

[India]

Food Safety—A Global Public Health Concern^{*1}

A. Marthanda PILLAI¹



Food Safety- A global public health concern

Prof Dr A Marthanda Pillai MS, FRCS
President, Indian Medical Association

Food safety is an area of public health action to protect consumers from the risks of food poisoning and foodborne diseases, acute or chronic.



Safe food underpins but is distinct from food security.

Unsafe food can lead to a range of health problems: diarrhoeal disease, viral disease; reproductive and developmental problems, cancers.

Food safety is thus a pre-requisite for food security.



World health day, 2015

- Food safety was the theme for World Health Day, 2015
- Making food safe- From farm to plate was the slogan for this as advocated by World Health Organisation



Background

- Changes in food production, distribution and consumption; changes to the environment; new and emerging pathogens; antimicrobial resistance - all pose challenges to food safety systems.
- Increases in travel and trade enhance the likelihood that contamination can spread internationally



^{*1} This article is based on a presentation made at the Symposium “Ensuring Food Safety: An Important Challenge Today” held at the 30th CMAAO General Assembly and 51st Council Meeting, Yangon, Myanmar, on September 23-25, 2015.

¹ President, Indian Medical Association (inmedici@gmail.com).

Huge human & financial loss- globally

- Contamination of infant formula with melamine in 2008 affected 300 000 infants and young children in various countries

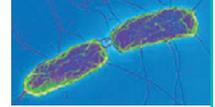


The 2011 *E.coli* outbreak in Germany caused US\$ 1.3 billion in losses for farmers and industries and US\$ 236 million in emergency aid payments to 22 European Union Member :



WHO's Foodborne Disease Burden Epidemiology Reference Group (FERG)-Initial findings

There were an estimated 582 million cases of 22 different foodborne enteric diseases and 351 000 associated deaths, (2010)

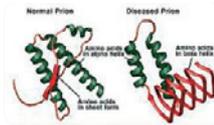


- Most deaths were due to *Salmonella Typhi* (52 000 deaths), enteropathogenic *E. coli* (37 000) and norovirus (35 000)
- The African region recorded the highest disease burden for enteric foodborne disease, followed by South-East Asia
- Over 40% people suffering from enteric diseases caused by contaminated food were children aged under 5 years



Major illnesses

- Bacteria:**
 - Salmonella, Campylobacter, and Enterohaemorrhagic Escherichia coli* -affect millions of people annually – sometimes with severe and fatal outcomes.
 - Vibrio cholerae*- Rice, vegetables, millet gruel and various types of seafood have been implicated in cholera outbreaks.
- Viruses:** Infected food handlers are often the source of food contamination, noro viruses, Hepatitis A
- Parasites**
- Prions**
 - infectious agents composed of protein
 - neurodegenerative disease.
 - Bovine spongiform encephalopathy (BSE, or "mad cow disease") associated with the variant Creutzfeldt-Jakob Disease (vCJD) in humans.



Chemicals

- Naturally occurring toxins**
 - mycotoxins, marine biotoxins, cyanogenic glycosides and toxins occurring in poisonous mushrooms.
 - 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
 - Dioxins are highly toxic and can cause reproductive and developmental problems, damage the immune system, interfere with hormones and cause cancer.
- Heavy metals** such as lead, cadmium and mercury cause neurological and kidney damage.



Food Safety Counts! WHO's 5 keys

- Clean:** Wash hands, cutting boards, utensils and countertops.
- Separate:** Keep raw meat, seafood, and poultry away from ready-to-eat foods.
- Cook:** Cook food to the right temperature.
- Chill:** Refrigerate promptly.
- Safe:** Use water and raw materials



Role of government

- Governments should make food safety a public health priority & develop policies and regulatory frameworks
- Build and maintain adequate infrastructures including food testing labs to respond to 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
- Introduce food and label literacy campaigns



Role of 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

Grow fruits and vegetables safely, locally

Take up homestead and small group farming



Role of professional associations

- Form technical groups to work on food safety
- Undertake research works specific to food safety issues
- Prepare and popularize safe food guidelines for the public
- Undertake campaigns to educate people on packed food label literacy
- Promote use of locally grown seasonal fruits and vegetables for consumption



