



NORTHERN MICHIGAN PUBLIC HEALTH ALLIANCE

Safe Food, Safe Communities Lesson Guide

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Course Description:

Safe Food, Safe Communities is a training course designed to provide foodborne illness education to coordinators, employees, and/or volunteers of organizations that serve food to groups of people in a non-traditional setting. This course provides information about the causes of foodborne illness and how to prevent foodborne illness in the food preparation process. It is our goal that after completing this training, participants will be able to identify improper food safety practices and replace them with safe food practices. This course is organized into five units. Each unit has a different topic with learning objectives, PowerPoint presentations, activities, assessments, and other resources.



*A partnership of seven local health departments dedicated to increasing capacity,
maximizing assets, and containing costs to improve public health*

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Unit 1: Understanding Foodborne Illness

Overview:

Foodborne illness affects many people around the world each year. According to the CDC, over 48 million people become sick with a foodborne illness every year. The good news is that foodborne illness can often be prevented in very easy ways. In this unit, you will learn what foodborne illness is, what causes it, and what to do when someone becomes sick.

Learning Objectives:

1. Define foodborne illness
2. List agents that cause foodborne illness
3. Identify ways pathogens can enter food
4. Plan steps to be taken if a foodborne illness outbreak is suspected

Unit Content:

This is Safe Food, Safe Communities Unit 1: Understanding Foodborne Illness. In this unit, we will be introducing foodborne illness, explaining what causes it, and learning about what to do in the case of a foodborne illness outbreak.

Cooking for groups of people is much different than cooking for a single family. Making food in large quantities requires greater planning, supplies, and space. If food is being prepared for a soup kitchen or a similar organization, people at high-risk for developing a foodborne illness are often served, so there is a greater need for coordinators, employees, and volunteers to know how to safely prepare food to prevent a foodborne illness.

Foodborne illness is also called food poisoning. It is an infection caused by eating foods or beverages contaminated with harmful bacteria, viruses, parasites, or chemicals. The most common infections are from bacteria and viruses, so we will be focusing on these in this course. Not all bacteria and viruses are harmful. Actually, most bacteria are beneficial and you can't live without them in your body! Good bacteria help break down food and kill harmful bacteria. Harmful bacteria and viruses are also called pathogens. Pathogens can cause food poisoning. We will be using the term "pathogen" a lot in this course, so make sure you remember it!

Symptoms of foodborne illness include vomiting, diarrhea, and stomach pain. After eating contaminated food, symptoms can appear as soon as half an hour and as late as six weeks after consumption. These symptoms usually don't last for very long and don't require visiting a doctor. However, those with severe food poisoning may be hospitalized. If symptoms are severe, such as a fever of higher than 101 degrees Fahrenheit or loss of consciousness, you should consult a doctor.

Anyone can become sick with food poisoning. You have probably become ill with food poisoning at some point in your life, or know someone who has been affected by it. Certain people are at a higher risk of developing a foodborne illness. These people include children, the elderly, pregnant women, and those with another medical condition that weakens their immune system.

There are many ways bacteria, viruses, parasites, and chemicals can get into our food. Foods like eggs, milk, cheese, and meat are not sterile, meaning that they already have bacteria present when you buy them. Because bacteria are already present in a lot of foods, improper cooking, serving, or storage can leave harmful bacteria on the food or allow bacteria to multiply quickly on the food and cause it to spoil.

Bacteria are also transferred to food. Someone preparing food without wearing gloves or without properly washing their hands can transfer bacteria around the kitchen. Utensils and surfaces not cleaned after being used can also cause bacteria to enter food. This is why it is important to clean, separate, cook, and chill food to stop the spread of pathogens that can cause food poisoning.

In this course, you will learn safe practices for every step of food preparation from planning meals, to cooking them, and finally storing them when there are leftovers. Even if these safe practices are adopted, a foodborne illness outbreak can occur. If a foodborne illness is suspected, preserve any leftover food that may have been the cause. Clearly label it “danger” and freeze it. Monitor anyone who is ill and be sure to take them to the hospital if they are experiencing severe symptoms. Contact your local health department if many people were sick from the same predicted source.

