| How Can We Ensure Food Safety and Security |  |  |  |
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# What is Food Safety?

Food safety can be defined as the handling, preparing and storing food in a way which can minimize the risk of food borne illnesses. It includes a few varying techniques that are advisable to follow as a method of minimizing the risks, associated with these diseases.

# Importance of Food Safety?

Foodborne illnesses are a preventable and underreported public health problem. These illnesses are a burden on public health and contribute significantly to the cost of health care. They also present a major challenge to certain groups of people. Although anyone can get a foodborne illness, some people are at greater risk. For example:

* Children younger than age 4 have the highest incidence of laboratory-confirmed infections from some foodborne pathogens, including Campylobacter, Cryptosporidium, Salmonella, Shiga toxin-producing Escherichia coli O157, Shigella, and Yersinia.
* People older than age 50 and those with reduced immunity are at greater risk for hospitalizations and death from intestinal pathogens commonly transmitted through foods.

# Food preparation

Two important elements of food preparation are temperature control and the prevention of cross-contamination.

* Temperature control

Leaving food out too long at room temperature can cause bacteria (such as Staphylococcus aureus, Salmonella Enteritidis, Escherichia coli, and Campylobacter) to grow to dangerous levels that can cause illness. Bacteria grow most rapidly in the range of temperatures between 40 °F and 140 °F, doubling in number in as little as 20 minutes. This range of temperatures is often called the "Danger Zone." Never leave food out of refrigeration over 2 hours. If the temperature is above 90 °F, food should not be left out more than 1 hour. Keep hot food hot—at or above 140 °F. Place cooked food in chafing dishes, preheated steam tables, warming trays, and/or slow cookers. Keep cold food cold—at or below 40 °F. Place food in containers on ice. Raw meat and poultry should always be cooked to a safe minimum internal temperature. When roasting meat and poultry, use an oven temperature no lower than 325 °F. If you aren't going to serve hot food right away, it's important to keep it at 140°F or above.

* Cross-contamination

Cross-contamination occurs when germs that are naturally found on raw food move or are transferred onto cooked food. To prevent this, cooked foods and raw foods should be stored separately.

* **Receiving food**

Ensure that supplied perishable foods are being transported in a refrigerated food vehicle or container. Check the temperature of deliveries on arrival.Check deliveries of dry goods for quality. Broken packaging and damage may mean the contents are contaminated and therefore not suitable for consumption.

* **Preparing food**

Ensure that benches are clean. Ensure that there are suitable areas for food preparation, Keep animals out of food preparation areas. Use separate chopping boards and utensils for raw and cooked foods. If possible, use separate areas to prepare raw and cooked foods. If you cannot have separate areas, ensure that the bench is washed with hot soapy water and sanitized with a commercial sanitizer after preparing raw foods and before preparing cooked foods. Rinse raw fruit and vegetables well in plain water and remove visible dirt particles.

* **Handling food**

Use separate cleaning cloths for raw and cooked food preparation areas. Avoid handling food with bare hands. Wearing disposable gloves or using a kitchen utensil is preferable. Change disposable gloves as regularly as you would wash your hands. Always put on new gloves between handling raw foods and ready-to-eat foods. Remove gloves when handling money or nonfood objects.

* **Cooking and heating**

When cooking or reheating high-risk foods, make sure the center of the food is thoroughly heated and has reached 75°C. Meat is not properly cooked unless the juices run clear. When reheating food, ensure that it is brought to the boil and simmered for at least five minutes. The center of the food must reach 75°C. Thaw frozen food on the bottom shelf of the refrigerator and keep it in the refrigerator until it is ready to be cooked. If food is to be cooked from a frozen state, take extra care to ensure that it is cooked right through. When using a microwave oven to thaw food, be aware that the food must be cooked immediately afterwards. Be aware that microwave ovens can heat unevenly. If using a microwave for cooking and heating, stir the food regularly and ensure that heat is evenly distributed. Never refreeze food that has been thawed.

