

Medical News & Perspectives

“This Is Our COVID”—What Physicians Need to Know About the Pediatric RSV Surge

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On November 4, experts from the US Centers for Disease Control and Prevention (CDC) warned that an earlier-than-usual outbreak of respiratory infections—particularly **respiratory syncytial virus**, or RSV, and in more recent weeks influenza—were stretching thin pediatric hospital capacity.

In interviews with *JAMA*, clinicians from around the country and the across the spectrum of pediatric medicine shared how an unprecedented surge of RSV over

the past months has affected patient care. “For us pediatricians, RSV is like COVID is for adults. This is our COVID,” said Asuncion Mejias, MD, PhD, a pediatric infectious disease specialist and associate professor at The Ohio State University College of Medicine.

Here’s what physicians need to know about a familiar virus that’s behaving in unfamiliar ways.

RSV Outbreaks Occur Every Year. What’s Different About This Year?

The answer is multifold. First, this year’s outbreak started much earlier than the typical RSV season, which usually begins in late fall, peaks in December, January, or February, and tapers off by early spring. RSV hospitalizations picked up in late spring this year and in most regions have been increasing ever since, according to the CDC.

This outbreak is also larger and, in some physicians’ view, more severe than usual. But what’s making it especially challenging is that it has coincided with the circulation of several other respiratory pathogens, including SARS-CoV-2, but also **enterovirus D68** (which can cause **acute flaccid myelitis**), **parainfluenza viruses** (the most common causes of **croup**), rhinoviruses, and now influenza.

“Although the medical community was anticipating a worse than usual influenza season, I think we may not have been pre-

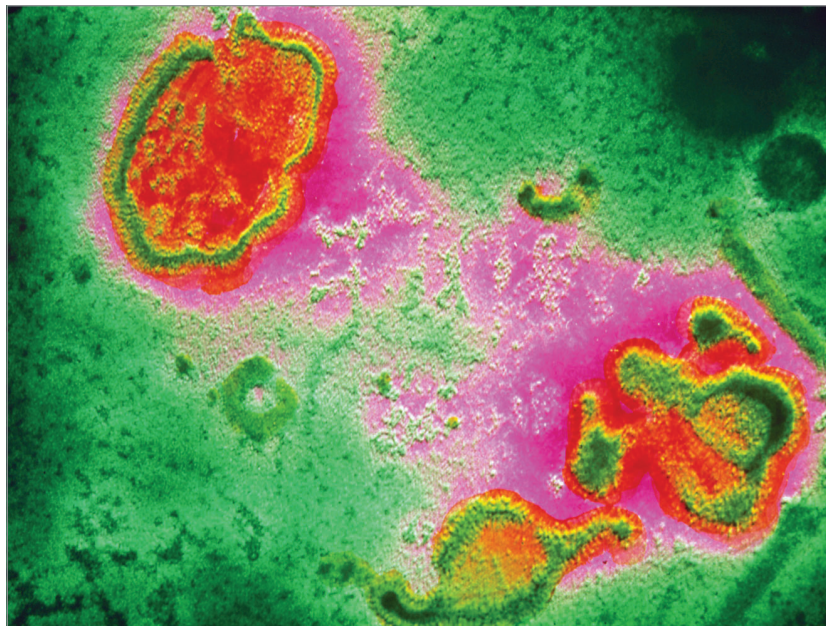
pared for a multitude of respiratory viruses to descend on us all at once and to do so even a little bit before the typical respiratory virus season,” David Henderson, MD, the NIH Clinical Center’s former deputy director for clinical care, said in a November 6 Society for Healthcare Epidemiology of America (SHEA) **town hall** program.

Like RSV, the flu arrived early this year. Influenza A, specifically H3N2, has battered the southeast and south central US in recent weeks. “We have RSV activity that is moderately higher and definitely earlier than a normal season would be,” explained pediatric infectious disease specialist JB Cantey, MD, MPH, of the University of Texas Health Science Center at San Antonio. “In a vacuum, that would probably not be the end of the world...But it’s on top of a really, really high flu season on top of a global COVID-19 pandemic. So, it’s sort of this horrible three-layer ice cream cone that is putting a lot of burden on the pediatric systems in the region and nationally.”

Why Are So Many Children Becoming Infected With RSV This Year?

