

# Lessons learned from identifying clusters of severe acute respiratory infections with influenza sentinel surveillance, Bangladesh, 2009–2020

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## Abstract

**Background** We explored whether hospital-based surveillance is useful in detecting severe acute respiratory infection (SARI) clusters and how often these events result in outbreak investigation and community mitigation. **Methods** During May 2009–December 2020, physicians at 14 sentinel hospitals prospectively identified SARI clusters (i.e., [?]2 SARI cases who developed symptoms [?]10 days of each other and lived <30 minute walk or <3 km from each other). Oropharyngeal and nasopharyngeal swabs were tested for influenza and other respiratory viruses by rRT-PCR. We describe the demographic of persons within clusters, laboratory results, and outbreak investigations. **Results** Physicians identified 464 clusters comprising 1,427 SARI cases (range 0–13 clusters per month). Sixty percent of clusters had three, 23% had 2, and 17% had [?]4 cases. Their median age was 2 years (interquartile [IQR] 0.4–25) and 63% were male. Laboratory results were available for the 464 clusters a median 9 days (IQR = 6–13 days) after cluster identification. Less than one in five clusters had cases that tested positive for the same virus: RSV in 58 (13%), influenza viruses in 24 (5%), HMPV in 5 (1%), HPIV in 3 (0.6%), adenovirus in 2 (0.4%). While 102/464 (22%) had poultry exposure, none tested positive for influenza A(H5N1) or A(H7N9). None of the 464 clusters led to field deployments for outbreak response. **Conclusions** For 11 years, none of the hundreds of identified clusters led to emergency response. The value of this event-based surveillance might be improved by seeking larger clusters, with stronger epidemiologic ties or precedents.

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