When cooking for groups through an organization, it is common for volunteers to assist with the planning, cooking, and serving of food. These volunteers probably have varying knowledge about foodborne illness prevention. It is important to train volunteers about basic food safety practices. Appoint someone in charge that is familiar with the cooking and serving space, has a plan for what is being prepared, and knows food safety practices. This person can correct volunteers when they are not using safe food practices and answer any questions. It is also important to make sure volunteers or other food employees are not working while they are sick. Sick individuals should never be around food being served to others. This course will provide specific tips and practices needed to keep your community healthy.

Quiz:

1. Which of the following people may be sick with a foodborne illness? (check all that apply)
 - a. Ann becomes ill after being sneezed on by a coworker
 - b. John has been diagnosed by his doctor with diabetes, a non-contagious condition
 - c. Sarah experiences nausea and stomach pain three hours after eating a rare hamburger at a neighborhood picnic

2. Which groups of people can become sick with a foodborne illness? (check all that apply)
 - a. Elderly individuals
 - b. Healthy adults
 - c. Children
 - d. Pregnant women
 - e. Those with a medical condition that weakens their immune system

3. A parasite is an example of an agent that can cause a foodborne illness. Type in the blank one other agent that can cause a foodborne illness.

4. Which of the following is a safe food practice? (check all that apply)
 - a. Washing fruits and vegetables before eating or cutting them
 - b. Tasting food with a spoon and continue cooking with it
 - c. Washing hands with soap and water often
 - d. Cooking meat to a safe internal temperature before serving

5. What should be done when foodborne illness is suspected? (check all that apply)
 - a. Contact your local health department if many people were affected
 - b. Take every sick individual to the hospital immediately
 - c. Clearly label suspected contaminated food and freeze it
 - d. Monitor sick individuals and take them to the hospital if symptoms are severe

Wrap up:

In this unit we learned about what foodborne illness is and discussed the importance of identifying practices that are not safe when serving large groups of people. Hopefully, this information will allow you to become more aware about the role safe food preparation plays in decreasing foodborne illness. Continue to begin the next unit “Clean” to learn about what needs to be cleaned in the kitchen and how.

Unit 2: Clean

Overview:

Cleaning hands, some foods, and utensils are important to stop the spread of bacteria in the kitchen. It is important to know which foods need to be rinsed before chopping or cooking and know which foods should not be rinsed.

Learning Objectives:

1. Demonstrate the proper way to wash hands
2. List which surfaces need to be cleaned and when they should be cleaned
3. Identify which foods need to be washed
4. Describe how pathogens can be eliminated from meat

Unit Content:

This is Safe Food, Safe Communities Unit 2: Clean. In this unit we will be learning about how and when to clean food, utensils, and surfaces to prevent the spread of harmful pathogens.

There are several things that need to be cleaned in the kitchen. First is your hands. To do this, first run your hands under warm water. Next, add soap to your hands and start scrubbing. Be sure to scrub in between fingers and under fingernails. You should scrub your hands for twenty seconds, or about as long as it takes to sing “happy birthday” twice. The soap can then be rinsed off with warm water and your hands can be dried with a clean towel or disposable paper towel. Now that your hands are clean, you might want to wear gloves. Be sure to dispose of gloves and wash your hands again if you touch raw meat, your hair, or unclean surfaces.

Make sure you are using soap when washing your hands. This is because soap loosens any dirt or pathogens on our hands. This makes it easier for dirt and pathogens to wash off. Hands are much cleaner after they are washed with soap than if they were just washed with water. Make sure plenty of soap is available to everyone handling or serving food. Antimicrobial soap is not necessary when washing hands. It is usually more expensive and not any more effective than regular soap!

If there is not running water available and your hands are free of dirt and not visibly dirty, hand sanitizer can be used. To use hand sanitizer, apply a dime to quarter sized amount of the product and rub your hands together until they are completely dry. Only use hand sanitizer that is greater than 60% alcohol. You should be able to find this information on the product packaging. Hand sanitizer does not replace soap and water, but it is an acceptable alternative when soap and water is not available. When cooking for large groups, do not choose a location without running water. Lastly, hand sanitizer can only be used on hands; do not put hand sanitizer on surfaces or utensils.

