



Communicable Disease, Food Poisoning and Foodborne Disease

Definition of Communicable Disease

Infectious diseases (such as Shigellosis, Campylobacter, Cholera, Hepatitis, Influenzas, Measles, Listeria, Salmonella, Parasites, HIV, BSE or Tuberculosis) are transmissible in several ways:

- Contact with infected individuals through their secretions (such as respiratory droplets, sweat, blood, lymph or semen)
- Transmission via fomites - contact with contaminated surfaces or objects
- Ingestion of contaminated food or water
- Direct or indirect contact with disease vectors (such as culicoides, mosquitoes, fleas, specific insects or rodents)

There are over 70 plus communicable diseases with even more should you include some of the rare exotics. Symptoms may be acute or chronic and may lead to major trauma.

Definition of Food Poisoning

Food poisoning is a term used quite loosely and results from eating food contaminated by pathogens, usually bacteria, toxins, chemicals, poisonous plants, environmental chemicals, pesticides or heavy metals. Food poisoning symptoms are typically sickness, vomiting and diarrhoea.

Definition of Foodborne Illness

The terms “food poisoning” and “foodborne illness” are frequently used to describe the same conditions – this is not correct. Generally, they are considered to refer to the same thing, however the fact is that they are quite distinct. Foodborne illness may be caused by similar pathogens, however the classic major difference is that with foodborne illness there is systemic disturbance with the causative agent being transmitted around the body within the blood or lymphatic circulation, resulting in major damage to organs and systems. Large numbers of pathogens are not needed which is in complete contrast to food poisoning. Foodborne illness occurs after consuming food contaminated with specific pathogens. Often there may be no sickness, vomiting or diarrhoea and the incubation period may be chronic, not showing symptoms for many weeks, months or years [BSE, Tuberculosis].

Although the above are specific in nature, the term ‘communicable’ is the catalyst which links the three main areas together. Often the symptoms and lesions seen in each may be similar, especially in the early stages of foodborne illness and food poisoning. Obviously as any disease progresses, the lesions develop and we see these lesions classically related to the causative agent, such as possible septicaemia, meningitis or gangrene in the case of true Listeriosis, brought about by *Listeria monocytogenes*, a classic systemic condition.



From a true epidemiological point of view and depending on the condition encountered, the consequences of finding a communicable disease within a specific environment requires differing actions. There may be implications such as legal compliance, but this is depending on the global location, such as a product recall, or total removal of a product from the food chain. Examples include:

- Legal compliance that requires a zero tolerance for Listeria species in ready to eat foods in the USA, however this is not applicable in the EU
- Product recall due to contamination from Ractopamine in pork which is banned in the EU yet freely available in South America and the USA
- Total removal of a food product from the food chain - consider BSE.

Many of the conditions outlined have one common denominator, irrespective of their titles, namely the differing symptoms and lesions seen, and the problems caused. Communicable disease, food poisoning and foodborne disease can all be communicable. The critical factors to prevent such conditions are little different from those actions which the food industry and the medical industry have been adopting for many years.

For prevention of contamination from any source, the main tool is risk analysis. The standard practice is good sanitation, hygienic and sterile preparation, personal hygiene practices, temperature control, preventative pest control for all species discussed, compliance with codes of practice linked to third party accreditation, specific training and legal compliance. These actions will reduce the incidence of communicable disease.

Relate the information above to the following paragraph from a recent publication which says:

“Foodborne illness is a serious public health problem. CDC estimates that each year 76 million people get sick, more than 300,000 are hospitalized, and 5,000 die because of foodborne illnesses. Primarily the very young, the elderly, and the immunocompromised are affected. Recent changes in human demographics and food preferences, changes in food production and distribution systems, microbial adaptation, and lack of support for public health resources and infrastructure have led to the emergence of novel as well as traditional foodborne diseases. With increasing travel and trade opportunities, it is not surprising that now there is a greater risk of contracting and spreading a foodborne illness locally, regionally, and even globally.”

The figures quoted in the above article would be far worse were it not for the good practices taken by the food industry. Restaurants, food manufacturers, growers of leafy greens, hospital caters, hotel chains, dairies - the list is quite endless - would all suffer the consequence of communicable disease in some form if they do not maintain the strict food safety systems they have in place.

A robust food safety system and well-considered risk analysis is the key.