Outbreaks of Multidrug-Resistant *Salmonella* Serotype Typhimurium Infections Associated with Small Animal Veterinary Facilities

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Human Salmonellosis

- 1.4 million infections
  - 15,000 hospitalizations
  - 600 deaths each year

- Symptoms:
  - Diarrhea (bloody)
  - Abdominal cramps
  - Fever
  - Nausea

- Antimicrobial resistance has increased
Salmonella

- Primary reservoir for human infections – intestinal tract of food animals
- Eating contaminated meat or produce
- Contact with animal feces – cattle, reptiles, and house pets
Salmonella Surveillance

- CDC conducts national surveillance
- Not aware of *Salmonella* outbreaks in last 10 years associated with small animal (dog and cat) veterinary facilities
The Story

- Late 1999
- Three state health departments contacted CDC
  - Two small animal veterinary facilities
  - One small animal shelter
- Review the outbreaks
- Present recommendations
Idaho – Outbreak #1

- September 1999 – employee of a small animal veterinary facility cared for several kittens ill with diarrhea
- Within 2 days this employee had diarrhea
- 10 out of 20 employees (50%) became ill with diarrhea and abdominal cramps
Idaho - continued

- Kittens died without having stool cultures performed
- S. Typhimurium cultured from 5 employees’ stools
  - R-type ACSSuT
  - Also resistant to cephalothin, clavulanic acid, gentamicin, and kanamycin
  - Resistant to ceftriaxone
  - Indistinguishable by PFGE
Idaho - continued

- No common exposures of employees outside the clinic
- All employees ate meals together in the clinic
  - Break room provided, but not used
  - Workers did not take breaks to eat – ate while working
Minnesota – Outbreak #2

- September 1999
- Two siblings adopted a kitten from a small animal shelter
- The day after adoption the kitten developed bloody diarrhea
- Four days later one sibling became ill with diarrhea
Minnesota - continued

- S. Typhimurium isolated from 9 kittens associated with the small animal shelter
- All kittens died from gastrointestinal illness
- MDH routinely receives animal S. Typhimurium isolates from the veterinary diagnostic laboratory
Minnesota - Continued

- 9 feline isolates and 7 human isolates were indistinguishable by PFGE
- 6 of the 7 had a connection to the animal shelter
- All isolates were R-type ACSSuT
- 3 feline isolates and 2 human isolates phage type DT 104
Washington State – Outbreak #3

- November 1999 - small animal veterinary facility
- Three persons ill with diarrhea
  - 1 employee of the small animal veterinary facility
  - 2 clients of the facility
Washington State - continued

- Stool cultures on the 3 ill people yielded S. Typhimurium
- Specimens from 14 cats associated with the facility also yielded S. Typhimurium - not all were ill
Isolates from 14 cats and 3 ill persons were indistinguishable by PFGE.

All isolates were R-type ACSSuT.

All isolates were phage type DT 104.
Similarities

Similarities between outbreaks

- All 3 states’ isolates demonstrated resistance to ampicillin, chloramphenicol, streptomycin, sulfamethoxazole, and tetracycline (R-type ACSSuT)
- Cats were involved in all cases

Washington and Minnesota

- DT 104
Summary of Outbreaks

- 3 outbreaks of multidrug-resistant *Salmonella* Typhimurium infections in late 1999
- Associated with small animal facilities
- Illness occurred in animals first and then people
- Multidrug-resistant isolates
Summary

- Evidence of need to improve hygiene
- Unaware of any small animal veterinary facilities outbreaks since 1999
- Outbreaks associated with petting zoos and large animal facilities continue to occur
Recommendations

Worker Safety

- should wash hands after handling pets and feces
- can wear gloves while cleaning cages and treating animals – wash hands upon removing gloves
- may choose to use face protection, such as a surgical mask, when hosing cages
Recommendations - continued

- All surfaces contaminated with feces should be cleaned and disinfected
- No eating in animal treatment or holding areas
- Judicious use of antimicrobial agents
- www.cdc.gov - MMWR August 24, 2001
Thank You

- Idaho Department of Health and Welfare
- Minnesota Veterinary Diagnostic Laboratory
- Minnesota Department of Health
- Washington State Department of Health