

## Basic Food Safety and Sanitation Management

Revealing the Food Borne Illnesses

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## Food

any raw, cooked or processed edible substances, beverages or ingredient used or intended for use or for sale, in whole or in part for human consumption.

(IRR on Food Establishments, Chapter III, PD 856)



## Safe and Wholesome

Refers to food that has passed as fit for human consumption using the criteria that it :

- will not cause food borne infection or intoxication when properly handled and prepared with respect to the intended use;
- does not contain residue in excess of set limits;
- it is free of obvious contamination;

- is free of defects that are generally recognized as objectionable to consumers
- has been produced under adequate hygiene control (GMP and HACCP)
- has not been treated with illegal substances as specified in Regulatory and Food Standards



What would you like to have today?



### Snacks

- Paragonimus Westermani* 
- Capillariasis* 
- Heterophyidiasis* 
- Taeniasis* 
- Echinotomiasis* 


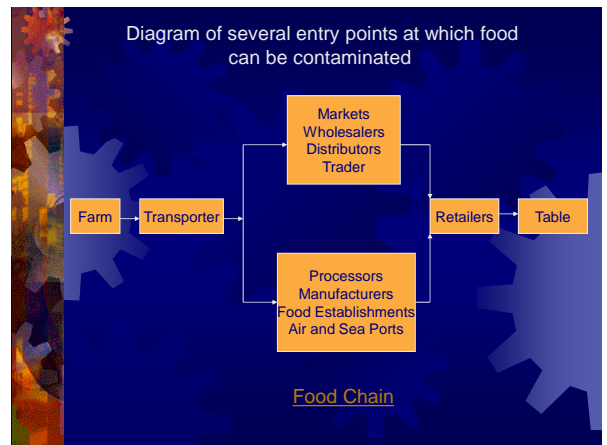
## Food Safety?

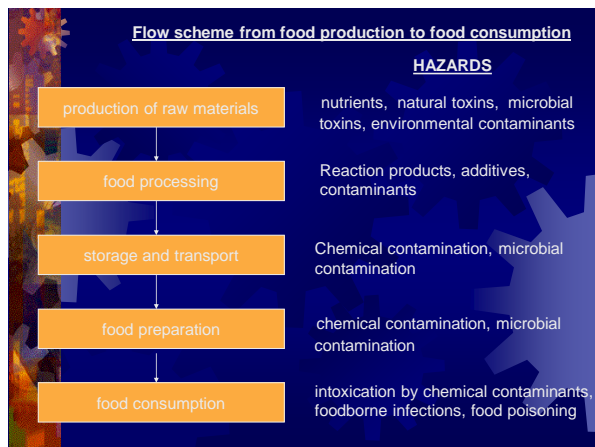
Assurance that food will not cause harm when prepared and/or eaten according to its intended use.



## Food Hygiene

All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain



**Food Safety**

- Ensuring safe and healthy food is an important prerequisite of food security, whether in developed or developing countries. Source: Director, Vice Chair of the United Nations Commission
- Internationally recognized needs :
  - need to guarantee human health and safety through the prevention of food borne diseases;
  - need to reduce food losses and increase food availability; and
  - need to promote international economic trade through significant increases in both quantity and variety of food being moved across borders

**Food Safety : a public health priority**

- Food borne disease takes a major toll on health
- Up to one-third of populations of developed countries are affected by food borne illnesses each year
  - In the USA – estimated 76M cases of foodborne illnesses per year resulting in 325,000 hospitalization and 5,000 deaths
- The problem is even more widespread in developing countries
  - Food and water borne diarrheal diseases are leading causes of illness and death in less developed countries with an estimated 2.2M deaths annually, most of whom are children

### Food Safety : an essential public health issue

- Serious outbreaks of food borne diseases on every continent in the past decade illustrate both the public health and social significance of these diseases.
- FBD most seriously affect children, pregnant women, the elderly and those already sick with other diseases.
- FBD also have economic consequences for individuals, families, communities, businesses and countries imposing substantial burden on health-care systems and markedly reduce economic productivity.

### New challenges to food safety

- Changing patterns of food production and distribution are seen with the integration and consolidation of agricultural and food industries and the globalization of the food trade.
- These can bring about both known and new food borne diseases that can become prevalent. For example, the international spread of meat and bone meal prepared from cattle affected by bovine spongiform encephalitis (BSE).

