



United States Department of Agriculture

One Team, One Purpose



Food Safety and Inspection Service

Protecting Public Health and Preventing Foodborne Illness





Identification, Triage and Tracking of Potential Emerging Food Safety Risks

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Presentation Overview

- Food Safety and Inspection Service Background
- Agency Approaches to Triaging Potential Emerging Food Safety Risks:
 - Emergency Management Committee
 - FSIS Incident Management System (FIMS)
 - Health Hazards Evaluation Board (HHEB)
 - Hazard Identification Team (HIT)
- Summary

Food Safety and Inspection Service



FSIS is the public health agency in the USDA and is responsible for ensuring that meat, poultry, and processed egg products are safe, wholesome, and accurately labeled.

Our Authority

Through a series of Acts, Congress empowers FSIS to inspect all meat, poultry, and processed egg products in interstate commerce.

- Federal Meat Inspection Act (FMIA), 1906
- Agricultural Marketing Act (AMA), 1946
- Poultry Products Inspection Act (PPIA), 1957
- Humane Methods of Slaughter Act (HMSA), 1958
- Egg Products Inspection Act (EPIA), 1970

Triaging and Responding to Potential Food Safety Risks: Targeted Approaches

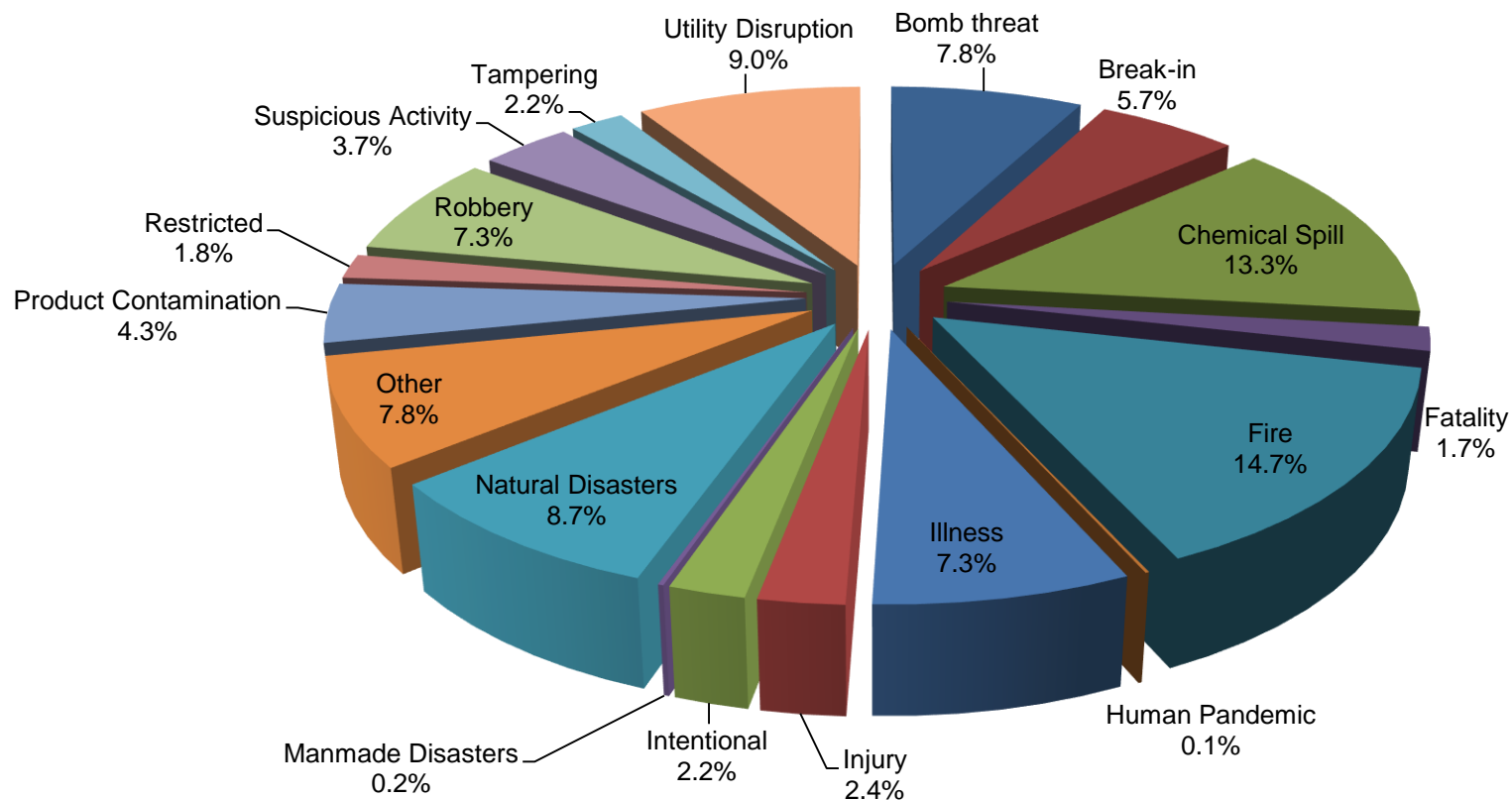
1. A significant incident has occurred:
 - **Emergency Management Committee (EMC)** to determine what action, if any, the Agency needs to take
2. An immediate concern that a product in commerce may be injurious to health:
 - **Health Hazard Evaluation Board (HHEB)** to rapidly assess the risks
3. Emerging risk but no specific incident or immediate threat:
 - **Hazard Identification Team (HIT)** to evaluate the potential, emerging risk and make recommendations for Agency next steps

