

Master of Public Health
Integrative Learning Experience Report

***Food Safety Compliance for Kansas Food Operations and
Consumers: Analyzing trends, Developing educational
materials, and Improving communication***

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Abstract

Food safety has become a common subject in the news and in our everyday lives. Recalls documented from the United States Department of Agriculture (USDA), restaurant outbreaks, and people becoming severely ill from foodborne illnesses are becoming a common occurrence. Every year unsafe food causes an estimated 600 million cases of foodborne illness worldwide and an 420,000 deaths.¹ It's an important public health issue that has many layers and complexes within it. There are so many hands that touch food from farm to plate. It's everyone's responsibility to be educated on food safety and to apply those skills and knowledge with each food that is touched. The increase of trade, globalization, and consumers eating food outside of the home has made for a longer and more complex food supply chain. It's critical that there is collaboration between the government, producers of food, and consumers to strengthen the food safety system.²

One of the Healthy People 2030 goals is to "Improve food handling practices," which includes reducing infections and outbreaks caused by pathogens in food, and increasing safe food handling practices.³ Common violations that food operations are cited for include food contact surfaces not being properly cleaned or sanitized; toxic substances not being properly identified, stored, or used; physical facilities not being installed, maintained, and cleaned; not properly date marking; and not having adequate handwashing sinks supplied and accessible.⁴

For my integrated learning experience, I worked with the Kansas Department of Agriculture (KDA) and we aimed to increase education on these topics. I helped create and reform educational materials for operations that are overseen by KDA with the Kansas Food Code 2012 which is based on the US Public Health Service (PHS) 2009 FDA Model Food Code. It has also become increasingly important that consumers are educated in cooking safe food in their home and understanding food safety while they are dining out. Connecting consumers with updated and new information can help reduce the amount of foodborne illnesses caused at home and from eating out. This is why I also assisted Kansas State Research and Extension (KSRE) staff on 1) creating new educational materials and updating ones for consumers, and 2) identifying gaps in

publications available within their online bookstore. This paper is a detailed summary of my experience in the field.

Subject Keywords: food safety, food establishments, restaurants, consumers, educational materials, food code

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Chapter 1 - Literature Review

Food safety is an aspect of everyday life, and most of that responsibility lies in someone else's hands when dining out or picking up food. When dining out, we are more susceptible to foodborne illnesses caused by someone else preparing our food. Luckily, foodborne illnesses are very preventable given that people who are preparing and handling food have the proper education. Communication and training are key, from workers in the fields to employees serving the food. The food system contains many moving parts and numerous hands are involved.

In the United States, food safety came to the forefront with the *Pure Food and Drug Act*, which was passed in 1906 and banned the interstate transport of unlawful food and drugs. As far as food was concerned, it was illegal to “add ingredients that would substitute for food, conceal damage, pose a health hazard, or constitute a filthy or decomposed substance”.^{5,6} The *Federal Meat Inspection Act* (FMIA) was also passed after a disturbing book called “The Jungle” by Upton Sinclair was published. It was about the meat packing industry in Chicago and it gained much popularity. The FMIA authorizes the United States Department of Agriculture (USDA) to conduct continuous inspection and uphold standards for the slaughter of food animals.^{5,6}

The Food and Drug Administration (FDA) writes the Food Code which gives all levels of government a template of scientific food safety regulations for food service establishments. It is a guide to help regulators to create or improve their food safety practices.⁷

The FDA Food Code leads us into the FDA's Retail Food Safety Initiative. This is a prevention plan to reduce foodborne illness from a retail perspective. It is meant to “Encourage widespread, uniform, and complete adoption of the FDA Food Code.” This is intended to create consistency, which helps inspectors, employees, and businesses eliminate confusion. It also assists with keeping regulations current and relevant with the newest emerging scientific findings that back the rules themselves. Not only does it keep consistency within the food industry, but also helps consumers understand food safety regulations.⁸

From a public health perspective, the Healthy People 2030 goals are a great way to see where the priority areas are to keep our country safer. Healthy People 2030 creates goals for each decade in the United States and they focus on the social determinants of health. The social determinants of health target the big picture by including factors like healthcare, education, community, environment, and economic stability to overall health.

One of the Healthy People 2030 goals is to “Improve food handling practices.” Within this umbrella goal are more goals that pertain to reducing infections, increasing correct handwashing techniques, reducing outbreaks, and increase the use sanitary measures while handling food.⁹

Sub-goals under this umbrella include:⁹

- Reduce infections caused by *Campylobacter*
- Reduce infections caused by Shiga toxin-producing *E. coli*
- Reduce infections caused by *Listeria*
- Reduce infections caused by *Salmonella*
- Increase the proportion of people who wash their hands and surfaces often when preparing food
- Increase the proportion of people who use separate cutting boards when preparing food
- Increase the proportion of people who cook food to a safe temperature
- Increase the proportion of people who refrigerate food within 2 hours after cooking
- Reduce outbreaks of Shiga toxin-producing *E. coli*, *Campylobacter*, *Listeria*, and *Salmonella* infections linked to beef, dairy, fruit and nuts, leafy greens, and poultry
- Reduce the number of norovirus outbreaks
- Reduce the number of food allergy reactions requiring emergency treatment
- Increase the proportion of delis where employees wash their hands properly
- Increase the proportion of delis where surfaces that touch food are properly cleaned and sanitized
- Increase the proportion of delis where foods are refrigerated at a safe temperature
- Increase the proportion of delis where hot foods are kept at a safe temperature

The COVID-19 pandemic opened the door to even more issues in the food industry and, amidst the chaos, a study was conducted. The article is “COVID-19 pandemic underlines the need to build resilience on commercial restaurants’ food safety”. It identified an important point that “clear, direct, and science-based communication aimed at all restaurant staff is essential to build active resilience so that in a post-pandemic scenario, restaurants can work more safely than they did pre-pandemic.”¹⁰ The authors also reported that leaders in the food industry should be clear, transparent, and prompt with their communications to maintain the accuracy of safe food handling practices.¹⁰

The Kansas Department of Agriculture (KDA) is integral in keeping food for Kansans safe. The KDA was the nation’s first state department of agriculture. Its mission is “Helping to ensure a safe food supply, protecting natural resources, promoting public health and safety, protecting animal health, and providing consumer protection to the best of our ability.” Their divisions and programs include:

1. Agricultural Laboratory
2. Agricultural Marketing, Advocacy and Outreach Team
3. Dairy and Feed Safety Program
4. Division of Animal Health
5. Division of Conservation
6. **Food Safety and Lodging Program**
7. Grain Warehouse Inspection Program
8. Meat and Poultry Inspection Program
9. Pesticide and Fertilizer Program
10. Plant Protection and Weed Control Program
11. Division of Water Resources
12. Weights and Measures Program

The Food Safety and Lodging Program encompasses many important tasks including handling food safety inspections at food establishments, providing education and resources to these operations, and addressing public complaints. I worked with the program manager Amber Grisamore who has an extensive background in food safety

and hospitality.¹¹ Updating and creating educational materials was a goal during my time with KDA and KSRE because of the significance of communicating food safety practices to consumers and food establishments. The main focus was on topics that related to the most commonly cited Violations, which include:⁴

1. Food contact surfaces cleaned and sanitized
2. Toxic substances properly identified, stored, and used
3. Physical facilities installed, maintained, and cleaned
4. Proper date marking and disposition
5. Adequate handwashing facilities supplied and accessible

Kansas State Research and Extension (KSRE) provided the opportunity to experience food safety education from the consumer perspective, including analyzing the need for new and updated topics related to food safety. Their mission is as follows: “K-State Research and Extension is dedicated to a safe, sustainable, competitive food and fiber system and to strong, healthy communities, families and youth through integrated research, analysis and education.” They provide information, resources, and services for the following topics:

1. Adult Development and Aging
2. Community Development
3. Crop Production
4. Family and Child Development
5. Family Resource Management
6. Farm Management
7. Horticulture
8. Livestock Production
9. Natural Resources
10. **Nutrition, Food Safety, and Health**
11. Youth Development

My mentor at KSRE was Dr. Londa Nwadike who is an extension associate professor of food safety for Kansas State University and the University of Missouri. A few of her responsibilities include creating programs related to food safety that are aimed around the consumer, grower, and farmers' market vendors. Previously, she worked for the Food and Agriculture Organization of the United Nations in Rome, Italy.¹² My main focus during this integrated learning experience was to improve communications that provide current and scientific food safety information and are distributed to consumers and food establishments.

Chapter 2 - Learning Objectives and Project Description

I started my integrated learning experience in the Spring of 2022 and completed my hours in November 2022. I began with KDA by updating educational materials on their website to be used to distribute at food establishments. Writing pieces for their quarterly newsletter and assisting with a food safety video by editing the content and adding additional food safety information were additional tasks that broadened my knowledge.

