

Section Two: Five Keys to Safer Food



KEEP CLEAN

Core information	Why?
<ul style="list-style-type: none"> ◆ Wash your hands before handling food and often during food preparation ◆ Wash your hands after going to the toilet ◆ Wash and sanitize all surfaces and equipment used for food preparation ◆ Protect kitchen areas and food from insects, pests and other animals 	<p>While most microorganisms do not cause disease, dangerous microorganisms are widely found in soil, water, animals and people. These microorganisms are carried on hands, wiping cloths and utensils, especially cutting boards, and the slightest contact can transfer them to food and cause foodborne diseases.</p>
<p>Considerations and suggestions for the trainer</p> <p>Just because something looks clean does not mean that it is. It takes over 2.5 billion bacteria to make 250 ml of water look cloudy, but in some cases it takes only 15-20 pathogenic bacteria to make one sick.</p> <p>If slaughtering of animals at home is practised in your region, the following information is very important.</p> <ul style="list-style-type: none"> ◆ Keep the area clean and separate from food preparation areas. ◆ Change clothes and wash hands and equipment after slaughtering. ◆ Do not slaughter sick animals. ◆ Be aware of on-going diseases in your area such as Avian influenza. Human health risks from these diseases may require additional controls such as using personal protective gear. Contact the local government authority for further information. ◆ Remove faeces from the home and keep it separate from food growing, preparation and storage areas. ◆ Wash hands to prevent contamination with faecal material. ◆ Keep domestic and other live animals away from the food growing, preparation and storage areas (e.g. pets, poultry, animals raised in the home). 	



How to keep yourself clean: hand-washing	Additional Information
<p>Hands frequently transport microorganisms from one place to another, so hand-washing is very important.</p> <p>You should wash your hands:</p> <ul style="list-style-type: none"> ◆ Before handling food and often during food preparation; ◆ Before eating; ◆ After going to the toilet; ◆ After handling raw meat or poultry; ◆ After changing a baby's nappy (diaper); ◆ After blowing your nose; ◆ After handling rubbish; ◆ After handling chemicals (including those used to clean); ◆ After playing with pet animals; and ◆ After smoking. <p>To wash your hands you should:</p> <ul style="list-style-type: none"> ◆ Wet hands under running water; ◆ Rub hands together for at least 20 seconds with soap; ◆ Rinse hands under running water; and ◆ Dry hands thoroughly with a clean dry towel, preferably a paper towel. 	<p>In the food industry, it is important to discuss personal hygiene. This discussion should include topics such as wearing gloves, keeping fingernails trimmed and wearing clean clothes. If gloves are used, they should be changed often.</p> <p>“Toilet” could be understood as defecation only, if urination is not also mentioned.</p> <p>Many people wash their hands improperly. They do not use soap or wash only part of their hands. When washing hands, pay attention to finger tips, fingernails, thumbs, wrists and in between fingers.</p> <p>The combination of hot water and soap helps remove grease, bacteria and dirt. A bucket with a tap or a bucket and a pitcher can be used to wash hands when no running water is available.</p> <p>It is best to wash hands with warm water, but in many areas warm water is not available. Cold or lukewarm water for washing is acceptable when used with soap.</p>
<p>Considerations and suggestions for the trainer</p> <ul style="list-style-type: none"> ◆ While washing with soap and water is ideal, many people do not have access to soap or detergent. Coal ash is commonly used as a substitute for soap. This method for hand-washing is acceptable. 	



