



Food Safety

TRAINING & CERTIFICATION
PROGRAM COURSE MANUAL
& HOME STUDY GUIDE



Environmental Help Line
1-888-777-9613
durham.ca



Table of Contents

Chapter 1 - Introduction

- What is Food Handler Certification? 1
 - Why is it relevant to you? 1
- Role of the Health Department 1
- Public Health Legislation..... 1
- Tickets & Information under the Provincial Offences Act 2
- HACCP & Inspections..... 2
- Consequences of Foodborne Illness..... 4

Chapter 2 - Foodborne Illness

- Microorganisms..... 8
 - Bacteria..... 8
 - Viruses..... 10
 - Parasites..... 10
 - Yeasts, Mould, Fungi..... 11
- Chemicals & Allergens..... 11
 - Metals..... 11
 - Poisonous Chemicals 11
 - Poisonous Plants 11
 - Poisonous Animals 11
 - Intentional Additives..... 11
 - Unintentional Additives..... 12

Chapter 3 - Personal Hygiene 14

- Preventing Food Contamination From the Body..... 14
- Handwashing..... 16

Chapter 4 - Safe Food Sources and Food Storage..... 18

- Safe Food Sources..... 18
 - Water 18
 - Dairy 19
 - Meat..... 19
 - Poultry..... 19
 - Fish..... 19
 - Eggs 19
 - Canned Food..... 20
- Safe Food Storage..... 20
 - Food Storage..... 20
 - Stock Rotation..... 21
 - Temperature..... 21
 - Food Containers..... 22
 - Packaging..... 22
 - Transferring Food..... 22

Table of Contents

Chapter 5 - Temperature.....	24
• Delivery of Food Products.....	25
• Thawing.....	26
• Cooking Temperatures.....	26
• Food Preparation.....	28
• Taking Accurate Temperatures.....	28
• Hot Holding.....	29
• Cooling.....	29
• Cold Holding.....	30
• Freezing.....	30
• Sushi.....	30
• Reheating.....	30
• Summary of Time/Temperature Practices.....	31
Chapter 6 - Cross-Contamination and Sanitation.....	33
• Cross-Contamination.....	33
➤ Hands.....	33
➤ Food.....	33
➤ Equipment.....	34
• Preventing Cross-Contamination.....	35
• Cleaning and Sanitizing.....	35
➤ Approved Sanitizers.....	36
➤ Manual Dishwashing.....	36
➤ Wash In Place for Large Equipment and Surfaces.....	37
➤ Wiping Cloths.....	38
➤ Mechanical Dishwashing.....	38
Chapter 7 - Food Premises Sanitation.....	40
• Food Premises Sanitation.....	40
➤ Floors, Ceilings and Walls.....	40
➤ Sanitary Facilities.....	40
➤ Garbage.....	40
➤ Lighting.....	40
➤ Ventilation.....	41
➤ Dry Storage.....	41
• Pest Control	41
• Live Animals in a Food Premise.....	42
Chapter 8 - DineSafe Durham	44
• Food Safety Inspection Disclosure Program.....	44
Glossary of Terms.....	46

Chapter 1 - Introduction

At the end of this chapter you should know the following:

*What is Food Handler Training
Legislation that governs food premises
Regulation of food premises
Responsibilities of a food premise operator or food handler
Hazard Analysis Critical Control Point (HACCP)
Consequences of foodborne illness*

What is Food Handler Certification?

Food handler certification includes completing an educational program that has been developed for food handlers to increase their awareness of safe food handling practices. It requires studying the food handler training manual, either as a home study or in a class setting, and then writing a multiple choice exam.

Once the food handler certification exam has been completed successfully, a certificate is issued to the food handler. This certificate is valid throughout Ontario.

Why is it relevant to you?

- Food premise operators prefer to hire certified food handlers.
- Becoming certified helps you to learn how to reduce and eliminate the risk of foodborne illness.
- The food handler training manual provides insight as to what areas of food safety are monitored.
- The program incorporates HACCP concepts which are integral to the food service industry.
- Operators of a food premise are responsible for maintaining and operating the food premises according to the regulations.
- Employees in a food premise must comply with the standards and requirements prescribed in the regulations.

Role of the Health Department

The rules governing food premises are developed by the Ministry of Health and Long- Term Care (MOHLTC) and passed into law by the Province of Ontario. In Durham Region, the Health Department is responsible for enforcement of these laws.

Public Health Legislation:

Health Protection and Promotion Act

The *Health Protection and Promotion Act* is the main piece of legislation that contains the laws in Ontario that oversee public health matters. Enacted in 1985, The *Health Protection and Promotion Act* provides the mandate to make regulations, programs and protocols which govern food premises. public health inspectors use this legislation to confirm compliance with regulations made under the Act.

Ontario Regulation 562

Regulations made under this Act include the *Food Premises Regulation, R.R.O. 1990, Regulation 562, as amended ("Food Premises Regulation")*. The *Food Premises Regulation* governs the preparation and sale of food to the public and applies to all persons that **own** and **operate** food establishments. It is a provincial law that is administered by public health inspectors. public health inspectors educate, enforce and promote food safety under the *Food Premises Regulation*.

Small Drinking Water Systems Regulation 318/319

The *Small Drinking Water Systems Regulation 318/319* addresses drinking water systems within specific food premises. public health inspectors conduct risk assessments, issue Directives and follow-up with compliance of the Regulations.

The *Health Protection and Promotion Act* also defines the powers of public health inspectors. These powers include:

- the Power of Entry
- the Power of Seizure
- the Power to issue Orders (closure orders, etc.)

Power of Entry

Public health inspectors may enter any place of business during normal work hours, without a warrant, for the purposes of carrying out the Act. This would include **inspections**, or the **investigation of complaints or health hazards**.

A health hazard is any condition of a premise, or a substance, thing, plant or animal other than man, or a solid, liquid, gas or combination of any of them, that has or is likely to have an adverse effect on the health of any person.

Health Protection and Promotion Act

Power of Seizure

Public Health Inspectors may seize anything suspected of being a health hazard for laboratory testing or destruction. These items may include suspect food, equipment or other items.

Power to Issue Orders

Orders may be either verbal or written and are issued to eliminate a health hazard.

Tickets & Information/Summons under the Provincial Offences Act

Public health inspectors may also issue **Tickets** or **Provincial Offence Notices** under the *Provincial Offences Act* for violations that are observed on a repeat basis when the owner/operator has not complied with the Regulation. Tickets carry a set fine amount which does not exceed \$500.

A summons requires the owner/operator to appear in court rather than pay a set fine. A trial will proceed and a Justice of the Peace will determine the outcome. A conviction under Part I summons carries a maximum fine of \$1000 per day for each day the offence occurs for an individual, and for a corporation. A conviction under Part III summons carries a maximum fine of \$5,000 per day for each day the offence occurs for an individual, and \$25 000 per day for each day the offence occurs for a corporation.

HACCP & Inspections

The HACCP program is used to evaluate food handling standards. It is also used as an educational tool to facilitate food audits so that food handlers will be able to conduct self-inspections and reduce the risk of foodborne illness.

HACCP is an inspection system that identifies critical control points (CCPs) during the storage, preparation, and service of hazardous foods (any food that is capable of supporting the growth of disease-causing organisms or the production of toxins of such organisms). A CCP is a point, step, or procedure in a food handling process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level. A food safety hazard is any biological, chemical, or physical property that may cause a food to be unsafe for human consumption. CCPs can be grouped as follows:

1. Proper time/temperature procedures
2. Good personal hygiene
3. Cross-contamination prevention
4. Cleaning & sanitizing
5. Safe food supplies

Two examples of CCPs include:

1. Proper hand washing when handling food because dirty hands can contaminate food.
2. Properly washing and sanitizing a cutting board or knife after preparing raw chicken to prevent cross-contamination of ready-to-eat foods.

The HACCP system consists of seven principles:

Principle 1: Conduct a hazard analysis. Determine the food safety hazards and identify the preventative measures that can apply to control these hazards.

Principle 2: Identify critical control points.

Principle 3: Establish critical limits for each critical control point. A critical limit is the maximum or minimum value to which a physical, biological, or chemical hazard must be controlled at a critical control point to prevent, eliminate, or reduce the hazard to an acceptable level.

Principle 4: Establish critical control point monitoring requirements. Monitoring activities are necessary to ensure that the process is under control at each critical control point.

Principle 5: Establish corrective actions. These are actions to be taken when monitoring indicates a deviation from an established critical limit. The final rule requires a HACCP plan to identify the corrective actions to be taken if a critical limit is not met. Corrective actions are intended to ensure that no food injurious to health or otherwise adulterated as a result of the deviation is served to the public.

Principle 6: Establish record keeping procedures. The HACCP plan requires food premises to document its hazard analysis and records documenting the monitoring of critical control points, critical limits, verification activities, and the handling of processing deviations.

Principle 7: Establish procedures for ensuring the HACCP system is working as intended. Food premises should ensure that their HACCP plan is working and they are successful in ensuring the production of safe food.

Food premises are required to be inspected regularly in accordance with the standards set out by the MOHLTC.

The Ten Most Important Contributory Factors in Foodborne Illness

1. **Improper Cooling:**
Leaving cooked foods at room temperature
Storing foods in large containers in the refrigerator
2. **Lapse of 12 hours or more between preparation and eating**
3. **Colonized/infected persons handling foods**
4. **Inadequate reheating**
5. **Improper hot holding**
6. **Contaminated raw foods/ingredients**
7. **Food from unsafe source**
8. **Improper cleaning of equipment and utensils**
9. **Cross-contamination from raw to cooked foods**
10. **Inadequate cooking**

SOURCE: Bryan, Frank L 1990. Hazard Analysis Critical Control Point (HACCP) Systems for Retail Food & Restaurant Operation. Journal of Environmental Health 53 (11). p978



Ranking of Food Identified as being Associated with Foodborne Illness

Rank	Food Items (1 = highest risk, 10 = lowest risk)
1	Poultry (e.g. raw and cooked chicken & turkey, gravy)
2	Beef & veal (e.g. raw and cooked beef & veal, gravy, ground meat dishes)
3	Pork & ham (e.g. raw & cooked pork & ham, gravy, ground meat dishes)
4	Fish & seafood (shellfish)
5	Mixed salads (e.g. eggs, potatoes, tuna, etc.)
6	Rice Dishes
7	Dairy products (excluding pasteurized fluid milk & ice cream)
8	Cream pastries, pudding and cream pie filling
9	Ice cream, non-cream pastries, canned goods
10	Dried foods (e.g. cereal products)

When dealing with food safety issues, more attention will be given to poultry (#1 ranking) than with dried food e.g. cereal products (#10 ranking).

The Ten Most Riskiest Foods Regulated by the FDA As Reported by the Center for Science in the Public Interest

As identified in the last chart, foods with high protein and water content are the most common sources of foodborne pathogens. But what are the riskiest foods in today's supermarkets? You might be in for a surprise...

