USDA Food Safety and Inspection Service

A Century of Service, A Future of Promise, A Legacy of Public Health

USDA-FSIS Report 2011 Spring Executive Board Conference for Food Protection

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Food Safety Working Group (FSWG)

Food Safety Working Group Measures

Interagency Food Safety Metrics

- FSIS, FDA and CDC are working jointly through the Food Safety Working Group (FSWG) to develop comprehensive food safety metrics that can be applied at targeted points along farm-to-table continuum
- These metrics have been publicly presented at FSWG Listening Sessions
- FSIS has used this "master list" of metrics to develop Agency-specific measures that are tailored to FSIS activities, policies, and programs

Interagency Food Safety Metrics

- FSIS is also working jointly with FDA to develop measures specific to *Salmonella Enteritidis* for both agencies
- The FSIS-specific measures have been developed in conjunction with multiple FSIS program areas
- FSIS is currently using FY 2009 as the baseline year and has set objectives and goals extending to FY 2015

Interagency Food Safety Metrics

- Objectives and goals are set primarily in two ways:
  - Performance Measure
    - FSIS seeks a change from the baseline (i.e. decrease in percent positive rate)
  - Management Control
    - FSIS seeks to maintain current baseline status (i.e. two baseline studies conducted annually)

Food Safety Working Group

New Performance Standards for Salmonella and Campylobacter in Young Chicken and Turkey Slaughter Establishments

The Food Safety Working Group developed three core principles to help guide food safety in the United States: prioritizing prevention, strengthening surveillance and enforcement, and improving response and recovery. In its overall mission to ensure a safe food supply for the public, and in response to the FSWG, FSIS developed the stricter performance standards to cut the *Salmonella* risk in poultry products.

USDA Sets New Standards for Reducing Foodborne Pathogens in Chickens and Turkeys - *First Standards for Campylobacter, Stricter Standards for Salmonella*

New Performance Standards for Salmonella and Campylobacter in Young Chicken and Turkey Slaughter Establishments

On March 16, 2011, FSIS announced implementation of revised and new performance standards aimed at reducing the prevalence of *Salmonella* and *Campylobacter* in young chickens and turkeys. The improved standards will become effective in July 2011. FSIS is encouraging establishments slaughtering chicken and turkey to make continued reductions in the occurrence of pathogens — specifically *Salmonella* and *Campylobacter* — in the products they produce with the new standards.

New Performance Standards for Salmonella and Campylobacter in Young Chicken and Turkey Slaughter Establishments

- FSIS estimates that approximately 5,000 illnesses will be prevented each year under the new *Campylobacter* standards after two years of enforcing the new standards, and approximately 20,000 illnesses will be prevented under the revised *Salmonella* standards each year.

- FSIS developed stricter performance standards using recently completed nationwide studies that measure the baseline prevalence of *Salmonella* and *Campylobacter* in young chickens and turkeys prepared for market. The studies indicated that, despite improvements, there was still a risk of consumers being exposed to these pathogens through poultry.

USDA Announces Proposed Rule for the Inspection of Catfish and Catfish Products

Proposed Rule for the Inspection of Catfish and Catfish Products

- On February 18, 2011, the USDA announced a proposed rule requiring inspection of catfish and catfish products by USDA's Food Safety and Inspection Service (FSIS). USDA is proposing these regulations to implement provisions as required by the Food, Conservation and Energy Act of 2008, also known as the 2008 Farm Bill.

- The proposed rule describes the new requirements that will apply to catfish produced in or imported to the United States. Among these requirements is that products labeled as "catfish" must bear either the FSIS mark of inspection or a mark of inspection from the country from which it was exported.

Proposed Rule for the Inspection of Catfish and Catfish Products

- The proposed rule also describes how FSIS will inspect U.S. catfish farms as well as transportation from farms to processing establishments, as required under the 2008 Farm Bill. In this regard, FSIS will focus on factors affecting the safety of the product being produced, such as water quality and feed.

- The proposed rule anticipates a transition period during which domestic and international operations will come into compliance with the catfish inspection program. Once the catfish inspection program rules are issued in final form, FSIS will follow-up by announcing the implementation dates for key provisions in the rule.

