Public Health Surveillance Assessment: Interview with Public Health Partners

Introduction

Conducting an assessment of current public health capabilities within your utility's service area is an important part of planning for the implementation of a Public Health Surveillance (PHS) component of a Water Quality Surveillance and Response System (SRS). There are a variety of attributes to consider when assessing public health datastreams including:

- **Contaminant coverage:** The ability of a public health datastream to detect a variety of contaminant classes that produce rapid symptom onset or delayed symptom onset in exposed individuals.
- **Spatial coverage:** The percentage of the utility distribution system service area covered by a public health datastream.
- **Timeliness:** The time between when healthcare seeking behaviors of symptomatic individuals enter a monitored datastream and the time that a possible public health incident is detected.
- **Data quality:** The completeness of underlying case details (e.g., demographics, chief complaint or symptoms, date, time, and location where exposure occurred) for cases that are related to a possible public health incident.

The majority of information pertaining to public health data and procedures likely resides outside of the immediate domain of your utility. To conduct an assessment of PHS capabilities, someone from your utility should interview personnel responsible for monitoring available public health data such as epidemiologists at the local, city, or county ***health department*** and toxicologists at the ***Poison Control Center*** (PCC) serving your utility's service area. The following assessment forms are designed to assist your utility in capturing information about the manner in which common public health datastreams are currently monitored by public health partners in your utility's service area.

The assessment questions are organized into two parts:

- **Part I:** Health department's surveillance capabilities
- **Part II:** Poison Control Center's surveillance capabilities

Note that your utility may need to replicate Part I or Part II of the assessment if there are multiple health departments or PCCs in your utility's service area.

Your utility should first establish which health department(s) and PCC(s) operate within your utility's service area. An appropriate contact at each of these organizations should be identified. An interview should be scheduled, preferably in-person, to conduct the PHS assessment. The assessment can be completed electronically using this fillable PDF form, or by hand using a printed version of this form.

The responses to these assessment questions can be used as a starting point for subsequent discussions between your utility and public health partners who express a commitment to supporting the goals of the SRS. Your utility should work collaboratively with these partners to identify existing PHS capabilities that can be leveraged or opportunities to implement new capabilities that can support the goals of the SRS and the mission of public health partners. Once the PHS assessment has been completed, information captured in the assessment forms can be used to begin documenting the design of the PHS component (http://www.epa.gov/waterqualitysurveillance/public-health-surveillance-resources).

Part I: Health Department's Surveillance Capabilities

Health Department Name:	
Contact Name and Title:	
Contact Phone:	
Contact Email:	
Interview Date:	

Conversation Starter

Have public health surveillance techniques previously provided the health department with an early warning of an environmental exposure (e.g., foodborne illness, lead exposures, tainted medications, etc.)? If so, discuss how public health data was used to identify the cause of the exposure.

Case-based Surveillance

Case-based surveillance relies on the professional judgment of trained healthcare providers to identify and report unusual cases or patterns of illness to the health department. This type of surveillance is conducted on a daily basis by healthcare networks staffed by healthcare providers (e.g., physicians and nurses) who are responsible for examining patients and making diagnoses, as well as those who staff health advice hotlines. In the context of PHS as a component of an SRS, case-based surveillance can be used to identify unusual cases that may be due to exposure to contaminated water.

Two potential case-based surveillance datastreams include:

- **Healthcare Networks:** Primary care physicians' offices are often members of a healthcare network with trained healthcare providers (e.g., doctors, physician assistants, and nurses) who conduct in-person medical assessments of patients to identify the cause of their symptoms and provide treatment. The healthcare network notifies the health department of increased case volume presenting with similar, and possibly unusual, symptoms not attributable to a known, ongoing public health incident. The network may also provide notification of increased orders for clinical laboratory tests and the results of that testing, when available.
- **Health Advice Hotlines:** Health advice hotlines serve as a frontline resource for individuals seeking advice on choosing appropriate medical care, managing a chronic condition, or understanding treatment options. They may be operated by an insurance company, hospital, or municipality. Healthcare providers staffing hotlines notify the health department of an unusual number of calls that are geographically co-located with similar, and possibly unusual, symptoms not attributable to a known, ongoing public health incident.

