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Food Safety - The Need Of The Hour

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Abstract
Access to sufficient amount of safe and nutritious food is key to sustaining life and promoting good health. Unsafe food containing harmful viruses, parasites or chemicals cause more than 200 diseases-ranging from diarrhoea to cancers. Unsafe food is linked to the deaths of an estimated 2 million people annually, including many children. Changes in food production, distribution, consumption , change in environmental pathogens and antimicrobial resistance –all pose challenges to national food safety systems. Food borne diseases impede socio-economic development by straining health care systems and harming national economies, tourism and trade. Food supply chains now cross multinational borders. As our food supply becomes more globalized, the need to strengthen food safety systems in and between all countries is becoming more and more evident. Everyone can contribute to make food safe.

Key words: Food safety, food borne diseases

Introduction

Despite progress in reducing under nutrition, planet's population is still affected by many food-related challenges, including vitamin and mineral deficiencies, obesity, and non-communicable diseases. These challenges are fuelled, in part, by cheap, convenient, and highly-processed foods that are appealing to the taste. But food threats do not stop there. One area to which the international community has given substantial, but less visible, attention is ensuring the safety from infection and contamination of the food we produce, trade, and eat. **(1)**

Everyone needs food, and needs it every day. We need a large base of plant foods, including fruit, vegetables, cereals, pulses, and vegetable oils, generally accompanied by an adequate quantity of animal-source foods. That food must be nutritious and safe. Yet food safety is a hidden, and often overlooked, problem. Most people suffering from diarrhoea do not consult a physician. Diseases and deaths might be attributed to other causes, even when the food that people have eaten is the culprit. How often do we hear the phrase "It must be something I ate?" Foodborne diseases, caused either by an acute infection with a pathogen or by chronic exposure to chemicals, are largely under-reported. Nobody has precise figures on their societal effect. A global scandal is often needed to

stir the collective consciousness on food safety, such as contamination of infant formula with melamine in 2008 (affecting 3,00,000 infants and young children, six of whom died, in China alone), and the 2011 Enterohaemorrhagic Escherichia coli outbreak in Germany linked to contaminated fenugreek sprouts, where cases were reported in height countries in Europe and North America, leading to 53 deaths. The 2011 E.coli outbreak in Germany caused US$ 1.3 billion in losses for farmers and industries and US$ 236 million in emergency aid payments to 22 European Union Member States.(**2)**

Safe food supplies support national economies, trade and tourism, contribute to food and nutrition security, and underpin sustainable development. Urbanization and changes in consumer habits, including travel, have increased the number of people buying and eating food prepared in public places. Globalization has triggered growing consumer demand for a wider variety of foods, resulting in an increasingly complex and longer global food chain.

As the world's population grows, the intensification and industrialization of agriculture and animal production to meet increasing demand for food creates both opportunities and challenges for food safety. Climate change is also predicted to impact food safety, where temperature changes modify food safety risks associated with food production, storage and distribution increase.(**3)**

These challenges put greater responsibility on food producers and handlers to ensure food safety. Local incidents can quickly evolve into international emergencies due to the speed and range of product distribution. Serious foodborne disease outbreaks have occurred on every continent in the past decade, often amplified by globalized trade.

FOOD SAFETY: A PUBLIC HEALTH PRIORITY

Unsafe food poses global health threats, endangering everyone. Infants, young children, pregnant women, the elderly and those with an underlying illness are particularly vulnerable. Foodborne and waterborne diarrhoeal disease kill an estimated 2 million people annually, mostly children and particularly in developing countries. Unsafe food creates a vicious cycle of diarrhoea and malnutrition, threatening the nutritional status of the most vulnerable. Where food supplies are insecure, people tend to shift to less healthy diets and consume more "unsafe foods" – in which chemical, microbiological and other hazards pose health risks. Foodborne diseases impede socioeconomic development by straining health care systems, and harming national economies, tourism and trade. Food now crosses multiple national borders from where it is produced to where it is consumed. Good collaboration between governments, producers and consumers helps ensure food safety. Access to sufficient amounts of safe and nutritious food is key to sustaining life and promoting good health. Today's food supply is complex and involves a range of different stages including on-farm production, slaughtering or harvesting, processing, storage, transport and distribution before the food reaches the consumers. Globalization of food production and trade is making the food chain longer and complicates foodborne disease outbreak investigation and product recall in case of emergency.(**4)**

MAJOR FOODBORNE ILLNESSES AND CAUSES

Bacteria

Salmonella, Campylobacter, and *Enterohaemorrhagic Escherichia coli* are among the most common foodborne pathogens that affect millions of people annually – sometimes with severe and fatal outcomes. *Listeria* infection leads to unplanned abortions in pregnant women or death of newborn babies. Although disease occurrence is relatively low, listeria causes severe and sometimes fatal health consequences, particularly among infants, children and the

elderly. *Vibrio cholerae* infects people through contaminated water or food.