Food Item	Pathogens Associated With Food Item
1. Leafy greens	- <i>E. coli</i> O157:H7, Norovirus, <i>Salmonella</i>
2. Shell eggs	- <i>Salmonella</i>
3. Tuna	-Scombrotoxin, Norovirus, <i>Salmonella</i>
4. Oysters	-Norovirus, <i>Vibrio</i>
5. Potatoes	- <i>Salmonella</i> , <i>E. coli</i> , <i>Shigella</i> , <i>Listeria</i>
6. Cheese	- <i>Salmonella</i> , <i>Listeria</i>
7. Ice cream	- <i>Salmonella</i> , <i>Staphylococcus</i> , <i>Listeria</i>
8. Tomatoes	- <i>Salmonella</i> , Norovirus
9. Sprouts	- <i>Salmonella</i> , <i>E. coli</i>
10. Berries	-Hepatitis A, Cyclospora

Consequences of Foodborne Illness

Several studies have shown that foodborne illness outbreaks are costly. In Ontario, millions of dollars a year are expended to diagnose and treat foodborne illnesses. Practicing safe food handling can prevent foodborne illnesses. Pathogens that may be present in the food must be destroyed and new pathogens must not be allowed to enter the food products.



	EXPLANATION	EXAMPLES	INCUBATION PERIOD	USUAL SOURCES
Bacterial Infection	The bacteria causes illness	Campylobacter Salmonella Shigella Yersinia	1-10 days 6-72 hours 12-96 hours 3-7 days	raw milk, poultry, raw meats, water, humans humans, poultry, raw meats, water humans, water animals, humans, water
Bacterial Intoxication	Poison (toxin) produced by bacteria causes illness	Bacillus cereus Staphylococcus aureus Botulism (Clostridium botulinum)	1-24 hours 1-8 hours 12 hours-8 days	soil, rice humans, animals soil, animals
Infection/toxin producing bacteria (Toxicoinfection)	Both the bacteria and the poison (toxin) it produces causes illness	Clostridium perfringens Escherichia coli (E. coli) O157:H7	8-22 hours 2-10 days	humans, animals, soil humans, animals
Viruses	Virus causes illness	Norovirus Hepatitis A Rotavirus	24-48 hours 15-50 days 1-4 days	humans humans, water, shellfish humans

	EXPLANATION	EXAMPLES	INCUBATION PERIOD	USUAL SOURCES
Parasites	Microscopic animals that cause illness	Giardia lamblia Trichinosis Anisakiasis	3-25 days 7-30 days A few hours to a few weeks	humans, animals, water pork, bear, wild boar raw fish
Protozoa (protozoa are single celled parasites)	Protozoa cause illness	Dysentery	10 hours to 7 days	humans, water
Intentional Additives	Chemical causes illness	nitrites, sulfites monosodium glutamates (MSG)	1-2 hours minutes to 1 hour	food preservatives MSG flavour enhancer
Poisonous Plants	Chemical in food causes illness	solanine poisoning mushroom poisoning	30 minutes to 2 hours 30 minutes to 2 hours	green potato skins wild mushroom Amanita muscaria
Poisonous Animals	Chemical in food causes illness	diarrhetic shellfish poisoning paralytic/neurologic shellfish poisoning	½ - 12 hours a few minutes to 30 minutes	shellfish shellfish (mussels, clams)

Study Questions & Notes

1. What does HACCP stand for?

2. What is a Critical Control Point (CCP)?

3. What is an example of a CCP?

**4. What regulation is enforced by Public Health Inspectors?
Is it from provincial or federal legislation?**

5. What is the definition of a health hazard?

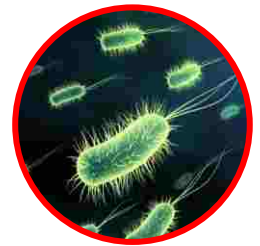
Chapter 2 - Foodborne Illness

At the end of this chapter you should know the following:

*The terms microorganisms, pathogen, foodborne illness and toxin
The difference between an infection and intoxication
The conditions needed for germs to survive and grow
The definitions for food allergy, anaphylaxis, and food intolerance
The emergency procedure for an allergic reaction*

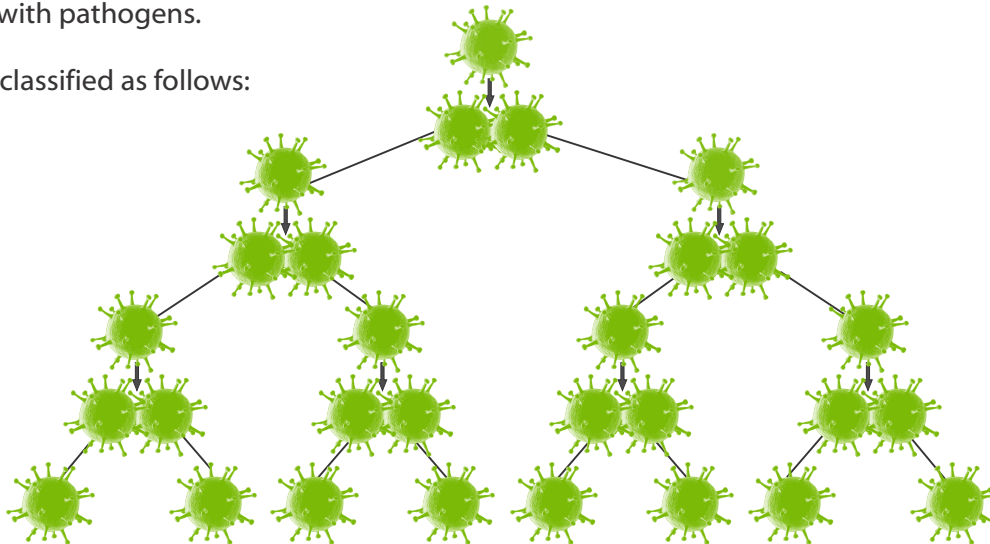
Microorganisms

Some microorganisms are so small that they cannot be seen by the naked eye, they can only be seen with a microscope. Viruses, bacteria, fungi, protozoa and parasites are all microorganisms. They can be found naturally in the environment (air, soil, water), on the inside and outside of our bodies, on plants, animals, insects, and also in food.



Pathogens, or pathogenic microorganisms, are microorganisms that cause illness or disease. Pathogenic microorganisms do not affect the flavour, colour, texture, or odour of foods. Very young children, the elderly and immuno-compromised individuals are at higher risk of becoming ill after eating food or water contaminated with pathogens.

Pathogens are classified as follows:



Bacteria: Bacteria are single-celled organisms that divide approximately every 20 minutes under ideal conditions. They are one of the most common and dangerous causes of foodborne illness. Pathogenic bacteria are most commonly found in foods of animal origin (e.g. salmonella in raw chicken) or can be introduced into food by food handlers (e.g. poor hygiene). They cause infection, intoxication, or toxicoinfection.

- a) Infection-producing bacteria include *Campylobacter*, *Salmonella* and *Listeria*. Foods contaminated with these pathogens make people ill when ingested. The amount of pathogens it takes to make a person ill depends on the type of pathogen and an individual's immune status. In addition, the type and amount of pathogens will determine the time it takes for symptoms to appear. Symptoms include diarrhea, fever and sometimes vomiting.

Example: A food handler is cooking barbecue chicken. He does not cook the chicken to the proper temperature and he serves it to his customers. The customers later become sick because the chicken was contaminated with *Campylobacter*.

- b) Intoxication is caused by toxin-producing bacteria such as *Staphylococcus aureus* (found in the nose and throat of 70% of humans, and in infected cuts, pimples and boils) and *Bacillus cereus* (found in foods grown in soil, such as rice and grains). If allowed to multiply in food, these pathogens will produce toxins that make people ill. Some toxins are heat resistant and can survive normal cooking temperatures. Symptoms start with vomiting and stomach cramps and may be followed by diarrhea.

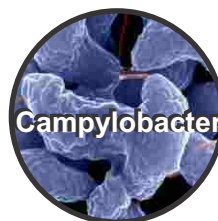
Example: A food handler covers their mouth with their hand as they sneeze, so as not to contaminate the egg salad being prepared. Then they remove their gloves and put on a new pair without washing their hands, allowing the new pair to become contaminated. They continue preparing the egg salad and it is then left out at room temperature for a few hours, allowing the bacteria to multiply and produce toxin. The egg salad, containing toxins produced by *Staphylococcus aureus*, is then served for lunch, making people ill.

- c) Toxicoinfection is caused by infection/toxin-producing bacteria such as *Escherichia coli* O157:H7 (E. coli) and *Clostridium perfringens*. They cause illness when they are ingested as they produce toxins while multiplying in the body.

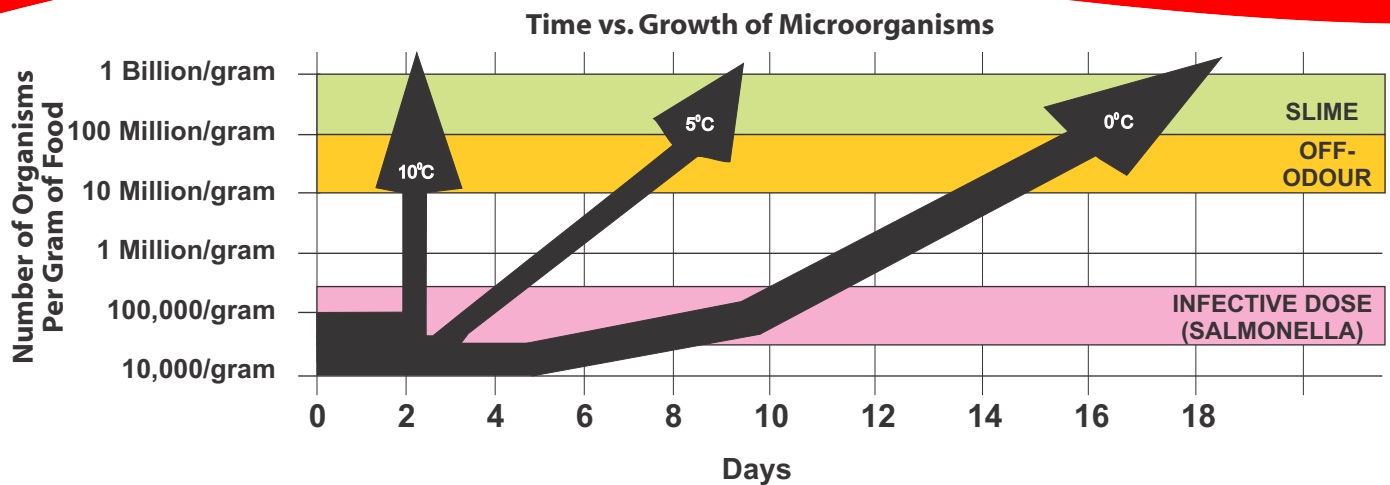
Example: A food handler washes vegetables with untreated well water. The water is contaminated with E. coli. The vegetables are used to make a salad, which is then served. Customers who ate the contaminated salad become ill.

