

# **NACCHO-Tarrant County Public Health Syndromic Surveillance Technical Assistance Webinar**

August 3, 2016

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Office of Informatics – Tarrant County Public Health

## *Objectives*

- Provide technical assistance project overviews used with 3 LHDs at varying stages of syndromic surveillance usage
- Describe and provide resources that can be adapted to other LHD jurisdictions for future development
- Present example of LHD utilization of TA for regional SyS development – Houston Health Department

# Overview of Syndromic Surveillance, Data Sharing, Data Provider Collaboration

- What good is syndromic surveillance?
  - Detects conditions indicating unusual / unexpected health event may be imminent
  - Detects unusual or unexpected number of illnesses or syndromes within a period of time or geographic area
  - Detects illness or syndromes in an unusual population



# Syndromic Surveillance for Public Health

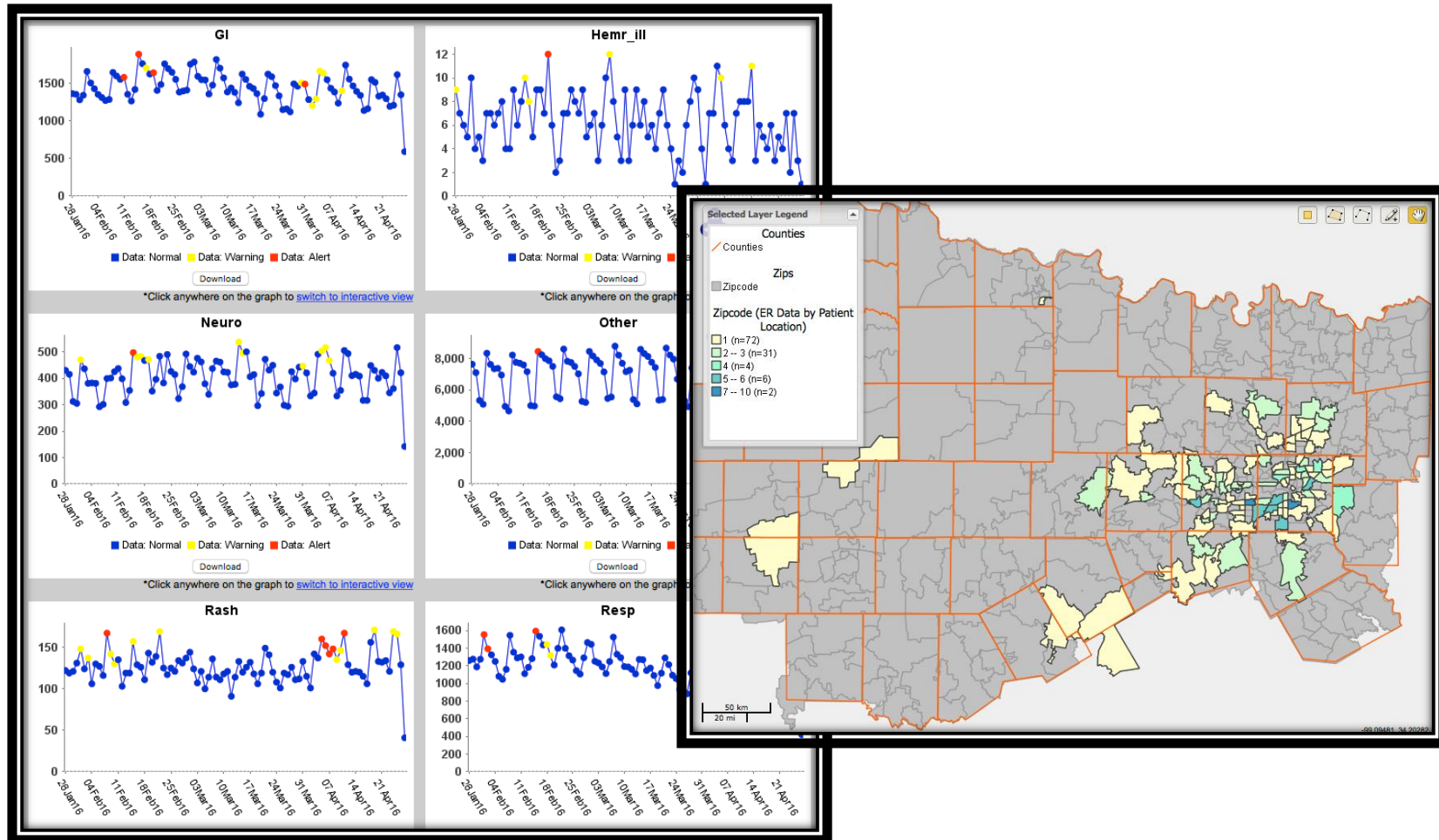
- Early Event Detection (primary)
  - Prevention measures before diagnosis of unusual cases
- Facilitates Outbreak Management (secondary)
  - Case investigation and countermeasure administration
  - Exposure contact tracing
  - Exposure source investigation and linking of cases and contacts to exposure sources



