LESSON PLAN 45

Lesson Title:
Food Safety

INSTRUCTOR'S NOTES:

This lesson plan should be completed by the prison administration. This is a subject that should be presented to all staff who monitor inmate housing units as well as to all inmates and, if possible, inmate visitors who are permitted to bring food for the inmate. It should be presented by the staff in charge of health, safety, and sanitation.

Method of Instruction:
Lecture, Discussion, Demonstration, Handouts

Time Frame:
Minimum of 1 Hour

Performance Objectives:
To make the student aware of the general causes of food poisoning and food borne illness. To insure the student knows proper procedures for preventing food poising and is knowledgeable about food safety procedures.

Lesson Objectives:
At the conclusion of this block of instruction the student will:
Be able to identify what elements are necessary to prevent food poisoning.
Know how food should be properly stored and prepared.
Know the symptoms of food poisoning.
Know specifically what to do to help a victim of food poisoning.

Training Aides Required:
Handout, Blackboard or flip chart

INTRODUCTION:

Why training for prison staff in food safety?
Many inmates, and staff, keep food in their cells or common areas or in lockers. Food brought from outside the institution or taken from the dining area or kitchen or kept after meals to be consumed later can present safety issues. Our goal is to prevent food contamination and food poisoning.

Food safety:
- Improves the quality of life for inmates and staff
- Helps meet our regulatory requirments
- Fulfills our moral obligation to the public
- Saves money

Food poisoning, also called foodborne illness, is caused by eating contaminated food – including bacteria, Viruses and parasites. Food contamination can occur if food is incorrectly handled or cooked. Those working in facility kitchens are trained in the proper handling of food and procedures are in place to help reduce the risk of contamination. Refrigeration, cooking and food storage are regulated, and temperatures are monitored. However, food kept in cells or kept in small communal kitchens are often not monitored during storage or preparation and can be subject to contamination. Contraband food, including home made alcohol, is especially susceptible to contamination.

SYMPTOMS OF FOOD POISONING

DISCUSSION GUIDE:
Ask the class to list what they think are the main symptoms of food poisoning. Have one of the class write them on a flip chart or blackboard and then go over them with the class

Food poisoning symptoms vary with the source of contamination. Most types of food poisoning cause one or more of the following symptoms:

- Nauseas
- Watery or bloody diarrhea
- Vomiting
- Abdominal pain or cramps
- Fever
- Headache
- Dizziness

CAUSES

Contamination of food can happen at any point in the production of food: growing, harvesting, processing, storing, shipping or preparation. The transfer of harmful organisms from one surface to another is often the cause. This is especially true for raw, ready to eat foods such as salads or produce. Because these foods are not cooked, harmful organisms are not destroyed before eating.

DISCUSSION GUIDE:
Read the introductory comments from Ms. Santacruz and then have different people in the class read the paragraph on the various foods mentioned. Make a copy of the Sally Santacruz article and give it to the students.

Sally Santacruz of the Australian Institute of Food Safety listed 10 high risk foods more likely to cause food poisoning:

> Although these bacteria can live on raw poultry, there are ways to lower the risk. Always make sure that poultry is completely cooked through before you eat it, because this will kill harmful bacteria. Also, don't wash raw chicken before cooking it because this will just spread the bacteria around your kitchen, making it easier to contaminate something else. When handling raw chicken and other poultry it's very

important to thoroughly wash and sanitize anything that the raw meat touches - including utensils, clothes, chopping boards and especially your hands.

Every year food poisoning affects millions of people all around the world. Illnesses range in severity and in some cases can even result in death.

The Food Safety Information Council estimates there are 4.1 million cases of food poisoning each year.

There are lots of different causes of food poisoning - like bacteria, chemicals and toxins. But some foods are more likely to make you sick than others. This is because these foods are more at risk of bacterial growth than others. So, if they aren't cooked to a certain temperature or aren't stored or handled properly, there's a higher chance they'll make you sick.

Foodborne illnesses can take days or even weeks to develop, so it can be difficult to find the cause of the sickness. What can help though, is knowing which foods to be extra careful with when storing, handling and cooking. So, we've put together a list of some of them.

