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Analysis reveals global post-covid surge in infectious diseases

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A large post-covid global surge in common communicable diseases including influenza, measles, tuberculosis, and whooping cough has been identified in a new analysis of data from 60 organisations and public health agencies.

Since the beginning of 2022, 44 countries have experienced a 10-fold increase in the incidence of at least one of 13 infectious diseases compared with a pre-pandemic baseline, according to the analysis¹ by the UK based disease forecasting firm Airfinity and the US news website Bloomberg.

Experts said that with no historical precedent, they can't fully explain the resurgence in infectious diseases.

Jeremy Farrar, World Health Organization chief scientist, told *The BMJ*, "We've not had an acute, fast moving, and devastating pandemic in the modern scientific era. The last major devastating pandemic was in 1918 when there was no vaccination, no diagnostics or treatments. We're in new territory here."

Airfinity scientists said, however, that declining vaccine rates during the pandemic, notably for children—because of disrupted supply chains and limited immunisation during lockdowns—is likely to be a major factor for measles, polio, tuberculosis, and whooping cough, all classified as vaccine preventable diseases.

Kristan Piroeva, Airfinity's biorisk analyst, told *The BMJ*, "There is a well documented correlation between declining vaccine coverage and increased incidence. Today, declining uptake is leaving populations vulnerable and allowing pathogens to spread."

Data from Unicef show that 25 million children missed at least one dose of the three shot diphtheria, tetanus, and whooping cough vaccine in 2021, with just 81% getting all three doses, the lowest level in 13 years.

Whooping cough cases in China in the first four months of 2024 were 45 times that for the whole of 2023. Spain has already seen a 134% post-pandemic increase in cases of whooping cough, with France, Norway, and the UK also expected to surpass pre-pandemic levels in the next few months, according to the report. "Current outbreaks could be driven by pressure on the virus to gain adaptations that may impact the effectiveness of current vaccines," said Piroeva.

Measles is another disease on the rise. More than 1.8 million children in 20 countries in Europe missed their measles jab between 2020 and 2022, with vaccination rates falling below 90%. European countries saw a 30-fold spike in measles cases in 2023, the study reported.

Measles was declared eliminated in the US in 2000 but the study reports it's now making a comeback in more than 20 American states.² Incidence is also rising in the UK.³ In Austria measles incidence in the first five months of 2024 is 190% higher than the pre-pandemic peak, according to the study.

Speaking at the report's launch, Farrar said rebuilding society's trust in vaccines is essential. "While the world is out of the acute public health emergency phase, the pandemic has had second order effects including a growing anti-vaccine movement," he said. "We can't just say some people are anti-science or anti-vaccine and forget them. We've got to make the case for science and for vaccines and explain their importance."

Influenza is one of several diseases not categorised as vaccine preventable where incidence is also increasing. The number of cases in the last flu season was 75% higher in Europe and 28% higher in the US compared with 2019. Cases of respiratory syncytial virus have nearly doubled in parts of Australia compared with a year ago. This may be because of immunity debt following the protection from routine pathogens during the pandemic lockdowns, leaving people more vulnerable as life got back to normal.

Climate change may also be enabling the spread of diseases such as cholera and dengue, which is transmitted to humans by infected mosquitoes. Argentina has had a 152-fold increase in dengue cases, from 3220 in 2019 to 488 035 cases already this year, its largest ever rise. "As temperatures continue to increase, we could see dengue becoming endemic in southern Europe," Piroeva added.

1 Airfinity. Global surge in infectious diseases. 14 June 2024. www.airfinity.com/articles/global-surge-in-infectious-diseases-as-over-40-countries-report-outbreaks-10

2 CDC. Measles cases and outbreaks. www.cdc.gov/measles/data-research/index.html

3 Mahase E. Measles: 500 cases are confirmed in England as clusters appear around the country. *BMJ* 2024;384. doi: 10.1136/bmj.q417 pmid: 38359915