
INTRODUCTION TO FOOD SAFETY

Module 1

The objectives for **Module 1: Introduction to Food Safety** are for participants to understand the basics of:

- Common food hazards
- Consequences of poor standards and food hygiene
- Common symptoms of food poisoning
- Examples of populations at risk
- The benefits of good standards
- Understand their individual responsibilities towards food safety

Welcome to the Small Scale Food Processing Manual designed for people with disabilities and low literacy levels.

The objective of this course is to cover the basic requirements of hygiene and good manufacturing practices for individuals with disabilities.

This training is essential to ensuring food safety using a HACCP based system of Good Manufacturing Practices.

This course is set up in six modules. There will be a review at the end of each Module in order to ensure that the material is being understood. Also, as part of the material for this course are some additional information, including: a glossary of terms, frequently asked question and references.

What is food safety?



Why?

Why are you here today?

To gain an understanding the employee's impact of the safety of everyone's food. You can have a very negative impact on people's lives by simply not washing your hands before you start your shift.

Active Learning:

Visit the Vancouver Island Health Authority hand washing [website](http://www.viha.ca/health_info/handwashing.htm). Watch videos and read fact sheets. Proper hand washing techniques should be reviewed throughout the course.

Website:

http://www.viha.ca/health_info/handwashing.htm

Prior Knowledge

Have participants think about food safety at:

- Home – wash hands before we eat, use different cutting boards, looking at Best Before Dates
- Day Program – wash hands before preparing meals, wearing gloves, staying away from food when they are sick
- Work (in a small scale food processor setting) – wear protective clothing (hair nets, gloves), use special sanitizers and cleaners



Food Safety

Why is food safety important?

- meet customer expectations
- keeps people from getting sick
- continual improvement in food processing

Why is food safety important?



- control food safety hazards
- follow food safety laws
- fewer food recalls

- Have participants think about a time when they were sick (vomiting, diarrhea, or nausea) or a friend was sick. Have participants know that following food safety guidelines reduces the risk that they or others will get sick.
- It is important for participants to know that not only can people get sick from food that is not properly prepared and stored but that in some cases death can occur.

Contamination

Contamination means the presence of hazards in food that could cause injury or death.



Food safety helps protect us from:

- **food borne illness**
- food hazards:
 1. biological
 2. chemical
 3. physical
- cross contamination

Introductory Slide

This Introduction slide will be used throughout Module 1 to provide participants with a visual reminder of why food safety is important: to prevent food borne illness, food hazards and cross contamination.

Keep reading

There will be additional information regarding each main point coming up throughout this Module.

Highlighted Words

Each time this slide appears, have students think about the highlighted words and possible examples that they can share with the class. As we talked with self-advocates about this project they emphasized that we include participants and give them opportunity to share their experiences as much as possible.



Food borne illness



What is food borne illness?

Food Poisoning

Food poisoning refers to contamination of food during the processing part which can result in sickness or death.

Food borne illness happens when something you eat makes you sick.

Food Borne Illness

In this course, food borne illness and food poisoning are used interchangeably.

Food borne illness refers to anything that contaminates food, biological, chemical, or physical properties, which can result in people getting sick or worse, death.

Common Symptoms

- Food borne illness is another word for food poisoning. Symptoms of food borne illness can include nausea, vomiting, and diarrhea (Canadian Food Inspection Agency, 2011).



Common symptoms of food borne illness:



- upset stomach
- stomach pain
- diarrhea

Who are we trying to protect from food borne illness?



Everyone, but mostly:



- the elderly
- people with immune deficiencies
- babies and children

Who are trying to protect?

- As people age, it becomes harder for the immune system to fight bacteria.
- Chronic illnesses, such as diabetes and cancer, can affect the immune system as well resulting in a weakened immune system which cannot fight harmful bacteria.
- Dehydration is a concern when children and babies suffer from the symptoms of food borne illness

While many people think about the actual symptoms of food borne illness as a consequence, employees and employers can also be affected.

Employees who do not practice safe food handling can lose their jobs.

Employers can become bankrupt due to loss of income as a result of negative publicity, inability to sell their product and possible shutdowns of their facilities due to health hazards.



Food borne illness can cause sickness or death:



Death

This is a sensitive area as many people with disabilities have compromised immune systems. Explain that while death is one of the consequences of food borne illness, it is not common.

Food borne illness can also cause:



- customer sickness
- employer bankruptcy
- employee loss of job

Background Info

The story of contaminated spinach is being told to educate participants about real instances of food borne illness that affected many people recently.

