Poultry Slaughter Inspection Training

Participant Notebook

May 21, 2021

Office of Employee Experience and Development
Center for Learning

Poultry Slaughter Inspection Agenda

- Welcome, Introductions, and Training overview
- Agency New Employee Orientation
- Public Health Mission
- Plant Familiarization
- Regulatory Environment
- Professionalism
- Anatomy
- Ante Mortem Inspection
- Post Mortem Inspection
- HPAI
- Turkey Slaughter
- Safety
- HACCP Overview
- Food Defense Overview
- Test and Evaluation

FSIS New Employee Orientation

This module covers an overview of the U.S. Department of Agriculture, and the Food Safety and Inspection Service.

Objectives

After completing this module, you will be able to:

1. Identify USDA's role in government.
2. Identify FSIS' role in USDA, and where we get our authority.
3. Describe FSIS' workforce and offices, and the roles of each

Resource Materials

USDA web homepage
FSIS web homepage

Introduction

American consumers spend about $617 billion dollars annually on food. Of that amount, $500 billion dollars are spent on foods produced here in the United States. U.S. meat and poultry exports are America's top agricultural export.

Meat and poultry product purchases in the United States make up a large portion of the monies spent on U.S. produced products. Those product purchases equate to Americans consuming 236 pounds of meat and poultry products per person each year. Not only do we have an enormous supply of product, but we have one of the safest supplies of meat, poultry, and egg products. How is this possible?

Behind safe product production is an army of public health professionals and support personnel. The safety of our products is largely a result of sustained regulatory surveillance, research, and the educational efforts of the U.S. Department of Agriculture. Some examples of these front-line and behind the scenes professionals are In-plant Inspection Teams, Veterinarians, Chemists, Microbiologist, Analysts and Statisticians, Secretaries and Specialist, Economists, Training Teams; and, the list goes on and on. To understand how the system works and how these individuals play a role in it, let's review the "BIG PICTURE".

The "Big Picture"

We begin our review with the U.S. Constitution. The Constitution prescribes the responsibilities of the government's three branches:

Legislative
Executive
Judicial

These three branches all have roles to ensure the safety of the U.S. food supply.

Congress, the Legislative Branch, enacts statutes or laws that are designed to ensure the safety of the food supply; and, establishes the nation's level of protection. The Executive Branch is responsible for the implementation of these laws. They do so by developing and enforcing regulations. When enforcement actions, regulations, or policies lead to disputes, the Judicial Branch is charged to render impartial decisions on the development, implementation, and/or enforcement of those laws. Under which branch would you expect to find your role in the "BIG PICTURE"?

Food Safety and Inspection Service personnel find themselves in the same branch of government as the President of the United States, the Executive Branch. This branch, headed by the President, consists of the Vice President, department heads and the heads of independent agencies.

The Independent Agencies help carry out policy, or provide special services. Examples of these special services are environmental protection, federal banking, merit systems protection and personnel management to name but a few. The Department Heads, also known as the Cabinet, advise the President on any issues that relate to their respective offices. Within the Cabinet, we have 15 Executive Departments:

Department of Agriculture (USDA)
Department of Commerce
Department of Defense
Department of Education
Department of Energy
Department of Health and Human Services
Department of Homeland Security
Department of Housing and Urban Development
Department of the Interior
Department of Justice
Department of Labor
Department of State
Department of Transportation
Department of the Treasury
Department of Veterans Affairs

The Department of Agriculture is one of the largest and most diverse departments in the Federal Government.

U.S. Department of Agriculture Executives

Heading the Department of Agriculture is the Secretary of the U.S. Department of Agriculture. This position is an appointed positioned and was created to ensure oversight of the entire Department. As head of a department of 113,000 employees, the Secretary oversees the nation's farm and food programs.

The current USDA Secretary of Agriculture is: _____.

The Deputy Secretary of Agriculture assists the Secretary of Agriculture by overseeing the day to day activities of the U.S. Department of Agriculture and helps support the mission of USDA.

The current Deputy Secretary of Agriculture is: _____.

USDA'S Mission

USDA's mission statement reads:

"Provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management. "

That is, USDA provides leadership in agriculture issues. Those issues include the management of traditional farm programs, private lands conservation, domestic food assistance, agriculture research and education, agricultural marketing, international trade, meat and poultry inspection, forestry, rural development programs, and Trade and Foreign Agricultural Affairs.

The Department of Agriculture is divided into Eight Mission Areas which operate over 200 programs. These Areas include:

Farm Production and Conservation
Food, Nutrition and Consumer Services
Food Safety
Marketing and Regulatory Programs
Natural Resources and Environment
Research, Education and Economics
Rural Development
Trade and Foreign Agricultural Affairs

The Food Safety Mission Area ensures that the Nation's commercial supply of meat, poultry and egg products are safe, wholesome, and correctly labeled and packaged. This Mission Area also plays a key role in the President's Council on Food Safety; and, has been instrumental in coordinating a National Food Safety Strategic Plan among various partner Agencies (the Department of Health and Human Services, the Environmental Protection Agency, and others).

An Under Secretary heads each mission area and oversees the policies and programs of the area. Food Safety and Inspection Service (FSIS) is in the Food Safety mission area.

The current Under Secretary for Food Safety is:_____.

Just as in the overall structure for USDA, the Under Secretary for Food Safety is assisted by the Deputy Under Secretary. The duties of this office include overseeing the policies and programs of FSIS as well as chairing the U.S. Codex Steering Committee.

The current Deputy Under Secretary for Food Safety is: _____.

The Food Safety and Inspection Service

Under the Food Safety mission area is our agency, FSIS. FSIS administers the federal meat and poultry inspection program, and the egg products program; to assure safety, wholesomeness and truthful labeling of these products. This is done under the authority afforded to us under the Federal Meat Inspection Act (FMIA), the Poultry Products Inspection Act (PPIA), and the Egg Products Inspection Act (EPIA).

Our Agency sets standards for food safety and regulates all raw and processed meat, poultry, and egg products sold in interstate commerce, including imported products. We also enforce, and conduct food safety consumer education programs.

Although the Under Secretary and the Deputy Under Secretary for Food Safety are responsible for overseeing the food safety policies and programs, the Administrator of the Food Safety and Inspection Service is responsible for the day-to-day food safety activity oversight. FSIS has embraced the vision of being "a trusted public health regulatory agency", along with the goals which align us with the Food Safety Mission Area.

The Administrator of FSIS is responsible for managing FSIS' food safety activities. In this role, the Administrator carries out the activities to support the Agency's vision of being "a trusted public health regulatory agency".

The current FSIS Administrator is: _____.

Assisting the Administrator is the Deputy Administrator. The Deputy Administrator directs the Agency's strategies and initiatives for public affairs, media, congressional relations, consumer education and employee communications.

The current FSIS Deputy Administrator is: _____.

USDA Headquarters

USDA's Headquarters complex buildings are located in Washington, D.C.; on the National Mall at 1400 Independence Avenue, SW. The Jamie L. Whitten Building houses about 1000 employees including the Secretary of Agriculture, the Secretary's Chief of Staff, the Policy Staff, the Operations Staff, the Scheduling Staff and White House Liaison; and, the Under Secretaries and FSIS' Administrator.

Across the street is the South Building which is a six-story, block-long masonry building. It became known as the USDA's "South Building" as a result of sitting south of the Whitten Building. Until the Pentagon was built in 1942, the South Building was the world's largest office building; it has 7 miles of corridors, 4292 offices, 4746 windows, and houses approximately 6500 employees. Within the South Building, we find the headquarters office of FSIS' Offices and Program Areas. The South Building connects to the Whitten Building by an underground tunnel running under Independence Avenue and by two walkways formed over this same street.

Also, we have some of our headquarters personnel housed at the Aerospace Center, the George Washington Carver Center, and the Congressional Quarterly.

FSIS - A Public Health Regulatory Agency

The Food Safety and Inspection Service is a "trusted public health regulatory agency". But, what is a public health agency?

Historically, public health focused on the absence of disease, disease prevention and control. For FSIS, public health is improving the health status of the citizens. This includes protecting, promoting and enhancing the health status of the American public. However, FSIS is also a regulatory agency. In what aspects are we a regulatory agency?

Earlier, we discussed the three branches of government. We said that the Legislative Branch, or Congress, enacts statutes or laws that are designed to ensure the safety of the food supply. In our earlier discussions, we also discussed the Acts that were enacted by the Legislative Branch:

FMIA – The Federal Meat Inspection Act
PPIA – The Poultry Products Inspection Act
EPIA – The Egg Products Inspection Act

As part of the Executive Branch, it is FSIS' responsibility to implement these laws. We regulate meat, poultry and egg products. Thus, our role as a "regulatory agency" is to use the Acts to improve the health status of the American public.

As Public Health employees, we look at the entire meat, poultry, and egg products operation — the sanitation and so forth — not just specifically the regulatory component. In addition, through scientific and educational components, we reduce the level of pathogens and outbreaks of foodborne illness, and educate establishment officials, food handlers, and consumers. We ensure security of our food supply from biological, chemical, and physical contamination. There are many other activities we do that fall under the public health definition other than providing a safe product.

FSIS Vision

It is essential that everyone in FSIS, regardless of his or her role, recognize that we all play a part in achieving our common vision to be:

A trusted public health regulatory agency committed to preventing foodborne illness.

Achieving our vision must be carried out on two levels - collectively and individually. On a collective level, there are three basic functions which we apply in order to operate as a successful public health agency. The first function is assessment, which simply means we identify public health problems. The second function is policy development, where we determine what actions and resources are needed to solve the problems. And the third function is assurance, where we make sure the job gets done.

As individuals, employees may specialize in a particular function. For example, our field employees specialize in assuring the American public that the job gets done. Many of

the employees at Headquarters are responsible for identifying public health problems; and others, for using that information to develop policies. Thus, it is a multitude of individual efforts which each one of us employs every day that contribute to FSIS becoming "a trusted public health regulatory agency".

FSIS: The Organization

Now that we've answered the "What is FSIS" question, let's shift gears a little before we go into more detail explaining the "Who is FSIS". As a part of our FSIS family, we want to make sure that you have what you need to make your new transition as easy as possible. Our standard is to provide you with quality services and benefits, which hopefully exceed your expectations.

FSIS Offices

The organizational structure of FSIS enables us to better execute our responsibilities as a World Class Public Health Regulatory Agency. We are a large agency with over 10,000 employees housed throughout the nation.

We will visit each of these units and see how we work together to accomplish our food safety activities.

Program Areas

- Office of the Administrator
- Office of Field Operations
- Office of Investigation, Enforcement and Audit
- Office of Public Health Science
- Office of Policy and Program Development
- Office of the Chief Financial Officer
- Office of International Coordination
- Office of Employee Experience and Development
- Office of the Chief Information Officer
- Office of Management (Human Resources)
- Office of Public Affairs and Consumer Education
- Internal Affairs
- Office of Planning, Analysis and Risk Management
- Significant Incident Preparedness and Response Staff

Office of the Administrator

The Office of the Administrator (OA) oversees FSIS' major programs. The Office of the Administrator overseas the civil rights staff, the emergency Coordination function, and the food defense assessment function.

The Civil Rights Staff provides advice, guidance and assistance on the implementation, management, compliance with Equal Employment Opportunity programs, and manages the alternative dispute resolution, mediation EEO & non EEO. This office works to ensure fair and equal treatment to internal and external customers.

Office of Field Operations (OFO)

The Office of Field Operation (OFO) manages a program of regulatory oversight and inspection to assure that meat, poultry, and egg products are wholesome, safe, and properly packaged and labeled. OFO is the largest program area within the FSIS, managing about 85% of the Agency's resources and about 90% of its human resources. Field Operations employs about 7,200 field inspection personnel including Food Inspectors, Consumer Safety Inspectors, Public Health Veterinarians, Veterinary Medical Specialists, and Enforcement, Investigation and Analysis Officers. OFO manages inspection and enforcement activities regulated under the FMIA, PPIA, and EPIA in over 6,000 establishments throughout the United States, Guam, The Virgin Islands, Puerto Rico, American Samoa, and the Northern Mariana Islands. The Office of Field Operation manages the international inspection functions and includes the Import Inspection Division. The inspection personnel are managed through a network of 10 district offices located throughout the United States and to whom about 150 field supervisors report. OFO overseas FSIS outreach function.

Field Operations manages a nationwide program of public health protection through inspection and verification of HACCP systems. This Office is also responsible for enforcing the Humane Methods of Slaughter Act for livestock. It also verifies that other consumer protection requirements (OCP) are met at all federally inspected establishments. OFO staff collects samples during food processing to ensure control of microbiological, physical and chemical hazards; and as needed, verify that establishments appropriately conduct recall procedures. Some specific inspection activities that inspection personnel perform is antemortem inspection on the live animals brought to the establishment including livestock (cattle, swine, sheep, goat, and equine) and poultry. Each animal also receives postmortem inspection (carcass and parts of carcasses) after they are slaughtered. Regulatory and enforcement activities continue throughout the processing, packaging, and labeling of numerous meat and poultry products such as sausages, bacon, hotdogs, hams, meat pies, egg rolls, chicken tenders, turkey rolls, and many others.

Under the Food Conservation and Energy Act of 2008 (also know as the 2008 Farm Bill), FSIS was mandated to inspect catfish. Catfish inspection program manage a nationwide program of regulatory oversight to ensure the safety, security and wholesomeness of domestic and imported catfish. Some of their responsibilities include planning and formulating domestic and international catfish policies, establishing Agency policies and procedures for conducting catfish equivalence evaluations and foreign catfish inspection system audits, conducting audits of foreign country catfish inspection systems, and conducting regulatory compliance activities pertinent to federally inspected establishments and ports of entry. However, the primary function of OFO is within the assurance component of the Public Health Model (assessment, policy development, assurance), and maintain computerized inspection databases on the food safety, food security, and consumer protection programs.

Office of Planning, Analysis and Risk Management (OPARM)

On August 11, 2002, FSIS created the Office of Food Security and Emergency Preparedness (OFSEP). The primary function of this office was to coordinate an Agency response to terrorist threats or deliberate acts of terrorism affecting the supply of meat, poultry, and egg products.

In June 2005, the name of this program area was changed to the Office of Data Integration and Food Protection (ODIFP) which better communicates the comprehensive nature of the program area's mission. In 2018 the name of this program area was changed to Office of Planning, Analysis and Risk Management (OPARM)

Quite often, the terms food safety is confused with food security. Although both are necessary for public health, they require different expertise and experiences along with varying management and prevention methods. These terms are defined as follows:

- **Food safety** involves preventing the accidental or unintentional contamination of food during processing, production, operational deficits, or improper handling.

- **Food defense**, on the other hand, focuses on the prevention of acts of deliberately and intentionally introducing dangerous substances into food.

Some of OPARM's activities and functions are:

Data integration and analysis and predictive analytics activities
Management control function
Strategic planning and evaluation function

Office of Investigation, Enforcement and Audit (OIEA)

OIEA supports the Agency's mission and function through investigation, review, assessment, enforcement and audit capacity to improve management effectiveness, efficiency and decision making. It is through this proactive structure that OIEA alerts the Under Secretary and Administrator of any potential or harmful compromise, or failure, of FSIS programs or operations. In many ways, OIEA serves as the ears and eyes of the Agency.

OIEA activities extend to all areas ranging from field inspection effectiveness and efficiency to food safety policy; involving all matters, ranging from Import surveillance, fiscal accountability , human resource policy, hearing , appeals and to all domestic and international inspection function For example:

Ensures that reviews of establishments for compliance and food safety investigations are carried out in a way most conductive to protecting the public health;
Is the Agency's liaison with the Office of Inspector General and the General Accountability Office. This uniquely positions OIEA to focus on key areas in need of improvement.

Hearings and appeals
Detain product in commerce and requests that a seizure action be filed against such product.

The work of the field Program Investigators in OIEA places them on a daily basis in close proximity to performance and compliance problems and concerns at the in-plant level, which affords the agency the ability to deal with necessary adjustments and problems in a much more immediate and direct fashion than in the past.

OIEA also provides oversight of Federal/State cooperative agreements. Establishments have the option to apply for Federal or State Inspection. Although most of the Nation's meat and poultry is produced under Federal Inspection, there are about 28 states that have established meat and poultry inspection programs for products produce and sold within their jurisdictions. These states must enforce requirements at least equivalent to those of FSIS Federal inspection and operate under a cooperative agreement with FSIS. The Agency provides up to 50% of the State's operating funds, as well as training and other assistance. Additionally, OIEA provides oversight for the Interstate Shipment Cooperative Agreement, whereby some State-inspected facilities can produce and ship products across state lines.

Office of Public Affairs and Consumer Education (OPACE)

OPACE plays a critical role in promoting the Agency's public health mission by conveying a single, unified and consistent message to diverse external audiences, and to all FSIS employees. They are also responsible for conducting public communication programs to inform and educate a variety of audiences about Food Safety and Inspection Service activities, food safety policies, foodborne illness, and safe food handling. These audiences include Congress, Media, Industry, Government, Academia and Consumers.

While the Executive Correspondence and Issues Management Staff prepare the Agency's written responses to food safety correspondence, the Congressional and Public Affairs Office also has a Congressional liaison staff within OPACE. They also are the liaison to the media and other constituents.

OPACE's Food Safety and Education Staff conduct communication activities. These are carried out through a variety of means such as public meetings, the USDA Meat and Poultry Hotline, print and video news releases, media tours, visits to members of Congress and their staffs, speeches, testimony, correspondence, publications, internal memoranda, internal and external news-letters, the FSIS website, and responses to Freedom of Information Act request. OPACE is responsible about the record management function in FSIS.

The Agency's consumer and food handler food safety education campaigns and programs are also handled by OPACE.

Office of Public Health and Science (OPHS)

OPHS provides leadership to FSIS and USDA, and assures the establishment and support of scientifically sound food safety programs and policies to reduce or eliminate foodborne illness.

The OPHS staff (Biologists, Chemists, Computer Specialists, Engineers, Epidemiologists, Food Technologists, Microbiologists, Nurses, Physicians, Public Health Specialists, Risk Analysts, Statisticians, Toxicologists, Veterinary Medical Officers, Veterinary Pathologists and other professionals) develop scientific and public health information related to meat, poultry, and egg products from their conception to consumption; and, uses that information to assess potential human health risks throughout the farm-to-table continuum. This includes the development of scientifically based risk assessments that evaluate the occurrence of foodborne contaminants and the probability of human illness upon exposure to such contaminants. In addition, OPHS scientific experts monitor and analyze production processes, identify and evaluate potential foodborne hazards. They also conduct trace-back or trace-forward investigations to identify product disposition and/or the origin of hazards, as well as participate in the recall of adulterated products.

OPHS operates three FSIS Field Service Laboratories (Eastern Laboratory, Midwestern Laboratory and Western Laboratory) that provide support in the areas of microbiology, pathology, food chemistry, species identification, entomology, extraneous materials, and other scientific disciplines. This Office also manages the Accredited Laboratory Program, which grants accreditation to non-federal analytical chemistry laboratories for food chemistry, and several classes of chemical and drug residue. Another component is the Food Emergency Response Network Division (FERN), housed within the Eastern Laboratory. FERN's role is to assist in the development and oversight of an integrated network of laboratories that can quickly respond to food-related emergencies. Through laboratory results, and other function work within OPHS, Agency initiated regulatory issues and policies (e.g. performance standards) have sound science based support.

Office of Management (OM)

The Office of Management (OM) is a support organization made up of a diverse group of over 400 employees who work in Washington, D.C. and Beltsville, MD. In addition to the offices in DC, there are also field offices, including the Human Resource Field Office in Minneapolis, MN. They serve in a variety of administrative, technical, professional occupations. These folks provide a full range of centralized administrative and support services; in addition to assisting in the day-to-day management of FSIS. FSIS personnel cannot do their jobs without the people in OM.

OM provides a full range of administrative and support services to FSIS including:

Business systems improvement;
Personal and real property;
Health and safety;
Labor and employee relations;

Contracting;
Procurement;
Workforce violence prevention; and
Management improvement and internal controls.

At FSIS, our Human Resources Division (HRD) within the Office of Management, supports and enhances the Agency's food safety mission by providing our employees with human resource services that are customer focused and timely. HRD provides services in the areas of:

Employee benefits and workers compensation
Position classification and position management
Personnel processing

Office of Policy and Program Development (OPPD)

The Office of Policy and Program Development (OPPD) is responsible for developing and recommending all domestic and international agency policy for the Food Safety and Inspection Service. This includes:

Gathering information and conducting analyses necessary to set policy for domestic inspection, export, and equivalency function.
Developing regulations,
Establishing new programs and systems,
Establish general labeling, food additives, labeling and product composition aspects,
Modifying existing standards and programs, and
Providing technical support.
Managing small plant help desk.

OPPD collaborates with other offices within FSIS to ensure statutory mandates are met. They also work closely with the Office of Field Operations in developing procedures and methods for conducting inspections of livestock, poultry, processed products, and egg products. It also establishes and modifies product standards, inspection systems methodologies, and enforcement strategies.

OPPD reviews new technologies that companies employ to ensure that their use is consistent with Agency regulations and will not adversely affect product safety, inspection procedures, or the safety of FSIS inspectors. It also serves as the Agency's center for technical assistance, advice, and guidance for OFO personnel and the industry. This includes technical guidance and assistance in the implementation of national policies, programs, systems, and procedures.

Office of Employee Experience and Development (OOEED)

This program area ensures that all FSIS personnel have the necessary training to effectively carry out their assigned duties. OOEED has three branches: the Center for Learning Division, Training Transformation and Distance Learning Staff, and The Employee Engagement and Recognition Staff

OOEED provides leadership in implementing training and development policies by assessing, planning, developing, and conducting various technical and non- technical programs, activities, and resources for the Agency's workforce.

Summary

So, now you have a closer look at Food Safety and Inspection Service and our many food safety activities.

We started with about 10,358 employees. That number has increased. You have joined us, and together we can accomplish our mission. As we conclude this part of your orientation, let's work daily toward supporting our mission:

The Food Safety and Inspection Service (FSIS) is the public health agency in the U.S. Department of Agriculture responsible for ensuring that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged.

Public Health Mission

This module covers an overview of the essentials of a public health regulatory agency. FSIS is a public health regulatory agency.

Objectives

After completing this module, you will be able to:

1. Describe what makes FSIS a public health regulatory agency.
2. Describe your role as a Food Inspector in FSIS.

Resource Materials

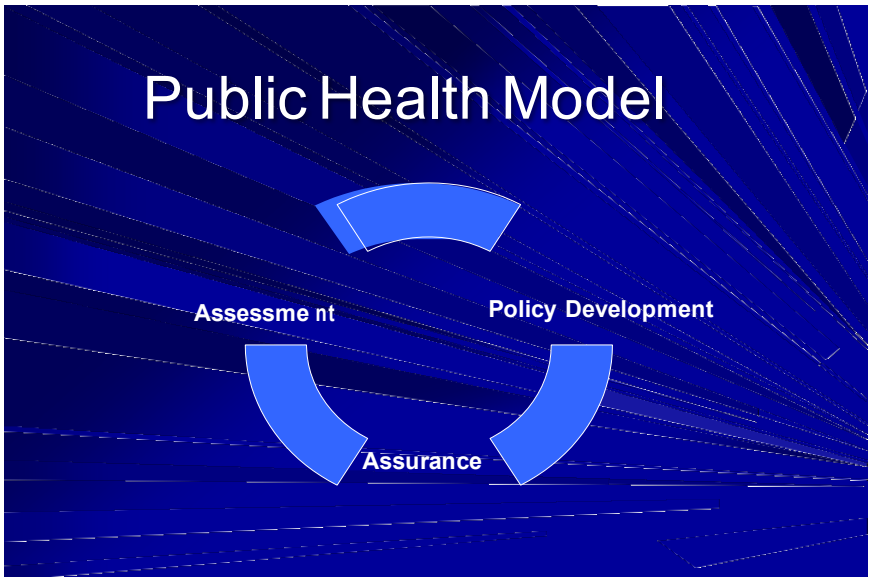
A Description of the U.S. Food Safety System
Food Safety: A Team Approach
Milestones in U.S. Food and Drug Law History

The Public Health Model

There are some key features of a public health agency. These features are outlined in the public health model. This model applies to all types of public health institutions – such as the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), the Centers for Disease Control (CDC) – as well as to FSIS.

The 3 parts of the public health model are:

Assessment
Policy Development; and
Assurance.



Adopted from Institute of Medicine's Future of Public Health Report, 1988.

The Assessment component:

The assessment component is focused on gathering, analyzing, and interpreting data about public health problems using science. Some examples of the activities in FSIS related to assessment include surveillance, identifying needs, analyzing the causes of problems, collecting and interpreting data, case-finding, monitoring and forecasting trends, research, and evaluation of outcomes. The part of FSIS that has primary responsibility for assessment in FSIS is the Office of Public Health and Science, or OPHS. However, you will do some of this in your daily work as well.

The Policy Development Component:

A second component of a public health agency is the policy development function. This function uses information from the assessments to develop and implement policies that reduce the risk of foodborne illnesses. Some examples of policy development activities include planning and priority-setting, the development of regulations, directives and other policy vehicles, mobilizing resources, training, constituency building and distribution of public information, and encouragement of public and private sector cooperation. The Office of Policy, Program and Employee Development has the major responsibility for policy development in FSIS. Some examples of policy documents and policy guidance include regulations, Directives, and Notices. When there is an emerging issue affecting public health, such as the discovery of a cow that tested positive for BSE in January of 2004, FSIS must develop a policy that responds to that issue. Therefore, FSIS policies are dynamic and change to meet the challenges facing public health. You will be responsible for carrying out the policies in your day to day activities.

The Assurance component**:**

The assurance component of a public health agency is responsible for the implementation of legislative mandates as well as statutory responsibilities. In FSIS, we do this through a strong inspection program. We must assure the American public that the USDA mark of inspection found on meat, poultry, and egg products means what it says – that product is safe, wholesome, and properly labeled. The Office of Field Operations (OFO) has the primary role for assurance in FSIS. You, as a Food Inspector, are assigned to work within OFO.

Overview of the Role of AM/PM Inspection in Food Safety Strategy

As a Food Inspector, you will be working as a member of a team. The job you perform is sometimes called “on-line” inspection. That’s because you will stand on the slaughter line to inspect carcasses and parts. Your other FSIS team members work off-line, or off the slaughter line. They include the Consumer Safety Inspectors and the IIC.

In 1996, FSIS published the Pathogen Reduction HACCP Systems final rule. The rule established the following requirements for establishments.

- Sanitation Standard Operating Procedures (SSOPs), and Sanitation Performance Standards
- Generic *E. coli* testing by establishments
- Hazard analysis and HACCP plan
- Pathogen reduction performance standards for *Salmonella and Campylobacter*. This testing is done by FSIS off-line personnel.

Ante mortem inspection

During ante mortem inspection, inspection personnel observe all livestock at rest and in motion. Any animals that exhibit abnormalities are segregated for further examination by the Public Health Veterinarian (PHV). In livestock post mortem inspection, PHVs examine all animals that have been segregated for abnormalities. Based on the

disposition of the PHV, the livestock are either condemned, tagged as U.S. Suspects, or passed for slaughter.

For poultry ante mortem inspection, the birds are observed in their coops. Abnormal flocks are segregated and either condemned or withheld from slaughter.

Ante mortem inspection is our first line of defense. Through ante mortem inspection, some diseases are detected that cannot be detected during post mortem inspection.

Post mortem inspection

In poultry slaughter, you will perform a sequence of inspection procedures on each carcass, including the viscera of the bird. You will retain birds with abnormal conditions for disposition by the PHV.

In livestock post mortem inspection, you will examine each carcass and the parts. In livestock post mortem inspection, you perform a special sequence of inspection procedures. In large plants, there is more than one inspection station, and you may rotate through each station. The carcass, its viscera, and the head of livestock must be inspected. When you observe an abnormality, you retain the carcass or part so that the PHV can make a final disposition on the carcass or part.

Any carcass or part that is trimmed or handled in some way by the establishment to remove a disease or condition is subject to reinspection. The reinspection of the carcass or its parts is usually done by off-line inspection personnel.

Post mortem inspection can detect food safety defects, such as fecal contamination. It can also detect quality defects known as other consumer protection.

Roles in Post Mortem Inspection

Your role will be to inspect each carcass along with heads (if it is livestock slaughter) and viscera on the slaughter line. You will be focusing on product as you look at each carcass. But you may be able to detect trends. One of the most important roles you play is to communicate with the off-line inspection personnel when you observe a contaminated or abnormal carcass or part.

The off-line inspection personnel focus on verifying that the establishment is maintaining process control. The Inspector In Charge (IIC) will make an assessment of the overall system. The IIC will also monitor and determine the effectiveness of FSIS carcass and verification inspection.

When you notice a trend in defects, you must notify the off-line inspectors. Later, you'll learn that the conditions under which you notify the off-line inspectors have to do with problems with presentation, sanitary dressing of the carcasses, and contamination.

When you notify the off-line inspectors, they will check downstream – or farther down the slaughter line – to investigate whether the establishment is taking action to address the condition you are reporting.

So, to summarize, you have learned the key features of a public health agency can be found in the public health model. The 3 parts of the public health model are Assessment, Policy Development and Assurance. FSIS accomplishes assurance through a strong inspection program.

As the on-line inspector, you will detect individual defects and trends. Your findings will trigger the off-line inspectors to review the establishment's process control systems. Remember that you are our first line of defense to product public health. You are very important part of the food safety team.

PLANT FAMILIARIZATION: Characteristics and Manufacturing Processes - Poultry

Objective

After completing this module, participants will be able to describe the characteristics of the regulated industry, the processes used, and manufacturing principles related to the poultry industry.

INTRODUCTION

The purpose of this module is to give you a brief introduction to the poultry industry. We will not be covering the details of how we regulate the poultry industry; this is addressed in other modules. This module will give you an overview of the processes used and the products produced by the establishments that we regulate. During the module, you'll see some video footage of different ***production processes***. These are shown as examples, not as standards. Each plant is unique, and the production processes used by plants in your assignment are likely to differ in detail from the ones we present in this module. There are a wide variety of products produced and a number of different activities conducted by regulated establishments. The industry as a whole is dynamic, in that over time, production of products that are not favored by consumers are decreased or discontinued, and new products are created to meet consumer needs.

This section of training is about the nature of the regulated business. As regulators, we must have a general knowledge about the processes that the industry uses to produce products. There are many different types of equipment, processes, and products that might be produced in processing plants. We are going to familiarize you some of this information. This information is important because it has an impact on some of the establishment's decisions when designing food safety systems. Having this knowledge will help you understand how to perform off-line inspection procedures. We will cover some information about the technical aspects of the processes covered by this training. We will also cover some information about the science, especially as it applies to food safety.

We have organized these materials by what FSIS calls ***processing categories***. These processing categories are addressed and defined in the Pathogen Reduction/Hazard Analysis and Critical Control Points (PR/HACCP) regulations, 417.2 (b). The 9 different processes include the following:

Slaughter
Raw product – Intact
Raw product – Non Intact
Heat treated but not fully cooked - not shelf stable

Fully cooked - not shelf stable
Product with secondary inhibitors - not shelf stable
Not heat treated - shelf stable
Heat treated - shelf stable
Thermally processed - commercially sterile

The focus of this module will be on the processing categories that are covered in the slaughter process: Slaughter, Raw Product- Intact and Raw Product- Non Intact.

Every product produced by an establishment (when the hazard analysis reveals any food safety hazard that is likely to occur) must be produced according to a written ***HACCP*** plan. Many different products may be grouped within a single processing category, as long as the food safety hazards, critical control points, and critical limits are essentially the same.

In this module we will discuss both quality and safety issues. Both of these issues are important to both the agency and the industry. There are many quality issues, sometimes referred to as ***non-food safety consumer protection***, which would render product adulterated. Some examples are products with low net weights or with water added above allowed limits. Safety or ***public health protection*** issues are given an extremely high priority because of the potential to cause food-borne disease outbreaks. The most common hazard to public health is the presence of harmful bacteria. Throughout this module we will point out processes where quality or safety issues are important.

SLAUGHTER PROCESS

Slaughter is the process whereby healthy, live poultry are humanely stunned, bled, de-feathered, and eviscerated. The resulting carcass may be cut up and/or processed in some fashion. During the process, inedible waste and products (e.g., products not used for human food such as the feathers) are produced. Edible byproducts (e.g., livers and gizzards) are also produced.

SLAUGHTER - includes all poultry classes. Some examples are whole chickens and turkeys. Some of the products, such as whole poultry, will be distributed for sale following the slaughter process. However, most products go for further processing.

Poultry slaughter process

In addition to the different ***kinds*** of poultry, or ***species***, such as chickens or turkeys, there are also different ***classes*** of poultry. Classes are groups based on physical characteristics like age or sex, such as fryers, roasters, or hens.

The process diagram for poultry slaughter is found as an appendix at the end of this module. The birds are received by the establishment in cages. Before unloading the birds from the truck, ***ante mortem inspection*** (process to detect and condemn animals that are unfit for slaughter) is performed. This inspection is done to identify any disease conditions in poultry. Some disease conditions are unacceptable because they may affect human health. Others are unacceptable from a quality standpoint.

After receiving the live poultry the first step in the slaughter procedure is unloading the birds from the cages onto a conveyor belt where they are delivered into a dark room with a minimum of excitement and discomfort.

Thereafter, the birds are hung, stunned (electrical current), and then passed through a –kill machine‖ which severs the carotid arteries in the neck resulting in death by the rapid loss of blood (***exsanguination***).

At this point the birds are scalded; thereafter, they go through the picking process (feather removal), head removal, and other dressing processes until they are transferred to the evisceration line. The establishment may use a variety of methods and types of machinery to accomplish each of these steps.

The presentation step entails placing the carcass and its visceral organs in position to facilitate inspection for disease conditions.

After the inspection step is completed the next subsequent steps are removal of the viscera, neck removal, and further dressing procedures.

The processing of byproducts may be covered in either the slaughter HACCP plan, or in another processing category.

The ***salvage*** step refers to interventions the plant employees would perform to remove contamination, bruises, or other unwholesome conditions from a carcass, so that the carcass is acceptable for human consumption and eligible for the marks of inspection.

Poultry chilling is the last step in the dressing procedure and is usually done in a large container of chilled water called a ***chiller***, which holds a large number of poultry carcasses. It is very important that the chiller water does not become contaminated with fecal matter from any poultry carcass, because it could potentially contaminate ***all*** carcasses that enter the chiller. The amount of time birds spend in the chiller is a quality issue because the birds gain water weight.

As mentioned before, the plant may use a variety of equipment to accomplish poultry slaughter, such as an automatic stunner, an automatic scalder, a picker,

an outside bird washer, an eviscerating trough, oil sac cutter, etc., to allow it to process thousands of birds per hour.

Poultry Slaughter Interventions

The poultry industry has historically depended upon knife trimming, chlorine, and water washing to address carcass contaminants. In recent years, scientific research has brought new interventions to the young chicken slaughter process, which we will look at now. Please review directive 7120.1 for more information on safe and suitable ingredients used in the production of meat, poultry and egg products.

• Antimicrobial Sprays or Dips

Many establishments have added antimicrobial carcass treatments after the final carcass wash and prior to chilling. Some chemicals commonly used include the following:

Trisodium Phosphate (TSP)—this compound is being used in many establishments as a drench, spray, or dip and has been shown effective in preventing the attachment of bacteria to the skin.

Acidified Sodium Chlorite (Sanova®)—Applied at ambient temperature by spray, this compound has been shown to achieve an average reduction in *Salmonella* prevalence of 27% and an average reduction of *Campylobacter* prevalence of 25%. Applied as a spray or dip.

Chlorine—used as a spray, it has been shown to produce a significant reduction in bacterial numbers.

• Hot Water Sprays

Hot water sprays (140º F), with or without chlorine, are being used on a trial basis to determine the effectiveness of reducing bacterial pathogens. Initial results showed a significant reduction in *Campylobacter* on the carcasses.

• Chiller Treatments

Several chemicals have been investigated as antimicrobial additives to the chiller water, but the most commonly used in practice are *chlorine* and *chlorine dioxide*. Chlorine is the most widely used sanitizer in poultry. Chlorine dioxide may be used in chillers. Both have been shown to control cross-contamination by killing bacteria in the water and preventing their

transfer from one carcass to another. Some poultry slaughter establishments are using a system which injects ozone into the chill water tank in order to reduce the numbers of bacteria in the water.

Multiple Hurdle Approach

Studies have shown that, rather than rely on any one intervention, it is more effective to use the –multiple hurdle‖ approach to pathogen control. In using this approach, an establishment will utilize multiple interventions at various steps of the process to achieve the maximum reduction in bacterial numbers on the carcass. For example, a poultry slaughter establishment may utilize a TSP rinse followed by chorine treatment in the chill water. Some commercial applications have combined these different interventions to provide an enhanced antibacterial effect.

RAW PRODUCT – Intact

The RAW PRODUCT – Intact - This HACCP processing category applies to establishments that further process directly following the slaughter processing steps or after receiving raw products. The processing steps at the establishment include the meat fabrication or poultry cut-up.

Cut up

Cut refers to creating the various cuts from the carcass to produce particular types of product. Packaging materials, such as wax treated paper or plastic film; protect the product from damage during refrigerated or frozen storage. The final step is distribution, either to other departments in the same plant, other plants, or to retail markets. Examples include cut-up chicken such as legs, thighs, breasts or wings.

Byproducts

The processing category of RAW PRODUCT – Intact includes edible byproducts. Consumer demand has had an effect on production levels of various byproducts.

Edible byproducts - Some of the edible byproducts include hearts, livers, and gizzards. They may be sold as fresh or frozen items, or used to make other processed foods.

RAW PRODUCT – Non Intact

This processing category includes all raw products that receive further processing by grinding, comminuting, injecting product with solutions, or mechanical tenderization by needling, cubing, pounding devices or other means of creating non-intact product.
Some of the common products are ground poultry products.

MECHANICALLY SEPARATED PRODUCT

Often, the industry searches for ways to yield the maximum edible, wholesome product from the meat or poultry carcass. The mechanical separation process is a technology that industry uses to obtain more usable product from bones from which the muscle has been removed. Often, you will see these products referred to as ***"mechanically separated (species) or MS (species)".***

The process begins with bones. Poultry carcasses for this process have usually already had most of the muscle tissues removed by hand or machine boning. These carcasses are sometimes called -frames‖ or -shells‖. The bones are

ground up, and the resulting mass is forced through a sieve. The softer muscle particles are thus separated from the hard bone particles, which remain behind the sieve. The resulting product has a paste-like consistency.

