



# **Salmonellosis at Elementary Schools Associated with Dissection of Owl Pellets**

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# First Reports of Illness

May 22, 2001

- Two physician reports
  - Children with acute febrile gastroenteritis
  - Bloody stools
  - Stool cultures: 1 pending  
(+) *Salmonella*
  - Attend same elementary school
- School nurse report
  - High absenteeism rate

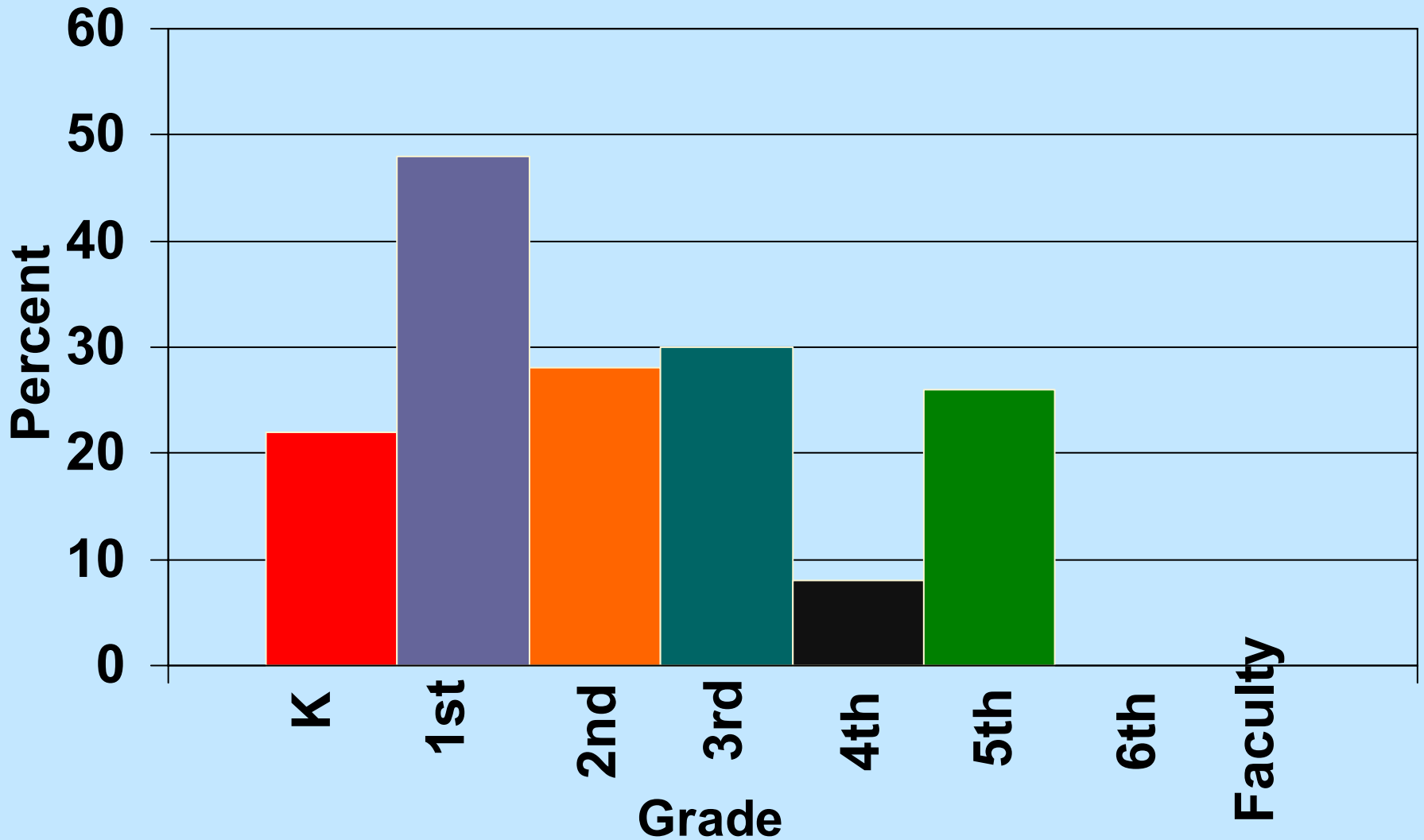
# Outbreak Investigation Andersen Elementary School

- **Case - Control Study**
  - **58% (205/352) students interviewed**
    - **Two week history**
      - school lunch
      - school activities
    - **Food service evaluated**
  - **Interventions**
    - **Exclusion policy enforced**
    - **Self-service food bar closed**
    - **Parent information letters**

