

**ENVIRONMENTAL HYGIENE:  
IMPLICATIONS FOR FOOD HANDLING**

BY

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**Abstract**

*This paper examined environmental hygiene: implications for food handling. The paper also discussed food handling and environment. Also food contermination, food handling and agents of food contermination were discussed. The paper noted that susceptibility to food-borne diseases like cholera, diarrhea, typhoid fever and shigellosis can be avoided through hygienic handling of food from point of production, through preparation to consumption, by the final consumer. The factors facilitating transmission of food borne diseases and prevention of food borne diseases were outline. The work also talked about methods of food preservation. Hence, it recommended that health education of food handlers and food vendors- will be of immense importance to prevent food-borne diseases for better health of individual consumers.*

**Keywords: Environment, health, food, food handling and hygiene.**

**Introduction**

The environment in which one finds himself or herself has a lot to do in one's health. The food a person eats determines the state of health of the individual.

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The cleanliness of food not only lowers the threat of illness but also conveys caring message to consumers. According to Ajala (2005) in Ogbe, (2012) man's external environment is everything that is external to the individual, including and especially his fellow man. Environment is the sum total of all external conditions surrounding the life of an organism. Food hygiene/safe food consumption, as an aspect of environmental health, is very crucial to the health of individuals, family and community and so should be given priority. Food is any substance (solid or liquid) which when taken into the body satisfies *appétit/hunger* and provides physiological need for growth, development, repair, temperature. According to Udoh (1994) in Odibo, Sanubi and Jemerigbe (1996), food is any solid or liquid which, when ingested will enable the body to carry out any of its life functions. Similarly, Okpako (2012) stated that food is anything which may be liquid or solid taken into the body to provide nourishment, growth and development, especially when taken in the right quantity, right

quality and at the right intervals. According to Dibia (2001), food may be defined as anything which possesses nutrients that when swallowed into the stomach, digested and absorbed is capable of providing the body with energy for growth and functioning of the entire body systems.

Food is defined as any nutrient in the form of solid or liquid that is **taken** into the body tissues; which nourishes the body and regulates all body processes (Achal, 2004). Nutrients are chemical substances in food that nourish the body by providing energy, building the body and regulating body process. Nutrients promote growth, supply energy and regulate bodily processes.

Food handling is the way food is handled from point/place of purchase to consumption either hygienically or unhygienically. Whereas food sanitation is a hygienic way of handling food from point of production, processing, cooking and to consumption. (2001) defined food sanitation aspect of environmental health through which adequate measures are taken to ensure the

safety, wholesomeness and soundness of food at all stages, from growth, manufacture, storage, preparation, marketing until it is finally consumed. The need for this study is to examine the dangers of poor environment and personal hygiene in food handling. When food is processed in an unkept environment, it can result to some diseases.

### **Food handling and environment**

The environment where food is being produced and prepared are of very important concern to the well being of the consumers. Nzeoma in Okpako (2012) listed five key points to safer food as follows:

1. Keep clean, by washing hands and plates eliminate pests and insects
2. Separate raw and cooked foods such as meat or fish and others using different containers.
3. Cook food thoroughly.
4. Keep food at safe temperature
5. Use safe water and raw materials always.

Okpako (2012) itemized the following ways of handling food:

(a) **During Purchase:** Always avoid

direct tasting of food, especially with mouth from the displayed container or counter. It is common among Nigerians (especially women) to taste food items, before they purchase in order to know whether it is of the expected quality or not. For instance, dipping of finger in palm oil to taste; tasting garri (Cassava flour), salt, crayfish, etc.

(b) **Immediately after purchase:** Separate the types of food items, especially the dry and the wet ones. Meat/fish should be packaged separately from vegetables or fruits. Dried meat or pepper should not be inserted in garri, rice or beans. It is advisable to use new polyethylene bag each time for fresh food items. They are neater than the re-used types.

(c) **Between market and home:** Be careful not to overload items on top of others, for instance food item like fresh farm tomatoes may burst and spill, similar thing may occur to ground pepper, oil and eggs. This may reduce the content and even affect the original quality.

(d) **At Home:** Instead of dropping the

market purchase at it sitting room first straight to the kitchen where they belong. Do not waste time before you separate them to their various places meant for them. For instance, meat and fish to the bowl, yam and garri to the store, etc.

