



Food Transmitted Diseases & Hygiene Monitoring in the Medical Sector

Food Safety

Food safety refers to the conditions and practices that preserve the quality of food to prevent contamination and foodborne illnesses. The Food Safety and Inspection Service (FSIS) defines a safe food as “a product which when consumed orally either by a human or an animal does not cause health risk to consumer”.

The World Health Organization announced that food and waterborne diarrheal diseases are leading causes of illness and death in less developed countries, killing approximately 2.2 million people annually, 1.9 million of whom are children. More than 200 known diseases are transmitted through food noting that all foods can become contaminated. However, higher risk foods include red meats, poultry, eggs, dairy products, raw sprouts, and raw fish or shellfish. Some food products may already contain bacteria or parasites, chemical, or physical contaminants. On the other hand, contamination can occur during the receiving, production, and/or packaging process if the food is not handled properly (Cross-contamination).

Poor food handling and inadequate food safety can cause foodborne illness; the symptoms of foodborne illnesses vary from stomach problems to nervous and muscle disorders and may be severe and life-threatening to the most vulnerable population, especially in young children, older

adults, pregnant women, and people with weakened immune systems.

Evaluating the risks encountered by the product is essential to control its quality. In fact, three types of hazards can affect the food we eat:

- **Microbiological hazards:** Microbiological hazards occur when micro-organisms get into food and poison or spoil it. They reduce the shelf life of products, and can also seriously affect the health of the consumer. The most common micro-organism that causes food poisoning is bacteria. Other microbiological hazards are fungus, viruses, toxins...
- **Chemical hazards:** Sometimes, the misuse or incorrect handling of cleaning chemicals and other materials can contaminate foods ex: detergents, pesticides, additives and toxic metals. In order to prevent chemical hazards from occurring, foods should be covered and stored in a separate area to cleaning chemicals. You should never use sprays in areas where food is exposed.
- **Physical (or other residues) hazards:** Physical hazards are either foreign materials unintentionally introduced to food products (ex: metal fragments in mince meat) or naturally occurring objects

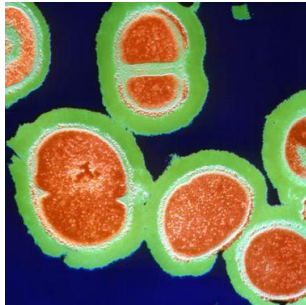
(ex: bones in fish) that are a threat to the consumer.

The main types of physical hazards in food include:

- Glass: common sources found in food processing facilities are light bulbs, glass containers and glass food containers
- Metal: common sources of metal include metal from equipment such as splinters, blades, broken needles, fragments from worn utensils, staples, etc.

Foodborne Pathogens and Bacterial Food Poisoning:

Staphylococcus aureus: Man's respiratory passages, skin and superficial wounds are common sources of *S. aureus*. When *S. aureus* is allowed to grow in foods, it can produce a toxin that causes illness. Although cooking destroys the bacteria, the toxin produced is heat



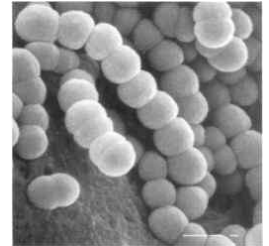
stable and may not be destroyed. Staphylococcal food poisoning occurs most often in foods that require hand preparation, such as potato salad, ham salad and sandwich spreads. Sometimes these types of foods are left at room temperature for long periods of time, allowing the bacteria to grow and produce toxin. Good personal hygiene while handling foods will help keep *S. aureus* out of foods, and refrigeration of raw and cooked foods will prevent the growth of these bacteria if any are present.

Salmonella: The gastrointestinal tracts of animals and man are common sources of *Salmonella*. High protein foods such as meat, poultry, fish and eggs are most commonly associated with *Salmonella*. However, any food that becomes



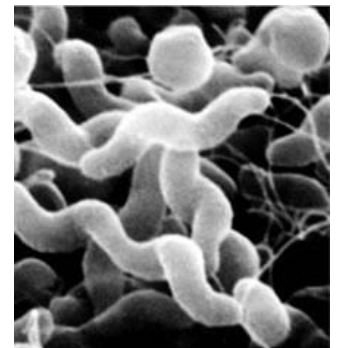
contaminated and is then held at improper temperatures can cause salmonellosis. *Salmonella* are destroyed at cooking temperatures above 150 degrees F. The major causes of salmonellosis are contamination of cooked foods and insufficient cooking.