Poultry

Raw and undercooked poultry has a high-risk of causing food poisoning if it's not handled properly. Campylobacter bacteria and salmonella are the two most common contaminants of poultry and even small amounts can make people seriously sick. These bacteria often contaminate the raw meat when it's first processed and can survive up until cooking kills them.

Eggs

Eggs are a versatile, convenient and nutritious protein and are part of countless meals all around the world. However, they're considered high-risk when it comes to food poisoning, specifically when raw or undercooked.

Salmonella in eggs is responsible for many of the foodborne illness cases in Australia. Bacteria can contaminate either the yolk, the white or the egg shell. Often a contaminated egg will not look, smell or taste any different, making it almost impossible to detect.

Many popular meals contain lightly cooked or even raw eggs, so have a high risk of causing foodborne illness. It's recommended that you thoroughly cook all foods that contain eggs, and avoid foods that purposely contain undercooked eggs, like mayonnaises and salad dressings. It's also important not to taste anything that contains raw eggs when you're cooking - cake batter for example.

To enjoy eggs safely, it's recommended that you use clean, uncracked eggs. You should keep them cool, preferably under 5°C. Also make sure when cracking the egg, the egg yolk or white doesn't touch the outside of the shell before going in the dish.

These recommendations are especially important for vulnerable people - including children, the elderly, pregnant women and anyone suffering from an illness that weakens the immune system.

Leafy Greens and Vegetables

Because leafy greens and vegetable are often eaten raw, any harmful contaminants affecting them won't be killed in the cooking process. Bacteria like E. coli can live in the soil that the greens are grown in and can easily leave traces on them. Contaminated water and animals can also transfer harmful substances to the food at any time during the supply-chain.

Washing lettuce and vegetables not only reduces the risk of harmful bacteria being present, but also any chemical pesticides that might still be on the food. Always make sure that before you eat them, lettuce, vegetables and salad greens are thoroughly washed.

Raw Milk

Raw milk is milk that is unpasteurized, which means that it hasn't been heated to kill any harmful bacteria. The risk with consuming raw milk is that there's a higher chance of the milk containing bacteria, for example: E. coli, salmonella or listeria. If consumed, these bacteria can cause a range of food poisoning illnesses, which vary from mild to life threatening.

Cheese

Cheese is another food that's considered to be at high-risk of contamination. Pregnant women are usually told to avoid eating all soft cheeses, for example feta and ricotta, because of the risk of becoming sick. Tragically, in some cases, eating contaminated cheese can cause serious complications in pregnancy - including miscarriage.

Staphylococcus aureus is another common bacteria that can be found in cheese. It's often transferred to the cheese from an infected person that comes into contact with it. The bacteria have a high tolerance for salt, so cheese and meat are an ideal breeding ground. Like some other causes of food poisoning, *Staphylococcus aureus* is heat resistant so cooking doesn't kill it.

The best ways to stop cheese becoming contaminated are to make sure it's stored at or under 5°C; thoroughly wash your hands before handling the cheese and if possible, wear

single use disposable gloves; and make sure all surfaces, utensils and equipment that the cheese touches have been thoroughly cleaned and sanitised. Also, avoid eating unpasteurised products.

Sprouts

Sprouts grow in a warm and wet environment, which are the perfect conditions for rapid bacteria growth. This means they're really difficult to keep clean. Because sprouts are often eaten raw, they carry a high-risk of causing foodborne illness, in particular from salmonella and E. coli.

If contaminated, it's likely that the seeds of the sprouts are the home of any harmful bacteria. Although there are different ways to reduce the risk of contamination, no treatment is guaranteed to kill all of the bacteria.

Often people who might be more vulnerable to the effects of the potential bacteria - pregnant women, the elderly, children and people with a weakened immune system - are directed to stay away from sprouts. If you're going to eat them, you're advised to cook all raw sprouts to lower the risk of potential contamination.

Seafood

Fish must be properly stored throughout the entire supply chain. This begins when the fish is first caught and ends when it's prepared and eaten. When it comes to food poisoning from seafood, there are many different illnesses. It all depends on the type of seafood, whether it's contaminated with a toxin, bacteria or another harmful substance, and the conditions the fish has been kept in.

