OPTATIONAL
To describe how epidemiological principles are utilized to distinguish a real alert from statistically significant alerts in order to monitor and create daily reports in the Miami-Dade County Health Department (MDCHD) using Electronic Surveillance System for the Early Notification of Community Based Epidemics (ESSENCE)

BACKGROUND
Syndemic surveillance is an investigational approach used to monitor trends of illness in communities. It relies on prediagnostic health data rather than laboratory-confirmed clinical diagnoses. Its primary purpose is to detect disease outbreaks, incidents, and unusual public health events earlier than possible with traditional public health surveillance methods.

METHODS
On a daily basis, 14 Miami-Dade County hospitals automatically transmit de-identified electronic emergency department chief complaint data to the MDCHD. Once chief complaints are organized into syndromes, the system generates alerts which are divided into two categories: outbreak-associated and bioterrorism-associated. Outbreak-associated alerts are investigated by detecting potential disease clusters by age, gender, race/ethnicity, resident zip code, hospital, time of visit and chief complaint whereas bioterrorism-associated alerts are carefully reviewed on a case-by-case basis. When deemed necessary. In addition, the epidemiologist analyzing ESSENCE also monitors the county’s 911 Call Center and school absenteeism data in order to get a broader picture of the daily events which may be useful in understanding the geographic trends of where illnesses may occur.

RESULTS
A statistically significant increase may not reflect a real unusual public health event. To analyze the distribution and determinants of non-specific health indicators, the epidemiologist must take into consideration in demographic and geographic clustering combined with activities around the community after first reviewing the disease trends and statistical p-value. The epidemiologist must use this knowledge to determine whether or not the alert warrants further investigation or if they are false alerts due to an increase in unrelated cases or changes in reporting procedures among the various hospitals. Once findings are discussed with other staff members, the report is emailed to all hospital Infection Control Practitioners (ICPs) and MDCHD staff. If clustering is unusual or suspicious, decision-makers will take whatever steps are necessary to prevent further cases.

CONCLUSIONS
Certain alerts are expected and when detected are of less concern, particularly when public health response is well established (e.g., the beginning of the influenza season). Experienced users who are familiar with the demographic and geographic features of the county must follow a step-by-step evaluation strategy to ensure that system findings are validated. This will ensure that the appropriate actions are taken for statistical anomalies versus true public health events.