FOOD HANDLER TRAINING MANUAL 2008

Bhutan Agriculture and Food Regulatory Authority
Ministry of Agriculture

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I. Background

Sections 32 to 41 of Food Rules and Regulations of Bhutan 2007 requires all people who supervise and/or handle food or food contact surfaces have the knowledge and skills of basic food safety and food hygiene. This training manual has been designed to provide basic knowledge and skills required by food handlers as per the provisions of above-cited legislation. A food handler is any one who works in a food business and who either handles food or surfaces that are likely to come in contact with food (e.g. tables, fridges or chopping boards, cutlery, plates). It covers staff who manufacture, process, prepare, serve, deliver, transport or package food in food establishments.

Food safety means making sure that food is safe to eat while food hygiene means keeping the food premises and equipment clean. Ensuring food handlers have the right food safety skills and knowledge will not only fulfill the legal requirements, but will ensure consumer confidence and make food businesses secure and profitable. This training manual will also ensure that all food handlers across the country have the required uniform skills and knowledge in basic food safety and hygiene across the country. Upon completion of this training, a food handler will be able to understand the requirements of personal health, hygiene and practices, sources of food contamination, temperature control, safe storage practices and sanitation requirements of food premises.

II. Scope

This training manual is designed for the requirement of food handlers working in hotels, restaurants, café, bars serving foods, canteens, catering and takeaways, bakeries, confectioneries, smalltime home-run food processing units, guesthouses and pubs , institutions like schools, *dratshang* and *shedras*, etc.

All food handlers employed in food service must obtain a food handler license within **30 days** from the date of hire. All food handlers are required to keep their food handler license current by renewing it **every three years** as per the provision of section 39, Chapter VII - Food and Food Business of the Food Rules and Regulations of Bhutan 2007. An original or a copy of the license issued by BAFRA should be kept at the facility to show the BAFRA inspector upon request.

A food handler can also undergo self training using this manual and upon successful interview or written test by the designated BAFRA officials is eligible to obtain food handler license. A food handler will need a **score of 75%** to pass

the training. Throughout this manual a study questions are provided to help you get ready to take the test for the food handler certificate.

III. Personal Hygiene and Health

A. Handwashing

Food handler must wash hands often when working with food and drinks as this gets rid of germs that can make people sick. Food handlers must know following elements of good hand washing:

1. Correct technique for handwashing:
    - Use running warm water and soap;
    - Scrub hands and rinse thoroughly (approximately 20 seconds);
    - Dry hands with clean towel, single-use towel, or air dryer.

2. Food handlers must wash their hands:
    - Before they touch anything used to prepare food;
    - Before they touch food that will not be cooked;
    - Before putting on food service gloves, and after removing gloves;
    - After handling raw food and raw animal products (raw meat, fish and poultry);
    - After handling dirty dishes;
    - After handling garbage;
    - After cleaning or using chemicals.

3. Food handler must wash their hands twice (double handwash):
    - Before starting work;
    - After using the toilet and again when entering work area;
    - After blowing nose, sneezing, coughing, or touching eyes, nose or mouth;
    - Anytime hands come into contact with body fluids;
    - After smoking, or using tobacco products;
    - After eating or drinking.

A double handwash means to lather hands with soap and warm water for approximately 20 seconds, rinse, and repeat a second time. Hands must be dried using clean towel, paper towel or air dryer.

5. Food handler must know that food service gloves are capable of spreading germs and are not a substitute for proper handwashing.

6. Food handler must not smoke, eat, and chew tobacco in food preparation areas, including food and utensil storage areas.

B. Good Food Handling Practices

1. The food handlers must not smoke or chew tobacco while they are working or when they are near food or dishwashing areas. They can smoke only while they are on a break. They must was their hands twice before they return to work (double hand wash) after smoking.

2. Food handlers shall consume food in designated areas only.

3. Food handlers shall never use a tasting spoon twice.

4. Food handlers must keep their fingernails trimmed short and filed at all times as it facilitates easy cleaning of beneath area of fingernails. They must ensure to scrub underneath of their fingernails as failure to remove dirt and faecal material from beneath fingernails can be a major source of illness causing organisms.