Case-based Surveillance Assessment Questions

Healthcare Networks

1. Are there healthcare networks within the jurisdiction served by the health department that are currently conducting active surveillance of patient records for unusual symptoms or an increased volume of cases?

   ☐ Yes
   ☐ No

   If yes, record the name(s) of the healthcare network(s) below.

2. Do the healthcare networks listed above report information about unusual cases, a rise in the number of cases, or an increase in clinical laboratory orders to the health department?

   ☐ Yes
   ☐ No

   If yes:

   a. **Spatial coverage:** Do the geographic areas served by the healthcare networks cover the entire utility service area?

      ☐ Yes
      ☐ No

   b. **Timeliness:** Do healthcare networks report information about unusual cases as soon as they are recognized (i.e., in advance of confirmed laboratory results)?

      ☐ Yes
      ☐ No

   c. **Data quality:** Select the underlying case details that are reported. Check the "Other" box if reports include additional underlying case details and describe in the box below.

      ☐ Demographics
      ☐ Chief complaint
      ☐ Symptoms
      ☐ Date/time of contact
      ☐ Location where exposure occurred
      ☐ Other

   Record any additional notes related to surveillance conducted by healthcare networks below (e.g., if any regular surveillance practices are automated):

Health Advice Hotlines

1. Are there health advice hotlines operating within the jurisdiction served by the health department that are currently conducting active surveillance of call records for unusual symptoms or an increased volume of cases?

☐ Yes
☐ No

If yes, record the name of the system owner or operator for the health advice hotline(s) below.

2. Do the health advice hotline(s) listed above report information about unusual cases or a rise in the number of cases to the health department?

☐ Yes
☐ No

If yes:

a. **Spatial coverage:** Does the geographic area served by the health advice hotline(s) cover the entire utility service area?

☐ Yes
☐ No

b. **Timeliness:** What is the typical delay between identification of unusual cases or volumes of cases and reporting to the health department?

☐ Immediately
☐ Same day
☐ Days later

c. **Data quality:** Select the underlying case details that are reported. Check the "Other" box if reports include additional underlying case details and describe in the box below.

☐ Demographics
☐ Chief complaint
☐ Symptoms
☐ Date/time of contact
☐ Location where exposure occurred
☐ Other

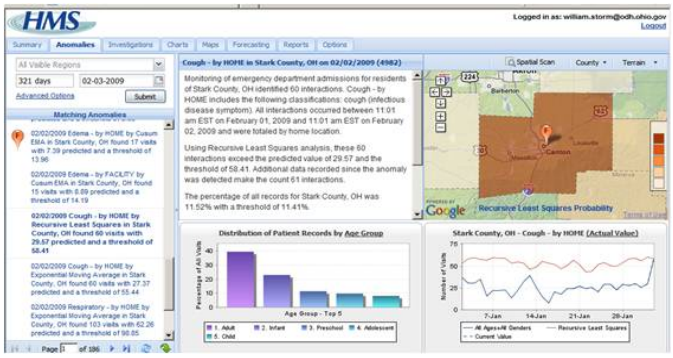
Record any additional notes related to surveillance conducted by health advice hotlines below (e.g., if hotline is in operation 24/7):

Syndromic Surveillance

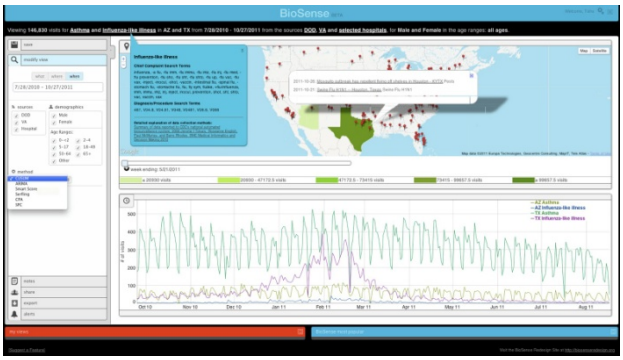
Syndromic surveillance involves monitoring of public health data, such as that listed below, to detect incidence of illness or poisoning. While syndromic surveillance can be manual or automated, it is increasingly performed by automated systems that generate an alert notification whenever anomalous conditions are detected relative to an established baseline. Investigation of syndromic surveillance alerts and underlying case details is typically conducted by the health department or PCCs.