### Other factors for food safety as a public health issue

- Increasing urbanization
- Increasing wealth and urban lifestyle
- Lack of facilities – patronage of street foods in developing countries
- Global food trade

### Major issues in food safety

- Microbiological hazards – bacteria, viruses, parasites
- Chemical hazards – pesticides and veterinary drug residues, food additives, naturally occurring toxins and industrial contaminants
- Physical hazards
- Other areas of concern
  - Surveillance of food borne illness
  - New technologies – genetic engineering, irradiation of food, ohmic heating and modified-atmosphere packaging
  - Capacity building – need of many developing countries to be equipped to respond to existing and emerging food safety problems

### WHO 10 Golden Rules in Safe Food Preparation

- **Choose food processed for safety**
  - all food must be obtained from approved sources
  - meat shall come from licensed slaughterhouses
  - seafoods shall not come from sources in any manner polluted by sewage, chemicals and other toxic substances
  - always look for expiry dates
  - avoid buying canned foods with dents, bulges, deformation broken seals and improperly seams.



- **Cook food thoroughly**  
Temperature on all parts of the food should reach 70°C



### WHO 10 Golden Rules in Safe Food Preparation

- **Eat cooked foods immediately**  
eat cooked foods as soon as they come off the heat preferably within 2 hours from preparation



- **Store cooked foods carefully**  
store in a refrigerator or ice box below 10°C (cold) or in a hot box kept continuously at above 60°C



in storing large amount of food, shallow containers should be used instead of large deep ones because the temperature may not be maintained in all portions of the container

### WHO 10 Golden Rules in Safe Food Preparation

- **Reheat cooked foods thoroughly**
  - all portions of the food should reach 70°C
  - reheat leftovers only once



- **Avoid contact between raw and cooked foods**



### WHO 10 Golden Rules in Safe Food Preparation

- **Wash hands repeatedly**
  - wash hands thoroughly before start preparing food as well as after every interruption
  - after preparing raw foods, such as fish or shellfish, wash hands again before start handling other foods



- **Keep all kitchen surfaces meticulously clean**
  - cloths that come into contact with dishes and utensils should be changed every day and boiled before reuse.
  - separate cloths for cleaning the floors also requires frequent washing





## WHO 10 Golden Rules in Safe Food Preparation

- Protect foods from insects, rodents and other animals
  - storing foods in tightly sealed containers
  - use container with cover for foods that will not be immediately eaten and for left overs



- Use clean and safe water
  - boil or chlorinate it before using in preparing foods



## Importance of Food Safety and its Impact on Health

### A 10-year Meta-analysis of Foodborne Illness Outbreaks FETP Investigations, 2005-2015. (courtesy of DOH-EPIDEMOLOGY Bureau)

- Food is a basic need of every human being.
- Over the century, food preparation has drastically changed and food safety became a growing concern.
- In the Philippines, increasing cases of food poisoning pose a greater public health threat, with serious economic consequences.

### Objectives

- to identify factors that contribute to foodborne disease outbreaks
- to contrast and combine results involving different epidemiologic investigation of foodborne disease outbreaks
- to recommend control and preventive measures

### Definition

- **Food Poisoning** - illness caused by the consumption of food or water contaminated with bacteria and/or toxins, or with parasites, viruses, or chemicals
- A **food-borne illness (FBI)** outbreak is defined by the following 2 criteria: (1) Similar illness in a minimum of two people, (2) evidence of food as the source.

## METHODOLOGY

### Descriptive Study

- Archives of Epidemiology Bureau Library was searched for all foodborne illness outbreaks investigated by FETP Fellows from January 1, 2005-June 30, 2015.

Table 1. Criteria for Confirmation of Food Vehicle Responsible for Foodborne Illness (Rooney, et.al. 2004)

Confirmation Status	Criteria
<b>Confirmed vehicle</b>	Isolation of agent from ill individuals and food, and exposure that preceded infection by a period of time consistent with proposed biologic mechanisms, AND combination of on-site investigation and statistical evidence from epidemiological study.
<b>Presumptive vehicle</b>	On-site investigation demonstrating source and mode of contamination of food and survival of agent in food OR epidemiological investigation determining that there has been an association between eating and becoming ill.
<b>Suspected vehicle</b>	A food type that is often identified as a vehicle of foodborne illness prepared in a manner by which contamination, survival, or growth could have occurred but outbreak pathogen not detected in food OR descriptive epidemiology suggesting that the outbreak is food-related and excluding obvious alternative explanations OR food implicated in the outbreak report/publication but no information on epidemiology or microbiology available.
<b>Unknown Food vehicle</b>	Investigation determining an association between eating and becoming ill, but a specific vehicle not identified.