It is not enough to only wash your hands once before you start cooking or serving. Here is a list of times you should wash your hands provided by the Centers for Disease Control and Prevention. You should wash your hands: before eating, before and after caring for someone who is sick, before and after treating a wound, after using the toilet, after changing a diaper, after blowing your nose, after touching an animal, after handling a pet or pet food, and after touching garbage. This does not include every reason you should wash your hands, but it gives some great examples.

It is important to clean surfaces, cutting boards, dishes, knives, and other utensils after you use them. Using an unclean dish can spread harmful bacteria to ready-to-serve foods or spread bacteria around the kitchen. Make sure spills are cleaned up promptly. Utensils can be sanitized in one gallon of warm water mixed with one tablespoon of bleach. Surfaces and utensils should be cleaned often. This includes after they are in contact with raw meat, after they are in contact with clothing or unwashed skin, after being used to taste food, or after being around someone who has sneezed or coughed, just to name a few. When in doubt, wash the surfaces again.

Raw fruits and vegetables should be washed before you chop or cook them. To do this, rinse the fruit or vegetable with water and without soap or detergent. This will rinse off any harmful bacteria or chemicals that were on the food item. Even foods that are normally peeled before being used, such as carrots, need to be cleaned. This is because the bacteria on the outside of the carrot can be transferred to the inside of the carrot during the peeling process. Organic foods still need to be washed as well as foods that come from a garden, even if no pesticides were used in the growing process. Make sure foods that need to be washed are washed right before serving. Foods that were washed and left on the counter or in another area could have been in contact with pathogens after they were washed.

The only time produce does not need to be washed is if it is labelled as “triple washed” or “thoroughly washed”. These products are guaranteed to be pre-washed and can be used right out of the packaging. Actually, it is safer to avoid washing these products. Because the products are guaranteed to be thoroughly washed, it is more likely that pathogens will enter the food item during washing.

Do not rinse raw meat. Rinsing raw meat in the sink can cause water to splash out of the sink with bacteria from the meat. This can cause bacteria to spread to other areas of the kitchen without our knowledge and eventually get us sick. The only way to rid meat of bacteria is to cook it until it has reached an internal temperature high enough to kill bacteria.

Once surfaces, utensils, and hands are clean, it is important to keep them clean! In the next unit we will be learning about how to separate unclean foods and surfaces from clean ones.

Quiz:

1. Which of the following statements about handwashing is true? (check all that apply)
 - a. Hands should be washed for 20 seconds and should be washed often throughout the food preparation process
 - b. Hands should be rinsed with water without using soap or detergent
 - c. Wearing gloves reduces the number of times you need to wash your hands while cooking
 - d. It is necessary to use soap while washing hands
 - e. Hand sanitizer is an acceptable alternative when soap and water are not available

2. Why should soap be used while washing hands? (check all that apply)
 - a. Soap causes dirt and other pathogens to loosen and rinse off your hands
 - b. Antimicrobial soaps are necessary when washing hands
 - c. Soap prevents bacteria from spreading on hands for several hours after washing

3. How can it be guaranteed that pathogens have been killed on meat? (check all that apply)
 - a. Wash thoroughly with soap and water
 - b. Rinse with water but without soap or detergent
 - c. Cook until it has reach a safe internal temperature

4. Which of the following need to be rinsed in the sink? (check all that apply)
 - a. Raw vegetables
 - b. Peeled vegetables
 - c. Raw chicken
 - d. Raw fruit
 - e. Triple washed salad mix

5. Which of the following are examples of when utensils should be washed? (check all that apply)
 - a. After they are touched by someone who was sick
 - b. After they are used to taste a food
 - c. After being used to move raw meat

Wrap up:

In this unit we learned about which foods need to be cleaned, when they need to be cleaned, and how they should be cleaned. Hopefully, this information will allow you to become more aware about the role safe food preparation plays in decreasing foodborne illness. Continue to begin the next unit “Separate” to learn about how to separate foods from each other.

Unit 3: Separate

Overview:

Even if foods and surfaces are cleaned properly, pathogens from raw meat can be transferred to ready-to-eat foods. People can eat these foods and develop a foodborne illness. This is why it is important to keep raw meat separate from ready-to-eat foods at all times.

