



Basic food safety: handling food in the domestic environment



Healthy Lifestyles Partnership: Promoting Healthy Lifestyles

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**Lifelong
Learning
Programme**

Contents

	<i>Page</i>
Contents.....	1
Introduction	2
What illnesses are transmittable by food?.....	3
What dangers are present in food?	4
Dangers and contamination	6
What are the risks relating to domestic preparations?	6
Prevention in the domestic environment:	6
Get used to cleaning	7
Personal hygiene	9
Monitoring of pests and management of pets	11
Waste management	12
Separate raw and cooked products	12
Cook food in the correct way.....	13
Store food at the proper temperature.....	13
Use only safe water and raw materials	15
GMP and GHP in a few steps	17
Cold Storage Chart - ANNEX 1	19
Definitions – ANNEX 2	21

Introduction

Foodborne illnesses are still a significant public health problem both in developed and in developing countries.

Although governments all over the world have promoted food safety training courses for enterprises and consumers for years, the disease incidence is still high.

It is estimated that about 1.8 million people die every year as a result of gastrointestinal diseases, and that most of these are related to the consumption of contaminated food or water.

Furthermore, every year millions of people experience one or more episodes of foodborne diseases, without knowing that the illness is caused by food.

Europe, however, due to its economic and legal framework guarantees a high level of health protection for the consumer.



Information and education for consumers are essential to reduce the incidence of foodborne diseases. It is estimated that in Europe about 40% of foodborne illnesses is caused by homemade preparations.



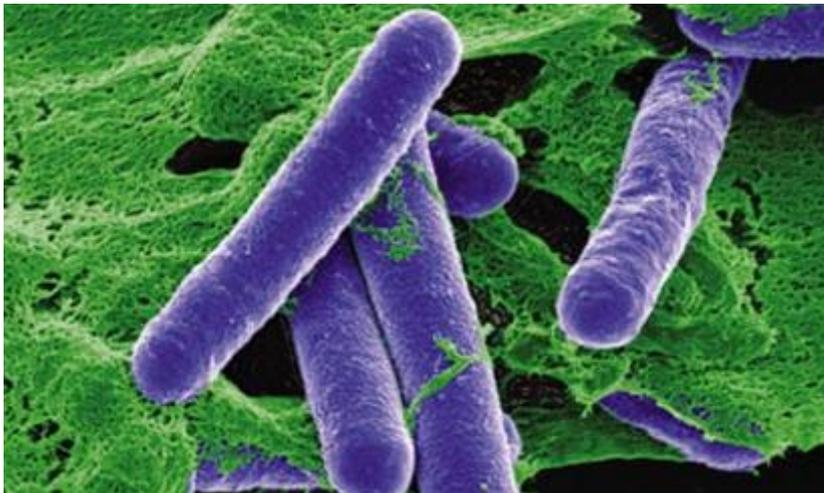
The purpose of this document is to provide consumers with basic information to prevent diseases caused by incorrect management of food in the domestic environment.

What illnesses are transmittable by food?

Foodborne illnesses are divided into:

- ***infection, intoxication, poisoning***
- ***borne diseases***
- ***zoonoses***

The first group includes all the pathologies caused by biological dangers, because in this case food is the growing environment for the microorganism. We can talk about, for example, human diseases caused by *Salmonella* spp. (infection), by *Clostridium botulinum* (intoxication) and *Clostridium perfringens* (poisoning).



Foodborne diseases, instead, are the pathologies caused when food is the mean of transport for the contaminant. Examples of this category can be forms of Hepatitis A and E or poisoning by chemicals.

Zoonoses are diseases or infections that can be transmitted directly or indirectly between animals and humans, through the consumption of contaminated food or through the contact with infected animals. For example, brucellosis, bovine bacterial influence, is transmitted to the consumer by the consumption of raw milk or unripened cheese made from raw milk of sick cows.

Most of foodborne illnesses however are caused by pathogenic microorganisms (or by their toxins) that can contaminate the products with high loads, even without producing noticeable alterations for the consumer (appearance, aroma, taste).