Emergency Management Committee

- **Emergency Management Committee (EMC)**
 - made up of senior members of the FSIS' program areas
 - can convene 24/7 to respond to all emergencies (significant incidents)
 - provides a mechanism for FSIS to rapidly reach a management decision on how to respond to an incident, with all resource needs and affects on program areas considered.
- **FSIS Incident Management System (FIMS)**
 - IT system to track significant incidents and our responses to them
 - provides a mechanism for all relevant personnel to access the current status and prior actions
 - maintains a historical record of incidents and our responses to them

All Incidents, Categorized by “Nature” (October 1, 2003 – May 16, 2018)

- FSIS typically tracks between about 100 to 170 incidents per year
- EMC is not activated for every incident (<5%)



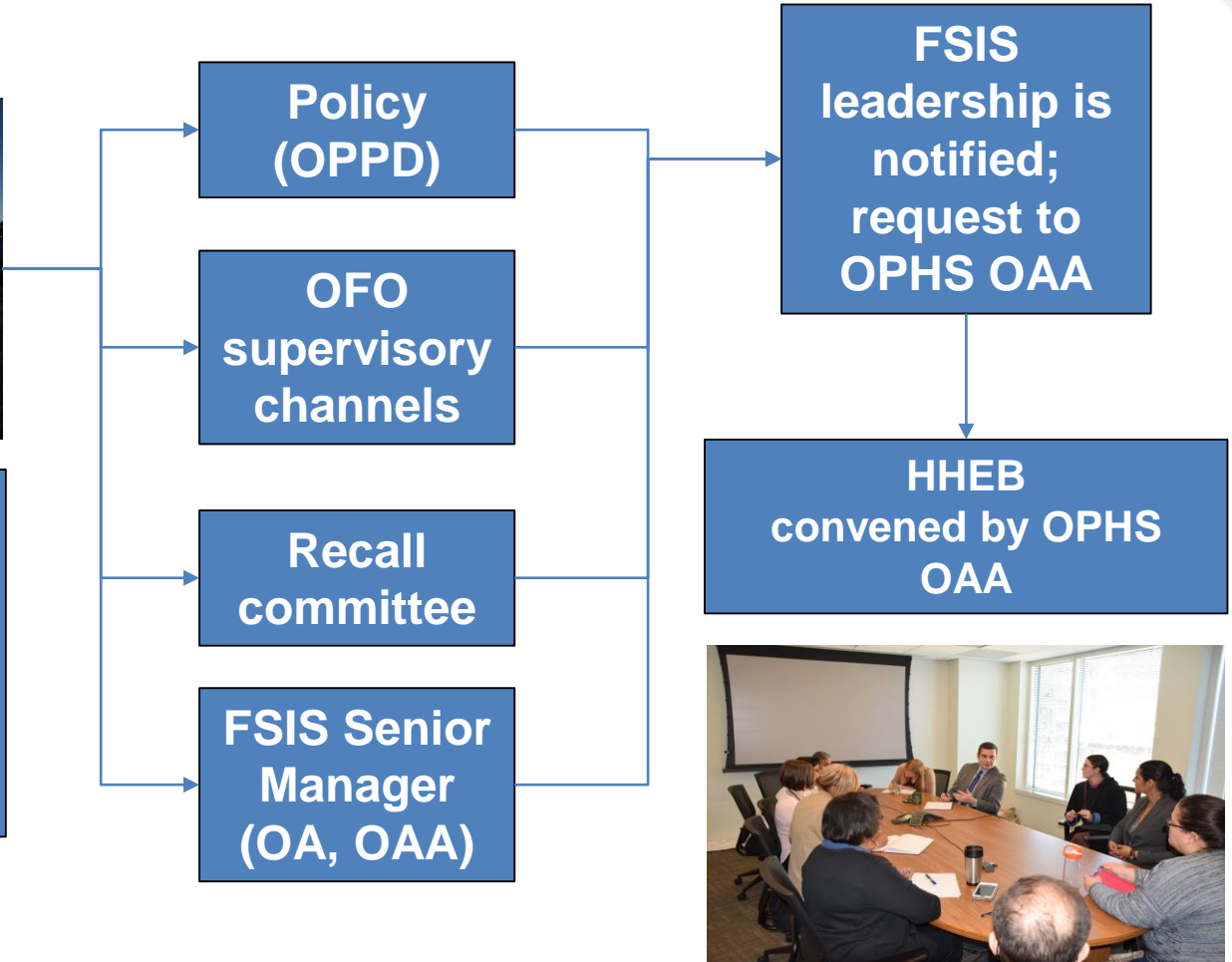
Health Hazard Evaluation Board (HHEB)

