Texas Syndromic Surveillance (TxS2)

Monitoring Data and Responding to Alerts

Department of State Health Services

March 2020

TEXAS
Health and Human
Services

Table of Contents

1. Purpose

This guidance defines the recommended steps for Texas Syndromic Surveillance (TxS2) users to monitor data in their jurisdiction and determine the appropriate response to an alert (rapid or unusual increases in a syndrome) generated by TxS2.

2. Background

Texas Syndromic Surveillance (TxS2) is a statewide syndromic surveillance system built and maintained by the Texas Department of State Health Services (DSHS) for use by Local Health Departments (LHDs), DSHS Public Health Regions (PHRs), DSHS central office, and hospitals for enhanced surveillance of emerging public health conditions or threats. Syndromic surveillance utilizes trend analysis to establish a baseline and then uses algorithms to compare the current data to that baseline and issue alerts when aberrations are detected.

TxS2 configuration consists of Data Providers (for example hospitals) using secure protocols to share individual level data through the Health Services Gateway. Rhapsody® software is used for data ingestion and Texas Data Center Services (DCS) is used for data hosting. Data is stored in a secure database and accessed by users (LHDs, DSHS PHRs, DSHS central office, and hospitals) through the analysis software called ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics).

LHD and DSHS users also have access to data from the EMS Database. In this document there are references to EMS data that are only relevant to those users.

3. Monitoring Data

A. Responsibilities of users of the system
   a. Data should be monitored on a daily basis, including weekends.[1, 2]
   b. Routine monitoring may include:
      i. Total ER census or EMS records census
      ii. County syndrome alerts
      iii. Hospital syndrome alerts
      iv. Time of arrival alerts
      v. Spatial alerts
      vi. Review of ZIP code level map by syndrome or free text query
      vii. Run of specific queries
      viii. For EMS specifically, review the ICD-10 codes in Other Associated Symptoms
   c. Establish a working relationship between internal and external partners.
   d. Exchange 24/7 contact information with internal and external partners.
   e. Access and receive data in a secure, confidential manner in compliance with all applicable federal and state laws governing the protection of health-related information.
   f. Comply with all DSHS policies and procedures for requesting access and using TxS2.
B. Tasks for the data monitor during business hours and after hours.
   a. Log in to ESSENCE daily.
   b. Check system to view Alert List and myAlerts.
      i. Investigate alerts if they are of public health significance.
         a. An event may be significant if:
            i. there is a large increase in cases.
            ii. there is a sustained increase in cases for multiple days.
            iii. the pattern is atypical for the syndrome group.[3]
   c. Assess and evaluate syndromic surveillance data.
   d. Coordinate disease mitigation strategies when necessary.
C. Determine if the response needs to vary with the syndrome.
   a. Not all syndromes have the same response. It must be determined what is of public health significance and which events always prompt review.[1]
   b. Become familiar with what diseases may be associated with specific syndromes.
      i. Consider the causal agent and required public health action in determining urgency and mode of follow up.
D. Establish a response timeframe from receipt of alert to action and notification.

      a. Must respond to alerts that require investigation in a timely manner.

      b. Agree on a time when notifications to internal and external partners will be initiated if a flag is considered valid.

E. Documentation

      a. Maintain all documentation and correspondence according to jurisdiction's records retention schedule.

F. Training

      a. Data monitors should be given refresher training on an ongoing basis for quality assurance.[4] DSHS will periodically provide trainings, and all users can find training on [the website](#).

G. Create templates for communicating vital information to other public health jurisdictions and for communicating critical information to members of the public.

4. Responding to Alerts

The recommended steps for LHDs and other system users to follow when TxS2 provides alerts for aberrations are:

A. Review the Alert List and myAlerts and identify anomaly.
   a. Determine if the alert is a priority syndrome.
      i. Has there been an increase in the volume of cases, including conditions that are lower priority?
      ii. Be aware of trending illnesses that may have a heighted public awareness and therefore increased testing.
   b. Review the absolute number of cases[5]
      i. Is this an increase from 0 to 1 or 3 to 20?
B. Characterize the anomaly.
   a. Drill down the data to examine the cases for commonalties such as:[1, 4, 6]
      i. Admission time
      ii. Age
      iii. Chief complaint or medical subgroupings(s)
      iv. Clinical data
      v. Location – ZIP code of patient residence or health care facility
      vi. Sex
C. Validate the anomaly.
   a. Analyze the alert for seasonal and temporal trends.
      i. Compare the alert to the same time period of previous years.
   b. Check the data for false positives.
      i. Description of common reasons of false positives:[7, 8]
         1. Not enough data have been collected.
         2. Baseline has not been established for a long enough period of time.
         3. Increase of sensitivity parameters, skewing the amount of true cases
         4. Miscoded ICD codes
   c. Contact the Infection Preventionist (IP) of the facility providing the data. Together, the LHD and the IP can determine if the flag is an actual event.
      i. Guidelines for interfacing with hospital staff and anticipated challenges.
         1. Be specific about findings in terms of symptoms, age groups, sex, and county/location of residence.[4, 9]
         2. Ask if there has been an increase in the syndrome group, especially with age, sex, and geographic groups.
         3. Ask if there has been an increase in lab orders or positive lab results for any relevant conditions.

4. Ask if there has been an increase in traffic from congregate settings.
5. May suggest increasing lab testing for specific conditions if no lab data are available, especially during ongoing outbreak investigation.
    ii. If necessary, obtain medical record numbers of patients who make up the alert and complete a chart review. Template for Request of Patient information should include:
        1. Contact information of individual requesting patient information
        2. Facility name
        3. Date
        4. Medical record number
        5. Name of patient
        6. Address of patient
        7. City of patient
        8. ZIP code of patient
        9. Phone number of patient
    d. If available, compare data from other surveillance systems. In addition, check other sources, which can include over-the-counter drug sales, media sources, emergency medical services and nurse hotline calls.[1, 2, 4, 6]
D. Follow up with the health care facility.
    a. If no additional alarms are raised, continue to monitor the flag and subsequent cases for the next few days, looking for associations that may indicate a relationship.
E. Communicate with appropriate staff and assess the need for further action.
    a. Consult with the chief/lead epidemiologist.
    b. Consult with key public health officials.
    c. Notify healthcare providers of the alert.
    d. Contact neighboring jurisdictions to determine if similar activity has been observed in outbreaks or among data in ESSENCE.
        i. Instructions on communicating with other public health jurisdictions and law enforcement:
            1. Summarize findings and be specific about why the event may require further investigation.[9]
            2. Email figures, password protected spreadsheets, and information on ESSENCE as needed. Send password in a separate email/phone call.[9]
F. Outbreak investigation.
    a. If the occurrence of an outbreak has been established, follow the steps of an outbreak investigation.
    b. Write a report on the investigation. Maintain copies of all correspondence and reports to be used for future reference.[10]
        1. Documentation may include:
            a. A chronological record of actions related to the investigation

b. Any written notices sent to media, contacts, health care providers, or any other related correspondence
c. After Action Reports (AAR)
d. Case study, conference presentation, or journal article.[10]

5. Responsibilities

While DSHS has developed this guidance document on responding to alerts, it is the responsibility of the local jurisdiction (LHD or PHR acting as the LHD) to determine the appropriate response to an alert in their jurisdiction. A documented protocol cannot take the place of expert and specialized judgment.[2, 5] The specific criteria to determine whether an alert should be investigated or an issue should be escalated vary across jurisdictions and depend on the specifics of the issue.[11] If escalated, the decision to engage with relevant partners, depends on the severity and potential spread of the disease, outside influences, and the syndrome of interest.[12]

