RAMA UNIVERSITY

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FACULTY OF NURSING

FOOD HYGIENE

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WHAT IS FOOD HYGIENE/FOOD SAFETY?

All conditions and measures that are necessary during the production, processing, storage, distribution and preparation of food to ensure that it is safe, sound, wholesome and fit for human consumption. (WHO)

AIM OF FOOD HYGIENE

Prevention of food borne diseases and food poisoning

The cost of poor food hygiene

1. Food poisoning outbreaks and sometimes **death**
2. Food contamination, customer complaints and brand image
3. Pest infestations
4. Waste food due to spoilage
5. The closure of food premises
6. Fines and costs of legal action taken because of contraventions in hygiene legislation, or because of the sale of unfit or unsatisfactory food.
7. Civil action taken by food poisoning suffers
8. Loss of production and food which has to be destroyed
9. Decontamination cleaning and replacement of damaged equipment.

The benefits of good food hygiene

1. Satisfied customers, a good reputation, increased business and brand protection
2. Compliance with food safety legislation
3. Less food wastage
4. Good working conditions, higher staff morale and lower staff turnover, which promote increased productivity

MILK HYGIENE

- Clean and Healthy Animal
- Healthy milk handlers
- Before milking hands and arms should be washed
- Sanitary Animal Premises
- Clean milk containers
- Safe water supply
- Milk should be cooled to 10 ^{o}C

ILK-BORNE DISEASES

Animal Infections transmitted to humans:

TB
Brucellosis
Salmonellosis
Streptococcal inf.
Staphylococcal poisoning
Q Fever
Anthrax
Leptospirosis

Human Infections transmitted by milk:

Typhoid and paratyphoid fevers
Shigellosis
Cholera
E. Coli
Streptococcal Inf.
Staphylococcal food poisoning
TB

TEST BEFORE MILK PASTEURIZATION

Methylene Blue Reduction Test:

Methylene Blue+10ml milk

Heating at 37 ºC

Disappearance of blue colour in a short time

Bacterial contamination

PASTEURIZATION OF MILK

Heating of milk at specific temp. and for specific time to destroy any pathogen, with minimal changes in the composition, flavour and nutritive value.

1.HOLDER(VAT)METHOD:

66 C,30 min. then quick cooling to 5 C
For small towns, villages

2.HTST(High Temp. Short Time) METHOD:

72 C, 15 sec., then quick cooling to 4 C, widely used

3.UHT(Ultra High Temp.)

Rapidly heated in 2 stages (second stage is under pressure)
125 C, few seconds then cooled. Rapidly cooled and bottled.

EFFECT OF PASTEURIZATION

Pasteurization kills 90% bacteria

It doesn't kill bacterial spores

Milk should be kept cold until it reaches to consumer

TESTS AFTER MILK PASTEURIZATION

1.Phosphatase test

- To check the efficiency of pasteurization
- Phosphatase enzyme is present in raw/inadequately pasteurized milk
- After pasteurization it is destroyed

2.Coliform count:

- Coliforms should not be present in milk
- Indicates improper pasteurized milk/contamination

MEAT HYGIENE

DISEASES TRANSMITTED BY MEAT:

1.Tapeworm infestation: T.solium,T.saginata
2.Bacterial Infections: Anthrax,TB,Food poisoning

MEAT INSPECTION

Causes for Ante-mortem Rejection:

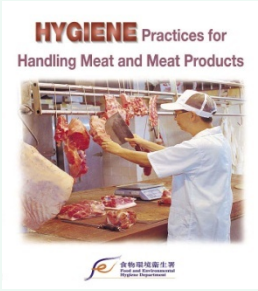
Emaciation, pregnancy, actinomycosis, brucellosis, fever and other infections

Causes for Postmortem Rejection:

Abscess, septicemia, parasitic infections, TB

SIGNS OF GOOD MEAT

Firm, elastic, pink, agreeable odour



SLAUGHTER HOUSE

ocation:Away from residential areas

rructure:Floors and walls up to 3 ft should be kept clean a

npervious

aste disposal: Blood etc. separately

ater supply: Continuous, independent

edical examination of animals: antepartum and post morter

y proof and rat proof rooms(<5 C) for meat storage

ransportation of meat in fly proof covered vans

❖FISH

seases transmitted by fish:

peworm,Vibrio parahaemolyticus, Cl.botulinum, Fish poisoning

gns of fresh fish:

In a state of stiffness or rigor mortis
Gills are bright red
Eyes clear and prominent

EGG

Shells may be contaminated with fecal matter from hen
Microorganisms can penetrate a cracked shell

SANITATION OF EATING PLACES

ocation:Should be away from open drains/manure pits/nuisance

oors:Impervious and easy to clean floors.

pace of room: Atleast 100 ft2

alls: Up to 3 ft smooth, impervious and washable

ghting and Ventilation: Adequate

tchen:

Space minimum 60 ft2

Window opening 25% of floor area

loor: nonslippery,impervious

Doors and windows:Rat proof,fly proof

SANITATION OF EATING PLACES

Storage of cooked food: Store room with temp. control

Sotarge of uncooked food: Rat proof, fly proof separate storage

Furniture:Clean and dry

.Disposal of refuse: Covered dustbins

.Water supply: Adequate and continuous

.Washing of utensils:Hot water followed by disinfection.

D HANDLERS

l exam. at the time of employment & at regular intervals

s with communicable disease should not be employed

s with wounds, skin inf. or otitis media should not handle the food or utensils

ent of illness of food handlers should be done
ion of food handlers

al hygiene:

hands & fingernails
coverings
lance of smoking, coughing & sneezing
clothes

FOOD BORNE DISEASES

- It is defined as a disease usually either infectious or toxic in nature caused by agents that enter the body through the ingestion of food.

A. FOOD BORNE INTOXICATIONS

. Due to naturally occurring toxins:

- Lathyrism
- Endemic ascitis.

. Due to toxins produced by certain bacteria:

- Botulism
- Staphylococcus poisons

. Due to toxins produced by some fungi:

- Aflatoxin
- Ergot
- Fusarium toxins

Cont...

- 4. Foodborne chemical poisoning:
  - Heavy metals and lead
  - Oils, petroleum derivatives and solvents
  - Migrant chemicals from package materials
  - Asbestos
  - Pesticide residues (DDT, BHC)

B. FOOD BORNE INFECTIONS

- 1. Bacterial diseases: Typhoid fever, paratyphoid feve Salmonellosis, Botulism, E. Coli diarrhoea, Streptococca infection.
- 2. Viral Diseases: Viral Hepatitis, Gastroenteritis.
- 3. Parasites: Taeniasis, Hydatidosis, Trichinosis, Ascariasis Amoebiasis, Oxyuriasis.

AFLATOXIN

- They are the group of mycotoxins produced by a certain fungi, Aspergillus flavus and A. Parasiticus. The fungi infests the food grains like: groundnut, maize, parboiled rice, wheat, rice etc.
- Moisture levels above 16% and temperature 110- 137 degree F favours toxin formation.

ERGOT

- It is a field fungus. Foodgrains such as bajra, rye, sorghum and wheat have tendency to get infested during the flowering stages by the ergot fungus.
- Consumption leads to ergotism. Symptoms include: nausea, repeated vomiting, giddiness and drowsiness extending sometimes for a period upto 24-48 hrs after the ingestion.
- Ergot grains can be removed by floating them in 20% salt water.

EPIDEMIC DROPSY

- Symptoms include: sudden, non-inflammatory, bilateral swelling of legs, often associated with diarrhoea. Dyspnoea, cardiac failure and death may follow.
- Contamination of mustard or other oils with argemone oil may lead to dropsy.