Food can contain enough bacteria to make you ill (infective dose) long before there is any sign of spoilage. Toxins produced by certain bacteria are colourless, odourless, tasteless, and do not change the texture of foods.

Number of Microorganisms Needed to Cause Illness



Example	Salmonella	Campylobacter	Norovirus
Healthy Adult	100,000	100	1 to 2
Persons at Risk Very Young Very Old Sick	100	1 to 10	1
Objective	0	0	0

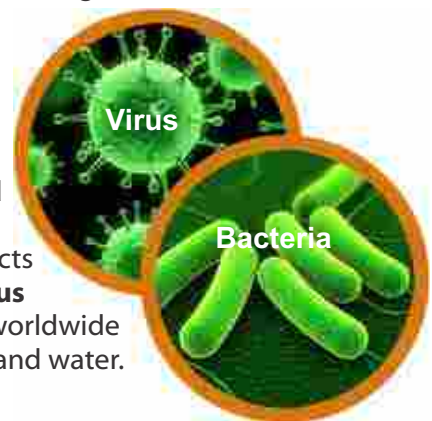


Foodborne illness is caused by eating foods contaminated with pathogenic microorganisms and/or chemicals.

The following five factors affect the growth of microorganisms in food:

1. **Type of food** – pathogens need vitamins, nutrients, minerals and **proteins**.
2. **Time** – pathogens double every 20 minutes under the right conditions. In a few hours one microorganism can multiply into millions.
3. **Temperature** – most pathogens grow between 4°C and 60° C (best at 37 °C). Some, like Listeria, grow even in temperatures below 4°C.
4. **pH** – pH is a measure to determine if a substance is acidic or alkaline (acidic foods like vinegar or lemon are sour while alkaline foods are bitter). Pathogens prefer food that is neutral or slightly acidic.
5. **Moisture** – pathogens need a certain amount of water in food to grow. Available Water Activity (Aw) is the measurement of the water content of food; therefore foods with a high Aw are more conducive to pathogenic growth.

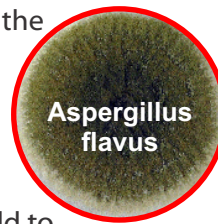
Viruses: Viruses, such as Norovirus and Hepatitis A, are smaller than bacteria. They do not multiply in food. Instead, they grow in living cells (e.g. people and animals). They can be spread to food by an infected individual (i.e. food handlers) or contaminated work surfaces. If the food carrying the virus is consumed, illness can result. All viruses survive well under refrigeration temperatures. They are often associated with products that have high salt or sugar content or with seafood. *Examples: Norovirus* causes viral gastroenteritis (stomach flu) and affects millions of people worldwide every year. Hepatitis A is a virus associated with contaminated seafood and water.



Parasites: Parasites, such as *Trichinella spiralis* and *Diphyllobothrium latum*, are multi-cellular organisms that live off of a host. They are larger than bacteria and viruses and some can be seen with the naked eye. When ingested, they can grow inside you where they may lay eggs and cause illness. *Examples: Trichinella spiralis*, a roundworm, is associated with undercooked pork or wild meats (e.g. boar, bear). It can be destroyed by freezing for 21 days at a temperature of -18 degrees Celsius or lower, or by cooking to proper temperatures. *Diphyllobothrium latum*, a tapeworm, is associated with raw and inadequately cooked fish such as sushi. *Giardia lamblia*, a cyst (egg), is associated with untreated water.

Yeasts, Mould, and Fungi: Yeast, mould and fungi are often seen by the naked eye. They are known as spoilage organisms and they require moisture to grow and reproduce by releasing spores into the air. Some produce poisonous, invisible **mycotoxins** that can cause illness when they penetrate inside the food and are ingested. Scraping off surface mould on food does not completely remove the mycotoxin and the mould. It is therefore best to throw out any product that contains mould to prevent potential illness.

Examples: *Aspergillus flavus* is a common type of mould found on cheese.



**Aspergillus
flavus**



Mould

Chemicals & Allergens

Chemical food poisoning or intoxication can occur if chemicals get into food during transportation, storage and/or preparation of the food. Chemical food poisoning accounts for a small percentage of reported food poisoning cases in Ontario; however, they can be lethal. Symptoms include vomiting, nausea, and abdominal pain. Chemical food poisonings are classified as follows:

Metals: Equipment, containers, or utensils which are not in good repair and/or made of toxic or corrosive materials can allow dangerous metals to leach out into the food and cause poisonings. All equipment, containers, or utensils used for the storage or preparation of food must be made of food-safe (non-toxic) materials designed for these purposes. Example: Storing high acid foods in an open galvanized container (i.e. tin can) is not an acceptable practice.

Poisonous Chemicals: All the chemicals used for cleaning (i.e. detergents), sanitizing (i.e. quaternary ammonium products) or other purposes in the food service area must be stored in properly labelled containers and kept in a separate storage area. The manufacturer's original container with the warning and first aid labels must be used, in order to prevent accidental exposure.

Example: A food handler prepares a sanitizing solution of bleach and water in an unlabelled clear water bottle. The chef, assuming this is water, uses the solution in his food preparation. This can result in chemical food poisoning if someone ingests the contaminated food.

Poisonous Plants: Certain foods contain natural chemicals that can cause foodborne illness (such as solanine in green potato skins). Certain wild mushrooms can contain poisons (i.e. Amanita muscaria). Always purchase products from an approved supplier, to ensure they are safe to eat.

Poisonous Animals: Certain animals contain natural chemicals that can cause foodborne illness (i.e. puffer fish, mussels). Always purchase products from an approved supplier.

Intentional Additives: Food allergens are substances (food or additives) that trigger an allergic reaction. These allergens might not be destroyed through the cooking process. Common allergens include nuts (peanuts, almonds, hazelnuts and walnuts), sesame seeds, dairy products, eggs, fish and shellfish.

A **food allergy** may occur when the body's immune system over-reacts to a food allergen. Symptoms may include rash, hives, swelling, diarrhea, abdominal pain, vomiting, runny nose, choking, itching, scratching and wheezing. Symptoms can occur immediately to several hours after ingestion of the food. The worst type of allergic reaction is called **anaphylactic shock**, where the symptoms are more severe and can result in death.

If you are asked a question about food allergies, do not guess: provide an ingredient list where possible or tell them that you do not have enough information to ensure their safety. Be honest. Inaccurate or incorrect information can be life-threatening to an individual with food allergies.

A **food intolerance** occurs when the body cannot digest a certain food. A reaction is triggered by the amount of food ingested or how the body processes the food. For example, a person who is lactose intolerant will not be able to digest dairy products such as milk.

Emergency Procedures for an allergic reaction should be posted in the food premise. All staff should be familiar with these procedures.

For a suspected allergic reaction:

- Call 911
- Make sure to inform the emergency operator that you suspect the victim is having an allergic reaction
- Provide the exact location and telephone number of your premise

Unintentional Additives: Objects (glass, broken equipment, jewellery, etc.) that accidentally get in food is also a potential hazard (choking, broken teeth, internal cuts, etc.). Therefore, it is important to protect food with tightly sealed lids/covers that will reduce the risk of contamination.



Glass found in food

Study Questions & Notes

1. What is a pathogen? List some examples.

2. What are the two primary sources of pathogenic bacteria?

3. What is the difference between bacterial intoxication and bacterial infection?

4. What five conditions are necessary for the growth of microorganisms?

5. What is chemical intoxication? Give an example.

6. What is a food allergy and what is the emergency procedure if someone is having an allergic reaction?

7. How do viruses get into food?

Chapter 3 - Personal Hygiene

At the end of this chapter you should know the following:

*The four main areas of the body that may contain pathogens
How to prevent microorganisms from spreading from the body to food
The proper handwashing method
What activities are not permitted during food preparation
What to do before beginning your shift*

About 25% of all foodborne illnesses are caused by lapses in personal hygiene by the food handler. You can **contaminate** food, making it unsafe by improper handling or contact.

The four main areas of the body that may contain pathogens are:

1. **HEAD** - nose, throat and hair
2. **LUNGS** - respiratory disease, coughing
3. **RECTUM** - fecal matter
4. **HANDS** - cuts, burns, open sores, diseased skin and dirty fingernails



Preventing Food Contamination From The Body

The Head and Lung Areas

Human hair is heavily contaminated with microbes. Some of these microbes may be pathogenic; therefore, you must keep hair out of food. It is also important to keep your hands from touching your hair when preparing food or handling food contact surfaces.

Coughs or sneezes project and disperse microbes, such as *Staphylococcus aureus*, over an area of about two square meters from your mouth.

Ways to prevent contamination:

- Properly confine hair (including bangs and beard) to prevent it from falling into food.
- Cough into a disposable tissue, throw the tissue out and wash your hands.
- Do not cough or sneeze onto food, food preparation equipment, utensils, or food contact surfaces. If you do, throw out all affected foods; clean contaminated surfaces and then sanitize.
- Report all respiratory illnesses to your supervisor.
- Do not taste food with your hands. Use a clean, unused utensil to taste food each time.
- Avoid habits that allow contact between your mouth and hands or surfaces (e.g. opening bags by blowing into them, biting fingernails, smoking, licking fingers, chewing a toothpick, etc.).
- Do not touch your nose, boils, pimples, or piercings while working with food.



The Rectum Area

- If you have diarrhea, abdominal cramps, nausea, or vomiting, report symptoms to your supervisor immediately. **Do not handle food when you have these symptoms. If you have or have had diarrhea, do not handle food until you are symptom-free for at least 48 hours. The levels of pathogens being shed by your body when you have diarrhea are so high that even proper handwashing will not reduce the number to safe levels.**
- **Always wash your hands after using the toilet.** Even if you are healthy or have recovered from an illness, there may still be pathogens in your fecal matter which can make other people sick.

The Hands

Hands are our tools in the kitchen. It is important to protect the integrity of our hands. Cracks, dermatitis, and breaks in the skin make proper handwashing difficult. Similarly, the grooves, pores, folds, and crevices in the skin trap dirt and microbes; these areas are difficult to clean. While frequent handwashing is necessary, some steps may be taken to reduce the wear and tear on your skin. Keeping hands warm in the winter (through the use of gloves or mitts), keeping your hands moisturized, and reducing the use of antibacterial soaps all help to maintain the health of your skin. Remember, skin is your first line of defence against infection.