Antimicrobials

Antimicrobials, such as antibiotics are essential to treat infections caused by bacteria. However, their overuse and misuse in veterinary and human medicine has been linked to the emergence and spread of resistant bacteria, rendering the treatment of infectious diseases ineffective in animals and humans. Resistant bacteria enter the food chain through the animals (e.g. Salmonella through chickens). Antimicrobial resistance is one of the main threats to modern medicine.(**5)**

Viruses

Norovirus infections are characterized by nausea, explosive vomiting, watery diarrhoea and abdominal pain. Hepatitis A virus can cause long-lasting liver disease.

Parasites

Some parasites, such as fish-borne trematodes, are only transmitted through food. Others, for example Echinococcus spp, may infect people through food or direct contact with animals. Other parasites, such as Ascaris, Cryptosporidium, Entamoeba histolytica or Giardia, enter the food chain via water or soil and can contaminate fresh produce.

Prions

Prions, infectious agents composed of protein, are unique in that they are associated with specific forms of neurodegenerative disease. Bovine spongiform encephalopathy (BSE, or “mad cow disease”) is a prion disease in cattle, associated with the variant Creutzfeldt - Jakob Disease (CJD) in humans. Consuming bovine products containing specified risk material, e.g. brain tissue, is the most likely route of transmission of the prion agent to humans.

Chemicals

Of most concern for health are naturally occurring toxins and environmental pollutants. Naturally occurring toxins include mycotoxins, marine biotoxins, cyanogenic glycosides and toxins occurring in poisonous mushrooms. Staple foods like corn or cereals can contain high levels of mycotoxins, such as aflatoxin and ochratoxin. A long-term exposure can affect the immune system and normal development, or cause cancer.

Persistent organic pollutants (POPs) are compounds that accumulate in the environment and human body. Known examples are dioxins and polychlorinated biphenyls (PCBs), which are unwanted byproducts of industrial processes and waste incineration. They are found worldwide in the environment and accumulate in animal food chains. Dioxins are highly toxic and can cause reproductive and developmental problems, damage the immune system, interfere with hormones and cause cancer.

Heavy metals

Lead, cadmium and mercury cause neurological and kidney damage. Contamination by heavy metal in food occurs mainly through pollution of air, water and soil. (**4)**

New data on the harm caused by foodborne illnesses underscore the global threats posed by unsafe foods, and the need for coordinated, cross-border action across the entire food supply chain, according to WHO, which dedicated its annual **World Health Day 2015** to the issue of food safety, highlighting the challenges and opportunities associated with food safety under the slogan **“From farm to plate, make food safe.”** Demonstrating the importance of food safety along the whole length of the food chain in a

globalised world, from production and transport, to preparation and consumption. Food contamination that occurs in one place may affect the health of consumers living on the other side of the planet. This means that everyone along the production chain, from producer to consumer, must observe safe food handling practices.(**5**)

ROLE WE CAN PLAY

As Policy-makers

Build and maintain adequate food systems and infrastructures (e.g. laboratories) to respond to and manage food safety risks along the entire food chain, including during emergencies;

Foster multi-sectoral collaboration among public health, animal health, agriculture and other sectors for better communication and joint action;

Integrate food safety into broader food policies and programmes (e.g. nutrition

and food security);

Think globally and act locally to ensure that food produced domestically be safe internationally.(**6)**

As Food handlers and consumers

Know the food they use (read labels on food package, make an informed

choice, become familiar with common food hazards);

Handle and prepare food safely, practicing the WHO Five Keys to Safer Food at home, or when selling at restaurants or at local markets; *(keep clean – separate raw and cooked food – cook thoroughly – cook food at safe temperatures – use safe water and raw materials)*

Grow fruits and vegetables using the WHO Five Keys to Growing Safer Fruits and Vegetables to decrease microbial contamination. *(practice good personal hygiene – protect fields from animal faecal contamination – use treated faecal waste – evaluate and manage risks from irrigation water – keep harvest and storage equipment clean and dry*). (**7)**

Make safe food a top priority to prevent foodborne diseases, protect the health of

your family and community, and be confident about the safety of the food you

eat.

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