5. Food handlers must be aware that single-use food service gloves can also spread germs. They must wash and dry hands before putting on gloves. They must wash their hands again when gloves are removed.

   Food handlers must change gloves between tasks and must be aware that gloves can spread germs onto food that will not be cooked. Even when they wear gloves, it is best to keep fingernails short.

6. Food handlers when thirsty while working may drink from a closed beverage cup with lid and straw or cup with lid and handle. This may be allowed only if the food handler is careful to prevent contamination of hands, equipment, any service items, and exposed food.

7. Food handlers shall use, whenever possible, separate cutting boards, blocks, tables, grinders, slicers, and other utensils for raw and cooked food. If the same equipment and utensils must be used, food handlers shall thoroughly clean and sanitize equipment used for raw food after each use.

C. Helping to Prevent Foodborne Illness

1. The food handler must know five major mistakes that often cause food borne illness:

    i. Inadequate handwashing;
    ii. Food handlers working while they are ill;
    iii. Cross contamination;
    iv. Inadequate cooking temperatures;
    v. Inadequate temperature control (allowing foods to be in the danger zone)

2. The food handler must know following good practices that prevent food borne illness:

    i. Proper hand washing every time hands may have become contaminated
    ii. Food handlers working only when healthy
    iii. Storing and handling of foods in a manner to prevent contamination
    iv. Cooking each animal product to its required internal temperature
    v. Maintaining hot and cold temperatures (keeping foods out of the danger zone)

D. Dress code

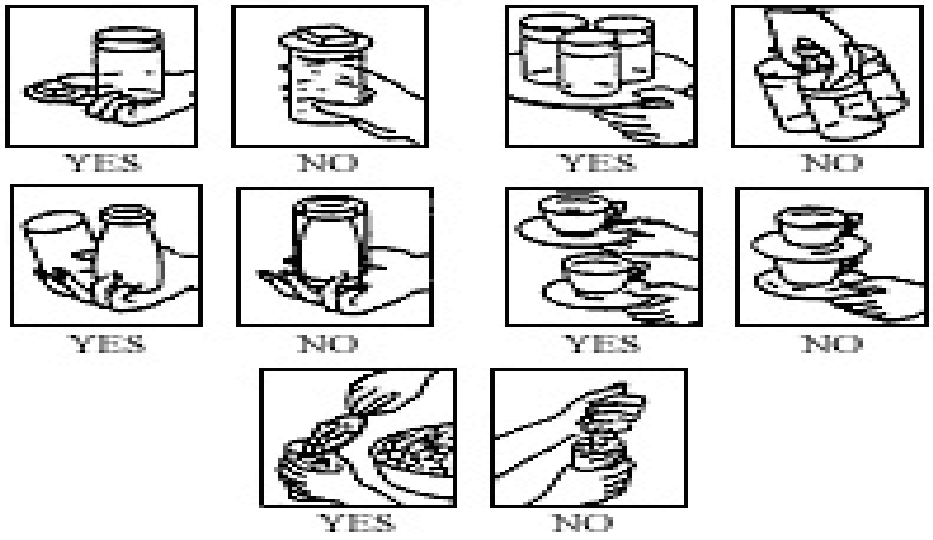
Food handler must keep themselves clean and wear clean clothing at all times. Low risk food handlers such as store-men, waiters and waitresses, bar staff, counter staff, serving assistants, and food delivery staff should wear clean apron and care must be exercised not to allow their personal clothing to come in contact with food or food utensils.

Food handlers who prepare open high-risk foods such as chefs, cooks, catering supervisors, kitchen assistants, and bar staff who prepare food must wear clean apron and head gear. People serving ready-to-eat such as bakeries, confectioneries, dumplings, spring rolls, etc must use either tong or disposable food grade plastic gloves while serving food.