- **Handwashing is the most important step to prevent food contamination and foodborne illness.**
- If you have any cuts, burns, open sores, or skin diseases on your hands, report it to your supervisor immediately. You will be required to wear gloves if handling food.
- Avoid touching food with your bare hands: try to use proper utensils to handle food, such as tongs.
- Keep fingernails short and use a nailbrush to remove any microorganisms under the nails. Do not share nailbrushes.
- If you wear gloves during food handling, they must be changed frequently and between tasks to prevent cross-contamination of pathogenic microorganisms from contaminated surfaces and raw food to ready-to-eat food. Proper and timely handwashing and the use of utensils are required, even when gloves are worn.
- Wear disposable, water-tight gloves that are vinyl, nitrile, neoprene, or polyethylene gloves. **Do not use latex gloves due to potential allergic reactions.**
- Do not wear artificial nails or nail polish.
- Do not wear jewellery on your hands and wrists, because it can trap dirt and pathogens. Rings with sharp protrusions may puncture gloves, negating their barrier effect. It is also possible to lose the stone from your ring or bracelet in the food.
- Never wipe your hands on a cloth or the front of your clothes or apron. This will pass microorganisms back onto your hands. Always wipe hands on disposable paper towels or use a hand dryer.
- Alcohol based hand rub (i.e. hand sanitizers) are NOT a replacement for handwashing.

Handwashing

Pathogens are frequently transferred from place to place by human hands. It is important that employees wash their hands properly and frequently in order to prevent the contamination of food and food contact surfaces.

1. Wet hands with warm water
2. Apply liquid soap
3. Rub hands together vigorously for at least 20 seconds to create lather
4. Rinse with warm water
5. Dry hands with paper towels or hand dryer
6. Turn off taps with paper towels

When to wash your hands:

- Before starting your shift
- After using the washroom
- After sneezing or coughing into your hands
- After touching chemicals
- After touching raw products such as raw meats and vegetables, and when hands are contaminated
- When hands are visibly soiled
- After handling money
- Before and after smoking, taking a break, or eating
- Before preparing and serving food
- As needed throughout the day

Summary

Before you begin your shift, you should:

- Change into clean outer clothes or uniforms
- Confine your hair and beard
- Remove jewellery
- Wash your hands using the six-step handwashing method



Study Questions & Notes

1. You are scheduled to work today but you have diarrhea. What should you do, and when can you return to work?

2. What are the four main areas of the body that may contain pathogens?

3. What are the six steps of handwashing?

4. You have sneezed onto a cutting board. What should you do now?

5. When should you wash your hands?

6. When do you use alcohol-based hand rub?

7. What should you do before you begin your shift?

Chapter 4 - Safe Food Sources and Food Storage

At the end of this chapter you should know the following:

*Ensuring a safe water supply
What to look for when checking meat and poultry sources
What to look for when examining canned food
What food items are not to be used in food preparation
The six factors for storing food safely*

To understand the information in this chapter you must be familiar with the following terms:

Contaminate: To make food unsafe by improper handling or contact.

Ready-to-eat food: Food items that can be eaten as is. These include all cooked and heat processed food even if they have been cooled or frozen. Examples include: washed vegetables, pre-cooked meats, salads, cooked pies.

Toxic: Substances that are potentially harmful and poisonous if ingested.

Safe Food Sources

To ensure food items received are safe, all food premises should:

1. Use only food from approved and inspected sources. Ensure records or receipts for all food products are provided and retained on-site for one year.

Water

Any water used in a food establishment must be from an approved source that is safe for consumption (potable source). This may be from a municipal source or a private water supply, such as a well. All private water supplies must be tested regularly to ensure that they are safe for consumption (bacteriological test for Total Coliform and *E. coli*).

A private water system servicing a food premise may be legislated under the Ministry of Health and Long-Term Care (MOHLTC) Regulation *Small Drinking Water Systems Regulation 318/319*. The Durham Region Health Department will conduct risk assessments and issue Directives to the owner of the water system.



If the well water is contaminated, the Health Department should be contacted immediately. A disinfection device (such as a chlorinator, ultra-violet light or other approved system) must be installed in order to make the water safe. Daily monitoring/testing/recording is necessary to make sure the equipment operates effectively.

Dairy

All dairy products (milk, cream, cheese, etc.) used in a food establishment must be pasteurized and purchased from an approved source.

Meat

Check for stamps on large carcasses and labels on pre-packaged items.



Poultry

Look for tags from a federally or provincially inspected plant (on the whole carcass).



Fish

Ensure the product is from an approved and inspected source.

Eggs

Only use Grade A or B eggs. **Do not use Grade C or ungraded eggs.**



Egg Grading

	Grade A	Grade B	Grade C
Albumen	Firm	Watery	Thin and watery
Yolk	Round, well centered	Slightly flattened	Loose
Shell	Clean, no cracks, normal shape	No crack, but rough texture	May be cracked
Use	Sold at retail markets for household use	Used for commercial baking or further processing	Not sold to consumers; sold to commercial processors for further processing

Source: *On Cooking – A Textbook of Culinary Fundamentals, Canadian Edition, Prentice-Hall Canada Inc., 1999, p.155*

2. Check the "best before/expiry" dates for food where applicable. If the food is past the date, do not accept it. The manufacturer/producer guarantees the product will be in peak condition until the "best before" date. The food can still be consumed after the "best before" date. Do not consume food past the "expiry" date, as it is considered unsafe for consumption.
3. Check the seals on vacuum packaged food. Do not accept food items if the vacuum seal on the package is broken; the contents may be contaminated.

Canned Food

4. Check all cans. Look for bulging lids or bottoms, leaky seams or lids, dents, and rust. Best practice: if any of these conditions are present, throw out the contents immediately. Wash and sanitize any food preparation equipment and/or surfaces that the food has touched. **Do not taste-test the food as it could make you sick.**

IMPORTANT: The following foods or ingredients should never be used in food products for sale:

- Cracked eggs, ungraded eggs or grade C eggs.
- Food made in uninspected private homes or uninspected premises. Preparation, storage and transportation of these food items cannot be monitored or controlled in a private home or premise that is not inspected.
- Home-canned products.
- Fish and shellfish from uninspected sources.
- Unpasteurized milk or milk products.
- Water or ice from a contaminated or unapproved water source.
- Uninspected or illegal meat, poultry and any products made from them.

Safe Food Storage

Once you have checked to make sure that the food is from a safe source, it is important to protect the food from contamination and to store it safely.

The following factors are to be considered when storing food:

1. Food Storage

Check temperatures of hazardous food products upon delivery. Food products received are to be stored immediately in either dry storage rooms/shelves or a temperature controlled unit (depending on the food item).

a) Dry food and chemical storage:

- All food items must be stored at least 15 cm (6 inches) off of the floor. All surfaces must be smooth, easily cleanable and corrosion-free. All food items must be covered with food-grade material at all times.
- The storage room itself must be well-lit, ventilated and free of dirt, mould and pests.
- All chemicals must be stored separately from any food products, food packaging or food service items. Examples of chemical compounds are cleaning agents, sanitizers and degreasers.

b) Cold holding units:

- All cooked and ready-to-eat food items requiring refrigeration must be covered or wrapped and located above raw meats, poultry, fish and seafood. The juices of these raw meats and fish contain pathogenic bacteria. Proper storage location prevents the dripping of raw juices onto ready-to-eat food and will prevent contamination of these products.

- Unwashed vegetables and fruit may also have pathogenic bacteria, pesticides or herbicides (e.g. apples falling to the ground at harvest can become contaminated with pathogenic bacteria like E. coli). Unwashed fruits and vegetables should be stored below ready-to-eat food items and above raw meats, poultry and seafood.

Proper Food Storage in a Cold Holding Unit:

Top shelf:

Ready-to-eat foods (e.g. salads, sandwiches, cooked meat and vegetables, cheese and dairy).



Middle shelf:

Products that require washing but no further temperature treatment prior to use (e.g. unwashed fruits and vegetables).



Bottom shelf:

Raw (uncooked) meats (e.g. poultry, beef, fish and seafood).



To maintain food at a safe temperature (4°C/40°F or lower), leave space around the food items to allow air to circulate.

2. Stock Rotation

- Do not mix old or leftover products with new stock. Use up all of the old food first.
- Wash and sanitize the container then refill with fresh new food. This is of particular importance with bulk food storage in food premises such as supermarkets, bulk food stores and bakeries.
- Use the **“first in, first out” (FIFO)** rule for proper stock rotation. Date your items so you know which food items are the oldest and should be used first.
- Check all “best before” and “expiry” dates. If the food is expired **DO NOT USE THE PRODUCT.**

3. Temperature

- All hazardous food items must be stored at the proper temperature of 4°C (40°F) or lower for cold food and 60°C (140°F) or higher for hot food. When freezing hazardous food, the temperature of the food must be kept at -18°C (0°F) or colder.
NOTE: Once frozen hazardous food has been thawed, it should not be refrozen. Any bacteria present will have an opportunity to multiply. The quality (taste, texture) of the food may also deteriorate.

- Dry food should be kept cool and free of moisture to prevent mould growth and spoilage. Dampness and warmth may also allow eggs of pests (if present) to hatch in products such as flour, cake mix, nuts and other foods. This makes food items unfit for consumption.

4. Food Containers

- All containers used for food storage must be food-safe (i.e. made of non-toxic material and in good repair).
Example: Glass, stainless steel, food-grade plastics and/or products affixed with a National Sanitation Foundation (NSF) seal.
Note: You should refrain from using plastic materials to cook, reheat or hold hot food items.
- Cardboard boxes, ceramics, glazed pottery and opened tin cans are not food-grade.
 - a) Cardboard boxes – Some food products are delivered in cardboard boxes. Once the food product has been washed it must be stored in food-grade containers.
 - b) Ceramics and Glazed Pottery – These containers may cause lead poisoning if they have not been made properly. Avoid storing food in ceramic or glazed containers.
 - c) Toxic Metals – Some food items react with metal and could cause the metal to get into the food. Once you have opened a tin can, the leftover food contents must be put into a food-safe container. For example, the leftovers from a can of tomato juice or an opened can of peaches should be transferred to a food-grade container.

5. Packaging

- Food containers must be sealed tightly while in storage to prevent microbial growth, possible contamination and/or adulteration. Exceptions to this are foods that support microorganisms that grow without air (anaerobic bacteria). Any product harvested from the soil has the potential for the growth of anaerobic bacteria and the production of toxins. For example, fresh mushrooms must be kept cool and exposed to air. Never store mushrooms in tightly sealed containers or packaging. Store mushrooms in a paper bag or in a plastic bag with holes to allow air in.
- Ensure that any packaging, cover, or wrap is food-safe. Plastic garbage bags should not be used for covering food because they may contain harmful chemicals which can contaminate the food.

6. Transferring Food

- If you are transferring ingredients from the original container to another container, make sure that the new container is food-safe, clean, sanitized and properly labelled with the product name and date. If available, ensure that an ingredient list is provided either on the container or in a central location known to employees, so that customer questions can be answered.



