



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

JG Wright, KE Smith, L Tengelsen,
J Grendon, D Boxrud, B Holland, AD Anderson



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- 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



SAFER • HEALTHIER • PEOPLE™