

Basics of food safety and Hygiene

Introduction

- People are becoming increasingly concerned about the health risks posed by microbial pathogens and potentially hazardous chemicals in food.
- Ready-to-eat foods sold by public food vendors in the cities of the developing world contribute significantly to food insecurity

Introduction

- The WHO estimates that up to one-third of the populations of developed countries are affected by food-borne illness each year
- The problem is likely to be even more widespread in developing countries if actions are not taken

What is food hygiene and food safety?

- **Food Hygiene-** all sanitary measures, principles and procedures put in place to ensure that food is free from agents of contamination or disease germs in any form.
- **Food safety-**The process of handling, preparation and storage of food in ways that prevent food-borne infection/illness.

Key considerations in food safety

1. Keep a clean food preparation and serving utensils, and environment
2. Separate raw and cooked
3. Cook Food thoroughly
4. Keep food at safe temperatures
5. Hand washing at all times
6. Use safe water and raw materials

Keep a clean environment and utensils

- Keep vending unit and location clean - especially all working surfaces should be made of impermeable, easy to clean material and kept well above the ground.
- Vending location should be away from rubbish, toilets, open drains and animals.
- Waste bins with lid should be used and emptied on a regular basis.
- Basic infrastructure to promote sanitation, e.g. toilets, hand washing facilities, safe water supplies and drainage should be accessible.
- Food should be protected from dust, insects, dirt and direct sun.
- 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 houseflies, insects, pests and other animals

Keep a clean environment and utensils (2)

- 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, waste containers and utensils, especially cutting boards and the slightest contact can transfer them to food and cause food-borne diseases.
- In the environment animals dust and polluted water may also carry germs.

Cook food thoroughly

- 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 before serving

Cook food thoroughly (2)

- Proper cooking of food kills almost all pathogens, .
- 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.

Separate raw and cooked

- 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

Separate raw and cooked (2)

- Proper cooking kills most pathogenic microbes.
- Studies have shown that cooking food to a temperature of 70°C can ensure it is safe for consumption.
- Foods that require special attention include minced meats, rolled roasts, large joints of meat and whole poultry.

Keep food at safe temperatures

- 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 hot, at more than 60°C; prior to serving
- Do not store food for too long even in the refrigerator

Keep food at safe temperatures (2)

- Microorganisms can multiply rapidly if food is stored at room temperature.
- By holding food 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.

Use safe water and raw materials

- Use potable water or treat it to make it safe
- Select fresh and wholesome food products
- Choose foods processed for safety, such as pasteurized milk
- Wash fruits and vegetables, especially if eaten planned to be eaten raw
- Do not use food beyond its expiry date

Use safe water and raw materials (2)

- Raw materials, including water and ice, may be contaminated by 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 the risk.

Food Contamination:

- Contamination is the unintended presence of harmful substances or microorganisms in food.
- There are three main types of hazards
 - **Biological Hazards:** Bacteria, viruses, parasites, and fungi. Contamination by bacteria is the greatest threat to food safety.
 - **Chemical Hazards:** Pesticides, food additives, misapplication of food keeping chemicals
 - **Physical Hazards:** Foreign matter such as dirt, broken glass and other objects that accidentally get into food.

Cross contamination of food

- Cross-contamination is the transfer of harmful substances or micro-organisms to food.
 - Cross-contamination occurs when:
 - Hands touch raw foods and then touch cooked or ready-to-eat foods
 - Food-contact surfaces touch raw foods, are not cleaned and sanitized, and then touch food that is ready-to-eat
 - Cleaning clothes and sponges touch raw food, equipment, or utensils; are not cleaned and sanitized; and are then used on surfaces, equipment, and utensils, for ready-to-eat foods
 - Raw or contaminated foods that touch or drip fluids on cooked or ready-to-eat foods.

Personal Hygiene protocol

- Personal hygiene is the way a person maintains their health, appearance, and cleanliness
- Good personal hygiene can help prevent the spread of infectious diseases and food borne illness
- Frequent and thorough hand washing is the most critical aspect of personal cleanliness. Dirty hands and fingernails can contaminate food products
- **ALWAYS WASH YOUR HANDS BEFORE:**
 - beginning work
 - Putting on a new pair of gloves

Personal sanitation Protocol (2)

- Food vendors should
 - wear clean clothes and avoid loose garments that can accidentally touch food.
 - Roll up long sleeves.
 - Wear an apron.
 - If a utensil or dish towel falls on the floor, DO NOT use it again until washed.
- Use a separate spoon for tasting, not the one you use for stirring.