# Syndromic Surveillance

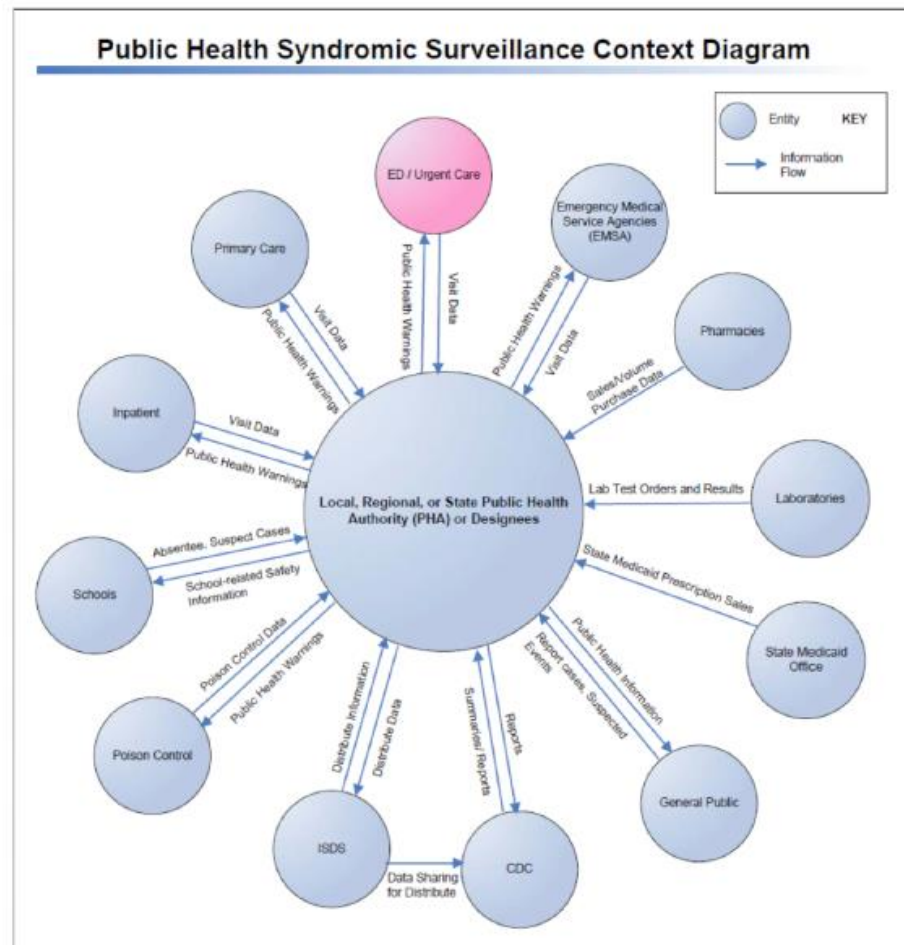
- Aggregates data syndromes and sub-syndromes such as :
  - Respiratory
    - Influenza-like illness
  - Gastrointestinal
  - Neurological
  - Rash, shock-coma, hemorrhagic
- Based on traditional sources:
  - Outpatient ICD-10 codes + other clinical data (MU2)
  - Emergency room chief complaints
- Based on non-traditional sources:
  - School absenteeism
  - Over the counter medication sales
  - EMS transports
  - Poison control centers
  - Water quality monitoring systems

## Syndromic Surveillance Tools





## Public Health SyS Context



**Figure 4 Business context diagram for PHSS:** This context diagram illustrates the relationships that exist between entities of PHSS and shows the flow of information required by the core business processes. The focus of this final recommendation is the interaction between ED and UC data and the PHA or their designee. The data sent from the ED or UC provider consists of the recommended minimum data set described in Section 4.