The most common symptoms of foodborne diseases are abdominal pain, vomiting and diarrhea; these symptoms can begin very quickly after the consumption of the product, or they can occur some days, or even weeks, after.



Foodborne illnesses can also cause health problems in the long term, and very serious diseases such as cancer, arthritis, neurological disorders and even death.

What dangers are present in food?

According to the Codex Alimentarius the concept of food danger is connected to any substance that can make food become dangerous when ingested by humans. Dangers can be classified in three groups according to their nature:

Chemical dangers – This group includes chemical substances harmful to the consumer's health. For example, additives, residues of pesticides or veterinary drugs, contaminants (for example, heavy metals), chemicals derived from the transfer of packaging materials, natural toxins (e.g. mycotoxins, algal toxins, bacterial toxins) and many others, such as chemicals created in the cooking processes, residues of products for cleaning and disinfection.



Physical dangers – This group includes substances that mustn't 'physically' be present in food (e.g. pieces of packaging, debris, splinters of various origins, hair or hair). Physical hazards in food may represent simply an image problem for the producer firm, but more often the physical contaminant can be a health hazard (such as a glass fragment) or can be the vehicle for other types of contaminants (e.g. hair can transport *Staphylococcus aureus*).



Biological dangers – The essential difference between this group and the previous ones is that biological dangers come from living beings ('bios' = life) and for this are able, under favorable conditions, to grow, reproduce and use the specific metabolic pathways.

This group includes both living organisms big enough to be seen to the naked eye (e.g. parasites) and microorganisms (e.g. bacteria, moulds, viruses and single-celled parasites).



Dangers and contamination

Dangers in food can be, in some cases, naturally present (e.g. toxins in mushrooms) or can derive from contaminations. In particular, these can be divided in 4 categories according to the moment in which the contaminations occurs within the production chain. We can talk about a contamination that can be:

Primary, when it occurs in the environment, e.g. in the farm or in agriculture;

Secondary, when it occurs because of operators or equipment, e.g. in processing companies;

Tertiary, when it occurs during the transport or the conservation, e.g. in the distribution and marketing channels;

Quaternary, when it occurs just before the distribution, e.g. in the restaurant and catering services, and in domestic preparations.

What are the risks relating to domestic preparations?

At a household level, food hazards are related principally to the presence of high microbial loads (bacteria, molds, yeasts) or to the presence of some of their metabolic products (toxins). This is due to the lack in the domestic use of GMP and GHP, as well as to a wrong use of temperatures in processing and conserving foods.

The direct responsible for the principal foodborne diseases are the microorganisms defined 'pathogenic', ie responsible for the beginning of a pathology.

Often, the contamination itself is not sufficient for the microorganisms to create effects on the consumer's health, but the conditions for microbial growth are also necessary. The latter, in fact, may allow a microbial load to be reached that is high enough to reach and surpass the 'minimum infective dose' (MDI). It is to be noted that the MDI is influenced by both the nature of the microorganism and the characteristics of the consumer (age, physiological state, nutritional habits, clinical picture).

Prevention in the domestic environment:

To prevent the occurrence of foodborne diseases in the domestic environment it is sufficient to follow a few simple rules related to GMP and GHP. Below there are the five key points that the WHO suggests to follow for the prevention of diseases caused by food.

Get used to cleaning

Hygiene of places and equipment

The cleaning process of the preparation spaces (kitchen) and of the equipment used (kitchenware and appliances) is essential also in the domestic environment. These activities allow you to work in clean and safe environments, minimizing the possibility for food contamination because of the places or the equipment used. In the domestic environment, these activities are often performed with routine procedures, but these may not be correct.



Cleaning and disinfection = sanitation

Areas that are in direct contact with food should be sanitized, i.e. cleaned and disinfected.

When you want to perform a correct sanitation, you should work as suggested:

- 1 - remove coarse dirt (food residues, encrustations);
- 2 - clean (wash with warm water, use a detergent and rinse with warm water);
- 3 - if necessary, disinfect the surface and rinse thoroughly with clean warm water.

N.B. At the end of cleaning, we have removed 60% of the total bacterial load and the surface is defined 'optically clean', because visually we perceive the surface to be perfectly clean. However, we should perform a disinfection on surfaces and equipment that has to be directly in contact with food in order to further reduce the bacterial load.