- Ad Hoc HHEBs Convened:
 - immediate concern a product in commerce may be injurious to health
 - limited time for a resolution (generally hours to days)
 - FSIS is uncertain about nature or severity of human health risk
 - **not**, in general, to address situations resolved by applying existing laws, regulations, or policies
- Assess the nature and severity of the hazard
- Does **not** decide Agency actions; provides information to FSIS leadership for decision on regulatory action
- Membership based on nature of hazard
 - e.g., microbiologists, toxicologists, chemists, veterinarians, risk analysts, epidemiologists, food technologists, statisticians
- External subject matter experts (federal or state governments, academics) asked to serve as needed

HHEB Communication Flow



Field personnel (OFO) observe an incident of concern in an establishment or others observe a concern



HHEB Example: Pesticide Exposure

- FSIS veterinarian observed plant employees spraying cattle with organophosphate pesticide in outdoor holding pen
- Spray label recommended allowing at least 3 days between application and slaughter
- Several cattle slaughtered 30 to 60 minutes after being sprayed
- A “worst-case scenario” assessment—using available information on pesticide and event in question—indicated violative levels might be possible in the meat
- HHEB recommended testing product for organophosphate residues to determine if meat was safe to release into commerce
- Test results indicated some carcass parts were safe to release and some were not; the latter were condemned by inspection personnel

HHEB Example: Siluriformes and Crystal Violet

- In July 2016, FSIS lab confirmed a sample of Siluriformes was contaminated with crystal violet
- Crystal violet is a carcinogenic agent and is not allowed in FSIS-regulated products
- Affected lot was in commerce
- HHEB convened to evaluate public health risk associated with contamination
- Following review of scientific literature and other sources, HHEB concluded product posed a possible public health risk and recommended a Class II recall



Hazard Identification Team (HIT)

- Identifies, tracks, and triages emerging and evolving food safety issues that may pose risks to consumers
- **Not** used to make determinations about specific product disposition or respond to specific significant incidents
- Criteria for evaluation adapted from EFSA Process for Emerging Risks Identification (2012)

Characteristics
of Issue/Risk
Under
Evaluation

- Novelty
- Scale
- Severity
- Imminence

Characteristics
of Data for
Evaluation

- Relevance
- Soundness

HIT – What Constitutes an Emerging Risk?