Great pressure is used to force the product through the sieve, and this result in a temperature rise in the product. Therefore, product must be processed quickly and the temperature immediately reduced, in order to prevent oxidation and microbial degradation of the product. Even with these precautions, this product will deteriorate quickly. Although mechanically separated product has many of the characteristics of poultry and may be used as an ingredient in the formulation of quality food products, it is not poultry, as defined in the regulations. In particular, the consistency of mechanically separated product and its mineral content are materially different from those of poultry. There are specific limits on the quantity and size of the bone particles included in the final product. There are also limits on how much of the mechanically separated product that can be used in meat or poultry products, and it must be identified in the ingredients statement of the label.

Establishments differ in how they design their production processes, and you may see many variations of the basic processes that we illustrate. Poultry for use in ground products may come into the establishment from outside suppliers, or it may be produced within the establishment during fabrication and boning operations. Dry ingredients and packaging materials will come from outside suppliers. Many establishments use a combination of suppliers, depending on the cost and type of product available from each.

Written purchase specifications are developed by some establishments to ensure that a consistent product is received. Specifications are formal agreements between the supplier and the purchaser, and may include quality aspects, such as portions of lean and fat, and safety factors such as laboratory testing for pathogens.

Non-meat Ingredients

Sometimes ground products contain non-meat ingredients. Ground products are often seasoned with salt, sugar, spices, or other flavorings. Depending on the product being made, water may be added, and some product formulations include binders and extenders such as soy flour or nonfat dry milk.

Establishments use a specified recipe, called a ***formulation***, to create a consistent product batch after batch. The formula lists the weights or percentages of ingredients to be used. Meats and other ingredients are weighed before use to ensure that the proper amount of each is added to the batch.

Storage

Poultry products must be maintained at refrigeration temperatures adequate to prevent spoilage and growth of pathogens.

Refrigeration achieves several purposes. It slows the growth of microorganisms, including spoilage bacteria and pathogens. It slows down metabolic and enzymatic activities within the meat tissues that would lead to product deterioration. It also reduces moisture loss from the product.

Chiller or cooler temperatures in the range of 38 - 45 F will substantially retard most pathogen growth. Chiller storage is temporary, however, because even at these temperatures, the spoilage organisms will continue to grow, although at a very slow rate. Freezers, generally maintained at -10 F or below, halt the growth of all bacteria. Product kept at these temperatures will maintain safety and quality for longer periods of time.

Reduction of Particle Size

Comminution is the process of reducing the particle size of poultry. Several different machines are used, including the flaker, the grinder, and the bowl chopper. Some producers use a combination of several of these in the production of a product.
The ***grinder*** consists of a hopper into which the poultry trimmings are placed. The meat then moves along an auger or screw, through a cylinder, at the end of which is a grinding plate and a knife. As the poultry is pressed up against the plate the knife turns and cuts off small bits of the poultry. The size of the particle produced is determined by the size of the holes in the grinding plate.

Another method of reducing particle size is the ***bowl chopper***. This machine consists of a metal bowl that revolves and a metal knife that rotates, cutting through the poultry pieces in the bowl. The bowl chopper also mixes product as it chops it.

The ***flaker*** is used on large frozen blocks of poultry. Product is pressed against the knife blades, which shave off pieces of the still-frozen poultry, enabling it to be used in formulation without thawing.

After comminuting, products are mixed thoroughly. Often product is transferred to a separate piece of equipment, called a mixer or blender, in order to mix it. The ***mixer*** consists of a chamber that the ingredients are placed into, and blades or paddles that turn and mix the product, resulting in a uniform distribution of fat and lean particles. Non-poultry ingredients, if used, are added at this stage.

After comminuting and mixing, the ground meat mixture is often ***shaped*** into different forms. Ground poultry is often shaped into patties using a patty machine. After formation, the patties may be frozen.

Because of the moving metal parts common in these operations, there is a possibility of metal chipping or breaking. Proper maintenance of equipment is essential to reduce this possibility. Some establishments use a ***metal detector*** to identify product that may be contaminated with metal fragments.

The final step for ground products at the processing establishment is ***packaging and labeling***. Product may be packaged into retail size packages, into larger containers for institutional use, or into bulk containers for sale to other establishments for further processing. Labels must accurately reflect the product.

Trace Back and Trace Forward

Although the grinding establishment may not have access to records of the farm sources of their raw material, or records maintained by the plants that slaughter, dress, and bone their raw materials, they should purchase raw materials from suppliers that maintain such records. Establishments should also maintain records of distribution of products. These records can facilitate trace back and trace forward in the case of a recall or of an outbreak of foodborne illness.

Some establishments have developed a production coding system for tracking purposes. These systems enable the establishment to track the product from the raw material source up to the finished product. Some establishments use the period of time between clean-ups as a production lot. This is because all product produced between clean-ups would be implicated in a recall.

Rework

Rework is sound finished product that is reincorporated into a batch of fresh ingredients prepared to make similar finished product. Establishments also sometimes choose to develop a rework tracking system to reduce the amount of product that would be implicated in a recall. Some establishments include all rework at the end of the production day, or divert it to cooked product processing departments. There have been instances where a product recall was greatly affected by the establishment's ability to track the use of rework.
-

Processing Categories

9 CFR 417.2(b) requires establishments to develop and implement a written HACCP plan covering each product produced by that establishment whenever a hazard analysis reveals one or more food safety hazards that are reasonably likely to occur. The regulation lists processing categories that group products by major processing parameters.

A single HACCP plan may be written for **multiple products** within a single processing category, as long as the hazards, critical control point, critical limits, and other HACCP regulatory requirements are essentially the same.

Some products can fall into more than one processing category. Another establishment might group all of these products into one HACCP plan. The important focus is not what processing category, but rather whether all of the regulatory requirements have been met.

Examples Of Products In Each Process Category		
Slaughter	**Raw—Intact**	**Raw—Non Intact**
Chicken, whole	Chicken parts	Ground chicken
Turkey, whole	Boneless, skinless parts	Ground turkey
Duck, whole		Mechanically Separated
Edible offal	Turkey leg	Turkey Italian sausage
Rock Cornish hen	Necks and giblets	Turkey breakfast sausage

WORKSHOP

Instructions: For each product listed below, identify the appropriate processing category.

Product		**Processing category**
1.	Chicken liver	
2.	Whole turkey	
3.	Chicken breast	
4.	Chicken fingers	
5.	Ground chicken patties	
6.	Whole chicken	

Define the following industry terms:

Pathogens

Comminution

Formulation

What is the food safety significance of the following procedures?

Chilling

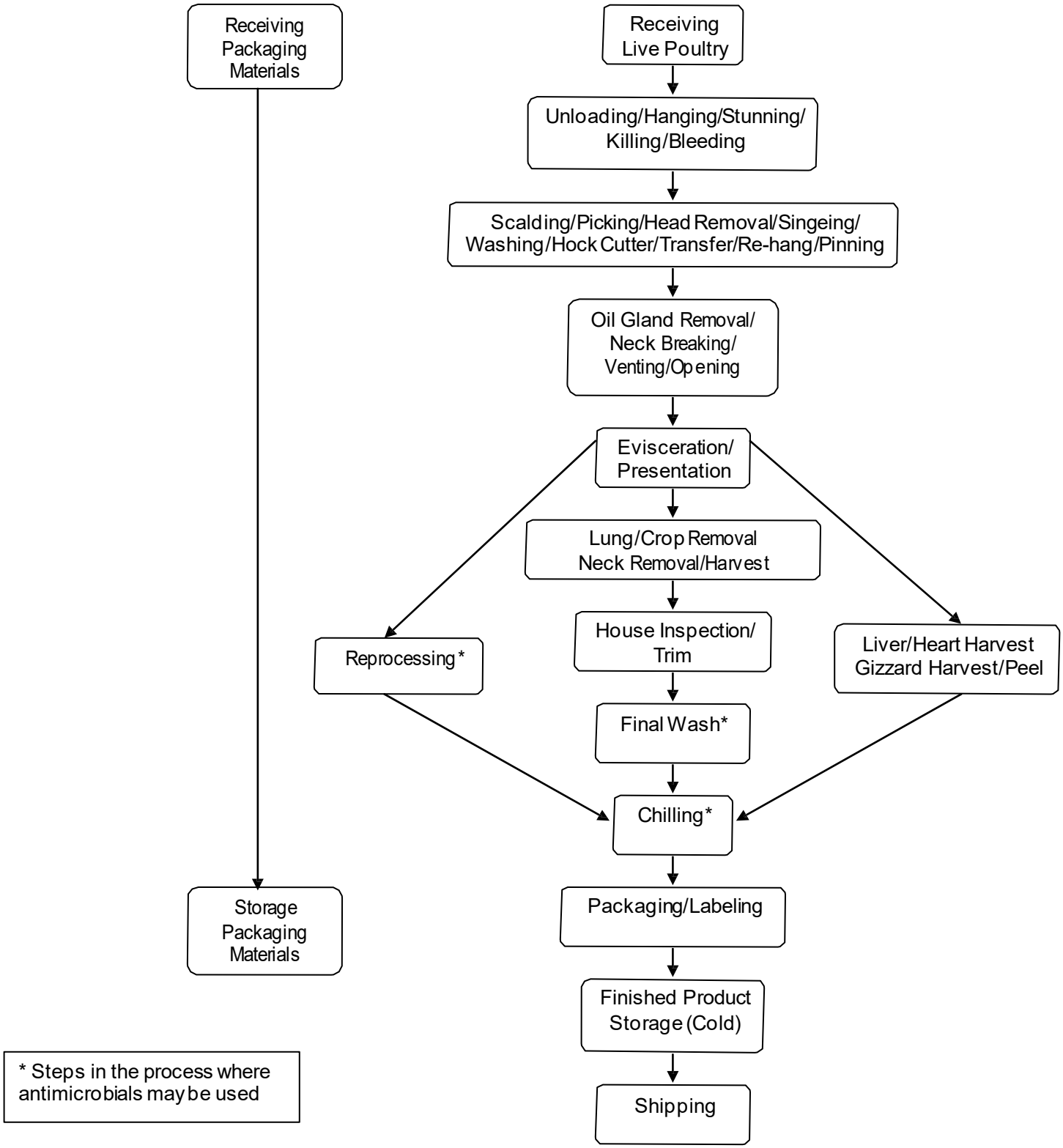
Evisceration

Grinding

PROCESS FLOW DIAGRAMS

The following process flow diagram is an ***example*** of a format that you may see in use by the industry. Please keep in mind that these are to be used as a classroom aid only.

SLAUGHTER (03J) FLOW CHART
Example product: Young Chicken



Regulatory Environment

This module covers an overview of the regulatory framework that is used by the Food Safety and Inspection Service (FSIS). This module provides you with information about the context in which you work. It is an overview of the regulatory framework for the Food Safety and Inspection Service (FSIS). As an agent of the federal government, you need to understand your legal responsibilities and the consequences that result when establishments do not comply with the laws and regulations governing meat, poultry, and egg products.

OBJECTIVES

The objectives of this training are as follows.

1. Understand where FSIS derives its authority.

2. Identify what is covered by the Federal Meat Inspection Act (FMIA), Poultry Products Inspection Act (PPIA), and the Egg Products Inspection Act (EPIA).

3. Understand what regulations are and where they come from.

4. Understand what Directives are and where they come from.

5. Understand what Notices are and where they come from.

6. Understand the relationship among statutes, regulations, directives, and notices.

7. Understand the many definitions of the term “adulteration”.

Most of your daily work will be guided by the directives and notices. But these are based on regulations and the statutes.

Statutes

Let’s go back to the first objective – to understand where FSIS gets the legal authority to regulate meat, poultry, and egg products. This legal authority can be traced all the way back to the United States Constitution. The Constitution grants the authority to regulate commerce among the states. The Federal Meat Inspection Act (FMIA), Poultry Products Inspection Act (PPIA), and Egg Products Inspection Act (EPIA) were all adopted by Congress under that authority.

The FMIA applies to all carcasses or parts of carcasses of cattle, sheep, swine, goats, horses, mules, and other equines or the meat or meat products thereof which may be brought into any slaughtering, meat canning, salting, packing, rendering, or similar establishment. It includes sections on ante mortem inspection, humane methods of slaughter, post mortem inspection, the marks of inspection, sanitary practices, and prohibited acts.

The PPIA covers poultry carcasses, parts, or any product which is made wholly or in part from any poultry carcass or part. It includes sections on ante mortem inspection, post mortem inspection, sanitary practices. We will discuss these sections in greater detail as we continue.

Each of these Acts is intended to protect the health and welfare of the consuming public by preventing the introduction of adulterated or misbranded meat, poultry, or egg products into commerce. To illustrate, here's an example of a Congressional statement of findings from the FMIA (Section 602).

> *"Meat and meat food products are an important source of the Nation's total supply of food. They are consumed throughout the Nation and the major portion thereof moves in interstate or foreign commerce. It is essential in the public interest that the health and welfare of consumers be protected by assuring that meat and meat food products distributed to them are wholesome, not adulterated, and properly marked, labeled and packaged.."*

The PPIA Section 451 contains a similar statement of findings:

> *"Poultry and poultry products are an important source of the Nation's total supply of food. They are consumed throughout the Nation and the major portion thereof moves in interstate or foreign commerce. It is essential in the public interest that the health and welfare of consumers be protected by assuring that poultry products distributed to them are wholesome, not adulterated, and properly marked, labeled, and packaged."*

Here are a few other things that you need to know to understand where FSIS derives its legal authority for regulating meat, poultry, and egg products. One is that FSIS is an Agency within the U.S. Department of Agriculture. Another is that FSIS is the agency in the office of the USDA's Undersecretary for Food Safety. FSIS is a statutory agency in that the legal authority you carry out in your daily activities comes from the statue or the acts that we just mentioned. The Secretary of Agriculture charges FSIS with exercising his or her authority under the FMIA, PPIA, and EPIA. The acts granted the legal authority for regulating meat, poultry, and egg products to the Secretary of Agriculture, who in turn has delegated it to FSIS. So, now you should understand that the authority for the actions that you take can be traced up through the Secretary of Agriculture and back to the statutes that were promulgated by Congress. As you go about your daily activities as Food Inspector, you should be conscious of the fact that everything that you do is based on these statutes. We must be able to trace the legal authority for enforcement actions back to a statutory basis. You do not need to be a legal expert to perform your job duties effectively. But you do need to have an awareness of where these authorities come from. You can find the statutes on the web.

Regulations

Let's talk about how FSIS implements the statutes. Inspection personnel are charged with carrying out the Acts. However, you will not use the Acts to guide our day to day work. FSIS issues documents that define for inspection personnel, the regulated

industry, and the public how these Acts will be carried out. These documents are the ones that will guide you in your daily activities. But, their basis is in the Acts.

The documents that clarify the statutes are called regulations. As mentioned earlier, most of your work will be guided by the regulations. Citations from regulations are used when completing a Noncompliance Record (NR). NRs will be completed by off-line inspection personnel and the Inspector In Charge (IIC). Regulations are adopted by a public process that involves notice and comment rule making.

Let's talk about the steps involved in the rule making process. First, the Agency publishes a proposed rule. In this proposed rule, FSIS sets out its initial thinking on a topic. The proposed rule may result from legislation that requires the development of a rule, from a request by the Administrator or other federal management official, or some other reason (e.g., external event). A great deal of background work, including collecting and analyzing data, often goes into the development of a proposed rule. A proposed rule is developed by a docket team. FSIS Directive 1232.4 describes how a docket team is established and the process used to develop a proposed rule. The proposed rule is published for public review in the Federal Register. You can see a current list of proposed rules on the FSIS web site under the section for Federal Register Publications. Once the proposed rule has been posted, the public, including members of the regulated industry, academia, consumer groups, and private individuals have the opportunity to comment on the proposal. The comment period usually lasts sixty days.

After reviewing and considering all of the comments on the proposed rule, the Agency then publishes a final rule. Examples of some significant rules recently published include the Pathogen Reduction and HACCP rule (in 9 CFR section 417) and the Control of *Listeria monocytogenes* in Post-lethality Exposed Ready-to-eat Products (in 9 CFR 430.4).

Each regulation has an effective date. Sometimes the effective date follows very closely with the publication of the regulation. At other times, there is a period of several months between the publication of the final regulation and the effective date to allow the regulated industry time to make changes to implement the provisions of the regulation. In some cases, the effective date for large establishments differs from the effective date for small and very small establishments. Upon the effective date of the regulation, the regulated industry must take steps to comply with the rule, and FSIS is responsible for ensuring that the rule is implemented appropriately by establishments.

Sometimes, even after being given the opportunity for comment, there is disagreement with the legal basis for the regulation. Even after the regulation has been implemented, interested parties have the opportunity to challenge the regulations in court. For example, a group challenged through court action the Agency's enforcement of the pathogen reduction regulation related to *Salmonella* testing. As a result of the court's ruling, FSIS changed the way it addressed sample set failures.

If you review the FMIA, PPIA, and EPIA, you will see that they are very general in nature. The regulations, on the other hand, are rules that take the general principles of the statutes and apply them to specific situations.

Let's walk through an example that shows how the Acts and the regulations are linked. The example we will use is from the FMIA, Section 603(b). This section covers humane methods of slaughter for livestock. It states,

> *"For the purpose of preventing the inhumane slaughtering of livestock, the Secretary shall cause to be made, by inspectors appointed for that purpose, an examination and inspection of the method by which cattle, sheep, swine, goats, horses, mules, and other equines are slaughtered and handled in connection with slaughter in the slaughtering establishments inspected under this chapter. The Secretary may refuse to provide inspection to a new slaughtering establishment or may cause inspection to be temporarily suspended at a slaughtering establishment if the Secretary finds that any cattle, sheep, swine, goats, horses, mules, or other equines have been slaughtered or handled in connection with slaughter at such establishment by any method not in accordance with the Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1901-1906) until the establishment furnishes assurances satisfactory to the Secretary that all slaughtering and handling in connection with slaughter of livestock shall be in accordance with such a method."*

Note that this section of the Acts references the Humane Methods of Slaughter Act that is found in 7 U.S.C. 1901-1906. The regulation that provides more specific information for inspection personnel about how to carry out the Act is found in 9 CFR 313, "Humane Slaughter of Livestock." A review of the information contained in this regulation will show that it covers specifics such as how livestock should be handled (e.g., driven at a walk with minimum excitement, no sharp objects used, dealing with disabled animals, access to water and feed) and permitted methods of stunning. It also outlines what inspection personnel must do if the establishment fails to comply with the regulation (e.g., notify the establishment, when to issue an NR, conditions under which inspection may be suspended).

You should understand that there is not a one-to-one correspondence between statutory provisions, regulations, Directives, and Notices. For example, a small (or short) statutory provision may result in a very detailed regulation, with multiple Directives, and perhaps Notices as well. Let's look at the statutory provision covering ante mortem inspection – Section 603(a) of the FMIA. This provision reads,

> *"Examination of animals before slaughtering: diseased animals slaughtered separately and carcasses examined. For the purpose of preventing the use in commerce of meat and meat food products which are adulterated, the Secretary shall cause to be made, by inspectors appointed for that purpose, an examination and inspection of all cattle, sheep, swine, goats, horses, mules, and other equines before they shall be allowed to enter into any slaughtering, packing, meat-canning, rendering, or similar establishment, in which they are to be slaughtered and the meat and meat food products thereof are to be used in commerce; and all cattle, sheep, swine, goats, horses, mules, and other equines found on such inspection to show symptoms of disease shall be set apart and slaughtered separately from all other cattle, sheep, swine, goats, horses, mules, or other equines, and when so slaughtered the carcasses of said cattle, sheep, swine, goats, horses, mules, or other equines shall be subject to a careful*

examination and inspection, all as provided by the rules and regulations to be prescribed by the Secretary, as provided for in this subchapter."

This short statutory provision is the basis for 18 different regulations, 9 CFR 309.1 through 309.18. These regulations cover a range of topics including ante mortem inspection of livestock in pens, identifying disease conditions, dealing with dead and dying animals, disposal of condemned animals, specific diseases, residues, livestock used for research purposes, and official marks of inspection.

Directives

When FSIS issues a regulation, we also issue at least one Directive. Directives contain instructions to inspection personnel about how to implement and enforce the rules. Directives provide information about inspection methods, regulatory decision making, documentation of noncompliance, and appropriate enforcement actions. You can find electronic copies of current FSIS Directives on the FSIS web site (search under key word "Directives" or go to the section for Policy Development) or on the FSIS Intranet site. Directives have no expiration date. Inspection personnel are to follow the information contained in the Directives until they are rescinded or replaced.

Remember that when a Directive is issued, it provides the specific instructions for how you and other inspection program personnel carry out a provision of the statute and the regulation. It's the basis for conducting inspection. It may contain some attachments, such as Q&As, Compliance Guidelines for the industry, or specific instructions (e.g., for collecting samples) that clarify for inspection personnel and/or industry how the regulation is to be carried out. Please note that when the attachments to a Directive include Compliance Guidelines, these are not representative of regulatory requirements. Instead they are exactly what their title suggests – guidelines to help industry understand how they can go about complying with the regulations.

Recently published Directives reflect the thought process used in carrying out inspection procedures – not black and white, yes/no answers. This is because the regulations now focus on providing performance standards that give industry room for innovation, rather than a command and control approach that requires all of industry to do the same thing to meet the requirements of a regulation. Let's look back at FSIS Directive 6900.2 to see how it lays out the thought process you are to use in verifying regulatory requirements. The Directive discusses how inspection personnel are to verify compliance with regulation 313.2. This part of the regulation addresses driving livestock, dealing with disabled livestock, and stunning methods. The following questions are posed for inspection personnel to use in a thought process that will lead them to make a determination about whether the establishment is complying with the regulation.

1. Are animals driven from the unloading ramp to the holding pens with a minimum of excitement and not at a running pace?
2. Are electronic prods and other implements used as little as possible to move animals within the establishment?

3. Are animals driven by using an object that would not cause unnecessary pain?
4. Are disabled animals separated from ambulatory animals and placed in a covered pen?
5. Do animals have access to water?
6. Is there sufficient room in holding pens for animals held over night?

Notice that these questions allow the establishment latitude on how they comply with the regulations. If they were written in a command and control format, they would list specifics, such as how often (hours, minutes) animals must have access to water, or detail the amount of water that must be available in relation to the number of cattle in a pen (e.g., so many gallons of water provided per so many head of cattle). However, the black and white, or command and control approach takes away industry's ability to innovate and make improvements in the manner in which they comply with the regulations. Using the thought process often means that you have to work a little harder to make a determination about regulatory compliance. But, it is better overall in terms of the results that are obtained for public health.

In following through with our example of humane slaughter, to show the link between the Acts, Regulations, and Directives, FSIS Directive 6900.2 covers humane slaughter. It's titled, "Humane Handling and Slaughter of Livestock." If you look at the references section on the first page of the Directive, you'll see that the Act 7 U.S.C.1901, 1902, 1906, and the regulation 9 CFR 313 are cited. The background section also covers the Humane Methods of Slaughter Act of 1978, and the regulation 9 CFR 313. Then, the directive provides specific instructions on the verification methods inspection program personnel should perform associated with each part of 9 CFR 313. It outlines questions that inspection program personnel should use to verify that establishments are complying with the regulations, and thus with the Acts. It discusses specific situations, such as ritual slaughter (e.g., Kosher, Halal). Then, it discusses exactly what inspection program personnel are to do if the establishment fails to comply with the regulations. For example, it indicates the type of information to be included on the NR, such as the Humane Activities Tracking System (HATS) category. It outlines the specific circumstances under which inspection should be suspended.

Remember, the Acts require that there be, and provide FSIS with the legal authority to ensure that there is humane handling and slaughtering of animals. Regulation 313 provides more detail about what is required of the industry. FSIS Directive 6900.2 provides specific instructions for inspection program personnel on verifying that industry complies with the regulations. When there is noncompliance in relation to humane handling, it must relate to a provision in the regulations. You must be guided by the regulations when determining noncompliance. It is unacceptable and inappropriate to make a determination that there is noncompliance if it cannot be linked to a regulation.

Notices

Now that you have a good understanding about FSIS Directives, let's talk about FSIS Notices. Notices are instructions to FSIS inspection personnel to address a particular problem that has arisen or to update them on new policy or inspection procedure. Has an expiration date. The need for Notices is often identified by the Policy Development Staff as a result of a number of questions about a specific topic from the field. You can find FSIS Notices on the FSIS website.

Notices are often used as temporary measures until a more comprehensive policy is developed, which may include the issuance of a new regulation and a Directive or Directives. Notices are the shortest and most focused type of direction provided to inspection program personnel.

As an example, Notice 10-19, *"New FSIS Security Paper and Seven Digit Export Stamp for Use with the Export Module of The Public Health Information System – Phase Two"*. It was issued on April 4th, 2019. This notice provides instructions to inspection program personnel (IPP) for using and ordering the new FSIS security paper and information about the seven-digit export stamp for exports processed through the Public Health Information System (PHIS) export module.

Correspondence between acts, regulations, directives, and notices

Acts → Regulations → Directives → Notices

To summarize what we've covered, the statute or the Act, is the legal foundation for our activities. More details about regulatory requirements are set forth in regulations. FSIS Directives and Notices provide specific instructions for your daily work to verify that establishments are complying with the regulations.

During your work, when you find a noncompliance, you know it is a noncompliance because of what you know about the regulations, directives, and notices. Based on what you know, you include a citation of the regulations on the Noncompliance Record. When you take any type of enforcement action in the establishment, that action needs to be linked through the regulations, directives, and notices to the statute.

Overview of the Statutes

The statutes related to FSIS activities include the:

Federal Meat Inspection Act (FMIA),
Poultry Products Inspection Act (PPIA), and
Egg Products Inspection Act (EPIA).

The FMIA was enacted first, in 1906 after the public outrage stirred up by the writings of Upton Sinclair's book, "The Jungle." How many of you are familiar with this book? It contained graphic and detailed descriptions of the insanitary and abhorrent conditions that existed in meat establishments at the turn of the century in the city of Chicago, which was the heart of the meat processing industry at the time. Excerpts from the book were published in newspapers. With this information as a background, Congress enacted the FMIA.
The PPIA was modeled after the FMIA. When you read it, you will see a number of similarities between the two statutes.

The PPIA, enacted in 1957, was based on the growing poultry industry. Initially, there were two separate Agencies – one responsible for enforcing the provisions of the FMIA and one responsible for enforcing the provisions of the PPIA. This explains why, in some cases, establishments that process both meat and poultry products have two establishment numbers. We will not be covering the EPIA in our review.

Basis for FSIS as a Public Health Regulatory Agency

These Acts provide for the basis for FSIS's ability to perform as a public health agency. In Section 602 of the FMIA, Congressional statement of findings, states the following.

*FMIA Sec. 602. "Meat and meat food products are an important source of the Nation's total supply of food. It is essential in the **public interest** that the **health and welfare of consumers be protected** by assuring that meat and meat food products distributed are wholesome, not adulterated and properly marked, labeled, and packaged… It is hereby in found that all articles and animals which are regulated under this chapter are either in interstate or foreign commerce or substantially affect such commerce, and that regulation by the Secretary and cooperation by the States and other jurisdictions as contemplated by this chapter are appropriate to prevent and eliminate burdens upon such commerce, to effectively regulate such commerce, and to **protect the health and welfare of consumers**."*

These three things - verifying that meat or poultry products are:

(1) wholesome,
(2) not adulterated, and
(3) properly marked/labeled, and packaged

are the essentials of the job you have in protecting public health. All inspection and verification activities focus around one or more of these things that are covered in the Acts.

The Congressional statement of findings in the Poultry Products Act (Section 451) is almost identical to that of the FMIA. Again, it emphasizes public health, and it emphasizes the four essentials – wholesome, not adulterated, properly marked/labeled, and packaged. We'll be going into each of these in more detail as we continue.

> *PPIA Sec. 451. "It is essential in the **public interest** that the **health and welfare of consumers** be protected by assuring that poultry products distributed to them are wholesome, not adulterated and properly marked, labeled, and packaged."*

Another foundation principle is outlined in Section 452 of the PPIA which indicates that inspection is authorized to prevent products from entering commerce that are **adulterated or misbranded**.

> *PPIA Sec. 452. It is hereby declared to be the policy of Congress to provide for the inspection of poultry products and otherwise regulate their processing and distribution…to **prevent** the movement or sale in interstate or foreign **commerce***

of, or the burden upon commerce by, poultry ***products which are adulterated or misbranded***.

Remember, all the things you do or you supervise as part of your job that can be traced back to the statutes to make sure that any meat, poultry, or egg product that is adulterated or misbranded does not enter commerce to protect the public health.

Definition of "Adulterated"

One of the key provisions in the statutes is the provision related to the term "adulterated" product. What does the term "adulterated" mean, and how does it apply to the work that you do? The term "adulterated" is defined in the FMIA under Section 601 and in the PPIA under Section 453. These sections contain all definitions for each statute. The definition is found in FMIA Section 601(m) and PPIA Section 453 (g). The definition of adulterated actually has 9 parts. We're going to focus on the first few parts of the definition because they have the greatest bearing on your daily work.

First, the term "adulteration" applies to any of the following:

carcass,
part thereof,
meat or meat food product (poultry or poultry product)

under one or more of the circumstances described in FMIA Section 601(m) or PPIA Section 453 (g).

Now, let's look at some key parts of that definition.

FMIA Sec. 601(m)(1) and PPIA Sec. 453 (g)(1)
"If it bears or contains any poisonous or deleterious substance which may render it injurious to health; but in case the substance is not an added substance, such article shall not be considered adulterated under this clause if the quantity of such substance does not ordinarily render it injurious to health;"

This definition of adulterated product focuses on **added substances**. Two examples of added substances that have been declared to be adulterants in red meat products include *Listeria monocytogenes (Lm*) and *E. coli* O157:H7. *Lm* is an example of an adulterant in ready-to-eat (RTE) products. It represents an added substance that renders the product injurious to health. Scientific studies have shown that this pathogen is present in the product due to the way in which product is handled or produced. For example, *Lm* is typically present in RTE products because of recontamination that occurs during the processing of product, such as through contact with the environment or with establishment employees, after an initial lethality treatment has been delivered. This pathogen is considered injurious to health because RTE products are not reheated by consumers before they are eaten. Therefore, if this substance is present, products are very likely to cause injury to human health and can even cause death. The only adulterant in non-intact raw meat or meat products is *E. coli* O157:H7. Based on what we know from scientific studies, *E. coli* O157:H7 is considered to be an added substance because it is introduced into the product during processing. For example, it's spread
from the hide or digestive tract of the animals during slaughter or processing. It's

injurious to health because one of the normal ways of cooking this product includes "rare" which is not sufficient to destroy the pathogen. Again, the presence of this pathogen in the product under these conditions is likely to cause injury – and can even result in death.

> *FMIA Sec. 601(m)(2)(A) and PPIA Sec. 453 (g)(2)(A)*
> *"If it bears or contains (by reason of administration of any substance to the live animal /poultry or otherwise) any* ***added poisonous or added deleterious substance*** *other than one which is (i) a pesticide chemical in or on a raw agricultural commodity (ii) a food additive, or (iii) color additive which may, in the judgment of the Secretary, make such article unfit for human food;"*

This second definition of the term "adulterated" relates to the residues of drugs in live animals that have been declared to be harmful to human health. It's a little bit tricky when you read this, because the things listed in (i), (ii), and (iii) are NOT covered in this definition. Remember that the residue testing done by FSIS is based on the statutory authorities of the Food and Drug Administration (FDA). In its pre-market approval programs, FDA considers what, if any, residues of animal drugs should be viewed as safe. FSIS is responsible for enforcing the levels that are established by FDA. The IIC will conduct tests for animal drug residues, such as antibiotics, hormones, or sulfonamides. Because animal drug residues are not pesticides, food additives, or color additives, the Agency is left to prove that the animal drug residue makes the meat product unfit for food. The regulations that cover animal drug residues are found in 21 CFR 556, which are the FDA regulations.

> *FMIA Sec. 601(m)(2)(B) and PPIA Sec. 453 (g)(2)(B).*
> *"If it is, in whole or in part, a raw agricultural commodity and such commodity bears or contains a* ***pesticide chemical*** *which is unsafe within the meaning of section 408 of the Federal Food Drug and Cosmetic Act (21 U.S.C. 346a);"*

This definition of the term "adulteration" covers pesticide chemicals. The Environmental Protection Agency (EPA) has the statutory authority to, in its pre-market approval programs, consider what, if any, levels of pesticide residues, if found on food, can be viewed as safe. FSIS is responsible for enforcing the tolerances that are established by EPA. The regulations related to pesticide chemicals are found in 40 CFR 180. An example of a pesticide chemical for which a tolerance has been established is Daizinon which is used in fields to eliminate fire ants, or the herbicide 2,4-D used in fields to eliminate undesirable grasses or weeds. These pesticides are not normally found in food animals. However, food animals may become exposed to them inadvertently, for example through incidental contact, such as drift in wind at the time when the pesticides are administered in a field, or through accidental ingestion. The IIC will sample products for pesticide residues and send the samples to the appropriate laboratory. In this case, if the residue level for the pesticide chemical is found to have exceeded the tolerance level set by EPA, the product (which may be a carcass or part) is considered to be adulterated based on this statutory definition.

> *FMIA Sec. 601(m)(2)(C)and PPIA Sec. 453 (g)(2)(C)*
> *"If it bears or contains any* ***food additive*** *which is unsafe within the meaning of Section 409 of the Federal Food Drug and Cosmetic Act (21 U.S.C. 348);"*

This definition defines meat or meat products (or poultry or poultry products) bearing any unsafe food additives to be adulterated. All food additives are reviewed for safety before use in food production by FDA. FDA establishes their conditions for use. An example of such a food additive approved under specified conditions is carcass washes used on the slaughter line. There are two types of food additives. One is direct and the other is indirect. Direct food additives are directly applied to the food, such as preservatives for meat products. Indirect food additives are those that are not used for food purposes, but come into contact with food, such as sanitizers that are used on equipment or on food contact surfaces. All food additives used in federal establishments must be approved by FDA. FSIS Directive 7140 lists all food additives that have been approved for use. So, again, FSIS enforces the policy that is set by FDA. The definition in FMIA section 601(m)(2)(D) and PPIA Sec. 453(g)(2)(D), color additives, is not important in relation to your duties.

> *FMIA Sec. 601(m)(3) and PPIA Sec. 453 (g)(3)*
> *"If it consists in whole or in part of any filthy, putrid, or decomposed substances or is for any other reason unsound, **unhealthful**, **unwholesome**, or otherwise unfit for human food."*

This next section, 601(m)(3) / 453(g)(3), of the definition of adulteration emphasizes health. This is the definition that FSIS has used as the statutory basis for taking all actions against BSE. The reason this definition was used is that scientific studies have shown that infectivity of the disease exists within the animals before they show clinical signs of the disease. Legally, the burden is on FSIS to prove that these conditions – filthy, putrid, decomposed – exist. This is why being graphic and accurate in descriptions of conditions is very important on the NRs. Some examples of filthy conditions include rail dust, rust, or rodent droppings on product.

Be aware that the adulteration provisions of the statutes are not mutually exclusive. For example, a product may be adulterated under 603(m)(3) AND 603(m)(1) because it is positive for *E. coli* O157:H7.

> *FMIA Sec. 601(m)(4)and PPIA Sec. 453 (g)(4)*
> *"If it has been prepared, packed, or held under **insanitary conditions** whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health;"*

These sections of the FMIA and PPIA cover the definition of "adulterated" related to insanitary conditions. The HACCP rule (9 CFR 417) is about ensuring that products are not adulterated through insanitary conditions. It's about ensuring that sanitary conditions are maintained throughout the production process. If we apply this to the slaughter process, establishments must ensure, for example, that their processes – such as de-hiding, and opening the digestive tract of livestock – do not create insanitary conditions that may contaminate the carcasses with filth. The inspection duties that you and other inspection program personnel perform after slaughter that can be traced back to this part of the FMIA are those covered by the HACCP rule, including Sanitation SOPs, and the Sanitation Performance Standards. We'll come back to the HACCP regulation when we cover section 608 of the FMIA. Off-line inspection duties related to ensuring that the establishments maintain sanitary conditions are outlined thoroughly in FSIS Directive 5000.1 "Verifying and Establishment's Food Safety Systems."

We've highlighted the parts of the definition of adulteration in the Acts that are most relevant to your work. Now, let's briefly review the other parts of the definition. They include the following.

FMIA Sec. 601(m) / PPIA Sec. 453 (g):

- (5) product of an animal which has died otherwise than by slaughter;
- (6) product in a container that is composed of poisonous or deleterious substance;
- (7) product that has been intentionally subjected to radiation that does not conform to regulatory requirements;
- (8) product from which a valuable constituent has been omitted or abstracted, or a substance has been substituted;
- (9) margarine containing animal fat that is filthy, putrid, or decomposed.

This overview provides a very thorough basis for understanding what the statutory definition of "adulterated" is, and what it means in relation to FSIS inspection and verification activities. It is significant in relation to ensuring public health and food safety.

Statutory Provisions for Inspection Activities

Ante Mortem Inspection

Let's turn our attention to other inspection activities. Sections 603(a) of the FMIA, and 455(a) of the PPIA are the statutory authorities for the inspection activities conducted during ante mortem inspection. These are the provisions upon which the regulations for ante mortem inspection were promulgated.

The regulation that corresponds with the statute 603(a) regarding ante mortem inspection in livestock is 9 CFR 309. This regulation contains more specific information that should be used in judging whether an official establishment that slaughters livestock is meeting the standard established by 603(a). For example, the inspection procedures include inspecting the livestock at rest and then in motion to detect abnormal conditions or symptoms of diseases that are identified in the regulations. If any of these animals are suspected of having abnormal conditions or diseases, they must be identified for further examination, and if necessary, identified for final disposition in post mortem inspection. Any animals found with symptoms of diseases must be disposed of properly. Remember, the authority for these actions as a result of ante mortem inspection comes from the section 603(a). Also remember that the purpose for conducting ante mortem
inspection activities is to prevent animals that if slaughtered would result in adulterated product or would introduce insanitary conditions in the establishment from entering the establishment, and to ensure that if they do enter the establishment, they do not adulterate products.

The regulation that corresponds with the statute 455 (a) regarding antemortem inspection in poultry is 9 CFR 381.70.

