

PUBLIC HEALTH ALERTS | IN PARTNERSHIP WITH CIDRAP

Measles Outbreak in Cook County, Illinois, September–October 2025

Demian Christiansen, D.Sc.,¹ Sheila Giovanni, M.P.H.,¹ Mabel Frias, M.P.H.,¹ Kelley Bemis, M.P.H.,¹ Heather Reid,² Jodi Morgan,² and Griselle Torres, Dr.P.H.¹

Abstract

A small community outbreak of measles in suburban Cook County, Illinois occurred in September–October 2025. Cook County Department of Public Health investigators identified four measles cases, including one unvaccinated pediatric index case, two vaccinated adult secondary cases, and an unvaccinated pediatric tertiary case. At least 99 individuals were exposed to measles, including 79 (80%) people exposed in emergency department waiting rooms on two separate dates. Incomplete exposure information was ascertained by public health investigators, which might have contributed to preventable health care exposures.

The Public Health Alerts section in *NEJM Evidence* is in partnership with the Center for Infectious Disease Research and Policy (CIDRAP) at the University of Minnesota.



Introduction

Measles is a highly contagious respiratory virus with a 90% attack rate in unvaccinated populations. Receipt of two doses of measles vaccine given at appropriate intervals is 97% effective at preventing measles and is recommended for all persons 12 months of age or older.¹ Measles symptoms include fever, cough, coryza, conjunctivitis, and often a characteristic maculopapular rash that starts on the face and spreads to the body.² In 2000, the United States declared measles eliminated (i.e., no endemic transmission),² but in recent years large outbreaks and increased case counts have put that status in jeopardy. This report describes a small community outbreak of measles in Cook County, Illinois. Information was collected as part of a routine public health response without institutional review board review.

Initial Notification

On September 13, 2025, a hospital notified Cook County Department of Public Health (CCDPH) of a suspected measles case in an unvaccinated 4-year-old child (patient A). The child arrived at O'Hare International Airport on September 11 from a country with endemic measles transmission. In-flight, the child experienced a cough and subjective fever; a maculopapular facial rash developed on September 12 and spread to the body. The child went to an emergency department (ED) on September 13. Reverse transcription-polymerase chain reaction (RT-PCR) of a nasopharyngeal swab was positive for measles at the Public Health Laboratory at the Illinois Department of Public Health (IDPH) on September 15.

The author affiliations are listed at the end of the article.

Demian Christiansen can be contacted at dchristiansen@cookcountyhhs.org.

Investigation and Outcomes

Twenty-nine ED contacts were identified. People with at least one documented MMR vaccine dose, birth before 1957, or a positive titer result for measles were considered measles-immune. Overall, 18 (62%) were immune, 5 (17%) received MMR postexposure prophylaxis (PEP) on September 16 because they were unable to provide proof of vaccination or positive titer results, and 6 (21%) had unknown immune status, including 4 who did not respond and 2 whom we reached but who did not respond thereafter (unable to provide proof of vaccination or positive titer result). Patient A's household included three siblings and their parents. The parents and two older siblings in their 20s stated that they had previous measles disease; titer results documented measles immunity. A younger sibling had received three MMR doses. No family members developed measles.

On September 28, a 49-year-old woman (patient B), who was previously vaccinated with two MMR doses, presented to the same hospital's ED with a fever and rash. RT-PCR testing of a nasopharyngeal swab by IDPH confirmed measles on September 29. Although this individual had not been previously identified among the initial 29 ED contacts of patient A, further investigation demonstrated that patient B had been present in the ED and exposed to the index case on September 13. She had been in the ED with her sister that day (for reasons unrelated to measles). CCDPH staff had initially interviewed patient B's sister as part of the ED contact investigation of the index case but at that time did not ascertain that patient B had been present. Fifty ED contacts were identified as exposed to patient B. In total, 36 (72%) were immune, 7 (14%) received MMR PEP, and 7 (14%) had unknown immune status.

Additional people exposed to patient B included 11 coworkers and 2 children, a 10-month-old and a 23-month-old, on September 24, the first day of her infectious period. The younger child was unvaccinated owing to being less than 12 months old; the older child had received one MMR dose. The infant was given immunoglobulin and quarantined for 28 days. No additional cases resulted from the ED contacts, coworkers, or exposed children.

Patient B's sister (patient C), who had been previously vaccinated with two MMR doses, developed a self-reported fever and rash on October 3, 20 days after her exposure to patient A. A nasopharyngeal swab collected by CCDPH staff at her home that day was negative; however, because of her symptoms and epidemiologic linkage to a laboratory-confirmed

measles case (patient A), CCDPH investigators classified her as a confirmed measles case. Patients B and C lived together and had at least six household contacts: two were presumed immune, having been born before 1957; three adult children, ranging from 18 to 28 years of age, had two MMR doses; and patient C's 11-year-old child was unvaccinated due to the parents' decision to decline routine immunizations. On October 14, patient C's unvaccinated child (patient D) developed a fever and rash and was taken to a pediatric ED. CCDPH had worked with staff at that hospital on previous measles cases and had informed them that the exposed, unvaccinated child was likely to develop symptoms and seek care there based on conversations with the child's parents and the facility's proximity to their residence. A nasopharyngeal swab tested positive by RT-PCR at IDPH on October 15. Patient D was isolated immediately, and no additional ED exposures occurred.

Preliminary Conclusions and Actions

In this outbreak, the index case transmitted measles to two vaccinated adults, one or both of whom transmitted measles to an unvaccinated, tertiary case. The challenges experienced ascertaining complete exposure information resulted in a potentially avoidable second exposure in hospital A's ED. During interviews with patients B and C and several of their household contacts, references were made to two additional household contacts, but CCDPH staff were unable to ascertain their names or to interview them. "Operation Midway Blitz," the name given to Immigration and Customs Enforcement's (ICE's) immigration enforcement activities in the Chicago area, began on September 8 and were underway during this outbreak.³ Several family members informed CCDPH staff that they had concerns regarding privacy, given ongoing ICE activities. We speculate these concerns may have contributed to the challenges identifying all potentially exposed individuals. Trust between public health investigators and the communities they serve is vital for measles case management and outbreak control activities.

Disclosures

Author disclosures are available at evidence.nejm.org.

We thank Rachel Rubin, Tarek Shackour, Lex Burda, Courtney Kinnane, Michelle Ngan, Precious Aguirre, Marisela Hernandez, Romualdo Chavez, Emmanuel Ndukwu, Malwina Krzywiec-Smreczynski, Linda Magee, Alexandra Thomas, Janet Edwards, Greg Dixon, Robert Velcich,

Dred McCurry, the Cook County Department of Public Health, and the Illinois Department of Public Health Communicable Disease Section.

Author Affiliations

¹ Cook County Department of Public Health, Forest Park, IL, USA

² Illinois Department of Public Health, Springfield, IL, USA

References

1. Centers for Disease Control and Prevention. Clinical overview of measles. March 3, 2026 (<https://www.cdc.gov/measles/hcp/clinical-overview/index.html>).
2. American Academy of Pediatrics. Red book: 2024–2027 report of the Committee on Infectious Diseases. 33rd ed. Itasca, IL: American Academy of Pediatrics, 2024:570-571.
3. Department of Homeland Security. ICE launches Operation Midway Blitz in honor of Katie Abraham to target criminal illegal aliens terrorizing Americans in sanctuary Illinois. September 8, 2025 (<https://www.dhs.gov/news/2025/09/08/ice-launches-operation-midway-blitz-honor-katie-abraham-target-criminal-illegal>).