Student Manual – acanadianfoodhandler.ca

Welcome to **acanadianfoodhandler.ca** — your trusted source for obtaining your Alberta Food Handler Certification Online. This manual will walk you through how the course works, what each lesson covers, and what's expected of you as a student.

How the Course Works

Our course is designed to be clear, accessible, and effective for learners of all backgrounds. To complete the course successfully, you must follow these three steps for **each lesson**:

1. **Watch the Video Lessons**
2. **Review the Written Notes** (a summary of the video's key points)
3. **Take the Practice Quiz** to test your understanding

You **must complete each quiz** before you can move on to the next lesson. Once all lessons and quizzes are completed, you'll unlock access to the **final exam**.

Take your time, revisit lessons as needed, and use the practice quizzes to reinforce your learning.

Food Handler Course Content

Legal Requirements in Alberta Food Safety

Food Safety Regulatory Framework & Operational Requirements for Alberta

Overview

This document outlines the regulatory environment, approval processes, and operational expectations for food establishments in Alberta, focusing on public health protection, licensing obligations, inspector authority, and compliance under the Alberta Food Regulation. It is written in support of my application to operate as a certified food handling training provider within the province.

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1. Federal, Provincial, and Regional Regulatory Bodies

Food safety oversight in Alberta is shared between levels of government, each with a defined role:

Federal (Government of Canada):
The Canadian Food Inspection Agency (CFIA) regulates food manufacturing, packaging, labelling, and interprovincial or international food trade. Federal jurisdiction applies particularly to processing facilities, export-intended products, and operations crossing provincial boundaries.

Provincial (Government of Alberta):
The Alberta Food Regulation, under the Alberta Public Health Act, forms the legislative foundation for food establishments operating within the province (AR 31/2006). The Alberta Food Retail and Foodservices Code provides additional direction for facility design, equipment standards, food handling practices, sanitation, and operational expectations.

Alberta Health Services – Environmental Public Health (AHS-EPH) reviews facility plans, approves construction layouts such as handwashing sink placement, issues permits, conducts inspections, and enforces provincial food safety regulations.
In addition to the Public Health Act and Food Regulation, food premises must also follow the Alberta Food Retail and Foodservices Code, which provides detailed standards for facility

design, equipment requirements, food handling practices, sanitation procedures, and operational expectations.

Regional / Municipal:
Environmental Public Health (AHS-EPH) plays a key role in ensuring that food premises are designed and constructed in a way that supports safe food handling practices. Before a food establishment opens or undergoes major renovation, AHS-EPH reviews facility design plans, construction details, and floor layouts to ensure they meet provincial food safety standards. This review focuses on elements such as handwashing sink placement, food preparation areas, equipment layout, ventilation, sanitation facilities, and overall workflow to prevent cross-contamination. This approval process is separate from municipal approvals, which typically relate to zoning, building occupancy, fire codes, and general construction permits. While municipalities determine whether a building may legally operate as a business space, AHS-EPH ensures that the facility is designed and operated in a way that protects public health and supports safe food service operations.

Together, these regulatory layers ensure safe food handling practices, consistent standards, and the protection of public health across Alberta.

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2. Role of the Public Health Inspector

Public health inspectors are the primary enforcement authority for food safety within Alberta. Their responsibilities include:

- Conducting routine and complaint-based inspections
- Verifying compliance with the Food Regulation and Foodservices Code
- Reviewing sanitation systems, temperature control, storage, equipment, and hygiene practices
- Assessing food handler training and certification within the establishment
- Requiring corrective actions where non-compliance is identified
- Ordering closure or suspension of operations when public health is at risk

Inspectors also review facility plans, approve equipment installations, and oversee new business openings, renovations, mobile food units, temporary events, and change-of-ownership applications. Their role is central to preventing foodborne illness and maintaining community safety.

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3. Agencies Responsible for Facility and Equipment Approvals

Before opening or modifying a food business in Alberta, approval may be required from several authorities:

Authority	Responsibility
Alberta Health Services (Environmental Public Health)	Facility approval, food handling permit, inspections, safety compliance, reviews and approves construction and floor plans (e.g, locations of: handwashing sinks, food preparation areas, dishwashing stations, ventilation, and sanitation facilities)
Municipal Government	Zoning, building permits, plumbing, ventilation, fire and construction code compliance
Federal Government (CFIA, where applicable)	Oversight of manufacturing, processing, interprovincial or export distribution

Food establishments must comply with all relevant regulatory bodies before operation may begin.

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4. Alberta's Food Regulation

The Alberta Food Regulation defines minimum operating standards for all food establishments within the province. Core expectations include:

- Safe facility design and construction
- Approved equipment, sanitary surfaces, and adequate ventilation
- Proper water supply, waste disposal, and pest control
- Temperature control for high-risk foods
- Prevention of cross-contamination and allergen exposure
- Adequate food handler training and certification
- Maintenance of sanitation schedules, cleanliness, and operational records

Compliance with the Regulation is mandatory. Violations can lead to enforcement actions, fines, operational suspension or closure.

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5. Establishing a Food Business in Alberta — Required Procedures

To legally operate a food establishment in Alberta, the following steps are generally required:

1. Confirm the business type and intended food service operation.
2. Ensure zoning and municipal bylaws allow the chosen location.
3. Prepare facility layout plans showing equipment, sinks, prep areas, waste systems, and storage.
4. Submit plans to Alberta Health Services and municipal authorities for review.
5. Complete required food handler training and certification for staff.
6. Apply for and obtain a Food Handling Permit from Alberta Health Services.
7. Pass a pre-opening inspection conducted by a public health inspector.
8. Post the permit visibly and comply with ongoing inspections.

Only after the permit is issued may food service operations begin.

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6. Change of Operator or Ownership

Food handling permits in Alberta are **not transferable**.
When ownership or management changes, the new operator must:

- Apply for a new food handling permit
- Meet all regulatory and safety standards
- Undergo review and inspection if required
- Ensure certified food handlers are employed on-site

Business operations may not continue legally under the previous owner's permit.

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7. Permits and Licensing Requirements

To operate a food establishment in Alberta, a valid **Food Handling Permit** issued by Alberta Health Services is required. Operators must:

- Maintain compliance with the Alberta Food Regulation
- Employ certified food handlers as required by law
- Renew permits when required and display them publicly
- Maintain continuous sanitation, record-keeping, and temperature control systems
- Submit to routine inspection and corrective oversight

Permits are only valid while regulatory standards remain in place and enforced within the establishment.

In Alberta, food safety is not just a best practice—it is the law. As a food handler, understanding your legal responsibilities and the role of public health authorities is essential for maintaining a safe food environment and protecting public health. This lesson outlines the key laws, regulations, and enforcement bodies that shape food safety in the province.

Important Note:

Food safety training can take different forms, but it is important to understand the difference between formal certification training and in-house workplace training. Formal food handler certification courses are structured programs that follow recognized provincial food safety standards and are designed to ensure food handlers understand key concepts such as contamination prevention, temperature control, sanitation, and personal hygiene. These courses are typically approved by public health authorities and provide an official certificate upon successful completion. In contrast, in-house training is training provided internally by an employer to introduce workplace procedures, equipment use, or specific operational practices. While in-house training is valuable for reinforcing daily procedures, it does not replace formal food safety certification. Recognized food handler certification ensures that all staff have a consistent foundation in food safety knowledge and understand their responsibilities in protecting public health.

Foodborne Illness (FBI)

Foodborne illness—commonly referred to as FBI—is one of the most serious risks associated with working in the food industry. It affects thousands of Canadians every year and is almost always preventable through safe food handling practices. In this lesson, you'll learn what causes foodborne illness, how it spreads, its impact, and how food handlers can respond effectively to complaints and outbreaks.