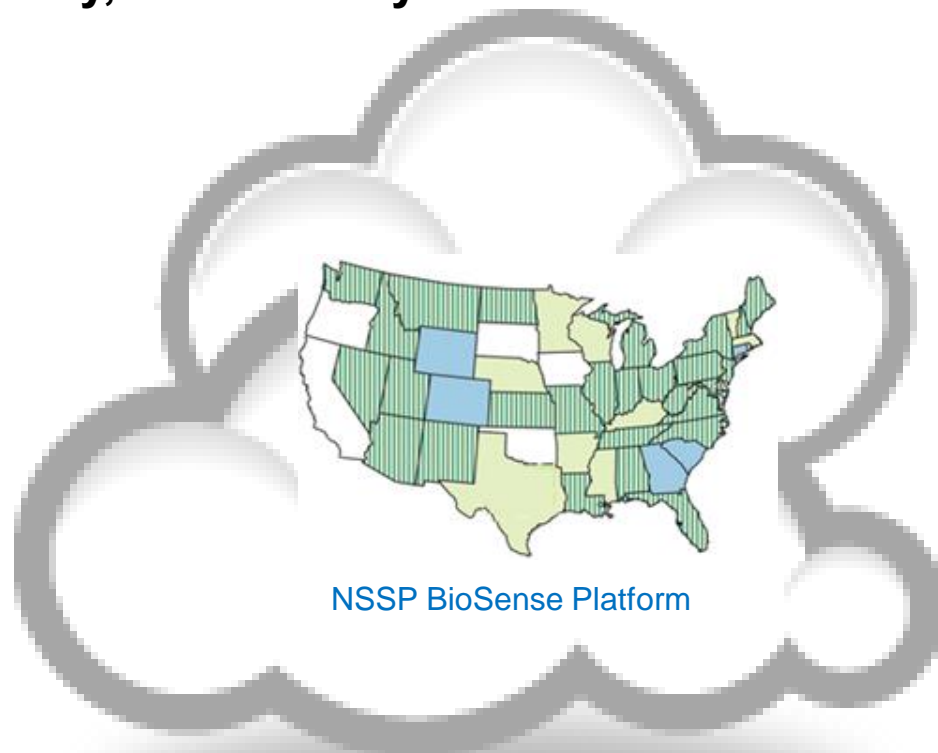
# NSSP

National Syndromic  
Surveillance Program



State and  
Local PH

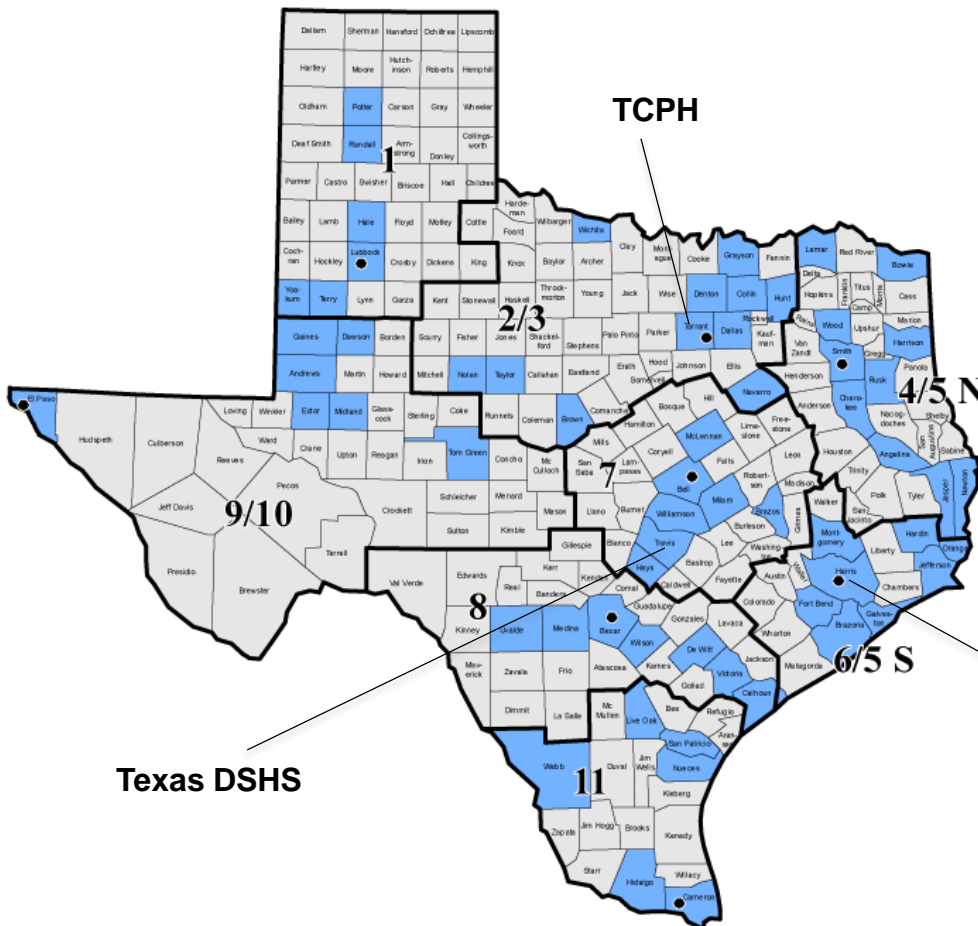
Protect America's Health, Safety, and Security