### **Food Preparations**

First approach before preparing the food is the assessment and hygienic condition of the immediate environment where – food will be prepared. The kitchen and the person who wants to prepare the food (the cook). Every step is vital hence, extreme sanitation is needed.

- a. The Kitchen: Ikegwuruka in Okpako (2012) opined that the state of the kitchen determines how safe the food is; a clean kitchen is one that ensures safe food which in turn relies on safe food practices. In line with the above, therefore the kitchen should be a place where neatness thrive. The floor should be swept and mopped. Preferably the windows should be netted to prevent flies. There should be net door at the

entrance to prevent domestic animals and be tight enough to prevent small rats at the same time give room for fresh air. It should be well illuminated. The store should be neatly arranged to keep away rats and Cockroaches. Plates, stoves, cutleries, cutting boards and other cooking utensils should be neatly cleansed with soap. Essentially, the cook should be personally neat. These steps should be taken before and after kitchen activities.

- b. Before Cooking: The above principles should apply. In addition, guide the young ones and others that may assist in the cooking processes.
- c. During Cooking: Talk less; avoid coughing, sneezing, blowing of running nose or using hand to cleanse sweat.
  - \* Carefully follow every stage step by step in adding various ingredients
  - Wash hands at every stage
  - \* Do not prepare food with spared dirty finger nails and sore hands.

- \* Do not move too far from the point of cooking such as watching television, having a brief sleep or be tangled in discussions.
  - \* Prevent crawling of babies. They may urinate or mess up the cooking environment.
  - \* Patiently cook the food in a safe temperature of about 70°C and above.
- d. After Cooking: Put off all cooking electrical appliances, gas stove and firewood.
- \* Clear all garbage and properly dispose outside the kitchen. Keep the kitchen clean again
  - \* Carefully keep the left over in the refrigerator or in the store
  - \* Do your necessary servings with clean plates
  - \* Clear tables and wash all used materials
  - \* Carefully apply insect and rat killers on usual corners preferably just before bedtime.

### **Food contamination and food poisoning**

Achalu (2004) said that food can be contaminated during its production

processing, distribution, storage, preparation and consumption of food as well as during disposal as waste. Food can be polluted by micro-organisms, chemical pollutants, physical pollutants, radioactive substances among others. This can result to food poisoning. He said that food poisoning has been used to describe an illness which results from the consumption of contaminated or unwholesome food. Food poisoning can equally be caused by eating poisonous plants, fish and fungi, which may be fatal. According Dibia (2001) the agents of food contamination are;

1. Bacteria and other micro-organisms infection
2. Parasites
3. Chemical poisons
4. Naturally poisonous plants.

1. Bacteria and other Micro-Organism Infections: The most common infections in these categories are cholera, typhoid fever and para-typhoid fever, shigellosis (bacillary dysentery). The consumption of foods containing these organisms evokes certain abnormal reactions in the human

systems. These reactions manifest into the clinical features shown below;  
**Summary of bacterial diseases that can be transmitted through food.**

<b>Diseases</b>	<b>Incubation Period (days)</b>	<b>Clinical features</b>	<b>Duration of illness</b>
1. typhoid fever and para typhoid fever	7 – 21	Continued fever, headache and cough, Enlargement of spleen and coloured spot on the trunk. Constipation is the one common than diarrhoea	3 - 4 Weeks
2. Cholera	Up to 5 (usually 2-3)	Sudden onset or refuse watery stool vomiting, rapid Dehydration acidosis and circulatory collapse.	1-2 days if treated up to 7 days if untreated
3. Shigellosis (bacillary)	1-7 (usually 1-3)	diarrhoea, fever nausea and sometimes Vomiting and Cramps, Stools Mucus and pus.	Average 4-7 days, but several weeks.

Source: Michael in Dibia (2001).

2. **Parasites:** These are tiny animals that live in human intestines feeding, on their blood. Infection occurs more often in areas of poor sanitations. Contamination may occur from hands to mouth, when polluted water are used in washing foods or vegetables or when contaminated meats are consumed.

Symptoms include anaemia, malnutrition and discomfort. The commonest of these parasites include *Giardia lamblia*, tape worm (*Taenia saginata*). (*Taenia soilium*), roundworm (*ascaria*, *lumbicoides* thread worms, pin worm, *Lnterobius*, *vermicularis* and *Trichinela spiralis*.

