

Investigating Health Problems

and Environmental Public Health Hazards to Protect the Community

Jennifer Warner, Johnson County Health
Department

Shandy Dearth, Marion County Public
Health Department

Incidence

- Statistics

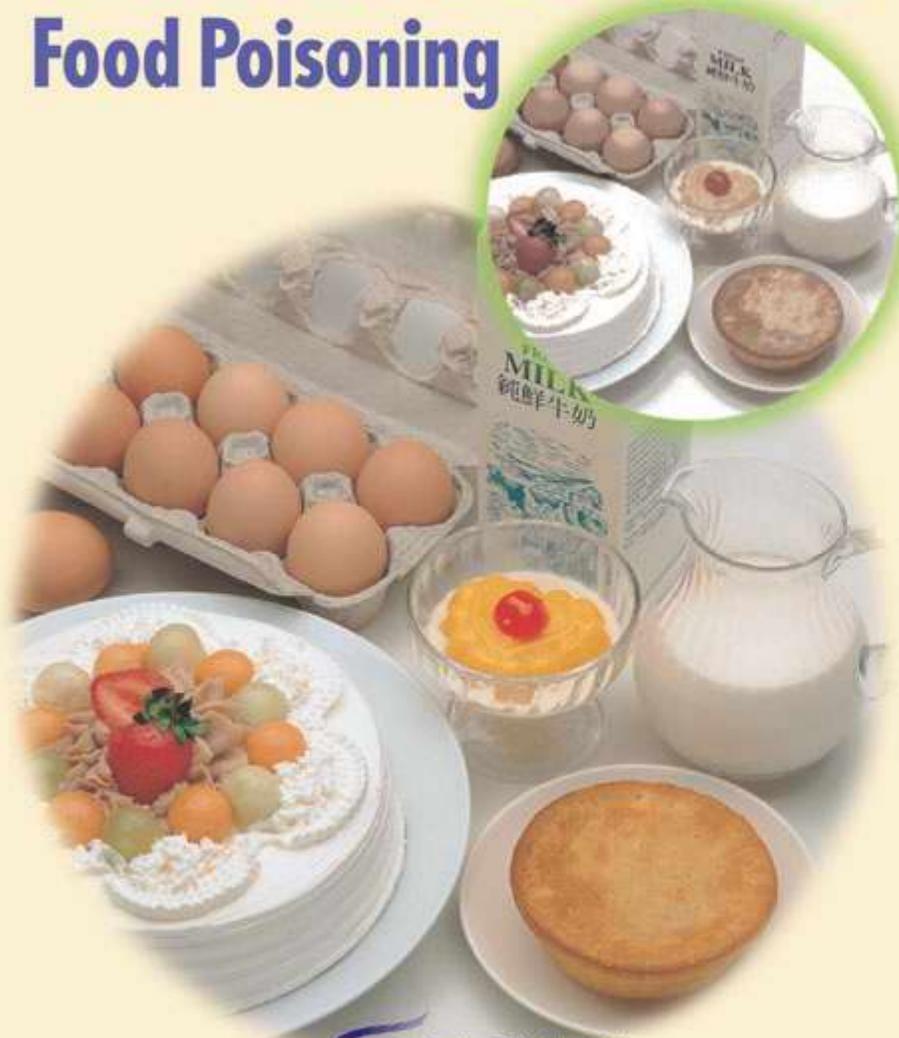
- ~1.2 million illnesses and 450 deaths occurred due to *Salmonella* annually in the US (CDC)
- Incidence of *Salmonella* infection ~15.2 illnesses per 100,000 individuals (FoodNet report)

Exposure routes

- Contaminated food or water
 - Eating foods (usually look and smell normal) contaminated with small amounts of animal feces
 - They are often foods of animal origin (e.g. beef, poultry, milk, fish, or eggs, but could also be vegetables and fruit or processed foods)

