

5 KEYS TO FOOD SAFETY



Handbook for Trade



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Proper food handling can prevent most foodborne diseases, including preventing foodborne infections due to antimicrobial resistance bacteria. Stop microorganisms from making your consumers sick by following the 5 Keys to Food Safety.

WHAT IS FOODBORNE DISEASE?

- Sickness caused by food that you eat is called foodborne disease and is caused by dangerous microorganisms and/or toxic chemicals.
- The most common symptoms of foodborne disease are stomach pains, vomiting and diarrhoea. Most symptoms occur in 24 to 72 hours. Most are mild but some may severely affect **infants, pregnant women, elderly and the sick**. A very small percentage of foodborne diseases may lead to long-term health problems.

WHAT ARE THE CAUSES OF FOODBORNE DISEASE LOCALLY?

- Bacteria and viruses are common causative agents of foodborne disease, e.g. *Vibrio parahaemolyticus*, *Listeria monocytogenes*, *Salmonella* species, *Staphylococcus aureus* and *Noroviruses*.
- In general, inadequate cooking, cross-contamination by raw food and poor personal hygiene conditions are common contributing factors of foodborne disease.

WHAT ARE THE 5 KEYS TO FOOD SAFETY?

The World Health Organization has advocated five simple and effective keys for people to follow to prevent foodborne diseases. They are:

1. Choose (Choose safe raw materials)
2. Clean (Keep hands and utensils clean)
3. Separate (Separate raw and cooked food)
4. Cook (Cook thoroughly)
5. Safe Temperature (Keep food at safe temperature)

Below are some practical tips that help you to apply the 5 keys in daily operation from purchase, storage, preparation, cooking to transportation and serving.

Antimicrobial resistance (AMR) occurs when microorganisms such as bacteria, viruses, fungi and parasites change in ways that render the medications used to cure the infections they cause ineffective. AMR bacteria are often acquired through ingestion or contact (and enriched especially during antimicrobial treatment), from colonised or infected animals/food, humans, or their contaminated environment.

The 5 Keys to Food Safety target the basic principles that each individual, including food handlers, should know to prevent foodborne diseases, including preventing foodborne infections due to AMR bacteria. The Five Keys to Food Safety could effectively prevent foodborne disease, whether the pathogens are AMR or non-AMR.

PURCHASE



CHOOSE

- Obtain food and food ingredients from **approved** and **reliable sources**
 - Confirm that the suppliers have obtained relevant and valid licences from the Food and Environmental Hygiene Department (FEHD). Please visit http://www.fehd.gov.hk/english/licensing/list_licensed_premises.html
 - Don't buy food from illegal or questionable source, e.g. food of unreasonably low price or meat with abnormal red colour
- Use **fresh** and **wholesome** food ingredients and check the quality of the ingredients upon receipt
 - Fruits or vegetables are not damaged and without bruised areas
 - Canned foods are not bulging or dented or jars are not cracked or have loose lids
 - Eggs in the carton are not cracked or leaking
 - Food or food ingredients are stored at safe temperature, e.g. hot food at above 60°C, cold food at or below 4°C, frozen food at or below -18°C
- Do not use food beyond its expiry date
 - Read food labels carefully and follow instructions
 - Choose food before its expiry date, which may be either in the form of "use by" or "best before" date
 - Label and check the storage time of the food in the refrigerator
 - Stick to the **first-in-first-out** principle for food storage

Table: Difference between "use by" and "best before" date

	"use by" date 「此日期或之前食用」日期	"best before" date 「此日期前最佳」日期
Example of food	A cup of ice-cream	A pack of biscuit
Example of Expiry date	1-1-2008 If the food is properly stored, it is recommended for use on or before 1-1-2008	1-1-2008 If the food is properly stored, it can be expected to retain its specific properties on or before 1-1-2008
Recommendations after the Expiry date	Usually, the food is highly perishable. If you consume it after the date, there is a chance that you will suffer from foodborne disease	If you consume it after the date, the food may not be at its best flavour and quality