Blame it on the RSV “**immunity debt**.” Most children are exposed to RSV in the first year of life, and almost all have been infected by 2 years. RSV infections in the first 6 months can be particularly severe, leading to bronchiolitis—infection of the lung passages—and pneumonia. Subsequent infections usually are milder, causing cold-like symptoms. But there was essentially no RSV in 2020, and now kids are paying for it.


The virus reemerged in the summer of 2021 and, after peaking that August, has been consistently circulating at low levels. Masking, social distancing, and other pandemic-related mitigation strategies have continued to protect many children from being exposed. But this year, as in-person gatherings and travel increased and kids went back to school and daycare without masks, the virus has ripped through a large pediatric population with little to no immunity.



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Respiratory syncytial virus (RSV) infection

RSV spreads easily by contact with infected droplets of saliva or mucus



Highest-risk populations

- Young children, especially infants younger than 1 year
- People with weakened immune systems

Symptoms
Begin 3 to 7 days after exposure

- Fever
- Wheezing
- Runny nose or nasal congestion
- Difficulty breathing
- Chest congestion
- Cough

Treatment
There is no specific treatment for RSV infections. Symptoms usually improve within 1 to 2 weeks. Antibiotics are not helpful for RSV infections.

- Fluids
- Medications to relieve fever or treat other symptoms, such as wheezing

This includes the usual RSV-vulnerable cohort of children aged 2 years or younger, but also many 3- and 4- and even 5-year-olds who have required respiratory support. "We're used to RSV seasons where we see RSV bronchitis or RSV bronchitis complicated with pneumonia in younger infants," said Elizabeth R. Alpern, MD, MSCE, division head of pediatric emergency medicine at the Lurie Children's Hospital of Chicago. "This year we're seeing wheezing illnesses in older children associated with RSV in a way that is unusual, and many of these children are also needing hospitalization due to the acuity of their illness."

Some think there could be other factors contributing to the surge. In addition to the nonpharmaceutical interventions that prevented RSV from spreading earlier in the pandemic, the American Academy of Pediatrics has noted that "[i]nteractions between SARS-CoV-2 and other respiratory viruses also may have altered RSV epidemiology." Conversely, a lessening of so-called [viral interference](#) from SARS-CoV-2 during recent months might have allowed RSV to explode.

Mejias wonders if a new RSV strain that emerged the summer before the pandemic also might be playing a role. "This new virus for which we don't have immunity, plus the immunity debt of all these children that have not been exposed to RSV, is the perfect combination," she said. To investigate the possibility, her research team is now collecting RSV clinical samples for genetic sequencing.

How Is the Surge Affecting the Health Care System?

Around the country, pediatric primary care offices, urgent care facilities, emergency departments, and pediatric medical wards and intensive care units are struggling to meet the patient demand from respiratory infections.

In Texas, 88% of pediatric hospital beds were filled as of late October. "We're drowning," said Karen Schultz, MD, medical director of pulmonary services at Cook Children's in Fort Worth. "The number of cases of RSV coming through is just incredibly high and the kids are incredibly sick."

The Cook Children's emergency department saw 623 patients on November 2, an equivalent of one check-in every 2 minutes. The hospital has activated an internal disaster for high census. "We're just all-hands-on-deck," Schultz said. "We're even having some of these babies go to the NICU, which is not where we want to put RSV babies, but there's nowhere else to put them."

Although Schultz said this isn't the case at her hospital, an ongoing shortage of staff—particularly nurses and respiratory therapists—is limiting inpatient capacity at many pediatric hospitals. Some hospitals are at capacity due to staffing, despite having unoccupied beds. In other cases, hospitals are short on beds because pediatric units were converted for adult use during the pandemic and haven't been switched back. Elsewhere, pediatric units closed before or during the COVID-19 crisis.

The respiratory virus surge combined with the shortage of pediatric hospital beds and compounded by staffing issues is causing widespread emergency department boarding and longer-than-usual waiting room times. Some patients at Nationwide Children's in Columbus, Ohio, have waited 24 to 36 hours in the emergency department for an inpatient bed, Mejias said. At the Lurie Children's Hospital emergency department in Chicago, "We have every single bed running," Alpern said. "We have increased our physician and nursing coverage as much as we can. And our waiting room is still full." Danielle M. Zerr, MD, MPH, division chief of Pediatric Infectious Disease at the University of Washington, noted in the SHEA town hall that as many as 30 to 40 children had left the Seattle Children's Hospital emergency department in a single day without being seen, compared with very few before the RSV surge.