Fish which is not stored at the correct temperature has a high-risk of being contaminated with histamine. This is a toxin that can cause Scombroid poisoning and unlike many other dangerous contaminants, isn't destroyed by normal cooking temperatures.

Another common foodborne illness which can develop after eating contaminated fish is Ciguatera poisoning, which occurs because of ciguatoxin. Unfortunately, as ciguatoxin is also heat stable, cooking the fish before eating will not rid the fish of the harmful toxin.

Shellfish also carries the risk of food poisoning because the algae that the shellfish live in, produces many toxins that can build up to dangerous levels. The more well-known foodborne illnesses that these toxins can cause are neurotoxic shellfish poisoning, amnestic shellfish poisoning and paralytic shellfish poisoning.

Like the previous two toxins, cooking the shellfish will not reduce the toxic risk to safe levels. To safeguard against these heat stable toxins, you're often advised to avoid eating seafood in developing countries and if you're not sure whether it's safe to eat - don't.

Rice

Rice is one of the most eaten foods on the planet and is also considered a high-risk food when it comes to food poisoning. It can become contaminated with bacillus cereus, which can initially infect and live in uncooked rice as spores. Rather than eliminating the spores, cooking actually activates them and moist cooked rice is the perfect breeding ground for harmful bacteria. Not storing cooked rice properly is one of the biggest culprits of foodborne illnesses in the world.

All cooked rice should be stored in the refrigerator at the correct temperature, under 5 degrees celsius, to avoid the further growth of bacteria. Rice that has high-risk proteins in it, for example pork or egg, carries an even higher risk of contamination.

Deli Meats

Deli meats and other cold-cut meats are often highly processed and include ham, hot dogs, salami and bacon. The storage of deli meats is especially important because they're often not cooked before being eaten.

Listeria and other harmful bacteria can find its way into the processing factory and contaminate meats after they've been cooked but before they've been packaged. This is why it's very important to cook hot dogs and bacon to at least 75 degrees celsius for at least 3 minutes before eating. Also, cold meats should always be stored under 5 degrees celsius to reduce the risk of further bacterial growth.

All meats carry a high-risk of causing foodborne illness if they're not prepared and stored properly. Although many people prefer their red meat not to be cooked completely through, this can mean that the amount of bacteria remaining on the meat is not brought down to a safe level. Those people who are more susceptible to illness are advised to make sure that all meats are thoroughly cooked – this included pregnant women, children, the elderly and anyone who suffers from a weakened immune system.

Fruits

Perhaps surprisingly, lots of raw fruits and berries have a high-risk of causing food poisoning. Listeria in particular can grow on the skins of fruits and vegetables and can cause food poisoning if eaten. Salmonella has been found responsible for more and more cases of food poisoning, which have been traced back to berries, hot peppers and tomatoes.

Melons also have a high-risk of causing food poisoning because they're not often washed before being eaten. Harmful substances can easily be transferred to the flesh of the fruit anytime throughout the supply chain process.

The growing environment of these foods is a major factor in their high-risk status. They're often grown in warm, humid conditions, which is the perfect breeding grounds for bacteria. Thoroughly washing fruits and vegetables and storing them at the proper temperature before consumption is essential to minimize the risk.

Prison made alcohol: Local names for prison alcohol products include hooch, pruno, juice, buck, chalk, brew, raisin jack, and jump. The brew is most often made from fermented fruit but any food source will work. Botulism is caused by a toxin produced when a bacteria commonly found in soil is placed in an oxygen-deprived environment – like the closed containers used for alcohol production. The toxin is produced during the fermentation process if no heat is applied to kill the bacteria. Illness can begin from six hours to 10 days after exposure, although most commonly, it occurs between 12 hours and three days after consumption. Symptoms include double or blurred vision, drooping eyelids, slurred speech, difficulty swallowing and muscle weakness that moves down the body. In serious cases, botulism can result in death due to respiratory failure. Patients may have fatigue and shortness of breath for years. A medical evaluation of symptoms is necessary to rule out other possible causes of progressing paralysis. Information about the potential of drinking homemade alcohol is important for a quick diagnosis and response. Prison medical staff should know to question the patient and housing officers in a suspicious situation.