STORE



SAFE TEMPERATURE

- Refrigerate cooked and perishable food within 2 hours
- Check and record the temperature of the refrigerator with a thermometer and ensure the fridge is at or below **4°C** and freezer is at or below **-18°C**
- Don't overstuff your refrigerator

SEPARATE

- Ideally, use two separate refrigerators for storing raw food and cooked food or ready-to-eat food
- If raw food and cooked food or ready-to-eat food have to be stored in the same refrigerator, do the following:
 - Store food in **containers with lids** to avoid contact between raw food and ready-to-eat food or cooked food
 - Store **raw** meat, poultry, and seafood **below ready-to-eat food** or **cooked food** in the fridge to prevent juices from dripping onto ready-to-eat food or cooked food



PREPARE

CLEAN – ALWAYS START WITH A CLEAN SCENE

KEEP YOURSELF CLEAN

- Wash hands
 - Before handling food and often during food preparation, after handling raw meat or poultry and after handling soiled equipment or utensils
 - After coughing, sneezing, blowing nose, eating or drinking, after touching ears, nose, hair, mouth or other parts of the body, handling rubbish, handling animals and chemicals, going to the toilet, before wearing gloves and after engaging in any activities that may contaminate hands (e.g. handling money, carrying out cleaning duties)
- Wash your hands with **soapy water** for **20 seconds**
 - Wet hands under running water
 - Rub hands together for at least 20 seconds with liquid soap
 - Rinse hands under running water
 - Dry hands with clean paper towels or air dryers
- Keep nails short and unpolished
- Food handlers should wear disposable gloves when handling ready-to-eat food. Discard gloves when damaged, soiled, or when interruptions occur in the operation
- Cover sore or cut on hands by waterproof bandages or gloves
- Food handlers should wear **clean and light-coloured outer clothing or protective overalls**. If clothes become soiled during food preparation, change or clean them as necessary. They should also as far as possible, wear mouth masks when handling food. Discard the masks when damaged, soiled, or after prolonged use



PREPARE

KEEP THE ENVIRONMENT CLEAN

- Wash utensils and worktops with **hot water** and **detergent** after each use
- Keep kitchen clean and away from insects, pests and other animals
 - Keep food covered or in closed containers
 - Keep rubbish bins covered and remove rubbish at least once a day
 - Keep floors, surface channels and gratings clean and clear from food remnants
 - Keep food preparation areas in good condition, e.g. repair wall cracks or holes
 - Use rodenticides or insecticides to kill pests but take care not to contaminate food
 - Keep pets away from kitchen
 - You can also follow the suggested cleaning programme in the **Appendix**



SEPARATE

- Use separate utensils to handle raw food and cooked food or ready-to-eat food such as fruits, sushi or poached chicken
 - Label utensils (including cutting boards and knives) with different colours, e.g.
 - Red – Raw food**
 - Blue – Cooked food**
 - Green – Ready-to-eat food**
- Use one utensil to taste and another to stir or mix food





COOK

- Thaw frozen food in microwave, fridge or under running water before cooking
- Ideally, use a food thermometer to check that the core temperature reaches at least **75°C**. There are different types of food thermometers in the market (details in **Appendix**). When you use the food thermometer, make sure you use it properly:
 - Place the food thermometer in the **centre of the thickest part** of the meat
 - The food thermometer is not touching a bone or the side of the container
 - Clean the food thermometer between each use
- If you do not have a food thermometer, cook or reheat food thoroughly until it is piping hot throughout and check
 - For meat and poultry, make sure that juices are clear, **not red**, blood is not visible when you cut the cooked meat
 - Egg yolks are not runny or liquid
 - Bring soups and stews to a boil and continue to **boil** for at least **one minute**
- Stir, rotate and cover food when microwaving to ensure thorough cooking

SAFE TEMPERATURE

TRANSPORT AND SERVE

- For hot food, keep them at above **60°C**
 - During transportation, wrap them well and place in a clean insulated container
 - When serving, they should be held in warming device, or on preheated steam tables, warming trays, and/or slow cookers
 - Check the temperature frequently to ensure food reaches more than 60°C
- For cold food, keep them at or below **4°C**
 - During transportation, place them in cooler with a cold source such as ice or frozen gel packs
 - When serving, they should be held in shallow containers which are placed inside a deep pan filled partially with ice to keep food cold. Drain off water as ice melts and replace ice frequently
- As a general rule, if perishable foods have been displayed at temperature higher than 4°C:-
 - for less than 2 hours, they can be refrigerated for final use later or used before the 4 hours limit is up.
 - for more than 2 hours but less than 4 hours, they should be used before the 4 hours limit is up but should not be returned to the refrigerator.
 - for more than 4 hours, they should be discarded.