2.1 What is Foodborne Illness?

Foodborne illness (FBI) is a general term for any illness caused by eating contaminated food or beverages. Contaminants can include microorganisms (like bacteria or viruses), chemicals, or physical objects. When someone consumes food with harmful pathogens or substances, they may develop symptoms ranging from mild discomfort to life-threatening reactions.

2.2 Types of Contamination

There are three main types of contamination that can cause foodborne illness:

1. Microbial Contamination (Biological)

Microbial contamination is caused by harmful microorganisms such as bacteria, viruses, and parasites. It is the **most common cause** of foodborne illness.

Microbial contamination can occur in two ways:

Direct Contamination

This occurs when harmful microorganisms are transferred **directly to food** from an infected source.

Examples:

- Raw chicken juice dripping onto a ready-to-eat salad
- A sick food handler coughing or sneezing directly on uncovered food
- Using contaminated raw eggs in uncooked sauces or dressings

Indirect Contamination (Cross-Contamination)

This occurs when harmful microorganisms are transferred to food **through a surface, utensil, or another food**.

Examples:

- Cutting raw meat and then using the same knife to slice vegetables without washing it
- A contaminated cloth being used to wipe multiple food-contact surfaces
- Hands that handled raw poultry touching cooked food without washing in between

Both forms of microbial contamination are dangerous and must be prevented through proper hygiene, separation of raw and cooked foods, and thorough cleaning and sanitizing of equipment.

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2. Chemical Contamination

This happens when food comes into contact with harmful chemicals.

Examples:

- Cleaning agents accidentally sprayed near food
- Pesticide residues on unwashed produce
- Food allergens not properly disclosed (e.g., peanuts in a dish with no warning)

3. Physical Contamination

This occurs when foreign objects end up in food, either from the environment or equipment.

Examples:

- Pieces of broken glass or plastic
- Hair, fingernails, bandages
- Metal shavings from broken machinery

To better understand food safety practices, it is important to clearly define several key terms used throughout this course:

Non-hazardous (or low-risk) food refers to food that does not readily support the growth of harmful microorganisms. These foods typically have low moisture content, high acidity, or other characteristics that make bacterial growth difficult. Examples include dry goods such as flour, sugar, crackers, and certain baked products.

Perishable food refers to food that can spoil quickly if it is not stored under proper temperature control. These foods usually contain moisture and nutrients that allow bacteria to grow easily. Examples include meat, poultry, fish, dairy products, cooked foods, and cut fruits or vegetables.

Sterilizing is the process of destroying all microorganisms, including bacteria, viruses, and spores, through the use of extremely high heat or specialized processes. Sterilization goes beyond standard cleaning and sanitizing and is typically used in industrial food processing or specialized equipment environments.

2.3 The Impact of Foodborne Illness

Foodborne illness poses a serious threat to public health and business operations.

On Individuals:

- Causes illness and discomfort (vomiting, diarrhea, fever, cramps)
- Can lead to long-term health issues or even death
- **Vulnerable populations** such as young children, seniors, pregnant women, and people with weakened immune systems are at higher risk of severe complications

On Businesses:

- Loss of customer trust and reputation
- Legal consequences (fines, lawsuits)
- Inspections and possible closure
- Cost of recalling products and restocking
- Higher insurance premiums

On Society:

- Economic burden on the healthcare system
- Lost productivity due to worker illness

2.4 Statistics in Canada

Foodborne illness is more common than most people think. According to the **Public Health Agency of Canada**:

- An estimated **4 million Canadians** (1 in 8) experience foodborne illness each year.
- Thousands are hospitalized annually, and several deaths occur due to severe foodborne infections.
- The most common causes include *Norovirus*, *Clostridium perfringens*, *Campylobacter*, *Salmonella*, and *E. coli*.

These statistics highlight the **importance of prevention**, especially for those working directly with food.

2.5 Common Signs and Symptoms of FBI

Symptoms may appear within hours or days after consuming contaminated food, depending on the source and type of contamination.

Typical symptoms include:

- Nausea and vomiting
- Diarrhea (sometimes bloody)
- Abdominal cramps

- Fever
- Fatigue or dizziness
- Muscle aches

Severe symptoms—such as prolonged diarrhea, high fever, or dehydration—require medical attention.

2.6 Proper Procedure When a Foodborne Illness Complaint is Made

Food handlers and managers must treat every complaint seriously and act quickly to reduce risk and comply with legal obligations.

Steps to Follow:

1. **Notify the Manager Immediately**
    - Any staff who receive a complaint—either in person or by phone—must report it right away.
    - Include details like what food was eaten, when, and what symptoms were reported.
2. **Contact the Local Public Health Unit**
    - The manager or owner should notify the local health authority.
    - Public Health Inspectors may conduct an investigation or inspection.
3. **Document Everything**
    - Record the complainant's details (with consent), food items consumed, preparation details, and staff involved.
    - Keep this record on file—it may be requested by public health authorities.
4. **Cooperate Fully with Inspectors**
    - Provide any food samples, logs, or records requested.
    - Take corrective action as needed (e.g., discarding food, reviewing procedures).

2.7 Prevention is the Best Policy

While responding to foodborne illness complaints is essential, the best way to protect your customers and your workplace is by **preventing contamination in the first place**. You'll learn how to do that in the upcoming lessons, beginning with an in-depth look at how food becomes contaminated.

2.8 Summary

Foodborne illness is a major public health issue in Canada. As a food handler, you play a critical role in preventing it. By understanding the types of contamination, recognizing symptoms, and knowing how to respond to complaints, you help protect your customers, your co-workers, and your community

Food Contamination – Sources and Prevention

Food contamination is one of the most common causes of foodborne illness, and preventing it is one of the most important responsibilities of a food handler. Contamination can happen at any stage—from receiving to storage, preparation, serving, or even transportation. This lesson breaks down the different types of contamination, where they come from, and how they can be prevented. It also includes a detailed section on allergens and the importance of managing them safely.

When transporting food—such as catered meals or food prepared off-site—it is essential to maintain proper food safety controls throughout the entire transportation process. Food must be documented prior to leaving the preparation site, including details such as the food items being transported, preparation time, and the temperatures at which the food was stored or held. Upon arrival at the delivery location, temperatures should be checked again to ensure the food has remained outside of the temperature danger zone (between 4°C and 60°C). Transport vehicles used to carry food must be clean, well-maintained, and free from pests, chemicals, or other contaminants that could compromise food safety. Food should be transported in covered, food-grade containers and insulated equipment when necessary to maintain proper hot or cold

holding temperatures during transit. Proper documentation and temperature monitoring help ensure food remains safe for consumption from preparation through delivery.

3.1 Microbial Contamination

Sources:

Microbial contamination occurs when food is exposed to harmful microorganisms such as bacteria, viruses, parasites, and fungi. These microbes are invisible to the eye but can multiply rapidly under the right conditions.

Common sources include:

- Raw meat, poultry, and seafood
- Unwashed produce
- Contaminated water
- Dirty hands or improper handwashing
- Unsanitized equipment or surfaces
- Cross-contamination between raw and cooked foods

Prevention Methods:

- Proper hand hygiene: Wash hands thoroughly and frequently.
- Use separate cutting boards and utensils for raw and cooked foods.
- Clean and sanitize surfaces, tools, and equipment after each use.
- Cook foods to the correct internal temperature to kill pathogens.
- Store foods at safe temperatures to slow bacterial growth (refrigerated below 4°C and hot-held above 60°C).

3.2 Chemical Contamination

Sources:

Chemical contamination occurs when food comes into contact with harmful substances not intended for consumption. This can lead to foodborne illness or toxic reactions.

Common sources include:

- Cleaning products such as bleach or degreasers
- Pesticides on fruits and vegetables
- Improperly stored sanitizers
- Food additives or preservatives used incorrectly
- Heavy metals from corroded equipment

Prevention Methods:

- Store chemicals separately from food and food-contact surfaces.
- Label all chemical containers clearly and follow usage instructions.
- Never use food containers to store cleaning agents.
- Wash produce thoroughly to remove pesticide residues.
- Use only food-safe equipment and utensils made of non-toxic materials.

