

Patterns of respiratory infections after COVID-19

Changing patterns of respiratory infections have been seen again in 2024. Disease incidence shifted during the COVID-19 pandemic due to lockdowns and social distancing, which slowed down pathogen circulation and the development of immunity at a population level. Influenza and RSV have settled into a more traditional pattern this year, but tuberculosis and pneumonia incidence remains unusual.

After numerous years of increasing tuberculosis notifications, WHO estimated a global drop from 7 million new cases in 2019 to around 5 million in 2020. Health-care services and tuberculosis staff with experience in contact tracing were diverted as part of the COVID-19 response, leading to reduced tuberculosis services. Since fewer people were diagnosed and treated, the burden of undetected tuberculosis rose, followed by mortality. Lockdowns only lowered tuberculosis transmission and incidence in the short-term, and as case numbers increased, more opportunities for transmission and infection emerged.

At the recent World Conference on Lung Health, experts discussed WHO methods for estimating the global burden of tuberculosis. In 2022, tuberculosis caused around 1.3 million deaths—a 19% reduction from 2015—with an incidence of 133 per 100 000 people. The WHO End Tuberculosis Strategy is aiming for a 75% reduction in tuberculosis mortality and a 50% reduction in the incidence rate by 2025. Trends vary by region, but many countries in Africa and Europe have reached the targets set for 2020, so hopefully this progress will continue.

Estimating tuberculosis incidence during the COVID-19 pandemic was challenging, especially in high-burden settings, and methods had to change to account for major service disruptions. Mathematical dynamic models were developed for countries with a 10% drop in tuberculosis notifications in 2020. Once case detection improved, notifications started to increase again in 2021–22. Tuberculosis mortality decreased first, responding quicker after the backlog of patients was treated, whereas effects on the incidence were delayed partly because of undetected subclinical tuberculosis. The WHO Global Task Force will meet again in 2024, and discuss these models with country leaders to improve their robustness. In the meantime, national

tuberculosis programmes will continue to measure time trends in incidence using surveillance systems.

Recently, the US CDC declared an influenza epidemic, with lower numbers so far this season than in November, 2022 after an earlier peak (17 000 hospitalisations and 1100 deaths vs 78 000 and 4500). Currently, influenza A(H1N1) is predominant, causing fewer hospitalisations in older people than the 2022 influenza A(H3N2) strain. In 2021 and 2022, respiratory syncytial virus (RSV) infections also started earlier, around July instead of the usual peak in January, with four times more children hospitalised in the summer of 2022 than in previous seasons in Europe and North America. This year, RSV hospitalisations are already rising in the USA, but at a lower rate than in 2022 (12 vs 29 hospitalisations per 100 000 people). There is also a nirsevimab shortage—despite recent US FDA approval—and extra doses are expected to be released soon. Overall, vaccination rates in the USA for influenza seem to be higher than those for RSV and COVID-19.

An unusual wave of childhood pneumonia with atypical symptoms emerged in China in May, causing global concern. The Chinese CDC stated that there are no novel pathogens, attributing this rise to those of RSV, influenza, and *Mycoplasma pneumoniae*. This is the first winter after lockdown in China, where stricter pandemic restrictions led to weakened population immunity—a trend also seen in the UK and USA in 2022. WHO attributed these pneumonia cases to an immunity gap in a cohort of children who were isolated, resulting in large outbreaks once exposure to pathogens returned.

Respiratory illnesses have re-emerged in unpredictable patterns after the pandemic, whereas COVID-19 cases seem to have reached a plateau in the USA. Scientists are unsure whether COVID-19 will become a winter virus since there appears to be no clear pattern yet, but capacities that were increased during COVID-19 need to be sustained for other infectious diseases. Population-level immunity following vaccination and infection wanes over time, and vaccine hesitancy remains a large problem that requires a targeted response. Better mathematical models to track the patterns of infectious disease and improved understanding of factors driving these changes could help to improve surveillance programmes and disease control efforts, as well as shape the response to future pandemic threats. ■ *The Lancet Respiratory Medicine*



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The World Conference on Lung Health was held on Nov 15–18, 2023, in Paris, France. <https://theunion.live/ondemand/session/278>

For more on **influenza dynamics in 2022** see [Editorial](#)
Lancet Respir Med 2022; **10**: 725

For the **WHO Global tuberculosis report 2023** see <https://www.who.int/publications/i/item/9789240083851>

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Lancet Respir Med 2022; **10**: 603–22

For the **US CDC influenza updates** see <https://www.cdc.gov/flu/weekly/index.htm>

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Lancet Child Adolesc Health 2021; **5**: 367–84

For more on **pneumonia in China** see <https://www.telegraph.co.uk/global-health/science-and-disease/china-disease-latest-who-covid-infection-children/>