Personal Hygiene protocol (3)

- ✓ ALWAYS WASH YOUR HANDS AFTER:
 - ✓ Using the restroom
 - ✓ Handling raw foods
 - ✓ Touching your hair, face, or body
 - ✓ Eating or drinking
 - ✓ Sneezing or coughing
 - ✓ Cleaning
 - ✓ Taking out the garbage
 - ✓ Touching anything that may contaminate your hands

Personal Hygiene protocol (4)

- GOOD PERSONAL HYGIENE ALSO INCLUDES THE FOLLOWING:
 - Keep nails short and clean
 - Cover all cuts and sores with bandages and plastic gloves
 - Wash your hands before putting on gloves and changing gloves
 - Wash your hair and bathe daily
 - Wear a clean uniform and apron. Work clothes should be worn only on the job, not for personal use
 - Wear hair restraints
 - Do not wear excessive jewelry to work. It is hard to clean. It can also fall off and get lost in food.

Factors implicated in Food-borne Outbreaks:

- Failure to thoroughly heat or cook food to a temperature which kills bacteria
- Infected employees (Typhoid Mary)
- Food vendors who practice poor personal hygiene at home and at work
- Preparing food a day or more in advance of being served
- Raw food is mixed with food that has already been cooked
- Allowing foods to stay for too long at temperatures that favor bacterial growth
- Failure to reheat cooked foods to temperatures that kill bacteria
- Cross-contamination of cooked food by raw food
- Inadequate cleaning of equipment

Types of food-borne illness:

- Salmonella:
 - Symptoms- Abdominal pain, headache, nausea, vomiting, fever, and diarrhea
 - Source- Domestic and wild animals, also human beings
 - Food involved- Poultry and poultry salads, meat and meat products, milk, shell eggs, and other protein foods

Types of food-borne Illness:

- Shigella:
 - Symptoms - Fever, chills, diarrhea, and dehydration
 - Source- Human beings (intestinal tract), flies
 - Food Involved - Potatoes, tuna, shrimp, turkey, and macaroni salad, lettuce
- Staphylococcus:
 - Symptoms - Nausea, vomiting, dehydration
 - Source - Human beings (skin, nose, throat, infected sores), also animals

Types of food-borne illness:

- E. coli:
 - Symptoms- Diarrhea, severe abdominal pain, nausea, vomiting occasional fever
 - Source- Animals, particularly cattle, human beings (intestinal tract)
 - Food involved- Raw and undercooked ground beef and other red meats, imported cheese, unpasteurized milk

Types of food-borne illness:

- Hepatitis A is a contagious viral disease, which causes inflammation of the liver. These microorganisms contaminate food through poor personal hygiene by food handlers, contaminated water supplies, or shellfish taken from sewage-contaminated water.
- The best defense against food-borne viruses is to use good personal hygiene.

HACCP

- Hazard Analysis
- Critical control
- Point
- Points to consider in establishing food premises
 - Certification and engagement of staff
 - Pre engagement medical examination
 - Arrangement o the restaurant key contact areas
 - Building and construction determinants

National legislations relating to food safety

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- The Public Health Laws (1917) now known as Public Health Ordinance Cap 164 of 1958;
- The Food and Drugs Decree, No. 35 of 1974;
- The Standards Organisation of Nigeria Decree, No. 56 of 1971;
- The Animal Disease Control Decree, No. 10 of 1988;
- The Marketing of Breast Milk substitute Decree, No. 41 of 1990.
- The National Agency for Food and Drugs Administration and Control (NAFDAC) Decree No. 15 of 1993 recently amended by decree no. 20 of 1999.

Improving food safety

- Education and information
- Policy formulation and enforcement
- Control of street food
- Provision of facilities
- Training of personnel

Agencies responsible for food safety

- Federal Ministry of Health/FMoEnv
- National Agency for Food and Drug Administration and Control (NAFDAC)
- Standards Organisation of Nigeria (SON)
- National Codex Committee
- Federal Ministry of Agriculture
- States and Local Governments

- Thank you