Georgia Board of Public Health

Aug. 13, 2019
Agenda

- Call to order
  - Cynthia Mercer, M.D., Board Chair
- Roll Call
- Election of Board of Public Health Officers
  - Chair
  - Vice Chair
  - Secretary
- Approval/Adoption of Minutes
- Commissioner’s Update
  - Kathleen E. Toomey, M.D., M.P.H., Commissioner
Hotel Legionnaire’s Disease Outbreak

Largest ever in Georgia!

Board of Public Health / Cherie L. Drenzek, DVM, MS / State Epidemiologist & Chief Science Officer / Aug. 13, 2019
Background: *Legionella*

Gram-negative bacteria (multiple species)

Found naturally in **warm water** (hot tubs, plumbing, showers, fountains)

Grows and survives well in **biofilms**, particularly in areas where there is low water flow

Persons get infected when they breathe in droplets of water contaminated with *Legionella* (incubation period 1-14 days)

*Legionella* infections can be **very severe**: 10% fatal; 44% ICU admission

1\textsuperscript{st} outbreak recognized in 1976 at American Legion Convention in Philadelphia (221 cases, 34 deaths)

*Legionella* cases and outbreaks are on the RISE.
Legionellosis in Georgia

- 97% hospitalized (51% ICU)
- 8% fatal
- 33% healthcare-associated
- Mean age: 60 years, 61% male
Legionella Outbreaks in Georgia

- 7 outbreak investigations in 2018, 14 in 2017
- Outbreaks most commonly occurred in hospitals and hotels
- Most outbreaks were associated with potable water plumbing systems
- Environmental risk factors for outbreaks can include construction, water main breaks, water temperature/pH fluctuations, inadequate levels of disinfectant, water stagnation—leads to biofilm.
- Picture can look like “sporadic” cases every few months...
- Almost all outbreaks were preventable with more effective water system management.
Legionnaires’ Disease Outbreak at an Atlanta Hotel, July 2019

• On July 12, 2019, DPH epidemiologists documented 3 lab-confirmed cases of *Legionella* infection among attendees of a conference held at the hotel in late June/early July.

• Hotel voluntarily closed on July 15 while investigation proceeded.
Legionnaires’ Disease Outbreak at an Atlanta Hotel, July 2019

Goals of the outbreak investigation:

- Case finding
- Lab diagnosis
- Elucidate risk factors for illness (epidemiologic study)
- Elucidate the source of *Legionella* (environmental and water testing)
- Remediation/control (both immediate and long-term)

*Legionella* outbreak investigations are tremendously complex, lengthy, and very expensive!
Initial Investigation

First Epi Curve, Friday, 7/12/19
Initial Investigation

The epidemiology (point source epi curve) informed our recommendation for *immediate control measures* (closure of aerosolizing devices: hot tub, pool, decorative fountains in courtyard) = “usual suspects” in other point source *Legionella* outbreaks
Investigation Steps (Epi and Environmental)

- Hotel hired *Legionella* contractor and CDC-certified ELITE laboratory for testing
- Guest notification about potential exposure (letter from hotel)
- **Case finding**—deployed an electronic survey in SendSS to all guests in hotel from June 12-July 15 (assessing illness + activities in hotel)
- Onsite *environmental assessment* of all water systems in hotel (identifying areas of risk)
- **Environmental testing**: Collected water and environmental samples from entire water distribution system for *Legionella* testing
Epidemiologic Investigation

- We received more than 1300 survey responses
- As of Aug. 9, we have 12 lab-confirmed and 64 probable LD cases, including one death.
- Probable cases had pneumonia (by chest x-ray or clinician-dx) AND were epidemiologically linked (at the hotel within 14 days of illness)
Environmental Investigation

- Still ongoing
- Environmental testing: water samples tested at CDC-certified ELITE laboratory
- **Remediation** (done after samples collected and/or driven by lab results)
  - Plumbing engineering changes
  - Hyperchlorinate or superheat potable water
  - Serial repeat testing
  - Requires skilled contractor
Legionella Outbreak Prevention

Prevention is key, remediation of outbreaks is extremely difficult, labor-intensive, and expensive.

Building owners and managers (including hotels, hospitals and healthcare facilities) should develop and use a Legionella water management program according to new industry standards (http://www.cdc.gov/legionella/WMPtoolkit)

1. Critical to ask patients with pneumonia about travel or visits to healthcare facilities during the 2 weeks before illness onset.

2. Order appropriate tests for Legionella:
   - Order culture and urine antigen testing in combination—culture is critical.
   - Urine antigen only detects one serogroup of *L. pneumophila* (SG 1)
   - PCR testing is not FDA-approved and serology is rarely useful.