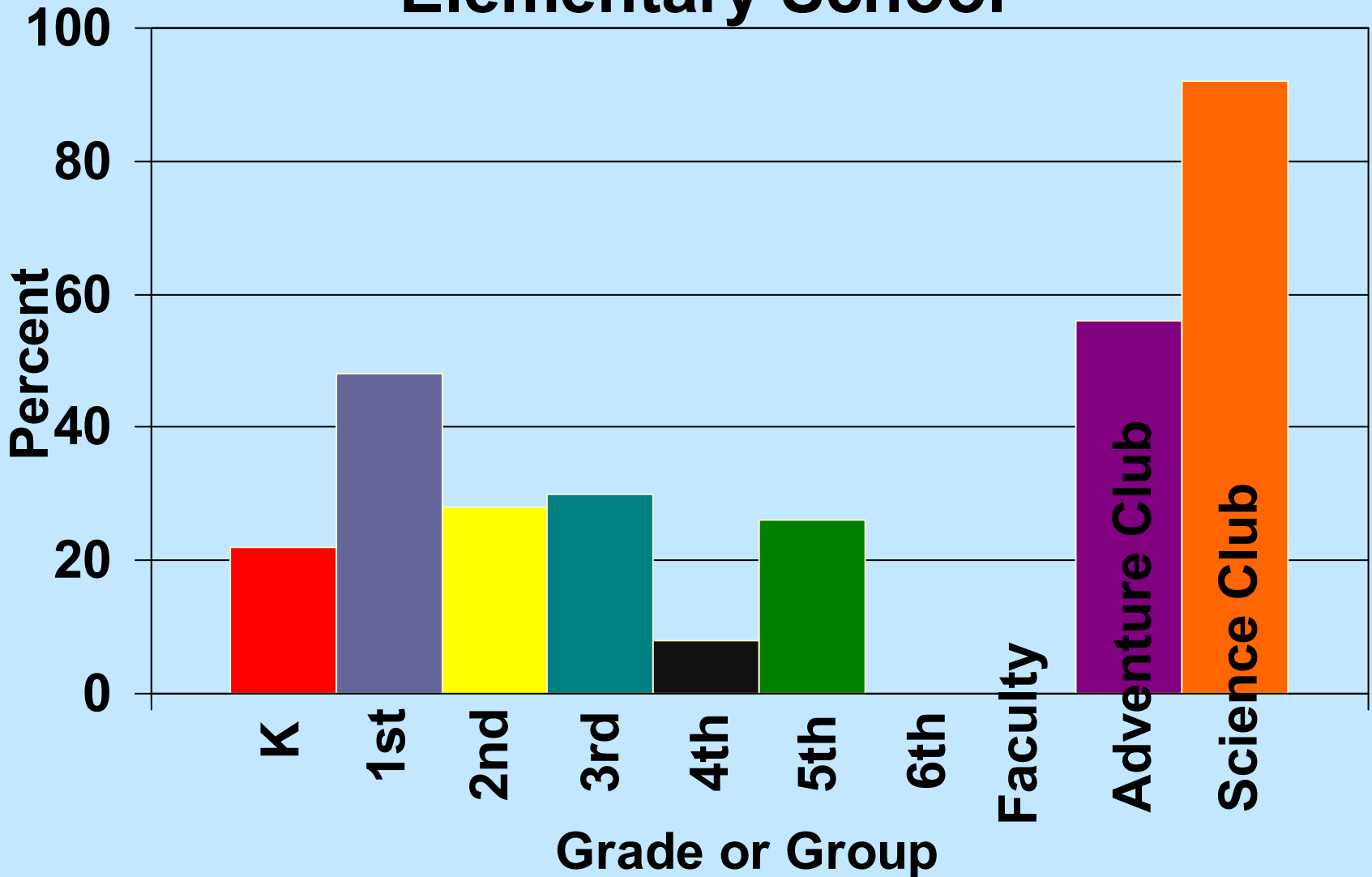
# Case Definition

- **Elementary school student with diarrhea (3 stools in 24 hours) and fever with onset on or after May 14**

