Syndromic Surveillance Usage, Public Health Region 2/3, Texas DSHS

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Background

Syndromic surveillance is a form of surveillance that utilizes non-diagnostic data to make inferences about disease trends. This form of surveillance is used to detect abnormal disease patterns (particularly those that could result in high morbidity and mortality), as early as possible.

ESSENCE is a syndromic surveillance system utilizing non-diagnostic data, such as emergency department chief complaints, to categorize illnesses into syndromes. Health departments and hospitals can use this data to monitor disease trends and clusters.

- Examples of syndrome categories include: influenza-like illness (ILI), respiratory, gastrointestinal, neurological syndromes, etc. Free-text queries can also be created to search for key terms.
- Can be used for passive or active surveillance.
- ESSENCE is an adjunct to traditional forms of surveillance.

PHR 2/3 SSRAC

As a member of the TxS2 Syndromic Surveillance Regional Advisory Council, PHR 2/3 developed the Syndromic Surveillance Region 2/3 Advisory Committee (2/3 SSRAC). The purpose of the Committee is regional public health coordination with local health departments, hospitals, direct healthcare providers, and other stakeholders within PHR 2/3 for disease and injury surveillance. This council reports to the Texas Syndromic Surveillance Governance Council (SSGC).
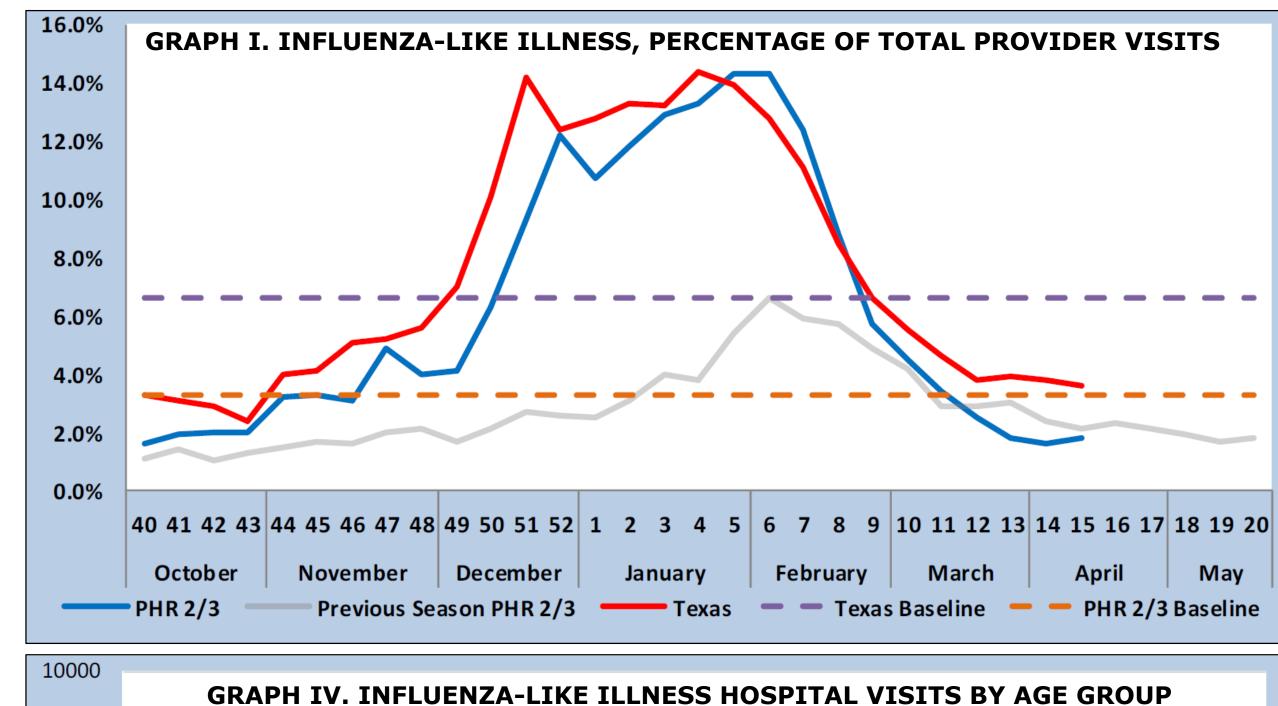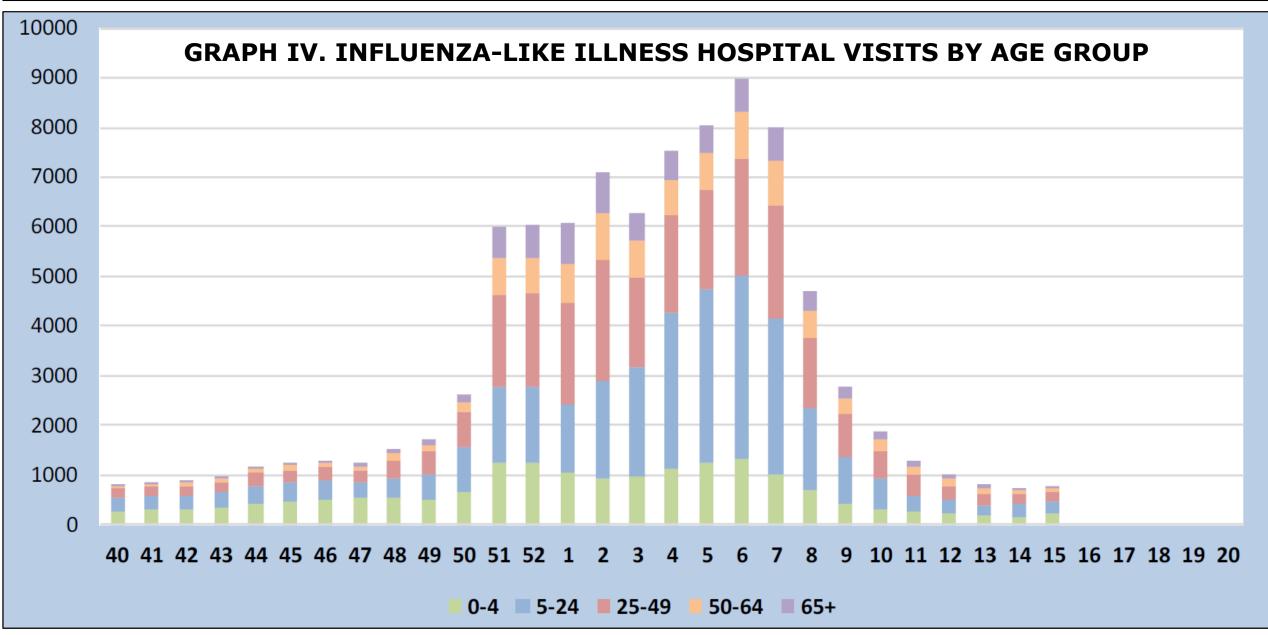
2/3 SSRAC committee membership consists of the following:
- Local Health Departments (6 seats)
- Hospitals (4 seats)
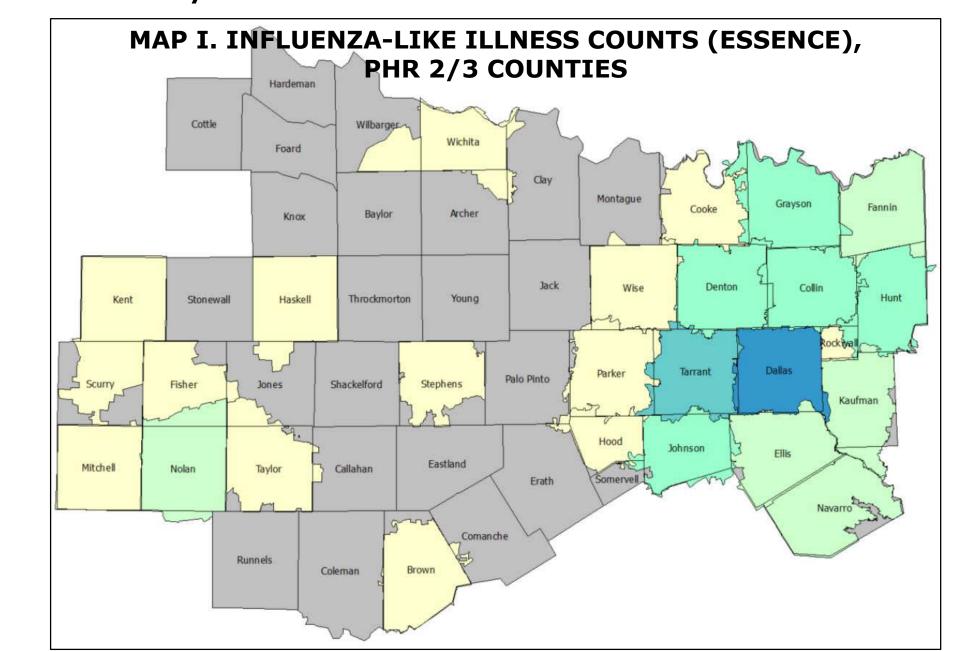- Schools of Public Health (2 seats)
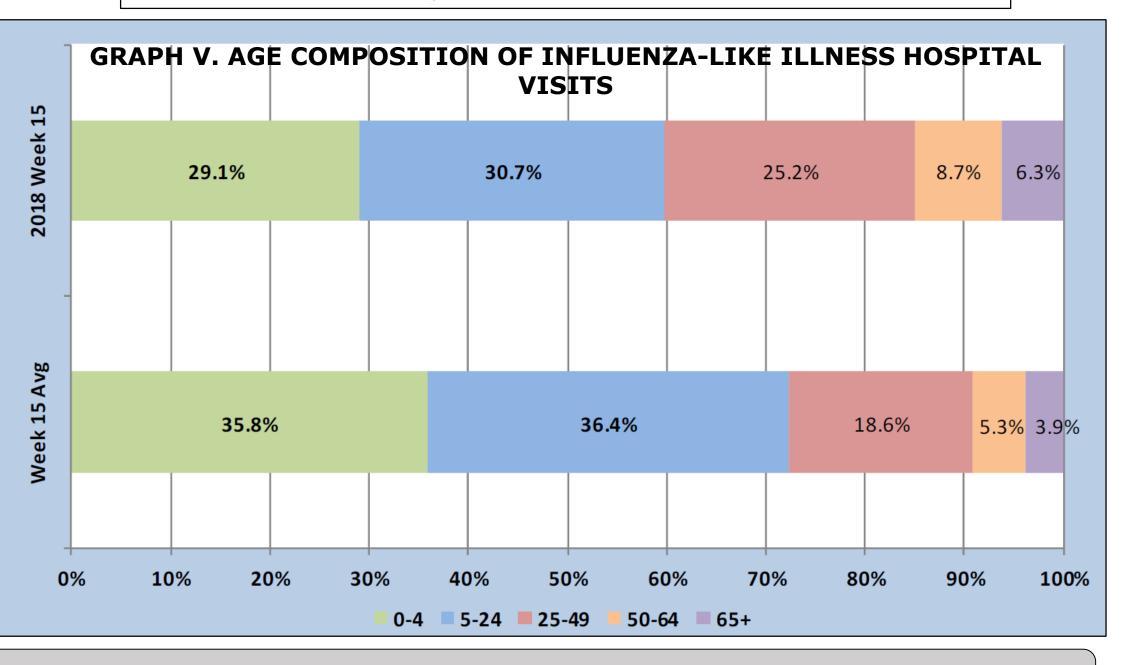- PHR 2/3 Epidemiology (3 seats)