The disinfection can be made with chemical means (disinfectants, e.g. the kitchen and refrigerators surfaces) or with physical means (temperature, e.g. through the use of the dishwasher for plates, glasses, pots and pans).



Principles for proper cleaning and disinfection

- To make a proper sanitation it is important to:
- try to clean thoroughly the surfaces every day to prevent biofilm development;
- use the right detergents (odorless and appropriate for the dirt and the surface);
- follow the instructions on the label, especially those regarding the quantities (concentrations) and the period of contact for the disinfectant; rinse with plenty of water to avoid the risk of residues;
- choose a good disinfectant (possibly a medical-surgical device, suitable for the surfaces to be treated, and avoid, if possible, the no-rinse ones);
- cleanse and disinfect if possible the material used (rags, sponges, etc); store products in enclosed areas and separate from food products;
- keep cleaning products in original containers, but if you need to transfer them into other containers, identify them with a label;
- never use containers of cleaning products or other chemicals to preserve food, or vice versa.

Personal hygiene

Personal hygiene refers to the general state of cleanliness of the body and the clothes of people handling food, as well as to their health condition.

Below there are some basic information about GMP and GHP that should be followed also in the domestic environment.

Hand hygiene

The hands of people handling food are the main source of food contamination and thus deserve particular attentions. To prevent the risk of food contamination, hands should be washed thoroughly. Wounds and cuts should be treated and protected with waterproof plasters and bandages and with the use of gloves. The nails should be kept clean, short and without polish.

The hands of people handling food should be washed:

- Before you start, during and at the end of each work;
- After going to the toilet;
- After touching hair, nose and other parts of the body, or after the use of the handkerchief;
- Before and after handling raw food - vegetables, fruits, meat, eggs, etc.;
- After touching dirty objects - boxes, trash, dirty surfaces;
- After eating or smoking;
- Whenever it is considered necessary.

Below there is a graphical representation of the most contaminated areas (Fig. 1) and the correct procedure of hand washing.

Figure 1 - Areas frequently missed during hand washing



- Areas most frequently missed during hand washing
- Less frequently missed
- Not missed

Adapted de Taylor (1978): An evaluation of hand-washing technique

PROCEDURE:

- 1 – wash your hands;
- 2 - soap them thoroughly, preferably with a liquid antibacterial or antiseptic detergent;
- 3 - put your hands under running water to remove the detergent;
- 4 – disinfect them with a disinfectant to the skin;
- 5 - dry your hands with paper towels or towel.

Behaviour of people handling food:

Any person handling food:

- Should not wear jewelry such as rings, bracelets, earrings, necklaces, and other piercings. Most of these objects has cracks and holes where dirt accumulates, which may cause food contamination. Moreover, these objects may become loose and fall into food without anyone noticing becoming a contamination risk, so they can cause physical harm to those who ingest them;
- Should perform their tasks with appropriate clothing (clean aprons);
- Should keep hair tied, if possible, to prevent hair from contaminating food;
- Should use gloves if suffering from skin diseases or if you have sores or infections on your hands;
- Should change gloves (if used) frequently (change gloves every time they should wash hands);
- Must never smoke, eat, chew gums, take or store drugs or meds, touch head, nose or mouth, taste food with their fingers or with the same spoon used to stir, cough or sneeze on food.



State of health

People preparing food should always be aware of their health condition and use particular precautions if they suffer from diseases non transmittable by food (cold and flu). They also shouldn't prepare food at all if they suffer from foodborne diseases (salmonellosis, hepatitis A and E).

Please note that generally diseases transmissible through food operator that develop more frequently, even in the home environment, are those through oral-fecal transmission.

Monitoring of pests and management of pets

All animals are potential carriers of food contamination. Some of these are called 'infesting' and can be carriers of dangers and responsible for the transmission of diseases to the consumer. Mice, birds, beetles, flies and other insects are typical examples of pests. Even pets (dogs, cats, birds, etc...), can however be a source of contamination because they can carry microorganisms and parasites (fleas, ticks, etc...) through paws, fur or feathers.