Frustrated families are showing up at primary care offices after these long waits. "I would say most of my patients are reporting spending about 8 hours, on average, at emergency departments and about 3 hours in urgent cares," said Katie Lockwood, MD, MEd, a primary care pediatrician and an attending physician at Children's Hospital of Philadelphia Primary Care, Flourtown. "We've seen many patients who come to us in primary care after spending a night waiting in an emergency department and maybe because they were triaged as less acute, they sat there for many hours, gave up, went home, and then just called the office in the morning."

What Sort of Planning Is Underway?

In pockets where the RSV surge hasn't yet hit, some hospitals are preparing for what's being seen as an eventuality. "It's like when there's an earthquake and you know the tsunami is coming. That's how we feel in Portland right now," said Judith A. Guzman-Cottrill, DO, a pediatric infectious disease specialist at the Oregon Health and Science University (OHSU) Doernbecher Children's Hospital.

As of early November, Oregon had yet to experience the same RSV surge as its neighbors to the north and south, according to Guzman-Cottrill and her colleague Carl Eriksson, MD, MPH, a critical care physician at Doernbecher. "What we're seeing is a combination of our own patients with RSV starting to increase in the hospital, as well as signs

that both California and Washington are really struggling with their capacity to care for kids," especially those needing intensive care, Eriksson said. Hospitals including his are coordinating pediatric transports across the 3 states. But he worries that an RSV surge in Oregon could overwhelm the West Coast's hospital capacity, which he said already has occurred on the East Coast.

At the November 4 CDC briefing, a representative from the Administration for Strategic Preparedness and Response, part of the US Department of Health and Human Services, said the agency was monitoring nationwide capacity and standing by with additional personnel and medical supplies that states could request.

Will the RSV Season Eventually Reset to Prepandemic Patterns?

It's too early to say, but it's an important question that needs answering. One reason: high-risk infants, including those born premature, are administered 5 consecutive monthly doses of a monoclonal antibody called [palivizumab](#) (Synagis) when RSV season arrives. "For RSV, in terms of using prophylaxis and protecting babies, it's really im-

portant to understand when we expect it," said Emily Toth Martin, PhD, MPH, an associate professor of epidemiology at the University of Michigan School of Public Health. "If that's beginning to fundamentally shift, that has implications for preparedness and for our prevention strategies."

Will There Ever Be an RSV Vaccine?

As *JAMA* reported earlier this year, vaccines for different cohorts are within reach. Mejias said data from late-phase trials of a vaccine administered during pregnancy and a vaccine for older adults, who are also susceptible to severe RSV infection, look very promising. If approved, the vaccine could be administered during pregnancy to provide passive immunity to neonates. Meanwhile, regulators in the European Union recently approved a long-acting single-dose monoclonal antibody called [nirsevimab](#) (Beyfortus) for use among all infants, not just those at high risk. The investigational RSV prophylactic is also making its way through regulatory channels in the US.

"Both the monoclonal development space and the vaccine development have really had some pretty amazing advance-

ments," Martin said. "I am really optimistic for the products that we're going to have available over the next year." ■

Published Online: November 11, 2022.
doi:[10.1001/jama.2022.21638](https://doi.org/10.1001/jama.2022.21638)

Conflict of Interest Disclosures: Dr Canteley reported an R18 grant from the Agency for Healthcare Research and Quality (AHRQ), subaward funding from the National Institutes of Health (NIH) through other R mechanisms where he is not the principal investigator, and book royalties from the American Academy of Pediatrics (AAP). Dr Guzman-Cottrill reported that she is a contracted consultant to the Oregon Health Authority's Healthcare-Associated Infection program. Dr Lockwood reported that she is a paid consultant for Hearst, LLC (Prevention Magazine) serving on their Medical Review Board and an unpaid spokesperson for the AAP. Dr Martin reported research funding from Merck, the Centers for Disease Control and Prevention, the NIH, and FLULAB. She is codirector of the University of Michigan Center for Respiratory Virus Research and Response and faculty lead of the University of Michigan Public Health IDEAS for Combating Infectious Diseases initiative. Dr Mejias reported research grant support from Janssen and Merck (to institution); fees for participation on the Janssen, Merck, Roche, and Sanofi-Pasteur advisory boards; and fees from Sanofi-Pasteur and AstraZeneca for CME lectures. No other disclosures were reported.

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