

Awareness at the Edges:

How Informal Networks Complement Syndromic & Other Surveillance Methods

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Project Overview

- How do public health departments and health-care providers respond to various emergencies or potential emergencies?
- What is role & utility of different forms of surveillance in situational awareness?
- Inform ongoing development of syndromic surveillance
- How does the public health system operate at the edges?
 - Supplements systematic data collection & info transfer
 - Depends on “social networks” of person-to-person communication

Buehler, J., Whitney, E., Smith, D., Prietula, M., Stanton, S. & Isakov, A. Situational uses of syndromic surveillance. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice and Science*, 7(2), 2009, pp. 165-177.

Case Studies

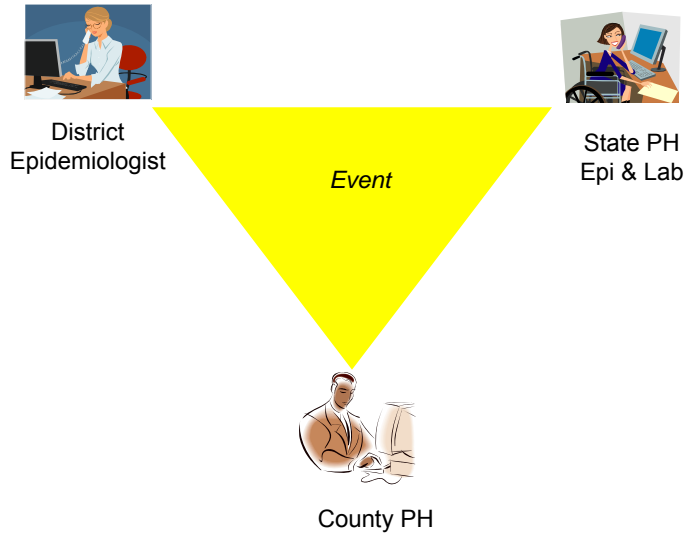
- Salmonella outbreak, 2006
- Tornado, 2007
- Wildfire, 2007 [2]
- Influenza, 2006-2007 (inc. local district)
- Hurricane, 2005 (initial interview only)
- HazMat events, 2007
- Environmental biological alert

Case Study Interviews

- State & local public health officials
 - Epidemiologists
 - Health officers
 - Program managers
 - ID control
 - Nurses
 - PIOs
 - Environmentalists
 - Emergency managers
- Healthcare
 - Infection Control Practitioners (ICPs)
 - Hospital epi
 - ED & ID Physicians
 - Emergency managers
 - IT
- Interviews recorded & transcribed
- Qualitative & social network analyses