NSSP BioSense Platform



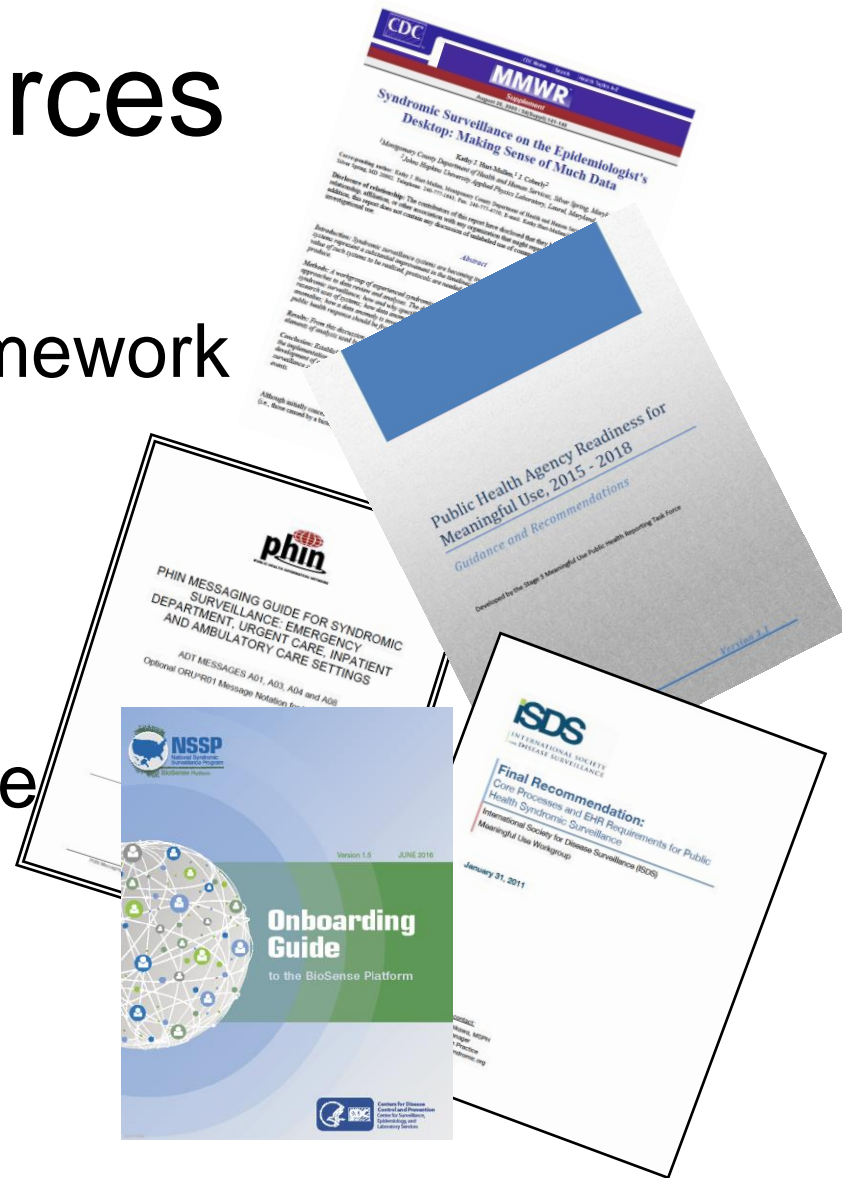
# Texas Cooperative SyS Project



Area Name	Total
Texas	28,240,245
Metropolitan**	25,041,790
NonMetropolitan	3,198,455
Abilene MSA	171,754