3.3 Physical Contamination

Sources:

Physical contamination happens when foreign objects accidentally find their way into food. These can pose serious health risks including injury, choking, or infection.

Common sources include:

- Jewelry, hair, fingernails
- Broken glass, plastic, or metal from equipment
- Packaging materials like staples or plastic wrap
- Tools or utensils in poor condition

Prevention Methods:

- Wear hair restraints (e.g., hairnets or hats).

- Remove all jewelry before food handling.
- Inspect equipment regularly for damage or wear.
- Avoid using chipped plates, cracked containers, or broken tools.
- Use protective coverings for food during storage and service.

3.4 Allergen Contamination

What Are Food Allergens?

Food allergens are specific proteins found in certain foods that can trigger severe immune reactions in sensitive individuals. Unlike other forms of contamination, allergens are not harmful to most people—but for those who are allergic, even a trace amount can cause a life-threatening reaction.

List of Common Allergens in Canada:

According to the Canadian Food Inspection Agency (CFIA), the most common allergens are:

- Peanuts
- Tree nuts (e.g., almonds, walnuts, cashews)
- Eggs
- Milk
- Wheat
- Soy
- Sesame
- Seafood (fish, crustaceans, shellfish)
- Sulphites (a food additive often found in dried fruit, wine, and processed foods)
- Mustard

Preventing Allergen Contamination

Preventing cross-contact with allergens is critical in any food service setting.

Prevention methods include:

- Use separate equipment (knives, cutting boards, pans) for allergen-containing and allergen-free foods.
- Clean and sanitize surfaces and tools between uses.
- Wash hands thoroughly before and after handling allergenic ingredients.
- Label all foods clearly, especially in buffet or cafeteria settings.
- Train staff to understand allergen risks and proper handling procedures.

Examples:

- If a person with a peanut allergy orders a sandwich, ensure it is prepared on a clean surface with clean gloves and utensils that haven't come into contact with peanuts.
- Don't reuse oil that was used to fry battered shrimp for cooking French fries served to someone with a shellfish allergy.

Importance of Allergy Information

Food businesses have a legal and ethical responsibility to inform customers about allergens present in their food. This includes:

- Clearly displaying allergen information on menus, packaging, and signage
- Ensuring staff can answer questions about ingredients and preparation methods
- Taking special orders and allergy warnings seriously

Even a small mistake can have severe consequences. Proper allergen management protects not only your customers, but your reputation and legal standing.

Symptoms of an Allergic Reaction

Allergic reactions can occur quickly and range from mild to life-threatening.

Common symptoms:

- Itching or swelling of lips, face, tongue, or throat
- Hives or rash
- Difficulty breathing or wheezing
- Nausea, vomiting, or abdominal pain
- Dizziness or fainting
- Anaphylaxis — a severe reaction that can cause shock, low blood pressure, and death if not treated immediately

Anyone showing signs of a severe allergic reaction should receive emergency medical attention immediately.

CFIA Product Recalls and Contamination Site

The Canadian Food Inspection Agency (CFIA) is responsible for monitoring food safety across Canada. When contaminated or improperly labeled products are identified, the CFIA may issue a product recall to protect the public.

Important facts:

- Recalls may be due to microbial, chemical, physical, or allergen contamination.
- All food handlers should stay updated on recalls to ensure no affected products are served.
- The official CFIA recall list is published online and updated regularly.

Visit:
https://recalls-rappels.canada.ca/en

Businesses should check this site frequently and have procedures in place to identify, remove, and document any recalled products in their inventory.

3.5 Summary

Contamination can happen in many forms—biological, chemical, physical, and allergenic. Preventing contamination is one of the most important duties of a food

handler. By understanding how it occurs and following proper procedures, you help protect your customers and uphold the highest standards of food safety.

Basic Microbiology and Factors Affecting Microbial Growth

Microorganisms are living organisms too small to be seen without a microscope, but they play a massive role in food safety. Some are helpful, but others can cause food to spoil or make people sick. In this lesson, you will explore the different types of microorganisms, understand how they grow, and learn what conditions allow them to multiply rapidly. This knowledge is essential for any food handler and is the foundation of all safe food handling practices.

4.1 What Are Microorganisms?

A **microorganism** (or microbe) is a microscopic living organism. These include bacteria, viruses, parasites, fungi, and protozoa. Some microorganisms are harmless or even helpful—for example, the bacteria used in making yogurt. However, others are **pathogenic**, meaning they can cause disease in humans if they contaminate food.

Pathogenic vs. Non-Pathogenic Microorganisms

- **Pathogenic microorganisms** are harmful and capable of causing illness or infection. These are the main concerns in food safety.
- **Non-pathogenic microorganisms** are typically harmless and often naturally present in our environment or even in our bodies.

Food safety is focused on **preventing the growth and spread of pathogenic microorganisms** in food environments.

4.2 Types of Microorganisms

Bacteria

Single-celled organisms that can multiply rapidly under the right conditions. Some bacteria cause foodborne illnesses, while others are used in food production.

Examples:

- *Salmonella* – Found in undercooked poultry or eggs
- *E. coli* – Found in undercooked ground beef or contaminated produce
- *Listeria monocytogenes* – Can grow in cold environments and found in deli meats and soft cheeses

Viruses

Viruses are smaller than bacteria and require a living host to multiply. They do not grow in food, but they can survive on food or surfaces and infect people when the food is eaten.

Examples:

- *Norovirus* – Highly contagious and often linked to poor hand hygiene
- *Hepatitis A* – Spread through contaminated food or water, or infected food handlers

Parasites

These are organisms that live in or on a host and rely on it for survival. They are less common in Canada but still present.

Examples:

- *Trichinella* – Found in undercooked pork or wild game
- *Toxoplasma gondii* – Can be found in raw or undercooked meat

Protozoa

A type of parasite that can live in water and cause serious illness if ingested.

Examples:

- *Giardia* – Found in contaminated water
- *Cryptosporidium* – Also waterborne, resistant to some disinfectants

Fungi

Fungi include yeasts and moulds. While some fungi are useful (e.g., in bread or cheese making), others can spoil food and produce harmful toxins.

Examples:

- Mould growing on bread or fruit
- Yeast spoiling fruit juices or jams

4.3 Sources of Microorganisms

Microorganisms can be found nearly everywhere. They are naturally present in the environment, and contamination can happen at any point in the food chain.

Common sources include:

- **Food** (especially raw meat, eggs, dairy, and produce)
- **Water** (especially untreated or contaminated water)
- **Humans** (on hands, skin, respiratory droplets)
- **Animals** (including insects and rodents)
- **The environment** (soil, dust, air, surfaces, and equipment)

4.4 Spore-Forming Bacteria

Some bacteria can survive extreme conditions by forming **spores**—a protective coating that allows them to remain dormant until conditions are right for growth.

Definition:

Spore-forming bacteria are bacteria that can produce a tough outer shell, called a spore, to protect themselves from heat, chemicals, and drying out.

Why They’re Dangerous:

- Spores can survive cooking and disinfecting
- Once the environment becomes favorable (e.g., warm and moist), spores can become active and multiply
- Some spore-forming bacteria produce toxins that can lead to serious illness

Example: *Clostridium botulinum* can produce deadly toxins in improperly canned or preserved foods.

4.5 Food-Borne Intoxication

When a person becomes ill after consuming toxins (poisons) that were produced by bacteria in food, this is called **food-borne intoxication**.

Causes:

- Toxins produced by bacteria (e.g., *Staphylococcus aureus*, *Clostridium botulinum*)
- Improper storage or handling that allows bacteria to grow and release toxins

Symptoms:

- Nausea, vomiting, diarrhea
- Neurological symptoms in severe cases (e.g., with *botulism*)

Cooking may kill bacteria, but it **does not destroy toxins**, which is why prevention is so important.