INSTRUCTIONS FOR VERIFYING ALL STEPS IN THE PROCESSING OF READYTO-EAT MEAT AND POULTRY PRODUCTS

INSTRUCTIONS FOR VERIFYING ALL STEPS IN THE PROCESSING OF READYTO-EAT MEAT AND POULTRY PRODUCTS

FSIS is issuing a notice to inform inspection program personnel (IPP) that, in light of recent events, FSIS is concerned that some meat and poultry establishments may not have considered all potential food safety hazards in their food safety system. This notice provides IPP with instructions for verifying that establishments that are producing ready-to-eat (RTE) meat and poultry products have considered all hazards and have included all steps in their hazard analysis.

INSTRUCTIONS FOR VERIFYING ALL STEPS IN THE PROCESSING OF READYTO-EAT MEAT AND POULTRY PRODUCTS

Several meat and poultry recalls associated with the addition of ingredients, spices, or sauce after the lethality step has made FSIS aware that establishments may have assumed that certain ingredients and spices are RTE. Also, the FDA's Center for Food Safety and Applied Nutrition has reported that a recent review of scientific research articles, studies, and spice recalls, has shown an increase in the prevalence of microbial contamination in spices.
As a result, FSIS is issuing this awareness notice to IPP to ensure that an establishment's food safety system addresses all potential food safety hazards associated with the production of their products.

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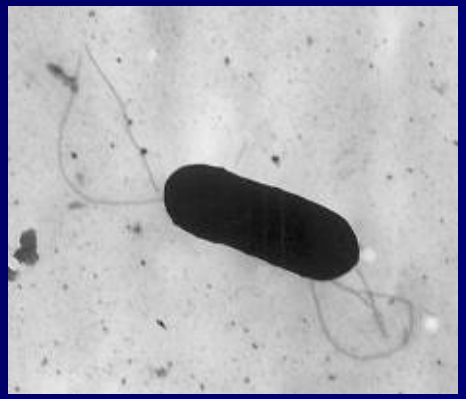
Listeria monocytogenes in Retail



Food
Meat
Cheese
Salad

Interagency Retail *Listeria monocytogenes* Risk Assessment

What's So Special About This Project?

- Collaboration (FDA, FSIS, UMD, VA Tech, Cornell, CDC, and others)
- Develop data specifically for the risk assessment model
- New approach: retail cross-contamination model
- Stakeholder participation early in the process

Interagency Retail *Listeria monocytogenes* Risk Assessment - Prevalence of Lm at Retail -

Product	Prevalence	
	NFPA	NAFSS
Retail Sliced	2.7%	1.4%
Prepackaged	0.4%	0.2%
n	9199	7040
Sampling Dates	2000-2001	2005-2006
Sample size	25 g	125 g

Retail-sliced product has higher prevalence and concentration of *Lm* than prepackaged product

Source: National Food Processors Association (Gombas, 2003); National Alliance for Food Safety and Security (USDA/ARS Funded; Lead: Ann Draughon, 2006)

Interagency Retail *Listeria monocytogenes* Risk Assessment

Why would in-store-packaged products be more contaminated than manufacturer-packaged ones?

- Major hypothesis: additional cross-contamination
  - More than one kind of products manipulated
    - Meat, cheese, salads
  - More than one process at a given time/place:
    - Slicing, Cutting, Mixing, …
  - More open environment than processing plants
    - Customers, carts, …

Interagency Retail *Listeria monocytogenes* Risk Assessment

Cross contamination modeling at retail

- **Sites**
  - Locations where *Listeria monocytogenes* can occur
  - Examples: slicers, counter tops, hands, gloves, clothes, chubs (several of different types), sliced product, sinks, floor drains, storage areas…
- **Events**
  - Activities that allow cross-contamination or change *Listeria monocytogenes* concentrations
  - Examples: slicing, wrapping chub, cleaning …