# Resources

- Quickstart Guide
- Response Protocol Framework
- Readiness Guide
- PHIN Messaging Guide
- ISDS Core Processes...
- NSSP Onboarding Guide
- NACCHO APC Tools
- CDC MU Web Portal



# NSSP Onboarding Site      CDC Phin Messaging Guide



## NSSP

National Syndromic Surveillance Program

BioSense Platform

**Community Forum**

[Onboarding Home](#)

[Governance](#)

[Resources](#)

[About this Project](#)

[Collaborator Login](#)

[Training](#)

**Onboarding Home**

Onboarding Home
Site Checklist
Facility Checklist
Calendar
Onboarding Guide

### Onboarding Introduction

Welcome to the website for onboarding to the NSSP BioSense Platform. The NSSP Onboarding Team will guide you throughout the process. Our goal is to make sure your data is high quality and the data feeds to the BioSense Platform are timely and efficient.

This website includes updated information from the [Onboarding Guide to the BioSense Platform v.1.5](#). The onboarding team welcomes feedback about this document via the [BioSense Platform Service Desk](#).

Over the next few months, we'll update this website with more information and resources about onboarding and announce upcoming activities. Check the announcements box frequently to keep up-to-date.

### Update: Onboarding to the BioSense Platform

In the last few months, sites began submitting feed profiles (contact information and metadata for their data feeds). If you haven't done so already, please submit this information so that you'll receive automated alerts. The Feed Profile Template (Excel spreadsheet) is available [here](#).

In June, we prioritized sites and facilities based on criteria such as facility type, facility volume, and site support model. We will communicate this schedule to sites and facilities prior to the start of the third quarter (July 5 - September 20, 2016). Here's what you and the facilities you oversee can do to get ready to onboard:

- 1. Update Master Facility Table (MFT) Excel Template**
  - If your site has already worked with our team to finalize the MFT, please continue to add and update planned facilities to this spreadsheet. To update your MFT, please submit a ticket to the [BioSense Platform Service Desk](#) and attach the revised spreadsheet.
  - If your site has not started the MFT process, please list the facilities you plan to onboard (including dates), and submit the list to the [BioSense Platform Service Desk](#).
- 2. Review Data Validation Process Changes**
  - We are adding new information about data validation to the BioSense Platform Onboarding Guide. Please familiarize yourself with the new processes and tools by visiting the onboarding website.
  - The new data validation process will allow you to access a "validation results" table in the staging environment (datatrans2.biosense.se) via phpMyAdmin. This table analyzes site data received the previous day by facility.
  - Validation results can be imported into a Data Compliance Report (Excel template) for further analysis, including completion rates of Stage 1 variables for each site. The template includes tips on how to use and analyze the results.
  - To request a copy of the Data Compliance Report template, contact the [BioSense Platform Service Desk](#). All requests for data validation require contacting the service desk.
- 3. Review and Sign BioSense Onboarding Process Acknowledgment (BOPA)**

(BOPAs acknowledge efforts to comply with the *PHIN Messaging Guide for Syndromic Surveillance*)


  - The [Site BOPA](#) and [Facility BOPA](#) are available for download on the onboarding website.

**Announcements**

[Service Transition Activities \(March-April\)](#) During March and April, the onboarding team will be developing onboarding documentation and tools for training and validation. These activities will improve planning, coordination, and rate of onboarding. During this ...

Posted Mar 3, 2016, 1:18 PM by BioSense Redesign

Showing posts 1 - 1 of 1. [View more »](#)



## PHIN MESSAGING GUIDE FOR SYNDROMIC SURVEILLANCE: EMERGENCY DEPARTMENT, URGENT CARE, INPATIENT AND AMBULATORY CARE SETTINGS

ADT MESSAGES A01, A03, A04 and A08


Optional ORU^R01 Message Notation for Laboratory Data

HL7 Version 2.5.1  
(Version 2.3.1 Compatible)

Release 2.0

April 21, 2015

Centers for Disease Control and Prevention



Page 1

PHIN Messaging Guide for Syndromic Surveillance: ED/UC, Inpatient and Ambulatory Care Settings