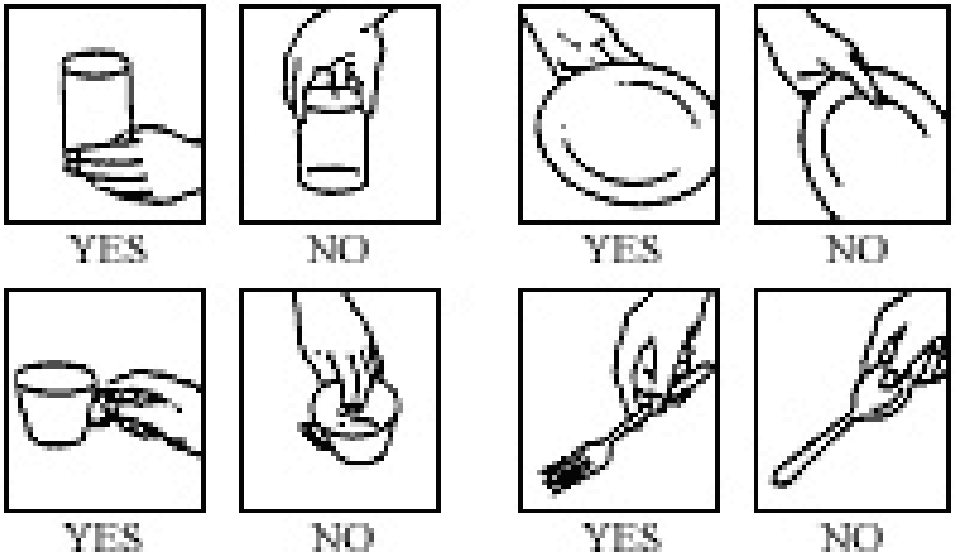
Items of jewelry such as rings, bracelets, and watches may act as a hiding place for foodborne illness causing organisms (germs) and therefore should be avoided while handling food. An additional hazard associated with jewelry is the possibility that pieces of the item or the whole item itself may fall into the food being prepared. Hard foreign objects in food may cause medical problems for consumers, such as chipped and or broken teeth and internal cuts and lesions.

E. Sanitary way of serving food

1. Food handlers shall carry and serve food in a sanitary manner as indicated below in the pictures.



2. Food handlers shall handle glasses, plates and chinaware in a sanitary manner as indicated below.



F. Food Handler Illness

1. The food handler should not go to work if he/she is feeling sick. The germs brought by him/her to work can be spread through touching food, dishes, counters, utensils, and other people.

2. The food handler must inform the owner or person in charge of the food service facility when ill with diarrhea, vomiting, jaundice yellowing of the skin or dark tea coloured urine), or fever with sore throat.

3. The food handler must not to work in the food service facility while ill with these symptoms.

4. The food handler must inform the owner or the manager when ill or if they live in the same household as a person with any of the following diseases:

Foodborne Illnesses	**Common symptoms**				
	Diarrhoea	**Fever**	**Vomiting**	**Jaundice**	**Sore throat with fever**
1. Hepatitis A virus		√		√	
2. Salmonella Typhi		√			
3. Shigella	√	√	√		
4. E. coli O157:H7	√				
5. Norwalk or Noro viruses	√	√	√		
6. Staphylococcus aureus	√		√		
7. Streptococcus pyogenes		√			√

Note: These are most common illness transmitted from food handlers to others through food and utensils

5. The food handler must not handle food with an infected boil, cut, burn, or sore on the hand or wrist. Food may be handled if the injury is covered with a clean bandage and a latex-free glove.

IV. Common Causes of Foodborne Illness

A. Germs

People can get sick when the food they eat contains germs. This is called ***"foodborne illness"*** or ***"food poisoning"***. Germs such as bacteria and viruses are everywhere. Think of your hands and fingernails as easily "contaminated." Just because they look clean does not mean they are clean. Germs are too tiny to see with your eyes. If you do not wash your hands in the right way and keep your fingernails trimmed short, your hands can put germs in food that will be eaten by your customers. They may get sick from these germs.

1. Bacteria: There are different kinds of germs that make people sick. Bacteria are one kind of germ. They grow fast and they may cause food borne illness. Some bacteria make toxins that act like a poison. Cooking does not destroy most toxins. Almost always, the food looks and smells good, but it may have enough bacteria or toxin to make someone sick. Toxins can occur in many foods that have not been kept cold enough or hot enough.