To protect food from pests and pets you should:

- keep food covered or in closed containers;
- manage waste properly;
- keep the areas used to process products in good conditions (occlusion of cracks or holes in walls);
- use any bait or insecticides to eliminate pests (being careful not to contaminate food);
- keep pets away from processing areas.



Waste management

Wastes (from food or not) can be a further source of food contamination.

For this reason they should:

- be placed in closed containers and, if possible, not with a manual opening;
- be collected in areas separated from areas used for handling food;
- be disposed of frequently to avoid that these become an attraction for pests.



Separate raw and cooked products

The separation of different food (meat, fish, eggs, vegetables, cheese) and of raw from cooked food is one of the fundamentals in GMP and GHP to prevent cross-contamination. This word identifies the transfer of contaminants between different foods (from raw to cooked food). Raw food and their dripping liquids, for example, may contain pathogenic microorganisms that could re-contaminate other products during preparation and storage phases.

Separation and protection of food during storage steps, and preparation management according to the 'march forward' rule allow to reduce the risk of cross-contamination.

Below is some practical advice:

- Keep raw meat, poultry and seafood, separate from other foods;
- use different equipment and tools (knives and cutting boards) to manipulate raw and cooked products;
- store food in suitable containers to avoid contact between raw and cooked foods;
- when buying food, keep raw meat, poultry and fish separate from other foods;
- in order to prevent cross-contamination, place raw meat, poultry and fish on the lower shelves of the refrigerator, while place cooked or ready to eat foods on the top shelves; store food in containers with lids to avoid contact between raw and cooked foods;
- wash the dishes used for raw foods; use clean dishes for cooked foods;
- don't pour the liquid used to marinate raw meat, on cooked and ready for consumption meats.

Cook food in the correct way

It is fundamental that some foods (products made from meat or fish, or complex products) are cooked properly and completely.

This heat treatment allows to decrease the biological contamination, thus reducing the danger of food-borne diseases for the consumer.

To guarantee the health of critical products, cook foods making sure that the heart temperature reaches and exceeds 70°C for a few minutes.

The heat treatment may be performed at different temperatures (even lower than 70°C), but it is essential to apply a proper combination of time-temperature in order to get an 'equivalent heat treatment', i.e. with the same effects on the microbial population.



Below there are some practical tips:

- Cook foods completely, especially red meat, poultry, eggs and fish;
- bring food (soups and stews) to boil to make sure you reach temperatures of over 70°C;
- for red meat and poultry, make sure that the cooking serum is clear and not red or pink;
- food previously cooked must be heated completely (core temperature over 65°C) before consumption.

Store food at the proper temperature

Storage conditions of food depend on the specific characteristics of the product and the eventual technological treatments received.

Some foods can be stored at room temperature without any risk to the health of the consumer, as their intrinsic characteristics do not allow microbial growth (dry food, canned food, dry bakery products and bread).

Other foods should, however, be kept under controlled temperature regimes (cold chain and hot chain) to increase the shelf life without any risks to the consumer's health.

Generally, handled and complex foods should be stored at temperatures below +10°C or higher than +60°C in order to slow down or block microbial development.

We need to remember, however, that there are some microorganisms can proliferate at temperatures below +10°C and above +60°C.

Storing food at room temperature



Food that can be stored at room temperature are very stable and non-perishable products. Generally these are products with a low water content (salt, sugar, flour, powders) or food that have undergone stabilization technological treatments (acid pasteurized conserves, non-acid sterilized conserves). Also not manipulated fruits and vegetables can be stored at room temperature. In this case, though, the conservation times are shorter due to the natural enzymatic phenomena of ripening kinetically facilitated by temperatures close to room ones

The storing of these products needs in any case to be performed in proper sanitary conditions:

- Keeping the shelves adequately clean and ventilated;
- Separating food from what is not food, especially chemical products (for example the ones used for cleaning);
- Keeping every product, even if packed off the ground to allow the areas cleaning.