Learning Objectives:

1. Define food separation and explain why it is important
2. List which kinds of foods need to be separated
3. Identify when foods need to be separated
4. Plan procedures in the grocery store, kitchen, and refrigerator to ensure food is kept separate

Unit Content:

This is Safe Food, Safe Communities Unit 3: Separate. In this unit we will be discussing how to separate food in the kitchen to prevent pathogens from spreading to places we don't want them.

Separating food is an important part of food safety and is important to remember in all stages of food preparation and serving, starting at the grocery store and ending on the food plate. Pathogens are sneaky and can easily spread to other places. Separating food is an easy way to decrease the spread of pathogens.

Raw meat and seafood always need to be separated from other foods. Let's start in the grocery store. Even raw meat in packaging can have bacteria on the packaging. Wrap raw meat in a plastic bag and keep them separate from other foods in your cart. When bagging food after it has been purchased, make sure that raw meat is placed in separate bags as well.

If raw meat is going to be cooked and consumed within a few days, it can be placed in the refrigerator. The refrigerator is another place where it is easy for raw meat to touch other foods. Be sure to put raw foods in a separate part of the refrigerator to avoid contamination. When possible, put raw meat as close to the bottom of the refrigerator as possible. This is because it is common for meat packages to drip and leak juices that could contain pathogens. By keeping meat on a lower shelf, the juices will not drip on another, ready-to-eat food item.

Raw meat and other foods should be cut on separate cutting boards. Never cut raw meat on a cutting board, then use the same board to cut other foods, such as vegetables. If you need to use the same cutting board, be sure to cut the meat; transfer the cut meat to another dish; wash the cutting board and knife with warm, soapy water; and dry. Only under this condition can the same cutting board be used.

Use gloves when handling food, especially if you are preparing food for a large group of people. Remember that your hands still need to be washed before putting on gloves. Also, replace your gloves after handling raw meat or touching other objects or people.

If you are marinating your meat, do not use the marinade after raw meat has been in contact with it. The only way a marinade can be reused after touching raw meat is if it has been boiled after. Remember that any food that has been in contact with raw meat needs to be treated as if it was a raw food item.

The only time meat can be in contact with ready-to-eat food items is after the meat has been thoroughly cooked. In the next unit, we will be learning how to cook food and how to know when it is safe to eat.

Quiz:

1. Which of the following pairs of food need to be cut on separate cutting boards? (check all that apply)
 - a. An apple and a banana
 - b. A tomato and a pear
 - c. Raw turkey and raw ham
 - d. Raw chicken and a pepper

2. Why do raw foods such as meat and seafood need to be separated from other foods? (check all that apply)
 - a. Raw meat will not reach a safe internal temperature if it has been in contact with ready-to-eat foods
 - b. Raw foods do not need to be separated from other foods
 - c. Ready-to-eat foods can transfer pathogens to sterile raw meat
 - d. Raw foods can transfer pathogens to ready-to-eat foods

3. Which of the following is a time when raw foods need to be separated from other foods? (check all that apply)
 - a. In the shopping cart and in grocery bags
 - b. In the refrigerator before foods have been cooked
 - c. On a cutting board while cutting foods
 - d. On the serving table after food has been cooked

4. Under which condition can be marinades be reused after they have touched raw meat? (check all that apply)
 - a. Only directly after it has been boiled
 - b. After it has been frozen
 - c. After it has been left in the refrigerator for three days

5. Which of the following statements about food storage in the refrigerator is correct? (check all that apply)
 - a. Keep raw meat separate from ready-to-eat foods
 - b. If raw meat is in its original packaging it is safe for the meat package to touch ready-to-eat foods
 - c. Raw meat should be paced as close to the bottom of the refrigerator as possible

Wrap up:

In this unit we learned about how to separate raw food from other foods. Hopefully, this information will allow you to become more aware about the role safe food preparation plays in decreasing foodborne illness. Continue to begin the next unit “Cook” to learn about how meals should be cooked to prevent food poisoning.

Unit 4: Cook

Overview:

The only way to rid meat of harmful pathogens is to cook the meat properly. Improper cooking of meat is one of the leading causes of foodborne illness, so it is important to understand safe cooking practices. Using a food thermometer to guarantee a safe internal temperature of the meat has been reached is key.