Post Mortem Inspection

- *FMIA Sec. 604 "…the Secretary shall cause to be made by inspectors appointed for that purpose a post mortem examination and inspection of the carcasses and parts*

thereof of all (livestock)….to be prepared at any slaughtering…or similar establishment…which are capable of use as human food; and the carcasses and parts thereof all such animals found to be not adulterated shall be marked, stamped, tagged, or labeled as "Inspected and passed;" and…label, mark, stamp, or tag as "Inspected and condemned" all carcasses and parts…found to be adulterated;"

PPIA Section 455 (b)and (c)
" …the Secretary, whenever processing operations are being conducted, shall cause to be made by inspectors post mortem inspection of the carcass of each bird processed, and at any time such quarantine, segregation and reinspection as he deems necessary of poultry and poultry products capable of use as human food in each official establishment processing such poultry or poultry products… poultry carcasses and parts thereof and other poultry products found to be adulterated shall be condemned … carcasses, parts, and products, which may by reprocessing be made not adulterated, need not be so condemned …".

The statutory authorities for post mortem inspection are found in section 604 of the FMIA, and in section 455 (b) and (c) of the PPIA. These provisions cover two important concepts. One is the jurisdiction for inspection. The other is inspection duties. For jurisdiction, post mortem inspection must be performed on all of the carcasses and parts prepared at an official establishment. The wording used in the poultry statutes is slightly different. Instead of "prepared" it uses the word "processed."

Regarding inspection procedures, this provision establishes the basis for the inspection procedures performed. Post mortem inspection involves performing specific procedures that include observation and palpation or incision of lymph nodes in the head and viscera, and observation of the carcass. The purpose of inspection is to detect any carcasses or parts that exhibit signs of disease or conditions that otherwise make the carcass or parts unwholesome or unfit for human food. These procedures must be performed using methods that are safe and sanitary. The legal authority for these procedures can be traced directly back to this statutory provision.

This statute has been held in the court system to require that FSIS make a determination about each carcass during inspection. You may hear this called a "carcass by carcass" inspection legal requirement.

Post mortem inspection must be performed on all of the carcasses and parts prepared at an official establishment. The definition for the term "prepared" is found in Section 601(l) of the FMIA. It includes, "slaughtered, canned, salted, rendered, boned, cut up, or otherwise manufactured or processes." You should be aware that the only products FSIS inspects are those that are defined as "prepared" in the FMIA or "processed" in the PPIA. In other words, FSIS does not have jurisdiction to inspect warehouses or distribution centers, although FSIS has the authority to visit these facilities. The inspection of other types of products is covered by other federal agencies, such as FDA. You should also be aware that FSIS has statutory authorities to conduct activities other than inspection. For example, if we look at Section 624 of the FMIA, which is the same as section 453 of the PPIA, you'll see the authority to prescribe by regulations the conditions under which carcasses, parts, and meat products are stored or handled during buying, selling, freezing, storing, or transportation. While FSIS can conduct

examinations at the out of establishment locations where these processes are performed, these
examinations are not "inspection."

The statutes continue by indicating that for those carcasses and parts that are found not to be adulterated, inspectors are to mark them as "inspected and passed." Inspectors are to mark those carcasses and parts that are found to be adulterated as "inspected and condemned." This is the statutory basis for your inspection duties. So, you apply the standards established by the definitions of adulteration which we have already discussed in making this judgment.

Marks of Inspection

> *FMIA Sec. 606. "…said inspectors shall mark, stamp, tag, or label as "Inspected and passed" all such product found to be NOT adulterated; and said inspectors shall label, mark, stamp, or tag as "Inspected and condemned" all such products found adulterated…."*
>
> *PPIA Sec. 455 (c) "…All poultry carcasses and parts thereof and other poultry products found to be adulterated shall be condemned…*
>
> *PPIA Sec. 457 (a) "All poultry products inspected at any official establishment under the authority of this Act and found to be NOT adulterated, shall at the time they leave the establishment bear, in distinctly legible form, on their shipping containers and immediate containers…"*

Several times we have referred to labeling, marking, stamping, or tagging product as "Inspected and passed." We call these labels, marks, stamps, and tags the marks of inspection. The purpose of post mortem inspection is to determine whether the products are wholesome, not adulterated, and properly marked, labeled, and packaged, as required by the statutes. This ensures that the public health is protected. Remember in section 604 of the FMIA, and in section 455 (c) and 457 (a) of the PPIA, the statutes state that the carcasses and parts that are found NOT to be adulterated are to be marked as "inspected and passed." This same concept is covered again in more detail in Section 606 of the FMIA. These marks of inspection stating "Inspected and passed" show that all meat products are cleared to enter commerce after they are found to be fit for human consumption. This is very important. Remember that product cannot move out of the establishment into commerce unless it has been inspected and marked as passed. This means that you must be able to find that product is NOT adulterated. The burden of proof is on the establishment. If you have questions about whether or not to pass the product,
don't pass it and don't allow it to be stamped as "Inspected and passed" unless and until there are satisfactory answers to questions by the establishment. If off-line inspection personnel
cannot find that the product is not adulterated, they must follow the Rules of Practice. So, Section 606 defines our product control authority.

To summarize, those carcasses and parts that are found to be adulterated are to be marked "inspected and condemned." They must be either reprocessed or destroyed and cannot leave the establishment to enter commerce to be used for human food. They must be destroyed in the presence of a USDA inspector. The statute also

specifies that if the establishment fails to destroy a condemned carcass or part, the Secretary may remove the inspectors from the establishment. We call this removal of inspection "suspension" of inspection. We'll discuss this further in a few minutes when we talk about enforcement authorities.

Reinspection

Reinspection is covered in 605 of the FMIA and 455(b) in the PPIA. Reinspection covers the situation when products are shipped from one establishment to another. For example, this could be carcasses coming from one establishment to be fabricated into special cuts at another establishment. It could be ground beef and trimmings coming from one establishment to another to be ground more finely, or to be used as a meat ingredient in a fully cooked product. When you work in an establishment that receives meat or poultry products from another establishment, part of the responsibilities of off-line inspection personnel will be to ensure that those products entering the establishment are reinspected using the same standards that you use in the initial inspection – that products are wholesome, not adulterated, and properly marked, labeled, and packaged. Another condition requiring reinspection is when products are returned to the establishment for any reason. Again, the role of inspection personnel is to ensure that these products are reinspected using the standards in the Statutes, Regulations, and Directives. This will be done by the off-line inspection personnel or the IIC.

Under both of these conditions inspection personnel should ask a lot of questions to ensure that the product is wholesome, not adulterated, and properly marked, labeled, and packaged. For example, if the product has been transported to the establishment, was it held under conditions in a manner that would ensure that it did not become filthy, putrid, or decomposed, or for any other reason unsound, unhealthful, unwholesome, or otherwise unfit for human food? Here are some examples of questions that might be asked to make this determination. Was the temperature of the product controlled throughout transportation? Are there measures to prevent cross contamination of the product with the environment? These questions should be part of the decision making process you use in determining if product is wholesome and not adulterated.

Sanitation

Another statutory provision that is very important is the one dealing with the requirement for the establishment to maintain sanitary conditions – Section 608 of the FMIA and 456(a) of the PPIA. To paraphrase the statutes, if the sanitary conditions are found by inspectors to be such that the meat or meat food products are rendered adulterated, inspectors shall refuse to allow the meat or meat food products to be labeled, marked, stamped, or tagged as "Inspected and passed." These statutes give FSIS the ability to ensure that product is handled and held in a sanitary manner. This is one of the provisions upon which the HACCP regulations (417), the Sanitation Performance Standard Regulation and the Sanitation Standard Operating Procedures Regulation (both covered in 416) are based.

> *FMIA Sec. 608. "The Secretary shall prescribe the rules and regulations of sanitation under which establishments shall be maintained. The Secretary shall cause to be made by experts in sanitation or by other competent inspectors the inspection of all establishments where meat or meat products are prepared as*

may be necessary to inform concerning the sanitary conditions of these establishments."

PPIA Sec 456 (a). "Each official establishment slaughtering poultry or processing poultry products for commerce or otherwise subject to inspection under this Act shall have such premises, facilities, and equipment, and be operated in accordance with such sanitary practices as are required by regulations promulgated by the Secretary for the purpose of preventing the entry into or flow or movement in commerce or burdensome effect upon commerce, of poultry products which are adulterated."

Let's look at the provision that sets forth the requirements for sanitation in establishments a little closer. First, it authorizes the Secretary of Agriculture to promulgate regulations that describe what establishments must do to maintain sanitary conditions. It also authorizes inspections to ensure that establishments are in compliance.

First, let's look at the meaning of three key words. They are:

Sanitation
Sanitary
Adulteration

We've talked about the definition of the term "adulterated." Remember that it has several definitions in the statute. But, the word "sanitation" is not defined in either the FMIA or the PPIA. Because the term is not defined in the statute, we have to look to its common meaning. A common definition of the term "sanitation" is, "keeping things clean." This definition is supported by FSIS regulations, which distinguish between sanitation and HACCP. When a term, such as "sanitation" is not defined in the statutes, the courts are required to turn to the common meaning for evidence. This is typically done by consulting the dictionary. The dictionary definition of the term "sanitation" shows that it means something broader than just keeping things clean. According to Webster's Collegiate Dictionary, the word "sanitation" means, "the development and application of sanitary measures for the sake of cleanliness, protecting health, etc." So, the dictionary drives us back to one of the two key terms that are common to the PPIA and the FMIA, which is the term "sanitary." The statutes talk about "sanitary practices" and "sanitary measures?" What does this term "sanitary" mean? According to the dictionary, the term "sanitary" means, "of or pertaining to health or the conditions affecting health, especially with reference to cleanliness, precautions against disease, etc."

So, are the HACCP regulations and the sanitation regulations sanitary measures? Clearly, they are, and we can demonstrate that fact to a court. To ensure that products are handled and held in a sanitary manner, establishments must follow the HACCP regulations. For example, the establishment must develop and implement a HACCP plan covering each product produced when the establishment's hazard analysis reveals one or more food safety hazards are reasonably likely to occur in the production process. This includes biological, chemical, and physical hazards. The regulation outlines that establishments must follow the seven HACCP principles (417.2), which include conducting a hazard analysis, determining critical control points, establishing critical limits, establishing monitoring procedures, developing corrective action procedures, establishing recordkeeping and documentation procedures, and developing verification

procedures. The regulation also specifies the conditions under which the establishment must reassess its HACCP plan. FSIS verification duties for off-line inspection personnel related to these regulations are described specifically in FSIS Directive 5000.1 "Verifying an Establishment's Food Safety System." It describes the inspection methods, regulatory decision-making process, documentation, and enforcement procedures to use in relation to ensuring that the establishment complies with the regulations and statutes regarding sanitation. For example, the HACCP Verification tasks are performed to verify that the establishment is meeting the requirements of 9 CFR 417.

The HACCP regulations require establishments to identify the hazards to health that may arise as a result of their operation and to address those that are reasonably likely to occur. If those hazards are not properly addressed and prevented, the result is adulterated product. As you will remember, the term "adulterated" is defined in the statutes. In enforcing the HACCP rules, what the Agency needs to show is why, in not complying with the regulations, the establishment is not complying with the statutory provisions that underlie the regulation. Section 608 gives the Agency authority for enforcing HACCP. So, if the Agency is to enforce the HACCP and sanitation rules, we will need to show how an establishment's failure to follow the sanitary measures required by HACCP or sanitation rules creates insanitary conditions in its operation that resulted in the production of product that may be injurious to health. It is important to note that under case law, the deleterious change in the product, that is, the change that may have the effect of making consumption of the product injurious to health, must occur while the product is being prepared, packed, or held and have occurred because of the insanitary conditions. How can we show that this is the case? We can show that having a sanitation standard operating procedure that is effective in preventing direct contamination of product with environment contaminants is a necessary precaution against producing product that may be injurious to health. Moreover, a failure to implement an effective Sanitation SOP, or to ensure the on going effectiveness of the Sanitation SOP, would create conditions under which such contamination may occur, and thus product is rendered injurious to health. Similarly, a failure by an establishment to perform an adequate hazard analysis would create insanitary conditions because, without such an analysis, the establishment cannot be sure that it has identified and addressed conditions that could cause the product to be injurious to health.

Recordkeeping

The statutes outline requirements for recordkeeping related to the production of meat and poultry products. If you recall from your civics classes, the U.S. Constitution has a provision that protects citizens from unreasonable searches and seizure. The establishment has this same right, and just like other rights, it must be protected. However, it's important for inspection personnel to have access to establishment records, particularly records related to the implementation of HACCP. A review of those records can tell us important information about how product was handled and prepared to help us in making the determination about whether product that is being produced is wholesome and not adulterated. Section 642 of the FMIA and Section 460(b) of the PPIA gives FSIS the right to be in the establishment and to have access to the establishment facilities and records. Establishments must maintain production records and provide the records within a reasonable amount of time when given notice. Off-line inspection personnel will cover the recordkeeping duties.

Enforcement Authorities and Actions

Now, let's review the statutory authority for taking enforcement action when

establishments fail to comply with provisions outlined in the Acts. There are three basic enforcement authorities covered in the Acts:

administrative,
civil, and
criminal.

Among these, most of the enforcement actions in-plant personnel are involved with are the ones that come from the administrative authority. Civil and criminal enforcement will be handled by the IIC, or by the District Office.

Administrative Authorities

The administrative enforcement authorities covered in the statutes include retaining product, withholding the marks of inspection, suspending inspection, and withdrawing inspection. Remember that the Rules of Practice, which is found in Section 500 of the FSIS regulations, outline the due process that we must ensure takes place to protect the rights of establishments. Let's review these regulations briefly.

Section 500.2 of the regulations covers the **regulatory control actions** that take place in the establishment, such as tagging product, equipment, or facilities. Remember that these actions are taken to prevent product that has been determined through inspection to have a problem that appears to have rendered the product to be unwholesome or adulterated from leaving the establishment and entering commerce. We are authorized to take these regulatory control actions when we find insanitary conditions or practices, adulterated product, conditions that prevent us from determining that product is not adulterated or misbranded, and when there is inhumane handling or slaughter of livestock. When a regulatory control action is taken, the establishment must be notified immediately orally or in writing of the action and the reason for the action. Remember that for any type of enforcement action, the establishment has the right to appeal that action.

Section 500.3 of the Rules of Practice covers situations that warrant a withholding action or suspension **without prior notification** to the establishment. These actions are authorized when the establishment has produced and shipped adulterated or misbranded product and there is an imminent hazard to health, the establishment does not have a HACCP plan, the establishment does not have an Sanitation SOP, sanitary conditions are such that products in the establishment are or would be rendered adulterated, the establishment violated the terms of a regulatory control action, someone associated with the establishment assaults or threatens to assault or intimidate or interfere with an FSIS employee or FSIS inspection, the establishment fails to destroy condemned product according to regulatory requirements, or the establishment handles or slaughters animals inhumanely. Section 500.5(a) covers the notification that must be provided to the establishment as promptly as circumstances permit.

Section 500.4 of the Rules of Practice covers the conditions under which withholding actions are taken or when suspensions occur **with prior notification** to the establishment. The prior notification is called a "Notice of Intended Enforcement," or NOIE. The IIC will write the NOIE. Specifics about what is contained in the NOIE are covered in 500.5(b). The conditions that require prior notification include an inadequate HACCP plan, an Sanitation SOP has not been properly implemented or maintained, failure to maintain sanitary conditions due to multiple or recurring noncompliance, failure to collect generic *E. coli* samples, and failure to meet the *Salmonella* performance

standards. Here's a simple, practical example. According to the Rules of Practice, if there is a condition that requires prior notice before the marks of inspection are withheld, the IIC will provide the establishment a written notice of the enforcement action. The written notice (NOIE) gives the establishment three days to respond. During this time, the establishment can provide a corrective action plan, which if judged to be adequate will result in putting the suspension in abeyance. Or, the establishment can contest the basis for FSIS enforcement actions through the appeals process.

Withdrawal of inspection, covered in 500.6, is a formal legal process that involves filing a complaint in an administrative proceeding at the Department level. This will be handled by a Program Investigator. However, the documentation in-plant inspection personnel provide in the NRs are the evidentiary basis upon which this action is taken.

Civil Authorities

The civil authorities covered in the acts are found in Section 677 of the FMIA and 467(c) of the PPIA. Under these authorities, FSIS can request that a District Court restrain violations of the acts. The actions involve U.S. District courts. The primary actions will be detention and seizure of product.

Although you will not be involved in taking any civil enforcement action, some of the documentation created in the establishment, such as NRs or memoranda, may be included in a case file that is submitted to the court.

Criminal Authorities

In addition to the administrative and civil authorities, there are criminal authorities granted under the acts. Again, you will probably not have a direct involvement in these kinds of actions. However, the documentation inspection personnel produce may be used in actions.

The acts cover the criminal acts of assault and intimidation of a person engaged in official duties, intent to defraud the public by distributing adulterated articles, and bribing or offering a bribe to an inspection official. All of these are prohibited acts. Let's look at each of these closer.

The statutory authority for criminal acts is outlined in the sections of the statutes dealing with the prohibited acts. The prohibited acts are listed in Section 610 of the FMIA and Section 458 of the PPIA. The acts that are **prohibited** include the following:

Slaughter or preparation except in compliance with the Act. Inhumane slaughter or handling.

Sale, transport, offering, or receipt, in commerce, of articles capable for use as human food that are adulterated, misbranded, or not inspected.
Causing products to become adulterated or misbranded.
Misuse or unauthorized use of official marks, certificates, labels or devices of inspection.
The knowing misrepresentation of any article as inspected and passed or exempt under the Act.

These prohibitions apply to persons, firms and corporations. Perpetrators of any violation of these prohibited acts are subject to fines and other penalties.

FMIA Sec. 675; PPIA Sec. 461(c) covers criminal acts related to assault **and intimidation of inspection personnel**. Under these statutes, no person shall forcibly assault, resist, oppose, impede, intimidate, or interfere with any USDA employee engaged in or on account of official duties. Therefore, it is prohibited for establishment employees to impede you or interfere in any way with your work. Assault and intimidation are conditions which result in immediate withdrawal of inspection with no requirement to notify the establishment (Rules of Practice, 9 CFR 500). If you or any other inspection personnel in the establishment are threatened in any way by a person at the establishment, consider **safety first**. Report it immediately to your supervisor as you have been instructed. The acts outline that these conditions can result in fines and prison time for violators. These types of violations may result in a $5,000 fine, 3 years prison or both. There are more severe penalties for use of a deadly or dangerous weapon. These statutes also cover the murder of FSIS employees on duty.

Section 676 of the FMIA and Section 461(a) of the PPIA define that persons who intend to defraud or distribute or attempt to distribute a meat or poultry article that is adulterated is subject to fines, imprisonment, or both.

Section 622 of the FMIA covers the criminal act of **bribery**. It prohibits any person, firm or corporation from paying or offering to pay any money or other thing of value to an agency employee with the intent to influence his/her discharge of duties. Bribery is defined as a felony act, and violators are subject to a fine ranging from $5,000 to $10,000, imprisonment for 1 to 3 years. In addition to these penalties, FSIS will withdraw inspection. This section also prohibits FSIS employees from accepting or receiving money or something of value from representatives of the establishment or industry. You are not to accept any item of value from a establishment employee. Other felonies include failing to destroy condemned product, having an owner/operator who has been convicted on a felony, or two or more misdemeanors. Be aware that the USDA's Office of the Inspector General (OIG) conducts investigations into allegations of bribery. The investigations are usually initiated as a result of an anonymous call to the OIG's hotline.

The Secretary may refer criminal violations to the Department of Justice for prosecution. The Secretary has discretion to forego criminal referral for minor violations where it is determined that the public interest will be served by a suitable written notice of warning. Discretion also applies to libel and injunction authorities. Violators of any provisions for which no other criminal penalty is provided shall be guilty of a misdemeanor, and subject to fine and up to one-year imprisonment.

Other Statutory Authorities

In the previous sections, we covered the statutory authorities that were most significant in relation to ensuring the protection of public health. In this section, we will review some additional statutory authorities that relate to your work.

Humane Methods of Slaughter

Section 603(b) covers the authorities related to the humane handling of livestock. The Section outlines inspection authority over the methodology of humane handling and slaughtering of animals. It states that FSIS can establish rules and regulations to oversee that the requirements of the Humane Methods of Slaughter Act are being met at establishments. It also gives FSIS authority to suspend or refuse inspection for

violations of the Humane Methods of Slaughter Act. FSIS may refuse to grant inspection or temporarily suspend inspection for slaughter or handling other than in accord with Humane Methods of Slaughter Act.

The PPIA does not give FSIS the authority to suspend or refuse to grant inspection or temporarily suspend inspection based on poultry humane handling issues. However, 9 CFR 381.65(b) requires that poultry slaughter practices be consistent with good commercial practices.

> 9 CFR 381.65(b). *"Poultry must be slaughtered in accordance with Good Commercial Practices in a manner that will result in thorough bleeding of the carcasses and ensure that breathing has stopped prior to scalding…"*

In poultry operations, employing humane methods of handling and slaughtering that are consistent with good commercial practices increases the likelihood of producing unadulterated product.

FSIS has also addressed the "*Treatment of Live Poultry Before Slaughter*" in Docket 04-037N published on September 28, 2005 in the Federal Register Vol. 70, Number 80.

FSIS regulations describe the operating procedures that poultry processors must follow to ensure sanitary processing, proper inspection, and the production of poultry products that are not adulterated. Under 9 CFR 381.71, FSIS condemns poultry showing, on ante mortem inspection, certain diseases or conditions. Bruising is one condition that may result in condemnation (9 CFR 381.89). Bruises are likely to result when birds are not treated humanely.

Moreover, the PPIA (21 U.S.C. 453(g)(5)), as well as the Agency's regulations (9 CFR 381.90), provide that carcasses of poultry showing evidence of having died from causes other than slaughter are considered adulterated and condemned. The regulations also require that poultry be slaughtered in accordance with good commercial practices, in a manner that results in thorough bleeding of the poultry carcass, and ensures that breathing has stopped before scalding so that the birds do not drown (9 CFR 381.65(b)). Compliance with these requirements helps ensure that poultry are treated humanely.

Labeling

Labeling is also covered in the Acts. Remember that these authorities are secondary to you in your focus. The Agency policy is that we put 70% of our inspection resources into food safety issues (including Sanitation SOP, HACCP, Sanitation Performance Standards, and food safety sampling), and 30% into other activities we call "other consumer protection" activities. Labeling is one of those other consumer protection activities, as is exports. The duties related to labeling requirements are covered by off-line inspection personnel. The Directives that covers your inspection responsibilities for labeling are found in the 7000 series. Section 607 of the FMIA and Section 457 of the PPIA outline the following.

> All meat and meat food products must be properly labeled, marked and packaged.
> Labels must not be false or misleading.
> FSIS can withhold the use of any false or misleading labels or marks.

As is true of any other provision, these statutes provide for hearing and appeal rights on FSIS decisions.

Exported Product

Section 606 of the FMIA covers exported product. The Act requires FSIS to inspect meat and meat food products prior to export. It gives the Secretary broad authority to determine time and manner of inspection. It also covers the certification of products by FSIS prior to shipping. The Directive that relates to inspection responsibilities for exported product is 9000.1.

Summary

Now that we have completed our review of the statutes, you should be able to:

- Understand the purpose of the Acts
- Identify key definitions from the Acts
- Understand the statutory authority for FSIS activities
- Understand how those activities plus authorities in the statutes support enforcement actions.

These Acts provide for the basis for FSIS's ability to perform as a public health agency. Although you find direction for your day-to-day activities in FSIS Directives, the statutes we have reviewed underlie all of these activities and provide the legal basis for them. As you perform your inspection and verification duties, you should always be conscious of the Acts, as they are the foundation for all that we do.

REFERENCES

1. Federal Meat Inspection Act
2. Poultry Products Inspection Act
3. Human Methods of Slaughter Act
4. Regulation 313
5. Regulation 417
6. Directive 6900.2

Professionalism and Government Ethics Essentials

Objectives

To demonstrate mastery of Professionalism and Government Ethics Essentials the trainee will:

1. Define "professionalism"- what does it look like.
2. Define how professionalism relates to, and impacts, food safety and biosecurity.
3. Identify appropriate and inappropriate behavior and explain how they affect employees, industry officials, consumers and others.
4. Define the Agency's expectations and the role each employee has in supporting the Agency in achieving its public health mission.
5. Identify the 14 Principles of Ethical Conduct in public service and your annual responsibility to complete the ethics training.

References

1. FSIS Directive 4735.3, Employee Responsibilities and Conduct
2. FSIS Directive 4735.9, Revision, Office of Field Operations Assignment Restrictions and Rules on Gifts from Regulated Industries
3. USDA Office of Ethics

Introduction

We will be talking about professionalism at all levels of our workforce, which is critical to support FSIS in achieving our vision of becoming the premier public health agency and improving our working environments.

To achieve our public health mission:

- Professionalism and a culture change must take place within FSIS.
- Food safety, bio-security, morale and workplace safety must be enhanced.
- We must become a world-class public health agency.
- Have management and accountability systems in place.

In the Inspection Methods course, you will learn "What are the Best Tools for Making the Right Decisions?" (Acts, due process, professionalism) –

Like all professionals, we have a set of tools that we use in our work – the acts, due process, and professionalism.

Conduct and behavior affects how we regard each other and industry's perception of the FSIS workforce.

Conduct perceived as "unprofessional" adversely affects our integrity, consumer confidence, and our ability to carry out our public health mission. Protecting our employees and the public is essential to FSIS.

The consequences of "unprofessional conduct and behavior" put you and the public at risk relative to food safety and bio-security, because it detracts from:

- Inspection responsibilities
- Authority to enforce food safety standards
- Effectiveness.

Professionalism Characteristics

Describe that person:

What do you notice about him or her?

How do they act?

Five Characteristics of Professionalism

List the five Characteristics that distinguish Professionals:

1. _____

2. _____

3. _____

4. _____

5. _____

Definition of Professionalism

We said in the beginning that we need to be able to define Professionalism. If we look at the dictionary definition of professionalism, we will see it says: "skillful virtue". Virtue is another one of those words that we have an intuitive feeling for, but we find it difficult to describe in words. When we look up the dictionary definition of Virtue, we will see it says: "moral excellence". We now have our definition of Professionalism, the art of moral excellence! Since it is a skill/art, it is something that we learn and can improve upon

Case Studies Exercises

Please read your group's case study and answer the questions that pertain to your case study.

1. Romantic Relationships

An FSIS employee has been dating a plant employee and this has evolved into a romantic relationship. They become deeply involved.

Is this professional behavior? Why or why not?

How does this behavior compare to the definition of Professionalism?

What is the potential impact for food safety/bio-security?

What impact does it have on the Agency's credibility?

What might be the outcome of this situation?

How could this behavior be prevented or avoided (by supervisor or employees)?

How would you demonstrate your professionalism in this situation?

2. Attitude, Initiative, and Communications

The FSIS line inspector is on the poultry line and the plant foreperson walks up to the line inspector. The plant foreperson starts asking questions in a harsh manner. The FSIS inspector slams the red button and stops the line, steps off the line, and an argument results. At this point, the FSIS floor inspector comes upon the situation, approaches the two and asks, "What is the problem?" After hearing their explanation, the FSIS floor inspector says, "I will take care of the problem" and asks the line inspector to, "Please go back to the line." The FSIS floor inspector tells the plant foreperson to take the problem up with the IIC and requests that the foreperson leave the immediate area. The FSIS floor inspector promptly reports the incident to the IIC.

Which one of the FSIS inspectors exhibited professionalism? Why?

How does this behavior compare to the definition of Professionalism?

What is potential impact for food safety/bio-security?

What impact does it have on the Agency's credibility?

What might be the outcome if the floor inspector had not taken action?

How could this behavior be prevented or avoided?

How would you demonstrate your professionalism in this situation [line inspector]?

3. Relationships, Touching or Hitting

There are two FSIS employees with an attraction to the same plant employee. Each is involved in a dating relationship with the plant employee. While on the line, they are distracted from their duties and carcasses are not being inspected. Instead, they take every opportunity to get a glimpse of the plant employee or to show-off. The competition for attention leads to an exchange of negative comments between them. Their animosity builds until they are in each other's face. One places a finger on the other and the other knocks it off. They exchange blows.

Is this professional behavior? Why or why not?

How does this behavior compare to the definition of Professionalism?

What is potential impact for food safety/bio-security?

What impact does it have on the Agency's credibility?

What might be the outcome of this incident?

How could this behavior be prevented or avoided (by supervisor or employees)?

How would you demonstrate your professionalism in this situation?

4. Horseplay

The FSIS employee is hit by a spleen / lymph node / piece of fat thrown by someone. The FSIS employee saw that it was another FSIS employee that threw the object.

Is this professional behavior? Why or why not?

How would a professional respond?

How does this behavior compare to the definition of Professionalism?

What is potential impact for employee safety / food safety / bio-security?

What impact does it have on the Agency's credibility?

What might be the outcome of this incident?

How should this be handled if a plant employee threw the object?

How could this behavior be prevented or avoided (by supervisor or employees)?

How would you demonstrate your professionalism in this situation?

5. Dress/Appearance/Sanitation

The FSIS employee comes to work wearing apparel that has dirt and grease spots on them, and pet hair clinging to their clothing.

Is this professional behavior? Why or why not?

How does this behavior compare to the definition of Professionalism?

What is the potential impact for food safety/bio-security?

What impact does it have on the Agency's credibility?

What might be the outcome of this incident?

How could this situation be prevented or avoided (by supervisor or employees)?

How would you demonstrate your professionalism in this situation?

Exercise on Personal Action Plan:

Please take about 5 minutes to complete your Personal Action Plan. In a brief sentence or phrase, list three things you plan to do differently, or that you will do more conscientiously, that will signify your commitment to professionalism, personal excellence, and being part of the team along with Mr. Almanza and FSIS. This is your personal goal setting.

Three things that I plan to do differently, or more conscientiously, are:

1.
2.
3.

Three things that I have learned from this training that will help me focus on professionalism, personal excellence, and teamwork are:

1.
2.
3.

Key Points from "Professionalism and You: The FSIS Employee"

- The Agency values each one of you.
- You represent FSIS and that means being a person of integrity, honesty, respecting others, pride in your work, and a commitment to excellence.
- Ensuring that the food that reaches the consumer is the safest possible, and that if something does go wrong we will act quickly, investigating and taking action to prevent further distribution of adulterated products, because, after all, our public health mission is to ensure food safety and prevent foodborne illness.

An FSIS professional is someone who:

1. Displays personal integrity and honesty;
2. Is committed to excellence;
3. Shows respect for others;
4. Takes pride in public service; and
5. Protects the public's health.

Workshop

1. An employee may sell products to co-workers during breaks when it does not disturb others.

    a. TRUE
    b. FALSE

2. When can an employee use an establishment's copying machine to make copies of official documents?

    a. When the plant requests a copy of the document
    b. When there is no other resource available
    c. When it is only one copy so the cost is minimal
    d. When the employee pays for the copy

3. You may collect contributions to fund political activities.

    a. TRUE
    b. FALSE

4. You do not need approval for outside employment or activity when it has nothing to do with your government job.

    a. TRUE
    b. FALSE

5. You just found out the plant will be working overtime tonight. Since you will not be able to get to your emergency small animal veterinary clinic job because of the overtime, you can use the government phone to call them and let them know.

    a. TRUE
    b. FALSE

6. You can sell personal items such as a car, washer, VCR, etc. to plant employees and coworkers as long as you first put up a notice on the plant's bulletin board.

    a. TRUE
    b. FALSE

7. When you have a work-ethics related question, you should:

    a. Ask the plant manager
    b. Flip a coin
    c. Ask your subordinates
    d. Ask the USDA Ethics Advisor

APPENDIXES

I. FSIS Directives

FSIS Directive 4735.3, *Employee Responsibilities and Conduct*
FSIS Directive 4735.9, *Office of Field Operations Assignment Restrictions and Rules on Gifts from Regulated Industry*

The FSIS Directives on employee responsibilities, conduct, ethics, and conflicts of interest cover all of the incidents/situations that we have discussed today as well as many others you may encounter at some time in your employment. FSIS Directive 4735.3 contains Agency policy regarding conduct standards of Agency employees. Part One, Basic Provisions, Section VI, Policy, states:

> *"It is FSIS policy that employees maintain high standards of honesty, integrity, impartiality, and conduct. It is essential that employees carry out their responsibilities following Agency policies to retain the confidence of citizens. Citizen confidence in the Agency is influenced not only by the manner in which employees serve the public but also in the way they conduct themselves in the eyes of the public. The avoidance of misconduct and conflicts-of-interest on the part of Government employees through informed judgment is indispensable to the maintenance of these standards."*

II. 14 Principles of Ethical Conduct

1. Public service is a public trust; it requires employees to place their loyalty to the Constitution, the laws, and ethical principles above private gain.

2. Employees shall not hold financial interest that conflict with the conscientious performance of duty.

3. Employees shall not engage in financial transactions using nonpublic Government information or allow the improper use of such information to further any private interest.

4. An employee shall not, except pursuant to such reasonable exceptions as are provided by regulation, solicit or accept any gift or other item of monetary value from any person or entity seeking official action from, doing business with, or conducting activities regulated by the employee's agency, or whose interest may be substantially affected by the performance of the employee's duties.

5. Employees shall put forth honest effort in the performance of their duties.

6. Employees shall make no unauthorized commitments or promises of any kind purporting to bind the Government.

7. Employees shall not use public office for private gain.

8. Employees shall act impartially and not give preferential treatment to any private organization or individual.

9. Employees shall protect and conserve Federal property and shall not use it for other than authorized activities.

10. Employees shall not engage in outside employment or activities, including seeking or negotiating for employment that conflict with official Government duties and responsibilities.

11. Employees shall disclose waste, fraud, abuse and corruption to appropriate authorities.

12. Employees shall satisfy in good faith their obligations as citizens, including all just financial obligations, especially those such as Federal, State or local taxes that are imposed by law.

13. Employees shall adhere to all laws and regulations that provide equal opportunity for all Americans regardless of race, color, religion, sex, national origin, age or handicap.

14. Employees shall endeavor to avoid any actions creating the appearance that they are violating the law or the ethical standards promulgated pursuant to this order.

III. Conflict of Interest

In accordance with 5 C.F.R. 2635.101, each employee has a responsibility to the United States Government and its citizens to place loyalty to the Constitution, laws and ethical principles above private gain. To ensure that every citizen can have complete confidence in the integrity of the Federal government, each employee shall respect and adhere to the principles of ethical conduct set forth in applicable laws, regulations, and executive orders.

The Agency will continue to ensure that all employees are trained on conflict of interest matters for which employees are to be knowledgeable and accountable, in conjunction with providing a copy of the Standards of Ethical Conduct for Employees of the Executive Branch .

Conflict of Interest

In accordance with the Standards of Ethical Conduct for Employees of the Executive Branch, employees who find themselves in an actual conflict, a potential conflict, or in a situation that could give the appearance of a conflict of interest shall immediately make known to their supervisor the nature of the situation. The employee shall state any suggestions as to how the situation may be remedied. Employees who fail to make such situations known within fifteen (15) days may be subject to disciplinary action. In accordance with 5 CFR 2635.102(b)(14), whether particular circumstances create an appearance that the law or applicable standards have been violated shall be determined from the perspective of a reasonable person with knowledge of the relevant facts. Employees shall disclose fraud, waste, abuse, and corruption to appropriate authorities.

Employment of Relatives

Employees shall not be assigned to any establishment where a member of his/her immediate family (father, mother, spouse, child, brother, sister) is employed. Employees shall not be assigned to any establishment where other family members (father-in-law, mother-in-law, son-in-law, daughter-in-law, brother-in-law, sister-in-law, mother-in-law, son-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half-brother, half-sister, aunt, uncle, niece, nephew, grandparents, grandchildren), who are residents of the employee's household are employed. Employees shall not be assigned to any establishment where other family members, who are not a resident of the employee's household but who are in supervisory, managerial, or policymaking capacity at the establishment.

Outside Employment

An employee shall not engage in outside employment or other outside activity that conflicts with his/her official duties. An activity conflicts with an employee's official duties: if it is prohibited by Statute or by an Agency supplemental regulation; or, if under the standards set forth in government-wide regulation, it would require the employee's disqualification from matters so central or critical to perform the duties of his/her position would be materially impaired. Employees must obtain prior approval for all outside employment or activities whether paid or unpaid. Requests must be made through supervisory channels to the approving official on FSIS Form 4735-3 "Request For Approval Of Outside Employment or Activity" prior to the beginning of the employment or activity.

Reports of Misconduct

Employees who have reason to believe that misconduct has been committed shall report it promptly to their supervisors. If the circumstances of the case are such that the employee feels his/her report should not be routed through his/her supervisor, it shall be reported to the next higher or appropriate level of supervision. Employees are covered by the Whistleblower Act. Nothing herein shall affect the right of employees to petition Congress or other officials.

Ethics Official

Employees will be notified of the identity and phone number of the Agency's Designated Ethics Official. Employees who have questions about the application of ethics requirements or any particular situations should seek advice from the Agency Ethics Official. Disciplinary action for violating such requirements or any supplemental Agency regulations will not be taken against an employee who has engaged in conduct in good faith reliance upon the advice of an Agency Ethics Official, provided that the employee, in seeking such advice, has made full disclosure of all relevant circumstances.

Bribery or Attempted Bribery

Any employee who is offered a bribe has the responsibility for immediately reporting the facts of the case to the Office of Investigation (OI) by the most expeditious means available.

The employee shall not disclose the information reported or that it was reported without the prior approval of OI or the Federal Bureau of Investigation (FBI). The Agency shall maintain a listing of appropriate OI reporting points, which shall be readily available to employees in field locations.

If an employee has reasonable cause to believe that he/she is the personal subject of a bribery investigation, he/she has the right to contact a representative of his/her choice.

Farm/Ranch

Any outside employment or financial interest in land used for commercial production of any commodities inspected, graded, regulated, or otherwise controlled by FSIS must be reported through supervisory channels for appropriate conflict of interest review and approval.

Applicability of Employment Restrictions

Employment restrictions will apply when there is an appearance of a conflict of interest or a conflict of interest between one's off-duty activities and

performance of inspection duties.

Purchase of Product

Employees may not purchase, without prior approval from an immediate supervisor, products, personally or through another individual, from a plant or establishment regulated, inspected, or otherwise controlled by FSIS if employee performs a function related to the commodity or commodities dealt with or processed by the plant or establishment.

Political Activity

Employees will not be subject to additional limitations on political activity beyond those provided by law.

Member of Family Conduct

Although FSIS employees will not be held responsible for the conduct of their adult family members, they will be held responsible to acknowledge and report all situations in which any adult family member's employment, duties, or financial interests may create or give the appearance of a conflict of interest in relation to the FSIS employees' employment and/or assignment.

IV. FSIS "Ethics at a Glance"

The following highlights of the ethics regulations published by the Office of Government Ethics (OGE) are not meant to be a summary of the ethics regulations. They are for guidance for use by FSIS employees only. If you have any specific questions, feel free to ask your supervisor or an employee relations specialist. Remember: any time you are in doubt when confronted with an ethical problem--ASK!