3. Immediately report Legionella cases to Public Health.
Questions?

For more information, please contact:

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Office of Public Health Informatics

Board of Public Health / Karl Soetebier, Director Office of Public Health Informatics / Aug. 13, 2019
Information + Automatic = Informatics

**Information**: communication of data with context and meaning

**Automatic, Automated**: doing something that requires limited human control
Information + Automatic = Informatics

Informatics is understanding how to help us communicate with each other in informative ways through the efficient and effective use of machines.
Relevancy to Public Health

• Better understanding of public health information needs
• Improved systems to meet those needs
• Advance the mission of public health
• More efficient and effective use of limited resources
Office of Public Health Informatics

- Advocates for the information needs of DPH
- Ensure technology solutions and business processes are well aligned
- Data and information are collected and used efficiently and effectively
Three Areas of Focus

Interoperability
Helping interconnect systems to allow the more effective and efficient exchange of data

Business Intelligence and Analytics
Providing support, assistance and expertise in performing analyses of data to drive better decision making

Knowledge Management
Bringing discipline and a methods-based approach to documenting and cataloging information flows, datasets, and business processes
Interoperability

Public Health Work

System A

System B

System C

Data Manually Entered into System A

Data Manually Entered into System B

Data Manually Entered into System C

Public Health Work Generates Data

Public Health Work Generates Data

Public Health Work Generates Data
Interoperability

Public Health Work generates data. This data is manually entered into System A. Data is shared between Systems A and B. System C is also involved, with data shared between C and B. The process is illustrated with a diagram showing the flow of data between the systems.
Business Intelligence and Analytics

Public Health Work

Data to Action

Information Need

Data Retrieved From C

Data Retrieved From B

Data Retrieved From A

System C

Data Shared between C and B

System B

Data Shared between A and B

System A

Data Retrieved From B

Data to Action

Information Need

Data Retrieved From C

Data Retrieved From B

Data Retrieved From A

System C

Data Shared between C and B

System B

Data Shared between A and B

System A

Data Retrieved From B

Data to Action

Information Need

Data Retrieved From C

Data Retrieved From B

Data Retrieved From A

System C

Data Shared between C and B

System B

Data Shared between A and B

System A

Data Retrieved From B

Data to Action

Information Need

Data Retrieved From C

Data Retrieved From B

Data Retrieved From A

System C

Data Shared between C and B

System B

Data Shared between A and B

System A

Data Retrieved From B

Data to Action

Information Need

Data Retrieved From C

Data Retrieved From B

Data Retrieved From A

System C

Data Shared between C and B

System B

Data Shared between A and B

System A

Data Retrieved From B
Business Intelligence and Analytics

Public Health Work

Public Health Worker

Data to Action

Information Need

Data to Action

Information Need

Shared Analytics Platform

Data to Analytics

Data Shared between A and B

System A

Data Shared between C and B

System C

System B
Knowledge Management

System A

System B

System C

System D

System E

Public Health Worker

Information Need

Data to Action

Data to Analytics

Shared Analytics Platform

Public Health Work
OPHI Projects – Interoperability

Lab interface Project: (ETOR)
- Enabling health districts and public health lab to electronically exchange orders and results

Newborn Screening (ETOR)
- Enabling the electronic order and result reporting of newborn screening data with external partners
- Current effort is collaboration between OPHI, GPHL, APHL, and Piedmont Hospital

GAVERS Death Certificate Application Programming Interface
- Helping Vital Records shape the design of an interface to facilitate the communication of death certificate data between GAVERS and Fulton County Medical Examiner data. Grant obtained by VR, OPHI providing assistance

GaHIN and PDMP interconnectivity
- Goal of project is to make PDMP data accessible from the Georgia Health Information network for participating providers. Working alongside PDMP folks help figure out best solution for this effort.

ESM Data Warehouse
- Support development of WIC and EHR data warehouse to provide for data retention and staging as system implementation proceeds
OPHI Projects - Analytics

PDMP Death Data analysis
• Examining a cross between prescription data and death data to assess the impact that a proposed connection might have on the opioid epidemic response related to prescriptions filled post-mortem

Analytics Platform Development
• Working to establish an analytics platform that will bring together Business Intelligence tools with data and the interoperability tools to move that data

ESM Data Warehouse
• Support development of WIC and EHR data warehouse to provide for analytic capabilities

Georgia Tech HS6400
• Working with a team of Georgia Tech graduate students in the field of operations research to use advanced analytic techniques to examine various efficiencies in the foodborne illness case reporting process.

Superbowl Social Media Monitoring
• Collaboration with OPHI, communications and epi to perform monitoring of Twitter and Google search trends before and during the Super Bowl, to enhance detection of bio-threats
OPHI Projects – Knowledge Management

Data Catalog
• Creating a tool to build awareness of the datasets available for use across DPH and its programs.
  Includes business case and technical description of the datasets and contact information for its owners. Will have a public facing component and will integrate with data request system

Business Process Archive
• Implementing the Public Health Informatics Institute CRDM standard of requirements development and business process analysis to publish a collection of standard descriptions of various DPH processes to better inform how information moves through the organization.

Biosurveillance Quality Improvement
• Extending project that uses informatics techniques to identify key opportunities to improve how state and district public health perform biosurveillance activities in Georgia.

Master Patient Index (eMPI)
• Deploy a master patient index to resolve challenges related to matching patients across datasets that are used for analytics and ongoing data quality efforts
Questions

For more information, please contact:

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Next Meeting

The next Board of Public Health meeting is scheduled for Tuesday, Sept. 10, 2019 @1 p.m.