

Dramatic fall in hospital admissions for child infections during first year of COVID-19 pandemic

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During the first year or so of the COVID-19 pandemic, there were dramatic reductions in hospital admissions for common and severe

childhood infections in England, most likely due to social distancing measures, school and workplace closures, and travel restrictions, finds a study published by *The BMJ* today.

While many of these measures are unsustainable outside of the pandemic, the researchers call for further evaluation of interventions that could be continued, especially during winter months, to minimise the burden on health systems and protect vulnerable children.

Worldwide, the indirect effects of COVID-19 on children's health appear to be substantial. For instance, childhood immunisation programmes have been disrupted and emergency department visits have been delayed, but the impact of such delays on patient outcomes is unclear.

To address this, researchers from the University of Oxford assessed [hospital admission rates](#) and mortality outcomes for 19 common childhood respiratory infections, severe invasive infections, and [vaccine preventable diseases](#) before and after the onset of the pandemic in England.

Their analysis included data for all children aged 0-14 years admitted to an NHS hospital in England with an [infection](#) from 1 March 2017 to 30 June 2021.

Common respiratory infections included tonsillitis, influenza and bronchiolitis, while severe invasive infections included sepsis, meningitis and osteomyelitis (bone infection). Vaccine preventable diseases included measles, mumps and several bacterial causes of serious illnesses.

Potentially influential factors including sex, age, ethnic group, geographical region, deprivation, and existing conditions (comorbidities)

were taken into account.

After 1 March 2020, substantial and sustained reductions in hospital admissions were found for all but one of the 19 infective conditions studied.

Among the common respiratory infections, the greatest percentage reduction was for influenza where the number of hospital admissions decreased by 94% from 5,379 (annual mean from 1 March 2017 to 29 February 2020) to 304 in the 12 months after 1 March 2020. For bronchiolitis, admissions decreased by more than 80% from 51,655 (annual mean 2017-20) to 9,423 in 2020-21.

Among the severe invasive infections, percentage reductions ranged from 26% for osteomyelitis to 50% for meningitis. And for the vaccine preventable infections, reductions ranged from 53% for mumps to 90% for measles, where admissions fell from 149 (annual mean 2017-20) to 15 in 2020-21.

Reductions were similar across all geographical regions, deprivation and [ethnic groups](#), as well as among children with existing conditions who are at greatest risk of severe illness and death from infection.

Absolute numbers of deaths within 60 days of hospital admission for sepsis, meningitis, bronchiolitis, pneumonia, viral wheeze, and upper respiratory tract infections also decreased, although the researchers note that the proportion of children admitted for pneumonia who died within 60 days increased.

The only infection that didn't show a reduction in hospital admissions was pyelonephritis (kidney infection). The researchers say this might be because non-drug interventions and social restrictions have no impact on this condition.

More recent data also indicate that some respiratory infections increased to higher levels than usual after May 2021.

These are observational findings, so can't establish cause, and they do not cover patients who did not attend [hospital](#) or were not admitted. Nevertheless, the study included all relevant [hospital admissions](#) for a range of infections among the entire child population of England over several years, suggesting that the results are robust.

As such, the researchers conclude that a range of behavioural changes (adoption of non-drug interventions) and societal strategies (school closures, lockdowns, and restricted travel) used to reduce transmission of SARS-CoV-2, also reduced admissions for common and severe childhood infections in England.

And while many of these measures are generally unsustainable outside of the pandemic because of their inherent negative financial and societal impact, they suggest some could be continued, especially during winter months, "to minimise the burden on [health systems](#) and protect [vulnerable children](#)."

Updated results will be published every month [here](#).

These findings probably reflect a real decrease in non-COVID infections, but are likely to be temporary, say US researchers in a linked editorial.

As populations derive increasing protection from COVID-19 through natural infections or vaccination, and measures such as lockdowns, mask mandates, and social distancing ease, "there will probably be an increase in the incidence of primarily, but not exclusively, viral infections," they write.

Understanding which mitigation strategies were most effective is key to reopening safely, they say, and, as many measures are relaxed globally, they call for studies "to determine which interventions provide the greatest benefit for a wide range of infectious diseases."

More information: Indirect effects of the covid-19 pandemic on childhood infection in England: population based observational study, *BMJ* (2022). DOI: 10.1136/ bmj-2021-067519

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