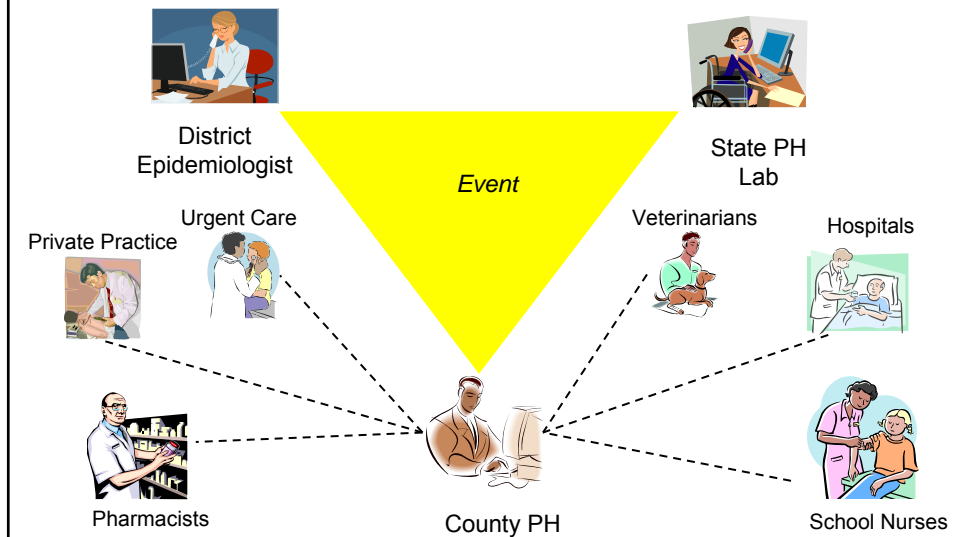
Case Analysis Convergence

Key Informant Perspectives



Case Analysis Convergence

Key Informant Perspectives



Case Analysis Goals

- What were facilitators and supplements to the *flow of information* through formal PH system channels? (Who?)
- What *roles & support processes (tasks that add value)* were played by those outside the formal PH system? (What? How? Why?)

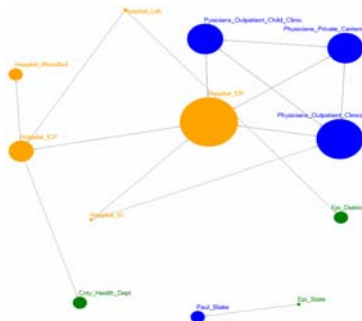
Ten (plus one) [often iterative] steps of an outbreak investigation (Source: CDC)

Landmarks Selected for Analysis calibrate, normalize

0. Detect suspect outbreak
1. Prepare for field work
2. Establish the existence of an outbreak
3. Verify the diagnosis
4. Define and identify cases
5. Describe and orient the data in terms of time, place, and person
6. Develop hypotheses
7. Evaluate hypotheses
8. Refine hypotheses and carry out additional studies
9. Implement control and prevention measures
10. Communicate findings
11. Assess impact of recommendations

Example Landmark Support

Define and Identify Cases



Who: District Epi

What: Blast fax to community physicians

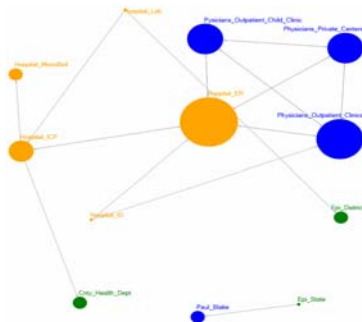
Why: ICP contact regarding increase in salmonella cases

Δ Process: Increase attention to GI symptoms

Effect: Initial increase in lab test requests, increase in calls to ICP [feeds into the formal system]

Example Landmark Support

Develop Hypotheses



Who: State PH Office

What: Suggested local investigation of well water

Why: Student project once found Salmonella in water near there

Δ Process: Environmentalist investigation initiated in well water for those who tested positive

Effect: Nothing found

Roles of Informal networks

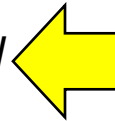
- Establishes a **Community of Practice (CoP)**
- Allows local **system adaptation** (system flexible at the edges)
- Potential to amplify, prompt, stimulate surveillance
 - Respond to **system weaknesses** (now: funding cuts)
 - Emergence of local **norms of practice in context**
 - Role of **trust (value, time)**
- **Structure of CoP** tells you a lot about the environment
 - **Resource constraints**: One infectious disease physician in the area
 - **Data constraints**: Insufficient resolution of syndromic surveillance data

Issues

- Non-local inferences → wrong hypothesis
 - **Prior student research results suggested water-born**
- Crossing boundaries & information sharing
 - **Reciprocity (relationship management), learning**
- Raw data can be deceiving
 - **Decrease in lab reports/specimens (presumptive diagnosis)**
- What constitutes a signal
 - **No calls from network of community physicians**
- Philosophies can differ
 - **Inform public or not?**
- Key dependencies
 - **A single resource**
- At the edge can be another organization
 - **DoD data not available**

Case Analysis Goals

- What was the *flow of information* with those outside the formal PH system? (Who?)
- What *roles/processes* were played by those outside the formal PH system? (What? How? Why?)
- How can PH help *identify, maintain and improve* those roles/processes?
 - What is “good practice” for informal processes



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- City of San Diego EMS
- Hospitals in each of these communities