4.6 Carriers of Microorganisms

A **carrier** is a person who harbors and spreads pathogens without showing symptoms themselves.

Food handlers can unknowingly spread harmful microorganisms to food if:

- They fail to wash their hands after using the washroom
- They touch contaminated surfaces and then handle food
- They are recovering from an illness but are still contagious

This is why **good personal hygiene and reporting illness** are essential in food premises.

4.7 Time, Temperature, and the Danger Zone

Microorganisms grow rapidly in certain temperature ranges. This is known as the **Danger Zone**.

The Danger Zone

- Between **4°C and 60°C (40°F and 140°F)**
- Bacteria can double every 20 minutes in this range

In Alberta, temperature standards for cooking and reheating potentially hazardous foods follow the requirements outlined in the **Alberta Food Retail and Foodservices Code**. To ensure harmful microorganisms are destroyed, all potentially hazardous foods must be cooked or

reheated to an internal temperature of **at least 74°C**. This temperature serves as the provincial safety baseline and applies broadly to foods such as meat, poultry, seafood, egg dishes, and other high-risk foods. Using a calibrated food thermometer to verify that this internal temperature has been reached is essential for preventing foodborne illness and ensuring compliance with Alberta's food safety regulations.

Freezing Doesn't Kill Bacteria

Freezing slows down or stops bacterial growth but **does not kill** most pathogens. Once thawed, the bacteria can become active again.

Control Measures:

- Keep cold foods at **4°C or lower**
- Keep hot foods at **60°C or higher**
- Avoid leaving food at room temperature for more than 2 hours

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4.8 Factors Affecting Microbial Growth

Microbial growth depends on several environmental factors. Controlling these helps reduce the risk of contamination.

Nutrients/Protein

- Microorganisms need nutrients to grow—especially water and protein
- Foods rich in protein and moisture are more likely to support bacterial growth
  Examples: meat, poultry, dairy, eggs, cooked rice, pasta

pH (Acidity and Alkalinity)

- **pH scale** ranges from 0 (acidic) to 14 (alkaline), with 7 being neutral
- Most bacteria prefer a **neutral to slightly acidic environment (pH 4.5–7)**
- Foods with a low pH (like vinegar or citrus) inhibit bacterial growth

Water Activity (aw)

- Measures how much **free water** is available for microbes
- Bacteria need moisture to grow
- **Moist foods** (e.g., cooked meat, cheese, cut fruit) are more likely to support microbial growth

- Dry foods (e.g., flour, dried pasta) are safer but can become hazardous when moistened

Oxygen

- Some bacteria need oxygen (**aerobic**)
- Others grow without it (**anaerobic**)

Example:
Clostridium botulinum is **anaerobic** and grows in oxygen-free environments like improperly sealed canned goods. It can produce deadly toxins and is one of the reasons canning must be done correctly.

4.9 Potentially Hazardous Foods

Definition:
Foods that support the rapid growth of harmful microorganisms are called **potentially hazardous foods**.

Examples include:

- Moist foods
- Milk and dairy products
- Fish and seafood
- Meat and poultry
- Eggs
- Cooked vegetables
- Some raw vegetables and fruits (e.g., cut melons, tomatoes)

These foods require **time and temperature control** to keep them safe. They should be stored, cooked, and held at proper temperatures, and never left in the danger zone.

4.10 Summary

Understanding microorganisms and the conditions they need to grow is essential for preventing foodborne illness. By controlling time, temperature, moisture, pH, and cross-contamination, food handlers can stop harmful pathogens from multiplying and protect public health.

Food Safety Management System – HACCP

Maintaining food safety in a commercial kitchen or food service environment requires more than just good habits—it requires a **structured, proactive system** that identifies and controls risks before they lead to illness. One of the most widely used systems for managing food safety is called **HACCP**, which stands for **Hazard Analysis Critical Control Point**.

This lesson will introduce you to the HACCP system, define key concepts, explain its core principles, and highlight its importance in preventing foodborne illness.

5.1 What is HACCP?

HACCP (Hazard Analysis Critical Control Point) is a food safety management system that identifies, evaluates, and controls hazards that may pose a risk to food safety.

Originally developed by NASA in the 1960s to ensure safe food for astronauts, HACCP is now used worldwide in food production, processing, and service. It is **preventative**, meaning it focuses on stopping hazards before they cause harm, rather than reacting after problems occur.

5.2 What is a Critical Control Point (CCP)?

A **Critical Control Point (CCP)** is a specific step in the food handling process where a control can be applied to prevent, eliminate, or reduce a food safety hazard to an acceptable level.

Examples of CCPs include:

- Cooking chicken to the correct internal temperature to kill bacteria
- Keeping cold foods at 4°C or below to prevent microbial growth
- Cooling cooked foods within a safe timeframe to avoid bacterial toxin production

Not every step in food handling is a CCP—only the ones where a **critical intervention** is required to ensure food safety.

5.3 The 7 Principles of HACCP

A successful HACCP plan is based on **seven core principles**. These principles provide a systematic approach for identifying hazards and preventing them from compromising food safety.

1. Conduct a Hazard Analysis

Identify all potential hazards that could occur at each step of the food handling process. These can be:

- **Biological hazards** (e.g., bacteria, viruses)
- **Chemical hazards** (e.g., cleaning agents, allergens)
- **Physical hazards** (e.g., glass, metal, hair)

The goal is to understand where things could go wrong so steps can be taken to prevent them.

2. Identify Critical Control Points (CCPs)

Determine which steps are CCPs—specific moments where control is essential to eliminate or reduce a hazard. These are points where action **must** be taken.

3. Establish Critical Limits

Set clear, measurable safety standards that must be met at each CCP. These limits can include:

- Minimum internal cooking temperatures (e.g., poultry must reach 74°C)
- Timeframes for cooling food safely (e.g., from 60°C to 20°C in 2 hours)
- Proper sanitizer concentrations

If a limit is not met, the food may not be safe and must not be served.

4. Monitor the CCPs

Establish procedures to **regularly monitor** each CCP. Monitoring ensures that the critical limits are consistently being followed.

Examples:

- Using thermometers to check cooking or holding temperatures
- Testing sanitizer levels with test strips
- Logging refrigerator temperatures at set intervals

5. Establish Corrective Actions

If a critical limit is not met, immediate steps must be taken to correct the issue. These are known as **corrective actions**.

Examples:

- Re-cooking food that didn't reach the proper temperature
- Discarding food that was held too long in the danger zone
- Retraining staff who did not follow procedure

Corrective actions should also be documented.

6. Verify the System Works

Regularly verify that your HACCP plan is effective. This may include:

- Internal audits
- Food safety inspections
- Reviewing temperature logs and procedures
- Checking calibration of equipment

Verification ensures that your system is working and that your team is following it properly.

7. Keep Records and Documentation

Record keeping is a core part of HACCP. It provides evidence that safety measures were followed and helps track issues if something goes wrong.

Important records include:

- Cooking and cooling temperature logs
- Cleaning and sanitizing checklists
- Supplier delivery checks
- Corrective actions taken
- Internal or external audit reports

5.4 Benefits of Implementing a HACCP Plan

A strong HACCP plan is beneficial for everyone—from food handlers to customers to the business itself.

Key benefits:

- **Prevents foodborne illness** by identifying and controlling hazards before they cause harm
- **Protects the reputation** of the food business
- **Improves food quality** through consistent handling and processing standards

- **Demonstrates due diligence** to public health inspectors and regulators
- **Provides traceability and accountability** through documentation

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Record Keeping and Retention

In the event of a foodborne illness complaint, product recall, or public health inspection, **well-maintained records** are essential. They show that food safety standards were followed and can help identify what went wrong, when, and how to fix it.