2. Viruses: Viruses are another kind of germ that causes illness when it gets into the food. A food handler can have a virus and not know it. Even before food handler start feeling sick, they may be passing viruses into the food by not washing hands after coughing, sneezing or using the toilet. This is one reason why the law requires all food handlers to wash their hands twice (double hand wash) using lots of soap and warm water.

3. Parasites: Parasites are tiny worms that live in fish and meat. Cooking fish and meat to the right temperature will kill parasites.

Germs grow easily in foods like meat, fish, poultry, milk, re-fried beans, cooked rice, baked potatoes and cooked vegetables. These are called ***potentially hazardous foods***. These are all foods that are moist and have nutrients that the germs need to grow. Germs grow well on these foods at warm temperatures between 41^0F (5^0C) and 140^0F (60^0C).

B. Other causes of Foodborne Illness

1. Chemicals: People can also get sick when chemicals get into the food and therefore chemicals must be kept away from food.

2. Physical Contamination: Physical contamination occurs when foreign objects are accidentally introduced into food. Food items either may arrive already contaminated with dirt, pebbles, pieces of iron nails and broken glasses or these contaminations may occur during the process in the facility.

If the food is contaminated, a food handler must discard the contaminated food, and notify the owner or manager of the facility right away!

The food handler must know that:

i. Foodborne illness results from eating contaminated food (contaminated by germs, toxins, chemicals or physical objects).
ii. Food contaminated with organisms (germs) does not always look, smell or taste different from non-contaminated food.
iii. Symptoms of foodborne illnesses vary and may include diarrhea, vomiting, fever, cramping and nausea.
iv. Depending on the cause, symptoms may develop in a few minutes to several days. Some symptoms may even last several days and can result in death.

V. Food Temperature Controls

This section is about killing germs with cooking and stopping their growth by keeping the food hot or cold. This is called temperature control, and every food facility needs at least one accurate metal-stem probe (food) thermometer to check food temperatures.

A. The "Danger Zone"

Germs like bacteria need time, food and moisture to grow. The temperature between 41^0F (5^0C) and 140^0F (60^0C) is called the "Danger Zone!" as bacteria can grow fast and produce toxins that can make people sick.

B. When to Discard Food?

Foods left in the Danger Zone for more than four hours must be discarded. Reheating the food may kill the bacteria but the toxins (produced by bacteria) will remain in food and cause illness.

C. Cooking Food to Safe Temperature

Cooking raw food to the proper temperature will kill germs that cause people to become sick. Different foods have to reach different temperatures to be done or safe. The table below provides temperature chart for cooking meats.

Cooking Requirements for Specific Foods		
Animal Product	**Minimum Temperature**	**What to Know?**
Poultry, Ground Poultry	**165^{0}F (74^{0}C) for 15 seconds**	Stuffing should be cooked outside of poultry.
Stuffing, Stuffed Meats, Casseroles and dishes combining raw and cooked food	**165^{0}F (74^{0}C) for 15 seconds**	Stuffing acts as an insulator, preventing heat from reaching the meat's center. Stuffing should be cooked separately.
Ground or Flaked Meats hamburger, ground pork, flaked fish, ground game animals, sausage, injected and pinned meats	**155^{0}F (68^{0}C) for 15 seconds**	Grinding meat mixes the organisms from the surface into the meat. Alternative minimum internal temperatures for ground meats: 150^{0}F (66^{0}C) for 1 minute 145^{0}F (63^{0}C) for 3 minutes
Pork, Beef Steaks, Veal Lamb, Commercially Raised Game Animals	**145^{0}F (63^{0}C) for 15 seconds**	This temperature is high enough to destroy Trichinella larvae that may have infested pork.
Beef or Pork Roasts	**145^{0}F(63^{0}C) 3 minutes**	Alternative minimum internal cooking temperatures for beef and pork roasts: 130^{0}F (54^{0}C) for 121 minutes 134^{0}F (57^{0}C) for 47 minutes 138^{0}F (59^{0}C) for 19 minutes 140^{0}F (60^{0}C) for 12 minutes 142^{0}F (61^{0}C) for 8 minutes 144^0 (62^{0}C) for 5 minutes
Fish, Foods containing fish, and Seafood	**145^{0}F(63^{0}C) 15 seconds**	Stuffed fish should be cooked to 165^{0}F (74^{0}C) for 15 seconds. Fish that has been ground, chopped, or minced should be cooked to 155^{0}F (68^{0}C) for 15 seconds
Shell Eggs for immediate service	**145^{0}F(63^{0}C) 15 seconds**	Only take out as many eggs as you need. Never stack egg flats near the grill or stove. Eggs cooked for later service must be cooked to 155^{0}F for 15 seconds and held at 140^{0}F.
Foods cooked in Microwave Meat, Poultry, Fish, Eggs	**165^{0}F (74^{0}C) let it stand for 2 minutes after cooking**	Cover food, rotate or stir it halfway through the cooking process.