FOOD ADDITIVES

ood additives: Substances which are added intentionally to fo
enerally in small quantity, to improve its appearance, flav
exture or storage properties.

wo categories: first and second.

irst includes: colouring agents, flavouring agents, sweeten
reservatives, acidity imparting agents etc.

econd includes: contaminants incidental through pack
rocessing steps, farming practices or other environme
onditions.

FOOD FORTIFICATION

- Public health measure aimed at reinforcing the usual dietary intake of nutrients with additional supplies to prevent/control some nutritional disorders.
- WHO defines fortification as process whereby nutrients are added to foods to maintain or improve the quality of diet of a group, community or a population.

FOOD FORTIFICATION CRITERIA

The vehicle fortified must be consumed consistently as part regular daily diet.

The amount of nutrient added must provide an effecti supplement for low consumers of the vehicle, witho contributing a hazardous excess to high consumers.

The addition of the nutrient should not cause it to undergo a noticeable change in taste, smell, appearance or consisten and,

The cost of fortification must not raise the price of the fo beyond its reach.

Prevention of food borne disease

UNSAFE FOOD

Bacteria

Food left standing

Person eating contaminated food

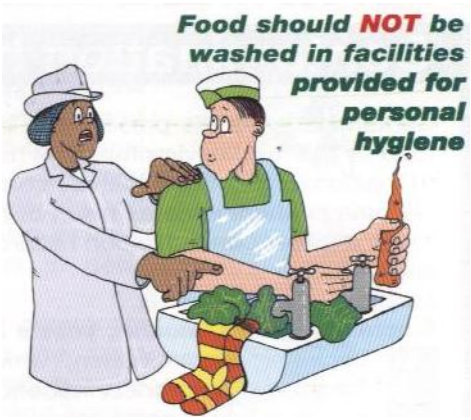
Diarrhoea

Report illness as early as possible

Personal hygiene

How to Protected food from contamination

1. Purchasing food from reputable supplier
2. Effective instruction, supervision and training of food handlers
3. Maintaining high standard of personal hygiene and good hygiene practices
4. Well designed and constructed food premises and food rooms
5. Effective pest control
6. The separation of raw and high – risk food at all stages of delivery , storage, preparation , serving and distribution.
7. Effective storage and disposal of waste and unfit food
8. Well – designed and proper use of suitable equipment/utensils



How to prevent bacteria within food from multiplying

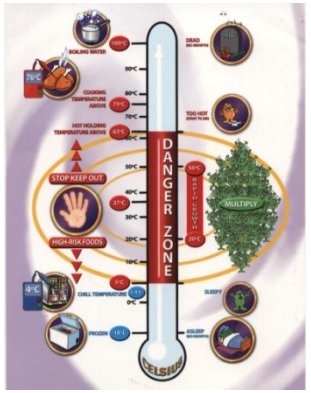
01. Storing food out of the danger Zone. -
    Food should be kept below 5^0 C or kept above 63^0 C

02. Cooling food as rapidly as possible

03. Not allowing dried foods to absorb moisture

04. Using suitable preservatives - Salt, Sugar , Vinegar (Acid)

05. Fermentation - Yoghurt , Curd



Personal Hygiene

Hands and Skins (Food handlers must wash their hands especially)

1. After visiting the toilet
2. On entering the food room, after a break and before handling any food.
3. After putting on or changing a dressing
4. After dealing with an ill customer or a baby's nappy
5. After handling raw food Including eggs, and before handling ready – to eat food.
6. After cleaning up animal faces or handling boxes contaminated by bird dropping.
7. After combing or touching the hair, face, nose, mouth or ears
8. After handling waste food.
9. After cleaning , or handling dirty cloths, crockery .etc.
10. After handling external packaging, flowers or money.

The nose, mouth and ears

Cuts, boils, whitlows and septic spots.

Jewellery and perfume

The hair

Smoking

Protective clothing

Hygiene training

Thank you