Interagency Retail *Listeria monocytogenes* Risk Assessment

Scope

- FDA & FSIS regulated RTE foods
- Foods that are sliced, prepared and/or packaged in the retail grocery environment and consumed in the home (e.g., deli meats, cheeses, deli-type salads)
- A range of retail "types" – delicatessen departments of major/large grocery chains/ supermarket facilities and other groceries (i.e., multipurpose independent small or local facilities)

Interagency Retail *Listeria monocytogenes* Risk Assessment

Approach to Risk Management Questions

- What would be the public health impact of allowing 100 cfu/g on products that do not support growth?
- Separate slicers/counters for growth versus non-growth products?
- What is the impact of the use of "gloves" in the retail environment?
- Eliminate slicer niches (i.e., redesign or cleaning procedures)?
- Consider frequently touched non-food contact surfaces (e.g. case handles, scale touch pads) as food contact surfaces (i.e., required to be cleaned and sanitized every four hours)?

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Interagency Retail *Listeria monocytogenes* Risk Assessment
- The Retail Deli Area -

Food workers
Behavior → Events

Sites
Slicers
Cases
Food Contact Surfaces
Non Food Contact Surfaces
Utensils
…

Food
Meat
Cheese
Salad

Niches
Slicers
Cases
…

Interagency Retail *Listeria monocytogenes* Risk Assessment
- Basic Processes to be Considered -

- **Initial Contamination**
  - Raw Products
  - Environment
- **Bacterial Growth**
  - In products
    - Function of temperature and time
    - Function of product characteristics: pH, water activity, growth inhibitors
  - On sites
  - In niches
- **Bacterial Inactivation**
  - Cleaning and Sanitizing
  - Change of gloves
- **Partitioning**
  - Slicing, Serving
- **Cross-Contaminations…**

In a dynamic environment!

Interagency Retail *Listeria monocytogenes* Risk Assessment
- Key Data Needs for Retail Model -

- Sites
  - Size
  - Temperature
  - *L. monocytogenes* growth rates
  - transfer coefficients
  - Relative percentages of each product type
  - Exogenous loadings
- Simulated *L. monocytogenes* concentrations
  - At each site over time
  - For each customer order
- Events
  - Probability of occurring
  - Sequencing
  - Duration
  - Sites contacted
  - Product sales

Interagency Retail *Listeria monocytogenes* Risk Assessment
- Data -

- Observational study on retail delis
- Meta analysis on transfer coefficient
- Meta analysis on slicer
- Meta analysis for washing efficiency
- Collection of other data ongoing

Interagency Retail *Listeria monocytogenes* Risk Assessment

- Which Sites? Which Events?

Observational study in retail environment -

Action No.	Action Sequence	Process	Objects Involved
1. 10am	Wash hands	Bacteria inactivation	hands
2.	Put on gloves		
3.	Open case	Cross contamination	Case - glove
4.	Pick up salami		
5.	Close case	Cross contamination	Case - glove
6.	Put salami on slicer	Cross contamination	
7.	Slice salami on gloves	Partitioning Cross contamination	Chub – product sold 1st slice – glove
8.	Put salami on tissue		
9.	Touch scale	Cross contamination	Scale - glove
10.	Give bag to customer		

Lubran *et al.*, Journal of Food Protection, 73(10):1849-1857, 2010

Interagency Retail *Listeria monocytogenes* Risk Assessment - Long term data gaps -

- **Sources of *Listeria monocytogenes***
  - Other than chubs, external sources of *L. monocytogenes* to retail environment not documented
  - Data needs: How does *Listeria monocytogenes* enter retail environment?
- **Transfer events**
  - Occurrence of rare transfer events not documented, e.g. transfer from floor drain to food contact surface
  - Data needs: better quantifications of non food contact surface interactions (drains, sinks,…)
- **Niches**
  - Niche data anecdotal
  - Almost no data available

Interagency Retail *Listeria monocytogenes* Risk Assessment
- Approach to Risk Management Questions -