Gifts from Outside Sources
(Subpart B - 5 CFR 2635.201-205)

The rule: As a Federal employee, you may not accept gifts from a prohibited source. You may never solicit a gift. While the OGE regulations allow for some exceptions for the acceptance of gifts, as FSIS employees operating under the Federal Meat Inspection Act, you may not take advantage of any of the exceptions, as you are prohibited from accepting anything of value, no matter for what purpose it is offered.

Prohibited Source: A prohibited source is any person, company or organization which does business with FSIS, or is seeking to do business

with FSIS, or conducts activities regulated by FSIS, or has interests that may be substantially affected by the performance or nonperformance of your duties, or is an organization a majority of whose members fit any of the above categories.

Gifts Between Employees
(Subpart C - 5 CFR 2635.301-304)

The rule: You may not (1) give a gift to your supervisor or anyone higher up the chain, or (2) accept a gift from any lesser-paid employee.

Exceptions: It is okay to give or receive a gift if it is one of the following: (1) a gift from a lesser-paid employee who is not your subordinate; (2) a gift for a traditional occasion such as a birthday if it is worth less than $10; (3) food or refreshment shared among FSIS employees; (4) a small contribution for a gift for a special occasion like a wedding or an employee leaving the job; (5) a gift in connection with personal hospitality, like a bottle of wine on being invited to someone's home. Remember, these exceptions apply to gifts between FSIS employees, not between you and plant employees.

Conflicting Financial Interests
(Subpart D - 5 CFR 2635.401-403)

The rule: You may not participate in any matter, as part of your official duties, if it would have a direct predictable effect on your financial interests, or those of your spouse, minor child, or outside employer.

Impartiality in Performing Official Duties
(Subpart E - 5 CFR 2635.501-502)

The rule: If you are in a situation where your official duties could affect your own financial interests, or those of your business partner in an outside employment, or those of someone like your spouse or child, or one where a reasonable person might questions your impartiality, you may not work on that matter until your have informed your supervisor and the Agency's ethics official about it. The Agency ethics official will let you know whether you may proceed or not.

Seeking Other Employment
(Subpart F - 5 CFR 2635.601-606)

The rule: If you are seeking employment with a person or company, or have an arrangement concerning future employment with them, then you cannot participate in any matter involving that person or company as part of your official duties, if their financial interests could be affected by your performance of your duties.

Misuse of Position
(Subpart G - 5 CFR 2635.701-705)

The rule: If your friends or relatives have any kind of dealing with FSIS or USDA, you cannot use your position to try to intercede on their behalf and help them.

You cannot use your position to endorse any product, service or company, except where it is part of your official duties to do so. You cannot use nonpublic information (information you receive in the course of your job that is not available to the general public) for the financial gain of yourself or others. You cannot use government property for any reason other than government purposes. This includes government buildings, telephones, typewriters, computers, computer software, office equipment, supplies, copiers, fax machines, government vehicles, etc.

Exceptions: There are a few exceptions to these rules, such as brief use of the government telephone to check on children with a babysitter, or the use of a copier machine on behalf of recognized employee organizations or professional associations.

Outside Activities
(Subpart H - 5 CFR 2635.801-809)

The rule: An FSIS employee may not engage in any outside employment or activity, whether you are compensated for it or not, if it conflicts with your official duties, or creates the appearance of a conflict of interest with your official duties.

V. 9 CFR - Chapter III--Food Safety and Inspection Service, Department of Agriculture

Part 416-- Sanitation--Table of Contents

Sec. 416.5 Employee hygiene

> (a) Cleanliness. All persons working in contact with product, food-contact surfaces, and product-packaging materials must adhere to hygienic practices while on duty to prevent adulteration of product and the creation of insanitary conditions.
>
> (b) Clothing. Aprons, frocks, and other outer clothing worn by persons who handle product must be of material that is disposable or readily

cleaned. Clean garments must be worn at the start of each working day and garments must be changed during the day as often as necessary to prevent adulteration of product and the creation of insanitary conditions.

(c) Disease control. Any person who has or appears to have an infectious disease, open lesion, including boils, sores, or infected wounds, or any other abnormal source of microbial contamination, must be excluded from any operations which could result in product adulteration and the creation of insanitary conditions until the condition is corrected.

[64 FR 56417, Oct. 20, 1999]

IV. Points of Contact

Questions on ethics: USDA Office of Ethics; (202) 720-0020

http://www.ethics.usda.gov/index.htm
http://www.ethics.usda.gov/training/index.htm

Questions concerning Labor Relations, Employee Relations, or Workplace Violence Prevention:

- Labor and Employee Relations Division; (202) 690-3774

To report incidents of Workplace Violence, call 1-877-987-3747

http://www.fsis.usda.gov/FSIS_Employees/Workplace_Violence_Prevention/index.asp

Note Pages

Note Pages

Poultry Anatomy

Objectives

After a student completed this module, he or she will be able to accomplish the following

1. On a real specimen or drawing of a young chicken, identify and locate the following anatomical structures:
   (a) External Anatomy:
      (1) Uropygial gland/ oil gland/ oil sack/ preen gland
      (2) Feather follicle
      (3) Different feather tracts
      (4) Comb
      (5) Wattles
      (6) Shank
      (7) Hock joint
      (8) Vent opening
   (b) Internal Anatomy:
      (1) Esophagus/ gullet/ goozle
      (2) Crop/ ingluvies/ craw
      (3) Proventriculus/ true stomach/ glandular stomach
      (4) Ventriculus/ gizzard/ muscular stomach
      (5) Small intestine
      (6) Duodenum
      (7) Pancreas (located in the loop of the duodenum)
      (8) Large intestine/ rectum/ colon
      (9) Cecum (a pair of ceca present)
      (10) Cloaca/ Vent (anus)
      (11) Mesentery vessels
      (12) Heart
      (13) Coronary band

(14) Pericardial sac

(15) Spleen

(16) Liver

(17) Gall bladder

(18) Kidneys

(19) Thymus

(20) Bursa of fabricius

(21) Trachea/ windpipe

(22) Lungs

(23) Syrinx

(24) Air sacs:

(a) Interclavicular

(b) Thoracic

(c) Abdominal

(25) Reproductive system:

(a) Ovary/oviduct

(b) Testicles

(c) Skeletal anatomy:

(1) Vertebral column consists of:

(a) Cervical vertebrae

(b) Thoracic vertebrae

(c) Lumbar vertebrae

(d) Sacral vertebrae

(e) Coccygeal vertebrae

(2) Pectoral girdle consists of:

(a) Clavicle/ wishbone/ pulleybone/ furculum

(b) Coracoid

(c) Scapula/ shoulder blade

(3) Wing consists of:

(a) Humerus

(b) Radius

(c) Ulna

(d) Wing tip

(4) Pelvic girdle consists of:

(a) Ilium

(b) Ischium

(c) Pubis

(d) synsacrum

(5) Legs consist of:

(a) Femur

(b) Tibia

(c) Fibula

(d) shank

(6) Other skeletal bones:

(a) Sternum/ keel/ breast bone

(b) Vertebral ribs

(c) Sternal ribs

2. Identify at least one general difference between avian species and mammals in the following categories:
   a. Lymphatic system
   b. Respiratory system
   c. Skeletal system
   d. Urinary system

3. Identify three organs (glands or tissues) in the avian species that are major sites of lymphatic tissue.

4. Identify the number of air sacs found in young chickens and indicate which are fused or paired.

5. Name the air sac in young chickens that is observed on postmortem inspection and has communication with bone.

6. Name three body systems in young chickens that terminate through the cloaca.

7. Name three organs or tissues that are present in the young bird or embryo that either fail to develop or diminish in size as the bird matures.

8. Identify the anatomical location of diverticula from the interclavicular air sac.

9. Describe why inflammation of the interclavicular air sac is significant as compared to inflammation of the abdominal air sacs.

10. Identify two reasons the skin of poultry may be different colors when observed at the postmortem inspection station.

11. Name the organs used for giblets.

12. Name the bone that is located in the thigh.

13. Name the two bones that are located in the drumstick.

14. Identify three major areas where fat is commonly stored in the live bird.

15. Define “debeaking” and identify the reason this practice is followed by many poultry growers.

16. Identify at least two proposed functions of air sacs in live poultry.

17. Identify at least two reasons why the color of fat might differ between lots of young chickens presented for postmortem inspection.

18. Identify the anatomical location of poultry kidneys.

19. Give the main function of each major organ or portion of the digestive tract.

20. Identify the only skin gland of significance in the chicken.

Poultry Anatomy

Introduction

What is poultry? 9 CFR 381.1 defines poultry as any domesticated bird, chickens, turkeys, ducks, geese, guineas, ratites or squabs.

This module is designed to fill any voids you may have on poultry anatomy, and to familiarize you with both the technical and common terms for different anatomical features of poultry. The species selected to serve as our example throughout this module is the young chicken.

External Anatomy

The **comb** and **wattles** are external structures on the head of poultry and are largely ornamental. The size and color are associated with gonad development and secretion of the sex hormones. The red color can be attributed to the high vascularity of the dermis covering these structures. The comb and wattles have different characteristics in male vs female birds, and among different poultry species.

Snoods and **whiskers** (**beards**) are external structures only found in turkeys.

Feathers cover almost the entire surface of the bird. They grow from **follicles**, which are organized into tracts. **Feather tracts** are named according to the structure they are associated with. For example, the femoral feather tract is on the thigh, which contains the femur. Most birds lose their feathers or molt once a year and replace their feathers by growing new ones. Generally speaking, young chickens come to slaughter before going through a complete molt.

The **skin** of chickens is thinner and more delicate than that of mammals. In addition, the color of the skin varies. Some of the factors contributing to this variation of species, age, diet and breed. The skin of young chickens at postmortem inspection may also be affected by the scalder temperature.

The **uropygial gland**, **preen gland**, **oil gland**, or **oil bag** is considered the only significant gland of the skin. It is located dorsally and near the tip of the tail. In the chicken there are two lobes that drain through a median nipple-like papilla. The function of the gland is somewhat uncertain but preening chickens take oil from this gland and apply it to their feathers.

Internal Anatomy

Respiratory System:

The respiratory system of birds is more complex than the mammalian counterpart. For our purposes, the system in the bird is comprised of the **trachea, syrinx, lungs,** and **air sacs**.

The **trachea**, or **windpipe**, is the structure through which air enters the bird, and has cartilaginous rings along its length. The syrinx is located where the trachea bifurcates (splits into two separate branches), and is similar to the larynx (voice box) of mammals.

Air passes through the trachea and at the terminal portions of the trachea the air sac structures bud out. These are very thin, colorless membranes that, when inflated with air, resemble tiny balloons inside the body cavity.

The function of the lungs is to facilitate gas exchange, as it is in mammals. However, because avians have air sacs, air flows through avian lungs on both inspiration and expiration. As well as functioning in respiration, air sacs may also regulate intrabody pressure and body temperature. The number of air sacs varies in different species. There is a chart in this module that lists the air sacs of each species of poultry.

The most anterior air sac is the **cervical**. It lies, as the name implies, in the neck area and is not observed during postmortem inspection. It is the only air sac in the young chicken not observed during postmortem inspection.

The next air sac, moving in a caudal direction, is the **interclavicular** air sac. Some information to remember about this particular air sac is that it lies between the clavicles (as the name implies), is the most anterior air sac observed on postmortem inspection, and has communication with other tissues, including bone, through **diverticula** (tiny fingerlike projections). The diverticula from the interclavicular air sac have the following communications: (1) into the breastbone, (2) into the bones of the shoulder girdle, and (3) around the shoulder joint.

The **thoracic** air sacs are next and lie in the rib cage area. In chickens and ducks there are two pairs- anterior and posterior- whereas the turkey only has one pair of thoracic air sacs.

The **abdominal** air sacs are paired and are located in the abdominal part of the body cavity. Because of their location, these air sacs are typically destroyed or displaced during the evisceration process.

Digestive System:

The digestive tract of the bird begins with the mouth, which does not contain lips or teeth. As in mammals, the mouth is connected to the **esophagus**, also called the **goozle** or **gullet**. In chickens the distal end of the esophagus has a specialized area for the storage of feed called the, **crop, craw,** or **ingluvies**. The crop is located at the base of the neck as it is viewed externally.

Following the crop is another short section of esophagus ending in the stomach. In birds the stomach consists of two parts. The **proventriculus**, also called the **glandular stomach** or **true stomach**, is located caudal to the crop. It secretes hydrochloric acid and pepsin, which are used to aid in protein digestion. The **ventriculus**, also called the **gizzard** or the **muscular stomach**, is caudal to the proventriculus, and is much larger and more muscular in appearance when compared to the proventriculus. The major function of the ventriculus is to grind the food. This grinding action prepares the food for digestion. Birds frequently deposit substantial amounts of fat around the gizzard.

The ventriculus empties into the small intestine, which consists of the **duodenum**, the **jejunum**, and the **ileum**. The duodenal portion is the most cranial, and is significant because the **pancreas** is located in the duodenal loop. The secretions of the pancreas contain enzymes, which enter the duodenum through the pancreatic ducts. This organ is seldom involved in pathology.

The large intestine consists of a pair of cecae and a short straight intestine, called the colon or rectum. This section of large intestine is similar to the rectum of mammals.

The cloaca is the termination of the digestive system. This portion of the digestive system represents a common passage for digestive, urinary, and reproductive systems. The cloaca opens externally in what is called the vent.

The **bursa of Fabricius** is located as a diverticulum in the dorsal wall of the cloaca. This bursa contains lymphatic tissue and has a function related to immunity and antibody production. It regresses in size and disappears as the bird matures. On postmortem inspection, the bursa of Fabricius is called the "**rosebud**". When it is intact, it appears as a small sac on the side of the cloaca. When it has been opened during the evisceration process, it appears like a rosebud, which is the common name for this structure because it has several small folds in its mucosal surface.

Birds that are healthy and well-nourished will usually deposit substantial amount of fat throughout their tissues. The abdominal area and vent flaps are major fat depots, as are the areas surrounding the gizzard and the coronary band of the heart. There may be considerable variation in the color of poultry fat. Diet, age, health status, and breed are all factors that can influence this color

The normal liver is a single organ which has two lobes. The color varies somewhat depending on the fat content. Each lobe of the liver is drained by a bile duct. The right lobe is drained by the hepatocystic duct and the left lobe is drained by the hepatoenteric duct. The duct from the right lobe is enlarged to form the gallbladder. Both ducts enter the small intestine together.

Circulatory System:

The heart of the chicken is four-chambered, like those of mammals, and beats at a rate of 250 beats per minute for larger breeds and up to around 350 beats per minute for smaller breeds. In contrast, the heart rate for human beings is typically around 80 beats per minute. The deep body temperature of a chicken is around 107 degrees F, versus that of mammals which is typically between 98 and 102 degrees F. Avian red blood cells, or erythrocytes, are nucleated, whereas mammalian red blood cells are not.

Some points to remember about the heart are that the heart's coronary band (around the top portion) has a normal fat structure that may show changes in quantity and appearance when a systemic disease occurs. Other points to remember are that the **pericardial sac** is the thin membrane that encloses the heart, and that they heart normally has a small deposit of fat at the tip as well as around the coronary band.

Lymphatic System:

The lymphatic system of chickens does not contain lymph nodes and in general is poorly developed when compared with mammals. There are several organs which contain lymphatic tissue- the bursa of Fabricius, the **spleen**, and the **thymus**. The **thymus** gland consists of about five pairs of pale pink, flattened, irregularly shaped lobes strung out along both sides of the neck, just superficial to the jugular veins. The thymus decreases in size as the bird matures.

The **spleen** is a small, round, soft organ similar in color to the liver. The normal spleen is about ¾ inch in diameter, located near the ventriculus (gizzard) in the body cavity. Histologically, it is composed of red and white pulp. The functions of the spleen include phagocytosis of worn-out erythrocytes in red pulp, lymphocyte production in white pulp, and antibody production in both the red and white pulp.

Urinary System:

The urinary system of the chicken does not contain a urinary bladder. There are two tri-lobed **kidneys**, one on each side of the ventral surface of the vertebral column. This pair of kidneys is embedded in the deep bony crypts of the pelvic and synsacral area of the skeleton. **Ureters** carry the urinary waste to the

cloaca. The uric acid is discharged into the cloaca and excreted with the feces. The white pasty material in chicken droppings is considered to be urinary system excretion. Birds excrete their nitrogen waste as **uric acid**, whereas mammals excrete it in the form of urea.

Reproductive System:

The female reproductive system consists of the left ovary and oviduct. Although present in the embryo, the right ovary and oviduct fail to develop. The oviduct terminates in the cloaca.

The male reproductive system consists of two testicles, which secrete semen through a vas deferens. The vas deferens terminates in the cloaca. The chicken has a rudimentary penis.

Skeletal System:

The chicken's beak is composed of hard keratinized epidermal tissue. This rostral structure forms part of the upper and lower jaws. The beak functions much like the lips and teeth of mammals. **Debeaking** is the removal of approximately one-half of the upper and lower level. In some cases only the upper beak is removed. Debeaking has been used in the poultry industry to prevent cannibalism.

Some bones of the avian species are considered **pneumatic** as a result of diverticula from the air sacs. These air sac diverticula result in a direct connection between the respiratory system and the skeletal system of avians.

The **vertebral column** is divided into cervical, thoracic, lumbar, sacral, and coccygeal areas:

1. The **cervical vertebrae** are the neck bones.
2. The **thoracic vertebrae** are those in the thoracic, or chest, area.
3. The **lumbar vertebrae** are those in the abdominal area.
4. The **sacral vertebrae** are those in the pelvic area.
5. The **coccygeal vertebrae** are those in the tail area.

The bones of the **pectoral girdle** are the clavicle, coracoid, and scapula:

1. The **clavicle**, also called the **wishbone**, **pulleybone**, or **furculum**, lies at the base of the neck. It is a fused bone. The intraclavicular air sacs are located between the two branches of the clavicle.
2. The **coracoid** bones lie on either side of the ribcage, and attach the shoulders to the breast bone. They lie just caudal to the clavicle, and are thick bones when compared to the clavicle.

3. The **scapula**, or **shoulder blade**, is a long thin bone which runs along the top of each side of the ribcage.

The bones of the **wing** are the humerus, radius, ulna, and wingtip:

1. The **humerus** is the upper wing bone. This bone has the same name as the upper front leg bone in mammals, and the upper arm bone in humans.
2. The **radius** is the small straight lower wing bone. This bone has the same name as the larger lower front leg bone in mammals, and the lower arm bone in humans.
3. The **wingtip** bone is the bone at the very end of the wing. It is frequently fractured during the slaughter process.

The **pelvic girdle** is composed of the synsacrum, ilium, ischium, and pubis (there is not a pubic symphysis in the chicken skeleton, probably an adaptation for egg laying):

1. The lumbar, sacral, and first six caudal (coccygeal) vertebrae are fused into an immobile dorsal bony structure referred to as the **synsacrum**.
2. The **ilium** is part of the pelvic girdle, and is a flat bone on each side of the anterior half of the synsacrum.
3. The **ischium** is part of the pelvic girdle, and is a flat bone on each side of the posterior half of the synsacrum.
4. The **pubis**, also known as the **pin bone**, is a long thin bone that runs along the ventral side of the ischium.

The leg of the chicken is composed of the **femur**, **tibia**, **fibula**, and **shank**:

1. The **femur** is the upper leg bone, which is located in the thigh of the chicken, as in mammals.
2. The **tibia** is the major lower leg bone, which is located in the drumstick of the chicken, as in the lower leg of mammals.
3. The **fibula** is a very small bone in the lower leg, or drumstick, of chickens. It is much smaller than it is in mammals.
4. The **shank** is the portion of the leg below the hock joint. It is normally removed during the slaughter process along with the paw.
5. The **hock joint** is located between the drumstick and the shank. It is normally exposed for postmortem inspection.

The **sternum**, also called the **keel** or **breast bone**, is a single large bone on the ventral surface of the body.

Ribs are divided into two types. The **vertebral ribs** are those that originate from the vertebral column. The **sternal ribs** are those that originate from the sternum (keel, breast bone).

Definitions

Abdominal: pertaining to the abdomen, or belly.

Anterior: situated in front of or in the front part of the body.

Caudal: denoting a position more toward the cauda or tail.

Cervical: pertaining to the neck.

Coronary band: the area around the top (large) end of the heart.

Cranial: pertaining to the anterior end of the body.

Dermis: connective tissue underlying the skin.

Diverticulum: a fingerlike projection of a pouch or sac.

Dorsal: pertaining to the back.

Epidermal: pertaining to the skin.

Gonad: a sex organ, such as an ovary or a testicle, which produces the gametes (egg or sperm).

Histologically: pertaining to the microscopic structure of a tissue.

Keratinized: made hard by the deposition of keratin, an insoluble protein.

Lateral: denoting a position farther from the median plane or midline of the body or of a structure.

Lymphatic: pertaining to the lymph or immune system.

Medial: pertaining to the middle; closer to the median plane or to the midline of a body or structure.

Mesentery: a membranous fold attaching various organs to the body wall.

Nucleated: having a cell nucleus.

Papilla: a small nipple-shaped projection, elevation, or structure.

Pectoral: pertaining to the breast or chest.

Pelvic: pertaining to the pelvis, or hip region.

Pneumatic: pertaining to air or respiration.

Posterior: situated in back of or in the back part of the body.

Regress: subsiding, or returning to a former or earlier state.

Rudimentary: poorly developed and not functional.

Symphysis: a type of cartilaginous joint in which the apposed bony surfaces are firmly united by a plate of fibrocartilage.

Thoracic: pertaining to the thorax, or chest.

Ventral: pertaining to the belly.

Appendix

Air Sacs in Poultry

The air sacs are named according to their location:

1. Cervical- neck
2. Interclavicular- between the wish bones (clavicle)
3. Anterior Thoracic- fore portion of the chest (thorax), below and in contact with the lungs.
4. Posterior Thoracic- hind portion of the chest (thorax), behind the lungs in the area between the lungs and the reproductive organs.
5. Abdominal- behind the last rib backward to the pelvic cavity. Air sacs form in the embryo in pairs but some fuse forming a single sac. Not all classes of poultry have the same number of air sacs because different species fuse different pairs of air sacs. The following are the air sac specifications for different species of poultry:

DUCK AIR SACS

Cervical	1 pair
Interclavicular	Fused
Anterior Thoracic	1 pair
Posterior Thoracic	1 pair
Abdominal	1 pair

CHICKEN AIR SACS

Cervical	1 Pair
Interclavicular	Fused
Anterior Thoracic	1 pair
Posterior Thoracic	1 pair
Abdominal	1 pair

TURKEY AIR SACS

Cervical	Fused
Interclavicular	1 pair
Thoracic	1 pair
Abdominal	1 pair

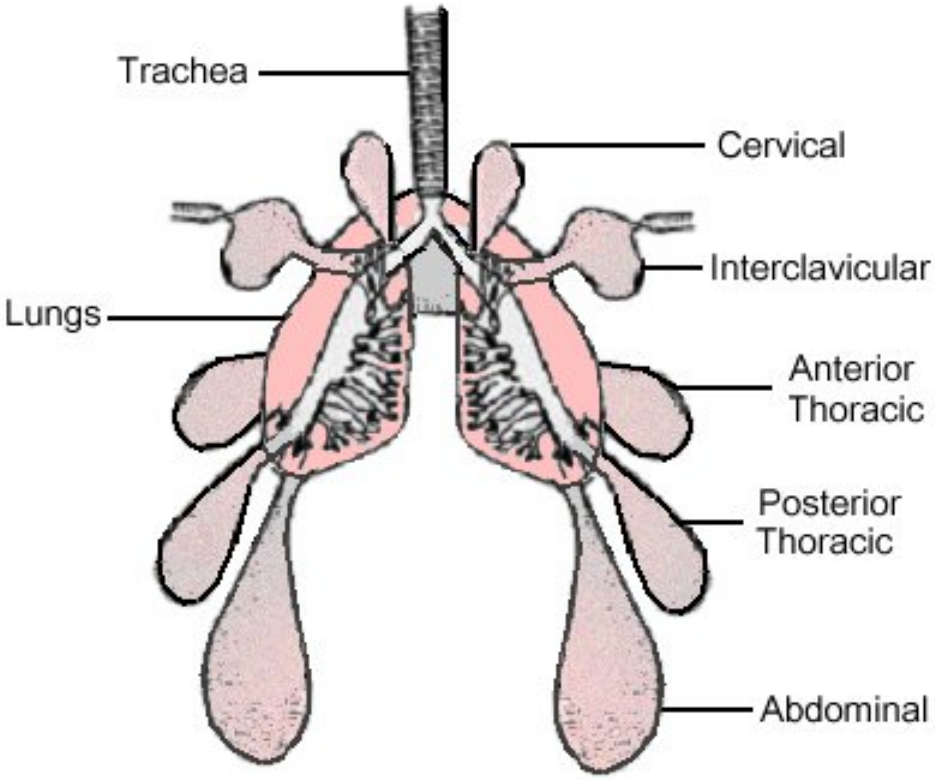
Air sac diverticula are out-branchings of the air sacs.

The cervical air sacs have diverticula into vertebrae of the neck, back and ribs.

The interclavicular air sacs have diverticula into the breast bones and the bones of the shoulder girdle as well as around the shoulder joint.

The thoracic air sacs have no diverticula.

The abdominal air sacs invest the abdominal viscera and extend into the kidney crypts. They have diverticula around the hip joints.



Air Sac System of the Chicken

A Comparison of Scientific Terms to Common Poultry Plant Terms:

Scientific Term	*Plant Term*
Uropygial gland	Oil gland, preen gland, oil bag
Stifle joint	knee joint
Esophagus	gullet, goozle
Ingluvies	crop, craw
Proventriculus	stomach
Ventriculus	gizzard
Cloacal bursa (Bursa of Fabricius)	rosebud, flower
Ceca	blind guts
Trachea	windpipe
Syrinx	voice box
Lungs	lights
Pericardium	heart sac
Tibia and fibula	drumstick
Femur	thigh bone, thigh
Pubis	pin bone
Clavicles (fused)	wishbone
Sternum	keel, breast bone
Fused metacarpals	wing tip
Radius and ulna	wing portion
Humerus	peg leg

WORKSHOP

1. List two general differences between avian species and mammals with respect to the following body systems:

   a. Lymphatic System

   b. Respiratory System

   c. Skeletal System

   d. Urinary System

   e. Reproductive System

2. List three organs (glands or tissues) in the avian species that contain lymphatic tissue:

3. List the air sacs found in young chickens and indicate which are fused or paired:

4. Name the air sac in young chickens that is observed on postmortem inspection and has communication with bone:

5. List three body systems in young chickens that terminate through the cloaca:

6. List three organs or tissues that are present in the young bird or embryo that either fail to develop or become absent in the mature bird:

7. Give the anatomical location of diverticula from the interclavicular air sac:

8. Describe why inflammation of the interclavicular air sacs is significant in the slaughter and processing of poultry carcasses as compared to inflammation of the abdominal air sacs:

9. List two reasons the skin of poultry may be different colors when observed at the postmortem inspection station:

10. List the bone that is located in the thigh:

11. List the organs used for giblets:

12. List the two bones that are located in the drumstick:

13. List three major areas where fat is commonly deposited in the live bird:

14. Match the anatomical part with the letter from Figure 1 on the next page. Some letters may be used more than once.

Uropygial gland _____

Wing tip _____

Sternum _____

Shank _____

Hock joint _____

Femoral feather tract _____

Wattle _____

Crural feather tract _____

Beak _____

Pectoral feather tract _____

Oil gland _____

Breast _____

Comb _____

Thigh _____

Preen gland _____

Drumstick _____

Oil bag _____

Keel _____

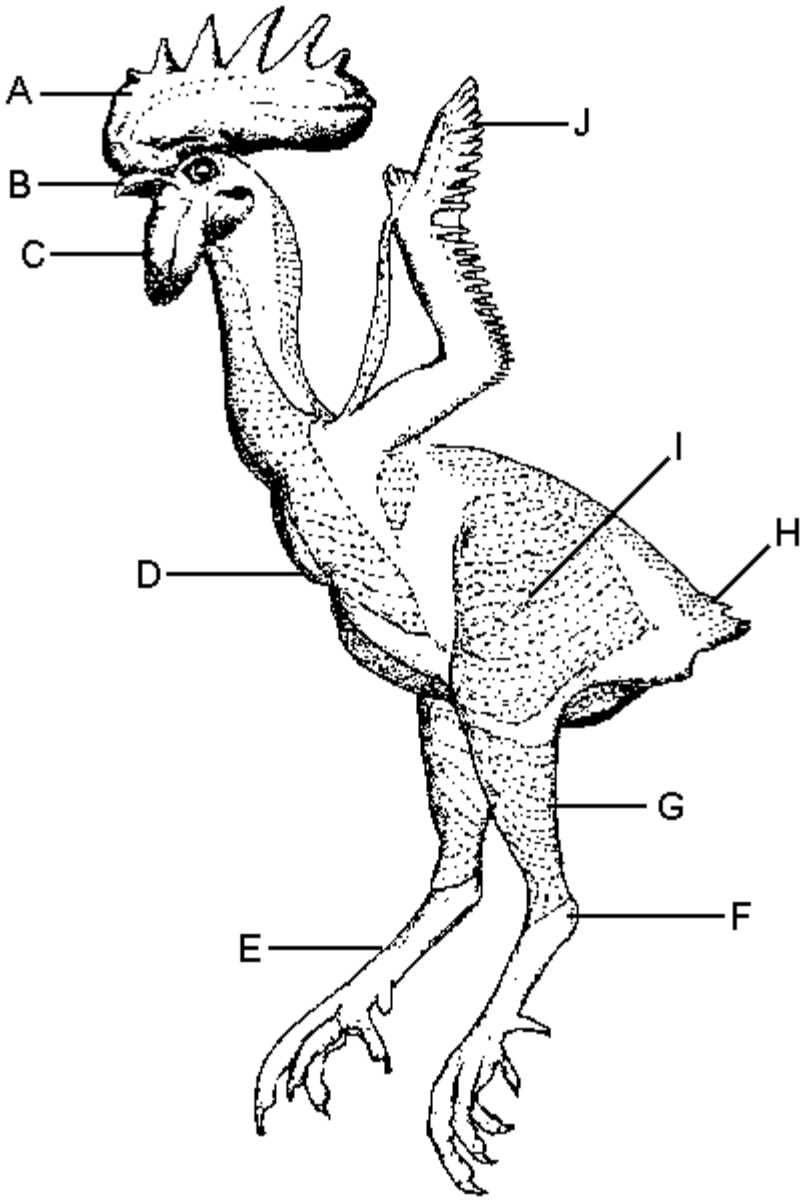


Figure 1

15. Match the anatomical part with the letter from Figure 2 on the next page. Some letters may be used more than once.

Tibia _____

Breast bone _____

Coracoid _____

Pulley bone _____

Femur _____

Pelvic girdle _____

Cervical vertebrae _____

Clavicle _____

Humerus _____

Sternum _____

Synsacrum _____

Furculum _____

Neck _____

Hock joint _____

Radius _____

Keel _____

Thigh bone _____

Wishbone _____

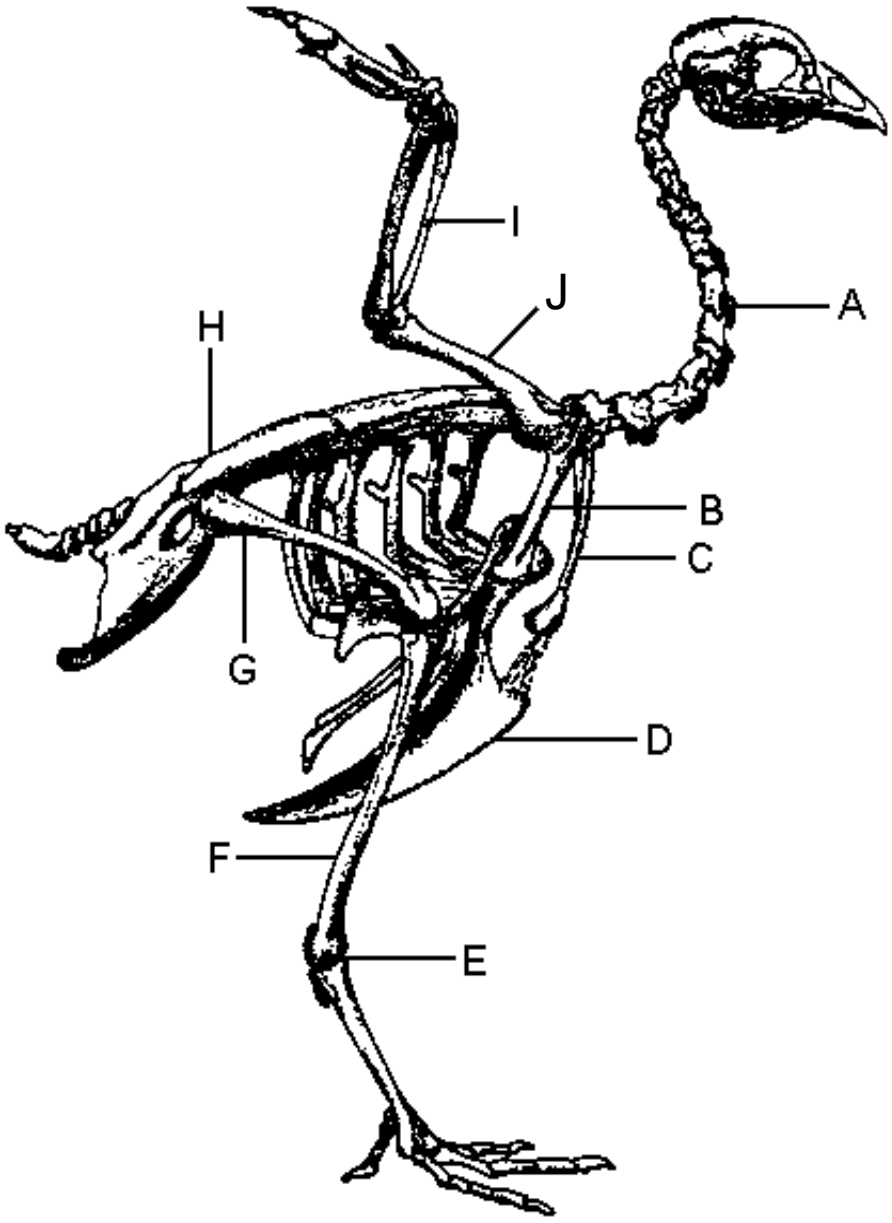


Figure 2

16. Match the anatomical part with the letter from Figure 3 on the next page. Some letters may be used more than once.

Proventriculus _____

Blind gut _____

Goozle _____

Ventriculus _____

Cloacal bursa _____

Crop _____

Rectum _____

Muscular stomach _____

Esophagus _____

Glandular Stomach _____

Craw _____

Cloaca _____

Pancreas _____

Colon _____

Gizzard _____

Gullet _____

Cecum _____

True stomach _____

Ingluvies _____

Liver _____

Bursa of Fabricius _____

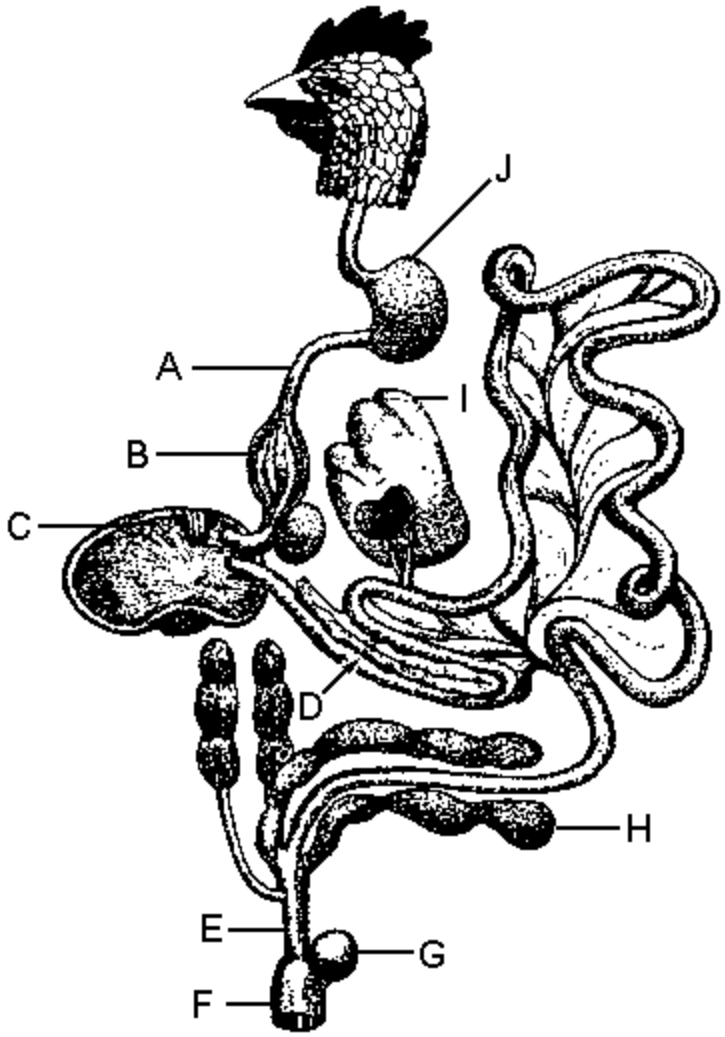


Figure 3

17. Describe what is meant by “debeaking” and the reason such practice is followed by many poultry producers.

18. List two functions of air sacs in live poultry.

19. List three reasons why the color of fat might differ between lots of young chickens presented for postmortem inspection:

Poultry Antemortem Inspection

Objectives

1. Describe the proper procedure for conducting antemortem inspection on a poultry lot.

2. List at least three reasons why poultry antemortem inspection is conducted differently than red meat antemortem inspection.

3. From a list of responsibilities, determine which are plant management's and which are inspections.

4. List the sources of authority for conducting poultry antemortem inspection.

5. Describe in writing the lighting and condemn container requirements for antemortem inspection of poultry.

6. List at least five symptoms of disease that might be observed on antemortem inspection.

7. Discuss the good commercial practices regulatory requirements for poultry.

8. Properly execute the antemortem portion of FSIS Form 9061-2 (Poultry Condemnation Certificate).

9. Describe the proper action by inspection when live poultry are removed from the official plant premises for the following reasons:

   - The plant feels that inspection is condemning an excessive number of poultry carcasses on postmortem inspection.
   - The plant suspects a reportable disease present in the poultry.
   - The plant suspects a biological residue present in the poultry.
   - The plant wishes to send live poultry to another plant for slaughter for the purpose of split-lot correlation between the inspection forces of two plants.

