

## Food safety-A global concern

ZU Mridha

*Department of Biochemistry, Dinajpur Medical College, Dinajpur*

As the human being is organotrophic terrestrial animal, positioned at the apex of the food chain their primary essence of life is air and food. Foods are nutritionally essential. Human cannot produce themselves for their existence as autotrophic organisms can do. Foods provide us with both energy and building block for growth and development and also accounts for repair of wear and tear of body and protect from foreign hostile invader to sustain our health.

Food was, is and perhaps will be the primal concern and also the greatest problem for humankind. From the period of gathering and hunting, the naïve human was always concern to procure food to sustain their life until the discovery of agriculture. Though, scarcity of food in some countries in the world pose great burden for the human civilization, contamination and adulteration of food is emerging as the greatest "monstrous demon" of all times. Contamination, adulterations and genetic modification of food threaten our health in many diverse ways. It is now one of the major global concerns. So, now we are fighting against that demon to get "Safe food" for sake of "Good health".

The safety for food is burning issue for the World Health Organization (WHO). In May 2010, the World Health Assembly approved a new resolution on food safety: Advancing food safety initiatives (WHA 63.3).<sup>1</sup> This resolution will be used to update the current WHO Global Strategy for Food Safety. Bangladesh is consented to WHO's declaration to establish nationwide food safety network, thereby to rescue the people from the grab of monster.

Food safety is a scientific discipline describing

handling, preparation, and storage of food in ways that prevent food borne illness. This includes a number of routines that should be followed to avoid potentially severe health hazards<sup>2</sup>.

Safety of food chain can be broken by both contamination and adulteration of food in different steps of the cycle. Unsafe food causes many acute and life-long diseases, ranging from diarrheal diseases to various forms of cancer. WHO estimates that food borne and waterborne diarrheal diseases taken together kill about 2.2 million people annually 1.9 million of them are children. According to the WHO and Centre Diseases Control (CDC); in the USA alone, annually, there are 76 million cases of food borne illness leading to 325,000 hospitalizations and 5,000 deaths<sup>3</sup>.

In Bangladesh, data from the ICDDR, B indicates 501 hospital visits per day for treatment of diarrhoea that were attributable to food and water borne causes. There is also widespread evidence of food adulteration with harmful chemicals. The chronic effect of such events such as cancer, kidney disorders and birth defects is unlikely to be observed in short term, because the manifestation of the disease only occurs after long-term and low-level exposure<sup>4</sup>.

Food is contaminated and/ or adulterated in many ways. Causative factors for unsafe food broadly can be viewed in four bold heading, namely - chemical agents, zoonoses, microbial agent and genetic modification of food.

The contamination of food by chemical agents is a worldwide public health concern and is a leading cause of trade problems internationally. Contamination may occur through environmental pollution of the air, water and soil, such as the

case with toxic metals, Poly chlorinated biphenyls (PCBs) and dioxins, or through the intentional use of various chemicals, such as pesticides, animal drugs and other agrochemicals.

Food additives and contaminants resulting from food manufacturing and processing can also adversely affect health. Sound scientific risk assessment to define exposure levels of no health concern for such chemicals form the basis for national and international food safety standards<sup>5</sup>. Human exposure to chemicals at toxic levels, as well as nutritional imbalances, are known or suspected to be involved in causing cancer, cardiovascular disease, kidney and liver dysfunction, hormonal imbalance, reproductive disorders, birth defects, premature births, immune system suppression, musculoskeletal disease, impeded nervous and sensory system development, mental health problems, urogenital disease, old-age dementia, and learning disabilities.

Among many others chemical species detrimental to health, formalin, calcium carbide, melamine, histamine and other biogenic amines, bisphenol A, acrylamide, persistent organic, pollutants (POPs).

Thirty seven percent formaldehyde solution is known as formalin and is used mainly as food preservative. Because of its easy penetration in tissues, it is used in foods such fishes and fruits. Besides, it is widely used as a disinfectant in many human medicines and cosmetics and as an antiseptic in veterinary drugs, fungicides, textiles and embalming fluids<sup>6</sup>.

Zoonotic diseases are a group of infectious diseases that are naturally transmitted between vertebrate animals and humans. More than 60% of the newly identified infectious agents are transmissible to humans through food (brucellosis, tuberculosis), through bites from infected mammals (rabies) and insects (Rift Valley Fever) or via environmental contamination (echinococcosis/hydatidosis)<sup>7</sup>.

Foodborne illness caused by microorganisms is caused by microbes in food, such as *Salmonella*, *Campylobacter jejuni* and enterohaemorrhagic *Escherichia coli*, and parasites such as

*cryptosporidium*, *cryptospora*, trematodes are a large and growing public health problem. The new pathogen *E. coli* O157:H7 caused illness and deaths (especially among children) owing to its presence in ground beef, unpasteurized apple cider, milk, lettuce, alfalfa and other sprouts, and drinking-water in several countries. *Salmonella typhimurium* DT104 has developed resistance to five commonly prescribed antibiotics. Changes in eating patterns, such as a preference for fresh and minimally processed foods, the increasingly longer interval between processing and consumption of foods and the increasing prevalence of eating food prepared outside the home all contribute to the increased incidences of foodborne illness ascribed to microbiological organisms<sup>8</sup>.

The application of modern biotechnology to food production presents new opportunities and challenges for human health. The potential benefits to the public health sector include altering the nutrient content of foods, decreasing their allergenic potential, and improving the efficiency of food production systems<sup>9</sup>.

The Codex Alimentarius (Latin for "Book of Food") is a collection of internationally recognized standards, codes of practice, guidelines and other recommendations relating to foods, food production and food safety. Its name derives from the Codex Alimentarius Austriacus<sup>10</sup>. Its texts are developed and maintained by the Codex Alimentarius Commission, a body that was established in 1963 by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). The Commission's main aims are stated as being to protect the health of consumers and ensure fair practices in the international food trade. The Codex Alimentarius is recognized by the World Trade Organization as an international reference point for the resolution of disputes concerning food safety and consumer protection. In 2003, the WHO and FAO published the Codex Alimentarius which serves as a guideline to food safety<sup>11</sup>.

WHO and FAO are collaborating in a national project titled 'Improving Food Safety, Quality and Food control in Bangladesh' for provision of a coherent food safety and quality policies and strategies and a modern risk-based food inspection system. During current biennium work-plan special efforts will be given to further strengthen the food borne illness surveillance system in the country. Capacity building for laboratory personnel through WHO- Global Foodborne infections Network (GFN) will be introduced in Bangladesh<sup>12</sup>.

In theoretically every food poisoning is 100% preventable. The five key principles of food hygiene, according to WHO, are:<sup>13</sup>

1. Prevent contaminating food with pathogens spreading from people, pets, and pests.
2. Separate raw and cooked foods to prevent contaminating the cooked foods.
3. Cook foods for the appropriate length of time and at the appropriate temperature to kill pathogens.
4. Store food at the proper temperature.
5. Do use safe water and cooked materials.

In this above background, Government has taken an immediate necessary action plan to set up a "National food safety Laboratory". Director General of Health Services of has taken an initiative and proposed for a panel of specialist (s) to the Ministry of Health and Family Welfare, the People's Republic of Bangladesh.

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