- What would be the public health impact of allowing 100 cfu/g on products that do not support growth?
  - Set initial concentration of no growth product to 100 cfu/g
- Separate slicers/counters for growth versus - products?
  - Model more than one slicer. Select slicer to use each time customer is served based on product type.
- What is the impact of the use of "gloves" in the retail environment?
  - Set probability of wearing gloves to 100%
- Eliminate slicer niches (i.e., redesign or cleaning procedures)?
  - Set probability of niche to zero
- Consider frequently touched non-food contact surfaces (e.g. case handles, scale touch pads) as food contact surfaces (i.e., required to be cleaned and sanitized every four hours)?
  - Change site classification to food contact surfaces

Interagency Retail *Listeria monocytogenes* Risk Assessment
- Examples of Modeling Mitigation Scenarios -

- Separate slicers for growth versus non-growth product
  - Model more than one slicer. Select slicer to use each time customer is served based on product type.
- Data limited: Change layout to limit deli interaction with raw chicken or seafood
  - Change probability of event that allows cross-contamination from other food areas

Interagency Retail *Listeria monocytogenes* Risk Assessment - "Virtual" Deli -

- Also possible to model lack of compliance with food code to determine what actions most critical
- Example: Use of gloves
  - Gloves should be used and changed each time customer served. (Base model)
  - Model never using gloves. Calculate change in public health impact.

- Rank relative impact of different actions to determine where resources should be allocated

Interagency Retail *Listeria monocytogenes* Risk Assessment - Conclusions -

- Cross-contamination modeling of retail establishments is feasible but data intensive
- Model will allow different scenarios to be tested, and help determine relative importance of different *Listeria monocytogenes* controls

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Salmonella Compliance Guidelines for Small and Very Small Meat and Poultry Establishments that Produce Ready-To-Eat Products

Salmonella Compliance Guidelines for Small and Very Small Meat and Poultry Establishments that Produce R-T-E Products

This compliance guideline is intended to assist small and very small meat and poultry establishments that manufacture ready-to-eat (RTE) meat and poultry products to understand the regulatory requirements associated with safe production of these products with respect to *Salmonella* and other pathogens. This document also provides information about processing and safe handling of RTE products after the lethality step, so they are not contaminated with pathogens, such as *Salmonella* or *Listeria monocytogenes* .

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Shiga toxin-producing E. coli (STEC)

Shiga toxin-producing E. coli (STEC)

- FSIS intends to carry out verification procedures, including sampling and testing manufacturing trim and other raw ground beef product components, to ensure control of both *E. coli* O157:H7 and other Shiga toxin-producing *E. coli* (STEC)
- The Agency intends to implement sampling and testing for additional STEC on April 4, 2011
- At least six STEC serogroups (O26, O45, O103, O111, O121, and O145) besides O157:H7 are adulterants of non-intact raw beef products and product components because they are similarly injurious to health as *E. coli* O157:H7 under the same conditions
- The data gathered through this verification effort will help FSIS determine more precisely the hazard posed by these and other STEC

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Traceback

Traceback Policy

- Outlines Agency current thinking regarding identifying originating slaughter establishments when raw beef samples confirm positive
- Identify food safety concerns at the originating slaughter that may help identify the scope of affected product
- FSIS has held several public meetings in 2010 (transcripts are available on the FSIS website)
- Agency received feedback from consumer groups, industry, and partners
- FSIS will publish information in the coming months regarding Traceback

Goal of Traceability

- FSIS's goal is to respond to FSIS presumptive positive results more quickly by identifying all affected product and all potential raw beef suppliers sooner to protect public health

- To achieve this goal, a coordinated effort by FSIS field personnel is necessary

Gathering Supplier Information

- On October 8, 2010, FSIS issued instructions to Inspection Program Personnel (IPP) contained in FSIS Notice 58-10
- IPP are to gather the supplier information at the time they collect a sample
- This new instruction applies to FSIS sampling programs for raw ground beef (MT43) or bench trim (MT55) or any follow–up sampling to these programs (MT44, MT52, or MT53)
- FSIS needs to quickly confirm whether product is produced in-house or supplied

Note - (e.g., beef trimmings, subprimal cuts, beef hearts, veal trimming, weasand, head or cheek meat) or any information that clearly identifies the source material used