## Factors for LHD SyS Needs Assessment

- Stakeholders – user expectations vs. system design
  - Avoid “data syndrome,” focus on user needs and opportunities for collaboration
- **Basic syndromic surveillance capabilities— local, regional, state or BioSense**
- **Onboarding Data Providers**
- **Data sharing - governance**
- Training for Epidemiologists and hospital staff (ICPs, ED, and informatics staff)
- Staffing support and technical Assistance



## *Understanding the Surveillance Landscape – Communication & Data Sharing*

- Local level - the Who/What/When basic protocols
  - Investigate and communicate!
- Regional/State level
  - Understand access privileges to state system within and between jurisdictions: GOVERNANCE
  - Coordinate investigations through state/local jurisdictions
- Federal level
  - National picture of aggregated data nationally for regions/states that share data nationally
  - Additional access control administered by state/regional administrators for more detailed data sharing



## *Data Sharing*

- Data sharing encompasses two of the three main processes for syndromic surveillance
  - ***Syndrome-based population-health monitoring***
    - Notify and engage partners/leadership
    - Conduct reach-back
  - ***Establish and maintain data sharing***
    - Establish data use agreements or MOU's that clearly define roles and responsibilities
    - Maintain relationships with data providers (CRITICAL)
  - ***Conduct data quality assurance***

## *Connecting Data Providers*

- **Onboarding**
  - Registration
  - Data Use Agreements or MOU's
  - MU Reporting Requirements for Stage 2
- **Collect and Process Data**
- **Characterize, Interpret and Analyze Data**

## *Building on Data Provider Relationships*

- Context for SyS Collaboration
  - Routine: monitoring and confirming daily/weekly clusters
  - Risk from anticipated public health threats: special events
  - Risk from existing public health threats: I.D. outbreaks or environmental exposures
- Notification and reach-back collaboration for additional patient information to support public health response protocol/decision making

# *Onboarding*

- Registration
- Data-Use Agreements/MOUs
  - Between provider and data aggregator; data aggregator and hospital & PH users
  - Defines roles and responsibilities, usage standards (ISDS Final Recommendation), readiness (Readiness Guide), and data requirements (PHINMG MU2)
  - Meaningful Use stages 2&3

## SyS Meaningful Use Reporting

- Reporting SyS data for MU Stage 2
  - PH Readiness Requirements (Readiness Guide)
  - PHIN MG 2.0 is guidance but public health usage defines final data reporting requirements
  - Frequency of reporting at least once every 24 hours; every 6 hours for batch reporting in 2018
  - PHIN MG 2.0 includes both syndromic and diagnostic components (46 data elements)



## Data Provider Registration

- Registration of Intent to Report SyS
  - Active Engagement
    - Option 1 – registration to submit data allows providers to meet measure when PHA has limited resources
    - Option 2 – Testing & Validation where provider is in process of active data test/validation and must correct problems within 60 days of notification from PHA
    - Option 3 – Production where provider has completed T&V

## *Collect and Process Data\**

- Receive and validate raw HL7 messages
- Confirm correct reporting frequency of data
- Extract data from HL7 messages and validate for missing or mis-located data segments
- Classify validated data in preparation for analysis
- **Data quality management – feedback to data providers.**

\* This task set is performed by data aggregator

## *Data Quality Management*

- Core Process of Syndromic Surveillance
- Requires 1) collaboration between collection/processing and 2) relationship management
- Quality measures – flow, quality, sustainability
  - Representativeness
  - Frequency of reports
  - Missing/misplaced data elements
  - Intrinsic data quality e.g. correct/valid codes or textual data
  - Extrinsic data quality e.g. valid data for intended PH use cases
- Quality analytics integrated in NSSP/ESSENCE

## *NIST - HL7 v2.5.1 SyS MU Validation Suite*

### **Syndromic Surveillance**

HL7 V2 Validation Tool - Meaningful Use 2014 Edition Certification Testing

[Home](#) [Context-free Validation](#) [Context-based Validation](#) [Profile Viewer](#) [Vocabulary](#) [Documentation](#) [Settings](#) [About](#)

#### Welcome to the NIST Syndromic Surveillance Validation Suite

The NIST Syndromic Surveillance Validation Suite is intended for certifying 2014 Edition Meaningful Use EHR technology. The validation suite provides functionality to test EHR senders. The Syndromic Surveillance test tool covers the §170.314(f)(3) *Transmission to public health agencies - Syndromic Surveillance* Test Procedure. Use the *Context-based Validation* Tab for Meaningful Use certification testing.