CHECKLIST OF 5 KEYS TO FOOD SAFETY

When purchasing food and food ingredients:

Source from suppliers who have obtained relevant and valid licences from FEHD

☐

When receiving goods:

Check that food is stored at proper temperature and storage conditions

☐

Check the expiry date of the prepackaged food

☐

During food storage:

Stick to the first-in-first-out principle

☐

Store cooked and perishable foods in the refrigerator within two hours if not used immediately

Label and check the storage time of food in the refrigerator

☐

When using the refrigerator:

Do not overstuff it

☐

Check and record the temperature of the refrigerator to ensure that the fridge is kept at 4°C or below; freezer is kept at -18°C or below

☐

Store food in containers with lids

☐

Store raw food in separate refrigerators or under the cooked food or ready-to-eat food in the same refrigerator

☐

Before preparing food, keep yourself clean:

Wear clean and light-coloured outer clothing

☐

Cover sore and cut by waterproof bandages or gloves

☐

Nails are short and unpolished

☐

Wash hands with soapy water for 20 seconds

☐

Wear gloves when handling ready-to-eat food and change them regularly

☐

Before preparing food, keep the environment clean:

Keep food preparation areas free from insects, pests and other animals

☐

Floors, surface channels and gratings are clean

☐

Cover rubbish bins and remove rubbish daily

☐

Cover food well

☐

CHECKLIST OF 5 KEYS TO FOOD SAFETY

During food preparation:

- | | |
|--|--------------------------|
| Use separate knives and cutting boards for raw food and cooked food | <input type="checkbox"/> |
| Wash hands between handling raw food and cooked food | <input type="checkbox"/> |
| Thaw frozen food in microwave, fridge or under running water | <input type="checkbox"/> |
| Cook food thoroughly and use a food thermometer to check that the core temperature reaches at least 75°C | <input type="checkbox"/> |
| Bring soup and stews to a boil and keep for at least one minute | <input type="checkbox"/> |
| Check that juices of poultry and meat are clear, not red | <input type="checkbox"/> |
| Check that egg yolks are not runny or liquid | <input type="checkbox"/> |
| Stir and rotate dish in the microwave | <input type="checkbox"/> |
| Use separate dishes and bowls for raw food and cooked food or ready-to-eat food | <input type="checkbox"/> |

After food preparation:

- | | |
|---|--------------------------|
| Wash utensils and worktops with hot water and detergent | <input type="checkbox"/> |
|---|--------------------------|

When transporting food:

- | | |
|---|--------------------------|
| Wrap hot food well and place in a clean insulated container | <input type="checkbox"/> |
| Store cold food in a cooler with a cold source | <input type="checkbox"/> |

When serving food:

- | | |
|--------------------------------|--------------------------|
| Keep hot food at above 60°C | <input type="checkbox"/> |
| Keep cold food at or below 4°C | <input type="checkbox"/> |

