Data Sharing & Usage – an Industry Perspective

Frank Yiannas
Vice President - Food Safety
a new era of
shared, digitized, & BIG data
to advance food safety
DATA is the new oil
Shared Data

USDA FSIS

CDC
Background (2014)

• Consumers in U.S. shifting from beef to poultry

• Poultry-related outbreaks & recalls affecting consumer trust (CDC & USDA)

• Increased stakeholder interest & media scrutiny

• Purchase patterns changing (whole birds vs chicken parts)

• Contamination rebounds on chicken parts (26%)

• USDA (public) data used to create new Walmart poultry safety specifications
In the News

*Consumer Reports* - Is Your Chicken Safe to Eat?

*USA Today* - Salmonella outbreak linked to chicken prompts call for action

*Bloomberg* - Poultry Causes Most U.S. Food-Related Deaths, Study Finds

*Reuters* - Hundreds sickened in U.S. from salmonella outbreak linked to raw chicken
The Nationwide Microbiological Baseline Data Collection Program: Raw Chicken Parts Survey

January 2012–August 2012

Table 2. Distribution of Quantified Salmonella Samples in the RCPBS

<table>
<thead>
<tr>
<th>Range, MPN/ml</th>
<th>Number of Samples$^{(1)}$</th>
<th>Percent of Total</th>
<th>Cumulative Number</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.030</td>
<td>201</td>
<td>30.6%</td>
<td>201</td>
<td>30.6%</td>
</tr>
<tr>
<td>0.030 - 0.30</td>
<td>316</td>
<td>48.1%</td>
<td>517</td>
<td>78.7%</td>
</tr>
<tr>
<td>0.301 - 3.00</td>
<td>102</td>
<td>15.5%</td>
<td>619</td>
<td>94.2%</td>
</tr>
<tr>
<td>3.01 - 30.00</td>
<td>38</td>
<td>5.8%</td>
<td>657</td>
<td>100.0%</td>
</tr>
<tr>
<td>&gt; 30.01</td>
<td>0</td>
<td>0.0%</td>
<td>657</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>657</td>
<td>100.0%</td>
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</table>

LOD < 0.030 MPN/ml

(1) Only positive samples are included regardless if under LOD
Poultry Safety Initiative
Consultation, Collaboration, & Stakeholder Summit
Chicken Supply Chain

Source: Cobb-Vantress

- **Cobb-Vantress** (a Tyson subsidiary) Provides grandparent and parent breeding stock
- **Pullet Farm** Pullets (parents) grown to 20 weeks
- **Breeder Farm** Pullets begin laying eggs at 26 weeks
- **Hatchery** Eggs are in hatchery for 21 days
- **Broiler Farm** Broilers reach market weight in about 46 days
- **Processing / Further-Processing Plant**
- **Distribution**

**Feed Mill** produces scientifically formulated feed for pullets and broilers
Poultry Safety Initiative

• Primary Breeder Stock
  • Reduce vertical transmission of Salmonella to broiler flocks
  • National Poultry Improvement Plan (USDA)

• Bio Control Measures
  • Vaccinations of Broiler/Breeder Flocks
  • Disease Prevention Best Practices

• Whole Chicken Process Control
  • Regulatory Approved Intervention(s) to achieve $4 \log_{10}$ reduction of Salmonella spp

• Chicken Parts Intervention
  • Approved Intervention(s) to achieve $1 \log_{10}$ reduction of Salmonella spp

Dec 2014
% Chicken Parts Positive for Salmonella

- Oct 14: 17%
- Aug 15: 12%
- Jan 16: 5%
- Mar-16: 11%
- Jun-16: 2%

New USDA Performance Standard, 2016: 2%

Greater than 80%
Enumeration of Salmonella Chicken Parts (MPN/g)

- Walmart Data
- USDA Baseline Study 2012
digitized data
“Data on a piece of paper is a dead end; data in digital form is the start of meaning action.”

- Bill Gates
Minutes instead of Days
Food Safety & Health
BIG data
### Daily Temperature Log

<table>
<thead>
<tr>
<th>Time</th>
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<td>Temp</td>
<td>12:01 AM</td>
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### Hot Holding Temperatures

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### Corrective Actions

- **Risk No. 1**: Use Cooking Thermometer
- **Risk No. 2**: Update Cooking Procedures
- **Risk No. 3**: Review Hygiene Practices
- **Risk No. 4**: Implement New Training Programs

### Closing Manager Signature:

[Signature]

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**Paper to Digital**
The Power of Big Data
Rotisserie Chicken Example

California Wholesale Store Recalls Rotisserie Chicken Products Due to Possible Salmonella Heidelberg Contamination

Salmonella
Campylobacter
Paradigm Shift

10 regulatory inspections
100 3rd party food safety audits

1,400,000 SPARK rotisserie chicken temps

n = All
30,000 Foot View with Clarity & Granularity

- Walmart
- Sam's
Benefits of Shared, Digitized, & BIG Data

- Enhanced Food Safety
- Fresher Food
- Less Food Waste
- Deter Food Fraud
- Promote Responsibility
- Build Trust
Working together to provide safe & affordable food, so people can live better.