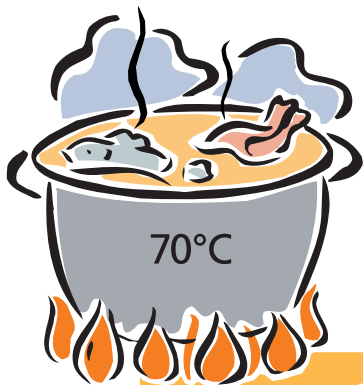
How to clean plates and utensils	Additional Information
<p>In general, one should:</p> <ul style="list-style-type: none">◆ Clean while preparing food, so microorganisms do not have a chance to grow;◆ Pay special attention to eating, drinking and cooking utensils that touch raw food or the mouth;◆ Sanitize cutting boards and utensils after they have been in contact with raw meat or seafood; and◆ Don't forget to clean and dry the cleaning equipment, as microorganisms grow fast in damp places. <p>For cleaning after the meal, one should:</p> <ul style="list-style-type: none">◆ Scrape excess food into a rubbish bin;◆ Wash in hot water with detergent, using a clean cloth or brush to remove left-over food and grease;◆ Rinse in clean hot water;◆ Sanitize utensils with boiling water or with a sanitizing solution; and◆ Leave dishes and cooking utensils to air-dry, or wipe with a clean dry cloth.	<p>It is important to distinguish between "cleaning" and "sanitizing". "Cleaning" is the process of physically removing dirt and crumbs of food. "Sanitizing" is the process of disinfecting or killing germs.</p> <p>Cloths, towels and other cleaning utensils need to be kept clean and changed daily. Sponges are not recommended. Use separate cloths for cleaning dishes and surfaces to prevent the spread of microorganisms.</p> <p>To make a sanitizing solution: mix 5 ml of household bleach in 750 ml of water. Use for utensils, surfaces and wiping cloths.</p> <p>Boiling water can also be used to sanitize utensils, but be careful to avoid burns!</p>
How to protect food preparation areas from pests	Additional Information
<p>Pests are rats, mice, birds, cockroaches, flies and other insects. Pet animals (dogs, cats, birds, etc.) carry microorganisms and pests (fleas, ticks, etc.) on their feet, fur and feathers.</p> <p>To keep food safe from pests, one should:</p> <ul style="list-style-type: none">◆ Keep food covered or in closed containers;◆ Keep rubbish bins covered and remove the rubbish regularly;◆ Keep food preparation areas in good condition (repair wall cracks or holes);◆ Use baits or insecticides to kill pests (taking care not to contaminate food); and◆ Keep domestic animals away from food preparation areas.	<p>Pests can transfer harmful microorganisms onto food and kitchen surfaces.</p> <p>Change the example of common pests depending on the prevalent pest within the chosen target area.</p> <p>Discuss ways to eliminate pests from food preparation and storage areas.</p> <p>In some countries, it may be impossible to ensure that the kitchen is totally pest-free. In this case, clean and sanitize surfaces and utensils before cooking.</p> <p>Cats carry a parasite that can contaminate food and cause serious disease in unborn babies. Keep cats away from food preparation and storage areas.</p>



SEPARATE RAW AND COOKED



Core information	Why?
<ul style="list-style-type: none"> ◆ Separate raw meat, poultry and seafood from other foods ◆ Use separate equipment and utensils such as knives and cutting boards for handling raw foods ◆ Store food in containers to avoid contact between raw and prepared foods 	<p>Raw food, especially meat, poultry and seafood and their juices, can contain dangerous microorganisms which may be transferred onto other foods during food preparation and storage.</p>
<p>Considerations and suggestions for the trainer</p> <ul style="list-style-type: none"> ◆ Keeping raw and prepared food separate prevents the transfer of microorganisms. ◆ “Cross-contamination” is a term used to describe the transfer of microorganisms from raw to cooked food. ◆ Discuss local food handling and preparation habits to identify factors that may lead to contamination. 	
How to keep raw and prepared food separate	Additional Information
<ul style="list-style-type: none"> ◆ While shopping, keep raw meat, poultry and seafood separate from other foods. ◆ In the refrigerator, store raw meat, seafood and poultry below cooked or ready to eat foods to avoid cross-contamination. ◆ Store food in containers with lids to avoid contact between raw and prepared foods. ◆ Wash plates used for raw food. Use a clean plate for cooked foods. 	<p>Emphasize that separation must occur not only when cooking, but during all phases of food preparation including slaughtering processes.</p> <p>Liquids used for marinating raw meat should not be poured over the meat when it is cooked and ready to eat.</p>