Study Questions & Notes

- 1. You have just received the following food items. What should you look for to ensure these food items are safe?**

Raw meat: _____

Raw poultry: _____

Eggs: _____

- 2. You have just received a shipment of canned food. What should you look for?**

- 3. Beside each of the following items mark whether the food listed should be stored on the top shelf, middle shelf or the bottom shelf of a refrigerator.**

Cooked roast beef or cooked pork: _____

Raw chicken: _____

Raw fish: _____

Cooked rice pudding: _____

Unwashed lettuce: _____

- 4. Indicate beside each of the following food products if they are properly stored:**

Raw roast beef or duck at 10°C (50°F) _____

An opened can of tomato juice in its original container _____

Orange juice in a decorative ceramic pitcher in the refrigerator _____

- 5. What does FIFO stand for? Explain.**

- 6. What should you do when transferring food from its original container to another container?**

Chapter 5 - Temperature

At the end of this chapter you should know the following:

Danger Zone

Internal cooking temperatures of hazardous foods

Hot holding temperature of hazardous foods

How to cool foods quickly and safely

How to reheat food safely

How to freeze and thaw food safely

To understand the information in this chapter you must be familiar with the following terms:

Danger Zone: The range of temperatures where microorganisms present in food will grow and multiply. This temperature range is between 4°C (40°F) to 60°C (140°F).

Biological Toxins: Waste products produced by microorganisms that can cause illness. Some toxins are heat resistant; and cooking does not destroy them.

Hazardous Food: Food that can support the growth of pathogens and/or the production of toxins. Examples of hazardous foods are:

- meat and poultry
- seafood (e.g. fish and shell fish)
- salads and pastries containing meat
- cooked grains (e.g. oatmeal, rice, etc.)
- custards, puddings, and whipped cream
- milk and dairy products
- processed deli meats (e.g. bologna, hot dogs, ham)
- gravies
- canned food (after opening)
- eggs, egg products, and foods containing eggs

High-Risk Food: Hazardous food most commonly associated with foodborne illness. Examples of high-risk food are:

- poultry
- meats (raw, cooked)
- fish
- mixed salads containing meat or fish
- rice dishes
- dairy products
- cream filled desserts

Parasites: Living organisms that may be visible to the naked eye (e.g. worms). They are usually associated with pork, beef, fish, and contaminated water.

Examples of parasites include:

- *Trichinella spiralis* (pork or wild animal round worm)
- *Taenia saginata* (beef tape worm)
- Anisakiasis (fish parasite)
- *Giardia lamblia* (protozoan parasite in contaminated water)

Pathogens: Disease - causing microorganisms.

Process Serving: Often cooked foods are served immediately after preparation. This is called process serving. This is the safest way to prepare food because hazardous ingredients can be properly stored until needed, then cooked rapidly and served immediately. The hazardous food is brought up through the Danger Zone quickly and risks are reduced.

Time/temperature abuse refers to keeping hazardous food in the Danger Zone for an unsafe period of time. Only a few bacteria can grow outside the Danger Zone therefore hazardous foods left within this range are at risk. Time/temperature abuse is the **most common contributing factor to foodborne illness**. Approximately 75-85% of all foodborne illnesses are the result of time/temperature abuse; 56% of these cases are the result of improper cooling. Maintaining food at a safe temperature of 4°C (40°F) or lower for cold food and 60°C (140°F) or higher for hot food is essential for the duration of food preparation. This chapter will review practices to prevent foodborne illness by proper temperature control.

Delivery of Food Products

Food products should be inspected when delivered using the following points to prevent time/temperature abuse:

- 1) Check the temperatures of hazardous food. Food ingredients that are hazardous must not arrive at the food premise within the Danger Zone. For example, raw chicken must arrive at the food premise 4°C (40°F) or lower, or frozen at -18°C (0°F) or lower.
- 2) Properly store food items immediately upon delivery. Food deliveries must not be left outside. This may cause the temperature of the food to enter into the Danger Zone and may expose the food to dirt, insects, mice, rats, and other small animals.
- 3) Check best before/expiry dates.
- 4) Look for signs of damage and evidence of rodent or insect infestations.
- 5) When storing new deliveries practice “first in first out” (FIFO) procedure.




Thawing

Hazardous food must not be thawed at room temperature, as this allows food to fall within the Danger Zone. When a food item is thawed at room temperature the outer surface warms up faster and can support the growth of bacteria and/or toxins, while the centre of the food may remain frozen.

Acceptable methods of thawing are:


- 1) Place the hazardous food item in the refrigerator or walk-in cooler. Allow about 10 hours per kilogram or 5 hours per pound. Note: Raw meat, fish or poultry is to be placed on the lower shelves below ready-to-eat food to prevent possible cross-contamination.
- 2) Place the hazardous food item under cold running water in a clean, sanitized sink. Ensure the sink is sanitized after thawing is finished so that other food or utensils placed in the sink will not become contaminated. Note: Do not thaw food in a dishwashing or dedicated handwash sink.
- 3) Microwave the hazardous food item as specified by the manufacturer and then cook the food item **immediately** afterward to the proper temperature. Note: This may cause uneven thawing in the food.
- 4) Cook the product from its frozen state until the proper internal temperature at the thickest part is reached.



How To Thaw Meat Safely

Never Thaw Meat At Room Temperature!

Preferred Method: In the Refrigerator at 4°C (40°F) or lower



10 Hours/kg. (5 Hours/lb.)

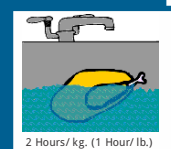
Advantages

- Best way to prevent food poisoning
- Meat thaws evenly throughout.
- Meat stays fresh with no colour or texture change

Disadvantages

- Requires a planned menu
- May take several days for large cut of meats or whole poultry

Alternate Method: Under Cold Running Water



2 Hours/kg. (1 Hour/lb.)


Advantages

- Safe way to prevent food poisoning
- Meat thaws evenly throughout.
- Fairly fast.

Disadvantages

- Requires an available food preparation sink
- Uses a lot of water
- Time required to clean and sanitize sinks before and after thawing

Least Preferred Method: In the Microwave



As directed on package

Follow manufacturer directions

Advantage

- Quick

Disadvantages

- Uneven thawing
- Colour changes
- Texture changes
- Requires immediate cooking after thawing

BE ORGANIZED, NOT SURPRISED! Prevent Food Poisoning.

Environmental Help Line 1-888-777-9613 ext. 2188 www.durham.ca DUHEV 041 June 2010

Cooking Temperatures

All hazardous food must be cooked thoroughly to destroy pathogens. Always cook to the highest temperature required when hazardous foods are combined. The minimum, safe internal cooking temperatures for food products are as follows and must be held not less than 15 seconds.

Ground poultry, poultry products and poultry other than whole poultry are cooked to 74°C (165°F) for 15 seconds.

Whole poultry
82°C (180°F)



Chicken Pie & Wings
74°C (165°F)



Note: When cooking a stuffed turkey, the stuffing will become contaminated once placed in the body cavity of the turkey. The Campylobacter bacteria present in the turkey can multiply to sufficient numbers so that once ingested, it could cause foodborne illness. **It is highly recommended to cook stuffing separately from the turkey: if you must stuff the bird while cooking, use your meat probe thermometer to ensure that the centre of the stuffing reaches a minimum temperature of 74°C (165°F) to ensure that it is safe to eat.**

Pork, pork products and ground meat other than ground poultry are cooked to 71°C (160°F) for 15 seconds.



Fish and fish products are cooked to 70°C (158°F) for 15 seconds



Other hazardous food (whole beef, lamb, rice, seafood, etc.) are cooked to 70°C (158°F) for 15 seconds.



Mixtures containing hazardous foods such as poultry, eggs, meat and fish (i.e. casseroles, cabbage rolls, etc) are cooked to 74°C (165°F) for 15 seconds.



Note: If different temperature requirements seem confusing, a good rule of thumb is:

Cook all hazardous food to at least **74°C (165°F)** then hot hold at **60°C (140°F)**, except if whole poultry then cook to **82°C (180°F)** then hot hold at **60°C (140°F)**.

Food Preparation

When preparing or handling food never leave hazardous food at room temperature except during times necessary for the processing, preparation, manufacturing and serving of the food. At room temperature, bacteria present in the food will multiply and can produce toxins that can result in a foodborne illness. **Hazardous food should not remain in the Danger Zone for more than two hours.**

The following techniques can help you to reduce the risk of producing unsafe food items by minimizing the time the hazardous food is left in the Danger Zone.

- Pre-chill all ingredients to 4°C (40°F) or lower.
- Break down the cooking steps: prepare small batches of food, and move hazardous food through the Danger Zone as quickly as possible.
- Prepare food close to the serving time.
- Keep hazardous ingredients at 4°C (40°F) or lower.

Taking Accurate Temperatures

An accurate thermometer is the only way to determine adequate cooking temperatures. The thermometer is critical to your ability to cook food adequately. It is also essential for use in temperature checking when cooling, reheating, hot holding and cold holding food. Temperature checks enable the food handler to reduce the risks associated with temperature abuse.

When taking the temperature of food, follow these steps:

1. Always use an accurate thermometer to check the temperature of the food.
2. Clean and sanitize the probe end of the thermometer before you take the temperature of the food.
3. Put the thermometer in the thickest part of the food. Do not put the end of the thermometer near a bone.
4. Do not take just one reading; test several areas of the food item.
5. If you are cooking several different food items, check the temperature of each of the food items. Clean and sanitize the thermometer before each temperature check.



HAZARDOUS FOOD TEMPERATURE CHART	
Environmental Help Line 1-888-777-9613 ext. 2188 www.durham.ca	
MINIMUM REQUIRED INTERNAL FOOD TEMPERATURES	
COLD HOLDING	
Refrigerated Foods	4 °C / 40 °F or colder
Frozen Foods	-18 °C / 0 °F or colder
COOKING	
All temperatures to be maintained for a minimum of 15 seconds	
Whole Poultry chicken, turkey, duck, etc.	82 °C / 180 °F
Ground / Cut Poultry wings, breasts, legs, etc.	74 °C / 165 °F
Food Mixtures (e.g. soups, stews, casseroles, gravies)	74 °C / 165 °F
Pork / Pork Products	71 °C / 160 °F
Ground Meat other than poultry (e.g. beef, lamb)	71 °C / 160 °F
Fish	70 °C / 158 °F
Other Hazardous Foods large cuts of e.g. beef, lamb or goat; rice, beans, etc.	70 °C / 158 °F
HOT HOLDING	
After cooking, all hazardous foods must be held at a minimum 60 °C / 140 °F until service.	
REHEATING	
All temperatures to be maintained for a minimum of 15 seconds	
All hazardous foods must be reheated, within a 2 hour period, to at least their specified minimum required internal cooking temperature. All poultry must be reheated to at least 74 °C / 165 °F.	

Hot Holding

If food is cooked prior to serving it must be kept hot, and out of the Danger Zone. The internal temperature of the cooked food must remain at 60 °C (140 °F) or higher. If the food temperature falls below 60 °C (140 °F), then it must be rapidly reheated to 74 °C (165 °F) for 15 seconds.