Overview of Key Projects

Components of Influenza Surveillance Utilizing Data from ESSENCE

Data from ESSENCE is used in multiple components of influenza surveillance in PHR 2/3. ILI as a percentage of all provider visits (Graph I) is comprised of data from hospital reports and ESSENCE. ILI per county, and ILI per age group (Map I, and Graphs IV and V) are collected exclusively from ESSENCE.
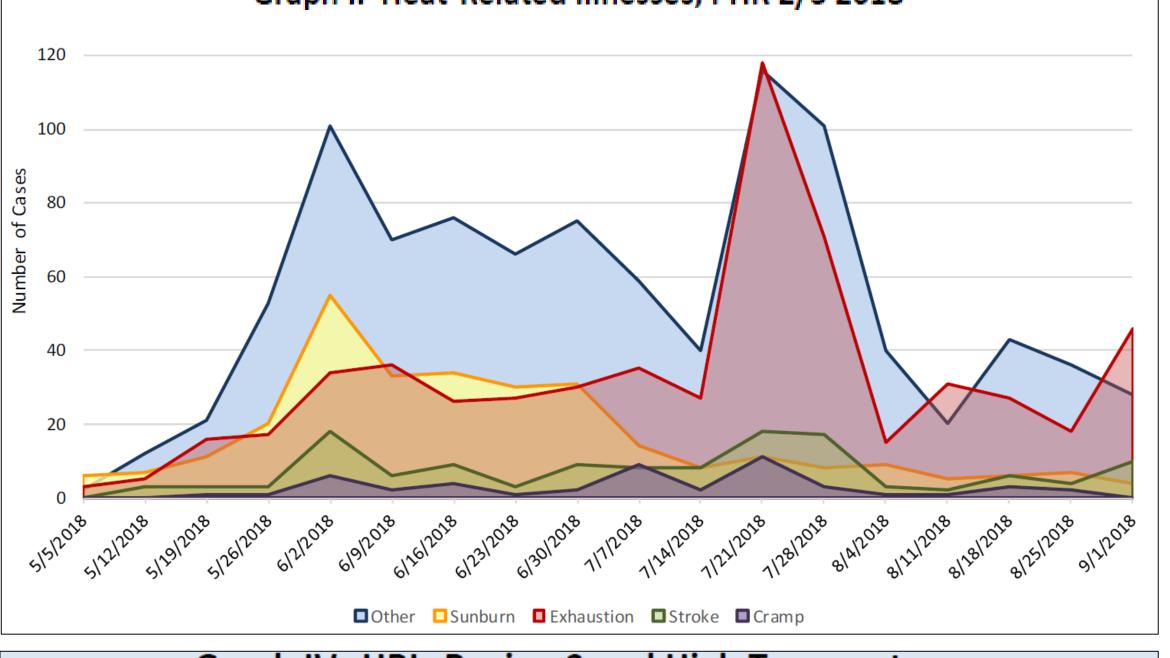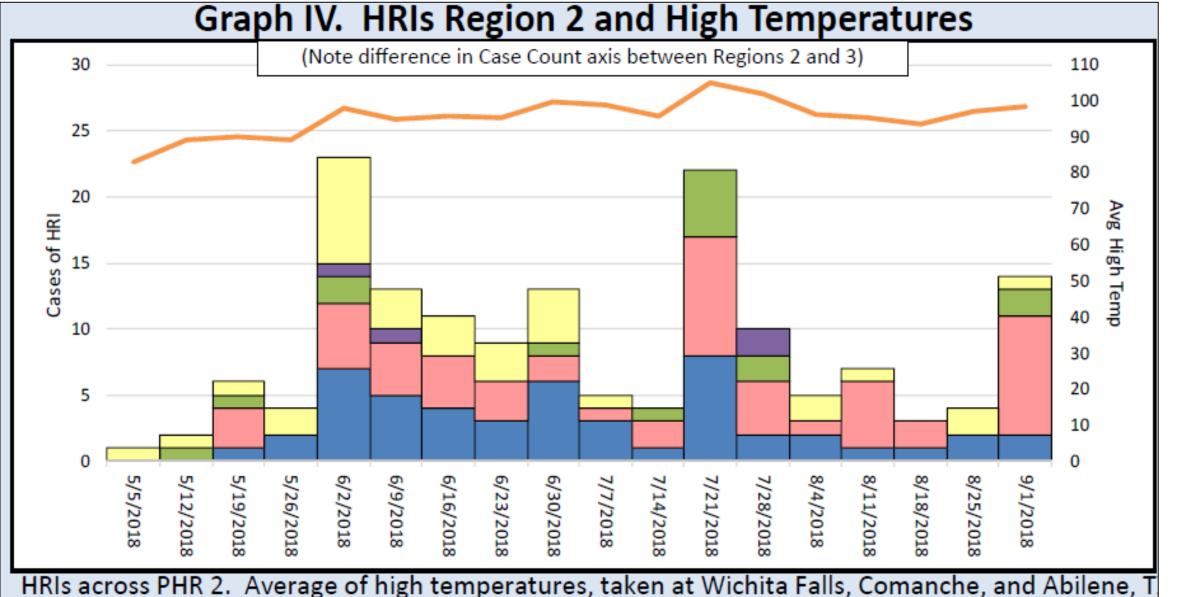