Learning Objectives:

1. Describe how pathogens can be killed in meat
2. List ways to keep food out of the “danger zone” temperatures
3. Memorize the “danger zone” temperatures
4. Explain how to use a food thermometer and why it is important

Unit Content:

This is Safe Food, Safe Communities Unit 4: Cook. In this unit we will be going over how food should be cooked in order to kill harmful pathogens in the food.

According to the Centers for Disease Control and Prevention, the two most common ways people become ill with foodborne illness is eating raw or undercooked food and eating food that has been kept at an unsafe temperature for too long. These are both related to cooking food, so it is very important to cook foods safely. The only way to ensure that meat has been cooked thoroughly is to use a food thermometer. Relying on color or texture alone is not enough to be certain that harmful bacteria have been killed.

There are a few different types of food thermometers and they are all used slightly different. Be sure to follow the food thermometer instructions. Most meat thermometers work by inserting the tip about two inches in the center of the meat. After fifteen seconds, the temperature can be read and it can be determined if the food is safe for consumption.

Different foods require different internal temperatures to be properly cooked. Chicken and other poultry, for example, require an internal temperature of 165 degrees or higher. Other foods may require a temperature closer to 140 degrees. Some foods require a resting time after the food has reached the required internal temperature and has been removed from a heat source. There are charts available with different food items listed and their corresponding safe internal temperature and resting requirements.

The “danger zone” is between 41 and 135 degrees Fahrenheit. In this temperature range, bacteria divide rapidly, which causes food to spoil. Foods should never be left in the “danger zone” temperatures for more than two hours at a time. This means that hot foods need to stay hot, or above 135 degrees Fahrenheit. Cold food need to be kept cold, or under 41 degrees Fahrenheit.

To keep foods hot while serving, use a chafing dish or crock-pot if available and check the temperature of the food with a food thermometer often. If you are reheating food to put into a chafing dish, it needs to be heated to at least 165 degrees first. Foods should not be heated up in a chafing dish; they should only be kept hot. Another option is to keep hot food on

the serving table in smaller quantities and keep the rest in the oven or on a stove. When the food being served runs out, it can be replaced with the hot food in the kitchen.

In the next unit, we will be discussing how to keep cold foods cold for serving and storing.

Quiz:

1. How can you tell that a safe internal temperature has been reached when cooking meat? (check all that apply)
 - a. Follow baking time instructions for a package of raw meat
 - b. Look at the color and texture of the meat
 - c. Use a food thermometer to check the temperature

2. What is the proper way to use a food thermometer? (check all that apply)
 - a. Insert the food thermometer tip about two inches into the center of the meat and wait at least 15 seconds.
 - b. Place the tip of the food thermometer as close to the meat as possible without touching it and wait at least fifteen seconds
 - c. Use a food thermometer multiple times without washing in between uses

3. Why is the “danger zone” important? (check all that apply)
 - a. It is the range of temperatures that freeze food
 - b. It is the range of temperatures that burns food
 - c. It is the range of temperatures that microbes do not divide at
 - d. It is the range of temperatures that microbes divide rapidly at

4. What range of temperatures is considered the “danger zone” in degrees Fahrenheit? Format as [number]-[number] (fill in the bank)

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5. Which of the following are ways to keep hot foods hot? (check all that apply)
 - a. Serve food in a chafing dish
 - b. Serve food in a crock-pot
 - c. Put foods on the serving table in small quantities and keep the rest on the stove or in the oven

Wrap-up:

In this unit we learned about what is important about cooking our foods and keeping them hot. Hopefully, this information will allow you to become more aware about the role safe food preparation plays in decreasing foodborne illness. Continue to begin the next unit “Chill” to learn about how to keep foods cold and defrost them.

Unit 5: Chill

Overview:

Chilling food slows the growth of pathogens in food. Placing food in the refrigerator or freezer can make foods last longer. This is especially important when serving foods to large quantities of people.

Learning Objectives:

1. Memorize the temperatures refrigerators and freezers should be set at
2. List some ways to keep food cool when serving
3. Plan steps for putting food in the freezer
4. List three ways food can be defrosted safely

Unit Content:

This is Safe Food, Safe Communities Unit 5: Chill. In this unit we will be learning about how to chill food to slow the growth of harmful pathogens, and discussing how to safely defrost foods that have been frozen.