Note:

- Immediately following cooking, place the food items in the hot holding units.
- Hot food being transported (e.g. catering) must be kept at 60 °C (140 °F) or higher.
- Use proper hot holding equipment (e.g. BBQ display units, chafing units, oven, steam table, stovetop and warming drawers).
- Always cover the food with food-grade material.
- Hot liquids, such as gravy, should be stirred often to ensure an even temperature throughout the product.
- Do not use a heat lamp for more than 20 minutes; heat lamps "cool" the surface of the food.



Cooling

Cooked foods that are cooled and refrigerated for future use are at greatest risk of temperature abuse. The food must pass through the Danger Zone once when cooking and again when cooling. If the food is to be reheated later, it will pass through the Danger Zone once again.

Improper cooling of hazardous foods is the most frequent cause of foodborne illness. Cool the food item as fast as possible so that it does not stay in the Danger Zone.

To cool food fast, you should follow these steps:

1. Place the food in shallow pans (not more than 5cm or 2 inches in depth of food).
2. Allow air to circulate around each large piece of food to remove heat quickly. If possible, do not stack containers on top of one another.
3. Refrigerate or freeze cooked food immediately. Make sure the food is located on an upper shelf to prevent cross-contamination.
4. If the food is a liquid, you can cool the food by placing the container in an ice bath and stirring it before refrigeration.
5. Portion the food into smaller containers before you put it into the refrigerator or freezer.

The temperature of the food must be monitored during cooling, as it must not remain in the Danger Zone for more than 2 hours.

Cold Holding

All hazardous food stored in refrigerators and walk-in coolers must be maintained at an internal temperature of 4°C (40°F) or lower.

Note:

- Equip all cold holding units with accurate, easily visible indicating thermometers.
- Ensure food is properly located in the cold holding unit; e.g. place the ready-to-eat food on the top shelves.
- Do not overload cooling equipment - let air circulate.
- Cover all food items with food-grade material.

Freezing

When freezing hazardous food, the temperature of the food must be kept at -18°C (0°F) or lower. Food items must be covered and stored properly in the freezer (e.g. ice cream stored separately from raw poultry). Provide an accurate indicating thermometer in a visible place.

Sushi

Sushi is a popular Japanese culinary art, which may consist of raw fish and seafood with sushi rice. Raw fish can carry parasitic organisms (i.e. Anisakidae, larvae associated with raw fish) and freezing the product will kill these organisms. It is recommended that fish intended to be consumed raw, including raw-marinated and partially cooked fish, be frozen at -20°C (-4°F) or lower for 7 days or -35°C (-31°F) or lower for 15 hours before preparation and serving.



Reheating

Food must be reheated quickly to minimize the amount of time in the Danger Zone in order to prevent bacterial growth and possible toxin production. All food products must be reheated within two hours. If a microwave is used to reheat food, stir the food item to ensure that an even temperature is achieved throughout.

Whole poultry must be reheated to a minimum internal temperature of 74 °C (165°F). All other hazardous food products must be reheated to the original cooking temperature.

Notes:

- Use proper cooking equipment to reheat the food quickly and thoroughly.
- Hot holding equipment (e.g. steam tables and hot-holding display cases) are not considered cooking equipment, and are not to be used for reheating food under any circumstance. This type of equipment heats the food too slowly and therefore increases the length of time the food is in the Danger Zone.
- If possible cook food just prior to serving. This will eliminate the cooling and reheating process.

SUMMARY OF TIME/TEMPERATURE PRACTICES:

- DANGER ZONE** The range of temperatures where microorganisms already present in food will grow and multiply. This temperature range is between 4°C to 60 °C (40°F to 140°F). Keep hazardous food out of the Danger Zone.
- THAWING** Use the following methods to thaw hazardous foods:
1) In the refrigerator or walk-in cooler on a lower shelf.
2) Under cold running water in a clean, sanitized sink.
3) In the microwave.
- PREPARATION** Hazardous food must not be kept at room temperature, except during times necessary for the processing, preparation, manufacturing, and serving of the food. This is for a maximum allowed time of two hours.
- COOKING** Food is to be cooked to the appropriate internal temperatures and maintained at those temperatures for a minimum of 15 seconds.
- Whole poultry **82°C (180°F)**
 - Ground poultry, poultry products and poultry other than whole poultry **74°C (165°F)**
 - Mixture containing two or more of following items: poultry, egg, meat, fish or another hazardous food **74°C (165°F)**
 - Pork, pork products and ground meat other than ground poultry **71°C (160°F)**
 - Fish **70°C (158°F)**
 - Other hazardous food (beef, lamb, rice, seafood, etc.) **70°C (158°F)**
- HOT HOLDING** All hazardous food **60°C (140°F) or HIGHER**
- REHEATING** Original cooking temperatures for hazardous foods to be reached within two hours with the exception of **74°C (165°F) for whole poultry**.
- COLD HOLDING** Food is to be refrigerated at **4°C (40°F) or lower** or frozen at **-18°C (0°F) or lower**.
- SUSHI** Fish intended to be consumed raw, including raw-marinated and partially cooked fish is to be frozen at **-20°C (-4°F) or lower for 7 days or -35°C (-31°F) or lower for 15 hours** before preparation and serving.

Study Questions & Notes

1. What is the Danger Zone and what is its temperature range?

2. What is the minimum internal temperature required to safely cook the following:

Beef _____

Fish _____

Poultry _____

Lamb _____

Pork _____

Ground poultry _____

Ground veal _____

Mixed meat pie (chicken, beef, pork) _____

Veal _____

3. What is the required hot holding temperature of hazardous food?

4. To what temperature must you reheat previously cooked food? Previously cooked whole poultry?

5. What methods can you use to rapidly cool foods?

6. What are the safe methods of thawing frozen foods?

7. What is a hazardous food? List some examples.

8. How long can hazardous food remain in the Danger Zone during preparation?

9. Where should you place the end of the thermometer when you take an internal temperature check of a food item?

10. What is the correct internal temperature for a hazardous food item stored in a refrigerator? Freezer?

Chapter 6 - Cross Contamination and Sanitation

At the end of this chapter you should know the following:

*What is cross-contamination?
The three main ways cross-contamination occurs
How to prevent cross-contamination
The difference between cleaning and sanitizing
Approved sanitizers
Manual and mechanical dishwashing techniques*

Cross-contamination: involves the spread of harmful microorganisms or chemicals to food that is ready-to-eat.

Ready-to-eat foods: are those that can be eaten as is. These include all cooked and heat processed foods even if they have been cooled or frozen (e.g. washed vegetables, cooked meats, salads, etc.)

Pathogens: Disease-causing microorganisms

Cross-Contamination

Cross-contamination may occur when pathogens or food allergens are passed from one food item to another, or when foods come into contact with contaminated surfaces, utensils, equipment or hands.

The three main sources of cross-contamination are:

1. Hands: contaminated hands touching food
2. Food: improper handling and storage of food
3. Equipment: using the same equipment or utensils to handle raw food and ready-to-eat food

Hands

A food handler's hands come into contact with many unclean surfaces, equipment, food and other items. It is therefore important that frequent and proper handwashing techniques are practiced.

Food

Food may become contaminated if not stored properly. Raw meats, poultry, fish, seafood and raw produce may contain pathogens. It is therefore important that all raw foods are stored separately from cooked and ready-to-eat foods.

An example of cross-contamination due to improper food storage includes placing raw meat on a shelf above ready-to-eat foods such as salad. Blood or liquids may drip from the meat onto the salad and go unnoticed.

Equipment

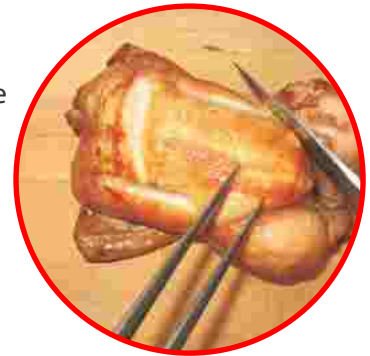
Ready-to-eat foods may become contaminated if they come into contact with equipment or wiping cloths that contain pathogens or allergens.

Items which may transmit pathogens or allergens to ready-to-eat foods include:

- **Food contact surfaces:** work tables, cutting boards.
- **Equipment:** slicing machines, meat grinders, mixers, probe thermometers.
- **Utensils:** knives, spoons, forks, tongs.

Example of cross-contamination between raw and ready-to-eat foods

- Raw chicken is cut on cutting board.
- Pathogens from the chicken are passed onto the board, knife and the food handler's hands.
- A cooked chicken is cut on the same board, with the same knife (all had been contaminated with the raw chicken).
- Pathogens are passed from the contaminated cutting board and knife to the cooked chicken



Example of cross-contamination between food and an allergen:

- Nuts are chopped on a cutting board.
- Oils and residue are passed from nuts to cutting board and utensils.
- Raw vegetables are sliced on the same cutting board with the same utensils.
- Oils and residue are passed from the cutting board and utensils to the vegetables.

Preventing Cross-Contamination

- Wash hands properly and frequently.
- All cooked and ready-to-eat items requiring refrigeration must be covered or wrapped and stored above raw meats, poultry, fish and seafood in cold storage units.
- During cold storage, all raw meats should be stored on bottom shelves and cooked and ready-to-eat foods on upper shelves.
- When possible, all raw meats should be stored in separate cold storage units, away from ready-to-eat foods.
- Have separate food contact surfaces, equipment and utensils for raw and ready-to-eat food and for foods that contain allergens (e.g. nuts).
- All cutting boards and food contact surfaces must be smooth, free of cracks and pits to allow for proper cleaning and sanitizing.
- All food-contact surfaces or equipment must be washed, rinsed and sanitized immediately after each use.
- Wiping a contaminated knife or cutting board with a cloth is not sufficient to remove pathogens or allergens. If the contaminated cloth is then used to wipe other surfaces, equipment, utensils or hands, pathogens or allergens will spread.
- The probe thermometer must be sanitized before and after inserting it into food.

Cleaning and Sanitizing

Microorganisms can be passed from person-to-person by both dishes and utensils; therefore, proper manual or mechanical dishwashing is important in preventing the spread of pathogens.

Cleaning: the removal of visible dirt, oil, grease and organic matter from an object using detergent, warm water and scrubbing.

Note: Cleaning helps to remove pathogens, but it does not kill those that remain. Cleaning must always be a step in removing pathogens. If surfaces are not “clean”, heat or chemical sanitizing steps will not work properly.

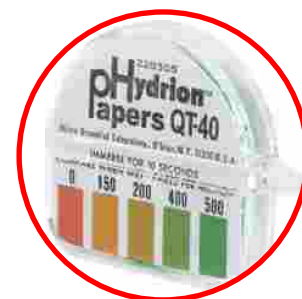
Sanitizing: A process that reduces pathogenic organisms to acceptable levels using either hot water (82° C) or chemical agents (chlorine, iodine or quaternary ammonium).