Storing food in refrigerators and freezers

Food stored at positive (refrigerators) or negative temperatures (freezers) may be:

- Originally chilled or frozen food for which, also in the domestic environment, you have to guarantee the upkeep of the cold chain;
- Food prepared in the domestic environment from raw products (cooked, portioned, chilled and stored in refrigerators or freezer foods).

Optimal temperatures:

In general, we can say that proper temperatures for storing perishable food in refrigerators are between 0 and +4°C. Home refrigerators, though, cannot keep these temperatures and can guarantee temperatures between +6 °C and +10°C. In the domestic environment, thus, it is recommended that some foods (minced meat and fresh food) are bought and cooked as soon as possible, if the refrigerator isn't equipped with a thermometer proving that the device can keep these foods at proper temperatures (maximum temperature +4°C).



Optimal conservation of frozen food, instead, should be at temperatures inferior than -18°C, but also in this case domestic freezers aren't likely able to guarantee the upkeep of optimal temperatures.

The labels of packaged products, in fact, indicate different minimum periods of conservation relating to conservation temperatures that domestic refrigerators can guarantee.

Hot conservation

Hot conservation is generally a storage system hardly used in the domestic environment. The system aims to keep cooked products (sauces, roasts, etc.) at core temperatures higher than +65°C for up to 2 hours. Food kept at high temperatures should be consumed in 2 hours and should not undergo further cooling and conservation processes.

Use only safe water and raw materials

To ensure food safety, the choice and purchase of safe raw materials is essential. It is recommended that every product come from official and thus controlled production and commercialization channels.

When buying raw materials, you should verify that they aren't contaminated, they are organoleptically suitable (colour, texture, fragrance) and that, if packaged, they haven't expired.

To ensure, at last, food safety in the domestic environment it is also fundamental that water used in preparations and in cleaning is drinkable, i.e. that it meets the statutory requirements for chemical, physical and microbiological parameters, in order to guarantee its suitability for consumption.

Below there is some practical advice:

- Use safe water and, if you have any doubt about its drinkability, require specific analysis;
- If you're using filtering or softening systems, keep implants and filters in adequate state of maintenance;
- Select fresh, seasonal and, if possible, zero km foods;
- Choose food that received treatments to make them safe, such as pasteurized milk instead of raw milk;
- Wash fruits and vegetables, especially if consumed raw;
- Don't use expired food;
- Don't buy damaged or rotting foods;
- Remove jars bruised, swollen or oxidized cans and not intact packaging;
- Choose ready to eat food, perishable cooked ones just if it possible to transport and store them properly.



GMP and GHP in a few steps

Below are the most important standard (GMP and GHP) concerning the stages of handling food at home:

Purchase

- Don't buy food if the expiration date has passed.
- Check the integrity of the packages.
- Check the organoleptic condition of foods (aspect, odour, texture).
- Buy only chilled or frozen food, after selecting non-perishable ones.
- Read the labels carefully.
- Check refrigerators and freezers' temperatures when buying chilled or frozen products.
- Don't buy food from refrigerators or freezers if the products are under the load lines.
- Transport chilled and frozen products in a way that guarantees the upkeep of the cold chain (using thermal containers and transporting them quickly).
- When you get home, store foods immediately, giving priority to foods that need to be conserved under controlled temperature regimes.

Storage

- Check your devices' temperatures, using suitable thermometers. For fridges, the optimal temperature is at about +4°C, for freezers it is at about -18°C.
- Don't store in fridge raw poultry, fish or minced meat for more than 2 days from purchase.
- Don't store in fridge beef, veal, lamb or pork meats for more than 4 days from purchase.
- Divide, protect and handle food in a way that avoids cross-contamination.
- Perishable foods like meat and poultry need to be safely protected to keep their qualities and to avoid that meat juices drip on other foods (using closed containers or plastic wraps).

Preparation

- Guarantee a suitable hygiene of areas and hands.
- Prepare food avoiding cross-contamination through washing hands and changing tools every time you handle different products.
- Behave in a correct way that can avoid situations that can lead to contamination phenomena

Defrosting

Food defrosting needs to be performed:

- as quickly as possible,
- guaranteeing the complete core defrost (without reaching room temperatures),
- according to the guidelines printed on the labels (for packaged products).