GRAPH I. INFLUENZA-LIKE ILLNESS, PERCENTAGE OF TOTAL PROVIDER VISITS

MAP I. INFLUENZA-LIKE ILLNESS COUNTS (ESSENCE), PHR 2/3 COUNTIES

GRAPH IV. INFLUENZA-LIKE ILLNESS HOSPITAL VISITS BY AGE GROUP

GRAPH V. AGE COMPOSITION OF INFLUENZA-LIKE ILLNESS HOSPITAL VISITS

Components of Heat Surveillance Utilizing Data from ESSENCE

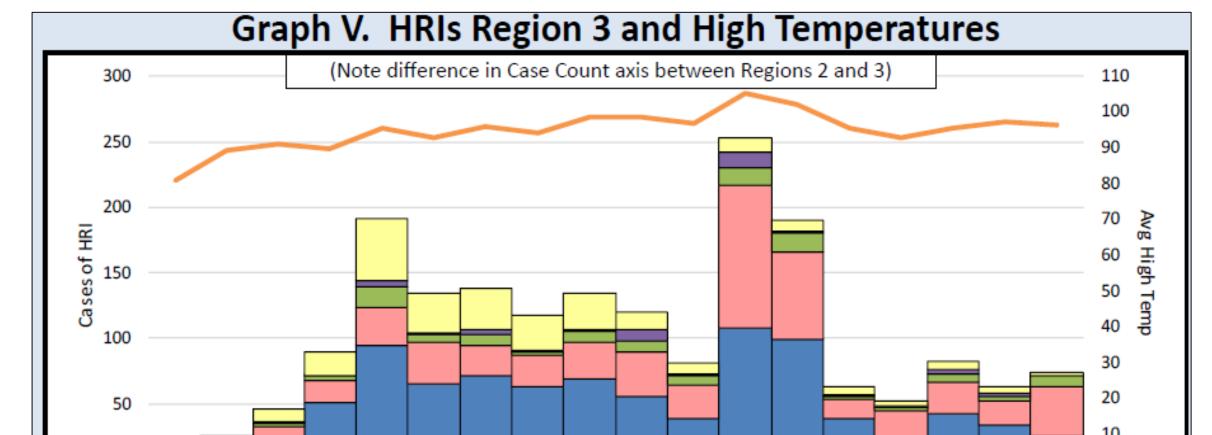At this time, heat surveillance relies exclusively on data from ESSENCE. Counts of HRIs per week (Graph I), sex and age (Graphs II & III), and location (Graphs IV & V), each draw from ESSENCE exclusively.

Graph I. Heat-Related Illnesses, PHR 2/3 2018

Graphs II & III. HRI Demographics
Total number of HRI cases among gender and age (when known), in the 2018 season.

Graph IV. HRIs Region 2 and High Temperatures
HRIs across PHR 2. Average of high temperatures, taken at Wichita Falls, Comanche, and Abilene, T

Graph V. HRIs Region 3 and High Temperatures
HRIs across PHR 3. Average of high temperatures taken at DFW airport.

Additional Projects

A number of additional projects make use of ESSENCE data within PHR 2/3:

- Supplemental disease surveillance including searching for symptoms related to conditions of concern (either reportable or non-reportable).

- BioWatch Surveillance used in conjunction with other forms of surveillance during an activation.

- Exercises
  - Data from ESSENCE has been used for a number of exercises including pediatric influenza and BioWatch exercises to provide realistic data based on previous trends.

Planned projects, and those currently in development that will utilize ESSENCE data:
- Injury and disaster surveillance
  - Surveillance of injuries related to natural or man-made disasters, such as tornados, severe weather, chemical exposures, etc.

- Opioid Overdoses
  - Surveillance of opioid overdoses, based on hospital ED visits.

Resources

Office of Health Informatics, Tarrant County Public Health
https://access.tarrantcounty.com/en/public-health/health-informatics/current-projects.html

Public Health Region 2/3, Texas Dept of State Health Services
https://www.dshs.texas.gov/region2-3/epidemiology.aspx

Texas Syndromic Surveillance (TxS2), Texas Dept of State Health Services
https://dshs.texas.gov/txs2/

National Syndromic Surveillance Program (NSSP), CDC
https://www.cdc.gov/nssp/biosense/index.html