Be sure to cook the food to the temperature that is shown on the chart. Remember you can choose several ways to cook food but no matter how you cook the food, it must reach the correct cooking temperature. Using a metal stem probe thermometer is the only way to know the correct temperature of food. You must place the thermometer in the thickest part of the meat or in the center to get a true reading.

D. Cold Holding

You should always keep cold food at 41^0F (5^0C) or colder. Fish, shellfish, poultry, milk and red meat will stay fresh longer if you hold them cold at 41^0F (5^0C) or colder. Food being held cold on the top section of a refrigerated preparation unit also benefits from being covered.

E. Hot Holding

After the food is cooked and ready to serve, you will need to keep it warm enough to stop any germs from growing. You must turn on steam tables, soup warmers and heated surfaces before you need them so that they will be hot enough when you put the cooked food into them. You must keep hot food at 140^0F (60^0C) or hotter. Stir food to help keep the food on top hot and a provision of a cover on the pan will help to retain the heat inside.

The food handlers must understand why hot and cold holding temperatures are important factors in preventing illness. Food being cooled or heated must move through the danger zone as rapidly as possible.

F. How to Use a Food Thermometer

1. A thermometer that works best shows a range of 0^0F (-18^0C) to 220^0F (104^0C).

2. Check the internal temperature of the food toward the end of the cooking time.

3. Place the thermometer in the thickest part of the meat or in the center of the food to get a true reading. (Do not touch the bone with the stem of the thermometer to prevent a false reading).

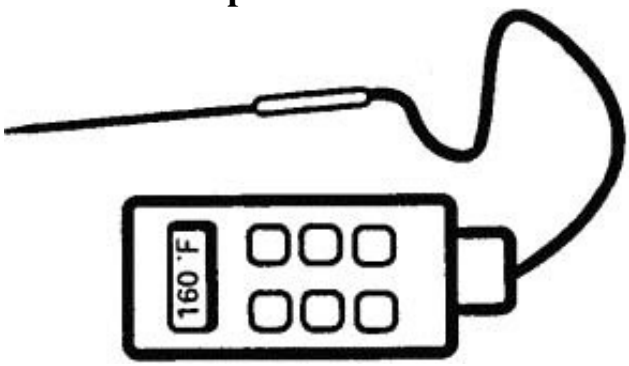
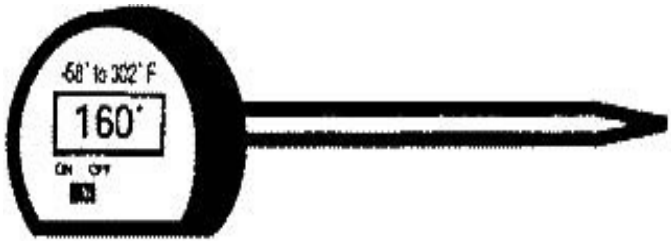
4. When taking temperatures of a large amount of food like a big piece of meat, be sure to take the temperature in two or more locations.

5. Compare your thermometer reading to the Required Cooking Temperatures to determine if your food has reached a safe temperature.