Kansas Department of Agriculture (KDA) Learning Objectives:

1. Gain knowledge and understand information in the Kansas Food Code (based on the US PHS 2009 FDA Model Food Code) as it relates to food establishments
2. Update and create food safety educational materials for food establishments
3. Gain insight and relay information on popular food safety topics to KDA stakeholders via newsletter articles
4. Assist with updating the Focus on Food Safety (FOFS) educational video
5. Create a review for food establishments to check their knowledge after the FOFS video

Throughout my time with KDA, I was able to understand how the Food Safety and Lodging Program functions and what responsibilities lie within the purview of this program. As a team, we determined which handouts on their website should be updated

and enhanced. I then worked to edit these materials and attended several meetings with their program manager to get feedback from my work on the handouts. KDA has a program called the Food Protection Task Force that sends out a quarterly newsletter for food safety and defense experts, with goal of sharing current resources and science-based recommendations.¹³ As topics arose for the quarterly newsletter, I studied them and wrote related articles. The topics subjects included:

1. Hepatitis A – which causes disease of the liver and can be spread by a food handler that is infected not properly handwashing.
2. Bacteria, Enterics, Amoeba, Mycotics and (BEAM) Dashboard for *Salmonella* – interactive tool used by the CDC that shows trends on outbreaks of *Salmonella* by year, month, and state. The goal of this tool is to better understand illnesses from food and animal contact.
3. National Outbreak Reporting System (NORS) – this is a system that shows foodborne illnesses, outbreaks, hospitalizations, and deaths. This interactive system lets people filter through by year, state, setting, food, etc.
4. United States FDA New Era of Smarter Food Safety – include food safety goals to reduce food contamination and increase traceability.

This also gave me an opportunity to familiarize myself with the FDA Food Code and gain knowledge on what inspectors look for during their visits. During the end of my hours with KDA, I was introduced to the district manager who was creating a Focus on Food Safety video. The video is a slideshow presentation with voice recordings over it to explain the food safety concepts. I was asked to assist editing the slideshow presentation that goes along with the voice recordings. I then made a review by creating interactive slides within the presentation for employees or learners to test their knowledge on the highlighted topics.

My experience with KSRE was focused on educational materials related to a consumer audience instead of food establishments. I learned a lot more about how KSRE impacts the community and all the programs they implement. They teach classes

on food safety, nutrition, horticulture, 4-H and other topics. They offer resources such as a shared kitchen community kitchen for farmers and food entrepreneurs to improve their products and build their business. KSRE even reaches out to encourage farmers' markets to be more diligent with food safety. With KSRE, I was able to analyze their bookstore topics on food safety and identify gaps in educational materials. Their bookstore is an official repository of information available to the public. I created a survey to send out to the family, and community wellness extension agents throughout the state after completing the Institutional Review Board (IRB) training to understand how to eliminate bias and understand the privacy of respondents when doing an experiment or survey. This survey I created will be distributed to respondents in the future by the state food safety specialist to understand the needs from the extension agents point of view. I then helped to identify duplications of work and create and update educational materials about food safety for consumers.

Kansas State Research and Extension Learning Objectives:

1. Update food safety educational materials for consumers (KSRE)
2. Analyze KSRE bookstore food safety topics for consumers
3. Identify topics that could be added
4. Understand GMO concepts and update educational materials on the topic
5. Create educational handouts on at home kitchen cleaning and food safety and meal delivery services

Chapter 3 - Results

My experience with KDA resulted in 13 new handouts that were based on previous information and the Kansas Food Code (based on the US PHS 2009 FDA Model Food Code). Those 13 handouts covered the following topics: the big 6 foodborne illnesses, hot and cold holding guidelines, cleaning frequency of in-use utensils, employee illness policies, manual cleaning and sanitizing, labeling guidelines, frequently asked questions about recalls, handwashing guidelines, and date marking guidelines. Once these have moved through the channels of approval by the division that approves and sends off materials for translation, they will be on the KDA's website. These handouts are just the start of the handouts that will be updated on their website under "Educational Materials – Food Safety". A list of previous handouts are linked here: <https://agriculture.ks.gov/divisions-programs/food-safety-lodging/food-safety-educational-materials>.

By completing the above tasks, I gained knowledge about the FDA Food Code, how local governments oversee and regulate food establishments, and the importance of having information readily available for those who want to learn about food safety. It's important to be timely and efficient when keeping these communications available to the public. As science emerges and we understand more about the food system and food safety, it is critical to have different modes of communication to reach our audience that works with food and serves consumers every day.

The topics for the newsletter gave me time to study and better comprehend the resources available for food safety professionals such as the BEAM Dashboard for *Salmonella*. The Focus on Food Safety video gave me the opportunity to study their Focus on Food Safety curriculum and understand what they are focusing on teaching at food establishments.

All of these experiences helped me broaden my thinking about food safety subjects. Below is a table and figures that I created during my time with KSRE.

Table 3-1 Food Safety Topics Covered in KSRE Bookstore

Food Safety Topics Covered in KSRE Bookstore							
Preservation	Growers/producers/sellers	Kitchen and cooking safety	Farmer's markets	Meat and poultry safety	Events/occasions/places	Stages of life	Miscellaneous
Dry Meat Safely at Home	Foods Sold Direct to Consumers in Kansas (Farmers Markets): Regulations and Food Safety Best Practices	Thermometer Calibration Guide	Food Safety for Farmers' Markets	Developing Product Lotting and Coding Systems for Small Meat and Poultry Processing Operations	Food Safety and Sanitation: Guidelines for Volunteer Group Social Functions	Kid Chef & the Clean Kitchen Crew: Food Safety for the Young Chef	Food Allergy Facts of Life, Fact Sheet
Preserve It Fresh, Preserve It Safe Display	Food Labeling for Kansas Food Producers and Processors	Safe Food Storage: The Cupboard	Shopping Safely at Farmers Markets, Fact Sheet	Consumer Risk Perceptions and Attitudes about Beef Food Safety: Implications for Improving Supply Chain Management	Food Safety After a Flood	Food Safety in Pregnancy	Assessing SPS Capacity in Bangladesh (Sanitary and Phytosanitary System)
How-to Guide to Pressure Canning	Food Safety Training for Produce Workers, Alternate Format	Safe Food Storage: The Refrigerator and Freezer	Tips to Shop Safely at Farmers Markets	Controlling Listeria monocytogenes with Antimicrobial Agents in Ready-to-Eat Meat and Poultry Products: Validation Documents	Garden to Plate: Food Safety for School and Community Gardens, Leader's Guide	Suddenly in Charge: Food Safety (kids)	Is it Safe? Information on Genetically Engineered Foods for Consumers
Preserve it Fresh, Preserve it Safe: The Canner Counts	Food Safety Training Attendance Sheet	10 Tips for Safe Home-Canned Food	Food Handling Guidelines for Exempt Food Vendors - Foods Sold for Immediate Consumption	Care and Handling of Game Birds from Field to Table	Keep Food Safety in Mind When Tailgating	Using Breast Milk Safely	Water Testing Decision Tree
10 Tips for Safe Home-Canned Food	Food Safety Modernization Act Produce Safety Rule: Fact Sheet for Produce Growers	Storing Fresh Produce	Kansas Buyer's Guide to Farms and Produce Safety	Care and Handling of Deer from Field to Table	Volunteer Quantity Cooking Safety, Fact Sheet		
Taking a New Look at Fermented Foods, Fact Sheet	Pre-Plant Assessment	Food Safety Zone	Sampling Safely at Kansas Farmers Markets, Farm Stands, and Related Events	Fresh Ground Beef Color: A Consumer Guide	Donating Safe and Nutritious Food to Food Pantries and Soup Kitchens, Fact Sheet		
How-to Guide to Water Bath Canning and Steam Canning	Introduction to Produce Safety on the Farm, Fact Sheet for Produce Growers	Cooking Basics: Reducing a Recipe					
Preserve it Fresh, Preserve it Safe, Vegetables	Food Safety: Good Manufacturing Practices	What's Your Elevation?					