10. Define "positive control" of poultry condemned during antemortem inspection.

11. List at least three acceptable methods the plant can use to dispose of poultry condemned on antemortem inspection.

12. Compare the required disposal of poultry condemned for biological residues to the required disposal of poultry condemned for other reasons.
13. Render an antemortem disposition according to FSIS rules, guidelines, and procedures when given a description of antemortem findings.

14. State who may officially perform antemortem inspection.

15. Describe the procedures that must be followed when poultry suspected of having a contagious disease transmissible to humans are detected during antemortem inspection.

16. State whether poultry condemned on antemortem inspection may enter any part of the official establishment.

17. Describe the procedures that must be followed when poultry affected by a biological residue are detected during antemortem inspection.

18. List four non-disease factors that may affect the condition of poultry presented for inspection.

Resources

FSIS Directive 6000.3 Ante mortem and Postmortem Poultry Inspection

FSIS Directive 6110.1 Verification of Poultry Good Commercial Practices

FSIS Directive 6020.1 Rev. 1 Enhanced Inspection of Poultry in Response to a Notification of a Highly Pathogenic Avian Influenza Outbreak

FSIS Directive 6000.1 Rev. 1 Responsibilities Related to Foreign Animal Diseases (FADs) and Reportable Conditions

Poultry Antemortem Inspection

Antemortem means "before death." The Act and Regulations require that antemortem inspection be performed on poultry presented for slaughter.

Antemortem inspection of poultry is performed on a lot basis. The plant or establishment designates the size of the lot. Generally, a lot is made up of birds from a single house of poultry grown on a particular farm, but it may be as large as several houses of poultry. Lot size designation depends upon the criteria used by plant management.

Authorities

The Agency's authority for conducting ante-mortem inspection can be traced to the statutes. The authority for conducting ante-mortem inspection in poultry is found in 21 USC, Chapter 10, Section 455(a), of the Poultry Products Inspection Act (PPIA).

The regulations covering ante-mortem inspection of poultry are found in Title 9 - Animals and Animal Products, Chapter III - Food Safety and Inspection Service, Department of Agriculture of the Code of Federal Regulations. Part 381.36(b) addresses the facilities for Inspection. Parts 381.70 through 381.75 cover ante-mortem Inspection.

There are some FSIS Directives related to ante-mortem inspection. They include the FSIS Directive 6110.1 "Verification of Poultry Good Commercial Practices", FSIS Directive 6100.3, 'Ante-Mortem and Post-Mortem Poultry Inspection", and the FSIS Directive 6170.1, "Ratite Ante-Mortem and Post-Mortem Inspection". These are instructions to inspection personnel.

The statutes establish our authority to examine and birds prior to slaughter. Under the statues, we are to accept for slaughter as a result of inspection only those birds which are capable of producing products that are acceptable for use as human food. With this goal in mind, the purpose of ante-mortem inspection is to accept only those animals and birds that are healthful, safe from harmful chemical and drug residues, and capable of being converted into wholesome product for the consumer. Inspection of birds is a screening process to remove obviously diseased animals from the food supply prior to slaughter and to identify animals that require a more extensive postmortem examination by an FSIS veterinarian. It is the first line of defense in protecting the public from potentially harmful poultry products. Those birds that exhibit abnormal signs must be withheld from normal slaughter and segregated for closer examination.

Scientific studies have established the basis for conducting antemortem inspection of poultry. The observation of poultry while they are in coops or batteries, before or after their removal from trucks near the point where live poultry are hung on the line, meets the antemortem inspection requirement, with the exception of antemortem inspection of ratites (ostriches, emus, and rheas). By observing several birds from each lot, the FSIS inspector meets this requirement. Such inspections help ensure that only poultry that could be acceptable as human food enter the plant.

If a bird is alive, it will be hung on the line. If it is dead, the bird must be condemned and maintained under positive control until disposed of properly. Positive control means:

- under direct observation by inspection personnel
- denatured or decharacterized by chemical agents
- secured in a properly marked container by a government lock or seal

Verification of Good Commercial Practices for Poultry

In poultry operations, methods of handling and slaughtering that are consistent with good commercial practices increase the likelihood of producing unadulterated product. FSIS regulations describe the operating procedures that poultry processors must follow to ensure sanitary processing, proper inspection, and the production of poultry products that are not adulterated. Under 9 CFR 381.71, FSIS condemns poultry showing, on antemortem inspection, certain diseases or conditions. Bruising is one condition that may result in condemnation (9 CFR 381.89). Bruises are likely to result when birds are not treated humanely. Moreover, the PPIA (21 U.S.C. 453(g)(5), as well as agency regulations (9 CFR 381.90), provide that carcasses of poultry showing evidence of having died from causes other than slaughter are considered adulterated and condemned. The regulations also require that poultry be slaughtered in accordance with good commercial practices, in a manner that results in thorough bleeding of the poultry carcass, and ensures that breathing has stopped before scalding so that the birds do not drown (9 CFR 381.65(b). Compliance with these requirements helps ensure that poultry are treated in a humane manner.

FSIS Directive 6110.1, issued on July 3, 2018, instructs Agency in-plant personnel assigned to poultry slaughter facilities to perform a Good Commercial Practices task on a daily, per shift basis when the establishment slaughters. During this verification task, the PHV, or designee, is to systematically observe the conditions in the receiving to pre-scald area. Once a week, Agency in plant personnel are to review the establishment records documenting its adherence to good commercial practices, if the establishment keeps such records. Establishments are not required to keep records of good commercial practices. However, if establishments do keep such records and make them available, IPP are to review the records. The Directive also clarifies that video surveillance can be used by the establishment as a form of GCP record.

When verifying good commercial practices in the receiving through pre-scald areas, you are to observe whether establishment employees are mistreating birds or handling them in a way that will cause death or injury or prevent thorough bleeding or result in excessive bruising. For example, observe whether establishment employees are breaking the legs of birds to hold the

birds in the shackle or squeezing them into a shackle or otherwise mishandling birds while transferring them from the coops to the shackles. In cold weather, observe if birds are frozen inside the cages or frozen to the cages themselves, or in hot weather, observe if the birds are dead from heat exhaustion. The main observable symptom of heat stress in poultry is heavy panting.

Observe the handling and treatment of loose birds in the unloading and live hang areas. For example, are establishment employees driving over live birds with equipment or trucks? If the birds are stunned before being bled, observe whether stunning equipment is functioning properly. However, stunning birds before bleeding is not a regulatory requirement. For example, a post-stun posture that includes arched neck and wings tucked in is visual evidence of an effective stun. You also want to observe whether or not the bleeding equipment is functioning properly. For example, check if birds are entering the scalder are still breathing; if there are increased numbers or clusters of cadavers at the inspection station; or if there is other evidence that birds died other than by slaughter. Observe whether there are an increased number of bruised wings or legs; or whether there are any other activities that will interfere with thorough bleeding of the birds, or could result in the birds still breathing at the time they enter the scalder.

If you observe that the establishment is not observing good commercial practices, as evidenced by birds dying other than by slaughter or not being completely bled out before entering the scalder, you are to inform the offline CSI or PHV immediately. They will document the noncompliance on a Noncompliance Record or a Poultry Mistreatment MOI. The District Veterinary Medical Specialist (DVMS) will routinely correlate and review the documentation and observations in the GCP NRs and Poultry Mistreatment MOIs. In specific situations, after DVMS review of a mistreatment MOI, there may be a need for additional notification of the appropriate state officials/

Poultry and Livestock Antemortem Comparison

Antemortem inspection requirements for poultry are different from those for livestock. The following are examples that illustrate the differences.

- Age -- A poultry lot goes to slaughter at an early age (6-8 weeks). Livestock are generally much older.

- Genetics -- A poultry lot is closely related to the same parentage. Livestock have greater variation.

- Nutrition and Health Management -- A poultry lot is under the same influence of feed, vaccinations, and environment from the hatchery to the slaughter plant.

Poultry antemortem inspection is performed on a lot basis because of the way the PPIA, and Poultry Regulations are written. The fact that the origins of the Meat Act and the Poultry Act are different has something to do with the different methods of inspection. The original Meat Act basically had its beginnings in the early 1900's and was precipitated by public opinion and Upton Sinclair's book *The Jungle*. The original Poultry Act was not passed until the 1950's. Both the times and public opinion had changed considerably.

Some of the major differences between poultry and red meat antemortem inspection are as follows:

- An antemortem bird-by-bird inspection of poultry is not a feasible task. Therefore, inspection on a lot basis was established.

- U.S. Condemn tags are not used in poultry antemortem inspection.

- An official U.S. Suspect pen is not required in poultry antemortem inspection.

- In red meat U.S. Suspects have their body temperatures taken, but poultry antemortem inspection does not involve taking body temperatures.

- Biological residue condemnations in poultry must be burned or buried.

Observation of humane slaughter is not required for poultry since there is not a Federal humane poultry slaughter law. However, observation of good commercial practices is required, and if condemned live poultry are to be killed, they must be killed in a humane manner.

Antemortem inspection must be performed before daily slaughter operations begin and as often as necessary during the shift, as determined by the veterinarian in charge. On antemortem inspection, any birds that do not clearly show but are suspected to have any disease or condition that may cause condemnation of part or the entire carcass on postmortem inspection under 9 CFR Part 381, are to be designated as “U.S. Suspect”.

The birds identified as “U.S. Suspect” are to be segregated and the PHV must verify that they are slaughtered separately from the birds passed for normal slaughter. The plant or establishment is required to provide adequate facilities, equipment, and necessary supplies for FSIS to perform this inspection.

Poultry are condemned on antemortem inspection if they present with diseases or conditions that, under 9 CFR 381.71(a), warrant condemnation. Birds condemned on antemortem inspection cannot enter the official establishment and must be disposed of properly, according to 9 CFR 381.95. Poultry that are dead on arrival must be identified, counted, and weighed, and the number recorded on FSIS Form 9061-2, Poultry Condemnation Certificate. Condemn barrels must be leak proof and clearly marked.

Ratite Antemortem Inspection

Antemortem inspection in ratites more closely matches the livestock method of antemortem inspection. There must be an identification system used that accurately identifies each animal and establishes that Agency personnel have performed antemortem inspection on that bird. This is often done using pen cards, similar to pen cards used in livestock antemortem inspection.

All ratites are to be observed at rest and in motion. When viewing each ratite during antemortem inspection, you are to observe the overall condition of the ratite; the body of the bird and the head, including the eyes, nostrils, beak, and neck; the degree of alertness, mobility, and breathing; and look for any unusual swellings or other abnormalities.

When you find ratites showing signs of abnormalities or diseases on antemortem, you are to have the establishment segregate all affected ratites (e.g., suspect pen) for further examination by the PHV (9 CFR 381.72(a)). Ratites that are seriously crippled and non-ambulatory and those suspected of having any disease or condition requiring condemnation of all or part of the carcass are to be designated as a “U.S. Suspect” with a serially numbered metal or plastic leg band or tag bearing the term “U.S. Suspect”. These birds are to be slaughtered separately from the ratites pass for normal slaughter.

Under specific circumstances, ratites are eligible for delayed (9 CFR 381.70(b)(2)) and emergency slaughter (9CFR 381.70(b)(1)). For a more complete description of the applicable circumstances, see FSIS Directive 6170.1, “Ratite Ante-Mortem and Post-Mortem Inspection”.

Ratites that are dead on arrival, that died at the establishment, that are plainly affected with any disease or condition that would cause condemnation on postmortem inspection under 9 CFR Part 381, or that are affected with any condition that would preclude the release of the animal for slaughter for human food are to be designated as “U.S. Condemned”. Ratites condemned on antemortem inspection are to be disposed of in accordance with 9 CFR 381.95.

Conditions Seen During Antemortem Inspection

Symptoms of disease that may be observed on antemortem inspection include:

- Swelling around the head and eyes
- Edema of the wattles
- Gasping and sneezing
- Coughing
- Off-colored diarrhea
- Skin lesions
- Lameness
- Torticollis or wry neck (neurological)
- Bone or joint enlargement
- Dermatitis
- Stumbling and falling down
- Sudden increase in bird deaths without clinical signs

Some non-disease factors that may affect the condition of poultry presented for inspection are as follows:

- Season of the year
- Heat
- Humidity
- Freezing rain
- Distance hauled to the plant
- Number of birds in a coop
- Time withdrawn from feed and water prior to slaughter

Antemortem inspection can be performed officially by either a food inspector or a veterinarian. However, if a food inspector suspects that a live lot of poultry has a contagious disease that might be transmissible to humans, the food inspector must notify a veterinarian. If the veterinarian decides that further handling of the poultry will create a health hazard, such poultry may be released for treatment under the control of appropriate State or Federal officials. If treatment is not practical, all birds found to be or suspected of being affected with the disease must be condemned on antemortem. Birds condemned on antemortem for any reason may not be brought into any department of the plant but must be disposed of according to regulations.

In summary, antemortem inspection of poultry can be a valuable aid to the inspection team in the poultry plant. These are some points to remember.

- Antemortem inspection is performed before the start of operations on the day of slaughter on each lot of birds.
- After the start of operations, the veterinarian in charge determines the frequency of antemortem inspection.
- Live birds, even if diseased, may be removed from the official premises. In case of a reportable disease (like ornithosis/chlamydiosis) is involved or suspected, contact your supervisor.
- Birds (alive or dead) that are condemned on antemortem must be counted, weighed, and denatured by plant personnel. This information is reported on FSIS Form 9061-2 (Poultry Condemnation Certificate) for each lot.
- Condemnations must be maintained under positive control until proper disposal

Antemortem Workshop

1. Describe the proper procedure for conducting antemortem inspection on a poultry lot.

2. List four reasons why poultry antemortem inspection is conducted differently from red meat animal inspection.

3. List one responsibility of inspection and one responsibility of plant management in regard to poultry antemortem inspection at the plant.

   a. an inspection responsibility:

   b. a plant management responsibility:

4. List the sources of authority for conducting poultry antemortem inspection.

5. Describe the requirements for antemortem inspection of poultry for the following:

   a. Lighting

   b. Condemn containers

6. List five symptoms of disease that may be observed during antemortem inspection of poultry.

7. Give a description of the following:

   a. a non-disease condition in live poultry that might cause plant production problems

b. a disease condition in live poultry that might cause plant production problems

8. Define "positive control" of poultry condemned during antemortem inspection.

9. Describe the action inspection should take when *live* poultry are removed from the official plant premises for the following reasons.

   a. The plant feels that inspection is condemning excessive numbers of poultry carcasses on postmortem inspection.

   b. The plant suspects that a reportable disease is present in poultry.

   c. The plant suspects that there is a biological residue present in the poultry.

   d. The plant wants to send live poultry to another plant for slaughter for the purpose of split lot correlation between the inspection forces of two plants.

10. List three acceptable methods the plant can use to dispose of poultry condemned on antemortem inspection.

11. Describe the difference between the required disposal of poultry condemned for biological residues and the required disposal of poultry condemned for other reasons.

12. Given the following descriptions of antemortem findings, render an antemortem disposition according to FSIS rules and regulations.

a. Birds that are coughing and sneezing and have swollen sinuses

_____pass for regular slaughter

_____withheld from slaughter

_____slaughtered as suspects

_____condemned on antemortem

b. Birds with obvious signs of a disease transmissible to humans

_____pass for regular slaughter

_____withheld from slaughter

_____slaughtered as suspects

_____condemned on antemortem

c. Birds with diarrhea and dirty feathers

_____pass for regular slaughter

_____withheld from slaughter

_____slaughtered as suspects

_____condemned on antemortem

d. Birds that are suspected of containing a biological residue

_____pass for regular slaughter

_____withheld from slaughter

_____slaughtered as suspects

_____condemned on antemortem

13. Identify the true statements by placing an "X" in the box provided.

- ☐ A. DOA birds must be identified, counted, weighed, and their number reported on the FSIS Form 9061-2 (Poultry Condemnation Certificate).
- ☐ B. Poultry must be humanely slaughtered according to the provisions of the Humane Slaughter Act.
- ☐ C. Poultry suspected of having biological residues may be returned to the grower under certain conditions.
- ☐ D. Each poultry antemortem lot must be identified with a pen card.
- ☐ E. Antemortem inspection shall only be performed on lots identified for slaughter by the establishment.
- ☐ F. Poultry shall not receive antemortem inspection until they are removed from the truck.
- ☐ G. Dead on arrival birds must be left in the coops for on-the-farm disposal.
- ☐ H. Antemortem inspection is required in each official establishment that slaughters birds.
- ☐ I. Poultry suspected of having biological residues may be slaughtered at the official establishment and sold for pet food.
- ☐ J. Live poultry affected with a disease that is transmissible to humans may be released for treatment.

☐ K. The primary purpose of antemortem inspection is to be able to inform plant management when sick birds arrive.

☐ L. Live poultry that were used in a chemical company experiment must be approved for slaughter by the Administrator.

☐ M. Antemortem inspection is official only when an FSIS veterinarian performs it.

☐ N. Antemortem inspection is optional in plants that export poultry.
☐ O. Live birds that are condemned and killed on antemortem inspection must be killed in a humane manner.

Poultry Regulations 381.70-381.75

Subpart J--Ante Mortem Inspection

Sec. 381.70 Ante mortem inspection; when required; extent.

(a) An ante mortem inspection of poultry shall, where and to the extent considered necessary by the Administrator and under such instructions as he may issue from time to time, be made of poultry on the day of slaughter in any official establishment.

(b) The examination and inspection of ratites will be on the day of slaughter, except:

(1) When it is necessary for humane reasons to slaughter an injured animal at night or on a Sunday or holiday, and the FSIS veterinary medical officer cannot be obtained; or

(2) In low volume establishments, when ante mortem inspection cannot be done on the day of slaughter, and the birds to be slaughtered have received ante mortem inspection in the last 24 hours, provided the establishment has an identification and control system over birds that have received ante mortem inspection.

Sec. 381.71 Condemnation on ante mortem inspection.

(a) Birds plainly showing on ante mortem inspection any disease or condition, that under Secs. 381.80 to 381.93, inclusive, would cause condemnation of their carcasses on post mortem inspection, shall be condemned. Birds which on ante mortem inspection are condemned shall not be dressed, nor shall they be conveyed into any department of the official establishment where poultry products are prepared or held. Poultry which has been condemned on ante mortem inspection and has been killed or died otherwise shall under the supervision of an inspector of the Inspection Service, be disposed of as provided in Sec. 381.95.

(b) Dead-on-arrival ratites and ratites condemned on ante mortem inspection will be tagged ``U.S. Condemned'' by an establishment employee under FSIS supervision and disposed of by one of the methods prescribed in Sec. 381.95.

(c) All seriously crippled ratites and non-ambulatory ratites, commonly termed
``downers,'' shall be identified as ``U.S. Suspects.''

(d) Ratites exhibiting signs of drug or chemical poisoning shall be withheld from slaughter.

(e) Ratites identified as ``U.S. Suspects'' or ``U.S. Condemned'' may be set aside for treatment. The ``U.S. Suspect'' or ``U.S. Condemned'' identification device will be removed by an establishment employee under FSIS supervision

following treatment if the bird is found to be free of disease. Such a bird found to have recovered from the condition for which it was treated may be released for slaughter or for purposes other than slaughter, provided that in the latter instance permission is first obtained from the local, State, or Federal sanitary official having jurisdiction over movement of such birds.

(f) When it is necessary for humane reasons to slaughter an injured ratite at night or Sunday or a holiday, and the Agency veterinary medical officer cannot be obtained, the carcass and all parts shall be kept for inspection, with the head and all viscera except the gastrointestinal tract held by the natural attachment. If all parts are not so kept for inspection, the carcass shall be condemned. If on inspection of a carcass slaughtered in the absence of an inspector, any lesion or other evidence is found indicating that the bird was sick or diseased, or affected with any other condition requiring condemnation of the animal on ante mortem inspection, or if there is lacking evidence of the condition that rendered emergency slaughter necessary, the carcass shall be condemned. Ratites that are sick, dying, or that have been treated with a drug or chemical and presented for slaughter before the required withdrawal period, are not covered by emergency slaughter provisions.

Sec. 381.72 Segregation of suspects on ante mortem inspection.

(a) All birds, except ratites, that on ante mortem inspection do not plainly show, but are suspected of being affected with, any disease or condition that under Secs. 381.80 to 381.93 of this Part may cause condemnation in whole or in part on post mortem inspection, shall be segregated from the other poultry and held for separate slaughter, evisceration, and post mortem inspection. The inspector shall be notified when such segregated lots are presented for post mortem inspection, and inspection of such birds shall be conducted separately. Such procedure for the correlation of ante mortem and post mortem findings by the inspector, as may be prescribed or approved by the Administrator, shall be carried out.

(b) All ratites showing symptoms of disease will be segregated, individually tagged as ``U.S. Suspects'' by establishment personnel under FSIS supervision with a serially numbered metal or plastic leg band or tag bearing the term ``U.S. Suspect,'' and held for further examination by an FSIS veterinarian. Depending upon the findings of the veterinarian's examination, these birds will either be passed for regular slaughter, slaughtered as suspects, withheld from slaughter, or condemned on ante mortem. Those ratites affected with conditions that would be readily detected on post mortem inspection need not be individually tagged on ante mortem inspection with the ``U.S. Suspect'' tag provided that such ratites are segregated and otherwise handled as ``U.S. Suspects.'' All ratites identified as ``U.S. Condemned'' shall be tagged by establishment personnel, under FSIS

supervision, with a serially numbered metal or plastic leg band or tag bearing the term ``U.S. Condemned.''

Sec. 381.73 Quarantine of diseased poultry.

If live poultry, which is affected by any contagious disease which is transmissible to man, is brought into an official establishment, such poultry shall be segregated. The slaughtering of such poultry shall be deferred and the poultry shall be dealt with in one of the following ways:

(a) If it is determined by a veterinary inspector that further handling of the poultry will not create a health hazard, the lot shall be slaughtered separately, subject to ante mortem and post mortem inspection pursuant to the regulations.

(b) If it is determined by a veterinary inspector that further handling of the poultry will create a health hazard, such poultry may be released for treatment under the control of an appropriate State or Federal agency. If the circumstances are such that release for treatment is impracticable, a careful bird-by-bird ante mortem inspection shall be made, and all birds found to be, or which are suspected of being, affected with a contagious disease transmissible to man shall be condemned.

Sec. 381.74 Poultry suspected of having biological residues.

When any poultry at an official establishment is suspected of having been treated with or exposed to any substance that may impart a biological residue that would make their edible tissues adulterated, they shall, at the option of the operator of the establishment, be processed at the establishment and the carcasses and all parts thereof retained under U.S. Retained tags, pending final disposition in accordance with Sec. 381.80, of this part, and other provisions in subpart K; or they shall be slaughtered at the establishment and buried or incinerated in a manner satisfactory to the inspector. Alternatively, such poultry may be returned to the grower, if further holding is likely to result in their not being adulterated by reason of any residue. The Inspection Service will notify the other Federal and State agencies concerned of such action. To aid in determining the amount of residue present in the poultry, officials of the Inspection Service may permit the slaughter of any such poultry for the purpose of collecting tissues
for analysis of the residue. Such analysis may include the use of in-plant screening procedures designed to detect the presence of antimicrobial residues in any species of poultry.

Sec. 381.75 Poultry used for research.

(a) No poultry used in any research investigation involving an experimental biological product, drug, or chemical shall be eligible for slaughter at an official

establishment unless the operator of such establishment, the sponsor of the investigation, or the investigator has submitted to the Inspection Service, or the Veterinary Biologics unit of
Veterinary Services, Animal and Plant Health Inspection Service of the Department or the Environmental Protection Agency, or the Food and Drug Administration of the Department of Health, Education, and Welfare, data or a summary evaluation of the data which demonstrates that the use of such biological product, drug, or chemical will not result in the products of such poultry being adulterated, and the Administrator has approved such slaughter.

Turkey Slaughter

Objectives

After a student completes this module, he or she will be able to accomplish the following tasks without the aid of references:

1. List two ways in which turkey slaughter differs from chicken slaughter.

2. Describe the procedure the inspector should follow when the diseases listed below are detected at the postmortem inspection station.
   a. Turkey leg edema
   b. Atrophied breast muscle
   c. Ornithosis
   d. Osteomyelitis
   e. Leukosis in the liver
   f. Granulomas of the liver

3. List two abnormalities that are often grossly visible without exploratory cuts in turkey carcasses affected with osteomyelitis.

Introduction

Turkey slaughter today is a year-round industry instead of a seasonal operation. Some factors that have contributed to this are:

- The production cycle for turkeys is shorter than that for red meat animals.
- Turkeys have a more efficient feed-conversion ration than red meat animals.
- Turkeys are cheaper for consumers than red meat animals.

Meleagris gallopavo, the domestic turkey, is now taking its place as an important source of food on a year-round basis.

This module covers several aspects of turkey slaughter, but the main emphasis is on:

- Turkey plant operations.
- Diseases of turkeys.

Turkey Plant Operations

Turkeys are hauled to the plant on truck beds or trailers in crates, fixed coops, or batteries.

When the turkeys are readied and unloaded for slaughter, the veterinarian (or a food inspector under his/her supervision) performs antemortem inspection by observing the turkeys on a lot basis.

The turkeys are hung by the shanks in shackles hooked to an overhead moving chain that conveys the live turkeys toward the stunning area prior to the neck cutting and bleeding areas.

Scalding of the bled turkeys occurs when the shackles pass through an immersion scalder filled with heated water, which is agitated by recirculation pumps.

In place of an immersion scalder, some turkey slaughter plants shower carcasses with hot water and then convey them through humidity cabinets where they are sprayed with steam. This system avoids the community bath of the immersion scalder.

Picking is done mechanically; usually there are several pickers used and each concentrate on a different area of the turkey to insure complete feather removal.

The shackled dressed turkeys sometimes are singed by a gas flame following picking. This burns the fine hair or feathers off the skin. The carcasses then pass through a wash cabinet, which is equipped with sprayers.

The hock joints are severed, and the shanks are removed from the carcass prior to transfer of the carcasses to the evisceration line. The carcasses may be hung by the hocks or by the necks to make the subsequent removal of the crop and trachea (windpipe) easier.

The neck and both hocks of each carcass are placed in the shackle. This three-point suspension of the carcass facilitates the evisceration process.

Before the viscera can be removed, some cuts have to be made into the carcass. The vent area is cut free by a circular incision. Next, if a modified J-cut is used, a cut is made to the point of the keel. If a bar-cut is used, a transverse cut is made caudal to the point of the keel. Either method is approved for use provided the requirements of uniform presentation are accomplished in a sanitary manner.

Drawing, or viscera removal, is accomplished by pulling the viscera free from the body cavity and placing it consistently either to the right or left of the tail. Generally, the esophagus will be the only natural body attachment remaining inside the body cavity.

The USDA food inspector inspects the eviscerated carcasses for wholesomeness. The viscera and the outside and inside of the carcass are manipulated in a manner that ensures that only wholesome product is passed. Unwholesome carcasses and parts are condemned for human consumption and are positively controlled until proper disposal is completed.

Removal of the heart and liver from the viscera is part of the giblet harvest and trimming, which occurs next. The heart cap is removed from the heart, and the gall bladder is removed from the liver. Next the liver and heart are sent to an ice-and-water chiller.

The removal of the gizzard finishes the giblet harvest from the viscera.

The gizzard is removed by cutting anterior and posterior to its attachment to the gastrointestinal tract.

The gizzards are placed in a machine which splits (peels) and cleans their surfaces. The surfaces are then flushed, and the gizzards are chilled in ice and water.

After the viscera is removed, the lungs can be vacuumed from the chest cavity.

The crop and trachea are pulled free from the slit in the neck. If the oil sacs have not already been removed, they are cut off the tail.

The heads are removed and a final check of the carcasses is made to ensure all eviscerating processes have been properly completed. Then the carcasses pass through a final wash.

After the wash, the neck bones are cut. The necks may be placed inside the body cavity or chilled separately from the carcasses in vats of slush ice.

Next, the tails are cut, and, if they are used by the plant, hock lock wires are inserted in those carcasses that will be trussed. Tucking and trussing the legs of the carcasses is usually done prior to chilling.

Ice-and-water chillers are used to lower the product temperature. Carcasses and giblets are chilled separately.

After the initial chilling, the carcasses are hung on a drip line and drained.

Grading, if requested, is done next. Grading is a voluntary service performed at an additional expense to the plant.

Some carcasses are sent to the cut-up line. Carcass parts are packed in tray packs with plastic overlay, boxed, or bagged.

The giblets are wrapped and stuffed into the whole carcasses.

At the bagging station, the carcass is placed in a plastic bag.

The air is vacuumed out of the bagged carcass and the bag is closed with a clip. The bagged carcass then passes through a shrink tunnel, where it is sprayed with hot water. This procedure shrinks the plastic bag to conform to the shape of the carcass and results in an appealing consumer package.

The whole bagged carcasses and containers of cut-up parts are weighed to confirm, adjust, or mark the net weigh of the product. In some plants the price per pound and the total price of the product may be applied to the outside of the product package.

An immersion freezer is used by some plants to put a crust or quick chill on the product. This process helps prevent freezer burn on the carcass surfaces. Most immersion freezers contain solutions of propylene glycol or brine. As the bagged carcasses exit an immersion freezer, they must be sprayed with water in order to remove any freezing solution from the package.

The product is sorted and packed prior to entry in to the blast freezer.

Usually the air blast or plate-type freezer is used to freeze the product solid.

It is not usual for turkey plants to thaw frozen carcasses and cut-up or further process them some time after slaughter.

Once frozen, the product is ready to be shipped to food markets.

Diseases of Turkeys

Turkey diseases and conditions that maybe encountered at the slaughter plant include:

- Chlamydiosis (Ornithosis)
- Erysipelas
- Fowl cholera
- Turkey leg edema
- Breast muscle atrophy
- Turkey Osteomyelitis Complex
- Liver lesions

For most of the diseases, this section describes postmortem lesions of the disease in an organ or organs of the turkey and the differences in the characteristics of lesions caused by the different diseases.

Chlamydiosis (Ornithosis)

Chlamydiosis is known by several names. Psittacosis is the form of the disease that occurs in psittacine birds, including the zygodactyl birds (this designates the configuration of the toes-two in front and two in back). Examples are parrots, macaws, parakeets, etc. Ornithosis was named for non-psittacine birds, including turkeys, ducks, chickens, pheasants, etc. Ornithosis and psittacosis are different names of the same disease; the name indicates the type of bird affected. The name chlamydiosis, which is used by many scientists, does not refer to a specific type of bird.

The etiological agent for the disease is *Chlamydia psittaci*, which is an obligate intracellular bacterium.

The disease is endemic in parrots and other psittacine birds in South America and Australia and other tropical and subtropical areas. The smuggling of parrots, etc., is probably the biggest source of infection in this country.

The major outbreaks in the United States have involved turkeys. Since transovarian passage does *not* occur, a flock is most likely to be exposed to the disease by birds from an outside source. *Chlamydiae* are present in droppings of infected birds and these organisms remain infectious for months. The primary route of infection is *inhalation*, while a secondary route has been described via external parasites.

In natural infections, disease may spread among a large flock of birds for 2 to 8 weeks before noticeable signs appear. In experimental testing of young turkeys, the period prior to onset of signs ranged from 5 to 10 days.

The signs of chlamydiosis commonly observed in turkeys are cachexia, anorexia, hyperthermia, and, most importantly, the distinct sulfur-colored gelatinous droppings. People who work with diseased flocks have noticed a distinct stance in an affected bird, tail up and breast down on the ground when the turkeys are sitting.

Most lesions observed on postmortem inspection are related to severe damage to the lungs and heart.

- Lungs have diffuse congestion with pleural surfaces covered with fibrinous exudate.
- The heart is enlarged and covered with think fibrin plaques. The pericardial sac is thickened and coated with fibrinous exudate.
- The liver is enlarged and discolored.
- Air sacs are thickened and coated with fibrinous exudate.

The birds usually die showing signs of acute disease.

To make a positive diagnosis of the disease, there must be a demonstration of a four-fold rise in the host'' antibody titer against chlamydial group antigens or isolation of the agent from tissues of the host. A positive diagnosis cannot be made simply on the basis of “typical” gross lesions, cellular alterations, or clinical signs.

Chlamydia psittaci is susceptible to several antibiotics, but the tetracyclines are the only ones economically feasible for large-scale treatment of flocks.

Administration of the drug via drug-coated grain or composite mash is the most common vehicle for medications.

The prevention and control of chlamydiosis depends upon good management practices since there are no effective vaccines available.

Federal regulations prohibit the movement of poultry, carcasses, or offal from any premises where this disease has been proven by isolation. Interstate movement of birds from infected flocks is prohibited. No restrictions are made on eggs from an infected flock.

Differential diagnosis for chlamydiosis would include:

- Chronic respiratory disease
- Fowl cholera-the lungs are dark fibrotic masses, not the typical lungs seen with chlamydiosis, which are hemorrhagic and covered with fibrinous exudate. A problem in diagnosis could arise is a peracute “hot” pasteurellosis was present, which would be manifested as a hemorrhagic septicemia.

Chlyamydiosis in humans was first described around 1879. Typically, if chlamydiosis were to come through a turkey plant via infected turkeys today, in 7 to 14 days approximately 10-30% of the workers would develop a severe respiratory flu. Fever and *intense* headache would be common.

For unknown reasons farm workers are usually not affected. But those involved in the handling, dressing, inspecting, and processing of birds are the most vulnerable to infection. There are no recorded cases of infection of homemakers handling ready-to-cook poultry.

The disease is rarely seen in children. People over fifty years of age are more vulnerable to serious infection. Immunity is not derived from an infection, which means a “cured”

person would be susceptible to subsequent infections if exposed to *Chlamydia psittaci* again.
There are two methods of diagnosing chlamydiosis in humans. A serological test demonstrating a four-fold or greater increase in serum titer, with acute and convalescent sera, is considered positive for recent infections. The second method, and probably the best, is to isolate *Chlamydia psittaci* from sputum or whole blood, which are then injected into a mouse using the I.P. route.

Treatment in humans is similar to that in poultry. Usually, tetracyclines are prescribed. Before antibiotic therapy, the human fatality rate was 20%, mostly patients over 30years of age.

To sum up, chlamydiosis is a public health hazard to veterinarians, food inspectors, and poultry plant employees. It is an infectious disease primarily in turkeys that is transmissible to humans. The disease is difficult to recognize because of its similarities to other nonzoonotic poultry diseases. Diagnosis is difficult but effective treatment is available. *Currently*, no measures are enforced to prevent or control this disease.

Erysipelas

In birds erysipelas is generally an acute, fulminating infection of *individuals* within a flock. The primary economic importance of erysipelas is its occurrence in turkeys. The etiological agent is *Erysipelothrix rhusiopathiae*, which also causes erysipelas in pigs, sheep, sea mammals, fish, and many wild animals, and erysipeloid in humans.

The disease often causes death and, in those turkeys it does not kill, generally affects the fertilizing capacity of males.

Erysipelothrix rhusiopathiae may affect humans as a local or septicemic, and occasionally fatal infection referred to as erysipeloid. It is a disease found in workers associated with handling raw fish as well as butchers, kitchen workers, veterinarians, and turkey growers.

Erysipelas is not common today since most turkeys are raised in confinement, which reduces their exposure to the organism.

Widespread artificial insemination of turkeys led to significant outbreaks of erysipelas in hens. With the use of bacterins in the early 1950's and the availability of penicillin as a treatment in outbreaks, various programs of preventive vaccination and /or treatment have been followed. Despite this, cases of postinsemination erysipelas occur in turkey hens.

Erysipelothrix rhusiopathiae is pathogenic for turkeys at any age or of either sex following exposure by a variety of parenteral routes.

Infection can occur from ingestion of contaminated soil, water, feed, the viscera of turkeys that have died from erysipelas or contamination of breaks in the skin or mucous membranes. Stress such as inclement weather, vaccination, etc., may precede an outbreak.

Outbreaks usually start suddenly, with losses of one or several birds; one may suspect that the deaths are due to poisoning, stampede injuries, or predators. A few droopy birds (especially toms) may be noticed, but are usually easily aroused. Some may have cutaneous lesions or swollen, purplish, turgid snoods. Gradual emaciation, weakness, and signs of anemia occur in some cases where endocarditis is the cause of death.

Sudden losses of hens with peritonitis, perineal congestion, and skin discoloration 4-5 days after artificial insemination have been reported.

In immunized flocks, some of the affected birds will recover.

The gross lesions represent a septicemic disease with many of the septicemia and toxemia indicators present. The most characteristic lesions seen in a field study involving turkeys were:

- Congestion of viscera and intramuscular and subpleural ecchymotic hemorrhages.
- Tubular leader or snood turgid with an irregular reddish-purple color in toms. When present this lesion is *probably pathognomonic.*
- Liver and spleen swollen with hemorrhages.
- Ecchymotic and suffusion hemorrhages under the gizzard serosa.
- Intense catarrhal or sanguino-catarrhal enteritis.
- Skin usually diffusely red and muscles a dirty brick-red color.

The immunity induced by proper use of a good bacterin prevents disease under field and experimental conditions. The use of a bacterin in conjunction with a rapid-acting form of penicillin at the beginning of an outbreak will usually control losses.

Fowl Cholera

The etiological agent for fowl cholera is *Pasteurella multocida.* It is a contagious disease affecting domesticated and wild birds. This disease usually manifests itself as a septicemia associated with high morbidity and mortality, but chronic conditions do occur. This particular disease has historical importance because it was one of the diseases Veterinary Services of USDA was created to investigate.

Chickens become more susceptible to fowl cholera as they reach maturity. Waterfowl seem particularly susceptible. The disease is rarely diagnosed in chickens less than 12 weeks of age. Ranged turkey flocks are more likely to be exposed to infected wild birds and mammals since the disease is found universally.

Most of the time, the mode of introduction into a flock is difficult to pinpoint. Adding newly purchased stock to a breeding flock could explain the occurrence of the disease in some cases. Free-flying birds having contact with poultry may be a reservoir for the fowl cholera organism. The organism is seldom transmitted through the egg. There is no limit to the duration of the chronic carrier state other than the life of the bird. Generally, the “healthy” nasal carriers of the organism are considered to be the reservoir of infection.

Most dissemination of *Pasteurella multocida* within a flock is primarily by excretions from the mouth, nose, and conjunctiva of diseased birds that contaminate their environment, such as feed and water.

Feces are not considered a source of infection. There have been no experiments that have shown viable *Pasteurella multocida* organisms present in affected birds' feces.

