Active Laboratory Surveillance in Massachusetts, 2001

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Active Surveillance Team

Surveillance Program

Introduction

- **Initiated 9/2001**
- **Statewide**
- **17 organisms of interest:**

  - *Bacillus anthracis*
  - *Brucella* species
  - *Cryptosporidium* species
  - *E. coli* O157:H7
  - *Francisella tularensis*
  - *Giardia lamblia*
  - *Streptococcus pyogenes*
  - *Streptococcus agalactiae*
  - *Haemophilus influenzae*
  - *Listeria monocytogenes*
  - methicillin-resistant *Staphylococcus aureus* (MRSA)
  - *Neisseria meningitidis*
  - *Salmonella* species
  - *Shigella* species
  - *Streptococcus pneumoniae*
  - vancomycin-resistant enterococci (VRE)
  - *Yersinia pestis*

Goals

- Increase timeliness and completeness of infectious disease reporting
- Alert MDPH to unusual events and outbreaks
  - foodborne disease
  - waterborne disease (MWRA project)
  - Bioterrorism organisms
- Monitor antimicrobial resistance

Goals (con't.)

- Share data with antimicrobial reduction intervention project
  - REACH Mass (a collaboration between MDPH and Harvard Medical School)
- Collect invasive *S. pneumoniae* isolates for resistance testing and analyses
  - Boston Medical Center collaboration (serotyping for cases in children 17 years of age and younger)

Methods

- Site visits to hospital laboratories by MDPH epidemiologists:
  - Microbiology supervisor, Infection Control Practitioner, ID Physician, IT staff
- Data Requested:
  - Retrospective (1/2000 - 12/2001)
  - Prospective (monthly or quarterly)
  - Formats (paper, diskette or secure electronic data transfer)

Methods (con't)

- Data submitted to Surveillance Unit at MDPH
- Active surveillance reports compared to passive surveillance data (in MDPH database)
- Database enhanced to allow:
  - Documentation of additional reports found by active surveillance
  - Data entry of antimicrobial susceptibility results

Analysis

Percent of Organisms Previously Reported to MDPH Through Passive Surveillance*:

Organism	% Reported	% Range
E. coli O157:H7	85% (23/27)	67 – 90%
Giardia lamblia	62% (93/150)	13 – 87%
*H. influenzae***	44% (10/23)	0 – 100%
L. monocytogenes	75% (3/4)	0 – 100%
*N. meningitidis***	100% (5/5)	100%
Salmonella sp.	92% (84/91)	33 – 100%
Shigella sp.	86% (12/14)	75 – 100%

*Analysis of 2000-2001 retrospective data from7 hospitals

**invasive cases

Analysis (con't.)

- **The following organisms were excluded from analysis:**

Due to small sample size (<3)

- *B. anthracis*
- *Brucella* sp.
- *Cryptosporidium* sp.
- *F. tularensis*
- *Y. pestis*

Reporting not previously required

- group A streptococcus
- group B streptococcus
- MRSA
- *S. pneumoniae*
- VRE

Discussion

- Passive surveillance may be adequate in some cases...
  - Isolates of some organisms are submitted to the MDPH Laboratories for further testing, and then are entered into the surveillance system
  - Previous cooperative agreement activities have increased awareness of need to report
  - Greater public awareness due to recent outbreaks and media coverage

Discussion (con't.)

- However, active surveillance is worth the effort:
  - Laboratories may forego sending isolates to the MDPH Laboratory for additional testing
  - Interest in outbreak organisms may decrease
  - Target organisms change with new studies and collaborations
  - Certain studies require 100% reporting
  - Important organisms may be under-reported

Ongoing initiatives

- Solicit additional retrospective and prospective data
- Analyze antimicrobial resistance data
- Share data with collaborators (without identifiers)
- Provide feedback to hospitals
  - Statewide susceptibilities, reporting rates
- Analyze efficiency and effectiveness of active surveillance and the various reporting formats