Food Safety Topics Covered in KSRE Bookstore							
Preservation	Growers/producers/sellers	Kitchen and cooking safety	Farmer's markets	Meat and poultry safety	Events/occasions/places	Stages of life	Miscellaneous
Preserve it Fresh, Preserve it Safe, Tomatoes	Food Safety: Hazard Analysis and Critical Control Points Overview	Working Together to Reduce Food Waste, Fact Sheet					
Preserve it Fresh, Preserve it Safe, Strawberries	GAPS Certification/FSMA Produce Safety Rule Comparison	Food Safety of Frostings and Fillings					
Preserve it Fresh, Preserve it Safe, Sweet Corn	Food Handling Guidelines for Bake Sales	Alternative Protein Sources					
Preserve it Fresh, Preserve it Safe, Apples	Developing Traceability for Produce Growers	At-Home Safe Food Handling: It's in Your Hands					
Preserve it Fresh, Preserve it Safe, Cherries	Biological Soil Amendments of Animal Origin (BSAAO)	Food Product Dating: What Do Those Dates Mean?					
Preserve it Fresh, Preserve it Safe, Peppers	Annual Water Inspection	What's on a Food Label?					
Preserve it Fresh, Preserve it Safe, Beans	Selling Safe Canned Foods in Kansas						
Preserve it Fresh, Preserve it Safe, Cucumbers							
Preserve it Fresh, Preserve it Safe, Peaches							
Sassy Safe Salsa at Home							

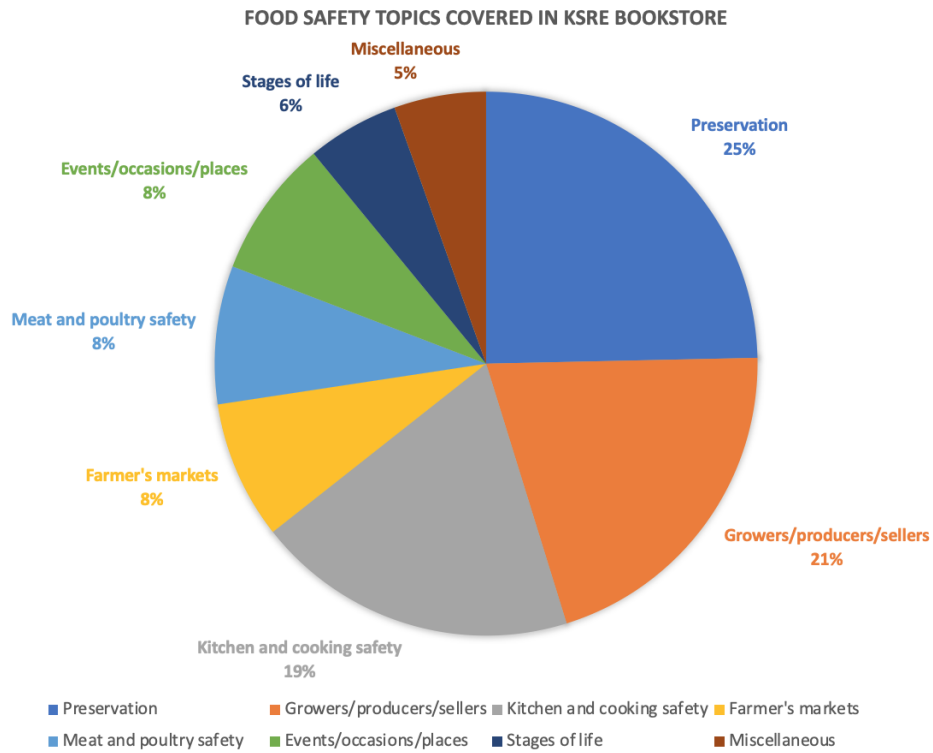


Figure 3-1 Food Safety Topics Covered in KSRE Bookstore Pie Chart

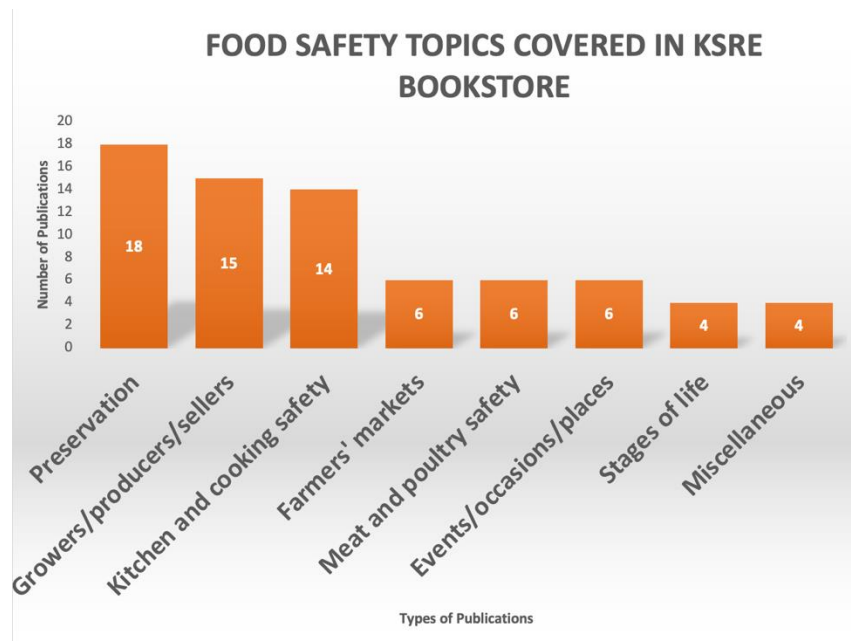


Figure 3-2 Food Safety Topics Covered in KSRE Bookstore Bar Chart

I categorized and grouped the topics available on the KSRE bookstore that related to food safety. The KSRE bookstore has information on 4-H youth development, administrative and research reports, crops, economics, environment and natural resources, equipment and structures, food, forestry, health and safety, home and family, insects, lawn and garden, and livestock. However, I focused only on the food safety specific topics. These topics came in the format of a handout or booklet that are available to the public. This was done to understand what might be lacking in the bookstore and what topics are sufficiently covered. Most topics (25%) were on food preservation which included subjects like drying meat at home, pressure canning, and preserving vegetables. The next highest category was growers/producers/sellers, which included subjects on selling food, food labeling, and best practices for food safety. The third biggest category was kitchen and cooking safety. This category had informational materials on safe food storage, elevation and temperature differences, and general food safety at home.

What I gained from this analysis was that there is a big group of materials for preserving food safely and maintaining safe food at home for the consumer. It was great to see how many materials are available for farmers and growers to better describe complex regulations and simplify food safety plans. This analysis can be used to add or update topics within the KSRE bookstore for broader access to reliable and scientific information on food safety. There was not any information about food safety and meal delivery services. This created an opportunity for me to put some information together that highlights tips on food safety and delivery services for consumers. I wrote tips on this and sent it to the food safety state specialist who is forwarding that to the department within KSRE that handles marketing and website publications. As I collaborated with my preceptor on this project, I was asked to create a short survey for family and community wellness extension agents throughout Kansas. The purpose of this survey is to gain insight on what topics within nutrition and food safety they would like to see updated or created.

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Which nutrition/food safety topics would you like to see **addressed** in publication materials?

- prebiotics and probiotics
- body-positive weight management
- plant-based eating
- autoimmune diseases and how it relates to nutrition and food safety
- what to do if there is a foodborne illness outbreak
- nutrition and aging
- chemicals and food safety

Which nutrition/food safety topics would you like to see **updated** in publication materials?

- cross-contamination related to consumer food safety
- food allergies
- food labeling
- food safety in natural disasters
- genetically modified organisms (GMOs)
- Other:

What nutrition/food safety topic(s) do you think should be **prioritized** right now?

Figure 3-3 Survey Draft Created for Family and Community Wellness Extension Agents KSRE

Chapter 4 - Discussion

My experience supported the idea that communication is key for keeping consumers and food establishments informed about food safety. Not only did I gain an improved understanding of the FDA Food Code, which is the basis of the work food safety professionals do, but I got to see the intensive and complicated behind the scenes work. It certainly takes the government agencies, stakeholders, food establishments, and consumers alike to maintain the integrity of the food system and prevent foodborne illnesses. It also became clear that to continue updating current, and creating new information, it takes time and a lot of hours. Government agencies have a lot on their plates and immediate tasks may take priority over updating information, which can be tedious. The work is nonetheless important, and it is the first step to reaching our intended audience to begin the conversation about food safety. The newsletter articles pushed me to be up to date on the new and current topics in the news and what reminders might be helpful for those food safety professionals.

The Focus on Food Safety video that I assisted with is a great way for KDA to reach their audience without having to have a physical staff member at each food establishment location. Their idea with this video was to create it so food establishments and interested parties could play it for educational purposes whenever needed. The review I created highlights topics like Temperature Control for Safety (TCS) foods, minimum cooking temperatures, the temperature danger zone, the big 6 foodborne illnesses, thawing products, steps for washing and sanitizing equipment and utensils, chemical storage, reheating products, handwashing procedures, and cross-contamination. In the future, my project that I started with KDA could be continued by another intern or employee who has the same passion as I for communications about food safety.

One of the biggest takeaways for me was making the connection that it is a team effort and knowledge from different aspects throughout the food system are necessary to the integrity of improved food safety. Kansas is unique in that it has a huge agricultural community that is prioritized, so the motivation is clearly there to keep food safe and be the leaders in the industry. Experts from the field that have different

backgrounds are so valuable to being the voice of education and prevention. I found that the work can be tiresome and tedious by consistently adapting to change within the food system. Going forward, more work needs to be done with the existing handouts that KDA has on their website that includes more food safety topics. Government agencies typically have more processes and checks to go through when getting information out to the public. This is good because it increases accuracy and makes the information more reliable. There are many people that are passionate about public health and food safety that are working together to keep the food supply safe.