6. Wash and sanitize the thermometer each time you check the temperature of a food.

G. Refrigerator Thermometer

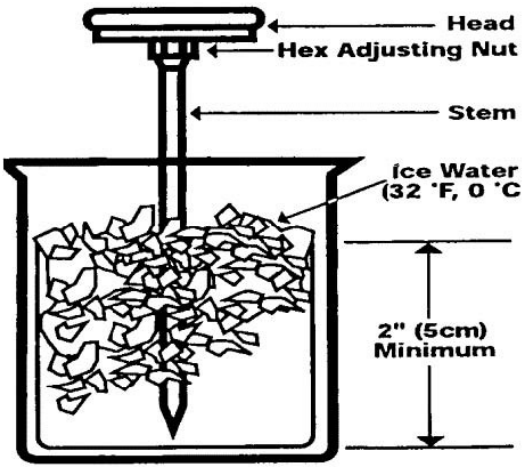
Every refrigerator is required to have a thermometer. This thermometer must be located where it is easy to see when you open the refrigerator door. Every refrigerator should be operating at 41^0F or less as indicated by the thermometer. If the thermometer reads above 41^0F, then use a metal-stem probe food thermometer to check the temperature of food inside of the refrigerator with a food thermometer.

Types of Food Thermometer	Speed	Placement
1. Thermocouple  *Most models can be calibrated*	2–5 seconds	¼" or deeper in the food as needed
2. Thermistor  *Some models can be calibrated*	10 seconds	At least ½" deep in the food
3. Instant-Read Bimetal  *Most models can be calibrated*	15–20 seconds	2 – 2 ½ " deep

It is important to refer to manufacturer instructions to find out if your thermometer can be calibrated. It is advisable to check web or food equipment suppliers to obtain the best thermometer.

H. Calibrating a Food Thermometer

When you use a food thermometer you need to make sure the temperature it gives you is accurate. An easy way to do this is to use ice and water.



Pack a large cup to the top with crushed ice and water.

Put the thermometer at least 2 inches into the ice slurry. After 30 seconds, read the dial. It should read 32^0F (0^0C).

If it does not read 32^0F (0^0C) after 30 seconds, you need to:

i. Leave it in the ice slurry. Add ice as it melts.
ii. Use pliers or a wrench and turn the nut on the back of the thermometer until the needle reads 32^0F (0^0C).
iii. Wait 30 seconds. Keep repeating these steps until the thermometer reads 32^0F (0^0C).

Calibrate your food thermometer every day and whenever it is bumped or dropped. This way you will know that is giving you the correct temperature.

VI. Safe Storage Practices

The food handler must know how to store and handle food safely by preventing cross contamination**.** A ***cross contamination*** happens when germs from raw or unclean food get into foods that are ready to serve or that will not be cooked again before serving them.

A food handler must prevent cross contamination. Some important ways to prevent cross contamination are:

i. Store raw meat, fish and poultry on the lower shelves of the refrigerator.
ii. Don't let raw meats; beef, pork, lamb, fish or poultry drip onto foods that will not be cooked before serving.
iii. Keep different types of raw meat separate from each other.
iv. Store unwashed food or raw food away from ready-to-eat food.
v. Wash your hands between handling raw meat and foods that will not be cooked before eating.
vi. Never store foods that will not be cooked before serving in the same container as raw meat, fish or poultry.
vii. Wash your hands before handling food.
viii. Wash, rinse and sanitize the cutting surface and all the utensils and knives every time you finish with a job or between preparing different foods.
ix. Use clean utensils instead of hands for dispensing food.
x. Store foods away from cleaners and poisons.
xi. Properly label all chemicals, cleansers and pesticides

Cooling Hot Foods - With cooling of foods it is important to move the food temperature through the "Danger Zone" as quickly as possible to keep food safe.

Fresh is Best – The food handler must aware that bacteria can grow and produce toxins when food is being cooled. It is safest to make food fresh each day, just before you serve it.

Speed is Important with Cooling – If you must make food in advance or save leftover food, cool it as fast as you can to prevent bacteria growth and toxin production. Reheating will not destroy toxins.

Cooling Solid Foods – When cooling solid cooked foods such as roast meat, solid cuts of meat, be sure to:

i. Cut large roasts into smaller portions. This will help them to cool faster.
ii. Put all meats and other hot food in the refrigerator.

Cooling Soft/Thick Foods - You can cool soft/thick foods by pouring food into a shallow metal pan. Use a sheet pan for very thick foods like refried beans. Examples of soft/thick foods are refried beans, rice, potatoes, stews, chili, thick soup or thick sauces.