A Google Group ([HL7v2 Syndromic Testing](#)) has been established for discussion/questions of the Implementation Guide, testing tool and testing issues. No membership is required. A google account is required for posting.

- Site: <https://groups.google.com/d/forum/hl7v2-syndromic-testing>
- Email: [hl7v2-syndromic-testing@googlegroups.com](mailto:hl7v2-syndromic-testing@googlegroups.com)

The following browsers are supported: Internet Explorer versions 8 and 9, Firefox, and Chrome. Recommended browsers are Internet Explorer 9, Firefox and Chrome.



Deployment Information  
Date: 03/02/2015  
Version: 1.7.2

Browsers Supported  
IE8, IE9, Firefox, Chrome  
Recommended Browsers: IE9, Firefox, Chrome

External Links  
[Disclaimer](#)  
[Privacy/Policy](#)  
[Website Administrator](#)



<http://hl7v2-ss-testing.nist.gov/mu-syndromic/>

## Meaningful Use Stage 2 DQ Requirements

- HL7 messages – ADT A01, A03, A04, A05, A08
- PID Patient Identifier, Date Birth, 5 Digit ZIP
- OBX segment contains the temperature
- DG1 Diagnosis

```
MSH|^~\&|EPIC|.....
EVN|A03|20131023143659|.....
PID |.....
PV2|||Bad Cold|.....
PV1|1|E|.....
OBX|1|.....
OBX|2|.....
OBX|3|NM|MUPTAGE|3|8||||F
OBX|4|NM|MUPTTEMP|4|104.2||||F
DG1|1|ICD-9-CM|487.1^Influenza with other respiratory
manifestations^ICD-9-CM|...
```

*Emergency department  
discharge diagnosis of an 8  
year old with a  
temperature of 104.2 and  
diagnosis of influenza*



## **Data aggregators are responsible for:**

- Creating and managing Networks and Support Software:
- Performing as the technical interface to hospitals:

IT - Network Staff

IT - HL7 and Database Integration Staff

- Providing non-stop operations:
  - Assures Network uptime
  - Assures quality of data
  - Assures security best practices
  - Assures timely respond to problems



## *Characterize, Interpret and Analyze Data*

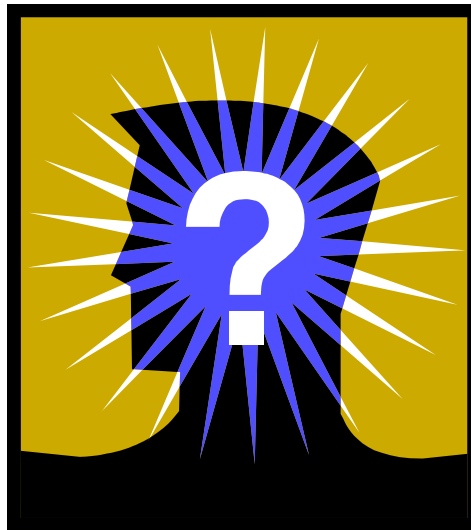
- Utilizes SyS analytics tools
- Response Protocol Framework – MMWR paper “*Syndromic Surveillance on the Epidemiologist’s Desktop: Making Sense of Much Data*” from Resources
- Evaluate findings compared to other data and surveillance sources



## *Building a Community of Practice*

- Harris County, Texas
- City of Houston Health Department
  - SyS Consortium Region 6/5S
- ISDS Community of Practice Program

# Questions



# Thank you!

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- Dave Heinbaugh – Systems Manager, Tarrant County Public Health, (817) 321-4880  
[wdheinbaugh@tarrantcounty.com](mailto:wdheinbaugh@tarrantcounty.com)



# Resources Links

- SyS Quickstart Guide – PDF Document
- [SyS Response Protocol Framework](#)
- [SyS Readiness Guide](#)
- [PHIN Messaging Guide v2.0](#)
- [ISDS Core Processes and EHR Requirements for Public Health SyS](#)
- [NSSP Onboarding Guide](#)
- [NACCHO/Tarrant APC SyS Tools](#)
- [CDC Meaningful Use Webpage](#)