E.coli is a biological food hazard. E.coli was found in the spinach, most likely through a contaminated water source.



The story

Story of Contaminated Spinach

A few years ago, many people got food borne illness because they ate some spinach that had not been properly cleaned.

3 people died from eating the spinach.



The spinach came from a field where contaminated water was used to water the spinach.

The spinach was not properly cleaned when it was processed.

People became sick when they ate the spinach.



The company selling the spinach had to stop selling it. They had to find out why it made people sick.

New rules were made to make sure that spinach was properly cleaned so no one would get sick from eating spinach again.



In 2006, a huge recall of packaged spinach occurred in many areas of the US and Canada. The spinach in question was contaminated with E.coli. The contaminated spinach resulted in hundreds of cases of illness and 3 deaths. The cost was \$7 million.

The source of contaminated spinach was investigated and determined to have come from one section of the field. The product was packaged on the same date with the same code. Possible sources of contamination were animal feces or contaminated irrigation water.

The company, Natural Selection Foods, packaged the spinach under many labels, therefore many companies were impacted. Spinach sales everywhere dropped immediately with the media coverage and have only recovered by 86%. As a result, California Leafy Greens GAP guidelines were finalized in June 2007.

Watch Video

Watch a news [broadcast](http://www.youtube.com/watch?v=kIBsG_QO77w) about the contaminated spinach recalled by a Salinas distributor in California.

http://www.youtube.com/watch?v=kIBsG_QO77w



Food safety helps protect us from:

- food borne illness
- **food hazards:**
 1. biological
 2. chemical
 3. physical
- cross contamination

Introductory Slide

Food safety is based on understanding the hazards in food processing areas, (including storage, handling, production and packaging), and managing them to minimize the risks.

What is a food hazard?

Food Hazards

At this time, participants will be learning about various food hazards that can affect food.

A hazard is defined as a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse effect on health.

(SSFPA, unknown)



A food hazard is anything in food that could cause injury or death.

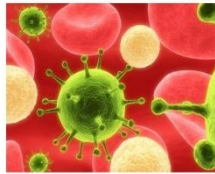


- biological (microbes)
- chemical (chemicals)
- physical (materials and objects)

Food Hazards

A food hazard can be anything that enters into the food whether visible, such as hair, or invisible, such as bacteria and pathogens. There are three different kinds of food hazards which include biological, chemical, and physical.

What is a biological hazard?



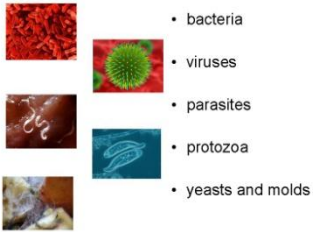
Biological Hazards

- Salmonella
- E. Coli
- Norwalk



What is a microbe?

Biological hazards are caused by microbes:



- bacteria
- viruses
- parasites
- protozoa
- yeasts and molds

A microbe is a microscopic organism, such as a bacterium, virus or parasite (excluding the large ones). Microbes are so small that you need to use a microscope and special staining techniques to see them. The word *microbe* is often more convenient to use than the word *microorganism*, and it pretty much means the same thing. In many situations, though, *microbe* refers to just the harmful microorganisms (the ones that cause disease), whereas *microorganisms* refer to all microscopic life.

(SSFPA, unknown)

What is a chemical hazard?



Chemical Hazards

Chemical hazards are any chemicals that are used in and around the processing of food that are poisonous to humans or can adversely affect human health.

Chemical Hazards

- Sanitizers
- Cleaners
- Food additives



Chemical hazards can be:



- pesticides
- cleaners and sanitizers
- food additives
- allergens

Chemical Hazards

Food additives are substances added to food to preserve flavour or enhance its taste and appearance.

What is a physical hazard?



Physical Hazards

- Hair
- Metal pieces
- Dirt

A real story

Thrifty Foods in Colwood, BC recalled ground beef in August 2011 after an employee name tag was ground into a batch of meat. For more information see the training manual or check this website:

<http://www.goldstreamgazette.com/news/127541783.html>.



Physical hazards can be:

- hair
- broken glass or ceramics
- pieces of metal
- parts from equipment

Any other ideas?

Have participants think about other possible physical hazards they may encounter in their workplace.

