**1. Abstract**

The Florida Department of Health (FDOH) utilizes the Electronic Surveillance System for the Early Notification of Community-based Epidemics, Florida (ESSENCE-FL) to monitor public health data. This system aids in the detection of outbreaks and unusual cases, the monitoring of morbidity and mortality, and provides situational awareness, especially after events such as hurricanes, wildfires, and pandemics. ESSENCE-FL serves Florida’s 18 million residents and 80.3 million annual visitors, relying on data from various sources including emergency departments and mortality data. The system is intuitive, supports diverse public health challenges, and enhances the efficiency and effectiveness of public health practice by providing real-time data and analytics. The document outlines the system’s implementation, data quality measures, privacy protections, and its impact on population health.

**2. World**

The implementation of ESSENCE-FL aligns with broader public health imperatives by improving disease surveillance, outbreak detection, and public health response capabilities, which are critical for managing global health threats and enhancing overall public health infrastructure.

**3. Organization**

The Florida Department of Health (FDOH) is a comprehensive public health organization whose mission is to promote and protect the health and safety of all people in Florida through the delivery of quality public health services and the promotion of health care standards.

**4. Role**

Role: State epidemiologist

**5. Functions**

Primary Function Supported by the Solution:

The primary function supported by the ESSENCE-FL solution is \*\*syndromic surveillance for early event detection\*\* based on emergency department (ED) chief complaints.

Goal for This Function from the Perspective of the Role:

The goal for this function from the perspective of the role is minimizing the time spent accessing data and creating reports to improve decision-making related to disease control efforts through enhanced access to critical data sources formerly siloed in separate systems or not accessible to public health.

Evidence provided to demonstrate the achievement of this goal includes:

1. The growth in the number of active users from an average of 6 unique log-ins in 2007 to 57 per week in 2011, indicating increased utilization and dependency on the system.

2. The generation of over 5,500 unique ESSENCE-FL webpage views per week in 2011, showing frequent use and engagement with the system.

3. Successful implementation and operation of various data modules (e.g., ED data, state reportable disease data, poison information center data, mortality data) that facilitate comprehensive surveillance and reporting capabilities.

**6. Workflow**

The report did not describe the workflow of the Role.

**7. Information System**

The Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE-FL) system.

The document provides detailed requirements and specifications for the ESSENCE-FL system, which are designed to meet the diverse challenges of public health surveillance:

Goals of the System:

* Improve internal public health efficiencies.
* Enhance decision-making through better access to critical data.
* Improve communication and data sharing.
* Reduce the need for specialized training.
* Provide an intuitive environment for analyses and monitoring.
* Ensure system flexibility to incorporate new data streams and update definitions as needed​

System Design:

* The system must be intuitive due to varying technical skills among staff.
* It should support multiple data sources and provide robust data visualization and reporting tools.
* Designed to evolve from a syndromic surveillance system to a multifaceted surveillance system.
* Incorporates tools for descriptive epidemiologic analysis, data visualization, and reporting​

Project Organization:

* Managed by the Bureau of Epidemiology (BOE) in collaboration with the Johns Hopkins University Applied Physics Laboratory.
* A statewide surveillance epidemiologist oversees the system, ensuring goals are met and managing technical components.
* The system includes data from emergency departments, the state reportable disease system (Merlin), the Florida Poison Information Center Network (FPCIN), and the Office of Vital Statistics Mortality Data

**8. Module**

Modules are not included in this information system.

**9. DIKW**

Primary Data and Their Data Types:

The primary data used in the ESSENCE-FL system include:

a) Emergency Department/Urgent Care Data:

* Timeliness: 1 file each day
* Volume: ~25 million records
* Primary Units of Analysis: Syndromes, sub-syndromes, free text queries, stratified by various demographic variables.

b) Merlin - Reportable Diseases/Conditions:

* Timeliness: 1 file each hour
* Volume: ~350,000 case reports
* Primary Units of Analysis: Reportable disease cases, stratified by various demographic variables.

c) Florida Poison Information Center Network (FPCIN) - Call Data:

* Timeliness: 1 file every 20 minutes
* Volume: ~1.5 million calls
* Primary Units of Analysis: Major substance, minor substance, individual substance, clinical effects, stratified by various demographic variables.

d) Florida Office of Vital Statistics – Mortality Data:

* Timeliness: 1 file per day
* Volume: ~2.1 million deaths
* Primary Units of Analysis: NCHS cause of death groups, flexible ICD-10 and free text queries, stratified by various demographic variables .

Most Important Pieces of Information:

The most important pieces of information are those that provide actionable insights for public health surveillance and response. These include:

* Syndromic data from emergency departments, which help in detecting early signs of outbreaks.
* Reportable disease cases from Merlin, which offer detailed epidemiological data for specific diseases.
* Poison control call data from FPCIN, which assist in identifying trends in substance exposures.
* Mortality data from the Office of Vital Statistics, which are crucial for tracking cause-specific death trends.

These pieces of data are considered information because they have been processed and organized in a way that supports decision-making and action within the public health domain.

Explicit Knowledge Used by the System to Support the User:

The system uses several types of explicit knowledge to support its users, including:

* Syndrome definitions and symptom classification tables shared across jurisdictions, which provide a standardized framework for data interpretation and comparison.
* Automated alert systems that notify users when observed counts exceed expected counts for various stratifications, aiding in the timely identification of potential public health threats.
* Customizable alert lists that allow users to set specific criteria for monitoring and receive automatic updates based on their needs.
* Data integration and interoperability frameworks, which ensure that diverse data sources are harmonized and can be effectively utilized within the system.

**10. Technology**