Texas Syndromic Surveillance System (TxS2)
Overview

• Syndromic Surveillance Purpose and Functions
• TxS2 Governance Structure
• ESSENCE
• Current Status
• TxS2 Uses
• Future Activities
• Questions
Syndromic Surveillance

The purpose of syndromic surveillance is to detect as early as possible abnormal disease patterns that could result in high morbidity and mortality.

* Texas has no legislative mandate that requires reporting to a syndromic surveillance system, but DSHS has authority to operate TxS2 under Chapter 81 of the Health and Safety Code.
Basic Functions

1. Early event detection
   • Detect outbreaks as early as possible
   • “Flag” a syndrome group

2. Situational awareness
   • Queries data sources
   • Tracks ongoing health events

3. Retrospective Analysis
   • Targeted education
   • Tracking or monitoring population after exposure
**TxS2 Governance Structure**

**Syndromic Surveillance Governance Council (SSGC)**
- **Purpose:** Provide Subject Matter expertise to DSHS on consolidated SSRAC input and syndromic surveillance best practices. Recommend future changes to the system.
- **Representatives from:**
  - LHDs (based on size)
  - DSHS Central Office
  - DSHS PHR
  - Providers
  - School of Public Health
  - Houston Health Department
  - Tarrant County Public Health

**Syndromic Surveillance Regional Advisory Committee (SSRAC)**
- **Purpose:** Advise on syndromic surveillance data analysis/requirements
- **Representatives from:**
  - Hospitals
  - LHDs
  - DSHS PHR
ESSENCE

• Electronic Surveillance System for the Early Notification of Community-based Epidemics
• Web-based system used to monitor disease trends.
  • Monitors and provides alerts for rapid or unusual increases in the occurrence of infectious and biological outbreaks.
• Conceived to identify outbreaks associated with bioterrorism but epidemiologists found the system useful in monitoring trends of naturally occurring diseases.
• Widespread use
  • National Syndromic Surveillance System
  • Federal Agencies
  • Other States and Local Jurisdictions
# 48 Data Elements* “Limited Data Set”

- **Facility Identifier**
- Facility Name
- Treating Facility Address
- **Facility/Visit Type**
- Message Date/Time
- Unique Physician Identifier
- Provider Type
- **Unique Patient Identifier/Medical Record Number**
- **Unique Visit Identifier**
- Gender
- Race
- Ethnicity
- Age/Age Units
- Patient City/Town
- Patient Zip Code
- Patient County
- Patient State
- Patient Country
- Chief Complaint/Reason for Visit
- Admit or Encounter Reason
- **Admit or Encounter Date/Time**
- Date of Onset
- **Patient Class**
- Admission Type
- Admit Source
- Hospital Unit
- Previous Hospital Unit
- Diagnosis Type
- Primary Diagnosis/Additional Diagnosis
- Discharge Disposition
- Discharge or Disposition Date/Time
- Procedure Code
- Triage Notes
- Clinical Impression
- Pregnancy Status
- Problem List
- Medication List
- Medications Prescribed or Dispensed
- Height
- Weight
- BMI
- Systolic and Diastolic Blood Pressure
- Initial Temperature
- Initial Pulse Oximetry
- Smoking Status
- Initial Acuity
- Insurance Coverage
- Travel History

* PHIN Messaging Guide for Syndromic Surveillance, Release 2.0 (April 2015)
12 Syndromes* (ESSENCE)

- Botulism-like
- Exposure
- Fever
- Gastrointestinal Illness
- Hemorrhagic Illness
- Influenza-like Illness
- Injury
- Neurological
- Rash
- Records of Interest
- Respiratory
- Shock/Coma

* ESSENCE is customizable with regards to syndromes and ad hoc queries. These 12 syndromes are the typical set used by other states.
Current Status

• Became Operational – May 2017
• Recruiting, registering, and onboarding hospitals across the state
• Transitioning off the former TALHO system
• Onboarding Tarrant County Public Health
• ESSENCE user credentials to DSHS staff, LHD staff, and hospital staff
Data Sharing/Viewing

- Hospitals/Hospital Systems
  - Data within hospital/hospital system
  - Aggregate PHR & statewide data
- Local Health Departments
  - Data within PHR
  - Aggregate PHR & statewide data
- DSHS PHR Offices
  - Statewide data
  - Aggregate PHR & statewide data
- DSHS Central Office
  - Statewide data
  - Aggregate PHR & statewide data
What can TxsS2 do?

• Interactive reporting, analysis, and queries of disease syndromes, and disease and injury categories
• Detection and alerts based on emergency department chief complaints, ICD-10 codes, and medications
• Provide actionable data for patient identification and investigation
• Alerts via application alert list, email, and text message
How will it be useful for public health officials?

• Early event detection
• Outbreak case identification
• Natural disaster or severe weather impact assessment
• Exposure contact identification
• Exposure source investigation
• Targeted education
• Hospital acquired infection tracking
• National disease trend monitoring
How will it be useful for hospitals?

- May be integrated into existing ER tracking or infection control procedures
- May be forewarned about health trends affecting neighboring regions
- Capability for analysis
- Collaboration with public health while protecting hospital/patient confidentiality
- Population health of catchment area
- Meaningful Use/EHR Incentive Program
  http://www.dshs.state.tx.us/mu/syndromic.aspx
Syndromic Surveillance Success Stories

• Austin Public Health – Suicide trend analysis and targeted education
• Norovirus GII outbreak in a halfway house – Houston 2009
• Sodium Azide Poisoning at a Restaurant – Dallas County, 2010 (MMWR)
• Chemical Spill in Kansas – 2016
• Oregon’s Syndromic Hazard Report – Fall 2016-Winter 2017
• PHR 2/3 & Tarrant County Public Health – Emergency medical care needs after Hurricane Harvey 2017
**TxsS2 Uses**

- Tracking an increase or decrease in the number of emergency department visits
TxsS2 Uses

- Monitoring flu

Count of ILI Syndrome ED Visits by PHR between October 1, 2017 to February 9, 2018

Note: PHRs 2/3 and 6/5S are excluded as no hospitals are currently submitting data to TxsS2.
TxS2 Uses

• Monitoring respiratory illness

Admitted Respiratory Syndrome Patients by Age Group between December 11, 2017 to January 11, 2018

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>10</td>
</tr>
<tr>
<td>5-17</td>
<td>5</td>
</tr>
<tr>
<td>18-44</td>
<td>10</td>
</tr>
<tr>
<td>45-64</td>
<td>20</td>
</tr>
<tr>
<td>65+</td>
<td>30</td>
</tr>
</tbody>
</table>
TxsS2 Uses

- Monitoring alcohol abuse
Future Activities

• Onboard Houston Health Department
• Policy and Rule Development
• Potential Data Streams
  • Poison control calls
  • Over-the-counter medication
  • School absenteeism
  • 911 and Nurse hotline calls
  • Zoonotic disease
  • Death records
• Training
• Development of Use Cases
• Continued Recruitment
• Development of Success Stories with Partners
Questions