Update on Preliminary Analysis of Modernization of Poultry Slaughter

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Presentation to Stakeholders
October, 2017
Outline

• Summary of Findings
• Overview
• Analysis Highlights
  1. Mandatory Requirements Implementation
  2. Inspection Task Findings at NPIS Establishments
  3. Comparison of pre-Conversion to post-Conversion
  4. Comparison of NPIS to non-NPIS
• Preliminary conclusions
• Moving Forward
Summary of Findings

1. *Salmonella* and *Campylobacter* levels are lower after implementation of the mandatory requirements

2. Inspectors are performing increased off-line verification tasks as intended under NPIS

3. Establishments that convert to NPIS are able to maintain process control

4. NPIS-converted establishments have similar Salmonella levels to other like establishments
Overview

• Poultry Slaughter Modernization introduced a new inspection system
  – Mandatory requirements for all establishments
    • Have pathogen levels changed since implementation?

For NPIS:
  – IPP spend more time doing certain off-line inspection tasks
    • Are IPP performing tasks at expected rates?

  – Establishments expected to take greater responsibility controlling pathogens
    • Are establishments that convert able to maintain process control?
    • Are establishments in NPIS performing as well as similar establishments in other inspection systems?
Salmonella Rates Before and After Modernization

- All poultry slaughter establishments were required to implement certain provisions of the rule.
- A comparison of *Salmonella* and *Campylobacter* rates shows overall decreases since implementation of the rule.
  - 176 chicken and 41 turkey slaughter establishments analyzed
  - Timeframe is pre-nBPW

*Salmonella* Positive Rates in Chicken, Turkey and all Poultry Slaughter Establishments

<table>
<thead>
<tr>
<th></th>
<th>Salmonella Positives Before</th>
<th>Salmonella Negatives Before</th>
<th>Salmonella Positive Rate Before</th>
<th>Salmonella Positives After</th>
<th>Salmonella Negatives After</th>
<th>Salmonella Positive Rate After</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>255</td>
<td>8,212</td>
<td>3.01%</td>
<td>122</td>
<td>7,711</td>
<td>1.56%</td>
<td>5.55E-10</td>
</tr>
<tr>
<td>Turkey</td>
<td>42</td>
<td>2,011</td>
<td>2.05%</td>
<td>18</td>
<td>1,645</td>
<td>1.08%</td>
<td>2.53E-02</td>
</tr>
<tr>
<td>All Poultry</td>
<td>297</td>
<td>10,223</td>
<td>2.82%</td>
<td>140</td>
<td>9,356</td>
<td>1.47%</td>
<td>4.52E-11</td>
</tr>
</tbody>
</table>

Before the mandatory testing rule: July 1, 2013 to June 30, 2014 and After the mandatory testing rule: July 1, 2015 to June 30, 2016.
Inspection Task Findings

- PHIS tasks were evaluated in the 30-120 days prior to conversion and the 30-120 days after.
  - 18 non-HIMP establishments used in this analysis
  - The NPIS Zero Tolerance Food Safety Verification task (15J) was performed 4 times more often than the Poultry Zero Tolerance Verification task (03J04)
  - The non-food safety Finished Product Standards task (04A06 for pre-NPIS and 15A06 post-NPIS) frequency was reduced to monthly
pre-Conversion vs post-Conversion

- FSIS Pathogen testing data evaluated in 55 chicken and turkey establishments that converted to NPIS
  - Accounted for other factors including
    - Seasonality and different conversion dates
    - Former-HIMP
    - nBPW introduction
    - Implementation of moving window based sampling
- No significant change was seen in pathogen levels for converting establishments

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### Salmonella Percent Positive (unweighted) Pre- and Post-NPIS Implementation Periods, July 1, 2013, through March 31, 2017, Young Chickens and Young Turkeys Combined.

