Emerging Food Safety Issues: What are the opportunities?

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Designed for working professionals. Earn your degree while balancing career and family.

“The overall experience has far exceeded my expectations and my career would not be what it is today without the tools I have received...”
CDC Estimates of Foodborne Illness (Scallan et al 2011)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illnesses</td>
<td>47.8 million</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>127,839</td>
</tr>
<tr>
<td>Deaths</td>
<td>3,037</td>
</tr>
</tbody>
</table>

US Population 313.6 million

\[
\frac{47.8}{313.6} = 0.15 = \sim 1 \text{ in 7 people/year}
\]
Outline

• Food industry structure

• Emerging Food Safety Issues

• Impacts

• Opportunity!
Number of Farms and Sales 2007 Percent of Total

- Less than $10,000
- $10,000 to $99,999
- $100,000 to $249,999
- $250,000 to $499,999
- $500,000 to $999,999
- $1,000,000 to $2,499,999
- $2,500,000 to $4,999,999
- $5,000,000 or more

[Bar chart showing sales and farms by sales amount categories]
Top 4, 8, and 20 firms' share of U.S. grocery store sales, 1992-2009

Divestitures and internal growth contributed to rising shares in recent years

Source: USDA, ERS calculations using data from U.S. Census Bureau, Monthly Retail Trade Survey, 1992-2009; and company annual reports.
Imports of foods have doubled in a decade and account for ~1/5 of what we eat.
Analysis of longer-term trends shows that U.S. imports of consumer-oriented agricultural products expanded rapidly from 2000, doubling to $52 billion.

Source: USDA, FAS, GATS database.
The United States was the leading single-country destination for agricultural goods imports during 2005–10; imports increased 35% by value during the period.

Source: GTIS, Global Trade Atlas Database.
FSMA: Food Safety Modernization Act

January 4, 2011
United States Food and Drug Administration

- Increased Powers
- Focus on prevention
- Requires the use of food safety plans
  - HACCP: Meat, Poultry, Juice and Seafood
FSMA

- Increases surveillance activities
- Increases on-farm food safety measures
- Food laboratory certification
- Inspection and Import controls
  - Foreign supplier certification and 3rd party certification
Provisions in effect

1. Consumer friendly web-search for recalls
2. Mandatory recall authority
3. Food facility registration & Suspension
   (Enhanced from Bioterrorism Act)
4. Notice of imported food shipments
   (Enhanced from Bioterrorism Act)
5. Authority for FDA to detain suspect food items
   (Enhanced from Bioterrorism Act)
6. Expanded records access authority
7. Authority to collect fees to recover costs of re-inspections or mandatory recalls
Diagram 1, FY12 FSMA Domestic Facility Risk Category
1. FY12 based on data from agency’s Official Establishment Inventory. Resources are allocated for facilities not required to register.
2. Inspect within three-year period.
3. Inspect within seven-year period.
Preventive Controls for Human Food

- HACCP-like Food Safety Plan
- Applies to facilities that manufacture, process, pack or hold human food
  - With exceptions
- Hazard Identification, Preventive Controls, Monitoring, Corrective Actions, Verification, Record-keeping
- Done by a QUALIFIED PERSON! (Training!)
Produce Food Safety

(1) agricultural water;
(2) biological soil amendments of animal origin
(3) health and hygiene
(4) animals in the growing area and
(5) equipment, tools and buildings

• Worker TRAINING!
Antimicrobial Use in Agriculture

• Antimicrobial Residues
  • Amount of chemical in food products

• Antimicrobial Resistance
  • Ability of bacteria to resist the effects of the antibiotic
Cephalosporin Order of Prohibition Goes Into Effect

April 6, 2012

The U.S. Food and Drug Administration (FDA) announced today that the order of prohibition of cephalosporins originally published on January 6, 2012 is now effective. The order prohibits certain uses of the cephalosporin (excluding cephradin) class of antimicrobial drugs in cattle, swine, chickens and turkeys.

FDA is taking this action to preserve the effectiveness of cephalosporin drugs for treating disease in humans. Prohibiting these uses is intended to reduce the risk of cephalosporin resistance in certain bacterial pathogens.

In its order, FDA is prohibiting what are called “extralabel” or unapproved uses of cephalosporins in cattle, swine, chickens and turkeys, the so-called major species of food-producing animals. Specifically, the prohibited uses include:

- using cephalosporin drugs at unapproved dose levels, frequencies, durations, or routes of administration;
- using cephalosporin drugs in cattle, swine, chickens or turkeys that are not approved for use in that species (e.g., cephalosporin drugs intended for humans or companion animals);
- using cephalosporin drugs for disease prevention.

The order had a comment period of 60 days that began on January 6, 2012 and closed on March 6, 2012. The FDA carefully reviewed all submitted comments and determined that the order of prohibition, as published on Jan 6, 2012, should go into effect on April 5, 2012 without further revision or delay.
Guidance for Industry

The Judicious Use of Medically Important Antimicrobial Drugs in Food-Producing Animals

- Requires veterinary Oversight
- Withdrawal of growth promotion use
FDA Milk Residue Survey

- 900 samples from farms that have had a meat residue violation
- 900 random samples of other farms
  - 30 different antimicrobial and anti-inflammatory residues
Dry product/novel product food safety

• Increasing scrutiny on pathogen survival in dry products
  • Flour
  • Nuts
  • Other dry ingredients

• “Novel vehicles”
  • Nut butters
Take home

• Good news: effort to improve food safety
  • Good for public health
  • Good for food industry
  • Good for agriculture

• Challenges/opportunities:
  • Let's meet the expectations!
  • Increasing public and private standards
  • Need for education and training