Surveillance: Post-event Strategies

Developed by the Florida Center for Public Health Preparedness

Program Objectives

- Understand surveillance purpose and use in post-event epidemiologic investigation
- Aware of the steps in setting up a surveillance system

Surveillance Defined

The ongoing, systematic collection, analysis and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevent and control

KEY: Collect the right data in order to answer needed questions

CDC, 1963
Purposes of Surveillance

- Determine baseline rates of disease by monitoring trends
- Detect epidemics, outbreaks, and public health emergencies in order to recognize unusual events
- Estimate the extent/magnitude of a problem
- Identify and describe populations at risk for a disease
- Describe the geographic distribution of a disease
- Assess public health interventions
- Aid in resource allocation

How Surveillance Changed in Florida during the 2004 and 2005 Hurricanes

- Regular public health surveillance disrupted
- First surveillance system included DMATS, Emergency Rooms, and Shelters
- HIPAA waiver cited in DOH letter
- Electronic data implemented for last three 2004 hurricanes and 2005 hurricane season
- New method of analysis
- Special surveillance systems included the Medical Examiner and Poison Control

How does Post-Event Surveillance differ from “Normal” Epidemiological Surveillance?

- Time/political pressure by providing data for decision making
- Primary purpose is to find a source rather than give a precise estimate of a risk ratio
- Identify requirements, local capabilities, and gaps
  - Surveillance often includes more than data gathering
- Supplement regular disease reporting
- Identify outbreaks and prevent spread of disease
- Describe distribution of illness and injury to guide public health interventions
- Respond to public and press concerns
Agencies Involved In Disaster Management

- Emergency Management
- Fire
- EMS
- Public Health
- Hospitals
- Law Enforcement
- Red Cross
- Other NGOs

More information on the Emergency Support Functions, or ESF, structure of the Emergency Operations Center can be found at http://www.floridadisaster.org/internaltraining/ESFs.htm

Planning a Surveillance System

Establish objectives
- Identify index case, characterize epidemiology, understand transmission, control outbreak, evaluate intervention

Develop case definitions
- Standardize for comparability over time and place, evolve in acute setting, may alter magnitude

Determine data sources
- Hospitals, labs, physicians
- Validity and reliability of data varies with reporting venue

Develop data collection mechanism
- Passive reporting, active reporting, survey, sentinel system, chart abstraction

Field test
- Ensure viability of collection method (e.g. acceptability, simplicity)

Analytic approach
- Level of detail varies significantly

Dissemination
- Electronic, Epi-X, EpiCom, public health advisories, media, newsletters, website

Use of analysis and interpretation
- Communication and evaluation
Influences on Surveillance System

Surveillance programs are influenced by external controls

- Return time for testing
- Cost of testing
- Ability to provide follow-up
- Provider education
- Legal authority
- Public education/public opinion

Steps For Setting Up A Surveillance System

- Assessment of available resources
- Locate sites for surveillance systems
- Implement surveillance by gathering data
- Download information from the DMATs and analyze it
- If identify something unusual, investigate (whether it is a rumor or real)
- Communicate findings

Steps For Setting Up A Surveillance System

1. Assessment of available resources
   - Find out what Hospitals, Clinics, Emergency Rooms, Dialysis Centers and Shelters are open and available
   - Identify the official and “ unofficial” shelters and what health resources may be there
     - Even if the resources are not open, people might congregate at these areas in hopes of receiving care
     - Disaster Medical Assistance Teams (DMATs) may set up in parking lots as an area of operation
Steps For Setting Up A Surveillance System (continued)

2. Locate sites for surveillance systems
   • Set up a clinic at sites where Disaster Medical Assistance Teams (DMATs) are located
   • Use information DMAT has collected or create forms that are easy for DMATs to use
     • In some cases, information the DMATs have about patients can be downloaded directly on to computer
     • Information collected by DMATS will include how many GIs, scrapes, nauseas, prescription refills, etc. were seen that day
   • It is important to carry a letter from the State Public Health Officer explaining that HIPAA exempts public health surveillance from its rules
     • This will ensure DMAT, Hospital, Physician, etc. cooperation

Type of Data needed Post-Event

Morbidity data
   • Routine and special surveillance
   • Baseline data on endemic disease burden