APPENDIX: A SUGGESTED CLEANING PROGRAMME

Item		Least Frequency	Equipment and Chemicals	Method
Structure	Floors	End of each day or as required	Brooms, damp mops, brushes, detergents and sanitizers	<ol style="list-style-type: none"> 1. Sweep the area 2. Apply detergent and mop the area 3. Use scrub for extra soil 4. Rinse thoroughly with water 5. Remove water with mop
	Walls, windows and ceiling	Monthly or as required	Wiping cloths, brushes and detergents	<ol style="list-style-type: none"> 1. Remove dry soil 2. Rub with wet cloth or rinse with water 3. Apply detergent and wash 4. Wipe with wet cloth or rinse with water 5. Air dry
Food Contact Surfaces	Work tables and sinks	After use	Wiping cloths, detergents and sanitizers	<ol style="list-style-type: none"> 1. Remove food debris and soil 2. Rub with wet cloth or rinse with hot water 3. Apply detergent and wash 4. Wipe with wet cloth or rinse with water 5. Apply sanitizer 6. Air dry
Equipment	Utensils, cutting boards, knives and other cooking equipment	After each use	Wiping cloths, brushes, detergents and sanitizers	<ol style="list-style-type: none"> 1. Remove food debris and soil 2. Rinse with hot water 3. Apply detergent and wash 4. Rinse with water 5. Apply sanitizer/boiling water 6. Air dry
	Refrigerators, freezers and storage areas	Weekly or as required	Wiping cloths, brushes and detergents	<ol style="list-style-type: none"> 1. Remove food debris and soil 2. Rub with wet cloth or rinse with water 3. Apply detergent and wash 4. Wipe with wet cloth or rinse with water 5. Dry with clean cloths/air dry
Hand Contact Surfaces	Door knobs	Daily	Damp cloths and detergents	<ol style="list-style-type: none"> 1. Remove debris 2. Apply detergent 3. Rinse with damp cloths 4. Dry with towels/air dry
Carpet	Floors	Monthly	Steam/chemicals	<ol style="list-style-type: none"> 1. Remove debris 2. Apply chemicals 3. Vacuum dry

List of bactericidal agents approved by FEHD can be obtained at the following:
https://www.fehd.gov.hk/english/howtoseries/agent_index.html

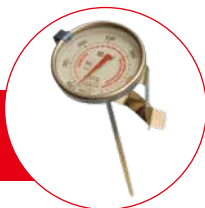
APPENDIX: COMMON TYPES OF FOOD THERMOMETERS

1. Bi-metallic Stemmed Thermometers

Bi-metallic stemmed thermometers are the commonest type of food thermometers. These thermometers read the temperature from the tip and up the stem for 50 mm to 76 mm and the measured temperature is the average of the temperatures along the sensing area.

They are, therefore, more suitable for measuring the core temperature of **thick food** (any food more than 76 mm thick) because the entire sensing area of the thermometer must be inside the food. Depending on the types, these thermometers give readings within 20 seconds to 2 minutes.

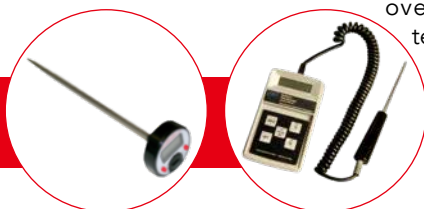
Diagram 1:
Bi-metallic Stemmed
Thermometer



2. Thermocouple Thermometers and Thermistor Thermometers

Thermocouple thermometers and thermistor thermometers measure temperatures through a sensor in the tip of the stem. They give readings quickly (within 10 seconds) and since the sensor is in the tip, these thermometers can measure temperatures in **thin and thick foods** conveniently. These thermometers may also be called "**digital food thermometers**" because measured temperatures are normally indicated on a digital display.

Diagram 2 and 3:
Digital Food
Thermometers



3. Infrared Thermometers

Hand-held, portable infrared thermometers measure the surface temperature, in less than 1 second, of food and packages of food without contact by measuring the amount of radiant energy emitted from the surface.

Infrared thermometers are useful for checking the **storage temperature in freezers and refrigerators, temperature of food held in hot holding equipment and temperature of incoming food products**. They are, however, unsuitable for measuring the centre temperatures of food during cooking or cooling as only the surface temperature can be measured. Besides, they cannot accurately measure the temperature of metal surfaces and reflective foils.

Diagram 4:
Infrared Thermometer



Glass thermometers are filled with mercury or spirits. They are not recommended to be used for measuring the temperature of food because the glass and the inner liquid pose physical and chemical hazards.

There are other thermometers designed specifically to measure certain food items or food processes. These include candy / jelly / deep fry thermometers, oven thermometers, single-use temperature indicators, etc.