

# Rising Paediatric Encounters for Mental Health Diagnoses Amidst Pandemic Mitigation Strategies in New South Wales

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The coupling of modern data collection strategies with social distancing and societal lockdown measures in response to the COVID-19 pandemic has resulted in one of the largest ever natural experiments in the delivery of paediatric health services. Investigators have been able to rely on rich repositories of electronic records and administrative data to track fluctuations in disease burden, helping to shine light on both the favourable and unfavourable ripple effects of large-scale efforts designed to curb the spread of SARS-CoV-2. While the direct effect of SARS-CoV-2 on children has been relatively small compared to the virus' impact on adults, its indirect effects have likely had greater reach. In the United States, substantial declines in other transmissible infections (including pneumonia and bronchiolitis)<sup>1</sup> and non-infectious phenomena (e.g., trauma), have been reported.<sup>2</sup> Perhaps more ominously, diagnoses for other conditions, such as hyperbilirubinemia and congenital anomalies (such as coarctation of the aorta), have also presented at lower rates than predicted during the pandemic, raising the spectre of major, unaddressed healthcare needs amongst children. These trends are being observed amidst the incompletely characterized impact of stressors such as increased isolation, more than 1.5 million caregiver deaths globally due to SARS-CoV-2, and omnipresent alarm in daily headlines.<sup>3–5</sup>

In a recent issue of *The Lancet Regional Health – Western Pacific*, Hu and colleagues capitalize on the unique circumstances of pandemic mitigation efforts in New South Wales (NSW), Australia to study the effects of lockdown in the context of relatively low spread SARS-CoV-2.<sup>6</sup> From March 2020 to mid-May 2020, most children received online learning as social distancing requirements were enacted. From mid-May 2020 onward, lockdown requirements were either relaxed or rescinded while SARS-CoV-2 case volumes remained low, allowing the investigators to examine the impact of these societal measures on paediatric care seeking behaviours in relative isolation from the impact of the

virus itself. Using a large data source of inpatient and emergency department encounters, the authors constructed time series models of forecasted encounter volumes and identified a 29.3% decrease in visits for chronic conditions during the lockdown period relative to predicted volumes, with a return to baseline after the lockdown ended. Importantly, during lockdown they observed no significant decrease in encounters for mental and behavioural health disorders, and instead report a significant increase in these disorders following the end of lockdown by 25–55%, a trend that was more apparent amongst girls and children from socioeconomically advantaged areas.

Strikingly, Hu and colleagues also found that lockdown was associated with a sustained decrease in encounters for acute infectious conditions persisting for months after the return to in-person schooling.<sup>6</sup> The results are also compatible with time series analyses from other developed nations.<sup>1,2</sup> However, this study is the first to report persistent reductions in infectious conditions after resumption of in-person schooling. The authors posit that these changes may be driven by behavioural changes (e.g. changes in hygiene), a hypothesis which is both biologically plausible and is reinforced by the fact that this trend was not found for trauma. It is also plausible that a short-term lockdown resulted in decreased community pathogen burden that gradually returned to pre-pandemic levels. Given the potential for substantial reduction in the burden of paediatric respiratory illness, further study is needed to determine which behavioural changes (if any) were responsible for this prolonged decrease in infections.

The larger than expected volume of encounters for mental health problems associated with the pandemic identified by Hu and colleagues<sup>6</sup> is alarming and is an uptrend that does not appear to be an isolated phenomenon in the world.<sup>7</sup> The United States Centers for Disease Control and Prevention recently published findings demonstrating a rise by 24–31% in emergency department encounters for mental health complaints amongst children.<sup>8</sup> Professional societies, such as the American Academy of Pediatrics, have described a COVID-19 related “mental health crisis” affecting children.<sup>9</sup> These findings are likely, at least in part, due to

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non-infectious, pandemic-related stressors: school closures, for example, have been noted to result in worsened mental health outcomes, with adolescents, girls, and Black and Hispanic children at greatest risk.<sup>10</sup> The extent to which financial strains, caregiver stress related to pandemic uncertainties, and the media have contributed to this rise in children's mental health complaints is unclear.

This work<sup>6</sup> provides several important insights into the delivery of health care to children in a developed country during the pandemic and the findings approximate a counterfactual for paediatric disease in response to lockdown measures compared to trends observed in developed countries with both lockdown measures and a greater burden of SARS-CoV-2. However, the findings ultimately raise more questions than answers. Follow-up studies that continue to assess paediatric disease trends as the character of the pandemic evolves are needed, as are dedicated studies assessing the causal mechanisms underlying encounters for infectious conditions and mental health diagnoses.

#### Declaration of Competing Interest

Drs. Horvat and Pelletier report receiving funding from the NICHD during the conduct of this study. Dr. Ramgopal has nothing to disclose.

#### Author contributions

Dr. Horvat wrote the original draft of the manuscript. Dr. Pelletier and Dr. Ramgopal revised the work and suggested critical edits. All authors have approved the final version of the manuscript and agree to be jointly responsible for the work.

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