Clostridium perfringens: is found in soil, dust and the gastrointestinal tracts of animals and man. When food containing a large number of *C. perfringens* is consumed, the bacteria produce a toxin in the intestinal tract that causes illness.



Campylobacter jejuni: is primarily transferred from animal origin foods to humans in developed countries. However,

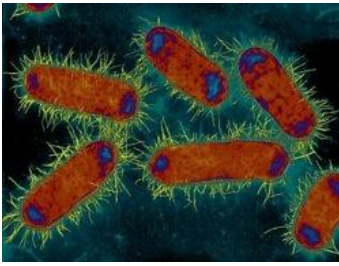
fecal contamination of food and water and contact with sick people or animals predominates in developing countries. Although milk has been most frequently identified throughout



the world to be a vehicle for *Campylobacter*, one anticipates that future investigations will identify poultry and its products and meats (beef, pork, and lamb) as major reservoirs and vehicles. *C. jejuni* dies off rapidly at ambient temperature and atmosphere, and grows poorly in food. Hygienic slaughter and processing procedures will preclude cross-contamination while adequate cooling and aeration will cause a decrease in the microbial load. In addition, thorough cooking of meat and poultry products followed by proper storage should assist in maintaining food integrity and less contamination.

Enteropathogenic Escherichia coli: is a significant cause of diarrhea in developing countries and localities of poor sanitation. The

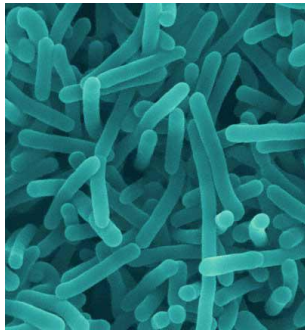
major source of the bacteria in the environment is



probably the feces of infected humans, but there may also be animal reservoirs. Feces and untreated water are the most likely sources for

contamination of food. Precautions should include adequate cooking and avoidance of recontamination of cooked meat by contaminated equipment, water or infected food handlers. Food service establishments should monitor adequacy of cooking, holding times, and temperatures as well as the personal hygiene of food handlers.

Listeria monocytogenes: Consumption of food contaminated with *Listeria monocytogenes* can cause listeriosis, an uncommon but potentially fatal disease. Healthy people rarely contract listeriosis. Listeriosis can cause high fever, severe headache, neck stiffness, and nausea. Listeriosis can also cause miscarriages and stillbirths, as well as serious and sometimes fatal infections in those with weak immune systems--infants, the frail or elderly, and persons with chronic disease, with HIV infection, or taking chemotherapy. Infants, older persons, women who are pregnant and anyone with a compromised immune system are especially susceptible to food-borne illness. These people should never consume raw fish, raw seafood, or raw meat type products. You are the key to preventing food-borne illness. By observing the simple rules of good handling, food poisoning can be eliminated.



Food Hygiene in Hospitals

Food hygiene is essential to prevent food poisoning. Many cases of food poisoning are caused by micro-organisms, including bacteria,

viruses and moulds and toxins which could be heat stable. The spread of these germs and the illnesses they cause can be prevented by practicing good food hygiene. Food hygiene is specifically



important in hospitals where consumers are more

susceptible to foodborne diseases and complications than the normal population.

Some routines should be followed to avoid potentially severe health hazards and prevent bacterial spreading:

- Proper handling, preparation, and storage of food greatly reduces the risks of getting foodborne illnesses
- Keeping all food contact surfaces clean and non-food contact surfaces in adequate condition
- Separating raw and cooked (in the receiving, storage, and preparation areas)
- Temperature controlling (Keep food at safe temperatures and cook thoroughly)
- Using Safe water and raw materials

MEFOSA & Hospitals

MEFOSA's Hospital Related Services: How Can MEFOSA Help Your Hospital Get Accredited?

MEFOSA can assist and provide your hospitals with an integrated package which comprises consultation, training, auditing & assistance in the certification process and provision of the right technology and apparatus. MEFOSA emphasizes in particular on hygiene practices, food traceability & delivery control. And, our supportive staff is always ready to respond quickly to your inquiries and to offer the right solutions. This will help your esteemed hospital

acquire and sustain the highest quality standards (ISO 22000, GHP...) which will guarantee the satisfaction of your patients.

MEFOSA Hospital related technologies:

1/In Hygiene Monitoring and bacterial testing:

Hygiene is a very critical issue especially in a hospital because we are dealing with patients who are more sensitive human beings to bacteria and viruses and other contaminants.