## RESULTS



Fig 1. Foodborne Illness Outbreak by Year (N=20)  
FETP investigations, January 1, 2005 - June 30, 2015.

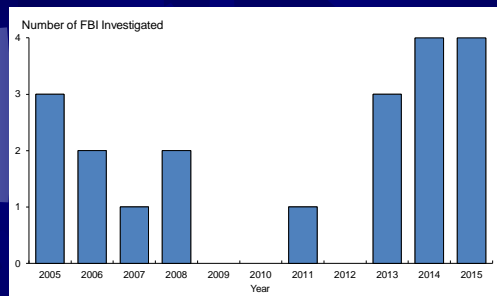
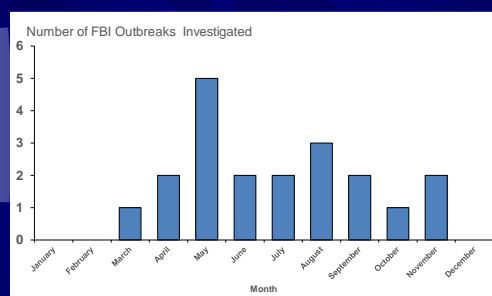


Figure 2. Foodborne Illness Outbreaks by Month (N=20),  
FETP investigations, January 1, 2005-June 30, 2015.



## Profile of Foodborne Illness Cases

- 1,021 cases
- Majority, 525 (51%) were females
- 44 deaths
- 406 hospitalized
- Age range: 8 months to 82 years old (median = 34y/o).
- Onset of symptoms: 3 minutes to 27 days.

Figure 3. Foodborne Illness Outbreaks by Signs and Symptoms(N=20)\*,  
FETP investigations, January 1, 2005-June 30, 2015.

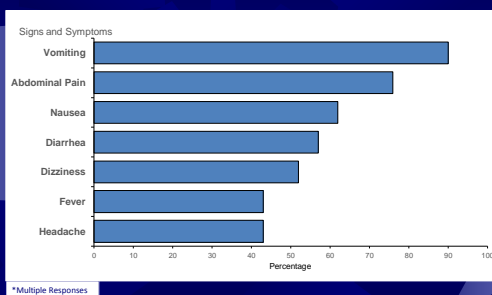


Figure 4. Foodborne Illness Outbreaks by Place of Event (N=20), FETP investigations, January 1, 2005-June 30, 2015.

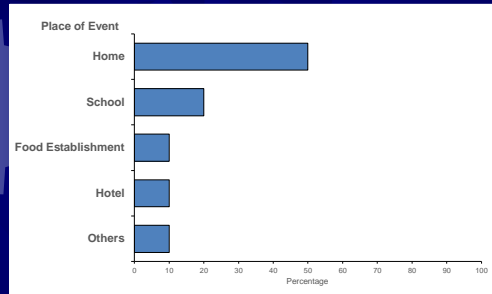


Figure 5. Foodborne Disease Outbreaks by Nature of Event (N=20), FETP investigations, January 1, 2005-June 30, 2015.

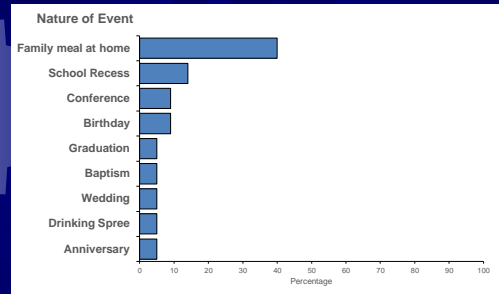


Figure 6. Common Cause of Foodborne Disease Outbreaks (N=20), FETP investigations, January 1, 2005-June 30, 2015.

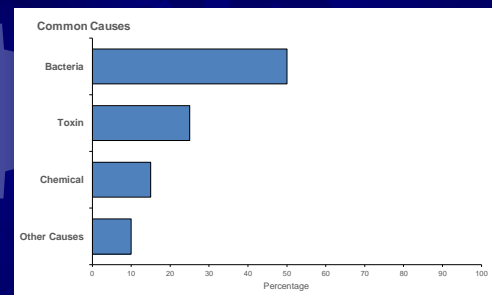


Figure 7. Foodborne Illness Outbreaks by Pathogen (N=20), FETP investigations, January 1, 2005-June 30, 2015.

