Syndromic Surveillance

CSTE Stories FROM THE Field

Syndromic surveillance monitors the health of a community using various near real-time data sources including hospital emergency departments, urgent care centers, poison control centers, weather stations, and vital statistics. Data such as chief complaints, discharge diagnoses, and clinical features are analyzed on a centralized platform to discern trends over time and geographically to identify outbreaks and illness clusters. Syndromic surveillance can provide insights into the health effects of environmental exposures, provide situational awareness about the community and mass gathering events, and assist in case-finding for illnesses that do not have routine surveillance in place. This automated, computer-generated data collection enables public health alerts during emergencies, ensuring timely responses.

NATIONAL PICTURE

The Council of State and Territorial Epidemiologists in partnership with the National Syndromic Surveillance Program (NSSP) formed a dynamic Community of Practice (CoP) comprised of state, tribal, local, and territorial (STLT) public health agencies, the Centers for Disease Control and Prevention (CDC), and private partners. Monthly meetings focus on sharing best practices, discussing data quality, and exploring analytic tools for syndromic surveillance. The CoP maintains a knowledge repository to encourage innovative data analysis and visualization techniques. Many STLTs utilize the CDC's BioSense Platform, which includes approximately 6,500 healthcare facilities, and as of September 2023, 78% of the nation's emergency rooms. The CDC's Public Health Data Strategy aims to reach 80% participation from non-federal emergency departments in syndromic surveillance by the end of 2024. An additional goal seeks to establish a data access agreement, adopted by half of NSSP jurisdictions, to enhance data sharing among public health.

SYNDROMIC SURVEILLANCE IN ACTION

Pennsylvania Uses Syndromic Surveillance Data to Track Down Tripledemic

Pennsylvania faced a "tripledemic" with elevated levels of influenza, COVID-19, and respiratory syncytial virus (RSV) in fall 2022. Traditional surveillance, relying on laboratory results, faced challenges due to changes in COVID-19 testing practices and reporting limitations. Syndromic surveillance, a method relying on early indicators from electronic medical record systems, became crucial. Pennsylvania utilized syndromic surveillance through emergency department (ED) visit data collected from 100% of state hospitals with an ED, with 95% reported within 24 hours. Essential funding, including Emergency Preparedness and Response cooperative agreement funds, supported system maintenance and staffing.

Through syndromic surveillance, the Pennsylvania Department of Health monitored co-circulating viral respiratory pathogens, offering real-time insights. The staff developed a code-based solution to identify ED visits with influenza, COVID-19, or RSV diagnoses, creating time series charts. Weekly reports aided state epidemiologists in understanding virus impacts by age group and region. For instance, data revealed RSV peaking in mid-November 2022, followed by influenza and COVID-19 peaks. Insights included similar burdens of ED visits for influenza and RSV in children under 5, higher influenza-

continued ⟶

diagnosed ED visits in school-age children, and greater COVID-19 burden in the elderly. The department shared syndromic surveillance data with the CDC's NSSP.

Looking ahead, Pennsylvania plans to continue syndromic surveillance for influenza, COVID-19, and RSV, expanding to capture inpatient hospital data for a comprehensive understanding of hospitalizations and outcomes associated with these viruses and other public health concerns. The use of syndromic surveillance is critical for timely, complete, and reliable monitoring, contributing to effective public health responses.

100% of Pennsylvania hospitals with an ED submit syndromic surveillance reports to the Department of Health

SUBMITTED BY: *Jonah Long, Epidemiology Research Associate, Pennsylvania Department of Public Health*

Illinois Establishes Automated Alerts for Travelers from Ebola-affected Regions Seeking Health Care

The Illinois Department of Public Health implemented an automatic alert system in response to the arrival of travelers from Ebola-affected regions to the United States. The system utilized application programming interface (API) connections to the server housing traveler data and syndromic surveillance data from Illinois ED visits. A deterministic matching algorithm, based on personal identifiers like name, date of birth, and gender, facilitated the identification of travelers in EDs. Once a match was found, email alerts were quickly sent to local health and state health departments. The matching process was repeated every 15 minutes to ensure real-time notifications for newly received data.

Despite two travelers seeking care within 21 days of arrival, their visits were unrelated to Ebola. The system's impact lies in providing early notification when travelers, potentially carrying infectious diseases, seek direct care without contacting public health first. While the two instances were unrelated to the targeted infectious disease, the data linkage between traveler information and syndromic surveillance demonstrated its effectiveness. Looking ahead, Illinois plans to continue using these alerts in future traveler-related monitoring scenarios and may consider expanding their application to other situations as needed, emphasizing the system's potential for quick notification in infectious disease-related incidents.

The matching process was repeated every 15 minutes to identify travelers from Ebola-impacted regions who visited the ED within 21 days of arrival

SUBMITTED BY: *Connie Austin, Division of Infectious Diseases, Illinois Department of Public Health*

↘ Story submissions edited for length and clarity.