



# 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



# Washington State - continued

- 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](http://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