PREVENTION

Prevention is the best way to prevent food poisoning. The previous material covered some of the prevention techniques, but the following should be continually emphasized to officers and inmates.

The basic rules of food handling, even the food is only for you, is to wash your hands, utensils and food surfaces often – wash hands well with warm, soapy water before and after handling or preparing food. Use hot, soapy water to wash utensils, cutting boards or other surfaces.

DISCUSSION GUIDE:

Ask the class to list the major factors or behaviors that can help prevent food contamination and food poisoning. List their answers on the blackboard or flip chart. Then have a different student read each of the items below. Hand out the list to the participants to keep as a reference. What is covered below includes information for inmates who have access to cooking facilities, including microwave, and/or refrigeration. In some cases, it also information if inmates have access to food thermometers. In most situations the inmates will not have those amenities, but you can use the information to help them visualize the food temperatures required.

The following guidelines were provided by the Simmons Center for Hygiene & Health:

If you have access to heating and/or cooling appliances, the following guidelines apply. If not, use the guidelines as general information to help guide individual practice.

- Refrigerators should be run at 40 F (4.4 C) or lower. The only way to be sure about the temperature is to use a thermometer. Keep the refrigerator door shut to

prevent the fridge temperature rising because it takes many hours to cool down again.

- It is important to keep the fridge clean and to keep food covered since many bacteria and molds are able to grow at refrigerator temperatures. All food of animal origin – meats, fish and dairy foods must be refrigerated and used quickly. Leftovers, including those brought from the facility kitchen, should be refrigerated as soon as possible and consumed within 24 hours. Canned and bottled foods should be refrigerated once opened.
- Reject any food that shows signs of spoilage such as discoloration, presence of mold, bad odors and fermentation (gas bubbles and yeasty smell).
- Do not leave opened foods around the cell or common areas or in the trash – this will attract pests such as cockroaches and rats.
- If you have access to a microwave, remember to let the food stand for 2 minutes after cooking so that all parts of the food reach the right temperature. Microwave ovens have hot and cold spots than can cause uneven heating and if there is no turntable, the food must be manually turned or stirred to ensure that it is heated evenly throughout.
- Store foods such as jellies, pickles and mayo in the fridge, once opened.
- Never reheat a food more than once.
- If in doubt about whether or not a food is still safe to eat after storing, throw it out.
- **If you do suffer from symptoms of food poisoning:**
    - For mild symptoms, rest and drink plenty of fluids
    - For more severe symptoms that continue for more than a few hours, seed advice from medical personnel.
    - Remember that it is easy to pass on the germs that cause food poisoning directly from one person to another via the fecal-oral route and via contact with diarrhea or vomit. Thus, hand washing, and personal hygiene practices are very important in a prison setting.

CONCLUSION

Most food contamination can be avoided with better food handling habits:

1. Clean – wash hands and surfaces often.
2. Separate – separate raw meat, poultry and egg products from cooked foods to avoid cross-contamination.
3. Cook – raw meat, poultry and egg products need to be cooked thoroughly. Use a food thermometer to ensure foods have reached a high enough temperature to kill any harmful bacteria that might be present.
4. Chill – refrigerate promptly.

QUIZ

1. What are the four general food handling habits?
2. List at least four symptoms of food poisoning?
3. What can the cold fermenting process of making prison alcohol cause?
4. What types of food can cause food poisoning?

Answers to Quiz

Question 1

1. Clean – wash hands and surfaces often.
2. Separate – separate raw meat, poultry and egg products from cooked foods to avoid cross-contamination.
3. Cook – raw meat, poultry and egg products need to be cooked thoroughly. Use a food thermometer to ensure foods have reached a high enough temperature to kill any harmful bacteria that might be present.
4. Chill – refrigerate promptly.

Question 2

- Nauseas
- Watery or bloody diarrhea
- Vomiting
- Abdominal pain or cramps
- Fever
- Headache
- Dizziness

Question 3

Botulism

Question 4

All foods not handled or stored properly are capable of causing food poisoning.