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

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

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

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

- **May 25**: FSIS requested distribution info.

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

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

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

- **July 15**: FSIS offered the outbreak strain was multidrug resistant.

- **August 2**: Cargill Meats Solutions Corporation recalled approximately 36 million pounds of ground turkey products that may be contaminated with a multi-drug resistant strain of Salmonella Heidelberg.

As of September 11, 2011

For more information, visit CDC's Salmonella website: [http://www.cdc.gov/salmonella](http://www.cdc.gov/salmonella)
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 microorganisms
- 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