Approved Sanitizers

1. **Hot water:** 77°C (170°F) for a minimum of 45 seconds (Manual Dishwashing)
82°C (180°F) for a minimum of 10 seconds (Mechanical Dishwashing)
2. **Chemical sanitizers:** for a minimum of 45 seconds at 24°C (75°F)
 - a. **Chlorine (sodium hypochlorite):** at a concentration of 100 parts per million (ppm), i.e: Mix 2.5 mL (1/2 teaspoon) of household bleach to 1L (4 cups) of water.
 - b. **Quaternary ammonium compound ("Quats"):** at a concentration of 200ppm.
 - c. **Iodine:** at a concentration of 25ppm.

Note:

- To ensure proper sanitizing strengths, solutions must be prepared daily and changed frequently.
- Appropriate test strips/reagents must be used to measure the solution strength and verify proper concentrations (these are available from restaurant and chemical suppliers).
- Label all sanitizing solutions to ensure chemicals are not misused as a food ingredient.
- Always follow the manufacturer's directions on the product label.



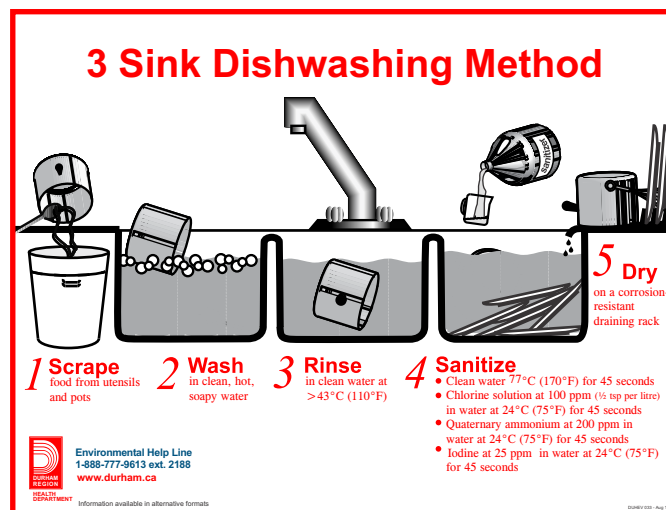
Manual Dishwashing

3 Compartment Sink Method

Three sinks are required to clean and sanitize multi-use/re-usable eating utensils (e.g. plates, knives, forks, spoons), pots and pans.

The method consists of:

1. **Wash:** In the first compartment, wash utensils and equipment in clean, hot, soapy water.
2. **Rinse:** In the second compartment, rinse utensils and equipment in clean water of at least 43°C (110°F) to remove soap and any remaining food particles.
3. **Sanitize:** In the third compartment, sanitize utensils and equipment for at least 45 seconds in an approved sanitizer.



2 Compartment Sink Method

Two sinks are required to clean and sanitize pots, pans and utensils not directly used by patrons. This applies to places that have very limited food preparation and/or where single-service disposable dishes and utensils are used.

The method consists of:

1. **Wash and Rinse:** In the first compartment, wash utensils and equipment in clean, hot, soapy water. Then, rinse utensils and equipment in clean water of a least 43°C (110°F).
2. **Sanitize:** In the second compartment, sanitize utensils and equipment for at least 45 seconds in an approved sanitizer.

Note:

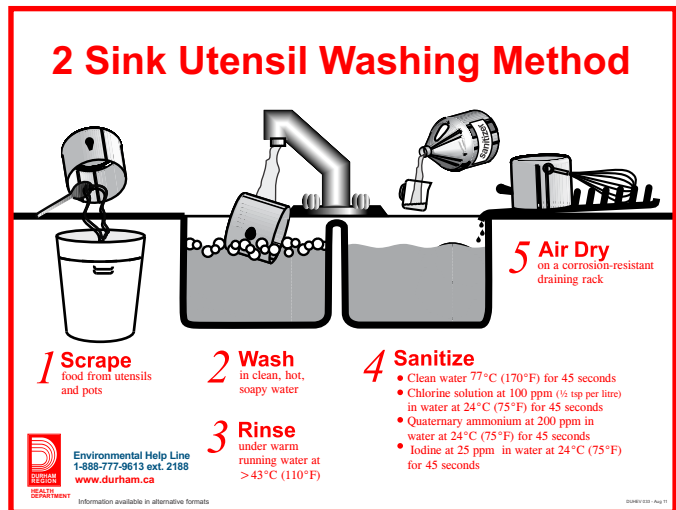
- Items that are heavily soiled may require pre-soaking and scraping prior to washing.
- After sanitizing, air dry utensils on a corrosion-resistant draining rack. This is done to prevent contamination from worker's hands or a damp towel. **Never towel dry.**
- Once dry, utensils should be stored in a clean dry area away from food, dust, garbage and at least 15 cm off of the floor.
- Damaged (cracked, chipped) dishes or equipment must be discarded.

Wash In Place for Large Equipment and Surfaces

This process must be used to wash and sanitize equipment that is too large and does not fit in a sink or mechanical dishwasher. All food contact surfaces (e.g. cutting boards, work tables, etc.) must also be cleaned and sanitized after each use.

The method consists of:

1. **Wash** equipment with warm water and detergent solution.
2. **Rinse** with clean water.
3. **Sanitize** with hot water at a minimum of 82°C (180°F), or an approved chemical solution at double strength for chlorinated chemicals; follow manufacturer's instructions for "Quats" and iodine.
4. **Air dry.**



Wiping Cloths

Wiping cloths stored in sanitizing solutions are used to sanitize surfaces.

- Wiping cloths are to be maintained clean and in good repair.
- The cloths are to be stored in one of the three approved chemical sanitizer solutions at manufacturer's suggested concentrations.
- The sanitizing solution must be prepared daily and changed frequently.
- If the sanitizing solution is stored in a spray bottle, it must be labelled.
- Test strips/reagents must be used to measure the solution strength and verify proper concentration.



Mechanical Dishwashing

1. **High Temperature Dishwasher:** Uses hot water in the rinse cycle to sanitize.
 - The wash water temperature must not be lower than 60°C (140°F) and not higher than 71°C (160°F).
 - The rinse water temperature must be a minimum of 82°C (180°F) and the cycle must last at least 10 seconds.
2. **Low Temperature Dishwasher:** Uses chemical sanitizers in the rinse cycle to sanitize.
 - Three approved chemical sanitizers:
 1. Chlorine: minimum 100ppm.
 2. Quaternary Ammonium Compounds ("Quats"): minimum 200ppm.
 3. Iodine: minimum 25ppm.

Note:

- All high temperature dishwashers must be equipped with accurate reading temperature gauges to monitor wash and rinse water temperatures.
- Domestic dishwashers are not accepted as they are not equipped with temperature gauges and are unable to reach and maintain required temperatures.
- Test strips/reagents must be used to verify the concentration of chemical sanitizer during the sanitizing cycle.

Study Questions & Notes

1. What is cross-contamination?

2. What are the three main ways cross-contamination may occur?

1. _____

2. _____

3. _____

3. Provide three examples of cross-contamination.

1. _____

2. _____

3. _____

4. List three ways that cross-contamination may be prevented.

1. _____

2. _____

3. _____

5. What is the difference between cleaning and sanitizing?

1. _____

2. _____

3. _____

6. Why is it important to sanitize dishes, utensils and food contact equipment?

1. _____

2. _____

3. _____

7. List three approved sanitizers commonly used to sanitize food contact surfaces and equipment.

1. _____

2. _____

3. _____

8. Describe how to manually wash dishes and utensils using the 2-compartment sink method. Now describe how to wash dishes using the 3-compartment sink method.

9. What temperature must high and low temperature dishwashers reach during the wash and sanitize cycles? For how long?

High Temp Wash Cycle: _____ Sanitizing Cycle _____ Duration: _____

Low Temp Wash Cycle: _____

Chapter 7 - Food Premises Sanitation

At the end of this chapter you should know the following:

*How to maintain a premise in a clean and sanitary manner
How to prevent rodent and insect infestation*

Food Premises Sanitation

All food premises must be maintained in a clean and sanitary manner at all times. A cleaning schedule is a useful tool to assist you in doing this.

Floors, Ceilings and Walls

- Floors, ceilings and walls must be maintained in good repair at all times and made of smooth, non-absorbent, and easily cleanable material.
- Remove grease and debris from floors and walls.
- A damp mop should be used to clean floors as often as necessary (at least once daily).
- A mop sink is to be used to clean mops and dispose of waste water. At no time should a dishwashing/prep sink/hand sink be used for these purposes.

Sanitary Facilities

Each sanitary facility is to be equipped with:

- toilet paper
- hot and cold running water under pressure
- liquid soap in a dispenser
- a durable, easy-to-clean receptacle for waste material
- supply of paper towels, a continuous cloth roller towel in a mechanical device, a supply of clean single service towels or a hot air dryer

Hand wash basins, urinals and toilets must be cleaned and sanitized at least once every workday and as often as necessary to maintain the premise in a clean and sanitary manner.

Garbage

- Garbage must be stored in proper insect and vermin-proof receptacles with lids.
- Remove garbage from the premise daily in order to avoid odours and pest control problems and to maintain premise in a clean and sanitary manner.
- Garbage containers must be cleaned and sanitized after they are emptied.



Lighting

- Good lighting is necessary for safe working conditions and to permit thorough cleaning.
- Provide appropriate light covers where required (i.e. on lights above food preparation areas).

Ventilation

- Proper ventilation is required over any source of excess heat, smoke or steam (i.e. cooking equipment).
- Ventilation system must be cleaned to prevent accumulation of grease and prevent a health hazard.

Dry Storage

- Adequate storage space must be provided to hold food and supplies.
- All food in storage must be adequately covered.
- Utensils/scoops cannot be stored directly in food.
- Store food on racks, shelves or pallets no less than 15 cm (6 inches) above the floor to allow for cleaning and pest control.
- Foods, utensils and food contact surfaces must not be stored in washrooms and staff dressing rooms.
- Chemicals must be stored separately from food to prevent accidental spillage into food.

Pest Control

The foundation of a good pest control program is to deny entry, food, and shelter to vermin (including flies, cockroaches, mice, and rats). Keeping the premise clean reduces their food source and sealing gaps, cracks and openings in floors, walls and equipment restricts their movement.

The following are disease organisms which have been transmitted to food by pests:

- *Bacillus cereus* → ants
- *Campylobacter jejuni* → flies
- *E. coli* → ants, flies
- *Salmonella* → ants, flies, cockroaches, rats
- *Staphylococcus aureus* → ants, flies, cockroaches



Rodents (Mice and Rats)

- Rodents contaminate food and food contact surfaces with their feces, urine and by gnawing on food packaging.
- Rodents are attracted to food sources; therefore, it is important to provide proper garbage storage and disposal.