More physical hazards:

- wood
- fruit pits
- pieces of packaging
- pebbles

Common sources

Primarily, there is the food itself and the microbes that come in the food. Storage and handling, if improperly done, can contribute further contamination. Microbes can multiply to levels that infect the consumer and the worker. Also, spoilage can start, creating new toxins. Inadequate cooking /preparation, if not effective, may not remove hazards as expected. The worker could be infected, contributing farther hazards through the food. Finally, all of these sources could be spread to other foods through the avenues of cross contamination.

Further Detail

All of these hazards will be discussed in further detail in the upcoming modules.



Activities

Take time to read through the following three pages of activities. It is not necessary to do all activities. Choose activities that best suit the participants' learning styles and interests. To ensure success, be prepared prior to your lesson with all the necessary materials.

Activities

- **Physical, biological and chemical:** Fill a clear jar with coloured water (blue works great). Hold 2-3 stalks of celery beside the jar and ask participants to share with a partner what they think may happen to the celery. Place the celery in the jar. Depending time, you may want to prepare ahead of time a second jar the night before to show what happens to the celery over 24 hours. Explain to students that bacteria acts like the coloured water. The coloured water traveled up the celery stalk. Bacteria and cleaners (and other food hazards as well) will spread through food.
- **Biological:** Give each participant a piece of paper. Have participants rip the paper in half then rip both halves in half, and so on. While students are ripping the paper, explain that the increasing number of paper pieces is similar to the increasing number of bacteria in food.



Activities

- **Physical and chemical:** Have students play a game of *What Does Not Belong*. Using a bag of everyday items that could end up in food during processing, have 2-3 participants step out of the classroom and take something from the bag and wear it. When the participants returns to the classroom, have other participants try to identify the item that could be a food hazard. Have a discussion about the food hazard and possible solutions of how to avoid each food hazard.
 - Example: Participant A pulls a ring from the bag and places it on her finger. When she returns to the classroom, her colleagues identify that she is wearing jewelry. The discussion can be lead to the possibility of the worker losing the ring in the food. Solution: don't wear jewelry in a small scale food processing facility.
 - Example: Participant B pulls a shirt from the bag which is obviously dirty. When he returns to the classroom, his colleagues identify that he is wearing a dirty shirt and remark that the dirt from his shirt could fall into the food. Solution – wear appropriate clothing.
 - Example: Participant C pulls out a bottle of cologne. Explain to him that this is a demonstration only and he should not spray the cologne as there could be participants who are allergic or sensitive to smells. In the classroom Participant C pretends to spray the cologne. His colleagues identify the cologne and remark that the remnants of the spray could fall into the food. Solution: do not wear perfume or colognes to work.



Activities

A food hazard can be anything that enters into the food whether visible, such as hair, or invisible, such as bacteria and pathogens. There are three different kinds of food hazards which include biological, chemical and physical.

- **Physical and biological:** Have participants think about possible items that could end up in the food by accident. Students can think about what could fall off their clothing or themselves (buttons, hair, jewelry, germs from sneezing or coughing).
- **Physical, biological, and chemical:** Using images in the appendix, have students separate the pictures into three groups based on the type of food hazard: physical, biological or chemical.
- **Biological:** Have students watch a [VIDEO](http://www.youtube.com/watch?v=zrx7Xg0gkQ4&feature=related) about the exponential growth of bacteria. This is a clear example of how bacteria in food can grow and become an invisible food hazard. The video is only 16 seconds long and shows how bacteria can multiply very quickly. Explain to students that the bacteria they are seeing is invisible to the eye, and that the video has used a microscope to enable us to see the bacteria.
 - Bacteria Multiplying:
<http://www.youtube.com/watch?v=zrx7Xg0gkQ4&feature=related>



Cross contamination

Common sources of food hazards

- contaminated raw food or packaging
- poor processing procedures
- improper storage or transport
- infected person
- cross contamination

Food safety helps protect us from:

- food borne illness
- food hazards:
 1. biological
 2. chemical
 3. physical
- **cross contamination**

Cross contamination occurs when pathogens spread from one place to another. Because pathogens are invisible, it is difficult to track the progression of cross contamination. To show how cross contamination can happen involve students in activities.

- Video: Hand Washing and Risk of Contamination: [CLICK HERE](#)
 - <http://www.youtube.com/watch?v=32x65e9zTYo&feature=related>
- Have students participate in a cross contamination activity using Glo Germ and a black light. Read about activity [HERE](#)
 - <http://tammy-andrew.suite101.com/how-hands-spread-germs-a139131>
- Using washable ink, have participants wear gloves and touch an ink pad and then touch paper. Explain to participants that the ink is like pathogens and can travel from one place to another on our hands, clothing, and from utensil to utensil.



