehensively detailed by Herman and colleagues,² may also be considered in the management of children. In addition, mental health support in the recovery

process is important because stress may manifest as somatic symptoms, and persistent symptoms may be associated with depression and anxiety in children.²⁰

Persistent symptoms after COVID-19 in children seem to improve over time. Two large cohort studies from Denmark have documented a decreased prevalence and intensity of symptoms, with one study showing recovery for most children within one to five months.^{8,12} In a large study from the United Kingdom, prevalence of persistent symptoms in children dropped to 1.8% at eight weeks compared with 4.4% at four weeks.⁶ Families can be reassured that emerging evidence supports the expectation of full recovery over time for the vast majority of children.

Address correspondence to Anupma Wadhwa, MD, FRCPC, at anupma.wadhwa@sickkids.ca. Reprints are not available from the author.

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