Chapter 5 - Competencies

Student Attainment of MPH Foundational Competencies

Table 5.5-1 Summary of MPH Foundational Competencies

Number and Competency		Description
19	Communicate audience-appropriate public health content, both in writing and through oral presentation	I updated educational materials that addressed food safety issues and solutions for food operations in Kansas per the Kansas Food Code (based on the US PHS 2009 FDA Model Food Code). I changed these with the updated information and made them more visually appealing and easier to read for a wide audience base so that barriers to understand the information would be decreased.
11	Select methods to evaluate public health programs	Analyzed publications on topics that need to be addressed and created for the KSRE bookstore.
18	Select communication strategies for different audiences and sectors	Updated handouts based on audience needs.
20	Describe the importance of cultural competence in communicating public health content	By understanding who the intended audience was, I was able to update educational materials to be more culturally competent for consumers and operations.
21	Perform effectively on interprofessional teams	I worked with the Program Manager for KDA, as well as her team on

		<p>newsletters to address updated information to the public and stakeholders.</p> <p>Worked with District Manager of KDA on editing a food safety video for establishments.</p>
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Competency 11 – I helped evaluate public health programs by working with KSRE on their materials that are available for all to use through the online bookstore. This repository of materials is very important, as it has topics ranging from farm food safety to nutrition. I identified emerging topics in food safety and assessed availability of these topics through the bookstore. In doing so, I identified needs that could be met through new or updated materials. I also compared materials to 1) find duplications and 2) assess needs for different audiences such as age groups or more general audience bases. I created a survey that will be utilized in the future by KSRE extension agents to address what they think the needs of the community are for educational materials.

Competency 18 – For this competency, I assisted in editing a food safety video that would provide food operations with easier access to food safety information. I also worked on food safety educational materials for operations and consumers. The approach to each of these audiences is different based on their needs, frequent tasks, and level of expertise on the topics that were addressed. It was important for me to understand the needs of the audience and not make any assumptions on their existing knowledge level.

Competency 19 – I was able to meet this competency by writing on public health topics for the KDA newsletters, assisting with editing for a KDA food safety video, and creating and updating content on food safety topics for consumers and food operations. A priority area that KDA and I identified for this internship was updating the food safety

handouts that are available to the public and food operations online. I updated these materials per the Kansas Food Code (based on the US PHS 2009 FDA Model Food Code). This included adding new and updated food safety information to the existing handouts. It was also important to take out complicated language that was not useful for the audience we wanted to reach and rephrase these educational materials or instructions to be direct and simplified. It was also important to make these handouts more visually appealing with a recurring color theme and addition of helpful graphics that explain processes.

Competency 20 – I met this competency by keeping in mind the audience we were serving for restaurant operations and consumers. It was important for us to first understand the common issues within food safety and address them in a way that is simple and direct to avoid confusion. The materials created during this time are currently being translated into Spanish to reach a broader audience.

Competency 21 – I worked with the program manager for the Food Safety and Lodging Department for KDA, as well as her immediate team on multiple projects, which included writing newsletters and updating food safety educational materials. I worked directly with the district manager for KDA, which included attending meetings on editing a food safety video that will be played at operations throughout the state to keep employees educated and updated on important food safety information. I also helped with food safety educational materials for KSRE with their extension food safety specialist. Through meetings and emails, we collaborated to 1) identify needs for educational materials that should be met within the KSRE bookstore, and 2) updated existing materials.

Table 5.5-2 MPH Foundational Competencies and Course Taught In

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					

22 Public Health Foundational Competencies Course Mapping		MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
18. Select communication strategies for different audiences and sectors		DMP 815, FNDH 880 or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation		DMP 815, FNDH 880 or KIN 796				
20. Describe the importance of cultural competence in communicating public health content			x			x
Interprofessional Practice						
21. Perform effectively on interprofessional teams			x			x
Systems Thinking						
22. Apply systems thinking tools to a public health issue				x	x	

Student Attainment of MPH Emphasis Area Competencies

Table 5.5-3 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area: Food Safety and Biosecurity		
Number and Competency		Description
1	Food Safety and biosecurity: Evaluate solutions appropriate for different food safety, biosecurity, and defense issues in the food production continuum	During my time at KDA, the educational materials I updated and created will help educate employees and food service workers to minimize violations. I was able to look at previous violations from different food establishments which deepened my understandings of the issues that inspectors face.
2	Threats to the food system: Examine specific threats to the food system and scientifically investigate how each can be prevented, controlled, and/or mitigated in the food production system	During my time with KDA, we identified common food safety violations at food operations throughout the state. I updated the educational materials that related to those violations. The materials helped make the concepts clearer and

		more concise for employees. Education on these topics and exposure to the concepts can help mitigate violations.
3	Food safety laws and regulations: Differentiate key U.S. food safety regulatory bodies and their unique legislative authorities, missions, and jurisdictions	The FDA food code and the Kansas food code co-exist and during my time at KDA, I studied the food codes to understand how to increase accuracy in educational materials. The Food Safety and Lodging program is tasked with conducting inspections and handling complaints from the public.
4	Food safety policy and the global food system: Analyze and distinguish how food safety and governmental biosecurity policies, globalization, and international trade cooperation influence public health	Foodborne illnesses and outbreaks impact millions of people each year. KDA is very intentional with upholding the food standards and regulations at food establishments throughout Kansas. It is beneficial for food establishments to protect their business by decreasing food safety risks. This protects them and the public mutually.
5	Multidisciplinary leadership: Contrast the food safety and biosecurity technical needs of different stakeholders and make judgements as to the appropriate methods of collaboration	The team at KDA is diverse and everyone works together to get the job done for the public. The collaboration I had with KDA on Focus on Food Safety Video really increased my understanding of the importance of teamwork when serving the public. I assisted in updating and reviewing the slides for the video and I created a review/quiz for the end for employees to check their knowledge.

		My time with KSRE helped open my eyes to increasing need of food safety experts and the amount of work that needs to be done. I worked with the food safety state specialist who works for Kansas State University and the University of Missouri serving both states with guidance and expertise.
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Competency 1 – Food Safety and Biosecurity – As I worked with the Kansas Department of Agriculture, I got the opportunity to study the FDA Food Code and understand how these regulations apply to food establishments. The following are common food safety violations:

- food contact surfaces being properly cleaned or sanitized
- having adequate handwashing sinks supplied and accessible.⁴
- physical facilities being installed, maintained, and cleaned
- properly date marking
- toxic substances being properly identified, stored, or used

Food safety violations in food operations are prevalent and top violations such as lack of handwashing and extremely preventable. Educational materials that are clear and concise serve as reminders and learning opportunities for staff to correct those violations. During my time at KDA, the educational materials I updated and created will help educate employees and food service workers to minimize violations.

Competency 2 – Threats to the food system – There are many threats to food in restaurants, grocery stores, and in our own homes. I updated the educational materials about food safety for food establishments to make the concepts clearer and more concise for employees. Education on these topics and exposure to the concepts can help

mitigate violations. I had the opportunity to look at previous violations for food establishments from inspections that were conducted by KDA. It exposed me to the incredible amount of very preventable violations and to the amount of work involved in conducting these inspections. As I worked on educational materials, I emphasized certain points including handwashing and temperature control to re-iterate the importance of being diligent on these regulations.

Competency 3 – I learned a lot about how the food system works in terms of laws and regulations during this internship because I worked so closely with KDA. The FDA is the federal power that created the FDA Food Code and the Kansas Food Code is modeled after that. It's important to note that federal guidelines are required but state or local jurisdictions can have stricter regulations. KDA implements the Kansas Food Code (based on the US PHS 2009 FDA Model Food Code). The state (Kansas Department of Agriculture) must enforce food safety standards that at least meet the federal (FDA) standards, but they can be stricter. The United States Department of Agriculture enforces meat and poultry regulations and the FDA covers other foods, including dairy.

Competency 4 – Food safety policy and the global food system – Every year food that is unsafe causes an estimated 600 million cases of foodborne illness worldwide and an estimated 420,000 deaths.¹ Foodborne illnesses are a massive public health issue. A section of the Healthy People 2030 goals emphasizes preventing foodborne illnesses by decreasing outbreaks, increasing food safety practices, and reduce infections.

Competency 5 – Multidisciplinary leadership – Universities, government entities, and volunteers work tirelessly to meet the demands of food safety in communities. I was able to witness the teamwork and leadership within KDA and KSRE. They serve the community in different capacities but all for the same goal, to keep the public safe.

