Newsworthy Nuggets – FSIS FERN Surveillance

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APHL Annual Meeting
June 8, 2016
Background

• The CDA-BCL has been a USDA FSIS FERN CAP laboratory since 2008
  – Focused on method development and method validation for detection of bio-threat agents in foods
What is FERN?

FERN is the Food Emergency Response Network. It unites federal, state, and local laboratories for food emergency response.
Surveillance Program Design

• **What** – are you sampling (commodity selection) and analyzing for (agent)

• **Why** – are you sampling (risk assessment, purpose)

• **Where** – are you sampling (type of facility, area, etc.)

• **How** – are you sampling, transporting, testing (resources)
The CDA-BCL analyzed 20 FSIS regulated products each month for
the grant year FY2014/2015 for a total of 220 samples
- Staph enterotoxins
- Salmonella spp.

Analyzed four commodity groups per month/five samples from each
- Deli meat products (sandwich meats, hot dogs)
- Breaded chicken products (raw and cooked)
- Deli salads/sandwiches (meat)
- RTE meats (jerky, salami, pepperoni)
FSIS FERN Surveillance

• Commodities chosen were high-risk and/or RTE

• Analytes chosen were based on
  – Discussions with public health
  – Agent
  – FERN’s mission
  – Lack of data for test performance with certain commodities (matrix performance with assay)
Logistics

- Retail supermarkets in highly populated areas chosen
- Samples purchased
- Wide variety of brands, lot codes, selection – not targeted to any brand type
- Chain of custody – a MUST!
- Transported directly to lab in coolers
Methodology

• FSIS FERN Salmonella qPCR chosen for screening to determine performance of method with wide variety of meat matrices
  – Cultural/Isolation method used official methods

• AOAC validated method chosen for SE based on previous method comparison studies done at CDA-BCL

• Be careful when choosing methods – make sure they are “solid”
  – “solid” aka 70s slang for cool, awesome, trustworthy
  – In other words, validated/verified
Timeline of Events

- 10/14/14 – Samples collected at retail grocery store
- 10/15/14 – Samples extracted and analyzed on VIDAS SET2. Sample identified as “Positive” for SE
- 10/15/14 – Sample tested for SEB using FERN MIC.0010.00
- 10/15/14 – Notified FERN and CDPHE of positive sample. CDPHE notified USDA FSIS
- This was elevated very quickly!
News Release

Pennsylvania Firm Recalls Chicken Products Due to Staphylococcal Enterotoxin Contamination

Class I Recall
Health Risk: High

Distribution List PDF
In Spanish

Congressional and Public Affairs
Megan Buckles
(202) 720-9113

WASHINGTON, Oct. 25, 2014—Murry’s Inc., a Lebanon, Pa. establishment, is recalling approximately 31,689 pounds of gluten free breaded chicken products that may be contaminated with Staphylococcal enterotoxin, the U.S. Department of Agriculture’s Food Safety and Inspection Service (FSIS) announced today.

The products have a best by date of August 9, 2016. The following products are subject to recall:

- 12-oz. boxes of “Bell & Evans Gluten Free Breaded Chicken Breast Nuggets.”
- 10.5-oz. boxes of “Bell & Evans Gluten Free Breaded Chicken Breast.”

The products subject to recall bear the establishment number “P-516” inside the USDA mark of inspection. These products were shipped to retail locations nationwide.

The problem was discovered by the Colorado Department of Agriculture during a retail surveillance and sampling program funded by the USDA at a Federal Emergency Response Network lab. After being notified of the positive test result, FSIS conducted traceback activities.

Staphylococcal food poisoning is a gastrointestinal illness. It is caused by eating foods contaminated with toxin-producing Staphylococcus aureus.

Staphylococcus aureus is a common bacterium found on the skin and in the noses of healthy people and animals. Staphylococcus aureus can produce seven different toxins that are frequently responsible for food poisoning.

Staphylococcal enterotoxins are fast acting, sometimes causing illness in as little as 30 minutes. Symptoms usually develop within one to six hours after eating contaminated food. Patients typically experience several of the following: nausea, vomiting, stomach cramps, and diarrhea. The illness is usually mild and most patients recover after one to three days.

To prevent Staphylococcal contamination, keep kitchens and food-serving areas clean and sanitized. Keep hot foods hot (over 140°F) and cold foods cold (40°F or under). Make sure to wash hands and under fingernails vigorously with soap and water before handling and preparing food. Do not prepare food if you have an open sore or wound on your hands or if you have a nose or eye infection.