- Hygiene must be closely controlled in hospitals and medical/health care facilities to prevent bacterial contamination, growth, and medical complications.
- Compliance with Good Hygiene Practices in hospitals must be monitored and regularly checked in:

- The food production area and all food contact surfaces (including delivery trays to patients)
- Operation Rooms
- Medical Equipments and Utensils
- Patients' Rooms
- The water system

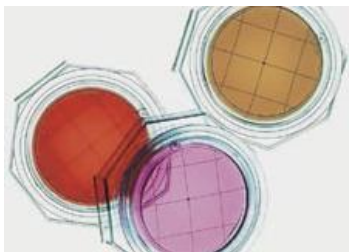


LUMITESTER:

- Used to monitor hygiene in different critical surfaces (food preparation areas, critical surfaces in the surgery room, surgery utensils, the water system...).

• The applied technology measures ATP and AMP bioluminescence by means of a Luciferase enzyme reaction. The light released in this reaction can be quantified with the LUMITESTER.

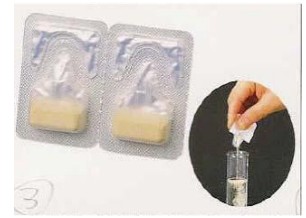
- So, the Lumitester can evaluate surface hygiene quantitatively in only ten seconds. It's really an



evolution in technology.

Compact Dry:

- Easy test method for counting micro-organisms
- Ready-to-use test method for microbial identification and testing.
- Easy-to-read results test method: type of bacteria identified by the colors
- Easy-to-store test method: plates kept at room temperature up to two years.
- Very safe product



Food Stamp:

- Hygiene control of viable bacteria on foodstuffs and working areas.
- Presence of bacteria is detected by the growth of colored colonies
- No special instruments or equipment required
- Time saving
- Safe, Simple, easy to use, and portable,
- Leads to reliable results
- Broad menu: 11 different Food Stamps available for different bacteria

2/ In water testing:

Testing water in a hospital is very important because it is used not only in food preparation, but also in cleaning surfaces. The major contaminants in water are coliforms. These bacteria come from human intestine. Therefore, their presence in the water system indicates contamination from sewage.

EC BLUE:

- A water testing technique that can detect coliform and E Coli in water.
- No need for Sterilization or preparation of medium
- High sensitivity and rapid results (within 24 hours)



- Easy and simple operation: the water sample is mixed with the EC Blue reagent, the color changes to blue if the sample is contaminated.

3/ In temperature monitoring:

Keeping freezers and refrigerators (food or drugs or blood) in the required ranges is the most critical. MEFOSA can offer you a wide range of



Data loggers and chart recorders for effective and accurate monitoring. Both **data loggers and chart recorders** are important for record keeping you should do for the accreditation.



Chart Recorders: for temperature recording, very accurate. We can provide a wide range of chart recorders which have a wide range of use.

A chart recorder can be with an alarm system or not, it can have also digital display. We can provide a specific chart recorder for blood and tissue banks.

Data Loggers:

- Also very accurate.
- You can directly download the info to the computer for record keeping.
- Very various types with very various features so we can give you exactly what you want.
- We have vaccine specific temperature data logger.

4/ Going more deeply into the medical field:

MEFOSA represents several suppliers and we can provide your hospital with rapid test kits, to name a few:

- Fertility Tests

- Hepatitis Tests
- Sexually transmitted diseases tests
- Drug of abuse tests
- Urinalysis strip tests
- Alcohol strips
- Blood glucose tests

MEFOSA can also provide your hospital with all big equipments like:

- X-Ray equipment and consumables
- Ultrasound scanner
- Surgical microscope
- Endoscope
- Ophthalmic equipment
- Suction Unit
- Dental equipment and dental autoclave
- Rehabilitation equipment
- Ordinary autoclaves and advanced autoclaves
- This is just to name a few

5/ Providing Your Lab with the Right Equipments:

MEFOSA can provide your lab with all the equipments and apparatus, from big equipments to small and disposables.



Eng. Hala Romanos

Project Manager

*MEFOSA - MENA Food Safety Associates s.a.r.l.
Lions Building # 301 | 126 Sourati Street | Hamra,
Beirut - Lebanon |*

P.O.Box: 113-6382, Hamra

Tel/Fax: + 961 1 739 986 | Tel: + 961 1 745 744

Mobile: + 961 3 276378

Email: mefosaproject@mefosa.com

Website: www.mefosa.com | www.mefosa.net