Records should be:

- **Accurate and complete**
- **Dated and signed** by the person responsible
- **Stored safely** and accessible to supervisors and inspectors
- **Retained for a reasonable period**, depending on legal and regulatory requirements

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5.5 Summary

The HACCP system is a practical, effective approach to managing food safety. By focusing on prevention and control, food handlers can stop hazards before they affect consumers. Whether you work in a restaurant, food truck, or production facility, understanding HACCP principles and applying them in daily practice is essential for ensuring safe, high-quality food.

Time and Temperature Controls for Potentially Hazardous Foods

Time and temperature control is one of the most important pillars of food safety. Most foodborne illnesses are caused by improper cooking, cooling, reheating, or storage of food—especially food that supports the rapid growth of harmful bacteria. These foods are called **potentially hazardous foods**, and they must be handled with extreme care at every stage.

This lesson will guide you through how to properly monitor and control time and temperature using thermometers, storage equipment, cooking methods, and best practices for thawing, holding, cooling, and reheating food.

6.1 Thermometers: Types, Use, and Calibration

Types of Thermometers

Several types of thermometers are used in food premises to measure internal temperatures of food and storage equipment. Common types include:

- **Probe or digital stem thermometers** – Ideal for measuring internal temperatures of cooked foods
- **Infrared (laser) thermometers** – Useful for surface temperatures but do **not** measure internal food temps
- **Dial (bimetallic) thermometers** – Traditional option, but less precise and must be calibrated more often
- **Refrigerator/freezer thermometers** – Used to monitor ambient storage temperatures

Proper Use of Thermometers

- Always **insert the probe into the thickest part** of the food, away from bone or fat, to get an accurate reading
- Allow the thermometer to stabilize before recording the temperature
- Take multiple readings for large batches or unevenly cooked food
- Keep a thermometer **readily available** in every area where food is cooked, held, or stored

Cleaning and Sanitizing Thermometers

Thermometers can transfer bacteria from one food item to another if not cleaned properly. To prevent cross-contamination:

- **Clean and sanitize** the probe before and after each use
- Use alcohol wipes or food-grade sanitizer solution
- Never reuse a dirty thermometer without cleaning

Calibrating Thermometers

Thermometers must be calibrated regularly to ensure they give accurate readings. There are two main methods:

1. Ice Water Method

- Fill a glass with crushed ice and water
- Insert the thermometer so it's fully submerged

- It should read **0°C (32°F)**. If not, adjust if possible or note the difference.

2. Boiling Water Method

- Boil clean water in a pot
- Insert the thermometer without touching the sides or bottom
- It should read **100°C (212°F)** at sea level
- Adjust or replace the thermometer if it's off

6.2 Freezing and Thawing

Freezing

- Frozen food should always be kept solid at or below **-18°C (0°F)**
- Store items in freezer-safe, sealed packaging to prevent freezer burn and contamination
- **Do not refreeze food** once it has thawed unless it has been **cooked first**

Thawing Safely

Improper thawing can allow bacteria to grow in the outer layers while the inside remains frozen.

Safe thawing methods include:

- **In the refrigerator** at **4°C or lower** (slowest but safest)
- **Under cold running water** (in sealed packaging)
- **In a microwave**, but only if the food is **cooked immediately** after thawing

Never thaw food at room temperature, as this leaves food in the **Danger Zone**—the temperature range in which bacteria multiply rapidly.

6.3 Refrigeration

Cold food must be stored at or below **4°C (40°F)** to slow microbial growth.

- Use dedicated refrigerators with built-in thermometers
- Check and log temperatures at least **twice daily**
- Avoid overcrowding, which can block airflow and cause uneven cooling
- Store raw food **below** cooked or ready-to-eat items to avoid cross-contamination

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6.4 Cooking: Safe Internal Temperatures

To ensure harmful bacteria are killed, **all potentially hazardous foods must be cooked to the correct internal temperature** and held there for at least **15 seconds**.

Recommended Minimum Internal Temperatures:

- In Alberta, temperature standards for cooking and reheating potentially hazardous foods follow the requirements outlined in the **Alberta Food Retail and Foodservices Code**. To ensure harmful microorganisms are destroyed, all potentially hazardous foods must be cooked or reheated to an internal temperature of **at least 74°C**. This temperature serves as the provincial safety baseline and applies broadly to foods such as meat, poultry, seafood, egg dishes, and other high-risk foods. Using a calibrated food thermometer to verify that this internal temperature has been reached is essential for preventing foodborne illness and ensuring compliance with Alberta's food safety regulations.

Always use a **clean thermometer** to verify internal cooking temperature.

6.5 Hot Holding

After food has been cooked, it may be held hot before serving. To prevent bacterial growth:

- Maintain hot food at **60°C (140°F) or higher**
- Use heated equipment such as **steam tables, hot holding cabinets, or warming trays**
- Check temperature frequently with a thermometer and **log your readings**

6.6 Cold Holding

Cold food must be held at **4°C (40°F) or lower**.

- Use chilled serving stations or refrigerated display units
- Monitor with a thermometer and log temperatures regularly
- Do not place food directly on ice unless the ice is continuously replenished and covers the entire food surface

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6.7 Cooling Cooked Foods

Improper cooling is a leading cause of foodborne illness. Bacteria thrive when hot food is left to cool slowly at room temperature.

Cooling Requirements:

- Cool food from **60°C (140°F) to 20°C (68°F) within 2 hours**
- Then cool from **20°C (68°F) to 4°C (40°F) or lower within 4 hours**

Total cooling time must not exceed 6 hours.

Effective Cooling Methods:

- **Ice wands** or paddles inserted into hot food to rapidly lower temperature
- **Ice bath**: Place the container in a sink or bin filled with ice water
- **Shallow containers**: Allow food to cool faster due to increased surface area
- **Add ice** directly into soups or sauces if it won't affect quality
- **Divide large portions** into smaller batches

6.8 Reheating Food Safely

Reheating is not the same as cooking. Food must be reheated **quickly and thoroughly** to ensure it's safe to serve.

- Reheat food to an internal temperature that is **at least as high as the original recommended cooking temperature**
- For example, poultry must be reheated to at least **74°C (165°F)**
- Reheating must occur **within 2 hours**
- Always use a thermometer to confirm the proper internal temperature is reached

Inappropriate Reheating Methods:

These methods do **not** reheat food quickly or thoroughly enough and should **never** be used:

- Holding ovens
- Steam tables
- Soup urns

These are for **holding**, not reheating.

6.9 Summary

Controlling time and temperature is essential to preventing the growth of harmful bacteria in food. Using thermometers correctly, following proper thawing and cooling methods, and maintaining safe cooking and holding temperatures are all critical responsibilities of every food handler. Mastering these practices protects your customers—and your business—from foodborne illness.

Displaying, Serving, and Discarding Food

Food display and serving areas—such as buffets, salad bars, cafeterias, and self-service counters—present unique food safety challenges. These areas often involve large volumes of food, high customer traffic, and prolonged holding times. This lesson covers how to safely display and serve food while minimizing contamination risks, and explains why proper disposal of old or potentially unsafe food is essential.

7.1 Food Display Controls

Displaying food, whether hot or cold, requires active monitoring to ensure it remains safe to eat. Food left in the **Temperature Danger Zone**—between **4°C and 60°C**—can support the rapid growth of bacteria and cause foodborne illness.

Use of Thermometers

- Use **probe thermometers** to check and record food temperatures regularly
- Hot food should be maintained at **60°C or higher**
- Cold food should be maintained at **4°C or lower**
- Display units such as **steam tables, heat lamps, and refrigerated cases** should be monitored often, especially during service hours

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7.2 Preventative Measures to Avoid Contamination

Food at self-serve stations or displays can become contaminated in several ways—through contact with dirty utensils, customers, airborne particles, or improper handling. To prevent this:

- Use **sneeze guards** or food shields to protect food from respiratory droplets

- Provide **clean serving utensils** for each dish (e.g., separate tongs for salad toppings)
- Replace **utensils regularly** and do not allow them to fall into the food
- Ensure that **staff monitor the area** and intervene if cross-contamination occurs
- Display small batches and **refill as needed** to reduce exposure time

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7.3 Discarding Old Food

It's not enough to just top up food trays—**old food must always be discarded** before adding fresh items.

