



## **2011 Outbreak of *Salmonella* Heidelberg: Associated with Ground Turkey – Lessons Learned**

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*collaborate > create > succeed*

# History of Events: The First Recall (August 3, 2011)

## Outbreak Identification, Source Implication and Results of Product Testing

**May 23**  
CDC PulseNet<sup>1</sup> identified multistate cluster of *Salmonella* Heidelberg infections (30 ill persons, 17 states) and began monitoring for additional illnesses. Investigators noted two ground turkey isolates matching the outbreak strain that were uploaded to PulseNet by MN on 4/11/2011 (Retail Sample 1) and NM on 5/11/2011 (Retail Sample 2) as part of NARMS<sup>2</sup> surveillance.

**May 26**  
CDC began coordinating a multistate investigation. MN reported Retail Sample 1 was Brand A produced at establishment P-963.

**June 16 – June 21**  
Exposure information from 19 ill persons revealed no single food that stood out as a likely source; 32% reported eating multiple brands and types of ground turkey.

**June 21**  
CDC asked states to use a turkey-specific questionnaire to further characterize turkey exposures. NM reported Retail Sample 2 was Brand A produced at establishment P-963; another NARMS retail sample (Sample 3 uploaded to PulseNet by NM 6/8/2011) matching the outbreak strain was Brand B.

**June 21 – July 7**  
Exposure information from turkey-specific questionnaires collected for 16 ill persons in 6 states; 33% reported consumption of multiple brands and types of ground turkey.

**July 7**  
CDC asked states to use an expanded questionnaire to further examine other possible sources in addition to ground turkey.

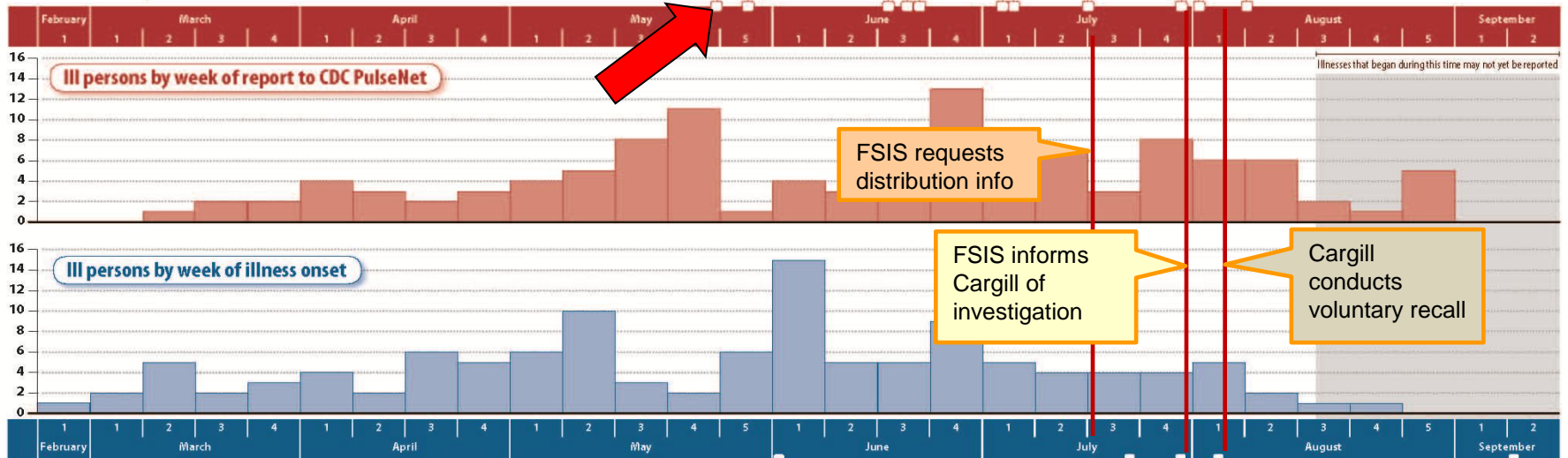
**July 8 – August 2**  
23 ill persons interviewed with expanded questionnaire; 54% reported consumption of ground turkey.

**July 15**  
OR reported first results from clinical laboratory indicating the outbreak strain was multidrug resistant.

**July 29**  
Tests of leftover ground turkey from the home of an ill person in Ohio yielded *Salmonella* Heidelberg. Laboratory analysis identified two closely related DNA "fingerprint" patterns; one an exact match to the outbreak strain.

**August 1**  
CDC posted initial web announcement about the investigation.

**August 11**  
23 additional ill persons with *Salmonella* Heidelberg with a closely related DNA "fingerprint" pattern with illness since March included in total number of ill persons.



## Traceback, Regulatory Actions and Recalls

**June 1**  
CDC notified USDA-FSIS. Frequent discussions between both agencies continue throughout the investigation.

**July 19**  
FSIS began first traceback investigation. Product was left over ground turkey from ill person's household; original packaging not available.

**July 19 – August 2**  
FSIS continued traceback of ground turkey as shopper card details received; purchased from three ill persons linked to P963.

**July 29**  
FSIS released a public health alert for frozen and fresh ground turkey products.

**July 29**  
FSIS informed Cargill Meat Solutions Corporation about epidemiologic data, information from traceback of ground turkey products, and analysis of distribution records indicating establishment P-963 is a likely, but not definitive, source of this outbreak.

**August 3**  
FSIS reported that the source of ground turkey for Brand B Retail Sample 3 was establishment P-963. 30 (54%) of 56 interviewed ill persons reported eating any ground turkey prepared at home in the week before illness.

**August 3**  
Cargill Meat Solutions Corporation recalled approximately 36 million pounds of ground turkey products that may be contaminated with a multi-drug resistant strain of *Salmonella* Heidelberg.

**September 11**  
Cargill Meat Solutions Corporation recalled approximately 185,000 pounds of ground turkey that may be contaminated with *Salmonella* Heidelberg based on sample results from an intensive in-plant investigation.

<sup>1</sup> PulseNet

<sup>2</sup> National Antimicrobial Resistance Monitoring System

# Changes Made Before Resuming Production on August 10, 2011

- **Strengthened control of chiller intervention (peroxyacetic acid) and made it a CCP**
- **Modified *Salmonella* control program**
  - Increased whole bird sponge testing
  - Increased wing rinse studies to evaluate process improvements
  - Increased raw parts monitoring for *Salmonella*
- **Implemented acidified calcium hypochlorite intervention**



# History of Events: The Second Recall (September 10, 2011)

**-USDA finding  
of outbreak  
strain**

**-Declaration of  
insanitary  
condition**

**- Major shift in  
USDA policy**





# Changes Made Before Resuming Production on December 15, 2011

- **Separated HACCP plans (debone vs. bone-in)**
- **Implemented high pressure processing for bone-in 85% lean**
- **Many other processing changes to reduce all micro organisms**
- **Established statistical process control charts**
  - Interventions, daily wing rinse testing
- **Established daily testing for *Salmonella* including triggers for investigation actions**
  - Test & Hold
  - Rejection of days production if above 40%+
  - Rejection of days production if 2 days above 25%
- **Most aggressive actions in the industry**
- **USDA acknowledged mere finding of outbreak strain not grounds for recall**

# Additional improvements & current efforts



- **Convened expert panel to review plant operations**
- **Openly sharing what we know/learn with rest of turkey industry**
- **Investigating live side interventions**
- **Optimizing HPP**
- **Investigating additional in-plant interventions & process improvements**