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Appendix

Appendix 1: The Big 6 Foodborne Illnesses Packet
Appendix 2: The Big 6 Foodborne Illnesses Packet
Appendix 3: The Big 6 Foodborne Illnesses Packet
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Appendix 1: The Big 6 Foodborne Illnesses

The Big 6 Foodborne Illnesses



Pathogen	Incubation Period	Symptoms
E coli	12 – 24 hours	Diarrhea, fever, stomach pain, vomiting
Hepatitis A	10 – 50 days	Fever, nausea, jaundice, stomach pain
Norovirus	1 – 2 days	Diarrhea, nausea, projectile vomiting, stomach pain
Salmonella typhi	7 – 21 days	Diarrhea, fever, mental confusion, stomach pain, pink spots on skin
Nontyphoidal Salmonella	12 – 72 hours	Diarrhea, fever, headaches, stomach pain, vomiting
Shigella	1 – 7 days	Bloody stools, diarrhea, fever, stomach pain

The big 6 help guide - always food safe. (n.d.). Retrieved June 14, 2022, from <https://alwaysfoodsafes.com/learn/files/downloads/other/The-Big-6-Help-Guide.pdf>

Appendix 2: The Big 6 Foodborne Illnesses

The Big 6 Foodborne Illnesses



E coli

- E. coli 0157 is a dangerous strain
- Commonly found in raw meat, ground beef, undercooked burgers, and raw milk
- Can be fatal for those with a compromised immune system
- Sometime referred to as "travelers diarrhea"



Hepatitis A

- Viral liver infection
- Comes from infected food handlers
- Commonly found in ready-to-eat foods and contaminated water
- Cooking does not destroy this virus
- Jaundice is a tell-tale sign - yellowing of the eyes or skin



Norovirus

- Very contagious
- Aggressive diarrhea and vomiting
- Comes from infected food handlers
- Commonly found in contaminated water and ready-to-eat foods



Appendix 3: The Big 6 Foodborne Illnesses

The Big 6 Foodborne Illnesses



Nontyphoidal Salmonella

- Bacteria that does not need oxygen to live
- Carried in farm animals
- Commonly found in meat, poultry, eggs, dairy products, and sausages
- Can not be killed by freezing but can be killed with heat



Salmonella Typhi

- A bacteria that is the most severe of all foodborne illnesses
- Comes from contact with feces of infected animals and people
- Commonly found in ready-to-eat foods, water or milk that is contaminated with sewage
- Prefers a warmer climate especially flooded areas
- Can survive at cool temps but is killed by heat
- Thrives at 98.6 F body temperature



Shigella spp

- A bacteria that is also called "bacillary dysentery"
- Comes from infected food handlers
- Commonly found in contaminated water or foods that are regularly touched by hands (raw produce, potato salad, etc)



Appendix 4: Hot-Holding Guidelines

HOT AND COLD HOLDING

All potentially hazardous foods, except those prepared for immediate consumption by a patron, must be maintained in a manner that prevents the growth or development of bacteria. When holding foods for service, such as on a buffet line, keep hot foods hot and cold foods cold.

Hot-Holding Guidelines

When holding hot foods for service, observe the following:

- Hold-holding equipment must be able to keep foods at **135°F or higher**
- Stir foods at regular intervals to distribute heat evenly throughout the food
- Keep food covered to retain heat and keep potential contamination from falling into the food
- Use a food thermometer to measure the food's internal temperature every 2 hours
- Discard any hot food after 4 hours if it has not been maintained at 135° F or higher
- Never use hot-holding equipment to reheat foods. Reheating foods must be within 2 hours
- Foods must be heated to an internal temperature of 165° and then transferred to hot-holding equipment
- Never mix freshly prepared foods with foods being held for service as this could contaminate foods

Cold-Holding Guidelines

When holding cold foods for service, observe the following:

- Cold-holding equipment must be able to keep foods at **41°F or colder**
- Protect all foods from possible contamination by covering them or using food shields
- Use a food thermometer to measure the food's internal temperature every 2 hours
- Take corrective action whenever the temperature of a cold food item goes above 41° F
- Never store food items directly on ice
- All food items, with certain exceptions, should be placed in pans or on plates when displayed
- Ice used for display should be self-draining, and all pans and plates should be sanitized after each use

TIPS

Whenever dealing with questionable hot-holding and cold-holding practices, when in doubt, throw it out.

It is better to discard potentially hazardous foods than risk your customers' health and safety. One way to avoid discarding too much food is to prepare and cook only as much as you will use in a short time.

Link to the Kansas Food Code:



Appendix 5: Cleaning Frequency of In-Use Utensils

Cleaning Frequency of In-Use Utensils

The growth of pathogenic bacteria to dangerous levels can result when in-use utensils are left out at room temperature for extended times without proper sanitization. In-use utensils can be stored in dipper wells under running water; directly in the food item with handles above the top of the food; in clean water at 135° F or above; or on a clean sanitized surface.



In-use utensils must be properly cleaned and sanitized:

- At least once every 4 hours if the utensils are used with potentially hazardous foods (PHFs) and are left out at room temperature
- Before each use with a different type of raw animal protein such as beef, pork, poultry, or fish
- Between uses with raw foods and ready-to-eat foods
- Any time contamination may have occurred

Surfaces of in-use utensils contacting PHFs may be cleaned less frequently than 4 hours, if, between uses, the utensils are:

- Stored directly in the food item at a temperature of 41° F or below for cold foods; or 135° F or above for hot foods
- Stored in clean water at a temperature of 135° F or above
- Used to prepare food in a refrigerated room according to the following chart (room temperatures must be documented):

41° F or less	Every 24 hours
> 41° F – 45° F	Every 20 hours
> 45° F – 50° F	Every 16 hours
> 50° F – 55° F	Every 10 hours

Link to the Kansas Food Code:



Appendix 6: Employee Illness Policy

Employee Illness Policy



Employee Health – Everyone's Responsibility

What foodborne illness symptoms are most concerning?

- Vomiting
- Diarrhea
- Jaundice (yellow skin or eyes)
- Sore throat with fever
- Uncovered infected cuts and burns with pus on hands and wrists

What do employees do if they have symptoms of vomiting or diarrhea?

If the symptoms begin while the employee is at work, he or she must:

- Stop work immediately;
- Report to management; and
- Go home and do not return to work until at least 24 hours pass after the vomiting and diarrhea symptoms stop

If the symptoms occur before the employee arrives to work, he or she must:

- Notify the manager by telephone; and
- Not go to work until at least 24 hours pass after the vomiting and diarrhea symptoms stop

Big 6 Foodborne Illnesses

- Salmonella Typhi**
- Non-typhoidal Salmonella**
- Shigella**
- Shiga Toxin-Producing E coli**
- Hepatitis A**
- Norovirus**

Employees must report diagnosis with a Big 6 illness to the person in charge

The person in charge must report an employee report diagnosis to the regulatory authority
Employees must be restricted or excluded from working when diagnosed or exposed to the Big 6.

Restriction

Restricted employees cannot work with food, utensils, or equipment. They can perform tasks such as bussing tables, taking out the trash, etc

Exclusion

Excluded employees are not allowed to be in the facility. Food employees may not return to work after exclusion until at least 24 hours after symptoms stop (or otherwise directed in the Kansas Food Code)

Link to the Kansas Food Code:



Appendix 7: Employee Illness Policy

Employee Illness Policy



Employee Foodborne Illness Training Record

I have read the Employee Illness Policy and agree to:

- Notify my supervisor the date of onset of any of the symptoms listed
- Notify my supervisor if I am diagnosed with or exposed to any of the Big 6 Illnesses
- Notify my supervisor if a household member is diagnosed with or exposed to any of the Big 6 Illnesses
- Comply with any restrictions or exclusions imposed upon me

Name:

Date:

Link to the Kansas Food Code:



Appendix 8: Manual Cleaning and Sanitizing

Manual Cleaning and Sanitizing

Why is this important?

The U.S. Centers for Disease Control and Prevention has identified contamination of food equipment as one of the five leading causes of foodborne illness. Research shows that serious illnesses can result when people ingest even a few organisms like E. coli 0157:H7 and Shigella spp.

The Kansas Food Code requires that food contact surfaces and utensils be routinely washed, rinsed, and sanitized.

General procedures for manual cleaning and sanitizing:

- **Clean sinks before using**
- **Scrape food debris from utensils and equipment**
- **Wash items thoroughly in a hot (110° F or greater) detergent solution, draining, and refilling as often as necessary to keep the water clean**
- **Rise by complete immersion in clean hot water to remove detergent, abrasives, etc.**
- **Sanitize by immersing in an approved sanitizer solution for the required time*:**
 - 50 – 200 mg/L²chlorine; mix with cool water**
 - 200 mg/L quaternary ammonium; mix with 70° F water
 - 12.5–25 mg/L iodine
- **Air Dry in a clean, dry, well-drained location before storing**



*Always follow the sanitizer manufacturer's EPA-registered use directions for exposure time and solution concentration

**mg/L is equivalent to Parts Per Million (PPM)

Appendix 9: Labeling Handout

Labeling

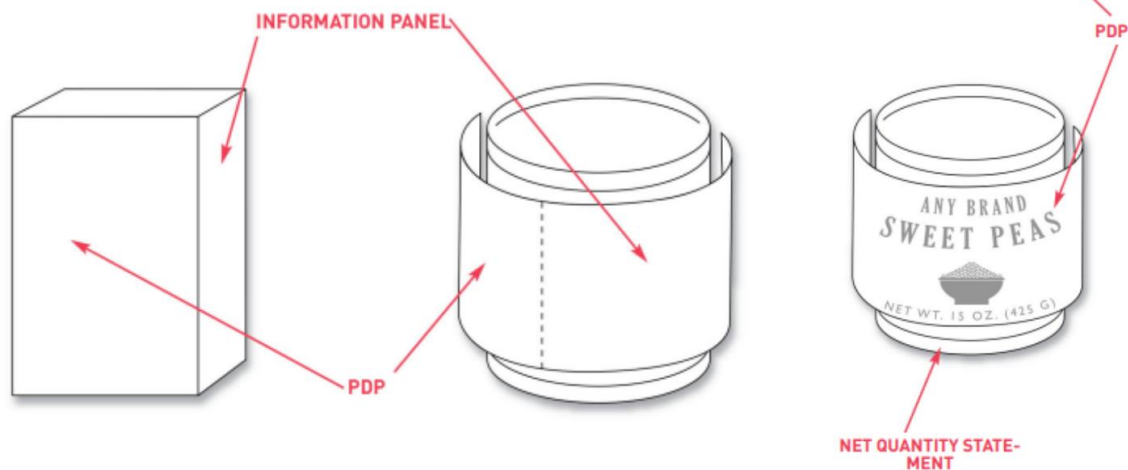
Every package of food must have the following information on its label:

- The common and usual name of the product
- The name and street address, including city and zip code, of the manufacturer or distributor
- The net weight
- A list of ingredients by weight, from heaviest to lightest
- The common name of the food source of each of the eight major food allergens:
 - **milk**
 - **eggs**
 - **the specific type of each fish (anchovy, tuna, etc.)**
 - **the specific type of crustacean shellfish (crab or lobster)**
 - **peanuts**
 - **the specific type of each tree nut (walnuts, peanuts, pecans, etc.)**
 - **wheat**
 - **soybeans**
- A qualifying statement like "Manufactured for" or "Distributed by" as applicable
- Nutrition facts, unless exempted

Required information must be printed in type of sufficient size and prominence to be easily read and under the normal conditions of sale and display. This information should be printed on the main part of the label that contrasts with its background.

Required information must be in English.

The term "package" means any food that has been put in a bottle, can, carton, bag, or secure wrapper, by either a food establishment or food processing plant, before it is offered for wholesale or retail sale.



Link to the Kansas Food Code:



FDA Food Labeling Guidelines:



Appendix 10: Frequently Asked Questions (FAQ) Recalls

FAQ: Recalls

Why do recalls occur?	<ul style="list-style-type: none"> • Detection of bacteria or parasites • Detection of physical contamination like metal or broken glass • A major allergen that is not properly labelled 
Where can I find recalls?	<ul style="list-style-type: none"> • FoodSafety.gov • https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts
To sign up for email alerts about recalls, market withdrawals, and safety alerts:	<p>https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts</p> 
How do I check that a product is recalled?	<p>Identify the:</p> <ul style="list-style-type: none"> • Product name and brand • Size of the product • The lot number (located on the package) <ul style="list-style-type: none"> ◦ the UPC (barcode) number is not the lot number ◦ the lot number identifies the batch the product was made in • Compare the lot number to the one given to the recalled products
What do I do with recalled product?	<p>Dispose of the product or return it to the place it was purchased</p>
Example of identifying a lot number	 <p>Source: tv.com/news/food/what-you-need-to-know-about-the-jif-peanut-butter-recall</p>

Partnership for Food Safety Education. (2022, February 17). Recall basics. Partnership for Food Safety Education. Retrieved June 13, 2022, from <https://www.fightbac.org/food-safety-education/recall-basics/>

Appendix 11: Handwashing Sign for Employees



Appendix 12: Date Marking Handout

Food Safety Fact Sheet: Date Marking



The growth of pathogenic bacteria to dangerous levels can result when potentially hazardous foods are held at refrigerated temperatures for extended periods. To monitor and limit refrigeration time, refrigerated ready-to-eat potentially hazardous foods must be date marked to ensure the food is either consumed or discarded within 7 days.

Food must be date marked if it is:

- Prepared on-site or commercially processed, and
- Refrigerated, and
- Potentially hazardous, and
- Ready-to-eat, and
- Held for more than 24 hours

Link to the Kansas Food Code:



Mark the food with the date by which it must be consumed or discarded

Allow 7 days if held at 41° degrees or below

The day the food was prepared, or the day commercial processed food was opened, counts as day 1

Add 6 to the prep date

When food is removed from the freezer, mark it with a "consume-by" date that is 7 days minus the length of time food was refrigerated before it was frozen.



Length of time
food was
refrigerated
BEFORE it was
frozen



"Consume by"
date

Appendix 13: Handwashing Sheet

Food Safety Fact Sheet: Handwashing



One of the most important things you can do to prevent the spread of foodborne illnesses is to wash your hands. In fact, the Kansas Food Code requires that all food employees keep their hands and exposed portions of their arms clean. By frequently washing your hands, you wash away germs that you have picked up from other people or from contaminated surfaces, and you prevent the spread of disease.

When should you wash your hands?

- After using the restroom
- After touching bare human body parts (hands, exposed portions of arms)
- After handling support animals or aquatic animals (fish in aquariums, shellfish or crustaceans in display cases)
- After coughing, sneezing, using a handkerchief or tissue, using tobacco, eating or drinking
- After handling soiled equipment or utensils
- During food preparation, as often as necessary to remove soil and contamination and to prevent cross-contamination when changing tasks
- When switching between working with raw food and working with ready-to-eat food
- After engaging in other activities that contaminate the hands, (handling dirty dishes or taking out the trash)

1) Wet hands under warm, running water and apply a liquid, powder, or bar soap



2) Rub hands vigorously together and scrub. Clean under fingernails and between fingers



3) Scrub for 20 seconds, soap combined with the scrubbing action helps dislodge and remove dirt and germs

4) Rinse thoroughly under running water and dry your hands using an appropriate method like disposable towels; a continuous towel system that supplies the user with clean towels, or a heated-air hand dryer



Link to the Kansas Food Code:



Appendix 14: Hepatitis A Newsletter Article

Refresher on Hepatitis A A Food Safety Issue



Hepatitis A is caused by the hepatitis A virus and is a risk in food safety. The route of transmission is the fecal-oral route. It can be spread by person-to-person contact with an infected person, sexual contact with an infected person, or ingestion of contaminated food or water. The incubation period has a long range of 15-50 days and most people recover without any lasting liver damage. Death from Hepatitis A is uncommon but occurs more often in older people or those with an underlying liver disease. There is no medication for Hepatitis A, it is just addressed with supportive treatment. Symptoms include **jaundice, fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, joint pain, dark urine, clay-colored stool, diarrhea**. To prevent Hepatitis A in a food safety setting, it's critical to keep surfaces and food-contact surfaces clean, and food handlers need to practice good personal hygiene. It is critical that all food handlers properly wash their hands after using the restroom. Hepatitis A can survive outside of the body for months but heating foods and liquids to 185° F for at least one minute can kill the virus, freezing temperatures will not kill the virus. There is a Hepatitis A vaccine and is recommended for all children aged 12-23 months, unvaccinated children aged 2-18, and for people who have an increased risk.

Those at an increased risk include: international travelers, men who have sex with men, people who use injection or noninjection drugs, people with occupational risk for exposure, people who anticipate close personal contact with an international adoptee, and people experienced homelessness.

Those at an increased risk for severe disease from Hepatitis A: people with chronic liver disease and people with HIV infection.

If you think you were exposed to Hepatitis A, contact your health professional or your local health department.

CDC. (2020, July 28). What is hepatitis A - FAQ. Centers for Disease Control and Prevention. Retrieved June 13, 2022, from <https://www.cdc.gov/hepatitis/hav/afaq.htm#transmission>

Appendix 15: Newsletter Article Drafts for Food Protection Task Force Quarterly Newsletter

FOOD PROTECTION TASK FORCE

Department of Agriculture

QUARTERLY NEWSLETTER

SPRING 2022

NATIONAL OUTBREAK REPORTING SYSTEM (NORS)

Check out outbreaks for all modes of transmission through the National Outbreak Reporting System (NORS). This site allows the user to filter by state, time period, etiology, setting, food/ingredient, water exposure, and water type.



For more information on current outbreak investigations visit this FDA website: <https://www.fda.gov/food/outbreaks-foodborne-illness/investigations-foodborne-illness-outbreaks>

Check out the CDC – NORS Dashboard site for more information:
<https://www.cdc.gov/nors/data/dashboard/index.html>

U.S. FDA NEW ERA OF SMARTER FOOD SAFETY

COVID-19 has created an awareness that food safety needs to be more modern than ever to ensure the integrity of the food system. There is a need for real-time, data-driven approaches to keep all Americans safe. The New Era of Smarter Food Safety is a modern approach to food safety to create a safer and more traceable food system with more efficient systems. This approach builds on the Food Safety Modernization Act (FSMA) that has created science and risk-based protections. This is about utilizing technology, creating better processes, improving leadership, and fostering creativity. The principles of this approach are people-focused and led, FSMA-based, and technology-enabled. The four core elements are: **Tech-Enabled Traceability:** Records in the food supply chain are still mostly paper-based and there is a lack of data that identifies products along the supply chain, which makes it difficult to identify products involved in an outbreak. The goal here is to allow stakeholders in the supply chain to utilize digitally-enabled technologies, data-sharing, and to create approaches to reduce the time it takes to identify the origin of an outbreak. Doing this will increase transparency and enhance trust with the public. **Smarter Tools and Approaches for Prevention and Outbreak Response:** Generating new data streams and tools to analyze data quickly is imperative in this process. It's critical to build partnerships with states and reliable third-party audits to help keep food safe.