The signs of infection in the acute form of fowl cholera usually exist only a few hours before death.

Unless infected birds are observed prior to death, signs of acute fowl cholera will be missed. Therefore, death may be the first indication of the disease. Signs of acute fowl cholera are as follows:

- Fever, anorexia, ruffled feathers, mucous discharge from the mouth, diarrhea, and increased respiratory rate.
- Cyanosis often is observed, around the unfeathered areas of the head, such as the wattles and comb.
- Fecal material is initially watery and whitish in color but later becomes greenish with the presence of mucus being observed.

The chronic form of fowl cholera may follow an acute stage of the disease *or result* from infection with organisms of low virulence. The signs of chronic fowl cholera are usually manifested in the following manner:

- Localized lesions found in areas such as wattles, sinuses, leg or wing joints, foot pads, and sternal bursae often are swollen.
- Exudative conjunctival and pharyngeal lesions may be observed.
- Torticollis sometimes occurs as a result of meningeal infection.

In summarizing the signs of the disease in a flock, individual birds could show:

- Acute stages of the disease.
- Partial recovery with relapse followed by death.
- Chronic infection.
- Complete recovery
- No signs of infection.

The lesions of fowl cholera vary in type and degree of severity. The signs of infection and the lesions *present* are difficult to categorize as either totally acute of chronic in nature.

In acute fowl cholera most of the postmortem lesions are related to vascular disturbances.

- General hyperemia of visceral veins is common.
- Large numbers of the organisms can be observed microscopically from the blood of the engorged veins.
- Pneumonia is more severe in turkeys than in chickens.

- Large amounts of viscid mucus in pharynx, crop, and intestines are seen.
- Ovaries of layers are affected by hyperemia.

Lesions of chronic fowl cholera generally are characterized by infections of a localized nature. The lesions become suppurative and are widely dispersed throughout the carcass.

- Pneumonia is common in turkeys.
- Middle ear and cranial bone involvement is common in turkeys with torticollis manifested in the live bird.

Pasteur did some work with a vaccine for fowl cholera but was not very successful. Since Pasteur, there have been several attempts to produce efficient vaccines for fowl cholera. Substantial but not absolute immunity can be induced in fowl using killed *Pasteurella multocida* vaccines under controlled conditions. The vaccination process is performed by a subcutaneous injection. Under field conditions there are losses from fowl cholera even in vaccinated flocks. The probable cause of death is the presence of other disease, environmental stress, or an improperly prepared or administered vaccine.

A positive diagnosis of fowl cholera should be based on three findings:

- Clinical observation.
- Necropsy findings.
- Isolation of *Pasteurella multocida.*

Several drugs have been used to treat fowl cholera cases with varying degrees of success depending to a large extent on the promptness of treatment and the drug used.

Prevention of fowl cholera is done best by trying to eliminate the reservoirs of Pasteurella *multocida* organisms and preventing poultry flocks from contacting reservoirs of infection.

This bacterial disease is *not* a disease of the poultry hatchery and infection occurs after the birds are in the possession of the producer.

Therefore, good management sanitary practices must be directed toward elimination of the sources of infection.

Turkey Leg Edema

This condition has been recognized for many years. Turkey leg edema has occurred since 1967 in the U.S. The condition occurs primarily in heavy tom turkeys, 25 weeks of age or older, although it is sometimes reported in heavier hen turkeys. The syndrome is more prevalent from August through October but occurs to some extent throughout the year.

The specific cause of this disease is unknown.

The condition can be identified on antemortem in high-incidence flocks by feeling crepitation of gas under the skin of the leg area.

On postmortem inspection, from 2 to 20% of carcasses may be affected. An occasional flock may have as high as 70% involvement.

Approximately 2% of all turkey flocks slaughtered show some evidence of the problem.

Gross pathological findings as postmortem inspection includes a blanched appearance of the skin over the thigh, a slick-feeling sensation on palpation, and an accumulation of amber or red-colored gelatinous fluid in the inguinal space and in the subcutaneous tissues of the leg. The condition is often *unilateral*. Numerous gas bubbles are present in the edema fluid and can be detected by palpation of crepitation prior to opening the inguinal space. The amount of gas bubbles is variable, but they are present to some extent in all affected carcasses. The more chronically involved carcasses show a greenish discoloration of the edema fluid or the presence of yellow-colored inflammatory exudate. There is no evidence of injury to the skin or to the knee of hock joints. The adductor muscles of the thigh appear swollen and contain hemorrhages.

Inspectors should observe and palpate the skin of the leg and inguinal space for evidence of crepitation to detect this condition.

Turkey leg edema is a localized inflammatory condition and the affected tissue must be trimmed.

If there is evidence of systemic disturbance in the carcass, the whole carcass is required to be condemned. Indicators of septicemia and/or toxemia justify condemnation of the carcass. Turkey leg edema is *not* a justification for carcass condemnation.

Breast Muscle Atrophy

This disease has several names, including green atrophy, green breast, and green muscle degeneration. The disease is often found in a slaughtered flock of broad-breasted hen turkeys five months of age or older.

This condition is characterized by greenish discoloration of all or a portion of the deep pectoral muscle on either or both sides of the keel bone in breeder hen turkeys. The greenish discolored muscle has a hardened, woody texture, is shrunken, and is surrounded by a zone of inflammatory tissue. External examination of the skin-covered breast reveals a change in contour. The change varies from a slight depression to a marked wasting away of the breast.

There is a definite genetic relationship involving certain blood lines of broad-breasted bronze turkeys. The condition is not usually found in turkeys less than 5 months of age. The disease sometimes occurs in slaughtered chickens that are 12 weeks old or older. The incidence in affected flocks ranges from 1 to 12 percent.

The condition appears to result from a lack of blood supply to the deep pectoral muscle. The subsequent degeneration and absorption of the muscle and the breakdown of myoglobin to cholemyoglobin explains the greenish discoloration of the muscle.

Outlined below is the procedure to follow when the inspector-in-charge determines the incidence is sufficiently high to indicate a flock problem.

- The lot(s) run from the affected flock are retained.
- Trimming related to “atrophied turkey breast” is not conducted at the postmortem inspection station.
- Control of the retained lot(s) must be maintained until the carcasses are “raw deboned” *or* each turkey breast is slashed bilaterally, and any necessary trimming completed.

Turkey Osteomyelitis Complex

FSIS recognized that the Turkey Osteomyelitis Complex (TOC) had become a significant problem in young turkeys during the 1980’s. In 1988 the Agency implemented a policy that requires additional inspection procedures for any lot of turkeys in which TOC is identified. These additional procedures are conducted by plant employees and represent a form of salvage.

While any bone may be affected by TOC, most commonly the epiphyseal growth plates of long bones are involved. The proximal end of the tibia is the bone most often affected. The inflammation may remain confined within the bone and cartilaginous growth plate or it may affect adjacent soft tissues and joints as the reaction progresses. Many organisms can be found in TOC lesions. *Staphylococcus* and *Escherichia coli* are isolated frequently. The lesions can take a variety of forms, ranging from mild inflammation to severe, purulent reactions.

TOC-affected carcasses can seldom be identified positively during routine postmortem inspection. However, carcasses suspicious for the condition are easily identified. Two external signs are frequently seen in TOC-affected carcasses—joint swelling and green discoloration of the liver. The latter sign is the most consistent indicator that TOC may be present. However, it is not pathognomonic. The diagnostic lesion associated with TOC is osteomyelitis. The lesion must be found in the bone in order to designate a flock positive for TOC. Although, most carcasses affected by TOC exhibit a green liver, most carcasses exhibiting a green liver do not have TOC.

In order to distinguish lots of turkeys affected by TOC from those showing external sings compatible with TOC but caused by other conditions, the Agency requires PHV’s to conduct special diagnostic examinations on suspicious lots. If the presence of TOC is confirmed during the diagnostic exam, the PHV requires the plant to conduct additional examination procedures on all carcasses identified as suspects at the postmortem inspection stations.

When osteomyelitis is detected during the plant examination, all tissues to the next normal joint must be removed and condemned. Product that is salvaged must be held for reexamination by FSIS personnel before it is allowed to enter normal production flow. All aspects of the TOC procedure must be consistently performed in accordance with FSIS policy and in a manner acceptable to the IIC or approval can be rescinded, and the procedure discontinued. If the procedure is discontinued, FSIS postmortem condemnations could increase dramatically in some lots.

Liver Conditions

Granulomas: Granulomas are among the most common liver lesions seen in slaughtered turkeys. Occasionally whitish foci or spots are embedded in an otherwise normal-appearing liver. The inspector may have difficulty in recognizing these lesions as granulomas until some correlation is provided. The poultry inspection team *must* differentiate granuloma-type lesions from malignant tumors, including leukosis lesions. The appearance of "atypical" liver lesions grossly resembling leukosis has resulted in turkey carcasses being condemned in the past. Today, with the field supervisor's expertise and through laboratory investigation, inspectors should accurately identify such lesions.

There have been discussions in the past about lymphoid tissue that is not leukosis that appears in the liver. Supposedly, according to one source, these are islets of misplaced "bursa cells" that are "homesteading" the liver.

Leukosis: Turkey liver lesions that are leukosis are considered to be uncommon although there have been incidences in which atypical granulomatous lesions have been incriminated as leukosis.

Blackhead: The liver lesions of blackhead in turkeys are well described in the literature. The liver contains irregularly round, depressed lesions that vary in color. The lesions are yellow to gray and sometimes are green or red. The diameter of the lesions vary but are often 1 to 2 cm and may coalesce to produce larger lesions.

This disease occurs when unmedicated turkeys under 12 weeks of age are exposed to *Histomonas meleagridis* complicated by secondary bacteria. The common cecal worm of turkeys, *Heterakis gallinarum*, as well as earthworms, play a role in dissemination of this disease.

In-Plant Safety

Objectives

After completing this module, participants will be able to do the following:

1. Identify employee rights and responsibilities regarding workplace health and safety.
2. Know which health and safety items that FSIS provides to employees.
3. Introduction to the FSIS Safety and Health Program

Resources

The following workplace health and safety resources are covered in this module:

- Federal Laws and Regulations
  - Occupational Safety and Health Act
  - Responsibility and Rights
  - Inspection and Abatement
- FSIS Safety and Health Program
- General Industry Standards
  - Hazard Communication
  - Personal Protective Equipment
  - Occupational Noise
  - General Safety
  - General Occupational Health

Federal Laws and Regulations

Occupational Safety and Health and Act

The declared Congressional purpose of the Occupational Safety and Health Act (OSH Act) of 1970 is to "assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources." Under the Act, the Federal government is authorized to develop and set mandatory occupational safety and health standards applicable to any business affecting inter-state commerce. The responsibility for promulgating and enforcing occupational safety and health standards rests with the Department of Labor's Occupational Safety and Health Administration (OSHA). The OSH Act requires OSHA to develop standards for recognized hazards. It also requires Federal departments to establish safety and health programs.

Responsibilities and Rights

FSIS responsibilities and FSIS employee responsibilities and rights are contained in 29 CFR 1960.8 to 1960.10 and FSIS Directive 4791.1. The FSIS Safety and Health Poster summarize these responsibilities and rights. This poster should be in all headquarters' establishments in accordance with 29 CFR 1910.12(c) and FSIS Directive 4791.1.

FSIS Employee Responsibilities

FSIS employee responsibilities regarding safety and health in the workplace include complying with OSHA standards and FSIS directives, and using FSIS provided and funded personal protective equipment.

FSIS Employee Rights

FSIS employees have rights that are outlined in FSIS Directive 4791.1 and include participating in the safety and health program, having access to records and documents, reporting hazards in their workplace, and freedom from fear of reprisal.

Inspection and Abatement

Hazard Reporting

Hazard reporting requirements are contained in 29 CFR 1960.28 and FSIS Directive 4791.12. Employees are encouraged to report unsafe or unhealthful working conditions to their supervisors. FSIS Form 4791.27 is used to document the report of a hazard. Reported hazards must be investigated or inspected by the supervisor at the workplace, and a log of reported unsafe or unhealthful working conditions must be maintained on FSIS Form 4791.26.

Special Hazard Abatement Requirements

According to Standard 29 CFR 1910.1(g), Federal employees working in establishments of private employers (such as meat and poultry establishments) are covered by their agencies' occupational safety and health programs. Although an agency may not have the authority to require abatement of hazardous conditions in a private sector workplace, the agency head must assure safe and healthful working conditions for his/her employees. This shall be accomplished using administrative controls, personal protective equipment, or withdrawal of Federal employees from the private sector facility to the extent necessary to assure the protection of the employees.

FSIS Safety and Health Program

Introduction

The Assistant Administrator for the Office of Management (OM) is the Designated Agency Safety and Health Official (DASHO) and has overall responsibility for management of the FSIS Safety and Health Program. The Environmental, Safety and Health Group (ESHG) within the Workers Safety and Health Division in the OM, is responsible for the planning, policy development, and management of the program at the Agency level. The Inspector-In-Charge (IIC) Public Health Veterinarians (PHVs) are responsible for managing the program at the establishment level.

FSIS Safety and Health Directives

Several FSIS safety and health directives have been issued which provide guidance for FSIS compliance with OSHA standards. The directives are revised and updated to reflect changes in the OSHA standards and FSIS policies. The following is a list of FSIS Directives pertaining to safety and health:

4791.1 Basic Occupational Safety and Health Program Part 1 – Basic Provisions
Part 2 – Safety and Health Committees
Part 3 – Personal Protective Equipment and Hand Tools for Inspection Personnel
4791.5 Hazard Communication Program
4791.11 Lockout Safety Procedures
4791.12 Reporting and Correcting Occupational Hazards Part 1 – Basic Provisions
Part 2 – Reporting and Correcting Hazards
4791.13 Workplace Inspections, and Injury Illness and Motor Vehicle Incident Reporting
Part 1 – Basic Provisions
Part 2 – Safety and Health Workplace Inspections
Part 3 – Injury, Illness and Motor Vehicle Incident Reporting and Recordkeeping Guidelines
4792.1 First Aid

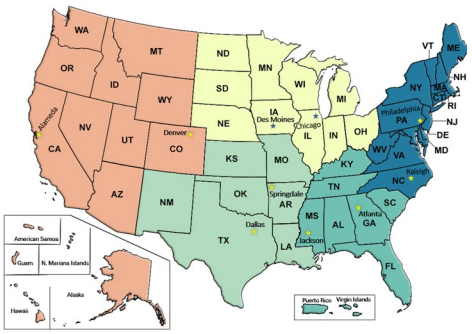
Environmental, Safety and Health Group (ESHG)

The mission statement of the ESHG is to:

> Furnish FSIS employees a workplace which is free from recognized hazards or, where applicable, apply administrative controls or provide appropriate personal protective equipment to assure safe and healthful working conditions.
> Protect the environment and community through implementation of FSIS environmental management systems and pollution prevention programs.
> Develop safety, health and environmental management response actions for likely scenarios of FSIS workplace terrorist acts.

Occupational Safety and Health Specialists (OSHS)

Operations, the specialists are assigned to one or more districts. The following map specifies these assignments:



Name	Office Location	Contact Information
Glenn Kerschner Safety Specialist	Philadelphia, PA Raleigh, NC	Office: (202) 580-5157 Cell: (215) 430-6244
Todd Nixon Safety Specialist	Atlanta, GA Jackson, MS	Office: (404) 562-5886 Cell: (202) 957-9806
Jacob Moore Safety Specialist	Dallas, TX Springdale, AR	Office: (214) 767-9122 Cell: (214) 542-0845
Michael Lyons Safety Specialist	Chicago, IL Des Moines, IA	Office: (402) 344-5145 Cell: (301) 346-9573
Ann Hergenreter Safety Specialist	Alameda, CA Denver, CO	Office: (303) 236-9800 Cell: (202) 570-3582

The program areas within the ESHG are occupational safety and health, environmental management, and homeland security. Occupational safety and health is comprised of safety management, industrial hygiene, and occupational medicine.

As a component of occupational safety and health, the goal of safety management is to prevent accidents and injuries. This goal is achieved by providing technical assistance

and training at the district, circuit and work unit levels, evaluating the FSIS safety and health program at the plant level by performing plant reviews and maintaining an injury and illness database to identify safety and health program needs. The goal of the industrial hygiene component is prevention of occupational illnesses. This is accomplished by assessing workplace exposures for inspection operations and new microbial reduction technologies, providing technical assistance on chemical, physical and biological health hazards, and participating in the development of new sampling methods needed to assess workplace exposures in this industry. The goal of the occupational medicine component is to diagnose and prevent occupational illnesses and injuries. This is done by conducting medical reviews and providing medical opinions on occupational exposure issues in plants and laboratories (on a consultation basis), and by developing information on the health effects associated with chemicals used in plants and laboratories and implementing appropriate policies to control hazards.

Materiel Management Service Center

The Materiel Management Service Center (MMSC), formerly known as Beltsville Service Center, located in Beltsville, MD, is part of the Administrative Services Division and a vital part of the FSIS Safety and Health Program. It distributes supplies and over 30 types of personal protective equipment (PPE) and other safety and health related items to FSIS field employees.

The following is a list of the safety and health items stocked at the MMSC:

- Eye Protection: Safety Glasses (2 types)
  Anti-Fog Eyeglass Wipes
- Head Protection: Hardhats (Regular)
  Hardhats (Lightweight)
- Hand Protection: Cut-Resistant Gloves (3 sizes)
  Nitrile Protective Gloves (5 sizes)
  Disposable Latex Gloves (4 sizes)
- Body Protection: Freezer Coats
  Freezer Vests
  Freezer Jackets
  Aprons
- Heat Stress Management: Neck Cooling Scarves
  Sqwinchers (3 flavors)
- Leg Protection: Pant Gaiters
- Respiratory Protection: Dust Masks (3 types) [RESTRICTED, Approved Use Only]
- Hearing Protection: Earmuffs (2 types)
  Foam plugs (4 types)
  Reusable plugs (4 types)
  Canal Caps
- Locks: Lockout Program
- First Aid: First Aid Kits (2 types)
  First Aid Kit (Refill) Instant
  Cold Packs

Safety and Health Items Reimbursed by FSIS

Not all safety and health items are issued by the MMSC. Directive 3410.3, Revision 6, provides for reimbursement of permanent full-time inspection personnel for the following inspection expenditures:

- Work clothing
- Skid-resistant footwear
- Personal inspection equipment
- Flashlights and replacement batteries
- Hand, wrist, and arm support devices

General Industry Standards

The following topics are covered in this section of the training module:

- Hazard Communication
- Personal Protective Equipment
- Occupational Noise
- General Safety
- General Occupational Health

Hazard Communication

OSHA Hazard Communication Standard: 29 CFR 1910.1200

The purpose of this standard is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. The Hazard Communication Standard applies to any chemical that is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency. It does not apply to ionizing radiation, non- ionizing radiation, biological hazards, or hazardous waste.

Under the standard, chemical manufacturers or importers are required to determine the hazards of the chemicals that they produce or import. Typically, this information is provided to employers on a document known as a safety data sheet (SDS) and on container labels. Employers are required to transmit this information to their employees by means of a comprehensive Hazard Communication Program.

FSIS Hazard Communication Program

The FSIS Hazard Communication Program is found in FSIS Directive 4791.5. It applies to FSIS employees working in meat, poultry, and import establishments.

The Frontline Supervisor (FLS) is assigned the responsibility of the overall coordinator of the program for FSIS employees in each plant or establishment.

Employee Responsibilities

As an FSIS employee, you are responsible for reading and understanding the FSIS written Hazard Communication Program, recognizing situations where hazardous chemicals are present in your workplace and notifying your supervisor of hazardous

conditions. In addition, you are responsible for understanding how the information on the SDS applies to the specific use of the chemical in your workplace and for properly using and wearing the FSIS-supplied personal protective equipment.

Methods of Hazard Communication

A safety data sheet (SDS) is a document that provides specific information about a hazardous chemical in accordance with OSHA guidelines. The SDS, prepared by the manufacturer of the chemical, includes physical and health information, recommended control measures, and precautions for the safe handling and use of a chemical.

An SDS is generally written by the chemical manufacturer for the "pure product" (e.g. 100% concentration) and not for the diluted form of the chemical as it is used in most applications at poultry and red meat establishments. This must be taken into consideration when reviewing and interpreting the information found on the SDS. This is especially true for the health hazard information because the health effects for the concentrated solution are more severe than for the diluted solution.

Chemical Hazards in FSIS Workplaces

Many chemicals are used in meat, poultry, egg product, and import facilities as disinfectants, sanitizers, cleaning agents, and processing aides.

- Chlorine is used in water sprays in numerous locations on the evisceration line, on the reprocessing line, and in the pre-chiller and chillers.
- Chlorine dioxide and trisodium phosphate (TSP) are typically used in rinse cabinets prior to the chiller to kill microbial organisms on the carcass.
- Ozone is used to disinfect recycled water for use in the chillers and the on- line reprocessing carcass washes.
- Acids, bases, quaternary ammonia, and sodium hypochlorite are chemicals commonly used for sanitation.

In addition, new chemical antimicrobial treatments are continuously being tested in establishment trials in an attempt to find more effective ways to ensure food products are safe from harmful bacteria. Some examples of chemical antimicrobial treatments are:

- Peroxyacetic acid (Inspexx 100)
- Acidified sodium chlorite solution (Sanova System)
- Ammonium hydroxide
- Acetic acid
- Acidic calcium sulfate (Mionix)
- Carbon Dioxide (TomCo)
- Sodium Acid Sulfate
- Chlorine Dioxide (Zep ® Antimicrobial Treatment System)
- Lactoferrin Antimicrobial Spray

Other hazards, such as carbon monoxide and sulfur compounds, may be present from the exhaust gases of forklift trucks, singers, cooking operations, and rendering stacks. Ammonia and Freon are used in refrigeration systems, and exposures may occur from leaks. Carbon dioxide (in the form of dry ice) is used in food packaging and as a gas in some chiller systems to lower the pH of the water.

It is very important to refer to the SDS at your duty station for specific health hazard information.

Health Hazards of Chemicals

All of the chemicals mentioned above have similar health effects, including eye, nose, throat and respiratory irritation; nasal discharge; coughing, wheezing, and bronchitis; and skin irritation with prolonged, direct contact.

Personal Protective Equipment (PPE)

OSHA Standard

OSHA Standard 29 CFR Part 1910, Subpart I, contains the requirements for workplace hazard assessments, training, and several types of PPE. OSHA requires employers to protect employees from workplace hazards that have the potential to cause injury by physical contact, absorption through the skin, or inhalation.

Workplace Hazard Assessments

In order to determine which PPE will provide the best protection, the FSIS EHSG has completed many workplace hazard assessments. Certain types of PPE are required to be worn based on workplace hazards that have been identified during workplace hazard assessments. Workplace hazards, and therefore required PPE, can be specific to your duty station.

Training Requirements

Inspectors must be able to demonstrate their ability to use properly PPE properly before being allowed to perform work requiring the use of PPE. OSHA standard 1910.132 requires that a PPE program be established to ensure that the appropriate PPE has been selected and that employees are trained in the proper use of PPE. FSIS Directive 4791.1 provides additional guidance on PPE.

Inspectors who are required to use PPE will be trained in the following: when PPE is necessary, what PPE is necessary, how to properly adjust and wear PPE, the limitations of the PPE, and the proper care, maintenance, useful life and disposal of the PPE.

Material Management Service Center

Most required and other optional PPE is available through the FSIS Materiel Management Service Center (MMSC). Available PPE includes such items as hardhats, earmuffs and ear plugs, impervious gloves, cut-resistant gloves and freezer coats. FSIS Directive 3410.3 provides guidance on reimbursement for direct purchases. Inspectors are reimbursed directly for the purchase of the following types of PPE and safety equipment: skid-resistant footwear, hand tools, knives, sharpening steels, node hooks, scabbards, chains with breakaway link, and flashlights.

Head Protection

The OSHA standard for head protection is 29 CFR 1910.1353. FSIS Directive 4791.1, Revision 3, requires that hardhats be worn at all inspected establishments. The MMSC provides two types of hardhats, standard and lightweight.

Eye and Face Protection

Studies indicate that about 60 percent of workers who suffered eye injuries were not wearing protective eye equipment. Eye and face protective equipment is required by OSHA in situations where there is a reasonable probability of preventing injury when such equipment is used. The OSHA standard for eye and face protection is 29 CFR 1910.133. There is no FSIS directive specifically for eye and face protection. The MMSC provides 2 types of safety glasses that may provide protection from small flying objects and blood and bodily fluids from animals.

Ear Protection

Exposure to high noise levels can cause hearing loss or impairment. The OSHA standard for hearing protection is 29 CFR 1910.95, Occupational Noise Exposure. Hearing protection is required in areas where noise levels are at or exceed 85 decibels (dB) since noise at or above this level can cause irreversible hearing loss. Four types of hearing protectors are provided: earmuffs, canal caps, foam plugs, reusable plugs.

Hand Protection

The OSHA standard for hand protection is 29 CFR 1910.138. FSIS Directive 4791.1, Revision 3, requires that red meat slaughter inspectors wear a cut- resistant glove on the non-knife hand when performing inspection tasks that require a knife and the assignment of two or more inspectors. The MMSC provides 3 sizes of cut-resistant gloves and 5 sizes of nitrile protective gloves to meet this FSIS requirement. The MMSC also supplies 4 sizes of disposable latex gloves to limit the potential risk of exposure to zoonotic diseases; however, use of latex gloves is voluntary.

Foot Protection

The OSHA standard for foot protection is 29 CFR 1910.136. This standard does not require foot protection for wet slippery surfaces. FSIS provides footwear that has skid-resistant soles, water-resistant uppers, and a closed heel and toe. Soles made from leather, wood, hard plastic, or metal materials are excluded.

Reimbursement

FSIS Directive 3410.3, Revision 6, provides for foot protection reimbursement. Reimbursement is limited to actual expenses, and the total allowance during the fiscal year shall not exceed $108. However, supervisors may authorize reimbursement for additional replacement of skid-resistant footwear (up to an additional $108 per pair) on an “as needed” basis.

Respiratory Protection

Respirators are not available through the Material Management Service Center. If the IIC believes that a respirator may be useful in certain situations, your Field Safety and Health Specialist should be contacted to perform a hazard assessment and provide you with the proper respirator.

Occupational Noise

The amount of hearing loss caused by noise depends on how loud the noise is and how long you are exposed. The loudness of a noise is measured in decibels (dB). Noise greater than 85 dB can damage hearing if the exposure is long enough. FSIS

employees working in meat and poultry establishments and egg product plants may be exposed daily to noise in this decibel range.

FSIS Safety and Health Program

The FSIS Hearing Conservation Program includes the following elements:

- Audiometric Testing
- Monitoring Noise Levels
- Hearing Protection
- Training on the effects of noise and the selection, use, fit, and care of hearing protectors

Audiometric Testing

There are two types of audiograms required in a Hearing Conservation Program: baseline audiograms and annual audiograms. The baseline audiogram is the reference audiogram against which all future audiograms are compared.
Baseline audiograms must be provided within 6 months of an employee's first exposure at or above an 8-hour time-weighted-average (TWA) of 85 dB. Annual audiograms must be conducted within one year of the baseline. It is important to test hearing on an annual basis to identify any changes in hearing ability. If hearing loss has occurred, protective follow-up measures can be initiated before hearing loss progresses. An annual audiogram can also help identify whether your hearing protection properly fits and whether you are using it correctly.

Audiograms will be provided to all FSIS employees at no cost, including reimbursement of travel expenses where necessary. Arrangements for you to have an audiogram will be made through your supervisor.

Monitoring Noise Levels

In accordance with FSIS Directive 4791.1, Basic Occupational Safety and Health Program, noise monitoring must be conducted, and results must be recorded on FSIS Form 4791-20 and posted in the Government office of each establishment. Monitoring has shown that noise levels within a meat or poultry establishment or egg products plant are typically between 85 to 105 db.

FSIS requires employees to wear hearing protectors if they are exposed to noise levels of 85 dBA TWA or greater.

Hearing Protection

The Material Management Service Center stocks four basic types of hearing protectors: foam earplugs, reusable earplugs, canal caps, and earmuffs. The type of hearing protection you select will depend on the noise level to which you are exposed, the fit of the hearing protector, and your personal choice for comfort. In some cases, with very high exposure, it may be necessary to wear both earplugs and earmuffs.

Training

FSIS employees who are exposed to noise levels at or exceeding 85 dB for an 8- hour

time-weighted average (TWA) are trained on the effects of noise, and the selection, use, fit, and care of hearing protectors.

The following are some tips on how to choose the best hearing protection for you:

- Choose hearing protection that works well at your job site.
- Be sure your hearing protection is the right size for you. There are many different types and sizes of ear plugs available.
- Practice inserting and removing your hearing protectors, so you become comfortable using them.
- Frequently check the fit to be sure you are using your hearing protection correctly.
- Always wear your hearing protection in areas where the noise levels are at or exceed 85 db.
- Learn the right way to care for your hearing protectors and know when to replace them.

General Safety

Lockout Program

FSIS Lockout Program

Details of the FSIS Lockout Program, which was developed according to OSHA Standard 29 CFR 1910.147, are found in FSIS Directive 4791.11.
Authorized FSIS employees are required to lock and tag out machines or equipment to perform pre-op process verification inspections in coordination with the establishment's lockout/tagout program.

Training

Authorized FSIS employees must be trained in lockout procedures prior to performing pre-op process verification inspection. If you have to perform lockout/tagout procedures, you will be trained by your supervisor during initial assignment to your duty station. Authorized employees are trained to recognize applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods necessary for energy isolation and control. These procedures will vary from establishment to establishment.

Confined Spaces

A confined space is defined as a space that is large enough to enter and work in, has limited or restricted means of entry and exit, and is not designed for continuous human occupancy. Examples are pits, silos, tanks, hoppers, storage bins, railroad or truck tank cars, reactor vessels, and machinery enclosures.

Applicability to Food Inspection Activities

It is FSIS policy that employees DO NOT enter or work in confined spaces. Therefore, in accordance with the OSHA Standard, FSIS is required to do the following:

- Evaluate the workplace to determine if any spaces that FSIS may need to enter are permit-required confined spaces.

- Take measures to prevent employees from entering the spaces.
- Evaluate any changes to non-permitted confined spaces that increase the hazards (requiring them to be permitted).

FSIS employees have the following responsibilities regarding confined spaces:

- Be familiar with the location of permit-required confined spaces at your duty station/s.
- For permit required confined spaces that require inspection, arrange to have the interior of these spaces inspected by means that do not require the FSIS employee to enter the space.

Walking and Working Surfaces

Slips, trips, and falls are a major cause of accidents. They cause 15 percent of all accidental deaths and are second only to motor vehicles as a cause of fatalities. The walking and working surfaces within meat and poultry establishments and egg product plants may be hazardous.

OSHA Standard 29 CFR Part 1910, Subpart D, contains the requirements for walking and working surfaces and applies to all FSIS workplaces.

The following are safety considerations regarding walking and working surfaces:

- Wear skid resistant footwear with adequate tread on the soles.
- Use the “packing house shuffle” when walking in slippery areas.
- Walk in meat and poultry establishments and egg product plants. Do not run.
- Use all available hand and stair rails.
-

Emergency Action Plans

OSHA Standard 29 CFR 1910.38 -Emergency Action Plans, requires the development of a written plan of action and employee training regarding their actions and responsibilities under the plan.

FSIS Directive 4791.6 provides procedures for the development of these plans. Each FSIS Workplace (establishment, laboratory, or office) must have its own written plan. A diagram of emergency evacuation routes and emergency numbers should be posted on the bulletin board in the USDA Office at every establishment.

General Occupational Health/Medical Services and First Aid

OSHA Standard 29 CFR 1910.151

This standard, which addresses medical services and first aid, is meant to ensure that employees receive medical attention when it is needed. FSIS Directive 4792.1 provides further direction on this standard as it applies to FSIS workplaces.

Injuries in the Workplace

FSIS employees should seek immediate medical attention if an injury occurs in the workplace. FSIS employees should be familiar with the specific workplace procedures

for notifying their supervisors and summoning emergency medical care.

The IIC/CS should develop a plan for obtaining emergency first aid, which includes an establishment health clinic managed by a health professional, a local community paramedical unit, or a hospital in near proximity to the workplace.

FSIS employees should know the location or phone number of these medical services.

Zoonotic Diseases

Zoonotic diseases are diseases and infections that are naturally transmitted between vertebrate animals (including their carcasses or by-products) and man. Currently there is no OSHA standard or FSIS directive for zoonotic diseases.

Although a review of CA 1 and CA 2s over the past 5 years has shown a very low potential for exposure to zoonotic diseases among the FSIS workforce (based on only a few documented cases), information regarding zoonotic diseases in the workplace is provided to FSIS employees. This includes precautions taken and the awareness needed to reduce the potential of a FSIS employee contracting a zoonotic disease in the workplace.

Protective Measures

The main mode of transmission for many zoonoses and the greatest potential risk of exposure to zoonosis for FSIS employees are from contact with tissue, blood, and bodily fluids of infected animals. Therefore, FSIS inspectors and veterinarians should protect their eyes, nose, mouth, and any open cuts for protection against exposures to potentially infected tissues or fluids. For example, open cuts should be covered with a waterproof bandage. Gloves should be worn to reduce direct contact, and safety glasses or a face shield should be worn when the potential for a significant exposure to splashes or tissue spatter exists. Practice good personal hygiene: wash hands after contact and do not touch face, eyes, nose, or mouth with contaminated hands or gloves.

Heat Stress

Heat stress is a problem that affects up to an estimated 10 million workers in the United States each year. During the hot summer months, FSIS inspectors may be exposed to extreme conditions of hot temperatures and high relative humidity in meat and poultry slaughter establishments.

Human Susceptibility Factors

People who have experienced a previous heat-related illness, have low-sodium diets, consume caffeine or alcohol, are taking certain types of medication (for example, heart-rate controlling drugs), or are wearing personal protective equipment, such as a respirator or protective suit, can be more susceptible to heat-related illness.

Heat Injuries

The more common heat injuries are heat cramps and heat exhaustion. These disorders are not life threatening; however, they may be intermediate steps on the way to heatstroke. Heat stroke, on the other hand, is a life-threatening emergency that requires immediate medical attention.

FSIS Heat Stress Management Program

There is currently no specific OSHA standard or FSIS directive for heat stress. However, OSHA may cite Federal Agencies for heat stress violators under 29 CFR 1960.8(a). FSIS is constrained by 29 CFR 1960.1(g) from requiring abatement of heat hazards in private sector workplaces but should attempt to work with establishment management on high heat days to improve ventilation and cooling of work areas.

FSIS has only three realistic options for managing exposures and for protecting inspectors working in high temperature environments in establishments:

- Administrative control: employee awareness training on actions to reduce the effect of heat stress.
- Administrative control: increasing the effectiveness of fluid intake using electrolyte replacement supplements.
- Personal protective equipment: neck-cooling scarves.

Using all three of these approaches is the basis of the FSIS Heat Stress Management Program.

Cold Stress

Workplace temperatures below 61° F may result in exposures to cold stress. The actual development of cold-stress related disorders will depend on conditions such as air temperature, air speed, the insulating value of clothing, the duration of the exposure, and the environment (e.g., exposure to wet conditions). Cold- related illness can slowly overcome a worker who has been chilled by low temperatures, brisk winds, or wet clothing.

Some FSIS inspectors may have processing assignments in areas that are maintained at 40°F or below. Also, FSIS inspectors may be required to enter walk-in freezers and coolers.

Cold Stress Disorders

Frostbite and hypothermia are two cold stress disorders. Frostbite is more common and is the result of freezing of the extracellular fluid in the skin. Hypothermia is the most dangerous cold stress disorder and is a result of abnormally low core body temperature (at or below 95°F).

FSIS Cold Stress Management Program

Currently there is no specific OSHA standard or FSIS directive for cold stress. However, OSHA may cite Federal Agencies for cold stress violators under 29 CFR 1960.8 (a).

The FSIS Cold Stress Program consists of providing awareness training and personal protective equipment (PPE). The PPE consists of freezer and cooler attire stocked by the Materiel Management Service Center (full-length freezer coat, freezer jacket, freezer vest).

FSIS Covid 19 Protection

We are still in the midst of the Covid-19 pandemic and your health and safety as FSIS continues to meet its mission of providing inspection services to ensure that American consumers receive safe wholesome meat, poultry, and egg products is paramount. Please review the USDA Covid Workplace Safety Memo and the Executive Order on Protecting the Federal Workforce below. To protect the inspection force FSIS has stocked supplies directly related to pandemic safety in the Materiel Management Service Center (MMSC).

USDA Covid Workplace Safety Memo

Executive Order on Protecting the Federal Workfroce

Additional Covid-19 Resources

FSIS Notice 27-20 Availability of Cloth Face Coverings, Disposable Masks, and Face Shields

CDC Guidance for Meat and Poultry Workers

FSIS Notice 31-20 Face Shields that Attach to Helmets Instruction

Information about Face Coverings/Masks and Face Shields

FSIS Instruction for Use of Hardhat-Compatible Face Shields

Instructions on the Use and Care of the Bullard Face Shield

FSIS Employee Eye and Face Protection Instructions

HACCP OVERVIEW

Objectives

1. Describe the regulatory requirements related to the Sanitation Performance Standards (SPS).

2. Describe the regulatory requirements related to the Sanitation Standard Operating Procedures (SSOP).

3. Describe the 7 principles of Hazard Analysis and Critical Control Point (HACCP).

4. Describe the regulatory requirements related to Pathogen Reduction

Introduction

The establishment's Food Safety System is comprised of the following four main elements:

- Sanitation Performance Standards (SPS)
- Sanitation Standard Operating Procedures (SSOP)
- Hazard Analysis and Critical Control Point (HACCP)
- Pathogen reduction (*Salmonella* performance standards, generic *E. coli* testing)

This module will highlight some of the regulatory requirements establishments must meet and give you a brief overview of the inspection verification tasks performed by the Consumer Safety Inspector, who is the Off-Line Inspector. This verification is sometimes performed by the veterinarian also. These tasks are described in FSIS PHIS Directive 5000.1, "Verifying an Establishment's Food Safety System." Although these tasks are not performed by Food Inspectors, it is important for you to know about these requirements and how compliance with them is verified because all of these activities have an impact on the environment in which you work.

In addition to covering the four main elements of the establishment's food safety system, we will also briefly cover the establishment's responsibility for the Food Safety Standard (Zero Tolerance) regulations and the system approach to sanitary dressing procedures.

NOTE: Regulations cited are not exact. Please refer to the actual regulations as needed.