Why This Is Important:

- Mixing old and new food can spread bacteria that has already started to grow
- Food sitting in the Danger Zone for extended periods may contain **unsafe levels of pathogens**, even if it looks fine
- Proper rotation maintains freshness and protects public health

Rule of thumb:
When in doubt, throw it out. If you can't confirm how long food has been displayed, it should not be reused or served.

7.4 Food Serving and Dispensing Techniques

Safe food handling doesn't stop once the food is cooked. How it is served and dispensed plays a critical role in keeping it safe.

Sanitary Serving Practices

- Use **gloves or utensils**, not bare hands, when handling ready-to-eat foods
- Staff must **wash hands frequently**, especially before switching tasks or after handling waste
- Avoid **touching plate surfaces, glass rims, or cutlery** where customers will eat or drink
- Refill **single-use condiments and utensils** using sanitary methods

Examples of safe serving practices:

- Using tongs to serve bread instead of touching with hands
- Handing customers cups and lids by the base or edge, not the drinking surface
- Placing cutlery on napkins rather than directly on the table

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7.5 Disposal of Old Food and Single-Use Items

Old Food:

Any food that:

- Has been sitting out too long
- Was improperly held (in or near the Danger Zone)
- Has visible signs of spoilage
- Was touched by customers or used utensils

Must be discarded.

Single-Use Items:

Items such as napkins, straws, paper cups, disposable cutlery, or individual condiment packets are designed for one-time use only.

They must be thrown away after use and should never be reused or redistributed.

Examples of improper practices to avoid:

- Putting back unused ketchup packets left on tables
- Reusing a customer's paper coffee cup to "top up" their drink
- Rinsing and reusing plastic cutlery

7.6 Cleaning and Linen Procedures

Cleanliness of the service area is not just a matter of appearance—it directly affects food safety.

Sanitizing Surfaces

- Use a **clean, damp cloth or paper towel** soaked in a food-grade sanitizer to wipe down tables, counters, and food trays
- Do not use dry cloths or "spot wiping" as this can spread bacteria

Table Linens

- **Linens must be changed between each customer** or group

- Even if the linen appears clean, it may have been contaminated by contact with hands, dishes, or clothing
- Soiled linens should be placed in a separate bin for laundering and not left in the food service area

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7.7 Summary

Safe food display, service, and disposal are essential to maintaining a hygienic and trustworthy food service operation. Monitoring temperatures, preventing cross-contamination, discarding expired items, and practicing proper sanitation procedures all play vital roles in protecting your customers.

Facility and Equipment

The cleanliness, design, and maintenance of your facility and equipment are foundational to a safe food environment. Poorly maintained buildings or equipment can lead to pest infestations, contamination, and unsafe food handling conditions. In this lesson, you'll learn the key principles of facility sanitation, pest control, and the proper selection and maintenance of food equipment.

8.1 Facility Cleanliness and Condition

A food premise must always be **clean, in good repair**, and **free from pests**. This includes all areas, not just food prep spaces—such as storage rooms, staff washrooms, delivery docks, and garbage disposal zones.

Requirements:

- Surfaces must be **smooth, non-absorbent, and easy to clean**
- Walls and floors should be **free of cracks or holes** where dirt or pests can collect
- Ceilings must be clean and in good repair—no flaking paint, water damage, or hanging debris
- Lighting must be adequate, with **shatterproof covers** on bulbs to prevent glass contamination

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8.2 Pest Identification and Control

Pests in a food environment are not just a nuisance—they're a major health hazard. They carry bacteria and viruses and can contaminate surfaces, equipment, and food.

Common Pests in Food Premises:

- **Cockroaches:** Often found in dark, warm, moist places like under sinks or behind appliances. They carry bacteria such as Salmonella.
- **Flies:** Attracted to food and garbage. Known to spread disease-causing bacteria.
- **Rats and Mice:** Leave droppings, chew food packaging, and carry dangerous pathogens.

Signs of Infestation:

- Droppings
- Gnawed packaging or wiring
- Nesting materials (shredded paper, insulation)
- Strange odors
- Live or dead pests
- Grease marks or smudge trails along walls

Prevention and Control Measures:

- **Seal all entry points**—gaps under doors, cracks in walls, loose windows
- **Store food in sealed, pest-proof containers**
- Keep floors, shelves, and bins **clean and free of crumbs or spills**
- **Dispose of garbage regularly** in closed, pest-resistant bins
- Work with a licensed **pest control service** for regular inspections and treatment if needed

A pest-free environment is required by law, and food premises can be fined or closed if infestations are found.

8.3 Waste Disposal

Proper waste management reduces the risk of contamination and discourages pests.

Best Practices for Waste Disposal:

- Keep **garbage containers covered** and away from food prep areas
- **Empty bins regularly** and never allow them to overflow
- **Clean and sanitize** waste bins frequently
- Ensure **outdoor dumpsters** are tightly closed and located on a cleanable, graded surface
- Separate **recyclables, compostables, and general waste** according to municipal regulations

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8.4 Equipment Design and Construction

All equipment used in food preparation must be:

- **Made of materials that are durable, non-toxic, and corrosion-resistant**
- Designed to be **easily cleaned and sanitized**
- Installed in a way that allows access to all sides for cleaning and maintenance

Examples of Acceptable Equipment Materials:

- Stainless steel (non-corrosive and smooth)
- Food-grade plastic
- Ceramic or glass (when not chipped or cracked)

Avoid using wood, soft plastics, or absorbent surfaces in food contact areas unless they are specifically approved.

8.5 Equipment Maintenance and Operation

To ensure equipment functions safely and effectively:

- Perform **routine maintenance** on all kitchen equipment, including refrigerators, ovens, and dishwashers
- **Repair or remove** any broken or malfunctioning items
- Ensure refrigeration units maintain proper temperatures and have **working thermometers**
- All equipment must be used according to the **manufacturer's instructions**
- **Smallwares** (cutting boards, knives, utensils) must be kept in good condition and replaced when worn or damaged

Single-service items such as disposable plates, cups, cutlery, straws, napkins, and food packaging must be handled and stored in a manner that prevents contamination. These items

should be kept in clean, dry storage areas and protected from dust, pests, and moisture until they are used. Single-service dishware is designed for **one-time use only** and must never be washed or reused. Proper waste management is also essential in maintaining a safe food environment. Solid waste such as food scraps and packaging should be placed in durable, covered containers and removed from food preparation areas regularly to prevent odors, pest attraction, and contamination. Liquid waste must be disposed of through approved drainage systems and should never be allowed to accumulate in food preparation areas. Waste containers should be emptied frequently, cleaned, and sanitized to maintain sanitary conditions within the food premises.

Even high-quality equipment can become a safety hazard if not cleaned and maintained regularly.

8.6 Summary

A clean, well-maintained facility and proper equipment are key to preventing contamination, pest problems, and foodborne illness. Every food handler is responsible for maintaining a safe and sanitary environment, from kitchen layout to waste disposal.

Lesson 9: Receiving and Storage

Proper receiving and storage practices are essential for maintaining food quality and safety from the moment it enters a food premises. This lesson focuses on how to inspect and accept food deliveries, store them safely, and organize stock in a way that prevents contamination, spoilage, and waste.

9.1 Receiving Food Deliveries

The first step in safe food handling begins when ingredients and products are delivered to your premises. Accepting spoiled, damaged, or improperly stored food puts customers at risk and can lead to fines or closures.

Inspect Incoming Goods

When a delivery arrives, a trained staff member should inspect each item carefully before it's accepted.