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre-NPIS Ests</td>
<td>28</td>
<td>20</td>
<td>22</td>
<td>23</td>
<td>26</td>
<td>21</td>
<td>14</td>
<td>52</td>
<td>52</td>
<td>32</td>
<td>17</td>
<td>13</td>
<td>9</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>post-NPIS Ests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
<td>34</td>
<td>39</td>
<td>43</td>
<td>46</td>
<td>51</td>
<td>54</td>
<td></td>
</tr>
</tbody>
</table>

Establishments that converted mid-quarter would be counted in both pre- and post-NPIS counts for that quarter.
NPIS vs non-NPIS

- Focused on more recent data, 12 months post nBPW
- 39 Large (23 former HIMP) NPIS converted establishments compared to 126 Large non-NPIS establishments

<table>
<thead>
<tr>
<th></th>
<th>Salmonella Positive Percentage (Number)</th>
<th>Campylobacter Positive Percentage (Number)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>chicken carcasses</td>
<td>chicken parts</td>
</tr>
<tr>
<td>NPIS</td>
<td>4.5% (67)</td>
<td>14.5% (147)</td>
</tr>
<tr>
<td>HIMP</td>
<td>2.9% (31)*</td>
<td>14.8% (102)</td>
</tr>
<tr>
<td>Non-HIMP</td>
<td>8.9% (36)</td>
<td>13.9% (45)</td>
</tr>
<tr>
<td>Non-NPIS</td>
<td>4.1% (214)</td>
<td>13.3% (494)</td>
</tr>
</tbody>
</table>

* Statistically significant compared to Non-NPIS (chi-squared, p<0.05)

- Comparable results are seen between the NPIS establishments and similar non-NPIS establishments
  - Note: the non-HIMP data is skewed by one outlier establishment. With that establishment excluded, chicken carcass *Salmonella* rates in former non-HIMP sub-group is 4.0% (14 positive) and in all NPIS is 3.1% (45 positive)
Preliminary Conclusions

- *Salmonella* and *Campylobacter* levels are lower after implementation of the mandatory requirements
- Increased off-line food safety verification tasks are occurring as instructed
  - Off-line bird checks are 4X more frequent
- Plants that convert to NPIS are able to maintain process control
- The group of NPIS converted establishments are comparable to those who have not converted in terms of both *Salmonella* and *Campylobacter* rates
  - Converted HIMP plants have lower carcass *Salmonella* rates in this analysis
Next steps

• Continue to monitor and evaluate
  – Monitor converted establishments to ensure a smooth transition
  – Track pathogen rates as more establishments convert and as more data is collected
  – Evaluate the public health impact and compare to the estimates in the risk assessment
  – Provide periodic updates
## Supplemental Info

### Inspection Task Code Key

<table>
<thead>
<tr>
<th>InspTaskCode</th>
<th>InspectionTaskName</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01B02</td>
<td>Pre-Op SSOP Review and Observation</td>
<td>Review the establishment's SSOP and become familiar with the procedures</td>
</tr>
<tr>
<td>01C01</td>
<td>Operational SSOP Record Review</td>
<td>Verify operational SSOP records</td>
</tr>
<tr>
<td>01C02</td>
<td>Operational SSOP Review and Observation</td>
<td>Verification of the establishment's operational SSOP</td>
</tr>
<tr>
<td>01D03</td>
<td>Poultry Sanitary Dressing</td>
<td>Verification of sanitary dressing in poultry slaughter</td>
</tr>
<tr>
<td>03A04</td>
<td>Review of Establishment Data</td>
<td>Weekly review of establishment data per Directive 5000.2</td>
</tr>
<tr>
<td>03J02</td>
<td>Slaughter HACCP</td>
<td>Verification of all 5 HACCP regulatory requirements through the review/observation and recordkeeping components</td>
</tr>
<tr>
<td>03J04</td>
<td>Poultry Zero Tolerance Verification</td>
<td>Verification of zero tolerance for feces on poultry carcasses entering chilling system</td>
</tr>
<tr>
<td>04A06</td>
<td>Poultry Finished Product Standards</td>
<td>Verify poultry products are produced in a safe, wholesome manner and not misbranded</td>
</tr>
<tr>
<td>04C05</td>
<td>Poultry Good Commercial Practices</td>
<td>Poultry Good Commercial Practices</td>
</tr>
<tr>
<td>15A06</td>
<td>NPIS Poultry Ready-to-Cook</td>
<td>Ready to Cook Task for NPIS establishments</td>
</tr>
<tr>
<td>15J</td>
<td>NPIS Zero Tolerance Food Safety Verification</td>
<td>Verification of zero tolerance for feces in NPIS system establishments</td>
</tr>
</tbody>
</table>

Notes: When establishments convert to NPIS they perform 15J and 15A06 tasks in lieu of 03J04 and 04A06, respectively