ISDS 2019 Conference Abstracts

Approach to Onboarding Emergency Medical Services (EMS) Data Into a Syndromic Surveillance System

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Objective

To describe the strategy and process used by the Florida Department of Health (FDOH) Bureau of Epidemiology to onboard emergency medical services (EMS) data into FDOH's syndromic surveillance system, the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE-FL).

Introduction

Syndromic surveillance has become an integral component of public health surveillance efforts within the state of Florida. The near real-time nature of these data are critical during events such as the Zika virus outbreak in Florida in 2016 and in the aftermath of Hurricane Irma in 2017. Additionally, syndromic surveillance data are utilized to support daily reportable disease detection and other surveillance efforts. Although syndromic systems typically utilize emergency department (ED) visit data, ESSENCE-FL also includes data from non-traditional sources: urgent care center visit data, mortality data, reportable disease data, and Florida Poison Information Center Network (FPICN) data. Inclusion of these data sources within the same system enables the broad accessibility of the data to more than 400 users statewide, and allows for rapid visualization of multiple data sources in order to address public health needs. Currently, the ESSENCE-FL team is actively working to incorporate EMS data into ESSENCE-FL to further increase public health surveillance capacity and data visualization.

Methods

The ESSENCE-FL team worked collaboratively with various public health program stakeholders to bring EMS data, aggregated by the FDOH Bureau of Emergency Medical Oversight Emergency Medical Services Tracking and Reporting System (EMSTARS) team, into ESSENCE-FL. The ESSENCE-FL team met with the EMSTARS team to discuss use cases, demonstrate both systems, and to obtain project buy-in and support. Initial project meetings included review of ESSENCE-FL system support, user types (roles and access), as well as data security and compliance. An overall project timeline was established, and deliverables were added into system support contracts. Multiple stakeholders, across disciplines representing each key use case, reviewed the Florida version of the National Emergency Medical Services Information System (NEMSIS) version 3.4 data dictionary to identify program-specific data element needs. An element scoring spreadsheet was returned to the ESSENCE-FL team. These scores were aggregated and discordant scores were reviewed by the ESSENCE-FL team. A one-month extract of EMS data was reviewed to assess variable completeness and relevance. Monthly team meetings facilitated the final decisions on the data elements by leveraging lessons learned through onboarding other data sources, findings from the analysis of the one-month extract, stakeholder comments, and advice from other states known to be leveraging EMS data for public health surveillance.

Results

Through a collaborative and broad approach with partners, the ESSENCE-FL team attained stakeholder buy-in and identified 81 data elements to be included in the EMS feed to ESSENCE-FL. The final list of data elements was determined to best support health surveillance of this population prior to presenting to the ED. The inclusion of the EMS data in ESSENCE-FL will increase the epidemiologic characterization and analysis of the opioid epidemic in Florida.

Additional key use cases identified during this project included enhanced injury surveillance, enhanced occupational health surveillance, and characterization of potential differences between EMS and ED visits.

Conclusions

This comprehensive approach can be used by other jurisdictions considering adding EMS data to their syndromic surveillance systems. When considering onboarding a new data source into a surveillance system, it is important to work closely with stakeholders from disciplines representing each of the key use cases to broaden buy-in and support for the project. Through employing this comprehensive approach, syndromic surveillance systems can be better developed to include data that are widely utilizable to many different stakeholders in the public health community.