* Food Storage and Display

Check equipment temperatures regularly and report malfunctioning equipment immediately. Pack foods carefully so as not to damage the packaging. Do not use swollen cans or damaged food packets, as the food inside may be spoiled. Use and store foods so that older products are used first. Cover foods stored in the refrigerator with plastic wrap or foil to prevent food spilling over. Do not overfill front-loading refrigeration display cabinets; otherwise the cold air may be prevented from flowing around the foods inside. Check that food looks and smells good before using it. Remember, if in doubt, throw it out! Before using fruit and vegetables, wash carefully to remove dirt and germs. Store chemicals, cleaning equipment and personal belongings away from food preparation and food storage areas. Wrap or cover displayed food. Monitor use-by dates on food packaging. Food should not be sold or eaten beyond its use-by date, as it may not be safe.

Cleaning procedures

Before cooking, wipe down benches and other equipment with hot soapy water and sanitize. Use a commercial sanitizer and follow the directions on the label carefully. After cooking, wash the benches and other equipment in hot soapy water, sanitize and allow to air dry. If it is necessary for you to dry the equipment immediately, ensure that the cloth you use is clean. Store saucepans and containers upside down. Write procedures for the storage and disposal of garbage and the location of bins and make sure that all workers follow them. Clean the floors and walls regularly. Have a cleaning roster or routine, record chart and procedures displayed in the canteen to ensure that all duties are performed regularly.

* Food Safety in Bangladesh

Food safety is a major matter of public health issue in Bangladesh. Unfortunately, the concerns so far have not been backed by solid scientific research of the extent of the problems, their root causes, the stages of food chain where the adulteration or willing contamination occurs, the technical, social and economic factors behind such contamination, the health impairment due to unsafe food, and the legal, policy and institutional aspects for minimizing or eradication of the problem. Consequently the attempts to ensure safe food had been only sporadic, ad hoc, incomplete and ineffective. The present study tries to put these issues together to get a better perspective of the problem. The specific tasks the study has set itself are the following: - Provide an overview of food safety in Bangladesh by focusing on different means and sources of food contamination and adulteration, the degree of their incidence; - Identify the main products which are easily contaminated and adulterated and have significant impacts on public health and discuss the means and sources of their adulteration; - Identify the public health impact of food adulteration and contamination can impact public health in different degrees; - Provide a review of the existing institutional and legal set up of the country to facilitate food safety in Bangladesh with a view to assess the trade-off between monitoring and punishment for alleged breach of food safety; - Provide an economic analysis of food safety by focusing on the potential cost and benefit of contamination and food adulteration both from private and social point of view; and - Present a set of policy recommendations to promote food safety in Bangladesh by preventing food adulteration including institutional, regulatory and skill development measures as well as demarcation of areas where international support might be needed. The basic methodology was review of available secondary materials and a short field work to find out how fruits (mango) and vegetables (tomato) may be intentionally or unintentionally be contaminated.

* What Is Food Security?

Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

* Importance of Food Safety & Security
* If the current level of food security were to decline in future years then it would have an adverse effect on social stability whilst also threatening lives.
* Due to close linked nature of poverty and hunger, if the problems associated with both can be addressed, then Millennium Development Goals will be more likely to be achieved.
* Food Security in Bangladesh