It is possible to perform defrost correctly using:

- the fridge. This is the best method because it allows a slow and safe food defrosting, and can be applied also for large sizes. The only caution needs to be taken for thawing liquids (they mustn't drip on other products).
- Cold water. For a faster defrosting you can immerse food, adequately protected inside a bag or container, in cold water.
- Microwave oven. It is a fast and effective method for small sizes.

Cooking

Cooking food can break down microbial contamination making some foods, that otherwise would be dangerous for the consumer, safe. Some kinds of meat, manipulated in particular ways (minced meat, roasts, burgers), poultry, wild game, pork and rabbit meat should always be cooked ensuring a core temperature of at least 75°C. At home, the proper cooking of the product can be verified through visual evaluations after cutting food or evaluating the liquid pouring from it.

Cooling

It is fundamental, after cooking food, if you're not going to eat it immediately, to cool it quickly.

If this process is slow, the product is at optimal temperatures for microbial growth, compromising the product's health.

Cooling must be performed in two hours from cooking and it must guarantee that the core temperature reaches the conservation temperature. **You can reach this goal:**

- immersing the product, when it is still hot, in a container full of water and ice;
- frequently mixing the product, when it is still hot;
- portioning the product, when it is still hot;
- placing the product, when it is still hot, in shallow containers.

Don't store hot food in refrigerators. If you place hot products in fridge, this cannot guarantee a rapid cooling, it damages the refrigerator and, by raising the temperature, compromises the proper maintenance of the other foods.

Leftover management

- Eliminate all foods left at room temperature for more than 2 hours (1 hour if the room temperature is above 30°C).
- Place food in shallow containers and put them immediately in the refrigerator/freezer.
- Consume cooked leftovers within 4 days.
- Heat leftovers at +75°C.
- Don't heat the whole container, but just the quantity of food you want to eat.

Refreezing

- You cannot refreeze foods derived from frozen products or ingredients.

Cold Storage Chart - ANNEX 1

These short, but safe, time limits will help keep refrigerated food from spoiling or becoming dangerous to eat. Because freezing keeps food safe indefinitely, recommended storage times are for quality only. The following data are generic and only indicative.

COLD STORAGE CHART

Product	Refrigerator (4°C)	Freezer (-18°C)
Eggs		
Fresh, in shell	3 to 5 weeks	Do not freeze
Raw yolks & whites	2 to 4 days	1 year
Hard cooked	1 week	Does not freeze well
Liquid pasteurized eggs, egg substitutes		
Opened	3 days	Does not freeze well
Unopened	10 days	1 year
Mayonnaise - Commercial		
Refrigerate after opening	2 months	Do not freeze
Frozen Dinners & Entrees		
Keep frozen until ready to heat	–	3 to 4 months
Deli & Vacuum-Packed Products		
Store-prepared (or homemade) egg, chicken, ham, tuna, & macaroni salads	3 to 5 days	Does not freeze well
Hot dogs & Luncheon Meats		
Hot dogs		
Opened package	1 week	1 to 2 months
Unopened package	2 weeks	1 to 2 months
Luncheon meat		
Opened package	3 to 5 days	1 to 2 months
Unopened package	2 weeks	1 to 2 months
Bacon & Sausage		
Bacon	7 days	1 month
Fresh-sausage (raw) – chicken, turkey, pork, beef	1 to 2 days	1 to 2 months
Smoked breakfast links, patties	7 days	1 to 2 months
Hard sausage – pepperoni, jerky sticks	2 to 3 weeks	1 to 2 months
Summer sausage labelled "Keep Refrigerated"		
Opened	3 weeks	1 to 2 months
Unopened	3 months	1 to 2 months

Corned Beef

Corned beef, in pouch with pickled juices	5 to 7 days	Drained, 1 month
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Canned-Ham labelled "Keep Refrigerated"

Opened	3 to 5 days	1 to 2 months
Unopened	6 to 9 months	Do not freeze

Ham, fully cooked

Vacuum sealed at plant, undated, unopened	2 weeks	1 to 2 months
Vacuum sealed at plant, dated, unopened	"Use-By" date on package	1 to 2 months
Whole	7 days	1 to 2 months
Half	3 to 5 days	1 to 2 months
Slices	3 to 4 days	1 to 2 months