FSIS and the company have received no reports of adverse reactions due to consumption of these products. Anyone concerned about a reaction should contact a healthcare provider.
And then 8 months later...

- 6/24/15 – Samples collected at retail grocery store
- 6/25/15 – Samples extracted and analyzed on VIDAS SET2. Sample identified as “Positive” for SE. Sample also tested positive for *Salmonella*. Notified FERN NPO immediately
- 6/30/15 – *Salmonella* isolated and confirmed from test sample. Sent to FDA Denver District Lab for serology and PFGE
- PFGE on *Salmonella* isolate matched the outbreak strain of *Salmonella enteritidis* to Aspen Foods products, according to the USDA Food Safety and Inspection Service
News Release

Murry's, Inc., Recalls Chicken Products Due to Staphylococcal Enterotoxin Contamination

Class I Recall
Health Risk: High

Jul 15, 2015

WASHINGTON, July 15, 2015 -- Murry’s, Inc., a Lebanon, Pa., establishment, is recalling approximately 20,232 pounds of gluten-free breaded chicken nugget product that tested positive for Staphylococcal enterotoxin, the U.S. Department of Agriculture’s Food Safety and Inspection Service (FSIS) announced today.

The following product is subject to recall:

12-oz. boxes of "Sell & Evans Gluten Free Breaded Chicken Breast Nuggets" with a “Best By” date of March 25, 2016.

The product, bearing establishment number “P-516” inside the USDA mark of inspection, was shipped to an establishment for distribution nationwide.

The problem was discovered by the Colorado Department of Agriculture during a routine retail surveillance and sampling program, which is funded by the USDA at a Food Emergency Response Network (FERN) lab. After being notified of the positive test result, FSIS conducted traceback activities.

Staphylococcal food poisoning is a gastrointestinal illness. It is caused by eating foods contaminated with toxin-producing Staphylococcus aureus.

Staphylococcus aureus is a common bacterium found on the skin and in the noses of healthy people and animals. Staphylococcus aureus can produce seven different toxins that are frequently responsible for food poisoning.

Staphylococcal enterotoxin is fast acting, sometimes causing illness in as little as 20 minutes. Thoroughly cooking product does not prevent illness, and symptoms usually develop within one to six hours after eating contaminated food. Patients typically experience several of the following: nausea, vomiting, stomach cramps and diarrhea. The illness is usually mild and most patients recover after one to three days.

To prevent Staphylococcal contamination, keep kitchens and food-serving areas clean and sanitized. Keep hot foods hot (over 140 °F) and cold foods cold (40 °F or under). Make sure to wash hands and utensils vigorously with soap and water before handling and preparing food. Do not prepare food if you have an open sore or wound on your hands or if you have a nose or eye infection.

FSIS and the company have received no reports of adverse reactions due to consumption of these products. Anyone concerned about a reaction should contact a healthcare provider.

FSIS routinely conducts recall effectiveness checks to verify recalling firms notify their customers of the recall and that steps are taken to make certain that the product is no longer available to consumers. When available, the retail distribution list(s) will be posted on the FSIS website at www.fsis.usda.gov/recalls.
Why is this so serious?

• Enterotoxins are not inactivated by heat (i.e., cooking process)

• This was a breaded raw chicken product
  – Potential for other pathogens to be present if product is not cooked properly (*Salmonella* enteritidis also isolated)

• CDC Select Agent list

• Who consumes the most chicken nuggets? CHILDREN
31,689 lbs of chicken products recalled by manufacturer in October 2014 and 20,232 lbs of gluten-free chicken products recalled by manufacturer in July 2015

Photo courtesy www.foxnews.com
Lessons Learned – What is important if doing a surveillance program in your agency

• Have a plan in place of who to contact and have all of the pertinent information ready
  – Make sure you follow the chain-of-command for reporting and be ready for the onslaught of questions and conference calls that follow.

• Make sure your lab has validated or verified the test method(s) to show it is fit-for-purpose in your lab (this was asked)

• Have all information about the product, sampling, handling, testing and quality control
  – Chain-of-custody records, sampling, lab storage prior to analysis
  – Lot numbers, dates, product info, photos, etc.
  – Test method used, dates ran, method verification data
  – SOPs and supporting QA/QC documentation
  – Complete and accurate data packet with proper data review following your QA procedures

• The manufacturer wanted to know and asked if our lab was ISO17025 accredited
  – This was a success story of how accreditation benefitted our laboratory greatly

• Do not “target” specific brand names and remember that it is a surveillance program intended to provide useful data to regulatory agencies and other food safety related agencies
Thank You!

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