New Business Models and Retail Modernization: The way food gets from the farm to table has changed and advanced. Since the COVID-19 pandemic, online shopping for food and meals has increased. It's important now to explore how to modernize businesses and retail establishments. Increasing partnerships with food delivery companies is important in this goal to provide education on proper food handling. Adopting smarter kitchen designs and increasing digital tools that enhance food safety are crucial. **Food Safety Culture:** A strong food safety culture is essential to having successful food safety management systems. Further training and education, as well as utilizing new technologies and tools for people to use can help make a positive impact in food safety culture.

For the full article visit: <https://www.fda.gov/food/new-era-smarter-food-safety>

FEED SAFETY: FSMA COMPLIANCE FOR FEED MILLS

The Food Safety Modernization Act was signed into law a decade ago, and its resulting rules have a broad impact to ensure the safety of both human and animal food. Many large animal food entities have dedicated staff to help their facility understand and comply with these rules. Medium and small animal food facilities are less likely to have staff with the background or previous training in animal food hygiene and regulatory compliance, which may impact their ability to comply with these rules. The Kansas Department of Agriculture Dairy and Feed Safety Program collaborated with Dr. Cassie Jones, Animal Sciences and Industry Professor/Teaching Coordinator at Kansas State University to develop an informational series of videos to assist small and medium Kansas feed manufacturers comply with rules associated with the Food Safety Modernization Act. The informational content can be found at www.agriculture.ks.gov/feed and includes the following:

Video 1: [What is FSMA and the preventive controls for Animal Food Rule?](#) Video 2: [Does FSMA impact me?](#) Video 3: [What do I need to do?](#) Video 4: [What are my hazards?](#) Video 5: [How can I control hazards?](#)

Additional Resources Include: Example Food Safety Plan, Example Prerequisite Programs, 1) Prerequisite Program for Metals, 2) Prerequisite Program for Aflatoxin, Fumonisin, and Vomitoxin 3) Prerequisite Program for Animal Drug Contamination 4) Prerequisite Program for Copper Toxicity in Sheep Feed Example Preventative Control Program, Fillable Food Safety Plan, Hazard Analysis Database

Please contact KDA.Feed@ks.gov with any questions.

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Dairy and Feed Safety 785-564-6663
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Appendix 15: Summaries for Newsletter Article Word File



Topic 1: U.S. FDA New Era of Smarter Food Safety

COVID-19 has created an awareness that food safety needs to be more modern than ever to ensure the integrity of the food system. There is a need for real-time, data-driven approaches to keep all Americans safe. The New Era of Smarter Food Safety is a modern approach to food safety to create a safer and more traceable food system with more efficient systems. This approach builds on the Food Safety Modernization Act (FSMA) that has created science and risk-based protections. This is about utilizing technology, creating better processes, improving leadership, and fostering creativity.

The principles of this approach are people-focused and led, FSMA-based, and technology-enabled. The four core elements are:

Tech-Enabled Traceability: Records in the food supply chain are still mostly paper-based and there is a lack of data that identifies products along the supply chain, which makes it difficult to identify products involved in an outbreak. The goal here is to allow stakeholders in the supply chain to utilize digitally-enabled technologies, data-sharing, and to create approaches to reduce the time it takes to identify the origin of an outbreak. Doing this will increase transparency and enhance trust with the public.

Smarter Tools and Approaches for Prevention and Outbreak Response: Generating new data streams and tools to analyze data quickly is imperative in this process. It's critical to build partnerships with states and reliable third-party audits to help keep food safe.

New Business Models and Retail Modernization: The way food gets from the farm to table has changed and advanced. Since the COVID-19 pandemic, online shopping for food and meals has increased. It's important now to explore how to modernize businesses and retail establishments. Increasing partnerships with food delivery companies is important in this goal to provide education on proper food handling. Adopting smarter kitchen designs and increasing digital tools that enhance food safety are crucial.

Food Safety Culture: A strong food safety culture is essential to having successful food safety management systems. Further training and education, as well as utilizing new technologies and tools for people to use can help make a positive impact in food safety culture.

For the full article visit: <https://www.fda.gov/food/new-era-smarter-food-safety>

Appendix 17: Summaries for Newsletter Article Word File



Topic 2: National Outbreaks and Reporting System (NORS)

Check out outbreaks for all modes of transmission through the National Outbreak Reporting System (NORS). This site allows the user to filter by state, time period, etiology, setting, food/ingredient, water exposure, and water type.

For more information on current outbreak investigations visit this FDA website:

<https://www.fda.gov/food/outbreaks-foodborne-illness/investigations-foodborne-illness-outbreaks>

Check out the CDC – NORS Dashboard site for more information:

<https://www.cdc.gov/nors/data/dashboard/index.html>

Topic 3: Recent Outbreak Investigations:

- Dry cereal has been implicated in 500 reports of “adverse events” being monitored by the FDA. The Lucky Charms breakfast cereal is the suspect. The FDA has received 529 reports and since 2021 the website [iwaspoisoned.com](http://www.iwaspoisoned.com) has seen 6,400 complaints of food poisoning symptoms after eating Lucky Charms cereal.
- Infant formula has been implicated in an outbreak of *Cronobacter* infections produced by Abbott Nutrition at the plant in Sturgis, MI. Unfortunately, four babies have been infected and two have died.

For the full article on Food Safety News visit: <https://www.foodsafetynews.com/2022/05/reports-of-problems-with-cereal-continue-to-rise-other-outbreak-investigations-ongoing/>

To learn more on *Cronobacter* illness and infants visit: <https://www.cdc.gov/cronobacter/infection-and-infants.html>

Additional potential topics I can do a summary of:

<https://www.foodsafetynews.com/2022/05/76-million-more-for-food-safety-sought-by-fda-commissioner-califf/>

https://foodsafetytech.com/news_article/president-biden-signs-faster-act-requiring-sesame-labeling-on-food-packaging/

Appendix 18: BEAM Dashboard Article for Newsletter

FOOD PROTECTION TASK FORCE

QUARTERLY NEWSLETTER

SPRING 2022

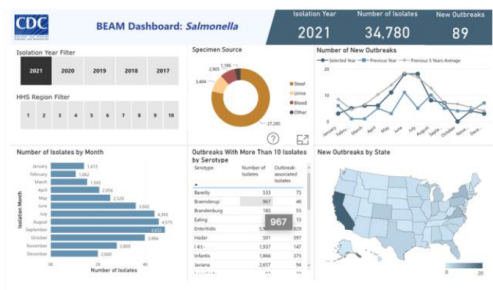
Welcome to the Food Protection Task Force quarterly newsletter! Meeting information, registration, and all quarterly newsletters can be found under Food Protection Task Force at agriculture.ks.gov/FPTF. If you would like to inquire about the Food Protection Task Force, join the steering committee, or have other questions, please contact us using our information on the back of this newsletter

FOOD SAFETY

In the 1st quarter of 2022, the Kansas Department of Agriculture conducted — food establishment inspections and — food processing inspections

BEAM Dashboard – *Salmonella*

The BEAM (Bacteria, Enterics, Amoeba, and Mycotics) Dashboard is a tool used to access and visualize data from the System for Enteric Disease Response, Investigation, and Coordination (SEDRIC). The SEDRIC is utilized by the CDC to coordinate surveillance and response to disease outbreaks that are linked to food or animals. This version of the dashboard is focused on *Salmonella* bacteria from human blood or stool. The goal for the dashboard is to include more pathogens, antimicrobial resistance data, and epidemiological data. It is updated once per quarter and the goal is to increase the updates to real-time. The information can provide the public with data on pathogen trends to help prevent illness from food, water, the environment, and animal contact. The dashboard has the ability to be filtered by year or multiple years and regions. Below are a few definitions related to the dashboard. **Outbreak** – when 2 or more people get the same illness from the same contaminated food or drink. **Isolate** – is a group of the same type of bacteria. It can come from a patient's clinical sample, the environment, food, or animal. **Serotype** – groups within a single species of microorganisms like bacteria or viruses that share identifiable surface structures. For example, *Salmonella* has many serotypes, and some can cause severe illness or milder illnesses. <https://www.cdc.gov/ncezid/dfwed/BEAM-dashboard.html>



KDA to Hold Stakeholder Meeting on Industrial Hemp Industry: July 19th in Salina

The Kansas Department of Agriculture will hold an in-person meeting with a focus on the industrial hemp industry in Kansas beginning at 9:00 a.m. on Tuesday, July 19. The stakeholder meeting will be held in the College Center Conference Room on the K-State Salina campus at 2310 Centennial Road in Salina. The program will feature Kansas industrial hemp producers, processors and retailers. Additional speakers include representatives from K-State Research and Extension, Kansas Farm Bureau and KDA. The KDA Agricultural Marketing, Advocacy and Outreach Team will host the event. Their mission is to serve all Kansans through innovative programming and delivering solutions designed to create an environment that facilitates growth and expansion in agriculture while increasing pride in and awareness of the state's largest industry — agriculture. The meeting is free and open to the public, but registration is required. To register, go to agriculture.ks.gov/BusinessDevelopment. For questions on the event, contact Dana Ladner at 785-564-6660 or Dana.Ladner@ks.gov.