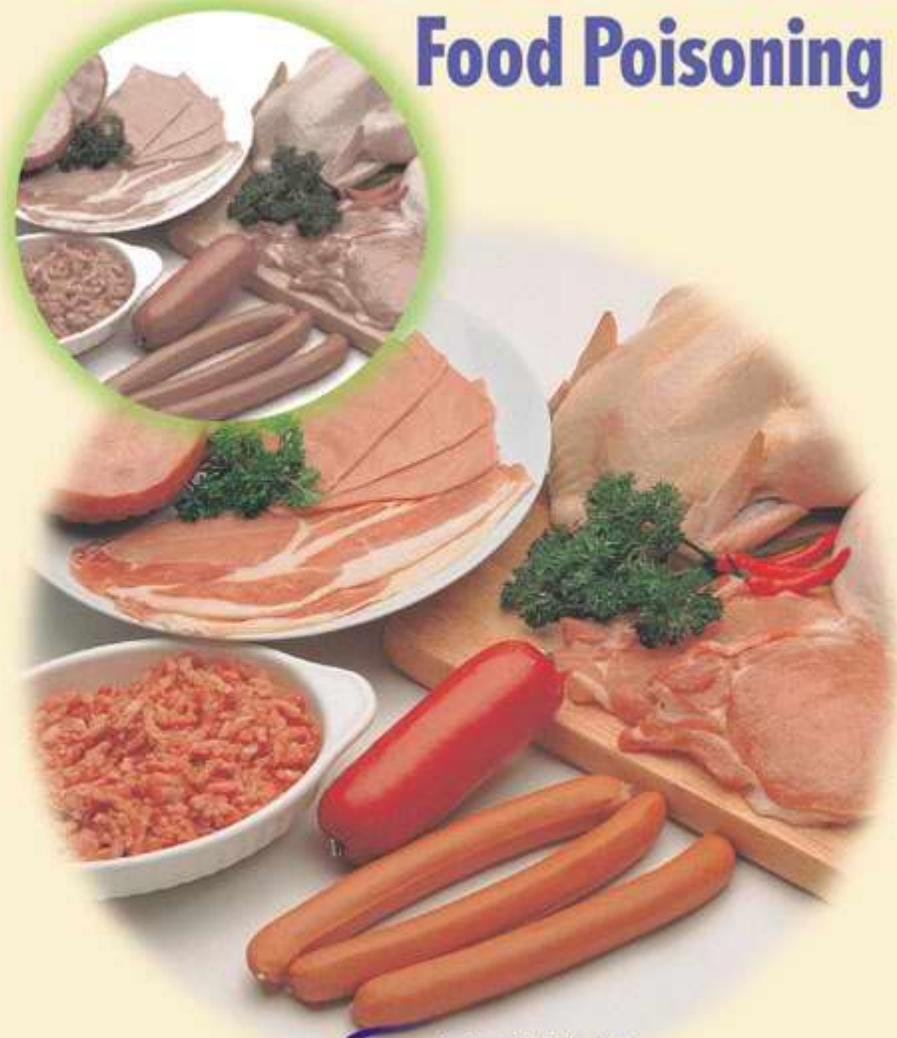
Salmonella

Food Poisoning



Salmonella

Food Poisoning



Exposure routes

- Surface

- Drippings from raw meat or poultry can contaminate surfaces and other foods in the refrigerator or shopping cart.
- When raw meat or poultry are prepared with a cutting board and knife without being washed thoroughly between uses, they can contaminate other foods
- When preparing raw meat or poultry, food handlers can transfer *Salmonella* on their hands to other foods if they do not wash their hands between food preparation steps or after using the bathroom



Exposure routes

- Contact with infected animals
 - People can become infected if they do not wash their hands after contact with animals or animal feces
 - Animal roaming area and cage or tank water

Risk factors

- Summer (June, July, and August)
- Children <5 years old
- Infants who are not breast fed
- Adults over 65 years old
- Certain medication (e.g. medication to reduce stomach acid)

Local Health Department Role

- Local Health Departments are given the authority to regulate retail food establishments under Title 410 IAC 7-24.
 - **410 IAC 7-24-106** Public health protection
 - Sec. 106. (a) The regulatory authority shall uniformly apply this rule to all retail food establishments in a reasonable manner that promotes its underlying purpose of safeguarding public health and ensuring that food is:
 - (1) safe;
 - (2) not misbranded;
 - (3) unadulterated; and
 - (4) honestly presented;
 - when offered to the consumer.

Standard 2.1 Contain/Mitigate Health Problems and Environmental Public Health Hazards

Inspection Parameters

- All foodservice establishments are inspected at least 2 times per year.
- If an establishment has complex food preparation, high customer volume or serves a high risk population, they may be subject to a higher inspection frequency. It is up to each local health department to make those determinations.
- The inspections are not announced visits.
- Consumer complaints are addressed in a timely manner.

Standard 2.1 Conduct Timely Investigation of Health Problems and Public Health Hazards

Inspection Process

- Inspector arrives at establishment and initiates contact with manager on duty or owner.
- The inspector then conducts a walk through the operations observing employees and food handling practices.
- Manager or owner may be questioned on procedures so that the inspector can verify that best practices are being followed.
- The inspector will also review overall levels of sanitation and condition of the building.
- Upon completion of inspection the inspector and manager/owner will review inspection report that is signed by all and left on site.

Special Circumstances

- Consumer complaints may dictate how the inspection is conducted. For example, pest control issue may require the establishment to provide pest control records for the inspector to review.
- Consumer complaints that involve foodborne illness may require the inspector to collect food samples (if possible).