Food security situation in Bangladesh has improved, especially on the availability side, and further improvements on access and utilization, to be sustainable and large-scale, needs renewed efforts from the government, civil society (including media) and the development partners. Records say in 70s’, 70% people were under the food consumption poverty line. Today this is down to under half of the population. Today, though people are not dying, they are going hungry and becoming stunted with reduced mental and physical capacity. They are suffering. The hungry population of over 60 million people is larger than most other global cases- the third largest poor population in any country after China and India5. Nearly half of Bangladesh’s children are underweight, making it one of the most severe cases of malnutrition in the world. While Bangladesh has definitely got more food than it had thirty years back, yet almost half of Bangladesh is still far from being food secure. The World Bank and Gob-UN in their respective reports on MDGs, put the target of 34% children being underweight as non-attainable at present rates of progress. Much will need to be done to achieve the 2015 MDG target of halving the proportion of people who suffer from hunger and malnutrition. Demographic changes in upcoming years are likely to affect poverty and hunger in adverse ways. While poverty is an overall denominator of this food insecurity in the country, the additional intensifiers are disability (gender, age, and physical challenge) and location (disaster proneness, access to the market, etc.) as well as other aspects related to utilization (education, awareness, cultural practices, etc.). Issues of governance and accountability further thwart attempts at providing targeted safety nets and price stabilization. Achieving the MDG targets within the next decade will require Bangladesh to develop and implement more ambitious and effective strategies. Speeding up per capita income growth and pursuing targeted safety net programmers are needed for the expansion of household food intake. A comprehensive programmer to address hunger would include interventions in the following areas? Promoting food security by sustaining strong growth of domestic food production and implementing a liberalized regime for food imports? Designing and implementing interventions to promote food security? Supporting safety nets for protection against natural disasters? Promoting change in food habits for increasing nutritional intake of vulnerable? Promoting improved infant feeding practices, including breast-feeding practices? Supporting maternal schooling and hygienic practices? Improving access to safe drinking water, especially by addressing the threat of arsenic contamination of underground water? Improving access to sanitation? Improving access to basic health facilities? Promoting partnership among the Government, private sector and NGOs

* Bangladesh food Security Strategy

Faced with the challenges of an increasing population22, natural subsidence (on account of the ascent of the Himalayas) decreasing availability of agricultural land, increasing costly food prices, the options before Bangladesh include:

* Increasing productivity-an all-out effort in this regard; learning from some recent experiments in rice production23. Cutting down the wastage- the yields loss in Bangladesh is colossal (30-40%)
* Diversification of the food basket with an aim to attain minimum self-sufficiency in the nonce real food grains.
* Strengthening analysis and monitoring of needs and Food Gap.
* Improve access through expansion of the PFDS/ safety net programmers without compromising on the targeting and leakage. Successful interventions need to be replicated and expanded. While sustainable improvements in the food security status of the poor are welcome, as these would act as the safety ladder, but safety nets (with core focus on access to food and nutrition) are important as well. While conditional transfers (like School Feeding, VGD), etc. are useful, provisions have to be there for those who cannot participate in any conditional transfer (like the handicapped, elderly etc.)
* Improve utilization through improving nutrition education and availability and access to safe cereal and non-cereal foods. Huge improvements in food security can be achieved through improving knowledge on food-based nutrition (right methods of cooking, balanced diet, from locally and cheaply available food stuffs)
* Promote fortification of foodstuff as it provides a proven and cost-effective strategy of dealing with micronutrient deficiencies.
* Pillars of food security

The WHO states that there are three pillars that determine food security: food availability, food access, and food use. The FAO adds a fourth pillar: the stability of the first three dimensions of food security over time.In 2009, the World Summit on Food Security stated that the "four pillars of food security are availability, access, utilization, and stability

* Availability

Food availability relates to the supply of food through production, distribution, and exchange.[Food production](https://en.wikipedia.org/wiki/Food_production) is determined by a variety of factors including [land ownership](https://en.wikipedia.org/wiki/Land_ownership) and use; [soil management](https://en.wikipedia.org/wiki/Soil_management); crop selection, [breeding](https://en.wikipedia.org/wiki/Plant_breeding), and management; [livestock](https://en.wikipedia.org/wiki/Livestock) breeding and management; and [harvesting](https://en.wikipedia.org/wiki/Harvesting).Crop production can be affected by changes in rainfall and temperatures.The use of land, water, and energy to grow food often competes with other uses, which can affect food production.Land used for agriculture can be used for urbanization or lost to desertification, salinization, and soil erosion due to unsustainable agricultural practices.Crop production is not required for a country to achieve food security. Nations don't have to have the natural resources required to produce crops in order to achieve food security, as seen in the examples of Japanand Singapore. Because food consumers outnumber producers in every country, food must be distributed to different regions or nations. [Food distribution](https://en.wikipedia.org/wiki/Food_distribution) involves the storage, processing, transport, packaging, and marketing of food. Food-chain infrastructure and storage technologies on farms can also affect the amount of food wasted in the distribution process.Poor transport infrastructure can increase the price of supplying water and fertilizer as well as the price of moving food to national and global markets.Around the world, few individuals or households are continuously self-reliant for food. This creates the need for a bartering, exchange, or cash economy to acquire food.The exchange of food requires efficient trading systems and market institutions, which can affect food security.Per capita world food supplies are more than adequate to provide food security to all, and thus food accessibility is a greater barrier to achieving food security.