It is not easy to cool thick, therefore whenever possible use a flat pan and spread the food out as shallow as you can to speed up the cooling.
When cooling food in shallow metal pans, be sure to:

i. Pour hot food into shallow metal pans. The shallower the pan the faster the food will cool.
ii. Stirring food speeds up cooling time.
iii. Once food cools to 41^0F (5^0C), you can place food in a larger container and cover it.

Air Movement - Air in the refrigerator must be able to move around the food. The pans and dishes need to have space between them; do not crowd them. Do not stack pans on each other. Do not cover the food while it is cooling. A cover may be put on after the food has fully cooled.

Cooling Liquid Foods -You can use shallow metal pans or you can use the ice and water bath to cool thin soup and sauces. When cooling food with an ice bath, be sure to:

i. Close the drain in a large sink. Place the metal pot or pan of hot food in the sink. The sink drain must be indirectly plumbed.
ii. Fill the sink with ice and cold water up to the level of food in the pot or pan.
iii. Stir the soup or sauce often so that it cools all the way to the center. Ice paddles or cooling wands can be used to speed up the cooling process.
iv. Add more ice as ice melts.
v. The food must reach 41^0F (5^0C)

You can choose several ways to cool food. No matter how you cool the food, it must drop from:

- **140^0F (60^0C) to 70^0F (21^0C) within two hours and then the temperature must drop from**
- **70^0F (21^0C) to 41^0F (5^0C) within four hours.**

Use a food thermometer to check the temperature while it is cooling. If it isn't cooling fast enough you will need to do something else to speed up cooling

Ready-to-eat potentially hazardous foods must be date marked with either the preparation date, use-by date, or date the commercial package was opened. Food used within one day is not required to be date marked.

The food can be stored for 7 days when the refrigerator maintains 41^0F (5^0C) or colder. Food older than 7 days must be discarded.

VII. Maintaining a Clean Workplace

It takes more than soap and water to keep a food business clean and safe. A food facility must be maintained clean and under hygienic condition by washing using appropriate detergents and sanitizers. It is important to follow the prescribed direction while using detergents and sanitizers. You must read the labels and ask the owner or manager about when to use them and how much to use. ***Be sure you understand and follow the directions!***

It is important to keep in mind that chemicals are kept away from food and clean utensils. If chemicals must be stored in the same room, be sure they are stored in their own area. The area should be below food and utensils, so there is no chance of chemicals splashing onto the food and utensils. All chemicals must be kept in the bottles or boxes they come in. If you put them in a different container, label them clearly.

It is important to ensure that utensils, work surfaces and equipment are washed, rinsed, and sanitized between uses and when necessary to prevent cross contamination.

The cleaning directions for each piece of equipment must be followed strictly. The correct steps for cleaning utensils, food contact surfaces and equipment are:

- Wash them in hot soapy water;
- Rinse them in clean hot water;
- Sanitize them with freshly prepared sanitizer (1 to 2 teaspoons of bleach per 1 gallon of water)

Outside garbage must be contained in watertight containers with lids remaining closed when not in use. Exclude flies, especially during the warmer months, by screening open doors and windows screened with 1/16th of an inch mesh.

Pests such as cockroaches, flies, mice and rats can carry disease and cause damage. Pests can come into the facility through small holes or gaps under the door. A mouse can slip through a space ¼ inch. Prevention and control of these pests is essential. This can be done blocking their entry by eliminating small holes and gaps under and around the door.

VIII. Review Questions

Write your answers to the study questions in the space provided.

1. How long must you wash your hands?

2. When must you wash your hands?

3. What is a double handwash?

4. When must you do a double handwash?

5. What is it called when someone gets sick from eating food contaminated with germs or toxins?

6. What should you do at work when you are sick?

7. What are the five symptoms (if you were to have any one of them) that you must tell the owner or the manager?

8. What is the temperature for holding food hot?

9. What is the temperature for holding food cold?

10. What are some ways to keep food hot?

11. Why use a metal-stem probe thermometer?

12. Where should you store cleaners and poisonous chemicals in relation to food?

13. Where in refrigerator should you store raw meat?

14. What is cross contamination?

15. List two ways to prevent cross contamination?

16. What should you do if food becomes contaminated?

IX. Practice Test

Choose the best answer for each question.