Foodborne Illness Investigation

- When an inspector receives information on a potential foodborne illness outbreak, they go to the site and perform a modified HACCP inspection. They will review the preparation procedures of the potential food item to discern if any steps are not within the recommended guidelines outlined by Indiana State Department of Health (ISDH) or the Food and Drug Administration (FDA).
- If there are deficiencies in the procedures then the inspector will recommend modifications be made to prevent future issues.
- If the information is received in a short timeline, there may be food from the same lot available for sampling (many times there is not) then the inspector can take it to the lab for confirmation as the source of the illness.

Local Health Department Response

- When a foodborne outbreak is confirmed, the local health department nursing division will proceed in contacting the patients with an initial questionnaire.
- ISDH will be a resource for laboratory and epidemiological support. If there are multiple patients over a wide area then ISDH will craft a more specific questionnaire to isolate the source of the outbreak.
- The local health department will collect all data then submit it to ISDH for review and follow up.

Standard 2.3: Ensure Access to Laboratory and Epidemiologic/Environmental Public Health Expertise and Capacity to Investigate and Contain/Mitigate Public Health Problems and Environmental Public Health Hazards

Outbreak Investigation

- During an outbreak investigation the local health department will work with the establishment to determine the cause of the outbreak.
- In the Salmonella outbreak of July 2006, the local health department and ISDH made several visits over the summer reviewing procedures and taking food samples and specimens from store employees. The affected area was closed several different dates (Aug. through Sept.) for cleaning and disinfection.
- On August 31, several environmental samples were taken from the affected area by a third party vendor. A knife holder tested positive for the strain that was implicated in the outbreak.

Employee Education

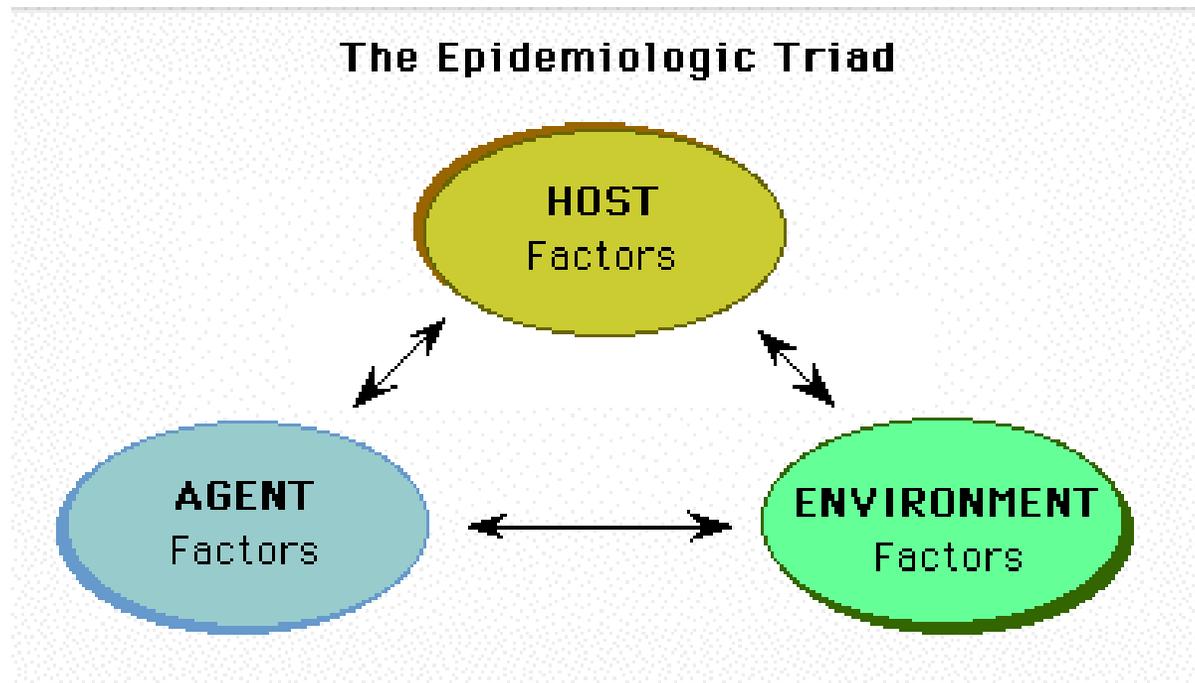
- During the outbreak investigation, all of the employees underwent training in food preparation, foodborne illness protocol, and the company sick leave policy in August 2006.
- By August 24, all employees were removed from the food area and placed in other job roles until they tested negative for Salmonella.
- Once they were cleared, they resumed their duties in the food area.