COOK THOROUGHLY

Core information	Why?
<ul style="list-style-type: none"> ◆ Cook food thoroughly, especially meat, poultry, eggs and seafood ◆ Bring foods like soups and stews to boiling to make sure that they have reached 70 °C. For meat and poultry, make sure that juices are clear, not pink. Ideally, use a thermometer ◆ Reheat cooked food thoroughly 	<p>Proper cooking can kill almost all dangerous microorganisms. Studies have shown that cooking food to a temperature of 70 °C can help ensure it is safe for consumption. Foods that require special attention include minced meats, rolled roasts, large joints of meat and whole poultry.</p>
<p>Considerations and suggestions for the trainer</p> <ul style="list-style-type: none"> ◆ Provide examples of foods and/or dishes eaten by the audience. Use these foods and/or dishes along with the usual technique of cooking to emphasize how to ensure that the food is cooked thoroughly. ◆ If the audience does not have access to a thermometer, emphasize the use of colour as an indicator that the food is cooked thoroughly. <p>Cooking safely in the microwave oven</p> <ul style="list-style-type: none"> ◆ Microwave ovens can cook unevenly and leave cold spots where dangerous bacteria can survive. Make sure that food cooked in a microwave oven is at a safe temperature throughout. ◆ Some plastic containers release toxic chemicals upon heating and should not be used in the microwave to heat food. 	



How to cook food thoroughly	Additional Information
<p>Food must reach a temperature of 70 °C in order to ensure it is safe to eat. A temperature of 70 °C kills even high concentrations of microorganisms within 30 seconds.</p> <p>Use a thermometer to check that foods reach 70 °C.</p> <p>Some audiences will need to be taught how to use a thermometer. Instructions for use are as follows.</p> <ul style="list-style-type: none">◆ Place the thermometer in the centre of the thickest part of the meat.◆ Make sure the thermometer is not touching a bone or the side of the container.◆ Make sure the thermometer is cleaned and sanitized between each use to avoid cross-contamination between raw and cooked food. <p>If a thermometer is not available:</p> <ul style="list-style-type: none">◆ Cook poultry until the juices are clear and the inside is no longer pink;◆ Cook eggs and seafood until piping hot throughout; and◆ Bring liquid based foods such as soups and stews to a boil and continue to boil for at least 1 minute.	<p>The centre of an intact piece of meat is often sterile. Most bacteria are on the outer surface. Eating intact pieces of meat (e.g. roast beef) with red centres is usually not dangerous. However, in minced meat, rolled roasts or poultry, bacteria can be found both outside and in the centre.</p> <p>Lower cooking temperatures can be used to kill microorganisms in certain foods. With lower temperatures, more cooking time is required.</p> <p>Reheat cooked food until it is piping hot throughout.</p>



60° C
5° C



KEEP FOOD AT SAFE TEMPERATURES

Core information	Why?
<ul style="list-style-type: none"> ◆ Do not leave cooked food at room temperature for more than 2 hours ◆ Refrigerate promptly all cooked and perishable food (preferably below 5 °C) ◆ Keep cooked food piping hot (more than 60 °C) prior to serving ◆ Do not store food too long even in the refrigerator ◆ Do not thaw frozen food at room temperature 	<p>Microorganisms can multiply very quickly if food is stored at room temperature. By holding at temperatures below 5 °C or above 60 °C, the growth of microorganisms is slowed down or stopped. Some dangerous microorganisms still grow below 5 °C.</p>
<p>Considerations and suggestions for the trainer</p> <ul style="list-style-type: none"> ◆ Storage practices vary greatly. Become familiar with food storage practices in the area and discuss safe storage practices. ◆ Provide storage times for refrigerated foods common to the area. ◆ Explore options other than refrigeration to lower temperature (dig a hole, use cold water, etc.). ◆ If safe storage is not feasible, discuss the possibility of obtaining fresh food and using it immediately. ◆ Directions will need to be converted into Fahrenheit for some audiences. 70 °C is about 160 °F and can be used as common reference temperatures for cooking. ◆ Discuss how to safely thaw large pieces of meat (e.g. turkeys, roasts, etc). <p>Thawing Food Safely in the Microwave</p> <p>Microwave ovens can be used to thaw food, but can leave warm spots where microorganisms can grow. Food thawed in the microwave oven should be cooked promptly.</p>	