* Access

Food access refers to the affordability and allocation of food, as well as the preferences of individuals and households.[[47]](https://en.wikipedia.org/wiki/Food_security#cite_note-Gregory_2005-47) The UN Committee on Economic, Social, and Cultural Rights noted that the causes of [hunger](https://en.wikipedia.org/wiki/Hunger) and [malnutrition](https://en.wikipedia.org/wiki/Malnutrition) are often not a scarcity of food but an inability to access available food, usually due to [poverty](https://en.wikipedia.org/wiki/Poverty).Poverty can limit access to food, and can also increase how vulnerable an individual or household is to food price spikes.Access depends on whether the household has enough income to purchase food at prevailing prices or has sufficient land and other resources to grow its own food.Households with enough resources can overcome [unstable harvests](https://en.wikipedia.org/wiki/Harvest_failure) and local food shortages and maintain their access to food. There are two distinct types of access to food: direct access, in which a household produces food using human and material resources, and economic access, in which a household purchases food produced elsewhere. Location can affect access to food and which type of access a family will rely on. The assets of a household, including income, land, products of labor, inheritances, and gifts can determine a household's access to food.However, the ability to access sufficient food may not lead to the purchase of food over other materials and services. Demographics and education levels of members of the household as well as the gender of the household head determine the preferences of the household, which influences the type of food that are purchased.A household's access to enough and nutritious food may not assure adequate food intake of all household members, as intra household food allocation may not sufficiently meet the requirements of each member of the household.The [USDA](https://en.wikipedia.org/wiki/USDA) adds that access to food must be available in socially acceptable ways, without, for example, resorting to emergency food supplies, scavenging, stealing, or other coping strategies.

* Utilization

The next pillar of food security is food utilization, which refers to the metabolism of food by individuals.Once food is obtained by a household, a variety of factors affect the quantity and quality of food that reaches members of the household. In order to achieve food security, the food ingested must be safe and must be enough to meet the physiological requirements of each individual.[Food safety](https://en.wikipedia.org/wiki/Food_safety) affects food utilization,and can be affected by the preparation, processing, and cooking of food in the community and household. Nutritional valuesof the household determine choice, and whether food meets cultural preferences is important to utilization in terms of psychological and social being. Access to healthcare is another determinant of food utilization, since the health of individuals controls how the food is metabolized. For example, intestinal parasites can take nutrients from the body and decrease food utilization.Sanitation can also decrease the occurrence and spread of diseases that can affect food utilization.Education about nutrition and food preparation can affect food utilization and improve this pillar of food security.

* Stability

Food stability refers to the ability to obtain food over time. Food insecurity can be transitory, seasonal, or chronic.In transitory food insecurity, food may be unavailable during certain periods of time.At the food production level, [natural disasters](https://en.wikipedia.org/wiki/Natural_disasters) and drought result in crop failure and decreased food availability. Civil conflicts can also decrease access to food. Instability in markets resulting in food-price spikes can cause transitory food insecurity. Other factors that can temporarily cause food insecurity are loss of employment or productivity, which can be caused by illness. Seasonal food insecurity can result from the regular pattern of growing seasons in food production.

Chronic (or permanent) food insecurity is defined as the long-term, persistent lack of adequate food.In this case, households are constantly at risk of being unable to acquire food to meet the needs of all members. Chronic and transitory food insecurity are linked, since the reoccurrence of transitory food security can make households more vulnerable to chronic food insecurity.

# To sum up, Ensure food safety and security not only governments and civil servants needs to be proactive and well aware but every citizen from his aspect needs to do their duties, like raising awareness, discouraging food adulteration, forwarding helping hands etc.