Cockroaches

- Cockroaches are very difficult to eradicate once they are established.
- Cockroaches may leave behind bacteria as they crawl around on surfaces, equipment, etc.

Flies

- Flies are attracted to odour (i.e. from garbage).
- Flies can transport dirt and debris as their bodies are covered with hair and their feet have suction cups.
- Flies do not have teeth; therefore, they use their vomit to dissolve food prior to eating it.

Preventing Infestations

- Ensure all doors and windows are screened and tight-fitting to prevent entrance of pests and insects.
- Check all deliveries for signs of infestation (i.e. droppings, gnaw marks, insects and rodents).
- Eliminate food sources by maintaining the premise in a clean and sanitary manner (i.e. clean under cooking equipment, refrigerators, etc).
- Properly fill and patch any holes in walls, ceilings, floors and around any pipes as insects and rodents may enter through very small holes.
- Remove any unused equipment to eliminate possible shelter for pests.
- Store garbage in vermin-proof receptacles with tight-fitting lids and keep storage areas clean.
- Should pests be difficult to control, a licensed pest control company should be contacted to apply pest control measures.

Live Animals in a Food Premise

No live animals are allowed within a food premise, with the exception of service animals. Service animals required by patrons are allowed within a food premise with proper documentation. Under no circumstance are any live animals allowed within food preparation areas.

Study Questions & Notes

1. List 4 ways to prevent pest and insect infestations.

1. _____
2. _____
3. _____
4. _____

2. List 3 ways a fly can contaminate food.

1. _____
2. _____
3. _____

3. True or False: You must retain a licensed pest control company on contract.

T___ F___

4. True or False: Soapy water used to wash floors may be disposed of in a handwash sink.

T___ F___

5. List 5 items that each sanitary facility must be equipped with.

1. _____
2. _____
3. _____
4. _____
5. _____

6. True or False: A service animal is allowed to assist in food preparation.

T___ F___

Chapter 8 - DineSafe Durham

What is DineSafe Durham?

DineSafe Durham is the food safety inspection disclosure program that was introduced by the Durham Region Health Department on March 2, 2009. The program is designed to give the public quick and easy access to the results of food safety inspections. This program is intended to increase compliance with legislation, improve food safety, reduce the risk of foodborne illness, increase the transparency of inspections, improve the public's accessibility to information, and increase public confidence in the food inspection process and the food industry.

The DineSafe Durham disclosure program applies to the following food establishments operating within the Region of Durham:

- General food service establishments (e.g. restaurants, bars, cafeterias, delicatessens, butcher shops, grocery stores, banquet halls, catering kitchens, etc.)
- Institutional food service establishments (e.g. hospitals, school cafeterias, nursing homes, licensed childcare centre kitchens, boarding houses with 10 or more residents, etc.)
- Mobile food service premises (e.g. hot dog carts, catering vehicles, French fry trucks, etc.)

All food establishments are inspected by the Health Department to ensure compliance with the Ontario Food Premises Regulation 562. The Region of Durham Food Safety Disclosure By-law requires the food establishment operators to post the DineSafe Durham green (PASS), yellow (CONDITIONAL PASS) or red (CLOSED) signs in a conspicuous location at or near the entrance of the premise. These signs reflect their most recent inspection results. However, some community special events (e.g. farmers markets, religious suppers, fairs, etc.), private residences or dwellings and farm gate sales are exempt from the DineSafe Durham disclosure program.

What do the coloured DineSafe Durham Inspection summary signs mean?

Durham Region Health Department

PASS

Name _____

Address _____

This establishment has been inspected by Durham Region Health Department in accordance with the Ontario Food Premises Regulation and passed the inspection on, []

Results of the previous inspection on []

Pass Conditional Pass Closed

A copy of the most recent inspection report is available for review upon request at this establishment.

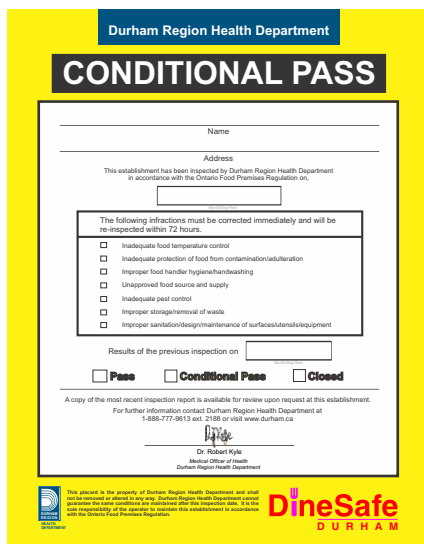
For further information contact Durham Region Health Department at 1-888-777-9613 ext. 2188 or visit www.durham.ca

Dr. Robert Fyfe
Dr. Robert Fyfe
Medical Officer of Health
Durham Region Health Department

DineSafe
DURHAM

Green (PASS) sign means:

- Substantial compliance with the Ontario Food Premises Regulation.
- Any infractions observed are few in number and/or "non-critical" in nature such that they are unlikely to result in foodborne illness (i.e. lack of hair restraints for food handlers; repair/cleaning of floors, walls, non-food contact services, etc.).
- Food handling/preparation operations do not represent an immediate risk to public health.
- A follow-up inspection may occur if there are outstanding items of non-compliance remaining at the end of an inspection. In some instances minor issues of non-compliance may be addressed during the next routine inspection.



Durham Region Health Department

CONDITIONAL PASS

Name _____

Address _____

This establishment has been inspected by Durham Region Health Department in accordance with the Ontario Food Premises Regulation on: _____

The following infractions must be corrected immediately and will be re-inspected within 72 hours:

- Inadequate food temperature control
- Inadequate protection of food from contamination/adulteration
- Improper food handler hygiene/handwashing
- Unapproved food source and supply
- Inadequate pest control
- Improper storage/removal of waste
- Improper sanitation/design/maintenance of surfaces/utensils/equipment

Results of the previous inspection on _____

Pass Conditional Pass Closed

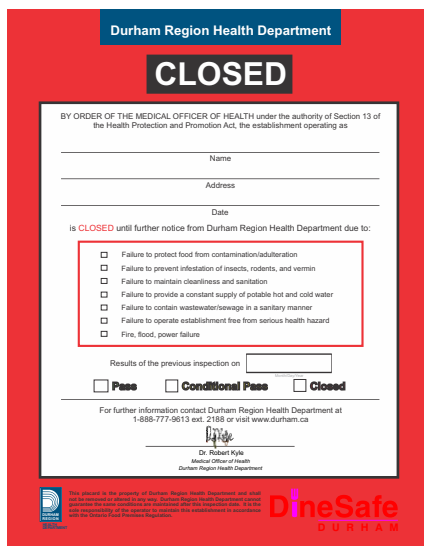
A copy of the most recent inspection report is available for review upon request at this establishment.
For further information contact Durham Region Health Department at 1-888-777-2613 ext. 2188 or visit www.durham.ca

Dr. Robert Kyles
Medical Officer of Health
Durham Region Health Department

DineSafe
DURHAM

Yellow (CONDITIONAL PASS) sign means:

- Significant non-compliance with the Ontario Food Premises Regulation which may affect food safety.
- Significant non-compliance means that the number and/or the type of infractions observed have the potential to lead to foodborne illness (i.e. improper hot/cold holding temperatures, cross-contamination of food, etc.).
- Establishment will receive a re-inspection within 24-72 hours (1-3 business days).



Durham Region Health Department

CLOSED

BY ORDER OF THE MEDICAL OFFICER OF HEALTH under the authority of Section 13 of the Health Protection and Promotion Act, the establishment operating as _____

Name _____

Address _____

Date _____

is **CLOSED** until further notice from Durham Region Health Department due to:

- Failure to protect food from contamination/adulteration
- Failure to prevent infestation of insects, rodents, and vermin
- Failure to maintain cleanliness and sanitation
- Failure to provide a constant supply of potable hot and cold water
- Failure to contain wastewater/sewage in a sanitary manner
- Failure to operate establishment free from serious health hazard
- Fire, food, power failure

Results of the previous inspection on _____

Pass Conditional Pass Closed

For further information contact Durham Region Health Department at 1-888-777-2613 ext. 2188 or visit www.durham.ca

Dr. Robert Kyles
Medical Officer of Health
Durham Region Health Department

DineSafe
DURHAM

Red (CLOSED) sign means:

- Conditions represent an immediate health hazard to the general public (i.e. significant insect/rodent infestation, no hot/cold running water under pressure, sewage back-up into food preparation/storage areas, fires, flood, power outages).
- Establishment must immediately close and stop preparing, serving and/or selling food to the public.
- Establishment will be monitored by the public health inspector to ensure establishment remains closed.
- Establishment must comply with the minimum standards of the Ontario Food Premises Regulation before a green (PASS) sign will be issued; a premise with a current red (CLOSED) sign will not be re-opened with a yellow (CONDITIONAL PASS) sign.

Repeat infractions noted during re-inspections or during any subsequent compliance inspections may be subject to legal action independent of the DineSafe Durham program. It is possible for an establishment to be charged despite receiving a **green (PASS)** sign. Legal action may also be initiated for infractions of the Food Safety Disclosure By-law.

Glossary of Terms

Frequently used terms:

Cross-Contamination: involves the spread of pathogens or chemicals to food that is ready-to-eat.

Cleaning: the removal of visible dirt, oil, grease and organic matter from an object using detergent, warm water and scrubbing.

Danger Zone: the range of temperatures where the microorganisms present in food will grow and multiply. This temperature range is between 4°C (40°F) to 60°C (140°F).

DineSafe Durham: DineSafe Durham is the food safety inspection disclosure program that was introduced by the Durham Region Health Department.

FIFO - first in first out: a rule for proper stock rotation. Date your items so you know which food items are the oldest and should be used first.

Foodborne illness: illness caused by eating foods contaminated with pathogenic microorganisms and/or chemicals.

Food grade/ food safe: made of non-toxic material in good repair and maintained in a sanitary manner.

Hazardous food: any food that is capable of supporting the growth of pathogens or the production of the toxins of such organisms

HACCP- Hazard Analysis Critical Control Point: an inspection system that identifies critical control points (CCP's) during the storage, preparation, and service of hazardous foods. A CCP is a point, step, or procedure in a food handling process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level.

Health Hazard: any condition of a premise, or a substance, thing, plant or animal other than man, or a solid, liquid, gas or combination of any of them, that has or is likely to have an adverse effect on the health of any person.

Ontario Regulation 562 - Food Premises Regulation: a provincial law which governs the preparation and sale of food to the public and applies to all persons that own and operate a food premise.

Pathogen: a disease-causing microorganism.

Sanitizing: a process that reduces pathogenic organisms to acceptable levels using either hot water (82 degrees Celsius) or chemical agents (chlorine, iodine or Quaternary ammonium).