# Primary Attack Rates Elementary School



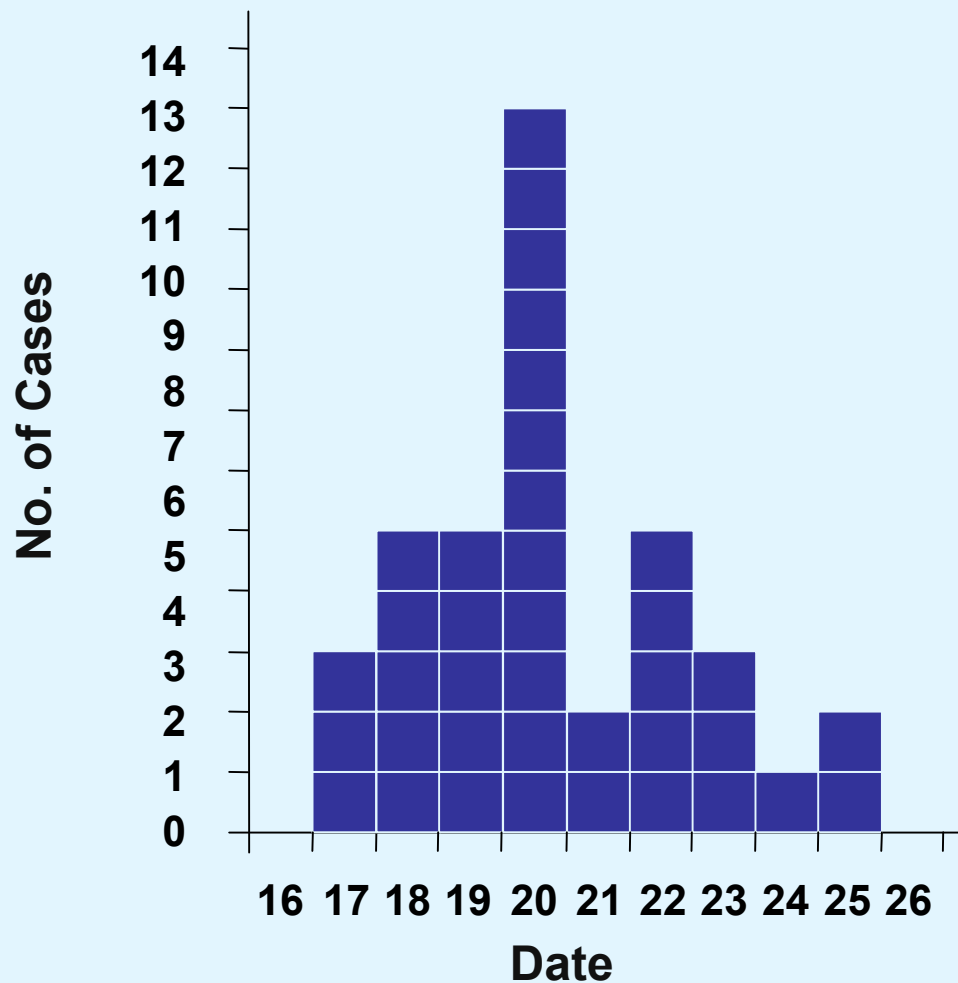
# Primary Attack Rates Elementary School



# Investigation Results

- **39 cases**
  - 27 culture confirmed *S. Typhimurium*
  - 26 of 27 isolates pulse-field gel electrophoresis (PFGE) subtype TM353
- **Food handlers' stool cultures - negative**