Four different types of syndromic surveillance datastreams include:

- **Emergency Department (ED) Data:** ED data is generated when individuals visit an ED as a result of an injury or suspected illness. Trained healthcare providers (e.g., doctors, physician assistants, nurses) document symptoms, identify the cause of the symptoms, and provide treatment. ED data is typically entered into an existing medical records system. Pertinent information from these records, such as the chief complaint, is filtered for analysis.
- **Emergency Medical Service (EMS) Runs:** EMS run data is generated when emergency medical technicians respond to an emergency, providing medical assessment, support, and transport. Trained professionals enter the details of the run into an information management system owned and operated by the jurisdiction served by the EMS unit. EMS runs are filtered to capture the subset of runs that could be due to a possible public health incident.
- **911 Calls:** 911 call data is generated when individuals call a 911 dispatch center to report an emergency or to seek medical assistance. Trained 911 dispatchers code each call and enter it into a computer-aided dispatch system. 911 calls are filtered by incident code to identify the subset of calls that could be due to a possible public health incident.
- **Over-the-counter (OTC) Medication Sales:** Sales of medications commonly used to alleviate symptoms of gastrointestinal illness, respiratory illness, or any other symptoms of interest are aggregated across participating pharmacies and monitored.



EpiCenter User Interface (Health Monitoring Systems)



BioSense User Interface (Centers for Disease Control and Prevention)

Syndromic Surveillance Assessment Questions

1. For each datastream currently monitored by the health department, record the name of the PHS system, a brief description, and the system owner/operator. If a datastream other than the four listed is monitored, enter information for that datastream in the "Other" row.

Datastream	Contaminant Class Coverage	Name of PHS System	Description	System Owner/Operator
ED Data	Rapid symptom onset and Delayed symptom onset			
EMS Runs	Rapid symptom onset			
911 Calls	Rapid symptom onset			
OTC Medication Sales	Delayed symptom onset			
Other:				

2. **Spatial coverage:** For each datastream monitored by the health department, does the geographic area monitored by the datastream cover the entire utility service area?

ED Data	EMS Runs	911 Calls	OTC Medication Sales	Other:
☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

3. **Timeliness:** For each datastream monitored by the health department, what is the typical delay between health seeking behavior and alert generation?

ED Data	EMS Runs	911 Calls	OTC Medication Sales	Other:
☐ Real-time ☐ Hours ☐ Days ☐ Weeks	☐ Real-time ☐ Hours ☐ Days ☐ Weeks	☐ Real-time ☐ Hours ☐ Days ☐ Weeks	☐ Real-time ☐ Hours ☐ Days ☐ Weeks	☐ Real-time ☐ Hours ☐ Days ☐ Weeks

4. **Data quality:** For each datastream monitored by the health department, select the underlying case details that are collected and available for review. The OTC medication sales datastream is not included in this table because underlying case details are not applicable. Check the "Other" box if additional underlying case details are collected and describe in the "Other Case Details" box below.

ED Data	EMS Runs	911 Calls	Other:
☐ Demographics ☐ Chief complaint ☐ Symptoms ☐ Date/time of contact ☐ Location where exposure occurred ☐ Other	☐ Demographics ☐ Chief complaint ☐ Symptoms ☐ Date/time of contact ☐ Location where exposure occurred ☐ Other	☐ Demographics ☐ Chief complaint ☐ Symptoms ☐ Date/time of contact ☐ Location where exposure occurred ☐ Other	☐ Demographics ☐ Chief complaint ☐ Symptoms ☐ Date/time of contact ☐ Location where exposure occurred ☐ Other

Other Case Details:

5. For each datastream monitored by the health department, select the water-related syndromes that are included. Check the "Other" box if additional syndromes are included and describe in the "Other Syndromes" box below.