Sanitation Performance Standards (SPS) (9 CFR 416.1-416.7)

There are eleven standards with which establishments must maintain compliance under the Sanitation Performance Standards (SPS). For the most part, these standards come from the regulations that address conditions in and around the establishment. Product and product contact surfaces are primarily addressed in the Sanitation Standard Operating Procedure (SSOP) and Hazard Analysis and Critical Control Point (HACCP) regulations.

- 416.2 (a) Grounds and Pest Control
- 416.2 (b) Construction
- 416.2 (c) Lighting
- 416.2 (d) Ventilation
- 416.2 (e) Plumbing
- 416.2 (f) Sewage Disposal
- 416.2 (g) Water Supply and Water, Ice and Solution Reuse
- 416.2 (h) Dressing Rooms, Lavatories and Toilets
- 416.3 Equipment and Utensils
- 416.4 Sanitary Operations
- 416.5 Employee Hygiene

9 CFR 416.1 General Rules. Each official establishment must be operated and maintained in a manner sufficient to prevent the creation of insanitary conditions and to ensure that product is not adulterated.

Proper and effective sanitation practices and conditions are an essential part of all safe food manufacturing processes. Insanitary facilities and equipment and poor food handling and personal hygiene practices by employees create an environment in which pathogens and other food safety hazards can contaminate and adulterate products. Consequently, proper sanitation is a fundamental requirement under the Poultry Products Inspection Act (PPIA).

The SPS regulation requires establishments to maintain a sanitary environment. Performance standards stated in the regulations are results-oriented, allowing the establishment flexibility in achieving the specified results. Simply put, the results expected are defined in the regulation but the means or methods to achieve the results are not specified. Although establishments can use different and varying means to meet the performance standards, the required results are always the same – establishments must operate under sanitary conditions in a manner that ensures product is not adulterated and in a way that does not interfere with FSIS inspection.

NOTE: Regulations cited are not exact. Please refer to the actual regulations as needed.

Grounds and Pest Control

9 CFR Sec. 416.2 Establishment grounds and facilities. (a) Grounds and pest control. The grounds about an establishment must be maintained to prevent conditions that could lead to insanitary conditions, adulteration of product, or interfere with inspection by FSIS program employees. Establishments must have in place a pest management program to prevent the harborage and breeding of pests on the grounds and within establishment facilities. Pest control substances used must be safe and effective and not be applied or stored in a manner that will result in the adulteration of product or the creation of insanitary conditions.

Proper maintenance of the grounds around an establishment is essential for ensuring good sanitation. Establishments are responsible for preventing sources of adulteration of product.

Establishments must implement and maintain an integrated pest control program to eliminate the harborage and breeding of pests on the grounds and within the establishment facilities and must safely and effectively use interventions, such as pesticides, fumigants, and rodenticides. This regulation does not require the integrated pest control program to be a written document. This regulation does not require that pest control substances be approved by FSIS prior to use.

The sanitation performance standard regulations also require the establishment to be responsible for the safe and effective use and storage of pesticides.

Construction

9 CFR Sec. 416.2 Establishment grounds and facilities. (b) Construction. (1) Establishment buildings, including their structures, rooms, and compartments must be of sound construction, be kept in good repair, and be of sufficient size to allow for processing, handling, and storage of product in a manner that does not result in product adulteration or the creation of insanitary conditions. (2) Walls, floors, and ceilings within establishments must be built of durable materials impervious to moisture and be cleaned and sanitized as necessary to prevent adulteration of product or the creation of insanitary conditions. (3) Walls, floors, ceilings, doors, windows, and other outside openings must be constructed and maintained to prevent the entrance of vermin, such as flies, rats, and mice.

The performance standards for construction provide establishments, regardless of size, the flexibility to design facilities and equipment in the manner they deem best to maintain the required sanitary environment for food production.

9 CFR Sec. 416.2 Establishment grounds and facilities (b) Construction. (4) Rooms or compartments in which edible product is processed, handled, or stored must be separate and distinct from rooms or compartments in which inedible product is processed, handled, or stored.

Establishments can process, handle, or store edible and inedible product in the same room as long as they are separated by time or space, in a manner that prevents the adulteration of the edible product or the creation of insanitary conditions.

Lighting

9 CFR Sec. 416.2 Establishment grounds and facilities. (c) Lighting. Lighting of good quality and sufficient intensity to ensure that sanitary conditions are maintained and that product is not adulterated.
Specific regulatory requirements for lighting combine the meat and poultry lighting requirements into one performance standard. However, FSIS has reserved specific lighting requirements in poultry establishments at the post mortem inspection stations and at reinspection stations (§ 381.36).

While establishments have flexibility in providing lighting, illumination must be adequate in quality and quantity, and well distributed. It must allow for proper monitoring of sanitary conditions and processing conditions and for examination of product for evidence of adulteration.

Ventilation

9 CFR Sec. 416.2 Establishment grounds and facilities. (d) Ventilation. Ventilation adequate to control odors, vapors, and condensation to the extent necessary to prevent adulteration of product and the creation of insanitary conditions must be provided.

The Agency does not expect the establishment to completely eliminate all odors, vapors, and condensation. However, plants must control ventilation to prevent adulteration of the environment that, in turn, can lead to adulteration of product or the creation of insanitary conditions.

Plumbing

9 CFR Sec. 416.2 Establishment grounds and facilities. (e) Plumbing. Plumbing systems must be installed and maintained to: (1) carry sufficient quantities of water to required locations throughout the establishment; (2) properly convey sewage and liquid disposable waste from the establishment.

It is the responsibility of the establishment to ensure that plumbing and sewage systems provide an adequate supply of potable water to the establishment to prevent product adulteration or creation of insanitary conditions.

9 *CFR Sec. 416.2 Establishment grounds and facilities. (e) Plumbing. (3) Prevent adulteration of product, water supplies, equipment, and utensils and prevent the creation of insanitary conditions throughout the establishment;*

The design, installation and maintenance of an adequate plumbing system are key responsibilities of the establishment. Because plumbing systems carry water into establishments and convey water from the establishments, problems with plumbing systems can easily cause product contamination or adulteration.

9 *CFR Sec. 416.2 Establishment grounds and facilities. (e) Plumbing. (4) Provide adequate floor drainage in all areas where floors are subject to flooding-type cleaning or where normal operations release or discharge water or other liquid waste on the floor; (5) Prevent back-flow conditions in and cross-connection between piping systems that discharge waste water or sewage and piping systems that carry water for product manufacturing;*

Floor drainage must be adequate to prevent the spread of contaminants into the production environment during cleaning and normal operation.

Cross-connection between potable and non-potable water is not acceptable. The plumbing system must be installed and maintained to prevent adulteration. Back-flow devices must also be used as appropriate to prevent cross contamination of potable water sources.

9 CFR Sec. 416.2 Establishment grounds and facilities. (e) Plumbing. (6) Prevent the backup of sewer gases.

Sewage Disposal

9 CFR Sec. 416.2 Establishment grounds and facilities. (f) Sewage disposal. Sewage must be disposed into a sewage system separate from all other drainage lines or disposed of through other means sufficient to prevent backup of

sewage into areas where product is processed, handled, or stored. When the sewage disposal system is a private system requiring approval by a State or local health authority, the establishment must furnish FSIS with the letter of approval from that authority upon request.

The establishment must ensure that sewage does not back up into processing areas. Documentation from a State or local authority approving private sewage disposal systems must be on-site and available to FSIS upon request.

9 CFR 416.2 (g) Water supply and water, ice, and solution reuse. (1) A supply of running water that complies with the National Primary Drinking Water regulations (40 CFR part 141), at a suitable temperature and under pressure as needed, must be provided in all areas where required (for processing product, for cleaning rooms and equipment, utensils, and packaging materials, for employee sanitary facilities, etc.). If an establishment uses a municipal water supply, it must make available to FSIS, upon request, a water report, issued under the authority of the State or local health agency, certifying or attesting to the potability of the water supply. If an establishment uses a private well for its water supply, it must make available to FSIS, upon request, documentation certifying the potability of the water supply that has been renewed at least semi-annually.

The water performance standard requires that potable water comply with EPA's National Primary Drinking Water regulations. Some establishments use private wells for their water supply.

9 CFR 416.2 (g) Water supply and water, ice, and solution reuse (2) *Water, ice, and solutions (such as brine, liquid smoke, or propylene glycol) used to chill or cook ready-to-eat product may be reused for the same purpose.*

FSIS expects establishments to produce ready-to-eat products that are free of pathogens; therefore, reuse water used to chill or cook ready-to-eat product must be free of pathogens.

In many cases, establishments monitor water reuse activities as part of their HACCP plans because the water treatments or conditioning can eliminate or reduce hazards they have determined to be reasonably likely to occur. The requirement that water be reused only "for the same purpose" refers to reusing water from the ready-to-eat area only in the ready-to eat area, and reusing water from the not-ready-to-eat areas only in not-ready-to-eat areas. For example, chiller water or water from the final bird washer that is reconditioned can be reused in the scalder.

Water Supply and Water, Ice and Solution Reuse

9 CFR 416.2 (g) Water supply and water, ice, and solution reuse (3) Water, ice, and solutions used to chill or wash raw product may be reused for the same purpose provided that measures are taken to reduce physical, chemical, and microbiological contamination so as to prevent contamination or adulteration of product. Reuse that which has come into contact with raw product may not be used on ready-to-eat product.

Establishments can reuse water in a manner that does not adulterate product or create insanitary conditions. The performance standards allow the reuse of water in numerous processing contexts, as long as the establishment takes actions necessary to ensure that the water does not adulterate product and that sanitation is not compromised.

9 CFR 416.2 (g) Water supply and water, ice, and solution reuse (4) Reconditioned water that has never contained human waste and that has been treated by an onsite advanced wastewater treatment facility may be used on raw product, except in product formulation, and throughout the facility in edible and inedible production areas.

Some establishments recondition their water through an advanced wastewater treatment facility, either onsite or under contract. To prevent establishments from using water from sewage lines, reconditioned water must never have contained human waste. Because reconditioned water is of high quality, it can be used on raw product, except in product formulation, and throughout the facility in edible and inedible production areas.

9 CFR 416.2 (g) Water supply and water, ice, and solution reuse (5) Any water that has never contained human waste and that is free of pathogenic organisms may be used in edible and inedible product areas, provided it does not contact edible product.

Any water can be used for any purpose in edible or inedible product areas, provided it:

- has never contained human waste.
  Establishments must not reuse water from sewage lines, therefore, it is required that the reuse water never have contained human waste.

- has been conditioned to be free of pathogenic organisms.
  Reuse water must be free of pathogenic organisms to prevent their spread throughout the establishment, which could lead to cross-contamination of product.

- does not contact edible product.
  Reuse water might contain coliforms or chemical or physical contaminants, so it cannot contact edible product.

9 CFR 416.2 (g) Water supply and water, ice, and solution reuse (6) Water that does not meet the use conditions of paragraphs (g)(1) through (g)(5) of this section may not be used in areas where edible product is handled or prepared or in any manner that would allow it to adulterate edible product or create insanitary conditions.

To prevent contamination or adulteration of the product, establishments must not use water contaminated with pathogens, chemicals, or physical contaminants in edible product areas.

Dressing Rooms, Lavatories and Toilets

9 CFR 416.2 (h) Dressing rooms, lavatories, and toilets. (1) Dressing rooms, toilet rooms, and urinals must be sufficient in number, ample in size, conveniently located, and maintained in a sanitary condition and in good repair at all times to ensure cleanliness of all persons handling any product. They must be separate from the rooms and compartments in which products are processed, stored, or handled.

OSHA standards (29 CFR 1910.141) for lavatories must be followed when plants are constructed or remodeled. FSIS does not regulate the number of lavatories required. The establishment must maintain lavatory facilities in good repair and in a sanitary manner.

9 CFR 416.2 (h) Dressing rooms, lavatories, and toilets (2) Lavatories with running hot and cold water, soap, and towels must be placed in or near toilet and urinal rooms and at such other places in the establishment as necessary to ensure cleanliness of all persons handling any product.

9 CFR 416.2 (h) Dressing rooms, lavatories, and toilets (3) Refuse receptacles must be constructed and maintained in a manner that protects against the creation of insanitary conditions and the adulteration of product.

Leaking refuse receptacles may allow the spread of contaminants into the environment, which could then lead to cross-contamination of product and product areas.

Equipment and Utensils

9 CFR 416.3 Equipment and utensils. (a) Equipment and utensils used for processing or otherwise handling edible product or ingredients must be of such material and construction to facilitate thorough cleaning and to ensure that their use will not cause the adulteration of product during processing, handling, or storage. Equipment and utensils must be maintained in sanitary condition so as not to adulterate product.

Establishments may select any method to clean utensils and equipment as long as they are maintained in a sanitary condition.

9 CFR 416.3 Equipment and utensils (b) Equipment and utensils must not be constructed, located, or operated in a manner that prevents FSIS inspection program employees from inspecting the equipment or utensils to determine whether they are in sanitary condition.

Equipment and utensils must be designed in a manner that allows FSIS inspection personnel to view them for compliance with sanitary requirements. They must be located so that they are safely accessible to inspection prior to and during operation.

9 CFR 416.3 Equipment and utensils (c) Receptacles used for storing inedible material must be of such material and construction that their use will not result in the adulteration of any edible product or in the creation of insanitary conditions. Such receptacles must not be used for storing any edible product and must bear conspicuous and distinctive marking to identify permitted uses.

Receptacles used for storing inedible product must be properly and conspicuously marked, and never used for edible product or create insanitary conditions.

Sanitary Operations

9 CFR 416.4 Sanitary operations. (a) All food-contact surfaces, including food-contact surfaces of utensils and equipment, must be cleaned and sanitized as frequently as necessary to prevent the creation of insanitary conditions and the adulteration of product.

Generally, establishments clean and sanitize their facilities once a day; however, some establishments conduct chemical cleanup less often.

9 CFR 416.4 Sanitary operations (b) Non-food-contact surfaces of facilities, equipment, and utensils used in the operation of the establishment must be cleaned and sanitized as frequently as necessary to prevent the creation of insanitary conditions and the adulteration of product.

During the normal course of operations poultry products should not come in contact with non-food contact surfaces. If non-food contact surfaces are not properly cleaned and sanitized, insanitary conditions could result, leading to potential adulteration of product.

9 CFR 416.4 Sanitary operations (c) Cleaning compounds, sanitizing agents, processing aids, and other chemicals used by an establishment must be safe and effective under the conditions of use.

It is required that poultry products be neither adulterated nor misbranded through the misuse of proprietary substances and nonfood compounds. Documentation substantiating the safety of a chemical's use in a food-processing environment must be available for FSIS review. The documentation can vary with the nature and intended use of that chemical.

Establishments must ensure that all proprietary substances and nonfood compounds are safe for their intended use and used appropriately.

9 CFR 416.4 Sanitary operations (*d) Product must be protected from adulteration during processing, handling, storage, loading, and unloading at and during transportation from official establishments.*

As product moves through the process, there might be elements in the environment that could adulterate it. Employees who move and handle product improperly are another possible source of contamination. The establishment must decide, depending upon the situation and the circumstances within the establishment, how the product should be protected through all phases of the process. For example, the establishment might cover the product when it is stored in the cooler to prevent contamination.

Employee Hygiene

9 CFR 416.5 Employee hygiene. (a) Cleanliness. All persons working in contact with product, food- contact surfaces, and product-packaging materials must adhere to hygienic practices while on duty to prevent adulteration of product and the creation of insanitary conditions.

9 CFR 416.5 Employee hygiene. (b) Clothing. Aprons, frocks, and other outer clothing worn by persons who handle product must be of material that is disposable or readily cleaned. Clean garments must be worn at the start of each working day and garments must be changed during the day as often as necessary to prevent adulteration of product and the creation of insanitary conditions.

9 CFR 416.5 Employee hygiene. (c) Disease control. Any person who has or appears to have an infectious disease, open lesion, including boils, sores, or infected wounds, or any other abnormal source of microbial contamination, must be excluded from any operations which could result in product adulteration and the creation of insanitary conditions until the condition is corrected.

FSIS has authority to take action against any unhygienic practice that could result in insanitary conditions or adulterated product. This includes handling procedures that might contaminate edible products or create insanitary conditions.

9 CFR 416.6 Tagging insanitary equipment, utensils, rooms or compartments. When the Consumer Safety Inspector finds that any equipment, utensil, room, or compartment at an official establishment is insanitary or that its use could cause the adulteration of product, he or she will attach a “U.S. Rejected" tag to it. Equipment, utensils, rooms, or compartments that are tagged cannot be used until they are made acceptable. Only an FSIS program employee may remove a “U.S. Rejected" tag. The regulatory control action should remain in effect until the establishment has taken corrective action and has proposed effective preventive measures.

Sanitation Standard Operating Procedures (SSOPs)

9 CFR 416.11 General Rules. Each establishment shall develop, implement, and maintain written standard operating procedures for sanitation (Sanitation SOPs) in accordance with the requirements of this part.

According to 9 CFR 416.11-14, the establishment is responsible for developing, implementing, and maintaining written Sanitation Standard Operating Procedures (SSOPs) that meet the requirements of Part 416. Insanitary facilities or equipment, improper personal hygiene, and similar insanitary practices create an environment conducive to contamination of products. Sanitation SOPs clearly define the establishment’s responsibility to consistently follow effective sanitation procedures that will substantially minimize the risk of product contamination and adulteration.

It is a regulatory requirement that the plant create written SSOPs describing the daily procedures conducted before and during operations to prevent direct contamination or adulteration of products.

The written procedures must identify pre-operational and operational sanitation procedures. At a minimum, SSOPs must address the cleaning of food contact surfaces of facilities, equipment, and utensils. The regulation does not specify how much detail SSOPs must contain.

The Sanitation SOP must contain:

- The frequency the procedures in the SSOP are conducted
- Identification of the employee(s) or position responsible for the implementation and maintenance of the SSOPs

The establishment must take corrective actions any time the establishment or FSIS determines that the SSOP has failed to prevent direct product contamination or adulteration of product. SSOP failure can be the result of either not implementing or not maintaining the SSOP, and it can occur before or during operations.

9 CFR 416.15 Corrective Actions (b) Corrective Actions include procedures to ensure appropriate disposition of product(s) that may be contaminated, restore sanitary conditions, and prevent the recurrence of direct contamination or adulteration of product(s), including appropriate reevaluation and modification of the Sanitation SOPs or the procedures specified therein.

Establishments must initiate corrective actions when either the plant or FSIS determines implementation of the procedures fails to prevent direct product contamination or adulteration. Establishments must implement all three parts of the corrective action, i.e., they must:

1) dispose of contaminated or adulterated product appropriately
2) restore sanitary conditions
3) prevent recurrence of failure

Corrective actions may also include reevaluation and modification of the Sanitation SOP or the procedures specified in it. However, it might not be necessary to modify the SSOP in every case.

Establishments must maintain daily records that document they are carrying out the sanitation procedures outlined in the SSOP, including the corrective actions taken. Plant management may exercise flexibility in designing records. There is no set format, and records do not have to be included in the written SSOP.

The Consumer Safety Inspector verifies that SSOPs are developed, implemented, maintained, and that they are effective. FSIS also verifies that the establishment maintains daily records.

HACCP: Establishment Responsibilities

FSIS has the overall authority and oversight to regulate meat/poultry products intended for distribution into commerce. The official establishment's responsibility is to produce safe wholesome meat/poultry products. When the Pathogen Reduction/HACCP System Final Rule was published in July 1996, and the regulation was first implemented in large establishments in January 1998, in small establishments in January 1999, and in very small establishments in January 2000, FSIS required all establishments that produce federally inspected meat and poultry products to design and operate HACCP systems. HACCP provides a framework for establishments to conduct science-based process controls that can be validated as effective in eliminating, preventing, or reducing to an acceptable level the food safety hazards that are reasonably likely to occur in an official establishment's particular production processes. Under the HACCP regulatory system, establishments assume full responsibility for producing products that are safe for consumers.

The 7 Basic Principles of HACCP

The National Advisory Committee on Microbiological Criteria for Food (NACMCF) Working group created guidelines and redefined the seven basic principles of HACCP as an effective and rational means of assuring food safety from harvest to consumption. This paper is not a regulatory document. However, it is a document that was utilized by FSIS when the HACCP regulation was developed and then published in the Federal Register. As regulators, you will be responsible for verifying compliance with the HACCP regulation. The HACCP guideline with the seven principles is not an enforceable document; however, it is helpful for inspection personnel to be familiar with the basis for the development of the HACCP plan which will be regulated under Title 9 Code of Federal Regulation (CFR) Part 417.

The 7 HACCP Principles

The seven principles of HACCP, which encompass a systematic approach to the identification, prevention, and control of food safety hazards include:

1. Conduct a Hazard Analysis
2. Determine Critical Control Points
3. Establish Critical Limits
4. Establish Monitoring Procedures
5. Establish Corrective Actions

6. Establish Recordkeeping and Documentation Procedures
7. Establish Verification Procedures

Principle 1: Conduct a hazard analysis.

A thorough hazard analysis is the key to preparing an effectively designed HACCP plan. The NACMCF identified the purpose of the hazard analysis in the guidance document as a process used to develop a list of hazards which are of such significance that they are reasonably likely to cause injury or illness if not effectively controlled. It is important to consider in the hazard analysis the ingredients and raw materials, each step in the process, product storage and distribution, and final preparation and use by the consumer. When conducting a hazard analysis, safety concerns must be differentiated from quality concerns.

A hazard is defined by NACMCF as a biological, chemical or physical agent that is reasonably likely to cause illness or injury in the absence of its control. Establishments must consider all three types of hazards – biological, chemical, and physical – at each step of the production process.

Biological Hazards

The biological hazards of meat and poultry products result from the presence of potentially pathogenic bacteria in and on the live animal, including intestinal contents and exterior surfaces such as hide, hair, and hooves. Bacterial contamination of carcass surfaces is an unavoidable consequence of processing animals into poultry for human consumption. The types of bacteria present on the live animal or bird will largely determine the bacterial population that exists on the carcass surface. Consequently, products derived from carcasses will contain the same types of bacteria present on the carcass surfaces. Establishments must do their best to control or reduce the hazard, or to prevent it from entering the process, as discussed previously in SPS, sanitary dressing and process control.

The prevalence of the pathogen ***Salmonella*** in beef, lamb, pork, and poultry carcasses varies greatly. The overall contamination of meat and poultry carcasses with these pathogens depends not only on the numbers of the pathogens on the hair, feathers, skin, and in the intestinal tract of the animals, but is also significantly affected by the degree of cross-contamination occurring from these sources during slaughter and processing.

Chemical Hazards

Animals may be presented at slaughter with violative levels of chemical residues. This hazard includes chemical residues resulting from use of, or exposure to, drugs, pesticides, and other compounds. Some examples of environmental

contaminants that may be consumed by animals include lead, cadmium, mercury, arsenic, dioxins, or polychlorinated biphenyls or PCBs.

The potential health consequences of exposures to chemicals in food can be serious, are often inadequately understood, and deserve serious consideration. The long-term and cumulative effects of exposure associated with chemicals in food pose special difficulties in identifying and addressing these risks. Chemical residues have been linked through research to various types of cancers. The public health concerns associated with the long-term effects of exposure to chemicals from ingestion of food is not well understood or well documented.

Physical Hazards

A physical hazard is a physical component of a food that is unexpected and may cause illness or injury to the person consuming the food. Physical hazards, such as pieces of metal, sometimes occur because equipment has not been properly maintained. In some processes, such as raw-ground, product may be received that is contaminated by foreign material, which if not controlled, may subsequently become incorporated into the ground product. Foreign material would include non-animal objects such as metal, wood, rubber, glass, steel, lead, or other objects.

Typical public health concerns associated with consuming products that contain physical hazards include broken teeth and damage, such as tears, to the mouth, esophagus, stomach, and intestines. These physical hazards may obstruct air passages or intestines. In some cases, death may result due to suffocation or infections (intestinal blockages). Small children are particularly susceptible to problems brought on by physical hazards since their body structures are smaller, and the physical objects may have a greater effect.

Flow Charts

At each step in its processes, the establishment must determine what food safety hazards may be associated with that step, if that hazard is reasonably likely to occur in the process, and what controls will be used to prevent, eliminate, or reduce the hazard to an acceptable level. Different establishments may have identified different hazards as reasonably likely to occur and different control measures for them, even though their processes may appear to be similar.

The hazard analysis shall include hazards that can occur before, during and after entry into the plant.

This provides a basis for determining the critical control points (CCPs).

Principle 2: Determine critical control points

The hazards that were identified in the hazard analysis must be addressed in the HACCP plan. A hazard is controlled by one or more critical control points (CCPs).

A ***critical control point*** is defined as a point, step, or procedure in a food process at which control can be applied, and, as a result, a food safety hazard can be prevented, eliminated, or reduced to acceptable levels.

Examples of CCPs include product temperature, certification of incoming product, microbiological testing, testing for foreign objects such as metal contamination, the chemical concentration of a carcass rinse or spray, and other such parameters.

For ***each*** hazard that is determined to be reasonably likely to occur, the establishment must identify critical control points and corresponding critical limits that are measurable or observable. Establishments must have documentation supporting all of these decisions, and they must be able to demonstrate that their plan designs are valid and effective in operation.

Principle 3: Establish critical limits

The next step in the development of a HACCP plan is to establish critical limits for each critical control point. ***Critical limits*** (CL) are the parameters that indicate whether the control measure at the CCP is in or out of control. The National Advisory Committee on Microbiological Criteria for Foods (NACMCF) states that a CL is **a maximum or minimum value** to which a biological, chemical, or physical parameter must be controlled at a CCP to prevent, eliminate, or reduce to an acceptable level the occurrence of a food safety hazard. The HACCP team must consider the food safety standard that must be met at each CCP. Critical limits are designed to ensure applicable targets or performance standards pertaining to the specific process or product.

Critical limits are most often based on process parameters such as temperature, time, physical dimensions, or presence of target pathogens. Critical limits must be actual values that can be measured or quantified.

Principle 4: Establish monitoring procedures

Once critical limits are set for each CCP during the HACCP plan development, procedures must be established to monitor the CCPs to determine whether the critical limits are being met. ***Monitoring*** is a planned sequence of observations or measurements to assess whether a CCP is under control and to produce an accurate record for future use in verification. Establishments are responsible for determining the procedure used to monitor each CCP. Monitoring procedures should be designed to determine when deviations from the critical limit occur so that appropriate corrective actions can be initiated.

When it is not possible to monitor a CCP on a continuous basis then it is monitored intermittently and the frequency must be determined. The frequency selected should be adequate to determine that the CCP is under control.

Principle 5: Establish corrective actions

Next, the HACCP team determines corrective actions for each CCP that must be taken in cases where the CL is not met. The specific corrective actions depend upon the process used and type of food produced.

When there is a deviation from the critical limit, corrective actions are required to prevent potentially hazardous foods from reaching consumers. The establishment must take corrective actions every time a deviation from the critical limit occurs. The corrective actions consist of

- Identifying and eliminating the cause of the deviation,
- Ensuring that the CCP is under control after the corrective action is taken,
- Ensuring that measures are established to prevent recurrence, and
- Ensuring that no product affected by the deviation is shipped.

Principle 6: Establish recordkeeping and documentation procedures

When developing the HACCP plan, the HACCP team must ensure that the HACCP system has an effective recordkeeping system. ***Records*** are written evidence documenting the operation of the HACCP system. All measurements taken at a CCP, and any corrective actions taken, should be documented and kept on file. These records can be used to trace the production history of a finished product. If any questions arise about the product, a review of records may be the only way to determine whether the product was produced in a safe manner according to the HACCP plan.

The **HACCP plan** outlines the formal procedures the establishment will follow to meet the seven principles.

The **supporting documentation** includes the rationale used to establish CCPs, critical limits, monitoring procedures and frequencies, corrective action procedures, and verification procedures and frequencies. This includes all scientific references, regulatory resources, and materials from other sources (e.g., extension services, academic experts, consultants, industry trade associations) that have been used in the development of the HACCP plan.

The **daily operational records** are what most of us think of when we think of HACCP records. These include the actual records from the implementation of the HACCP plan (monitoring, corrective actions, and verification).

The HACCP regulation requires that HACCP records:

- Contain the date and time of the activity reflected on the record
- Contain the signature or initials of the employee making the entry
- Have the information entered on the record at the time it is being observed
- Contain actual observations or data values obtained

Principle 7: Establish verification procedures

HACCP systems must be systematically verified. Verification establishes the accuracy of, or confirms the monitoring of, the critical control points. The verification procedures demonstrate that the HACCP system is adequately controlling food safety hazards. After initial validation, the system must be verified periodically. Periodic verification involves the use of methods, procedures, or tests in addition to those used for monitoring, to determine whether the HACCP plan needs modification and revalidation to achieve its food safety objective. Establishments must also be able to provide supporting documentation for the verification procedures and frequencies specified in the HACCP plan.

Ongoing verification activities consist at a minimum of **calibration procedures** (if there are instruments that require calibration), **direct observations** of monitoring and corrective actions, and **records review**. All three of these will be described in the HACCP plan, as applicable.

HACCP: FSIS Responsibilities - Inspection Verification Tasks

FSIS responsibilities are outlined in **FSIS Directive 5000.1.** The off-line inspectors, known as Consumer Safety Inspectors, are responsible for properly performing the tasks as described in this Directive. The information in the Directive describes the regulatory thought process.

The regulatory process for conducting HACCP tasks is as follows:

- **Methodology**
- **Decision-making**
- **Documentation**
- **Enforcement**

Verification Methodology

The Five Regulatory Requirements

There are four regulatory requirements that the establishment must comply with during the day-to-day or ongoing operation of the HACCP system. These regulatory requirements are:

1. Monitoring
2. Verification
3. Recordkeeping
4. Corrective Actions

CSI's use the GAD thought process that is described in Directive 5000.1 that the off-line CSI uses when verifying regulatory requirements includes:

- gathering information by asking questions,
- assessing the information, and
- determining regulatory compliance.

For each of the regulatory requirements, the Directive outlines questions to consider. This thought process is used to verify all of the regulatory requirements.

There are two general types of HACCP verification tasks:

1. **Hazard Analysis Verification (HAV) Task:** This task directs the CSIs to review the hazard analysis for all HACCP process categories in the establishment. CSIs are to use the recordkeeping and the review and observation components to verify that the establishment meets the regulatory requirements for the hazard analysis.

2. **HACCP Verification Task**: CSIs are to use the recordkeeping and review and observation components to verify that the establishment is effectively implementing the procedures set out in its HACCP system. CSIs are to verify that the establishment meets all HACCP regulatory requirements, including monitoring, verification, recordkeeping, and corrective action for all CCPs for a specific production.

CSIs are also to verify the implementation of prerequisite programs or other control measures the establishment uses to show that specific hazards are not reasonably likely to occur.

Microbiological Sampling for Poultry Slaughter (other than Ratite) Operations

The purpose of the new sampling requirements is to ensure that establishments monitor and evaluate the effectiveness of their procedures to prevent contamination of carcasses by enteric pathogens and visible fecal material on an ongoing basis. Fecal contamination is a principal source of pathogenic organisms that contaminate poultry carcasses. Under the Modernization of Poultry Slaughter Inspection final rule establishments that slaughter poultry, other than ratites, are required to perform microbiological sampling and analysis, for example, testing for *Salmonella, Campylobacter*, or indicator organisms such as aerobic plate count (APC), total coliform, Enterobacteriaceae, and *Escherichia coli*, Biotype I, also known as generic *E. coli*.

Because establishments have differences in their operations, each establishment has the flexibility to develop a sampling plan and determine the microbial organism that will accurately monitor the effectiveness of its process control procedures. Establishments MUST incorporate their written process control procedures into their HACCP system, either in the HACCP plan itself, as sanitation SOPs, or as a prerequisite program.

Microbiological test results that represent the level of microbiological contamination at key steps in the slaughter process are necessary for the establishment to provide comprehensive objective evidence to demonstrate process control. Process control consists of the programs and procedures that an establishment implements to ensure its process prevents contamination of poultry carcasses and parts, including contamination with pathogens and fecal material. Process control also ensures that the resulting product meets applicable standards or definitions.

Inspection Program Personnel (IPP) Responsibilities

In poultry slaughter establishments (other than ratite), IPP are to conduct verification tasks, as outlined in Directive 5000.1 following the verification instructions in Directive 6420.5. The PHIS verification task (i.e., HACCP or Sanitation SOP task as outlined in Directive 5,000.1) that IPP perform depends on how the establishment has incorporated its written procedures for preventing contamination of carcasses and parts by enteric pathogens and fecal contamination throughout the entire slaughter and dressing operation in its HACCP system. For instance:

- If the establishment's written procedures are part of its HACCP plan, IPP are to verify HACCP regulatory requirements by performing the **Slaughter HACCP verification task** when it has been scheduled in PHIS.

- If the establishment's written procedures are part of its Sanitation SOPs, IPP are to verify that the establishment meets all Sanitation SOP

regulatory requirements by performing the **Operational SSOP Review and Observation task** when it has been scheduled in PHIS.

- If the establishment's written procedures are part of another prerequisite program or other control measures, IPP are to verify the implementation of such program by performing the **Slaughter HACCP verification task** when it has been scheduled in PHIS.

IPP are to perform the appropriate PHIS verification task on a **routine** basis at the frequency specified in the establishment's task list. IPP are also to initiate a **directed** verification task if they observe noncompliance with the requirements in 381.65(g) and (h) while performing other tasks or when instructed to do so by supervision or other policy issuances.

IPP are to verify that the poultry slaughter establishment:

- Developed a written sampling program that identifies the specific microorganisms being tested and location/frequency where samples are collected,
- Incorporated its written sampling program for preventing contamination by enteric pathogens into its HACCP system,
- Implements and maintains its written sampling program,
- Maintains scientific and technical documentation to support the decisions that the establishment made in designing the sampling program,
- Maintains daily records documenting the implementation and monitoring of its procedures including sample results
- Take actions to restore or improve process control when sample results indicate problems with establishment slaughter HACCP system.

Microbiological Sampling and Analysis Verification

Each poultry slaughter establishment's written procedures for preventing contamination of carcasses and parts with enteric pathogens and fecal material must include sampling and analysis for microbial organisms.

The regulations require each establishment to maintain scientific and technical documentation to support the judgments that the establishment made in designing the sampling program. The regulations prescribe the minimum requirements for the location and frequency of sampling, based on the establishment size and production volume. Each establishment must maintain daily records to document the implementation and monitoring of their procedures including records documenting the test results of its sampling plan.

Note: Establishments may use *Salmonella* Initiative Program (SIP) microbial data as part of their sampling plan to monitor their process control, provided they meet minimum frequencies and location requirements.

A Microbiological Testing of Raw Poultry Summary Chart (Attachment 2 of this handout) is provided as a reference for the establishment size, sampling frequencies, and sampling locations requirements. It is a quick and easy inspection aid when conducting 2the PHIS verification task.

IPP must understand what each statement of the regulation means in order to conduct the appropriate PHIS verification task. The IPP addresses the requirements of 9 CFR 381.65(g) and (h) as follows:

1. ***Sampling requirements – Microbial Indicator Organism paragraph (g) of section 381.65***

Each establishment must develop its own sampling program/procedure that identifies the specific microbiological organisms (i.e., *Salmonella, Campylobacter*, or other enteric organisms) for which the establishment will test to monitor the effectiveness of its process control procedures that prevent contamination of carcasses and parts with enteric pathogens and fecal material.

Note: Very small and very low volume poultry slaughter establishments (as defined below) operating under **Traditional Inspection** can choose to continue conducting generic *E. coli* testing at post-chill to meet the requirements under the Modernization of Poultry Slaughter Inspection final rule. FSIS considers the requirements under the former §381.94(a) regulations for generic *E. coli* testing of poultry to be scientifically validated **"safe harbor"** for monitoring process control.

2. ***Sampling requirements – location (paragraph (g)(1) and paragraphs (g)(1)(i) and (ii) of section 381.65) and technique***

Poultry slaughter establishments are codified by size and annual slaughter volume, according to regulation 381.65(g)(1)(i) and (ii).

- Very small establishments are establishments with fewer than 10 employees or annual sales of less than $2.5 million.

- Very low volume (VLV) establishments annually slaughter no more than 440,000 chickens, 60,000 turkeys, 60,000 ducks, 60,000 geese, 60,000 guineas, 60,000 squabs or a combination of all types of poultry not exceeding 60,000 turkeys and 440,000 birds total.

The location refers to the place within the establishment where the sample is collected. Very small establishments and VLV establishments operating under **Traditional inspection** are required to collect samples for microbial organisms at the **post-chill point** in the process. All other establishments must collect samples at both the **pre-chill and post-chill** locations.

Traditional - VS & VLV	All Other Establishments
Post-chill *only*	Pre-chill *and* Post-chill

The pre-chill location for sampling is any point in the slaughter process from re-hang to just prior to the chiller. The post-chill location for sampling is a point in the slaughter process after the carcass exits the chiller and after all slaughter interventions are completed, which is the same point in the process that FSIS collects samples for *Salmonella* and *Campylobacter* verification testing.

Carcasses must be selected at the required points in the process (pre and post chill). At the post-chill site, samples should be collected after the final wash and the application of any final antimicrobial interventions. A drip time of at least 60 seconds should be observed before sample collection to prevent excessive antimicrobial carryover in the collected sample.

Note: Antimicrobials used during processing steps may make it harder to detect live bacteria in the collected sample if the carcass is not allowed adequate drip time before collecting the sample. Consequently, antimicrobial carryover (residual) can result in altered test results (lower bacterial counts), may invalidate the test results, and may not provide a true representation of the establishment's process control.

The sampling methods for collecting carcass samples may include the nondestructive sponge technique for sample collection from turkeys and geese (back and thigh) and a whole bird rinse technique for sample collection from chickens, guineas, ducks, geese, and squabs. All carcass samples should be taken using aseptic techniques.

The establishment must provide scientific or technical support for their sampling technique and sample site on the carcass. If IPP have concerns with the establishment's support, they should contact the District Office through supervisory channels.

3. Sampling requirements – frequency paragraphs (g)(2)(i) and (ii) of section 381.65

VLV establishments must collect and analyze samples at least once during each week of operation starting June 1 of every year. If, after consecutively collecting 13 weekly samples, a VLV establishment can demonstrate that it is effectively maintaining process control, it may modify its sampling plan. In this case the establishment would need to document the changes and maintain documentation showing that the changes allow the establishment to continue to effectively monitor process control.

Seasonal VLV operations must complete all microbial testing during whichever months it operates. For example, a seasonal duck slaughter establishment that operates from September through December must begin testing during its first full week of operations and complete 13 tests before operations end in December.

All other establishments (including very small establishments) must collect and analyze a pair of samples, one at pre-chill and one at post-chill, at the following frequencies:

- Chickens: once per 22,000 carcasses but at a minimum of once during each week of operation;

- Turkeys, ducks, geese, guineas, and squabs: once per 3,000 carcasses but at a minimum once each week of operation.