Conclusion

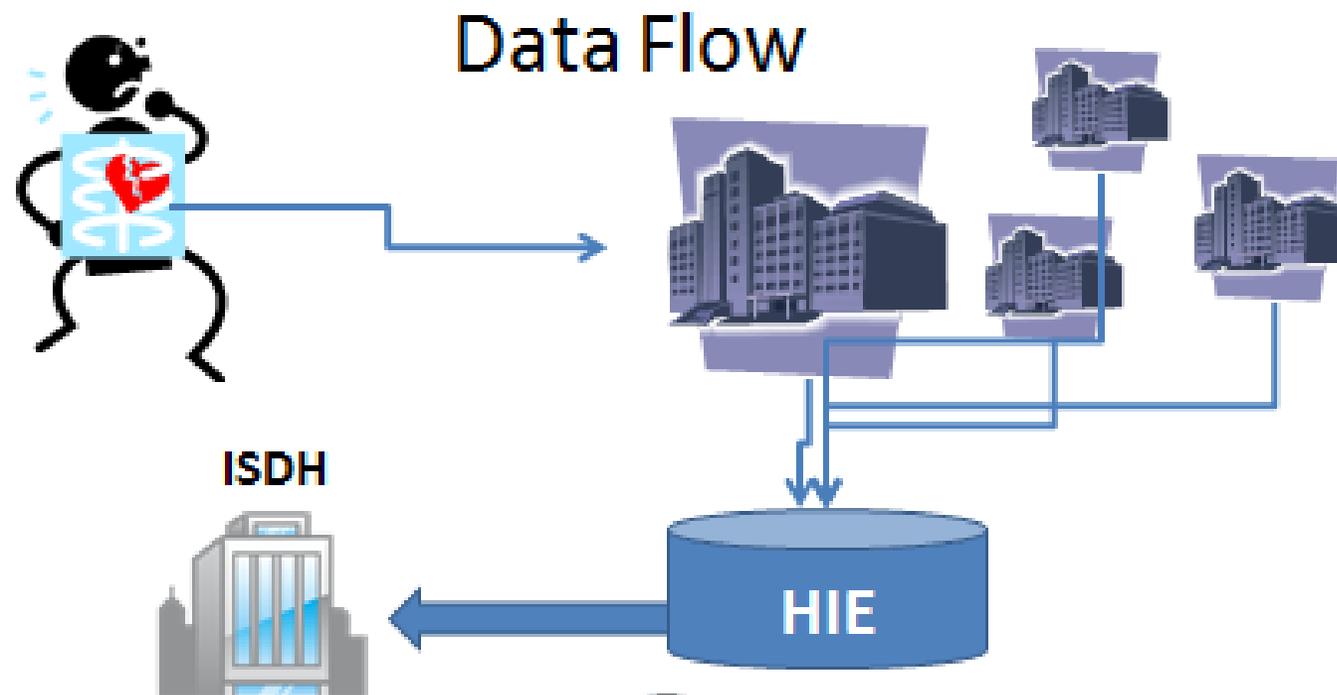
- In September 2006, several more environmental samples were taken and all tested negative.
- The store resumed normal activities.
- Subsequent inspections by the local health department did not yield any more cases related to the outbreak.
- Education is ongoing by the local health department and the company involved.

Epidemiology

Using data to find a link



How we know someone is sick...



How the data elements are legally shared

- Communicable Disease Reporting Rule for Physicians, Hospitals, and Laboratories; 410 IAC 1-2.3
- State law is based on a federal recommended list created by CSTE (Council and State Territorial Epidemiologists)
<http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/CSTENotifiableConditionListA.pdf>
- ~70 reportable disease and 'other emerging' infections
- Indiana is a 'home rule' state so counties may add additional reporting requirements at the local level

Who should send a report?

- The provider
 - The hospital
 - The lab
-
- Most reports are received via lab transfer

When we see a cluster

- Food samples may be taken to identify potential organisms
- Sample isolates can be sent from a state lab to the federal (CDC) lab to confirm patterns of the organism.
- Once a food item is identified, recall steps may be needed to protect the public from any further illness.

Other ways to see possible hazards/threats...

- Syndromic Surveillance
- ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics)

Chief Complaint → Symptom → Syndrome

- Some systems use free text,
- Key words can be queried (carbon, injury, accident, heat, hot, etc.)

How we tell others what we see

- ISDH has IHAN (Indiana Health Alert Network)
- Doc 4 Docs: Collaboration with our HIE and Regenstrief Institute. We can electronically send health alerts to all physicians who receive their lab results electronically.
- Email distribution groups-local providers
- Daily briefs from local coalition focusing on surge capacity
- Weekly summary reports

Questions?

Jennifer Warner
Johnson County Health Department
Office 317-346-4365
jwarner@co.johnson.in.us

Shandy Dearth
Marion County Public Health Department
Office 317-221-3158
sdearth@marionhealth.org