

Why whooping cough is making a comeback

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Credit: National Cancer Institute

After a week with a dry cough, 16-year-old Ian McCracken started experiencing middle-of-the-night coughing fits so severe, he couldn't talk. He returned home from his first trip to the urgent care clinic in mid-July with an inhaler and a five-day course of steroids.

The coughing fits didn't abate, and after a few days, Ian jumped out of bed and got his mom's attention by clapping his hands, unable to get any words out. The Decatur, Ga., teenager gasped for air, tears running down his face.

His mother, Karen Andes, took her son to another doctor, who suggested Ian may have reflux.

But a combination of Andes' medical background (she's an assistant professor of global health at the Rollins School of Public Health at Emory University) and a mother's intuition told her something else was tormenting her son—pertussis, also known as whooping cough.

Whooping cough, a potentially life-threatening childhood illness, all but disappeared in the 1940s

after a [vaccine](#) was developed. But in recent decades, the illness has been making a comeback. Changes in the vaccine and waning immunity are likely contributing to the resurgence of the illness, according to experts.

In recent years, there have been outbreaks not seen since the 1950s.

In 2012, the United States had the highest number of whooping cough cases in more than 50 years with 48,277 reported cases and 20 deaths. Most of the deaths occurred among infants, according to the U.S. Centers for Disease Control and Prevention. In Georgia, there were 318 cases in 2012, which included no deaths. Since then, there have been three whooping cough-related deaths (two in 2013 and one in 2016) in Georgia, and all of the deaths involved babies.

Last year, there was a total of 163 reported cases of whooping cough in Georgia, according to the CDC. And this year through Aug. 21, there have been a total of 102 cases, according to the Georgia Department of Public Health.

The highly contagious respiratory illness is not always on the radar of doctors and can be mistaken for a cold, bronchitis, reflux. The Georgia Department of Health said it's not uncommon for someone to see two, even three doctors before getting a proper diagnosis.

Andes insisted on getting her son tested for whooping cough. Results from a nose culture came back positive.

"At first, I felt relieved, and even a bit proud of myself," said Andes, "but then the reality sunk in that we may be in for more difficult nights."

The older vaccine for whooping cough was phased out in the late 1990s. It carried a high risk of serious but temporary side effects like pain and swelling at

the site of injection, as well as serious complications such as febrile convulsions, which are fits or seizures caused by a sudden change in a child's body temperature, and loss of consciousness. One study by researchers at Kaiser Permanente's Vaccine Study Center in Oakland, Calif., found the newer pertussis vaccine, while safer and with fewer side effects than the older version, is not as effective.

The 2016 study from Kaiser Permanente's Vaccine Study Center found that the booster vaccine known as Tdap provides moderate protection against whooping cough during the first year after vaccination, but its effectiveness wanes to less than 9 percent after four years among teenagers who have received only a newer form of the whooping cough vaccine (known as acellular pertussis vaccine) as infants and children.

Pertussis can cause serious illness in people of all ages and can even be life-threatening, especially in babies. About half of babies under 1 year of age who get pertussis need treatment in a hospital, according to the CDC. The illness can have a lasting effect on lung function, leaving people with shortness of breath.

Meanwhile, a team of researchers, including scientists from the University of Georgia, found in a new study while some people lose immunity relatively quickly, the vaccine can be protective for many decades. The study, published in a March issue of *Science Translational Medicine*, also found the dwindling number of people still alive who survived pertussis infections in the days before vaccination and therefore gained lifelong immunity, is also playing a role in the resurgence. When the vaccine was first introduced in the 1940s, there were very high rates of vaccination, which led to an overall decrease in transmission.

Senior author Pejman Rohani, who has a joint appointment in the UGA College of Veterinary Medicine and the Odum School of Ecology, said the number of people who are susceptible to contracting pertussis is slowly rising—setting the stage for an increase in the number of new cases, especially in older individuals. This is known as the "end of the honeymoon" period, he said.

And even though the effectiveness of vaccines may wane over time, experts say people should still make sure to get them. Skipping the vaccines, Rohani said, "would be a terrible idea, especially the routine scheduled and maternal vaccination."

He added that researchers are still working on deciding whether people should get more frequent booster vaccinations.

Meanwhile, Ian, who was fully vaccinated against whooping cough, completed a round of antibiotics and is doing better. But he still has a lingering cough, and a full recovery could take months.

After Ian's diagnosis, Andes notified City of Decatur schools about her son's illness. It was over summer break, but Ian was participating in a high school band camp and was around other high school students. City of Decatur Schools spokesperson Courtney Burnett said a letter was sent to parents of students at Decatur High School informing them of the illness. Burnett said the school system is not aware of any other whooping cough cases.

Andes, who also got whooping cough (likely from her son) but was treated early before symptoms got severe, is sharing her family's story to help raise awareness about whooping cough.

She wants families to know the following: don't assume you can't get whooping cough because you've been vaccinated; whooping cough not only affects babies; early treatment is key (not only may it help reduce the severity or the length of the illness, it prevents spreading the illness to others); and whooping cough "doesn't always whoop," particularly in adolescents and adults. Her son burped for air after each attack. She checked his fingernails—and they were purplish-blue near the cuticles because he wasn't getting enough oxygen.

"Each episode was very scary. It was absolutely terrifying," she said. "Our journey is not over yet, but I have learned a lot."

VACCINATION RECOMMENDATIONS

The CDC recommends pertussis (also called whooping cough) vaccines for people of all ages.

Babies and children should get five doses of DTaP for maximum protection. DTaP is a vaccine that helps children younger than age 7 develop immunity to three deadly diseases caused by bacteria: diphtheria, tetanus and whooping cough (pertussis).

Source: CDC

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Healthcare professionals give a dose of DTaP at 2, 4 and 6 months, at 15 through 18 months, and again at 4 through 6 years. They give children a booster dose known as Tdap to preteens at 11 or 12 years old.

Teens or adults who didn't get Tdap as a preteen should get one dose. Getting Tdap is especially important for pregnant women during the third trimester of each pregnancy. It's also important that those who care for babies are up-to-date with pertussis vaccination.

You can get the Tdap booster dose no matter when you got your last regular tetanus and diphtheria booster shot (Td). Also, you need to get Tdap even if you got pertussis vaccines as a child or have been sick with pertussis in the past.

- The Impact of Anti-Vaxxers on the Comeback of Whooping Cough

Even though children who haven't received DTaP vaccines are at least eight times more likely to get whooping cough than children who received all five recommended doses of DTaP, they are not the driving force behind the large-scale outbreaks or epidemics, according to the CDC. Even so, their parents are putting their children at greater risk of getting [whooping cough](#) and possibly spreading the illness to others.

WHOOPING COUGH—KNOW THE SIGNS

Whooping cough starts like the common cold, with a runny nose or congestion, sneezing, and maybe a mild cough or fever. But after one to two weeks, severe coughing can begin and can include many rapid coughs followed by a high-pitched "whoop" sound. It's important to note not everyone with pertussis will cough and many who cough will not "whoop." Babies may not cough at all though. Instead, they have trouble breathing.

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