# Salmonellosis Cases at Andersen Elementary by Illness Onset Date, May 2001





# Elementary School Activities Associated with Illness

## Science Club

11 of 39 cases vs. 1 of 98 controls

Odds ratio, 38.0; 95% CI, 5 - 308;  $p < 0.001$

## Adventure Club

25 of 39 cases vs. 19 of 98 controls

Odds ratio, 7.0; 95% CI, 3 - 17;  $p < 0.001$

# Implicated School Activities

## Adventure Club

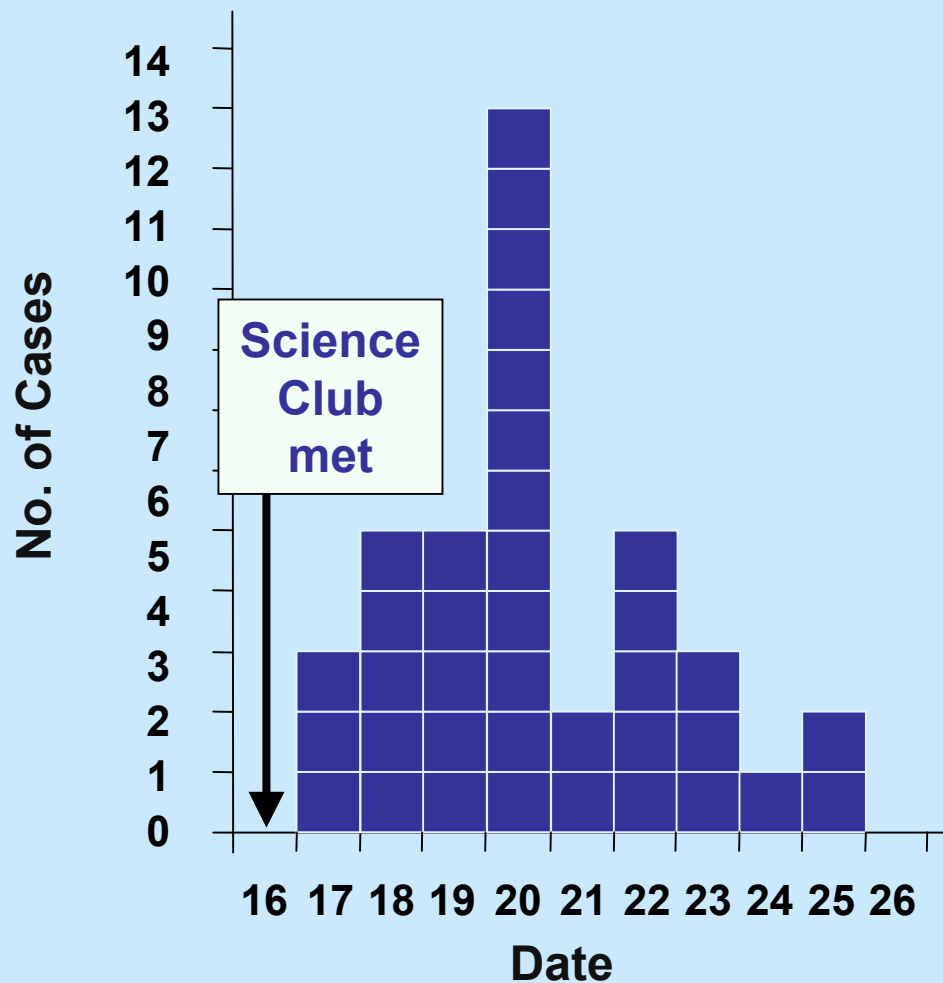
- After school care
- 72 students (K – 5)
- Lunchroom

## Science Club

- Sixteen 1<sup>st</sup> – 3<sup>rd</sup> grade students
- After school
- Lunchroom



# Salmonellosis Cases at Andersen Elementary by Illness Onset Date, May 2001





# Science Club

## May 16, 2001

### Raptor Program



- Dissected owl pellets
- Pellets: Regurgitated indigestible balls of fur, feathers and bones of owl prey.



# Owl Pellet Dissection

- **Directly on lunchroom dining table**
- **Hand washing not encouraged**
- **Table not sanitized following Science Club**
- **Table used by Adventure Club kids for snack**
- **Table used following day for school lunch**



# Environmental Specimens

## Local Nature Center

### Barred owl

- Pellets
- Feces



### Owl feed

- Chicks
- Mice



# Second Outbreak

## Rutherford Elementary School

- Science Club, May 24, 2001
  - Fifteen 1<sup>st</sup> and 2<sup>nd</sup> grade students
  - Science room
  - 9 of 15 dissected owl pellets
- 7 of 9 students ill
  - 6 confirmed *S. Typhimurium* PFGE TM353

**Who, me?**



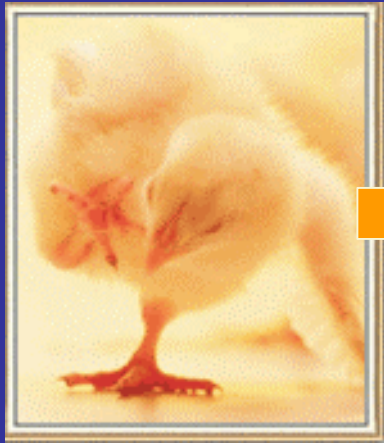
***S. Typhimurium* TM353  
isolated from:**

- Owl pellets
- Owl feces (4 months)
- Frozen chicks (4 of 4)
- 32 of 33 Children's stool specimens



# Salmonellosis and Owl Pellets

## Mode of Transmission



# Recommendations

- **Separate areas should be designated for school curricula and functions where animal contact is anticipated (i.e., these activities should not occur in food service areas).**



# Recommendations

- **As with all animal-derived materials, handling of owl pellets should be followed by sanitation of contact surfaces and thorough hand washing.**
- **Sterilized owl pellets for use in educational activities can be obtained from commercial sources.**



# Acknowledgements



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