1. Which of the following statements is true? After touching raw ground beef, it is important to:

    A. Wipe your hands on a sanitizer wipe cloth
    B. Use a hand sanitizer before touching anything else
    C. Wash your hands with soap and water
    D. Dip your hands in a bucket of sanitizer

2. When must you double handwash?

    A. After sneezing or coughing
    B. After touching raw meat
    C. After eating or drinking
    D. A and C

3. What is proper handwashing?

    A. Using soap, running water and scrubbing 20 seconds
    B. Using sanitizer, running water and scrubbing for 20 second
    C. Using soap, running water and scrubbing for 10 seconds
    D. Using sanitizer, running water and scrubbing for 10 seconds

4. It is okay to wear disposable gloves if:

    A. You wear a pair of gloves to handle money and food
    B. You wash your hands first and discard gloves between activities
    C. You discard the gloves every few hours or at least once a day
    D. You blow into the gloves first to make them easier to put on

5. When you have a sore throat or diarrhea, you should:

A. Go to work and tell your coworkers to be careful around you
B. Call your manager and report that you are sick
C. Take medicine to stop the symptoms and go to work
D. Not tell anyone and continue working

6. Preparing food several hours in advance can make food unsafe because:

A. Bacteria can grow if the food temperatures fall into the danger zone
B. Foods can lose their flavor, color and general quality
C. Foods can lose their nutritional value
D. Refrigerators can only hold so much food

7. The most important reason to wash, rinse and sanitize cutting boards is to:

A. Eliminate odors and tastes from getting into other foods
B. Make the cutting board look better and last longer
C. Prevent contamination from one food to another
D. Prevent flavors and garlic or onion juices from getting onto other foods

8. What is the minimum temperature that hot food must be kept at on the steam table to keep food safe?

A. Hot – 140^0F
B. Hot – 130^0F
C. Hot – 120^0F
D. Hot – 165^0F

9. What is the maximum temperature that cold food must be kept at on the salad bar to keep food safe?

A. Cold - 51^0F
B. Cold – 65^0F
C. Cold - 41^0F
D. Cold - 55^0F

Answers: 1. C; 2. D; 3. A; 4. B; 5. B; 6. A; 7. C; 8.A; 9.C.

X. Glossary

Bacteria – Bacteria are germs with only one cell that can multiply into large numbers when food is in the danger zone for more than 4 hours.

Chemicals – In this book, chemicals are referred to as ingredients in cleaning, sanitizing, or pesticide products that make people sick if eaten.

Cold Holding – Cold holding is when you keep food cold by using refrigeration or ice.

Cross Contamination – When germs from one food item are passed to another food item, usually raw food to ready-to-eat food.

Double Handwash – Lather hands with soap and warm water for approximately 20 seconds, rinse, and repeat a second time. Dry hands with clean towel, paper towel, air dryer or roll of linen towels.

Danger Zone – The Danger Zone is when the temperature of food is between 41^0F (5^0C) and 140^0F (60^0C). This is called the danger zone because bacteria will grow quickly between these temperatures.

Foodborne Illness – Sickness caused from germs or toxins in food. This is also called food poisoning.

Food Thermometer – A metal-stem probe thermometer used to take temperatures of food.

Hot holding – Holding food hot after it has been properly cooked or reheated. Food must maintain a temperature of 140^0F (60^0C) or hotter.

Infected – A cut or burn that is swollen, red, or has pus.

Reheating – The process of making a cold food hot. Food must be heated food from 41^0F (5^0C) to 165^0F (74^0C) within two hours.

Parasites – These are tiny worms that live in fish, meat and humans.

Potentially Hazardous Foods – Moist, nutrient-rich foods that supports the growth of bacteria when the temperature is between 41^0F (5^0C) and 140^0F (60^0 C).

Sanitize – The final step to removing bacteria from food contact surfaces that have just been cleaned. Many places use a solution made up of one teaspoon of bleach to one gallon of water to sanitize equipment and utensils.

Virus – Viruses are germs that can only reproduce inside of a living cell. It takes a small number of viruses to make someone sick. Many viruses get into the food from the lack of hand washing especially after using the toilet and then touching food.

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