<p>What are safe temperatures for food?</p>	<p>Additional Information</p>
<p>The danger zone is the temperature range of 5 °C to 60 °C in which microorganisms multiply very fast.</p> <p>Refrigeration slows bacterial growth. However, even when food is stored in the refrigerator or freezer, microorganisms can grow.</p>	<p>Microorganisms cannot multiply if it is too hot or too cold. Cooling or freezing food does not kill microorganisms but limits growth.</p> <p>Normally microorganisms multiply faster at higher temperatures. But once temperatures reach 50 °C, most microorganisms do not multiply.</p>
<p>How to keep food at safe temperatures</p>	<p>Additional Information</p>
<ul style="list-style-type: none"> ◆ Promptly cool and store leftovers. ◆ Prepare food in small amounts to reduce the amount of leftovers. ◆ Leftover food should not be stored in the refrigerator for longer than 3 days and should not be reheated more than once. ◆ Thaw food in the refrigerator or other cool location. 	<p>Left-over food can be cooled quickly by: putting the food onto open trays; slicing large pieces of meat into smaller pieces; placing food in a cool, clean container; or stirring regularly for soups.</p> <p>Label leftovers to indicate how long they have been stored.</p>



USE SAFE WATER AND RAW MATERIALS

Core information	Why?
<ul style="list-style-type: none"> ◆ Use safe water or treat it to make it safe ◆ Select fresh and wholesome foods ◆ Choose foods processed for safety, such as pasteurized milk ◆ Wash fruits and vegetables, especially if eaten raw ◆ Do not use food beyond its expiry date 	<p>Raw materials, including water and ice, may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals may be formed in damaged and mouldy foods. Care in selection of raw materials and simple measures such as washing and peeling may reduce risk.</p>
<p>Considerations and suggestions for the trainer</p> <ul style="list-style-type: none"> ◆ "Safe" means that water and food is free from dangerous microorganisms and toxic chemicals at levels that could cause illness and/or disease. 	
What is safe water?	Additional Information
<p>Untreated water from rivers and canals contain parasites and pathogens which can cause diarrhoea, typhoid or dysentery. Untreated water from rivers and canals is not safe!</p> <p>Rainwater collected in clean tanks is safe as long as the tanks are protected from contamination from birds or other animals.</p> <p>Safe water is needed to:</p> <ul style="list-style-type: none"> ◆ Wash fruits and vegetables; ◆ Add to food; ◆ Make up drinks; ◆ Make ice, ◆ Clean cooking and eating utensils; and ◆ Wash hands. 	<p>Boiling, chlorination and filtration are important means to inactivate microbial pathogens, but do not remove harmful chemicals.</p> <p>To disinfect water:</p> <ul style="list-style-type: none"> ◆ Bring to a rolling boil; ◆ Add 3 - 5 drops of chlorine to 1 litre of water; or ◆ Physically remove pathogens with appropriate filter. <p>Covering tanks and other receptacles with netting prevents the breeding of dengue mosquito vectors.</p>



How to select safe raw materials.	Additional Information
<p>When buying or using food:</p> <ul style="list-style-type: none">◆ Select fresh and wholesome food;◆ Avoid food that is damaged or rotting;◆ Choose foods processed for safety such as pasteurized milk or irradiated meat;◆ Wash fruits and vegetables with safe water, especially if eaten raw;◆ Do not use food after its expiry date;◆ Throw away smashed, swollen or oxidized cans; and◆ Choose ready to eat, cooked or perishable foods that are stored correctly (either hot or cold, but not in the danger zone).	<p>Bacteria can grow in can goods that are not properly prepared.</p> <p>Fresh fruit and vegetables have been identified as a significant source of pathogens and chemical contaminants. Therefore it is critical to wash all fruits and vegetables with clean and safe water before eating.</p> <p>Cut away damaged or bruised areas of fruits or vegetables - bacteria can thrive in these places.</p> <p>Pay attention to the expiry date on food items and throw away food when the date has passed.</p>