6. Response Protocol Flowchart
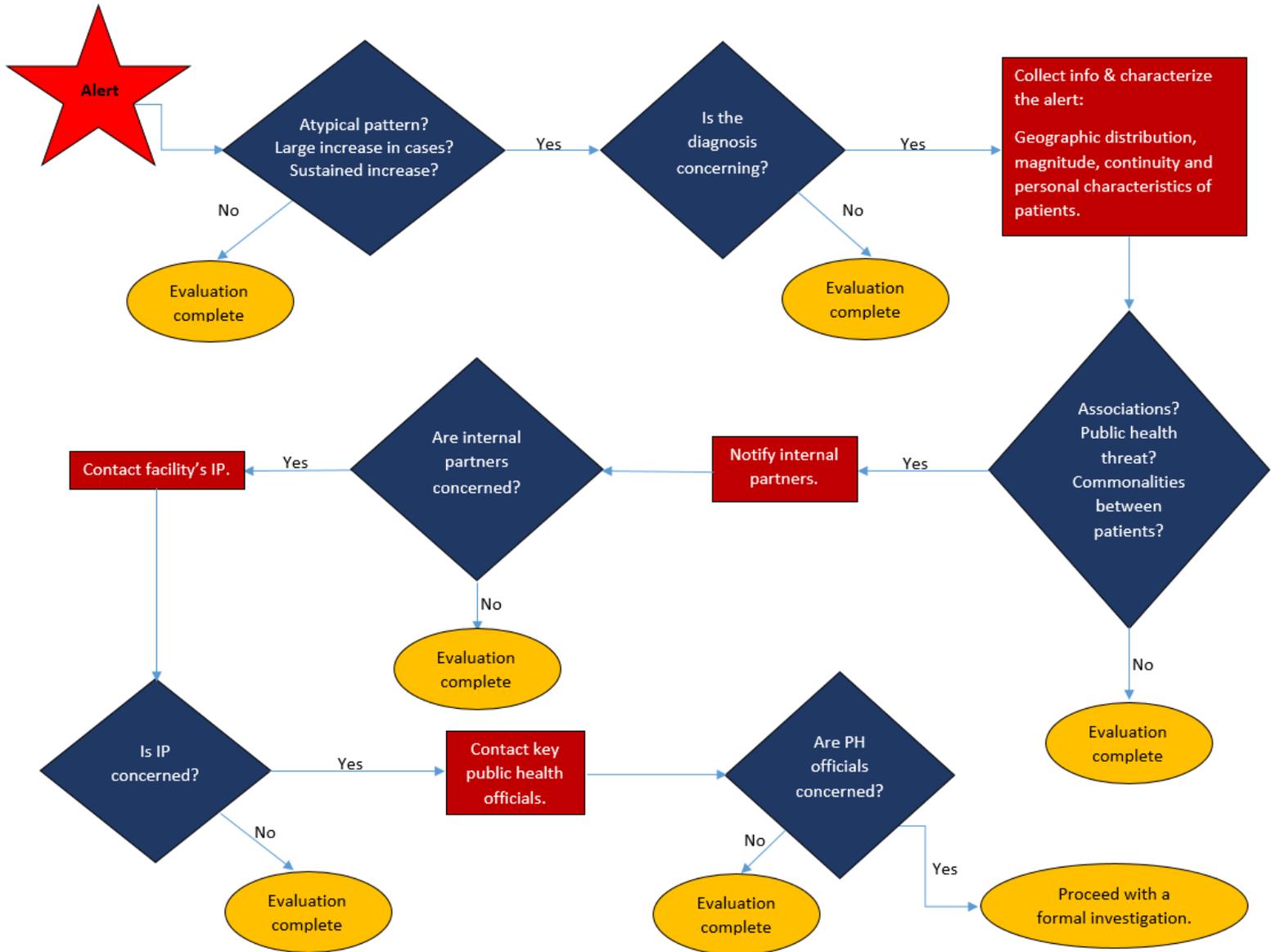
7. Points of Contact

Name	Role	Email
TxS2 Team	General Inquires	**syndromic.surveillance@dshs.texas.gov**
TxS2 Support	Technical Support	**TxS2Support@dshs.texas.gov**

8. Definitions

Alert - the notification when a statistically significant group of cases is detected. An alert simply means the number of ER visits/EMS records for a particular syndrome category is greater than expected.

Drill down - access data in a detailed data view from a general view

Outbreak or Cluster - sometimes used interchangeably, to refer to a set of related cases.

Syndrome – a group of associated symptoms

Query - the primary mechanism for retrieving information from the database and is used to track impact in terms of time, geography, and demography

9. References

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10. Revision History

Date	Version	Action	Section
3/5/18	1	New guidance	
10/12/18	2	Minor edits	All
3/26/2020	3	Added information on EMS data. Updated contact information. Accessibility Compliance.	All

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3/26/2020 Stock #54-15329