Health Information Exchanges (HIEs) and Syndromic Surveillance

The COVID-19 pandemic has underscored the need to capture and securely share patient information via health information exchanges (HIE). HIEs across the nation have been critically important in helping healthcare provider organizations as well as state and local health departments with reporting and tracking the spread of the virus, analyzing data for targeted testing and resource allocation planning, and assisting with contact tracing efforts.

While state and local health departments have collected and tracked syndromic surveillance data for years, the current pandemic has highlighted the urgent need to have a more robust, efficient, and well- funded ability to capture, standardize, and securely share this data across organizations, providers of care, and agency jurisdictions.

This article provides information defining syndromic surveillance and why it is important now, more than ever, for states and territories to continue with this work. The renewed emphasis on the importance of syndromic surveillance data signals that new funding streams for health information technology-related public health initiatives will be forthcoming. To understand the form these new funding sources might take, it is important for the reader to understand the history of public health syndromic surveillance efforts as well as how these efforts have been traditionally funded.

What is syndromic surveillance?

A definition of syndromic surveillance necessarily includes a history lesson regarding the public's fear of bioterrorism. This fear was at its height after the 9/11 terror attacks and the anthrax-laced letters that were sent to members of Congress after the attacks. The idea was that states and the Federal Government needed an early warning system that would reduce the number of people getting sick from a bioterror attack. Researchers developed methods for detecting and collecting individual and population health symptoms of flu-like infectious diseases in hospitals and methods for modeling this data to detect surges. The researchers quickly realized that this bioinformatic data could be used for more than bioterrorist attacks and could help with responses to pandemics. The U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (CDC)[1] along with other large institutions such as the World Health Organization (WHO)[2] used a public health surveillance process to create databases and modern computer systems to track and monitor emerging outbreaks of illnesses such as the human immunodeficiency virus (HIV), severe acute respiratory syndrome (SARS), and influenza.

Why is this important today?

Using discrete data extracted from electronic health records (EHR) and the data analytics and aggregating tools within HIEs, modern syndromic surveillance is a process by which public health officials can now detect and characterize outbreaks of diseases in near real time. Various sources of patient information including laboratory results and even pre-diagnostic data, such as information gleaned from a patient's "chief complaint" when presenting at the start of an emergency room visit, are utilized. When coupled with patient demographics such as age, gender, ethnicity, address, and other key questions such as recent travel history

and social determinants of health, public health officials can use computer algorithms to categorize syndromic data based on patient locality, demographics, risk behaviors, and other factors to help public health officials monitor and forecast trends. Tracking the progression of an outbreak is critical, but by also being able to identify who specifically is at risk early on in an outbreak, syndromic surveillance data helps public health officials determine more effective means of resource planning, allocation, and intervention.

How were syndromic surveillance efforts funded?

Understanding that historically, syndromic surveillance focused on public health disaster planning, including training and exercises at hospitals, federal grants were provided for preparedness and staffing. Specifically, the Public Health Emergency Preparedness (PHEP) cooperative agreement programs through the CDC were funded at $940 million in Fiscal Year 2002. At the same time, the Hospital Preparedness Program was funded at $515 million in Fiscal Year 2003—the focus of those funds being for planning, training, and exercises at hospitals for system surges, preparedness coordinators, and partnering of hospitals with public health for coordinated responses.[3] A larger funding source and investment for public health emergencies was the National Institute of Allergy and Infectious Diseases[4] ($1.6 billion to $1.8 billion per year for research, some funding for medical countermeasures and the CDC's Strategic National Stockpile). However, these funding streams were not targeted for funding the needs of state and territory public health agencies for standardization and reporting.

While the 21st Century Cures Act[5] in 2016 was useful to public health agencies as it helped to further define interoperability standards and ameliorate the patchwork approach to standards and reporting, the funding for syndromic surveillance was still not expressly authorized.

What is the new funding source?

Section 3012 of the American Rescue Plan Act of 2021 specifically states that the CDC will have $1.75 billion in funding for:

> "activities and workforce related to genomic sequencing and analytics, and diseases surveillance. Such funds shall be used to conduct, expand, and improve activities to sequence genomes, identify mutations, and survey the circulation and transmission of viruses including strains of SARS-CoV-2; awarding grants or cooperative agreements to State, local, Tribal, and territorial public health departments or public health laboratories to increase their genomic sequencing, identifying mutations, identifying outbreaks, developing disease response strategies, enhancing and expanding informatics capabilities, and facility improvements."[6]

We will continue to monitor this funding stream as the details become available. Please stay tuned for more information regarding how funds will flow to states and the federal agencies and HIEs to improve our early warning systems for public health and safety.

Contact us today if you have any questions about HIEs and syndromic surveillance.

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References

1 Centers for Disease Control and Prevention, accessed March 30, 2021, https://www.cdc.gov/

2 World Health Organization, accessed March 30, 2021, https://www.who.int/

3 Centers for Disease Control and Prevention, accessed March 30, 2021, https://www.cdc.gov/

4 National Institute of Allergy and Infectious Diseases, accessed March 30, 2021, https://www.niaid.nih.gov/

5 21st Century Cures Act 2016, March 30 2021, https://www.congress.gov/bill/114th-congress/house-bill/34

6 American Rescue Plan Act 2021, s 3012, March 30, 2021, https://www.congress.gov/bill/117th-congress/house-bill/1319/text