ED Data	EMS Runs	911 Calls	OTC Medication Sales	Other:
☐ Gastrointestinal ☐ Respiratory ☐ Cardiac ☐ Dermal ☐ Neurological ☐ Other	☐ Gastrointestinal ☐ Respiratory ☐ Cardiac ☐ Dermal ☐ Neurological ☐ Other	☐ Gastrointestinal ☐ Respiratory ☐ Cardiac ☐ Dermal ☐ Neurological ☐ Other	☐ Gastrointestinal ☐ Respiratory ☐ Fever ☐ Dermal ☐ Other	☐ Gastrointestinal ☐ Respiratory ☐ Cardiac ☐ Dermal ☐ Neurological ☐ Other

Other Syndromes:

Summary

1. Reflecting on surveillance methods currently used by the health department, discuss PHS capabilities that could be implemented or enhanced to provide improved surveillance for water contamination and note them in the box below. Specific enhancements could include:
   - Optimizing mechanisms for reporting unusual incidents of disease
   - Adding new syndromes to an existing PHS system
   - Extracting additional underlying case details through an existing PHS system
   - Increasing the frequency of automated analyses performed by an existing PHS system
   - Strengthening relationships with existing data providers
   - Capturing data from additional data providers

2. Please discuss availability for routine meetings. The next meeting with the health department will be on ___ / ___ / _____ at _____ (time) at _____ (location).

Part II: Poison Control Center's Surveillance Capabilities

Poison Control Center Name:	
Contact Name and Title:	
Contact Phone:	
Contact Email:	
Interview Date:	

Conversation Starter

Has the PCC previously provided the health department with an early warning of an environmental exposure (e.g., contaminated food, lead exposures, tainted medications, etc.)? If so, discuss how PCC data was used to identify the cause of the exposure.

PCC Surveillance

Case-based surveillance is conducted by the PCC by analyzing data collected from specialists when they are advising callers and healthcare providers on suspected poisoning incidents. Phone calls are handled by physicians, nurses, and pharmacists with toxicological expertise, and call details are uploaded to the National Poison Data System (NPDS) in real time.

The PCC may also conduct syndromic surveillance by analyzing call details stored in the NPDS. Incoming NPDS data is monitored continuously and anomalous signals generate an automated email alert, which is sent to the designated regional PCC or health department. The system allows PCCs to develop customized statistical analysis parameters for defined syndrome categories.

PCC Assessment Questions

1. Do poison control specialists handling PCC calls consider water as a source of exposure when evaluating a patient, particularly when foodborne exposure is suspected?

☐ Yes
☐ No

2. **Spatial coverage:** Does the geographic area covered by the PCC cover the entire utility service area?

☐ Yes
☐ No

3. **Timeliness:** What is the typical delay between calls to the PCC and alert generation for NPDS?

☐ Real-time
☐ Hours
☐ Days
☐ Weeks

4. **Data quality:** Select the underlying case details that are collected. Check the "Other" box if additional underlying case details are collected and describe in the "Other Case Details" box below.

- ☐ Demographics
- ☐ Symptoms
- ☐ Date/time of contact
- ☐ Location where exposure occurred
- ☐ Other

Other Case Details:

5. Has NPDS been configured to include algorithms or key word matches used to identify cases which suggest exposure to contaminated water in your region?

- ☐ Yes
- ☐ No

Summary

1. Reflecting on current surveillance methods implemented by the PCC, discuss enhancements that could improve monitoring for exposures to contaminated water and note them in the box below. Specific enhancements could include:
   - Adding new syndromes
   - Extracting additional underlying case details
   - Increased frequency of automated analyses

2. Please discuss availability for routine meetings. The next meeting with the PCC will be on ___ / ___ / _____ at _____ (time) at _____ (location).