WHO: Industrial hemp stakeholders

WHAT: Informational meeting with a focus on Kansas industrial hemp industry

WHEN: July 19, 2022, at 9:00 a.m.

WHERE: K-State Salina, College Center Conference Room, 2310 Centennial Road, Salina, Kansas

[KDA to Hold Stakeholder Meeting on Industrial Hemp Industry.pdf](#)

Appendix 19: Focus on Food Safety Video Review Slides

Review

Which food is **not** considered a TCS food?

- a) Apple
- b) Chicken breast
- c) Cooked ravioli
- d) Cut cantaloupe

1 

Review

What is the minimum temperature poultry should be cooked to for safety?

- a) 180
- b) 155
- c) 135
- d) 165

4 

Review

What is the temperature danger zone?

- a) 51°F to 140°F
- b) 31°F to 140°F
- c) 41°F to 135°F
- d) 41°F to 140°F

7 

Appendix 19: Focus on Food Safety Video Review Slides

Review

Which is **not** part of the Big 6 Foodborne Illnesses?

- a) Salmonella
- b) Enterohemorrhagic E. coli
- c) Hepatitis C
- d) Shigella

10 

Review

What is the ideal way to thaw product?

- a) Microwave, Oven
- b) Refrigerator
- c) Running cold water over the product
- d) All of the above

13 

Review

Which of the following is the correct order for washing kitchen equipment and utensils?

- a) Scrap, Wash, Sanitize, Rinse, Air Dry
- b) Scrap, Sanitize, Wash, Rinse, Air Dry
- c) Scrap, Wash, Rinse, Sanitize, Air Dry
- d) Scrap, Wash, Air Dry, Sanitize, Rinse

16 

Appendix 19: Focus on Food Safety Video Review Slides

Review

Where should you store chemicals?

- a) Next to foods for easy access
- b) On the top shelf above the prep area
- c) Near where the cutting boards are stored
- d) Away from all food and food-contact surfaces

19 

Review

What is the **best** way to reheat a product?

- a) In steam tables
- b) Crockpots
- c) Microwaves
- d) Direct heat (stove top)

22 

Review

When is it appropriate to wash hands?

- a) After handling a cell phone
- b) After handling money from the cash register
- c) When an employee coughs on their gloves
- d) After handling raw burger patty
- e) All of the above

25 

Appendix 19: Focus on Food Safety Video Review Slides

Review

You observe another employee cutting slices of cake on the **same** cutting board that was used to prep raw chicken, what do you do?

- a) Serve the cake as normal and wash the cutting board
- b) Get out a new cutting board for the cake to be sliced on
- c) Immediately discard the cake and review cross-contamination and its dangers with the employee
- d) Don't say anything

Appendix 20 : Kitchen Cleaning Informational Handout KSRE

Tips for Consumers:

Kitchen Cleaning

It's important to keep your kitchen clean, because germs can easily lurk on the surfaces you touch frequently! Maintaining a clean kitchen can help decrease your risk of contracting a foodborne illness. Foodborne illnesses can occur when consuming contaminated foods. Symptoms can include stomach upset, vomiting, nausea, or diarrhea.

All surfaces that have contact with food should be cleaned before and after preparing food. These surfaces should also be cleaned between food types such as preparing raw chicken and then a salad.

- 1. Remove scraps**
- 2. Wash with hot and soapy water**
- 3. Rinse well and wipe down with disposable towels, if possible. When using re-usable towels, clean frequently with hot water.**
- 4. Sanitize by using a commercial sanitizer spray or wipe. A homemade version of sanitizer can be used by mixing 1 tablespoon of liquid chlorine bleach with 1 gallon of water.**

This is done to prevent cross-contamination. Cross-contamination is the transfer of harmful pathogens to food from other foods, surfaces, or utensils. Designating cutting boards can also reduce cross-contamination. For example, use one cutting board for meat and another for vegetables. Keep an eye on cutting boards and if they are getting worn with grooves from your knives, consider buying a new one. Those grooves can harbor bacteria because they are harder to clean.

Clean frequently touched areas such as:

- Cupboard knobs and handles
- Refrigerator, freezer, and stove knobs and handles
- Microwave buttons
- Soap dispensers
- Faucet handles

Tips on cleaning other items in your kitchen:

Microwave or oven	Clean when there are spills so they do not build up.
Refrigerator or freezer	Clean up spills as they occur. Deep clean every 3 months and remember to include the bins and racks within the unit. Defrost ice build-up as needed.
Dish clothes and towels	Change daily and wash with hot water.
Cleaning pads or sponges	Clean daily in the dishwasher or by soaking in a sanitizer solution. Replace these often.

Sources:

1. <https://www.usda.gov/media/blog/2019/08/27/clean-then-sanitize-one-two-punch-stop-foodborne-illness-kitchen>
2. <https://www.fsis.usda.gov/news-events/events-meetings/food-safety-education-month-preventing-cross-contamination>
3. Food Safety for Boomers and Beyond – Kitchen Cleaning KSRE handout

Appendix 21 : Consumer Tips on Food Safety and Meal Delivery Services KSRE

Tips for Consumers:
Meal Delivery Services and Food Safety



It's important to keep food safety in mind when receiving meal deliveries or getting groceries delivered. Foodborne illnesses can occur when food isn't handled properly. Those at increased risk include young children, adults 65 years and older, people with weakened immune systems, and those who are pregnant.

General Delivery Guidelines	Grocery Deliveries	Restaurant Deliveries
Identify a safe place for food to be delivered Ideally a place that is shaded, cool, and away from pests or animals	When food arrives at your home, if it's a hot food, it should be hot and if it is a cold food, then it should arrive cold. They should also be separated from each other	Meals that are cooked can make you sick if they sit out too long. Refrigerate leftover foods that are cooked or cold immediately
Check perishable foods that are shipped with a food thermometer to ensure that it's cold like it would be in a refrigerator, 40° F or below	Avoid leaving perishable foods at room temperature for more than 2 hours. If the temperature is 90° F or warmer, do not leave it out for more than 1 hour	Avoid leaving perishable foods at room temperature for more than 2 hours. If the temperature is 90° F or warmer, do not leave it out for more than 1 hour
If it is above 40° F, it can be unsafe and it is recommended to not consume it	Have a plan to receive the food and store it quickly	Check how many days leftovers are will stay safe for using this website: https://www.foodsafety.gov/keep-food-safe/foodkeeper-app
When in doubt, throw it out!		

Source: <https://www.cdc.gov/foodsafety/communication/food-safety-meal-kits.html>

Appendix 22: Consumer Tips on GMOs

Tips for Consumers: GMOs

Genetically Modified Organisms (GMOs) are foods that are created using genetic engineering. The genetic engineering process:¹



GMOs have been evaluated as safe from the U.S. Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and the U.S. Environmental Protection Agency (EPA). GMO foods have the same safety standards as other foods.²

Non-GMO labels – this means that no GMO technology was used to create this product. This is not the same thing as an organic label.²

There are benefits to GMO crops like growing more food on less land and improving nutrition. Common traits for GMO crops: resistance to insect damage, tolerance to herbicides, and resistance to plant viruses.¹

Very common GMO crops are:³

Corn
Soybean
Cotton
Potatoes
Papayas
Summer Squash
Canola
Alfalfa
Apples
Sugar beets
Pink pineapple

<insert pictures of GMO crops here>

National Bioengineered Food Disclosure Standard:⁴

Simply put, this disclosure is a symbol indicating to the consumer that a food is or may be bioengineered. The options for disclosure are text, symbol (see below), digital link, or text message. As of January 1, 2022, this disclosure is required.



Picture source: <https://www.ams.usda.gov/rules-regulations/be/symbols>

Appendix 22: Consumer Tips on GMOs

Tips for Consumers: GMOs

Sources:

- 1) Center for Food Safety and Applied Nutrition. (2022, August 3). *How gmo crops impact our world*. U.S. Food and Drug Administration. Retrieved October 20, 2022, from <https://www.fda.gov/food/agricultural-biotechnology/how-gmo-crops-impact-our-world>
- 2) Sims, T. (2021, December 1). *GMOs and your next shopping trip: An FAQ to keep handy*. Food Insight. Retrieved October 20, 2022, from <https://foodinsight.org/gmos-faq/>
- 3) Center for Food Safety and Applied Nutrition. (2022, August 3). *GMO crops, animal food, and beyond*. U.S. Food and Drug Administration. Retrieved October 20, 2022, from <https://www.fda.gov/food/agricultural-biotechnology/gmo-crops-animal-food-andbeyond>
- 4) USDA/AMS. (2022). *Be disclosure*. BE Disclosure | Agricultural Marketing Service. Retrieved October 20, 2022, from <https://www.ams.usda.gov/rules-regulations/be>