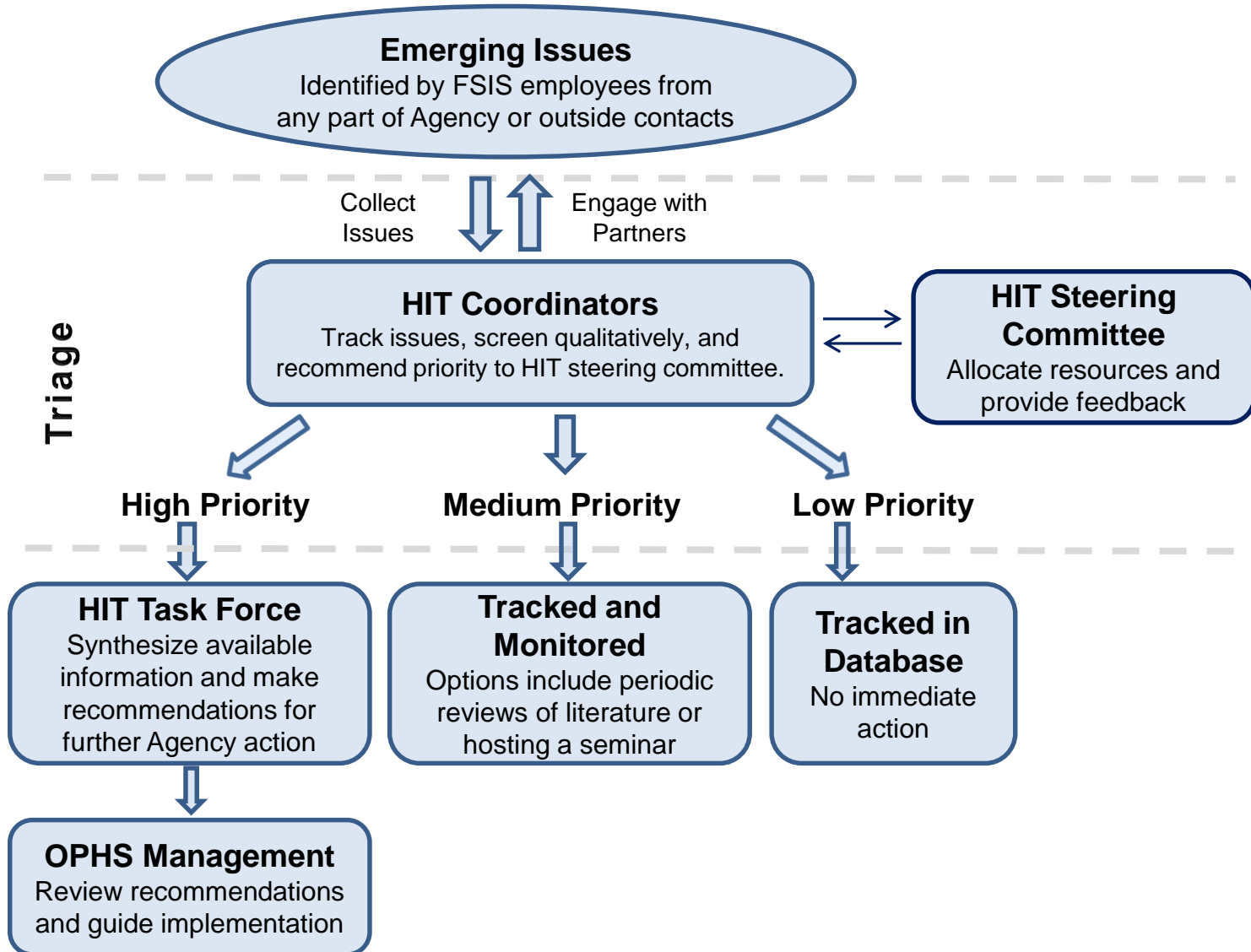
Emerging Risks

New hazard + Known significant exposure

Known hazard + New significant exposure

Known hazard + Increased susceptibility
+ Significant exposure

HIT Communication Flow

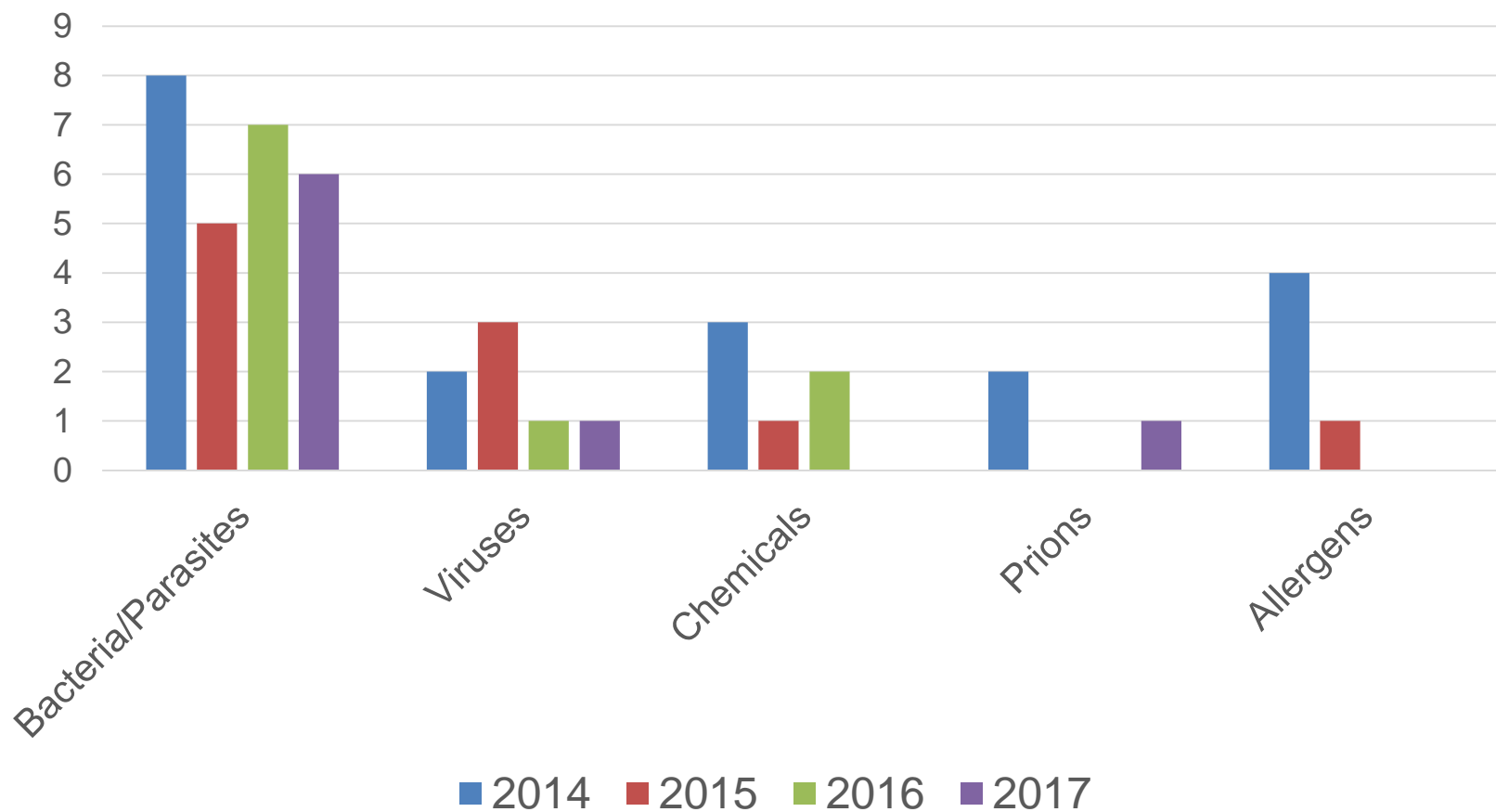


How Does FSIS Use HIT Findings?

- Process supports strategic planning and awareness
- First step toward identifying issues for consideration in risk management decisions
- Informs how Agency resources should be focused
- Findings may be added to FSIS research priorities
- Process is ***not*** used to make determinations about specific product disposition or respond to specific significant incidents



HIT “New Issue” Review Subject Distribution, FY 2014-17



HIT Example: “Feral Swine Zoonoses”

- Multiple studies published 2010-2014 evaluating zoonoses in US feral swine population
- Commonly exposed to pathogens not typically seen in confinement-raised domestic swine
- Upswing in consumer demand for “free-range” and otherwise non-confinement raised meat/poultry products
- Triaged to High Priority and task force convened