Chilling food is an important way to keep foods out of the “danger zone”. Refrigerators should be set at 38 degrees Fahrenheit or colder while freezers should be set at 0 degrees Fahrenheit or colder.

Cold food needs to stay cold at 41 degrees or below. While planning for a meal, make sure you have enough space in the refrigerator to keep cold foods cold. Overfilling the refrigerator can prevent adequate air flow which is not safe. Make sure that there is plenty of space. If there is not enough space, reconsider your menu for the event.

If food is being served outside or on a buffet, remember that cold foods still need to stay cold. Foods should not be in the “danger zone” for more than two hours. Place serving bowls in larger bowls of ice and use a lid to cover the food. It might be easier to use smaller serving bowls and replace them often rather than using a larger serving bowl. Be sure to check the temperature with a food thermometer often to ensure the temperature is under 41 degrees Fahrenheit.

When foods are not going to be consumed right away, they can be placed in the refrigerator or frozen. This can make food last longer because bacteria do not divide as quickly in cooler temperatures. However, this does not mean that food will last forever. There are charts that will list food items and how long they will last in the refrigerator or freezer. This is often difficult to keep track of. When you put a food item in the freezer that you are not planning on eating for a while, label it with the current date. By doing this, you will be able to keep track of when food in the freezer goes bad.

If the food item is warm before you put it in the refrigerator or freezer, you need to cool the food. There are a couple of ways to do this. First, you can put the food, uncovered, in a bowl surrounded by another bowl with ice. If the food is a liquid, such as soup, be sure to stir it occasionally. Another option is to put the food uncovered in the refrigerator until it has cooled to the correct temperature, then cover.

For the food to be safe to consume later, it needs to cool down from 135 degrees to 70 degrees Fahrenheit or below within two hours, and then to 41 degrees or below within four hours. Use a food thermometer to measure this. Once the food has reached a temperature of 41 degrees or below, it can be placed covered in the refrigerator or freezer.

It is important to keep hot foods hot at 135 degrees or above and keep foods cold at 41 degrees or below at all times. This includes transporting the food to other places. Use insulated bags and coolers to make sure foods stay at the adequate temperature.

When foods are taken out of the freezer, they need to be safely defrosted before they are ready to be cooked. Never take meat or seafood out of the freezer and leave them on the counter directly to be defrosted. This leaves the meat in the “danger zone” for too long and can lead to food poisoning.

There are a few ways to defrost meats safely. First, frozen meat can be placed in a plastic bag and set in a bowl of cold water. Change the water every thirty minutes and within a few hours, the meat will be defrosted. Be sure to cook immediately.

Another option is placing frozen food directly from the freezer into the refrigerator. This option will take longer than placing the food in cold water, so be sure to plan ahead. Also, the larger the food item, the longer it will take to defrost. Remember this when you are planning meals for a large group with a large quantity of food. It might take up to two days for a large, frozen food item, such as a turkey, to defrost the refrigerator.

Frozen food can also be defrosted in the microwave. After being defrosted in the microwave; however, they must be cooked immediately. Do not leave microwaved food on the counter, or place it in the refrigerator.

This concludes the video presentations for Safe Food, Safe Communities.

Quiz:

1. What temperature (or below) should refrigerators be set at in degrees Fahrenheit? (Fill in the blank)

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2. How can cold food be kept cold? (check all that apply)
 - a. Keep food in the freezer
 - b. Keep food in the refrigerator
 - c. Keep food temporarily in a bin of ice

3. What is important to do when food is placed in the freezer? (check all that apply)
 - a. Always take food out of the freezer within three days
 - b. Label the food with the date to keep track of how long food is in the freezer
 - c. Pack the freezer tightly to keep food cold
 - d. Pack ice around anything in the freezer

4. What is a safe way to defrost food? (check all that apply)
 - a. In the microwave
 - b. In the refrigerator
 - c. On the counter in a bowl of water

 5. Fill in the blank. When hot foods are going to be placed in the refrigerator or freezer, it need to be cooled to 70 degrees in two hours and ____ degrees in four hours.
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Wrap up:

In this unit we learned about how to keep food cold in the refrigerator or freezer. Hopefully, this information will allow you to become more aware about the role safe food preparation plays in decreasing foodborne illness. This concludes Safe Food, Safe Communities training.