Indian context

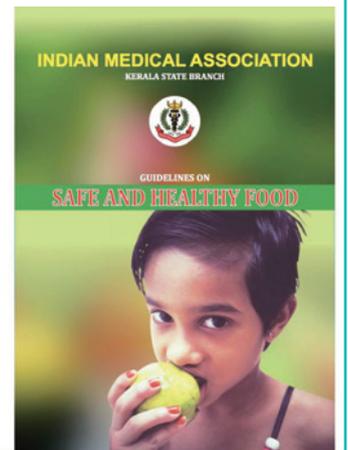
भारतीय खाद्य संरक्षा एवं मानक प्राधिकरण
Food Safety and Standards Authority of India

- India has a double burden of under nutrition and over nutrition
- Food safety in terms of Chemical, biological and nutrient content has attained attention only recently in India
- Food Safety and Standards Authority of India has been established under the Food Safety and Standards Act, 2006
 - for laying down science based standards
 - regulating manufacturing, processing, distribution, sale and import of food
 - to ensure safe and wholesome food for human consumption



Indian Medical Association

- Indian Medical Association has come up with a guidelines- first of it's kind in India- for the public in this year
- Access the guidelines at www.imakerala.com



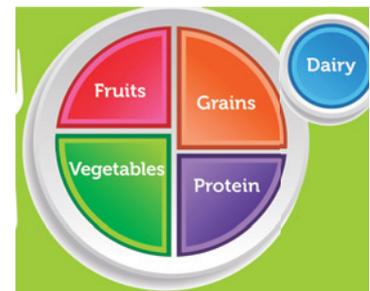
Key messages from IMA Guidelines

- Prefer steaming to deep frying
- Do not re-heat food as far as possible.
- Reduce carbohydrate rich food like rice and wheat.
 - Rice yields approximately 70% and wheat yields approximately 60% of carbohydrate.
 - Any excess carbohydrate is converted to fat by the liver and is stored within itself or as fat primarily in the abdominal wall.



Food plate

- Follow the Food plate
- Have plenty of fruits and vegetables
- Have less grains/cereals



Safe and healthy food at schools

- Avoid serving junk foods at school canteens- through awareness; bring in legislations if required
- Use stainless steel/glass/high quality plastic water bottles for carrying drinking water
- Avoid HFSS (High Fat, high Salt, high Sugar)



Reduce Salt intake

- Processed and restaurant food is major source of salt
- Salt content in sauces and other additives are very high
- Please note that Sodium is present in many forms in food items; and not just as salt (sodium chloride)
- You should check the labels of foods to find out which ones are high and low in salt content.
 - If the label has more than 1.5g of salt (or 0.6g of sodium) per 100g it is a high salt content food.
 - If it has 0.3g of salt (0.1g of sodium) per 100g then it is a low salt content food.
 - Anything in between is a medium salt content food.



Limit Sugar intake

- Sugar is not an essential nutrient and hence can be avoided
- If consumed, total sugar intake including those in sweets and sweetened items should be
 - Less than 9 teaspoons (36 gm) in males
 - Less than 5 teaspoons (20 grams) for females
 - Less than 3 teaspoons (12 gms) for children



Fat and oil

- Choose healthy fats in small amounts
- Restrict and rotate oil
- Do not re-use oil
- Avoid trans-fats
 - **Meat**
 - Increased fat in white meat (chicken) is a big concern
 - Removing skin before preparing poultry reduces fat content
 - Any meat should be consumed only in moderation



Fruits and Vegetables

- Local and seasonal fruits and vegetables with minimum preservation should be preferred
- Fruits from distant destination cannot be recommended
- Locally grown vegetables are recommended than those coming from distant locations



Safe farming

- Homestead farming and group farming should be promoted by governments and institutions
- Ensure clean cultivation
- Crops are to be rotated through the fields to replace nutrients in the soil.
- Maximize water infiltration; manage ground and soil water by proper use
- Indiscriminate use of agro-chemicals are toxic and hazardous
- Prefer food with minimum preservatives and chemical contaminants (local and seasonal food with minimum preservation should be preferred)
- Food colors, stabilizers preservatives etc. lead to extra contamination