Hamburger, Ground & Stew Meat

Hamburger & stew meat	1 to 2 days	3 to 4 months
Ground turkey, veal, pork, lamb, & mixtures of them	1 to 2 days	3 to 4 months

Fresh Beef, Veal, Lamb, Pork

Steaks	3 to 5 days	6 to 12 months
Chops	3 to 5 days	4 to 6 months
Roasts	3 to 5 days	4 to 12 months
Variety meats – tongue, liver, heart, kidneys, chitterlings	1 to 2 days	3 to 4 months
Pre-stuffed, uncooked pork chops, lamb chops, or chicken breasts stuffed with dressing	1 day	Does not freeze well
Soups & Stews Vegetable or meat added	3 to 4 days	2 to 3 months

Fresh Poultry

Chicken or turkey, whole	1 to 2 days	1 year
Chicken or turkey, pieces	1 to 2 days	9 months
Giblets	1 to 2 days	3 to 4 months

Cooked Meat and Poultry Leftovers

Cooked meat & meat casseroles	3 to 4 days	2 to 3 months
Gravy & meat broth	3 to 4 days	2 to 3 months
Fried chicken	3 to 4 days	4 months
Cooked poultry casseroles	3 to 4 days	4 to 6 months
Poultry pieces, plain	3 to 4 days	4 months
Poultry pieces in broth, gravy	3 to 4 days	6 months
Chicken nuggets, patties	3 to 4 days	1 to 3 months
Other Cooked Leftovers		
Pizza, cooked	3 to 4 days	1 to 2 months
Stuffing, cooked	3 to 4 days	1 month

Definitions – ANNEX 2

Bacterium: microscopic organism that can be found in the environment, in food and in and on animals.

Contaminant: any biological or chemical agent, foreign object or other substance added not *intentionally* to food that could compromise the safety or suitability of food.

Contamination: unintended presence of any kind of danger in food that makes it unsuitable for consumption.

Cross-contamination: transfer of microorganisms from contaminated food to other products (usually from raw to cooked food) through direct or indirect contact with hands, tools, equipment or clothing.

Danger: cause of harm to the consumer's health. The danger can be biological, chemical or physical.

Foodborne diseases: illnesses in which food is the vehicle transmitting danger.

Food hygiene: all the conditions and measures necessary to guarantee the safety and suitability of food at every stage of the food chain.

Food safety: any measure necessary to ensure that some food, prepared and/or consumed according to its intended use, won't cause harm to the consumer.

Food: any animal or vegetable product prepared or sold to be consumed by humans. Drinks and chewing gums are included, in addition to any ingredient, additive or substance that is involved in food preparation. Substances used as drugs or medicines are instead not included.

Foodborne disease: generic term used to describe any illness caused by the consumption of contaminated drinks or food. Traditionally it's defined 'food poisoning'.

Forward march: working system that provides a way of handling food that avoids cross-contaminations during food preparation.

GHP : *good hygiene practices.*

GMP: good manufacturing practices: procedures to handle food correctly.

Hygiene: science that aims at keeping the health of both the individual and the community.

Infection, intoxication, poisoning: conditions in which food is the environment for growth and development of the danger.

Microorganisms: microscopic organisms such as bacteria, molds, viruses and parasites, which can be found in the environment, food and animals.

Minimum infective dose: minimum microbial load necessary to cause the disease.

Parasites: any animal that can, directly or indirectly, contaminate food.

Pathogenic agent: any microorganism that can cause diseases, such as bacteria, viruses or parasites. They are often defined as 'germs' or 'microbes'.

Perishable food: food that deteriorates in a short period.

Pest control: reduction or elimination of pests such as flies, cockroaches, mice and rats and other animals that may infest food products.

Risk: probability for the danger to become real.

Toxins: chemical substances produced by some microorganisms (bacteria and molds) present in food.

Virus: non-cellular microscopic infectious agent that depends on a host cell to reproduce.

Zoonosis: illnesses transmitted to the consumer because of the ingestion of food coming from sick animals.



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