Slaughter volume does not always match frequency rates in the regulations. Establishments should account for extra slaughter volume. This can be done by conducting additional microbiological tests. For example, a chicken establishment that slaughters 40,000 birds per day should test at least once a day at the 22,000 birds per test frequency. However, the remaining 18,000 birds should also be accounted for to monitor process control. To account for the extra slaughter volume, the establishment could “carry over” the 18,000 extra birds to the next day’s volume and conduct two (2) microorganism tests on the second day.

Random selection of carcasses

Samples should be collected randomly at the frequency determined by the establishment as part of its sampling plan. At a minimum, the establishment must collect samples at the frequency specified under 9 CFR 381.65(g)(2). If more than one shift is operating at the establishment, the sample can be taken on any shift. Different methods of selecting the specific carcass for sampling could be used, but the method used should include the use of random numbers to ensure that testing data is not biased. Examples of methods include random number tables, calculator or computer-generated random numbers, or drawing cards.

The carcass that is sampled should be selected at random from all eligible carcasses. If there are multiple lines or chillers, randomly select the line or chiller for sample collection for that interval. Each line or chiller should have an equal chance of being selected at each sampling interval within the relevant time frame (based on the sampling frequency for the plant).

The establishment must provide scientific or technical support the decisions it made in designing the sampling program.

4. Sample analysis and testing method

To obtain the most accurate results, samples should be analyzed as soon after collection as possible. If samples must be transported to an off-site laboratory, they should be refrigerated and then shipped refrigerated, on the same day they were collected, via an overnight delivery or courier service to the laboratory. A sample should arrive at the laboratory and be analyzed no later than the day after it is collected.

In addition, establishments should ensure that microbiological testing is reliable and meets its food safety needs. Each establishment needs to determine whether sample analysis will be performed by an outside or on-site laboratory. FSIS has available the compliance guideline "*Establishment Guidance for the Selection of a Commercial or Private Microbiological Testing Laboratory"* if the establishment decides to use an outside laboratory to analyze microbiological samples. This guidance document should be particularly useful to very small establishments when they are selecting a commercial or private laboratory to analyze establishment microbiological samples.

FSIS has also made available a list of *Foodborne Pathogen Test Kits Validated by Independent Organizations* for the detection of relevant foodborne pathogens (i.e., *Salmonella*, *Campylobacter*, *E. coli* O157:H7, and *Listeria spp*. including *L. monocytogenes*). This list is intended to be informational and is not an endorsement or approval of any particular testing method, regardless of its inclusion in the list.

Poultry slaughter establishments (other than ratite) must include the analysis of microbial organisms in their sampling procedures as part of their HACCP system (381.65(g)). Therefore, scientific and technical documentation must be provided to support the design of the sampling program. The Agency recommends that the industry follow the guidelines in the document titled "FSIS Compliance Guideline: HACCP Systems Validation" published in April 2015. The documentation can be found in the FSIS website at:

http://www.fsis.usda.gov/wps/wcm/connect/a70bb780-e1ff-4a35-9a9a-3fb40c8fe584/HACCP_Systems_Validation.pdf?MOD=AJPERES

IPP are to review the establishment's written programs, scientific and technical support, and records to verify that the laboratory analyzes the samples using an AOAC Official Method or one validated by another recognized independent testing body. When in doubt about whether the laboratory testing procedure is acceptable, IPP should go through the supervisory chain-of-command to the District Office for assistance.

5. Records of test results – paragraphs (g)(2)(iii) and (h) of section 381.65

Official poultry slaughter establishments must maintain daily records documenting the implementation and monitoring of its procedures required under paragraph (g) including accurate records of all test results from its sampling plan for at least one year. These records can be maintained in an electronic format on a computer, provided there are measures in place to ensure the integrity of the electronic data. These records must be readily accessible for review by IPP upon request.

IPP are to verify that the establishment maintains daily records documenting the implementation and monitoring of its procedures, makes these records available for IPP to review and retains these records for one year, and implements appropriate controls to ensure the integrity of electronic data if records are maintained on computers

6. Criteria for evaluation of test results

Poultry slaughter establishments should use statistically valid approach or statistical process control (SPC) to interpret their microbiological test results as previously discussed in this handout. Establishments gather initial test results and set the upper control limit that is used to assess whether the slaughter process is under control. As long as the test results remain below the upper control limit, the slaughter process is considered under control.

In cases where an establishment does not have the resources or capacity to develop and implement their own statistical control limits or procedures,

establishments can utilize the results from FSIS nationwide livestock or poultry surveys. The tables below demonstrate the indicator organism median values for chickens and turkeys.

Table 1 - Indicator Organism Median Values for Chickens

	Median (CFU/mL)			
	Generic E. coli	APC	Enterobacteriaceae	Total Coliform
Carcass – *Rehang*	540	28,000	1,600	940
Carcass – *Post Chill*	20	260	20	20

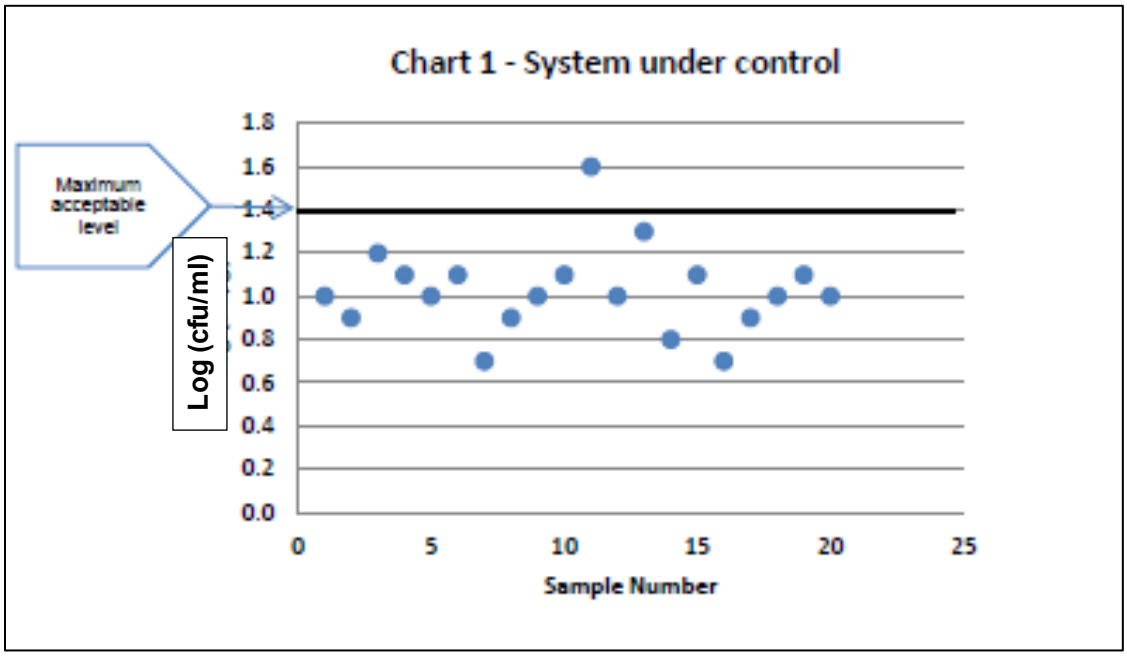
Table 2 - Indicator Organism Median Values for Turkeys

	Median (CFU/mL)			
	Generic E. coli	APC	Enterobacteriaceae	Total Coliform
Carcass – *Rehang*	22	1,800	50	40
Carcass – *Post Chill*	<1.2	18	<1.2	<1.2

An establishment sample value that is higher than the corresponding one listed in the table indicates the establishment may not be maintaining process control and may be less likely to meet applicable performance standards. Sample values lower than the one listed in the table indicate the establishment may be maintaining process.

SPC usually includes the use of a control chart, which plots data over time but also displays an upper control limit for specific measurements and a centerline (the average), above and below which there is an equal number of sample results. A sample result above the upper control limit would indicate the likely presence of a special cause of variation that should be addressed. Results within control limits indicate simply that the process is in control.

The example below shows a SPC chart for a poultry slaughter operation which plots test results for an indicator organism in terms of sample number, along the horizontal X-axis, against Log cfu/mlon the Y-axis. This chart illustrates a pattern of an indicator organism test results that would be seen in a well-controlled system. In a well-controlled system, the majority of the test results will be clustered around a central value (the average). It is important to note that even a well-controlled system there is some frequency of isolated results above the acceptable level.



As part of its process control procedures, an establishment should define the actions it will take if the microbiological test results obtained through its sampling are above the limits it has set. The establishment should delineate what its actions will be, who will take each action, how the outcome of these actions will be documented, and how it will be verified.

FSIS has made available the *FSIS Compliance Guidelines for the Control of* Salmonella *and* Campylobacter *in Raw Poultry*. The guidelines summarize known control points for *Salmonella* and *Campylobacter* in the pre- and post-harvest production process. Establishments should use this compliance guide to improve management practices, to ensure effective dressing operations and to assist in investigating when there is a loss of control of the slaughter process.

When IPP review the establishment's records that document its microbiological test results, they should look for trends in the test results that indicate a loss of process control (refer to Directive 6,420.5, Section VI.D). For example, IPP are to look for:

- A significant number of test results that exceeded the establishment's upper control criteria, if the establishment has such criteria,
- Instances where the test results exceed the establishment's criteria by a large amount over a relatively short period of time (e.g., days or weeks); or
- Test results that show a trend of worsening performance over a relatively long period of time (e.g., days, months, seasonal).
- Other sampling program (FSIS sampling results) – positive FSIS pathogen sampling results may indicate increased contamination is occurring during slaughter.

Very Small or Very Low Volume Establishments that Slaughter Poultry under Traditional Inspection Using the Safe Harbors to Monitor Process Control

The Agency considers former provisions 381.94(a)(2)(i), (a)(3), and (a)(5)(i) as safe harbors if very small and very low volume establishments slaughter poultry under Traditional Inspection chooses to test for generic *E. coli* at post chill as the indicator microorganism. These establishments use the M/m values in the following table and a moving window of the last 13-documented test results to evaluate process control.

Type of poultry	Lower limit of marginal range (m)	Upper limit of marginal range (M)	Number of Samples tested (n)	Maximum number permitted in the Marginal range
Chickens	**100 cfu/ml**	**1,000 cfu/ml**	**13**	**3**

An establishment is operating within the criteria when the most recent generic *E. coli* test result does not exceed the upper limit (M), and the number of samples, if any, testing positive at levels above (m) is three or fewer out of the most recent 13 samples (n) taken.

Whenever a prudent poultry slaughter establishment determines that its generic *E. coli* test results do not meet m/M performance criteria, it should take necessary actions to bring the slaughter process back into control.

7. Sample Integrity

Even though the regulatory requirements in 9 CFR 381.65(g) for poultry slaughter microbiological testing programs do not specifically address the handling of the samples to ensure sample integrity, a prudent establishment should include a description of how samples are handled to ensure sample integrity. Remember, the regulation requires each poultry slaughter establishment to incorporate their written procedures in its HACCP system, either in its HACCP plan, its Sanitation SOPs, or another prerequisite program. Implementation of the program must then comply with the 9 CFR 416 or 417, depending on where the establishment chooses to locate it.

Documenting Inspection Results in PHIS

IPP are to follow instructions for documenting their inspection results in PHIS as described in FSIS Directive 5,000.1, Chapter V. When the establishment is in compliance with the regulations, IPP select the mandatory regulations, any other regulation they verified on the “Regulations” tab and mark the task as ‘Inspection

Completed' at the bottom of the Inspection Results page. If IPP find noncompliance, they are to notify the establishment and document the noncompliance on an NR citing the appropriate regulation. IPP are to document noncompliance with 9 CFR 310.25(a) for livestock, or 381.94(a) for ratite, or 381.65(g) and 9 CFR 381.65(h) for poultry other than ratites according to the methodology and steps outlined in both FSIS Directive 5,000.1 and Directive 6,420.5, Section VII.

Slaughter Food Safety Standard

FSIS has food safety standards that require establishments to have controls in place to prevent the contamination of carcasses with certain contaminants, such as fecal material. This section provides an overview for how these food safety standards are verified for poultry.

Enforcing the Food Safety Standard for Poultry Postmortem

References: FSIS Directive 6420.5, 381.65(f), and Part 417.

FSIS enforces a food safety standard for visible fecal material on poultry carcasses through postmortem inspection and reinspection activities at poultry slaughter establishments. This food safety standard also is reflected in the regulations. FSIS views preventing carcasses with visible fecal contamination from entering the chilling tank as critical to preventing the cross-contamination of other carcasses.

Official poultry slaughter establishments must develop, implement, and maintain written procedures to ensure that poultry carcasses contaminated with visible fecal material do not enter the chiller. Establishments must incorporate these procedures into their HACCP plans, Sanitation SOPs, or other prerequisite programs.

IPP assigned to establishments that operate under Streamlined Inspection System (SIS), New Line Speed Inspection System (NELs), New Turkey Inspection System (NTIS), or Traditional Inspection systems are to perform scheduled and unscheduled Poultry Zero Tolerance verification tasks off line to verify that the establishment is preventing carcasses with fecal material from entering the chiller (9 CFR 381.65(f)).

These checks are performed at either the same location as pre-chill testing in establishments inspected under the finished products standards (FPS), or the inspection station where Acceptable Quality Level (AQL) testing is conducted in a plant under traditional inspection, regardless of the location of the plant's CCP.

To perform a fecal contamination check, inspectors are to:

- Select 10 carcasses randomly (using an established FSIS method), and
- Examine the selected carcasses off line using the following inspection procedure:

- For the outside back – While holding the carcass, with the back of the carcass toward the observer, start at the hock area and observe the hocks, back part of the legs, tail area, back of the carcass and top side of the wings.
- For the outside front – Turn the carcass and observe the bottom side of the wings, breast, and front part of the legs.
- For the inside – Observe the inside surfaces of the carcass and the abdominal flaps and fat.
- For the neck flap area – Observe the neck flap and the thoracic inlet area.

At least two fecal checks will be performed for each line on each shift.

The off-line inspectors will perform the Zero Tolerance verification task using the technique described in FSIS Directive 6420.5

If no visible fecal material is found on a check, the findings will be documented in PHIS.

If fecal material is found, the CSI will:

- Notify the establishment of the contamination
- Complete a Noncompliance Record (NR)
- Verify that the corrective action requirements are met.

Note: When IPP determine zero tolerance noncompliance while performing the zero tolerance verification task, they may verify the establishment's corrective actions per 417.3(a), 417.3(b) or 416.15(b) and 417.3(b) either while performing the zero tolerance verification task or during the slaughter HACCP task or Operational SSOP Review and Observation task.

Additionally, 9 CFR 381.65(g) all poultry establishments must demonstrate control of enteric pathogens and fecal contamination by microbiological testing. Establishments must ensure that carcasses with visible fecal contamination do not enter the chiller, per 9 CFR 381.65(f). Written procedures must be developed, implemented and maintained to document compliance with these regulations.

Workshop: Food Safety Standard in Slaughter

Refer to the module and to FSIS Directive 6420.2 to complete the following questions.

POULTRY SLAUGHTER:

1. What contaminants are covered by the food safety standard in poultry slaughter?

2. At what location will FSIS verify the food safety standard for poultry slaughter?

Food Defense

OBJECTIVES

The objectives for this module are to:

1. Describe the risk that intentional contamination presents to FSIS-regulated establishments.
2. Define key food defense terms.
3. Identify food defense vulnerabilities and associated mitigation strategies.
4. Describe the purpose of the food defense task with respect to identifying potential food defense vulnerabilities in FSIS-regulated establishments.
5. Identify the steps taken to encourage an establishment to implement food defense practices to protect their product from intentional contamination.

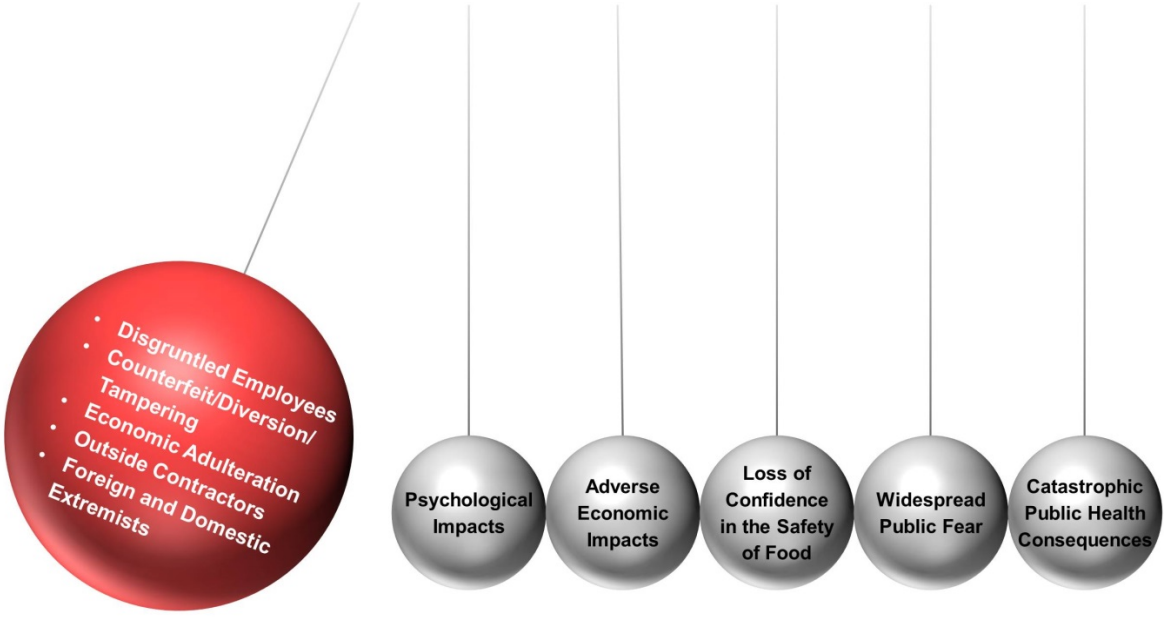
REFERENCES

1. Directive 5420.1_Rev 10, "Food Defense Tasks and Threat Notification Response Procedures for the Office of Field Operations"
2. FSIS – Food Defense and Emergency Response webpage
3. FSIS – Food Defense Risk Mitigation Tool webpage
4. The Centers for Disease Control; Disease Category webpage
5. FDA – FDA Food Defense webpage

INTRODUCTION

This module will address food defense activities in FSIS by providing some background on food defense, discussing common food defense vulnerabilities and mitigation strategies, and then explaining your role and inspection activities that are related to food defense.

Prior to September 11, 2001, FSIS focused primarily on protecting meat, poultry, and egg products from unintentional contamination. The events of September 11, 2001, brought the issue of the vulnerability of our food supply to the forefront and called for the food and agriculture sector to focus on food defense. Food defense is the protection of food products from contamination or adulteration intended to cause public health harm or economic disruption. Potential sources and impacts of intentional contamination are shown in the figure below.



Potential **Sources** & **Impacts** of Intentional Adulteration

The Significant Incident Preparedness & Response Staff (SIPRS) is responsible for managing all food defense activities for the Agency. SPIRS works with government agencies at all levels, industry, and other organizations to develop and implement strategies to prevent, protect against, mitigate, respond to, and recover from intentional contamination of the food supply

The Significant Incident Preparedness & Response Staff is available at any time to answer questions related to food defense and can be reached via email at: SPIRS@usda.gov.

FOOD DEFENSE TERMINOLOGY

In order to prevent, protect against, mitigate, respond to, and recover from threats and hazards of great risk to the food supply, it is important that preparedness efforts incorporate food safety, food defense, and food security. While there are distinct differences between these three concepts, a comprehensive approach that addresses food safety, food defense, and food security considerations improve resilience and protect public health. We need to understand what these terms means:

Food Security – When all people at all times have both physical and economic access to enough food for an active, healthy life. Food security includes both physical and economic access to food that meets people's dietary needs and food preferences. Therefore, the concept of food security

certainly includes but encompasses much more than the idea of *food defense*.

Food Safety – means guarding against unintentional contamination of food. HACCP plans and Sanitation SOPs, which are developed based on what can be predicted to happen if we do not put safety measures at critical points, are used to guard against unintentional contamination. **Food Defense** – is the protection of food products from intentional contamination or adulteration intended to cause public health harm or economic disruption. Food Defense is an integral part of FSIS' mission in protecting public health. The mission of the FSIS Food Defense Program is to protect the U.S. food supply from dynamic and evolving threats.

Other definitions important for our discussion include:

Food defense practices – policies, procedures, or countermeasures to mitigate vulnerability to intentional contamination.

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Critical Infrastructure – The Patriot Act of 2001 defined critical infrastructures as systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters. The Food and Agriculture Sector is one of 16 critical infrastructures identified by the Patriot Act.

Supply Chain – continuous process including every step involved in food production and food reaching the consumer; often referred to as farm-to-table or farm-to-fork.

FOOD DEFENSE VULNERABILITIES AND FOOD DEFENSE PRACTICES

A ***vulnerability*** can be any part of the food production or storage system where a protective measure should be implemented to protect a product from intentional adulteration, but such a measure is found to be missing or not in place.

Food defense vulnerabilities are weaknesses within the food production process that make it easy to intentionally contaminate product. Examples of food defense vulnerabilities may include (please note this list is ***not*** all-inclusive):

- Unsecured entrances

- Poor lighting around the facility
- Failing to control access and properly secure restricted areas inside the facility, including access to processes and/or ingredients that may be more vulnerable to intentional contamination (e.g., spices, preservatives, marinade, brine, etc.)
- Failing to control product labels and packaging to prevent theft and misuse
- Ensuring seals and locks are present, where appropriate (e.g., bulk liquid loading/storage/transport activities, chemicals and hazardous materials, etc.) Lack of or insufficient personnel security measures (e.g., background checks, employee ID badges, delivery driver/vendor identification, etc.)
- No system for employees to report suspicious behavior
- Computer systems and/or control systems that lack appropriate security measures that may lead to a cyber security incident (e.g., passwords, firewalls, virus protection)

An establishment can put food defense practices (also called mitigation strategies) into place to reduce the likelihood that intentional contamination will occur. It should be noted that **food defense is not a one-size-fits-all approach!** Food defense practices that are implemented to protect products within a large establishment may not be effective or needed in a small or very small establishment. This should be considered when inspection program personnel (IPP) conduct their food defense activities.

Examples of food defense practices may include (not all-inclusive):

- Locked doors
- Surveillance cameras
- Security guards
- Alarm system
- Controlled-access system
- Designate and clearly mark all restricted areas
- Perform background checks on new employees
- Restrict personal items in operational areas
- Employee identification system
- Maintain an anonymous system for reporting suspicious behavior
- Conduct food defense training for employees
- Protect computer systems and automated systems with firewalls and passwords

A more comprehensive list of mitigation strategies for various components of the food supply can be found in FSIS' Food Defense Risk Mitigation Tool.

FOOD DEFENSE IN FSIS-REGULATED ESTABLISHMENTS

Food defense is voluntary for FSIS-regulated establishments. This means that FSIS does not have regulatory authority when it comes to food defense. Even though food defense is voluntary, FSIS encourages establishments to protect their products from intentional contamination by doing the following:

- Implementing food defense practices,
- Conducting training and exercises to ensure preparedness, and
- Adopting a functional food defense plan (FDP).

A functional FDP is an approach to identify and mitigate vulnerabilities; it can help an establishment prevent, protect against, respond to, and recover from an intentional contamination incident. A FDP is functional when all four of the following criteria are met:

1. Developed – the plan is documented and signed
2. Implemented – food defense practices identified in the plan are actually implemented
3. Tested – food defense measures are monitored and validated to ensure they are working
4. Reviewed and maintained – the plan is reviewed at least annually and revised as needed.

Note: An establishment must be ***implementing*** the elements of its food defense plan in order for FSIS to consider it "functional.
The absence of a functional FDP may increase an establishment's vulnerability to intentional contamination because important security measures needed to protect the facility, product, and employees may not be in place. Even though functional FDPs are voluntary, FSIS considers such plans to be an important tool that can reduce the risk of intentional adulteration of food products.

An establishment does not have to provide IPP access to its FDP or any associated documents (e.g., employee personnel files). It is beneficial if IPP are permitted access to the plan, as it may be useful in identifying how the establishment is addressing food defense. If the establishment shares its plan, IPP are not to keep or make copies of the written plan. IPP also cannot show or share anything about the plan with any outside source because it includes sensitive security information.

IPP are responsible for updating and maintaining the functional FDP status for an establishment in the Establishment Profile in PHIS. Food defense plan status can be found on the "General" page → "Other" tab in the Establishment Profile. IPP are to check the box for "Written food defense plan" if the establishment meets **ALL** four criteria for having a functional FDP. This status should be updated per the frequency identified in Directive 5300.1, *Managing the Establishment Profile in the Public Health Information System*, or when IPP become aware of a change in the establishment's functional FDP status.

If an establishment does not have a food defense plan, they can access the FSIS General Food Defense Plan template on the FSIS website. The Agency has additional food defense guidance documents (e.g. worksheets, checklists, and fact sheets) for consumers, industry, and state and local agencies. All of these materials are also available on the FSIS webpage, under Food Defense and Emergency Response.

NATIONAL TERRORISM ADVISORY SYSTEM

The National Terrorism Advisory System (NTAS) is a system managed by the Department of Homeland Security (DHS) to communicate information about terrorist threats by providing information to the American public. Under the NTAS system, DHS coordinates with other federal entities to issue formal alerts when the Federal government receives information about a specific or credible terrorist threat.

If there is specific and credible information about a terrorist threat against the U.S., DHS will share the NTAS alert with the American public when circumstances are justified. These alerts include a clear statement that there is an "elevated threat" or "imminent threat".

- Elevated threat: if there is credible threat information, but only general information about timing and target such that it is reasonable to recommend implementation of protective measures to thwart or mitigate against an attack.
- Imminent: there is a belief that the threat is credible, specific, and impending in the very near term.

The NTAS alerts are based on the nature of the threat including the geographic region, mode of transportation, or critical infrastructure potentially affected by the threat. The alerts also provide a concise summary of the potential threat, information about actions being taken to protect public safety, and recommended steps that individuals, communities, businesses, and governments can take.

FSIS DIRECTIVES

Now, let us talk more specifically about your duties related to food defense. Your duties are covered in the FSIS Directives. There are five FSIS Directives related to food defense:

- 5420.1 –Food Defense Tasks and Threat Notification Response Procedures for the Office of Field Operations
- 5420.3 – Food Defense Surveillance Procedures and National Terrorism Advisory System Alert Response for the Office of Investigation, Enforcement and Audit
- 5500.2 – Significant Incident Response
- 5500.3 – Incident Investigation Team Reviews
- 5500.4 – Products Intentionally Adulterated with Threat Agents

Directive 5420.1 outlines the duties that are relevant to the in-plant inspection team when performing the food defense task and observing/reporting food defense vulnerabilities. The other directives cover food defense duties for other FSIS personnel. Depending on the role of the in-plant inspector, you should familiarize yourself with these other important directives, if it applies to your duties.

FSIS DIRECTIVE 5420.1

Let us look at Directive 5420.1 in more detail. First, this directive describes the PHIS Food Defense and its frequency. The directive also discusses threat notification procedures that the Office of Field Operations (OFO) is to follow in the event FSIS receives threat information related to the food and agriculture sector.

Threat Notification

IPP are to know the protocol for communicating threat information related to the food and agriculture sector to establishment management through proper supervisory channels as necessary. Threat information, such as an NTAS bulletin or alert from the intelligence community is to be communicated through the following:

1. The FSIS Significant Incident Preparedness and Response Staff (SIPRS) Chief Operating Officer (COO) is[PP-F1] the primary point of contact for receipt of threat information from the intelligence community;

2. If a threat has the potential or is expected to affect food or agriculture, the SIPRS COO informs the FSIS Administrator and FSIS Management Council;

3. The SIPRS COO determines the appropriate distribution of the threat information and coordinates with other FSIS offices to notify employees, stakeholders, and the public, as appropriate; and

4. In the event of a significant incident, the FSIS Emergency Management Committee (EMC) may be alerted and other response actions taken pursuant to FSIS Directive 5500.2 Significant Incident Response

Supervisory personnel are to ensure that any notifications distributed to field employees are available to IPP in the establishment. As soon as supervisory personnel are notified of threat information, they are to inform establishment management of the alert. IPP are to document their discussion with establishment management in a memorandum of interview (MOI) (see Food Safety Related Topics For Discussion During Weekly Meetings With Establishment Management). [MRB2][PP-F3]If IPP observe a potentially significant incident that presents a grave, or potentially grave, threat to public health or to the safety of FSIS-regulated product or to personnel, they are to report it through supervisory channels. IPP are to follow instructions provided in FSIS Directive 5500.2, which also lists examples of significant incidents.

If there is a specific threat, additional Food Defense tasks may be necessary. Additional actions may be needed to reduce the threat of intentional adulteration of food products. IPP must clearly understand their roles and what will be required of them to respond properly to that threat.

Performing Food Defense Tasks in PHIS

IPP in meat and poultry establishments are to perform the "Food Defense task" as assigned in PHIS. PHIS will automatically generate one routine Food Defense task per quarter to the establishment task list. This task has a priority 3 in the Establishment Task List including a start/end date window of three months. Only one questionnaire is to be completed per establishment. The task is to only be performed on one shift in multi-shift establishments. The supervisor should determine which shift performs the task. The shift that does not complete the task should mark the task as not performed with a justification of 'Task assigned to another inspector.'

IPP perform the Food Defense task to identify vulnerabilities within establishments that may lead to intentional contamination of FSIS-regulated products. [PP-F4][MRB5][PP-F6]

There are resources that the IPP can use as an aid to assess vulnerabilities while performing the Food Defense task. These resources can be found on FSIS' food defense webpage (https://www.fsis.usda.gov/wps/portal/fsis/topics/food-defense-defense-and-emergency-response) under "Tools, Resources, and Training".

To perform the food defense task in PHIS, IPP are to:

1. Schedule the Food Defense Task to the PHIS task calendar;

2. Select the "Activity" tab, then select the applicable verification activity (Review & Observation, Record Keeping, or Both);

3. Select the "Questionnaire" tab, click on "Take Questionnaire" tab to access the questions;

4. Click "Start" to begin questionnaire;

5. Answer all the questions – IPP are not to leave any blank or unanswered. IPP are to select "N/A" if the question does not apply to the establishment or if they do not know the answer to the question. IPP are to answer "Yes" if there is another mitigation strategy addressing the potential vulnerability;

6. Click "Submit" to complete the questionnaire; and

7. Record the task as completed after the results have been entered.

Prior to completing the questionnaire, IPP should discuss food defense activities with management during a weekly meeting to learn more about the establishment's food defense practices. This will allow them to accurately complete the questionnaire.

IPP are to discuss the answers of the questionnaire with establishment management in the weekly meeting following task completion, including areas in the establishment where food defense vulnerability exists, as well as food defense practices. IPP can use the Food Defense Risk Mitigation Tool in their discussion with establishment management[PP-F7][MRB8].

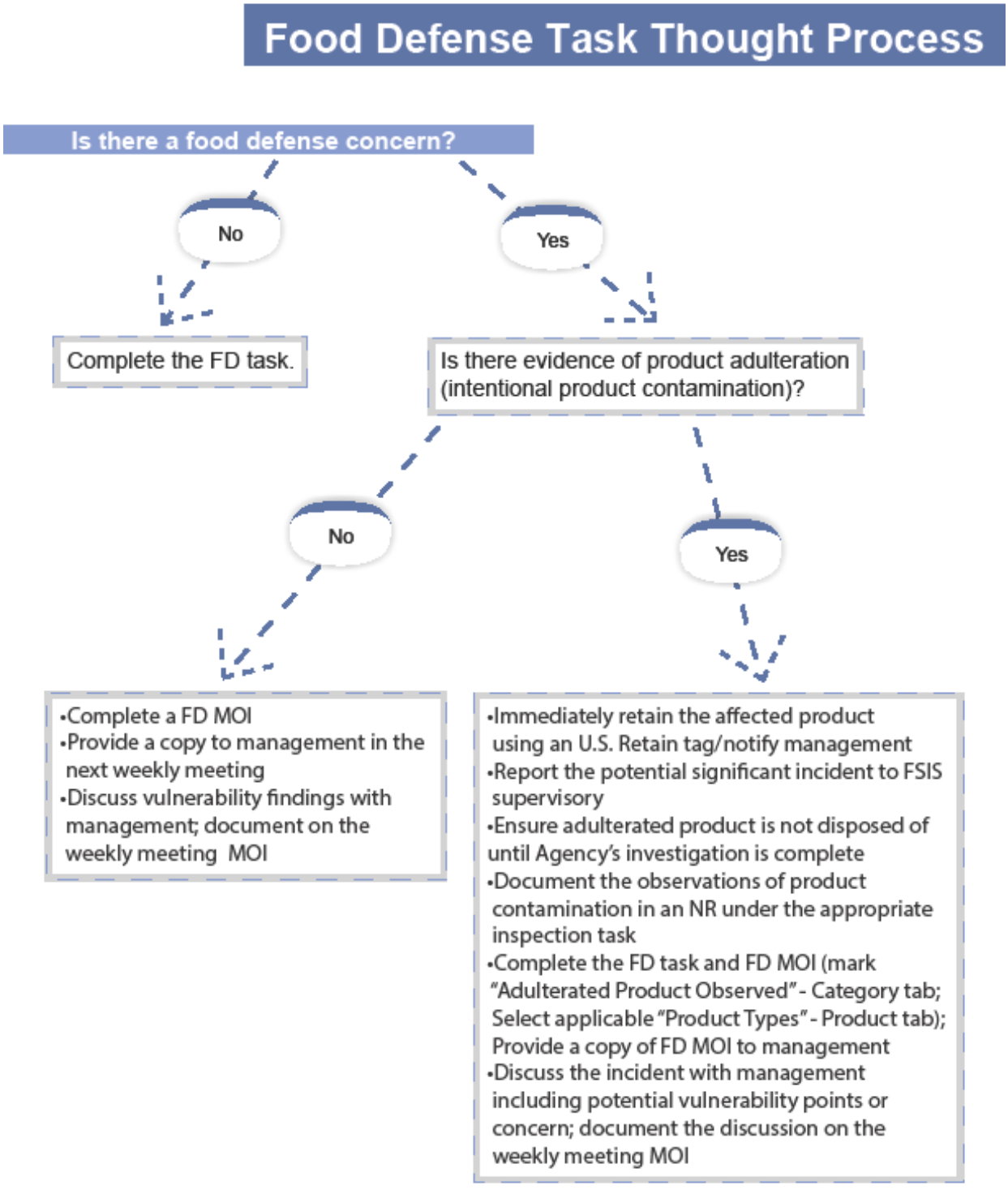
In the case of a NTAS alert identifying an elevated or imminent threat to food or agriculture, the inspector-in-charge (IIC) will receive specific instructions through supervisory channels on other measures to take. If additional Food Defense tasks are necessary, IPP will schedule them as directed task in PHIS. Other measures may include sampling of specific products and deploying inspectors to establishments producing the products to ensure that FSIS has an on-site presence.

If the establishment requests guidance on food defense, IPP are to direct them to the Food Defense web page: (www.fsis.usda.gov/fooddefense) or email: FoodDefense@fsis.usda.gov.

OBSERVING AND DOCUMENTING FOOD DEFENSE VULNERABILITIES[PP-F9][MRB10]

Next is a diagram summarizing the food defense task thought process. Information that is more detailed is to follow. Remember, there is a questionnaire

associated with the food defense task that must be completed every time you perform this task.



When inspection program personnel perform a Food Defense task and do not find a food defense vulnerability or concern, they are to complete the task in PHIS.

IPP may observe food defense vulnerabilities when they are performing the Food Defense task and during other daily inspection activities. IPP should document these vulnerabilities in a food defense memorandum of interview (MOI) after discussing the findings with plant management.

To document a food defense MOI for domestic establishments:

1. Go to the "Inspection Verification" in PHIS and after selecting the establishment, click on "Memorandum of Interview" to open the MOI List page.

2. Click on "Add Food Defense OFO" to open the "Domestic Food Defense MOI" page to access key functions of the MOI.

3. In the "Status" tab, select attendees with left mouse click on attendee's name. To select more than one attendee, hold "Ctrl" on keyboard while left clicking on each applicable name;

4. In the "Category" tab, choose the appropriate potential vulnerability (No product adulteration observed), the occurrence (1st, 2nd, or 3rd), the establishment size (very small, small, or large), and establishment type (meat, poultry, egg products, or equine);

   Note: In case of the 4th occurrence, the establishment express no intention of addressing the situation, IPP are to notify the DO through supervisory channels.

5. In the "Product" tab, leave this table blank.

6. In either the "Processing" or "Storage" tab, identify the vulnerability point or concern. Additional vulnerabilities, other than those related to processing ("Water System") and storage ("Shipping and Receiving") activities, are available for selection in these tabs; and

7. Check the "Finalize" box and then click "Save" to complete the Food Defense MOI (FSIS Form 5420-1, see Attachment 1). At the next weekly meeting, provide a finalized copy of the Food Defense MOI to establishment management. Discuss the food defense findings with management, including proposed mitigation actions, and document in the weekly meeting memorandum.

When IPP perform a food defense task or other daily inspection activities and find a food defense vulnerability or concern, and there is <u>evidence of product adulteration</u> (e.g., regulatory non-compliance), IPP will perform a directed

HACCP, Sanitation SOP or other appropriate inspection task to record the observed non-compliance citing the applicable regulation. IPP are to:

1. Immediately retain the affected product by attaching a retain tag or detain tag, then notify establishment management and discuss the findings;

2. After informing establishment management, IPP are to report any potentially significant incidents through supervisory channels and follow instructions carefully; IPP should verify and ensure that product **is not disposed of** until being notified, by the Incident Commander through supervisory channels, that the agency's investigation is complete (Directive 5500.4).

3. Add the appropriate inspection verification task (directed HACCP, SSOP or other appropriate inspection task) to the task calendar, document the observed product contamination in an NR, and cite the applicable regulation (SSOP for product contamination or HACCP if product is adulterated).[PP-F11]

4. Complete a Food Defense MOI; and

   Note: IPP are to mark "Adulterated Product Observed" for Category of Potential Vulnerability under the "Category" tab, and select the applicable product types under the "Product" tab.

5. Immediately provide a finalized copy of the MOI to establishment management and inform management that an NR will also be issued describing the adulterated product and potential vulnerability or concern.

[PP-F12][MRB13]