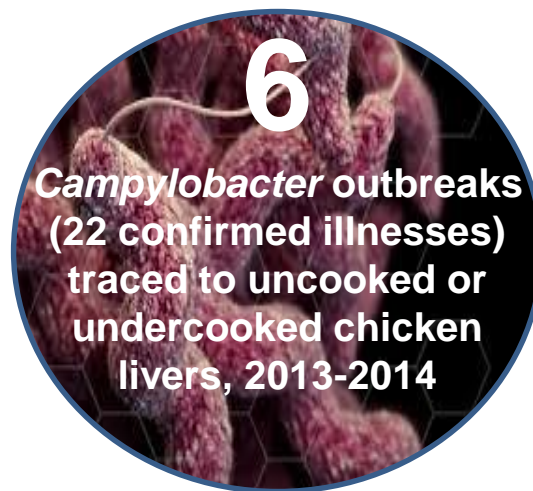
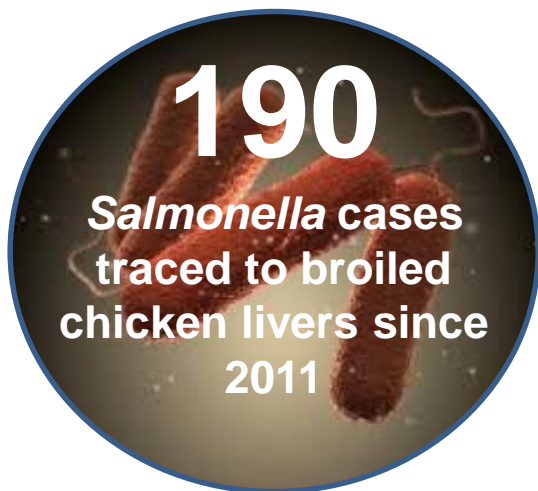


Image from APHIS 2013

HIT Example Impact: “Feral Swine Zoonoses”

- APHIS Wildlife Services conducted a year-long Feral Swine Baseline study concluded in December 2015
 - 13% of the sampled feral hogs were culture-positive for *Brucella*
- Development of a new, separate animal code in the Public Health Information System for this slaughter class (FSIS Notice 78-16)
 - 100 samples will be collected and analyzed for residues in FY 2018
- Examination of occupational safety procedures at plants where feral swine are slaughtered (FSIS Notice 34-17)

HIT Example: “Chicken Livers as Outbreak Source”



- Evidence exists that livers are often colonized with *Salmonella* and/or *Campylobacter*, and surface heating or rinsing is insufficient for safety (Borsoi et al 2011, Brito et al 1995).
- No baseline data describing pathogen prevalence in chicken livers
- Triaged to High Priority in December 2015 and referred to FSIS’ Applied Epidemiology Staff

HIT Example Impact: “Chicken Livers as Outbreak Source”

- Presented as research priority to ARS and NACMPI in March 2016
- FSIS working on multiple prevention strategies
 - Increased educational focus on cooking recommendations
 - Industry guidance
- Partnering to better understand risks and appropriate prevention/response
 - Considering performance standards/PR HACCP changes
 - CDC reviewing capacity for *Salmonella* and/or *Campylobacter* chicken liver attribution



Summary

- FSIS has different mechanisms in place to characterize, respond to and track potential emerging risks
- Which mechanism is used is determined on the basis of:
 - whether there is an aspect of potential risk to the public's health from FSIS-regulated product
 - whether there is an immediate concern that a product destined to enter or already in commerce may be injurious to health
 - the timeframe within which an Agency response is needed
- Having the various mechanisms in place equips FSIS to handle both acute incidents and longer-term planning for emerging risks
- Having the ability to track allows FSIS to monitor trends in incidents and risks, and document responses for future reference

Additional Information

- FIMS
FSIS Directive 5500.2 *Significant Incident Response* at:
<https://www.fsis.usda.gov/wps/wcm/connect/dea42bb0-41be-4f5f-b476-5205678a5ff3/5500.2.pdf?MOD=AJPERES>
- Human Health Evaluation Board
FSIS Directive 8091.1 *Procedures for the Food Safety and Inspection Service (FSIS) Health Hazard Evaluation Board (HHEB)* at:
<https://www.fsis.usda.gov/wps/wcm/connect/7bf62f45-0451-4cd5-8bda-ed2feb4f1b7d/8091.1.pdf?MOD=AJPERES>
- Hazard Identification Team
FSIS Directive 8091.2 *Procedures for the Hazard Identification Team* at:
<https://www.fsis.usda.gov/wps/wcm/connect/803369bb-8f1e-44f5-a3e7-8ccf1b408d7d/8091.2.pdf?MOD=AJPERES>

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Questions?