3. **Chemical Poisons:** Careless storage of pesticides could lead to spillage or leakage. The accidental entry of these pesticides into food could cause food poisoning.

The commonest of these chemicals are:

1. Insecticide e.g. dizonon and Nuvan
2. Rodenticides e.g. sodium floride and barium carbonate
3. Herbicides e.g. grarnazole
4. Naturally Poisonous Plants

Certain plants carry naturally occurring contaminants in them that when confirmed become, so poisonous that an entire family can be exterminated.

Examples are:

- (a) Solamine, a toxic alkaloidal substance in green potatoes.
- (b) Hydrogen cynide , given off from unripped almonds and cassava (manihot species).
- (c) Hypoglycin, found in most unripped fruits, and
- (d) Alkaloid dioscorine, found in bitter yam (*Diascoria dumeto*).

### **Transmission of food-borne diseases and prevention**

Achalu (2008) stated the following as factors which facilitate the transmission of food-borne diseases.

- \* Improper disposal of sewage.
- \* Absence of sanitary refuse bin for the storage and disposal of kitchen wastes.
- \* Non observance of high standard or personal hygiene when preparing and serving foods for human consumptions.
- \* Improper checking of food handlers by medical examination,
- \* Accumulation of refuse heaps which are favourable to flies such as cockroaches and rats infestation.
- \* Poor storage of foodstuffs or absence of storage facilities
- \* Exposing foods, cutlery and cooking utensils to flies, cockroaches and rats.
- \* Dirty kitchen accommodation.
- \* Lack of portable water supplies.

**Prevention of food-borne diseases:**

Prevention measures include the following:

- a. Adequate cooking foods.
- b. Proper washing of foods before cooking.
- c. Adequate refrigeration of foods.
- d. High standard of hygiene
- e. Efficient inspection of foods and food premises.

**Methods of food preservation:**

Food can be preserved through the following ways according to Dibia (2001).

**Salting**

The method involves the addition of common salt into foods to check the actions of bacteria is important to note that salting only inhibits the growth of bacteria but does not destroy them. Meat intended for salting must be fresh and sound before the salting process.

**Pickling**

The method is accompanied by putting meat into a solution of salt and water (brine). Pickling inhibits the growth of

bacteria by making the meat very unfavourable for their development. It must be noted that only clean meat should be treated in this way.

**Smoking**

In this method the food which are either fish or meat are placed over a smoldering fire made of carbonaceous materials. The heating effects dehydrate the fish or meat thereby creating conditions that will be unfavourable for the development of bacteria.

**Drying**

This is the method by which moisture in the food are extracted out of the food thereby rendering it dry. The method also makes it difficult for bacteria to develop. The dry heat enables the moisture in the food to evaporate thereby keeping the food in full dry state.

**Refrigeration**

This is the storage of food stuffs at a very low temperature that is capable of creating condition very unfavourable for the development of

bacteria which cause putrefaction in foods.

### **Canning**

This is the heating of already sealed raw foods to a temperature sufficient enough to kill all micro-organisms in them. The sealed vessels prevent further access of fresh bacteria into the food. The materials used in the manufacture of the cans are either material or zinc that is coated with tin.

### **Pasteurization**

Food products like, raw milk, usually contain microorganisms that may cause spoilage or infections. Pasteurization involves the heating of milk at a temperature between 50-60°C for 30 minutes or more to eliminate, germs and thus reduce spoilage.

### **Conclusion**

This paper talked about environmental hygiene : Implications for food handling. Food is very essential for growth energy for work and good health. Food not properly handled from point of production, processing, preparation and consumption can

result to food-borne diseases like cholera, diarrhea, typhoid fever and shigellosis. So food should be hygienically handled from the point of production; through preparation, processing and to final consumption in order to avoid diseases for health promotion.

### **Recommendations**

1. Government should ensure registration of all premises including establishments which rear animals for meat.
2. Government should ensure inspection of regulated premises including establishment which rear animals for meat.
3. Government should ensure health education of food handlers and food vendors on the need to practice good personal hygiene habits.
4. Food legislations/laws should be made to guide against indiscriminate handling of foods
5. Food handlers should ensure that foods are prepared hygienically from point of

reparation to final consumption

6. Environmental Health Officers should ensure inspection of restaurants and other food stands for adequate hygiene.

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