Customer Protection

There are three levels of responsibility that food processors use to protect customers against food borne illness and food hazards; the employer, the employee, and the customer.

What is cross contamination?



Cross contamination happens when a microbe or allergen from one place gets into something else.

What is the result?



Both items are now contaminated.

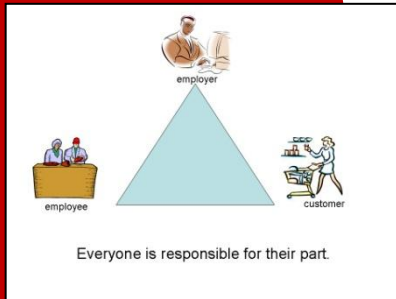
What do food processors do to protect customers?



Responsibility

Emphasize to participants that the three levels of responsibility include themselves as workers, their bosses, and the people that consume the final product.





Employer Responsibility

The employer is responsible to:

- Have a food safety plan
- Have a cleaning and sanitation plan
- Provide training
- Provide supervision
- Inspect the work place
- Provide first aid
- Provide personal protective equipment

Activity

Visuals can be used to show each of these:

Have on hand:

- Examples of food safety plans, cleaning and sanitation plans, examples of possible training (FoodSafe, WHMIS, First Aid), and personal protective equipment (safety goggles, smock, gloves and shoes).



Responsibilities of **employers**

- have a **food safety plan**
- have a cleaning and **sanitation plan**
- provide written instructions
- provide training
- provide supervision
- inspect the workplace
- provide first aid
- provide personal protective equipment (PPE)

Written Instructions

Written instructions are also called **Standard Operating Procedures (SOPs)**

Examples of **SOPs**

- Food Safety Plan
- Sanitation Plan

Employer Responsibility

The employer is responsible in having:

- Have a food safety plan
- Have a cleaning and sanitation plan
- Provide training
- Provide supervision
- Inspect the work place
- Provide first aid
- Provide personal protective equipment

Active Learning

Sanitation Standard Operating Procedures describe how to clean and sanitize equipment. Bring in copies of plans and practice going through the plan and checking off each task when completed.



Responsibilities of **employees**

- practice safe food handling (FoodSafe)
- follow instructions carefully (SOPs)
- work safely
- use the personal protective equipment (PPE) like hairnets, gloves and goggles

Active Learning

If leading a general workshop, have students practice putting on protective equipment prior to making a sandwich for a friend. If leading a custom class for a specific workplace, ask the employer for examples of each piece of protective gear that workers will be expected to wear and have the participant practice wearing them while working in the kitchen.

Employee Responsibility

The employee is responsible for:

- Practicing safe food handling
- Working safely
- Using the personal protective equipment
- Telling the employer about a potential or existing hazard, accident, or injury
- You must refuse to do a task where you are at undue risk of injury or disease
 - Undue risk – great danger
- If you see a hazard
- If you see an accident
- If you get hurt
- If you feel sick



As an employee:

- you must **tell your employer** if you see a safety hazard, accident or injury
- you must refuse to do a task where you are at **risk** of injury or disease

Important

Emphasize to participants that it is their responsibility to notify their employers about an unsafe work environment or task. If a worker feels that they cannot do the job safely, they should be encouraged to ask for more training.

You must tell your employer

- if you see a safety hazard
- if you see an accident
- if you get hurt
- if you feel sick



Responsibility

Emphasize to participants that the three levels of responsibility include themselves as workers, their bosses, and the people that consume the final product.



Responsibilities of customers



- report food problems or any illness or injury to the store
- check food labels for ingredients

Customer Responsibility

Why do customers need to check the food ingredients?

- Many people have food allergies and could have an allergic reaction if they eat certain foods. A customer is ultimately responsible for knowing what they are eating.

Why do customers need to check the food ingredients?



Customers check for foods they know will make them sick.



Allergens like milk, eggs, nuts and shellfish may cause an allergic reaction.



An awareness of allergens

Many companies offer nut free or dairy free food products. Bring in a variety of different packaging to provide an awareness of different kinds of allergens. Have a discussion on the importance of labeling all food products and listing what kind of allergens may have come in contact with during production.

Food safety helps protect us from:

- food borne illness
- food hazards:
 1. biological
 2. chemical
 3. physical
- cross contamination



References

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