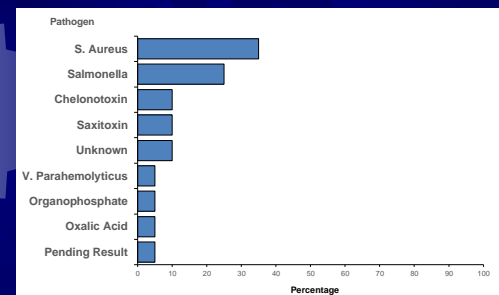


Fig 8. Foodborne-illness Outbreaks by Confirmation Status (N=20)\*, FETP, January 1, 2005-June 30, 2015.

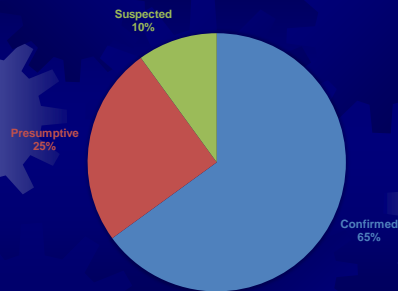


Figure 9. Contributing Factors in the Occurrence of Foodborne Disease Outbreaks (N=20)\*, FETP investigations, January 1, 2005-June 30, 2015.

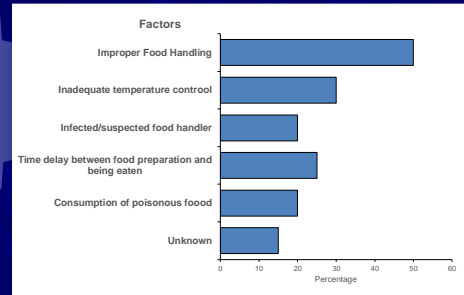


Table 3. Required permits/trainings of food handlers and food establishment (N=20)\*, FETP investigations, January 1, 2005-June 30, 2015.

Required Permits/Trainings	Number of Outbreaks
License to Operate	4* (20%)
Sanitary Permit	2* (10%)
Food-handlers training	1* (5%)

\*available data (N=7).

## Conclusion and Discussion

- There were 20 foodborne disease outbreaks, mostly were due to improper food handling and inadequate temperature control of the implicated food.
- Most of these outbreaks were caused by bacterial contamination.
- Most of the outbreaks were caused by contamination of *Staphylococcus aureus*.
- The most common way for food to be contaminated by the bacteria is through contact with infected food handler.
- Equipments and surfaces by which was prepared and house flies can also cause contamination.

- The Sanitation Code of the Philippines requires all food caterers, regardless of type and enterprise size, to secure sanitary permits and health certificates for all their employees prior to operation. In this study, only four food establishments had license to operate, and majority of the food-handlers does not comply with the required sanitary permits and food-handlers training.
- Most foodborne disease outbreaks occurred at home.
- Oftentimes there are no observable indications of spoilage, (i.e bad smell) even when a food is dangerously contaminated.
- Washing hands is very helpful to prevent bacterial contamination.
- Inadequate temperature control was also a common factor
- Keeping cold food cold and hot food hot is a general principle in food safety

## Recommendations

### Department of Health

- To sustain or intensify food borne disease surveillance system.
- To conduct nationwide advisories and campaign about food safety.
- To involve other stakeholders in the food safety campaign.

### Department of Education

- To regulate and regularly monitor the food vendors in the school premises.
- To monitor compliance of the canteen food handlers to sanitation code and in acquiring necessary health permits.
- To utilize or construct functional handwashing area in the school and to emphasize to the students the importance of handwashing.
- To regularly coordinate with DOH and other stakeholders regarding school food safety.

### Local Government Units

- To have a registry of all food establishments and food handlers present in the locality.
- Regular monitoring of food establishments for compliance of the sanitation code of the Philippines.
- To require food handlers to secure health certificate regularly.
- To enact closure to the non-compliant food establishments or food handlers.

### Food Establishments

- To comply with the required food safety and sanitation code standards.
- To secure necessary permits and trainings prior to the operation.
- To identify critical control points in food preparation and handling, and implement control measures to prevent contamination.
- To strictly implement proper kitchen and personal hygiene among food handlers.
- To purchase products to be used in food preparation only to the safe and registered dealers.

### Public advisory!

*These are ...*

**H**ygienic  
**E**asy to follow  
**A**cceptable  
**L**et's **DOH** it  
**T**o prevent illness and maintain  
**H**ealthy Living



*Thank you and be safe eating!*

