

# Childhood acute respiratory illnesses: will normal inadequate services be resumed?

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Autumn is characterised by an increase in asthma and wheeze attacks in children. Important contributory factors include transmission of respiratory viral infection as children go back to school, variable adherence to asthma medications during the summer holidays and changes in the weather.<sup>1</sup> Significant reductions in wheeze and asthma attacks were reported during the 'first COVID-19 pandemic wave'.<sup>2</sup> Rhinovirus (RV) is the leading cause of acute respiratory infections and wheeze attacks in children and adults, but influenza virus and respiratory syncytial virus (RSV) also contribute to severe winter respiratory illnesses.

Winter 2019, pre-COVID, was a UK NHS disaster for young children. At times, we actually ran out of paediatric intensive care unit (PICU) beds. What then is the winter of 2020 going to look like for children, parents and health-care providers with regard to respiratory infections in children? The data from the southern hemisphere countries Australia, South Africa and Chile showed significant reduction in influenza infection in the winter of 2020. Out of the 80 000 samples tested for influenza in April to July 2020, only 96 (0.06%) out of 83 307 were positive. In contrast, 24 512 (13.7%) of the 178 000 of the samples were positive in April to July in the years 2017–2019. Early data from the USA shows a similar reduction in influenza rates.<sup>3</sup> In western Australia, where the majority

of the 2.4 million population is concentrated in a metropolitan area, RSV and influenza detection were 98.4% and 99.4% lower in young children during the winter of 2020.<sup>4</sup> Significant reductions in RSV bronchiolitis infection and hospital admissions have been reported from Perth. The data from 22 PICUs from four countries in South America showed 45 cases of RSV bronchiolitis in the winter of 2020 compared with 596 cases in 2019 (92% reduction).<sup>5</sup> The COVID-19 infection control measures like hand washing, face coverings and physical distancing, lockdown measures including school closures and reduction in pollution levels may also have contributed.<sup>6</sup>

Asthma and wheeze attacks appear less this winter in Australia.<sup>7</sup> In the UK, the data from Public Health England (PHE) also show significant increases in RV infection in children, especially 5–14 year olds. The data on emergency department visits to the UK hospitals shows a significant increase in children with viral wheeze and asthma this September.<sup>8</sup> The difference in the data from the southern hemisphere, Australia, and the emerging data from the northern hemisphere, especially the UK, is intriguing. The cold, humid UK weather will likely lead to increased viral infections. Influenza viruses can persist over longer distances and times when humidity is lower. Arid winter air dries out the airway, reducing mucociliary clearance and increasing vulnerability to infection.<sup>9</sup> People cough more in the winter months and are also prone to vitamin D deficiency. The reopening of schools will increase the likelihood of transmission of infection and an increase in vehicular traffic will increase pollution, both of which may contribute to the higher rate of wheeze and asthma attacks. It would be a grave mistake to be reassured by the data from the southern hemisphere. We need now to prepare plans for a surge in wheeze and asthma in children.

Reassuringly, the UK data shows low SARS-CoV-2 infection rates

in children despite very high adult cases.<sup>10</sup> Children with wheeze and asthma attacks unwell enough to attend the emergency departments are rarely COVID-19 positive.<sup>11</sup> Although the data is reassuring, SARS-CoV-2 may be detected in poorly ventilated rooms for many hours. The factors including low socioeconomic status, ethnicity, indoor smoking and pollution may all contribute to increasing risk of COVID-19 infection and subsequent wheeze this winter.

How then should we be planning for winter care of children? In the pre-COVID-19 era, each winter the high dependency and PICU beds are overstretched or run out in the UK due to the large number of children needing respiratory support. In March this year, many PICUs and staff were caring for adults with severe COVID-19, reducing the actual paediatric beds and workforce available. Currently, the adult COVID-19 infection rates are increasing rapidly, which may have an impact on children services and PICU beds this winter. The NHS should focus on children's services by providing long-term solutions in managing the winter pressures rather focusing only on adult services. Children were innocent bystanders whose care was compromised in the first COVID-19 spike.<sup>12</sup> This cannot be allowed to happen again.

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