Mortality data

Characteristics of affected zone
   • Geographic size
   • Type of population

Status of public health/health care resources

How Data can be Collected Post-Event

Rapid needs assessment
   • Conducted as soon as possible
   • Identify communicable disease threats
   • Outline public health needs

Special (temporary) surveillance

Data collection methods can vary
   • Manual data collection is labor intensive but provides on-site assessments
   • Electronic data collection is less labor intensive but may lose on-the-ground view
**Potential Data Sources**

- Laboratories
- Infectious disease specialists
- Hospitals
- Emergency Rooms
- Physician's offices
- Poison control centers
- Schools
- Daycares
- Nurse Triage
- Medical Examiner
- Death certificates
- Police/Fire departments
- EMS/911
- Pharmacy data
- Veterinarians
- Nursing homes
- Occupational health
- Environment health

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**Steps For Setting Up A Surveillance System (continued)**

3. Implement surveillance by gathering data
   - Set up protocol for gathering data - where, how often, etc.
   - Collect patient info, case logs, etc.

Surveillance strategies are best based on the characteristics of the disease(s) and/or outbreak
- Passive surveillance assumes report will be made by data sources
- Active surveillance means looking for cases by interviews and clinic and/or Emergency Room visits

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4. Download information from the data sources and analyze it
   - Look for anything that stands out
   - Compare data to baseline measures, if available
   - Data sent back to team leader (at the end of each day) who assembles it
   - Next morning the analysis arrives from headquarters
   - Print the data out as a graph or table and give to data source as a courtesy

Building relationships is VERY important
Using Surveillance Data for Analysis and Response

Estimate magnitude of the problem
• Is this a new outbreak or ongoing?

Determine geographic distribution
• How are populations in different locations being impacted?
• Is the impact dependent on location?

Portray natural history of a disease
• Generate hypotheses about disease trends or specific outbreak

Detect epidemics and define a problem
Identify populations groups who might benefit from intervention

Using Surveillance Data for Analysis and Response (continued)

Evaluate control measures
• Interventions are effective when disease declines or plateaus

Monitor changes in disease and impacted population
• How are populations in different locations being impacted?
• Is the impact dependent on location?

Detect changes in health practices

Facilitate planning
• Identification of needed supplies and resources

Steps For Setting Up A Surveillance System (continued)

5. If identify something unusual, investigate (whether it is a rumor or real)
• Determine if something is really going on
• Conduct the steps of an outbreak investigation
• Put together Investigation Teams
• Investigation may not involve sample collection as labs may not be available
• Deal mostly with symptoms and cause
Steps For Setting Up A Surveillance System (continued)

6. Communicate findings
   • Communicate information back to the DMATs
   • Communicate info to the Public Information Officer (PIO), other health authorities and colleagues, and Incident Commander
     - Important to have a PIO on-site

Communication to the community
   • Stop rumors
   • Increase healthy behaviors
   • Stop “bad” behaviors
   • Increase trust in public health

Communication needs to be woven through each step

Surveillance System – General Points

Surveillance team is on site to do more than just surveillance
   • They are there to assess the needs of the people and to assist in getting those needs met
   • They may direct people to the resources they need, coordinate transportation to the resource, and/or identify needed resources

Important to be safe
   • Need to travel in teams of 2 or more
   • May be involved with rumor control

Surveillance System – General Points (continued)

Sample collection does not occur often because labs not available and difficulty of shipping
   • Usually deal with the situation by treating the symptoms of a suspected illness

It is important to form the right teams
   • The right combination of skills, such as surveillance person, medical person, PIO, epi person, etc.
   • It is important that the members of the team get along and understand their roles
Always Check Equipment

Some essentials include:

- Laptop - with wireless connection capability
- ICS centers have wireless access
- Skill in Excel is important
- Epi books such as Field Epidemiology by Gregg, et al or Communicable Diseases In Man
- Satellite phone is VERY important
- Paper, pens, food, water
- Badges and other identifying clothing are important to wear

A list of field supplies is included in your I-FIRST training materials

Summary

- Understand surveillance purpose and use in post-event epidemiologic investigation
- Aware of the steps in setting up a surveillance system

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