What to check:

- **Condition:** Look for spoilage, mold, damage, dents, leaks, broken seals, or foul smells.
- **Packaging:** Make sure it is intact, sealed, and free of signs of tampering.
- **Labeling:** Confirm product names, best-before dates, and allergen information are clearly visible.
- **Source:** Accept only from **approved, reputable suppliers** that follow food safety protocols.

Check Storage Temperatures

- **Refrigerated foods** must be delivered at **4°C or lower**
- **Frozen foods** must be delivered **solid at -18°C or lower**
- Use a **probe thermometer** to verify the temperature of items like dairy, meats, and seafood
- If food arrives at unsafe temperatures, **do not accept it**

Rejecting Unsafe Deliveries

Do **not accept**:

- Spoiled or expired food
- Products with broken or dirty packaging
- Any food transported at unsafe temperatures
- Items without proper documentation or labeling

Clearly document any rejected products and inform the supplier.

Record Keeping

Keep detailed **receiving logs** that include:

- Date and time of delivery
- Supplier name
- Product details
- Temperature at time of delivery

- Name of the person inspecting
- Notes about any issues or rejections

Maintaining these records is essential in case of a recall or foodborne illness investigation.

9.2 Storage Requirements

Once food has been safely received, it must be stored properly to prevent contamination and spoilage. Different types of food require specific storage conditions.

Types of Storage Areas:

- **Room Temperature Storage:** For canned goods, dry ingredients, and shelf-stable items. Must be clean, dry, well-ventilated, and protected from pests.
- **Refrigerated Storage:** For perishable foods such as meat, dairy, eggs, and some fruits and vegetables. Must be kept at or below **4°C**.
- **Frozen Storage:** For long-term storage of meats, prepared foods, and certain ingredients. Freezers must maintain **-18°C** or lower.
- **Non-Food Storage:** Separate storage must be used for cleaning supplies, chemicals, and equipment to prevent contamination.

Adequate Space and Airflow

Overcrowding in fridges or freezers can block airflow and lead to uneven temperatures.

- Ensure your facility has **enough cold storage space** to meet your needs
- Allow air to circulate by **not overpacking shelves**

All prepared foods must be stored in food-grade containers that are specifically designed for food storage and safe for contact with food. Food-grade containers are made from materials that do not release harmful chemicals, absorb odors, or contaminate the food they hold. These containers must be durable, non-toxic, and capable of being properly cleaned and sanitized between uses. Using approved food-grade containers helps prevent chemical contamination and ensures that food remains safe during storage, refrigeration, freezing, and transport.

Storage Best Practices

- Store all food and food-related equipment **at least 15 cm (6 inches) off the floor** using shelves, racks, or pallets. This prevents contamination and allows for easy cleaning.
- Keep food **covered and sealed** when not in use.
- Do not store food near cleaning products, garbage, or chemicals.

9.3 Organizing Stock for Food Safety

A well-organized storage area improves efficiency and reduces the risk of contamination or spoilage.

Proper Organization:

- Keep **raw foods separated** from cooked and ready-to-eat foods
- Store raw meats **on the bottom shelves** to prevent drips onto other foods
- Use clear **labeling** for all containers and shelves
- Place items with **allergens in dedicated sections** to avoid cross-contact

Temperature Monitoring

All cold storage units must have an **accurate, visible thermometer** to ensure food is being stored at the correct temperature.

- Check and record temperatures at least **twice daily**
- Take immediate action if temperatures are outside the safe range

Labeling and Dating

Every container of food should be:

- Clearly labeled with the **product name**
- Dated with the **date received or opened**
- Checked regularly for expiration or “best before” dates

Proper labeling ensures traceability and helps reduce food waste.

9.4 Stock Rotation

Poor stock rotation can lead to waste, spoilage, and increased food safety risks.

Avoid Overstocking

Only order what you can store and use safely. Overstocked shelves make it harder to:

- Monitor expiry dates
- Spot signs of contamination
- Maintain proper airflow in cold storage

The FIFO Principle (First In, First Out)

FIFO is a method of stock rotation where the **oldest stock is used first**.

How to use FIFO:

- When new stock arrives, place it **behind older stock**
- Always use the **oldest item first**
- Regularly check for expired or near-expired products and remove them

Using FIFO prevents waste and ensures food is always used while still safe and fresh.

9.5 Summary

Receiving and storing food properly is essential for preventing contamination and maintaining safe inventory. By inspecting deliveries, following cold storage guidelines, organizing stock with care, and applying the FIFO system, you can ensure the food you serve is safe from the moment it arrives at your door.

Cleaning and Sanitization

Cleanliness is one of the most critical aspects of food safety. No matter how high the quality of the food you serve, contamination from dirty equipment, surfaces, or utensils can result in foodborne illness. Cleaning and sanitizing are not optional—they are legal and health requirements in every food establishment.

This lesson will explain the difference between cleaning and sanitizing, outline proper procedures, and detail how to wash equipment and utensils both manually and with mechanical dishwashers.

10.1 Definitions: Cleaning vs. Sanitizing

- **Cleaning** is the process of **removing food debris, grease, dirt, and other visible residue** from surfaces, equipment, or utensils. Cleaning is done using water, detergent, and scrubbing action.

- **Sanitizing** is the process of **reducing the number of harmful microorganisms** (bacteria, viruses, etc.) on a clean surface to safe levels using heat or chemical solutions. **Sanitizing must always follow cleaning**.

10.2 Why Cleaning and Sanitizing Matter

Proper cleaning and sanitizing are essential because they:

- **Control and minimize microbial contamination**
- Prevent the spread of **foodborne illness**
- Protect your customers and your business
- Ensure compliance with public health regulations

The Proper Procedure:

Every cleaning process should follow these three basic steps:

1. **Wash** using hot water and detergent to remove visible food and grease.
2. **Rinse** thoroughly to remove detergent and loosened particles.
3. **Sanitize** using hot water or an approved chemical sanitizer to destroy bacteria.

10.3 Cleaning Frequency

Cleaning must be done **often enough to prevent the buildup of food residue, grease, and bacteria**. As a general rule:

- **Surfaces and equipment** must be cleaned after each use or at least every four hours during continuous use
- **Food-contact surfaces** (like cutting boards, knives, and slicers) must be cleaned and sanitized between handling different types of food (e.g., raw meat and ready-to-eat items)
- **Non-food contact areas** (floors, walls, garbage bins) should be cleaned daily or as needed

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10.4 General Dishwashing Practices

Regardless of how you wash dishes—manually or with a machine—the steps remain the same.

Steps:

1. **Scrape and pre-soak** to remove large food particles.
2. **Wash** in hot water and detergent.
3. **Rinse** with clean, hot water to remove detergent.
4. **Sanitize** with either heat or an approved chemical.
5. **Air dry**—never towel-dry, as towels can spread bacteria.

Cloths and Towels:

- Cloths used for cleaning must be:
    - **Clean and in good condition**
    - **Used only for one purpose** (e.g., wiping tables only)
    - **Washed and sanitized** regularly

10.5 Manual Dishwashing

Manual dishwashing is common in smaller food service establishments and must follow a clear and effective process to ensure all dishes and utensils are cleaned and sanitized properly. Whether your setup includes **three sinks** or only **two**, the goal remains the same: remove food residue and kill harmful microorganisms.

Three-Sink Method

This is the most thorough and preferred method for manual dishwashing. Each sink has a dedicated purpose:

1. **Wash** – In hot water (at least 43°C/110°F) with a suitable detergent. Scrub items to remove all visible debris and grease.
2. **Rinse** – In clean, warm water to remove all soap and loosened food particles.
3. **Sanitize** – In either:
    - **Hot water** at **77°C (170°F)** for at least **45 seconds**, or
    - A **chemical sanitizer** at the correct concentration and a minimum of **24°C (75°F)** for **at least 45 seconds**

Approved sanitizer concentrations:

- **Chlorine:** 100 ppm
- **Quaternary ammonium (QUAT):** 200 ppm
- **Iodine:** 25 ppm

Use **test strips** to verify chemical concentration and a **thermometer** to confirm temperatures. All sanitizers must be used according to the **manufacturer's instructions** and approved by **Health Canada** or the **CFIA**.

