Global human parainfluenza virus estimates for action on childhood pneumonia

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In *The Lancet Global Health*, Xin Wang and colleagues[1] provide important estimates of the global paediatric burden of acute lower respiratory infections (ALRI) associated with human parainfluenza virus (hPIV). Their efforts to collate data from 162 published and 41 unpublished studies are commendable. However, it is apparent that more data are needed to refine some estimates, notably the incidence (13 studies), and burden in low-income (eight studies) and lower-middle-income countries (37 studies). More accurately establishing the proportion of infections that result in severe disease and hypoxaemia (13 studies) is also needed to quantify the associated need for oxygen therapy and intensive care. Such granular data need not be pathogen-specific, but would be especially useful in settings where such care is absent. The importance of the detailed epidemiological data for pathogen-specific ALRI provided in this Article lies more in establishing antiviral drug and vaccine development priorities, and assessing temporal changes.

The authors report hPIV as causing 13% of all ALRI cases in children and 4–14% of paediatric ALRI hospital admissions,[1] representing a substantial, though considerably uncertain, health system burden. The directly attributed mortality burden was lower, at an estimated 4% of all ALRI deaths in children. Given that the authors account for co-infections—via applying attributable fractions for hPIV-associated ALRI cases (72%) and deaths (65%) from the multi-country PERCH[2] and GABRIEL[3] studies—these data suggest that hPIV could be less lethal than other childhood ALRI pathogens.

The authors cite papers on early parainfluenza vaccine trials published between 2011 and 2015 that indicate—given that there are no hPIV vaccines available yet—a modest speed of vaccine development. Given that the burdens of mortality (an estimated 34 400 [UR 16 400–73 800] deaths globally) and admission to hospital (725 000 [UR 433 000–1 260 000])[1] are still considerable, and given what has been possible during the COVID-19 pandemic,[4] the development and licensing of vaccines for hPIV and other respiratory pathogens affecting children should and could be accelerated. The hPIV burdens reported by Wang and colleagues[1] could make the introduction of hPIV vaccines cost-effective in most settings, although vaccine effectiveness, price, and the possibility of serotype or pathogen replacement are important unknowns.[5]

A strength of Wang and colleagues' Article[1] is their ability to include a large amount of unpublished data. However, this also raises an interesting discussion on who has access to causal data, and when. COVID-19 has shown the ability for many country and regional level public health agencies to publish near real-time RT-PCR testing data. The further collation onto open-access, easy to use, interactive platforms (eg, Our World in Data) has made these data both accessible and to some extent comparable between countries. Single respiratory pathogen data platforms exist (eg, RSV Gold or WHO's sentinel Global Influenza Surveillance and Response System). However, the potential to exploit the data architecture being used for COVID-19 provides an exciting opportunity for more comprehensive monitoring of ALRI causes.

For the **Our World in Data platform** see https://ourworldindata.org/

For the **RSV Gold platform** see https://rsvgold.com/

For the **Global Influenza Surveillance and Response System** see https://www.who.int/influenza/gisrs_laboratory/en/

A key piece of this puzzle will be strengthening country-level laboratory and reporting capacities. In some high-burden countries, surveillance infrastructure needs to be developed. There are already promising new initiatives, such as Africa's Pathogen Genomics Initiative,[6] and ensuring that such infrastructure has sustained national focus and commitment is crucial.

The estimates generated by Wang and colleagues[1] provide a timely pre-COVID-19 snapshot of paediatric hPIV epidemiology. Moving forward, it will be important to understand the effect of non-pharmaceutical interventions related to COVID-19 on other respiratory viruses. There have been several reports of major shifts in paediatric ALRI hospital admissions,[7,8] and the near disappearance of flu seasons in 2020 and 2021.[9,10] It is crucial that efforts are made to closely monitor the subsequent epidemiology of important respiratory pathogens, such as hPIV. Interruptions to the normal seasonal circulation of this virus might have left cohorts of children more susceptible to outbreaks as non-pharmaceutical interventions are lifted and global movement increases.

There is hope that increased investments in oxygen during COVID-19 will reduce one key bottleneck to effective paediatric ALRI management.[11] The focus on an improved capacity for localised laboratory diagnostics and a clear precedent for rapid vaccine pipelines and novel vaccine platforms give two more reasons for hope. The work done by Wang and colleagues[1] provides a starting to point to move forward with a more focused and sustainable prevention, detection, and treatment agenda for hPIV.

We declare no competing interests.

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