Two-Sink Method

In food premises with only two sinks available, the following method may be used with approval from local public health authorities:

1. **Wash and Rinse (Combined):**
    - Use the first sink to **wash** items using hot water (minimum 43°C/110°F) and detergent.
    - Rinse using clean running water (this may be done in the same sink with careful procedure to ensure soap is removed).
2. **Sanitize:**
    - Submerge items in a sanitizer solution (as per approved chemical concentrations) or use hot water at 77°C (170°F) for at least 45 seconds.
    - Always verify sanitizer concentration with test strips.

Air Drying (for Both Methods)

- After sanitizing, place items on **clean, corrosion-resistant racks** to **air dry completely**
- **Never towel-dry**, as towels can reintroduce bacteria

10.6 Mechanical Dishwashing

Mechanical dishwashers can sanitize using **either heat or chemical solutions**. Each type has its own requirements:

Types of Dishwashers:

- **Hot Water Sanitizing Dishwasher**
- **Chemical Sanitizer Dishwasher**

Required Wash and Rinse Temperatures:

- **Wash cycle** must be between **60°C (140°F) and 71°C (160°F)**
- **Sanitizing rinse (hot water units):**

    - Must reach a **minimum of 82°C (180°F)** for at least **10 seconds**
- **Sanitizing rinse (chemical units):**
    - Chlorine: 100 ppm
    - QUAT: 200 ppm
    - Iodine: 25 ppm
    - Must be held at **24°C (75°F) or higher** for **at least 45 seconds**

Note: NSF-certified dishwashers for commercial use are pre-validated and may not require temperature monitoring for each cycle—but must still be **regularly inspected and maintained**.

Proper Use and Maintenance

- **Do not overcrowd** the machine—items must be placed so that water and sanitizer can reach all surfaces
- **Position items correctly** (e.g., cups face down, utensils separated)
- **Inspect, clean, and maintain** the dishwasher daily according to manufacturer instructions

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10.7 Summary

Cleaning and sanitizing are critical processes in every food premises. Whether washing dishes manually or by machine, food handlers must follow the correct steps to remove food residue and eliminate harmful microorganisms. Proper methods protect public health and ensure legal compliance.

Personal Hygiene

Maintaining high standards of personal hygiene is one of the most effective ways to prevent the spread of foodborne illness in any food establishment. Every person who handles food must understand that they play a key role in food safety—not only by how they prepare and store food but by how they care for their own cleanliness and health.

11.1 Hand Hygiene

Proper handwashing is the **single most effective way to prevent the spread of harmful bacteria and viruses** in the food environment. Hands can easily become contaminated and then transfer pathogens to food, surfaces, and other people.

When to Wash Hands:

Food handlers must wash their hands:

- Before starting any food preparation
- After using the washroom
- After handling raw meat, poultry, or seafood
- After sneezing, coughing, or blowing their nose
- After touching the garbage or cleaning chemicals
- After eating, drinking, or smoking
- After handling money
- After handling dirty dishes or touching their face, body, or hair

Use Designated Sinks:

Handwashing must be done in a **dedicated handwashing sink**, not in food prep or dishwashing sinks. These sinks must:

- Be easily accessible
- Be stocked with soap, warm water, and single-use paper towels or a hand dryer
- Have clear signage indicating their purpose

Proper Handwashing Procedure:

1. Wet hands with warm water
2. Apply liquid soap
3. Lather and scrub for **at least 20 seconds**, including backs of hands, between fingers, and under nails
4. Rinse thoroughly under running water
5. Dry hands with a paper towel or air dryer
6. Use a paper towel to turn off the faucet if not automatic

11.2 Personal Practices

Proper hygiene includes not just handwashing but maintaining **overall cleanliness and appropriate behaviour** while working with food.

Glove Use:

- Gloves must be used **in addition to**, not instead of, handwashing
- Hands must be washed **before putting on gloves** and **after removing them**
- Gloves must be **changed frequently**, especially after handling raw meat or switching tasks
- Food handlers with **cuts, wounds, or open sores** must cover them with a bandage and wear a glove over the injured hand

Hair Restraints:

Hair can carry bacteria and easily fall into food. Food handlers must:

- **Tie back long hair**
- Wear **hairnets, hats, or other restraints** as required
- Ensure facial hair is neatly groomed or covered with a beard net if necessary

Avoid Contamination-Causing Activities:

- Do not touch your face, mouth, or hair while working with food
- Avoid eating, chewing gum, or smoking in food preparation areas
- Refrain from wearing jewelry (especially rings and bracelets) that can trap bacteria or fall into food

Clothing:

- Wear **clean uniforms or aprons**
- Change clothes if they become contaminated
- Keep **personal items (phones, keys, wallets)** away from food preparation areas

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11.3 Employee Illness

Working while sick is one of the fastest ways to cause a foodborne outbreak. Pathogens from an infected worker can easily contaminate food and spread illness to customers and coworkers.

How Illness Spreads:

- **Directly**: Through sneezing, coughing, or touching food with unwashed hands
- **Indirectly**: By contaminating surfaces, utensils, or other workers

Symptoms of Concern:

- Diarrhea
- Vomiting
- Fever
- Sore throat with fever
- Jaundice (yellowing of the skin or eyes)
- Open sores, infected wounds, or persistent coughing

Procedure if Sick:

1. **Inform a supervisor or manager immediately**
2. **Do not continue working in food preparation areas**
3. **Do not return to work** until **at least 24 hours after symptoms stop**

In some cases, public health authorities may require medical clearance or testing before a sick employee is allowed to return to work.

11.4 Summary

Good personal hygiene protects not only the individual but also customers, coworkers, and the business itself. Food handlers must be trained, equipped, and expected to follow proper hygiene practices every day.

Practice Quizzes

After each lesson, you'll complete a **practice quiz**. These quizzes are based on the material covered in the video and written summary. You can retake each quiz as many times as needed until you're confident with the material.

Remember: **You must complete each quiz** to unlock the next lesson. Your progress is automatically saved, so you can log out and return whenever you're ready to continue.

Final Exam

Once you've completed all the lessons and quizzes, you'll gain access to the **final exam**. This is the last step toward earning your Food Handler Certificate.

Important Exam Rules:

- **You must use the same name** that you used to register for and complete the course. This name will be verified against your **government-issued photo ID** when issuing your certificate.
- No open books, notes, or outside help
- Do not speak aloud during the exam
- Do not leave or refresh your browser while the exam is in progress

You will have **three (3) attempts** to pass the final exam. If you do not pass within those three tries, you'll need to restart the course from the beginning.

Having Trouble Accessing the Exam?

If you experience issues logging into or starting the final exam:

1. Make sure **all other browser tabs are closed**, including tabs not related to the course.
2. If the problem persists, **wait 3 minutes** after closing all tabs (except the exam tab), then try again.
3. Still having trouble? Please contact us right away:
    - **Live Chat:** Available on our website
    - **Email:** info@acanadianfoodhandler.ca

After successfully passing the final exam, students will receive an email with their certificate.

We want your exam experience to go smoothly — don't hesitate to reach out if you need help.

Tips for Success

- Pay close attention to every video lesson — they contain everything you need to know
- Use the written summaries to reinforce your understanding
- Take your time on each quiz, and don’t be afraid to retake it until you’re confident
- Don’t rush to the final exam — make sure you’re fully prepared
- If you're unsure about anything, reach out for help

Need Help?

We’re here to support you every step of the way:

- **Live Chat:** Available on our website for quick questions
- **Email:** Contact us at **info@acanadianfoodhandler.ca** for any inquiries

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We’re glad to have you here and wish you the best of luck with your training and certification. Food safety starts with you — let’s get started!