"A STUDY OF FOOD SAFETY AND HYGIENE IN INDIA"

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ABSTRACT

Food safety and hygiene in India desktop literature review. Food research was highly concentrated in the capital city of country and most research focus was on commercial food operations specifically street food and microbiological safety with limited information from institutional catering and other forms of food hazards.

The media currently serve as the main sources for reporting of food borne illness. Food establishments and other sources contributing to food borne illness including restaurants, food joints, food vendors, schools and individual homes. Limited use of prerequisites measures and food safety management system was identified. Recommendations on regulating on general the general hygiene principles, implementation of (HACCP) to stengthen the food sector, Regular food safety and hygiene workshops and training for food handlers that commensurate with their roles were made. Government support for food health screening was made.

Key words: - *Clinical Borne Illness, Ready to Eat Food*

1. INTRODUCTION

India is an Asian Country. With a land area of 3,287,590 km and the population of 1,315,933,492 the country is divided in to 5 main regions east, north, northeast, south, west India, with Delhi as the capital city the food sector including primary producers, food manufactures and processor which predominantly are of a small medium size enterprises, retailers and food vendors. The food laws in India including the food and drugs act 1940 which covers food safety and handling requirements and penalties for breaching the law. The existing hygiene principles are not legally binding (ISA) India standard authority but are guidelines which the food industry can use to ensure.

2. REVIEW LITERATURE

- According to the (Ministry of food and agriculture and the World Bank 2007) In every 40 Indian suffer serious food borne illness per year 420000 cases are reported with an annual death rate of 65000 which cost the government India Rs. 6900000000 annually. This report could be an under estimate as report rate is low and the calculation of cost is developing countries only the cost born by individuals through hospitalization and medication is considered whilst others in developed countries consider the cost to employers, institutional bodies like laboratories, surveillance, disability cost and cost from other family members. Who take care of the sick members and premature mortality according to FDA the loss of productivity in India (2010 due to food born disease was approximately 594,279 days 19,809 months) this could be huge in terms of cost to the state. Studies from the commercial food sector have dominated research in the country with special focus on street foods although there is reported food poisoning cases on the media from the

institutional setups specifically schools. In 2012 reported that a study on microbiological food safety is one on the decline and highly centred in the capital city in the country. Although all food hazards are detrimental to the health of consumers and require monitoring and the control in the country, currently microbiological hazards in ready to eat foods and comical hazards mostly pesticides from agriculture product including fresh vegetable and fruits have been highlighted (Amoah, Abaidoo, & Ntow, 2006;Bempah, Donkor, Agei, Buah-Kwofie, & Boateng, 2011; Feglo &Sakyi, 2012; Mensah, Yeboah-Manu, Owusu-Darko, & Ablordey,2002). There is minimal information on physical contaminants / hazards, food allergy and injuries caused by these. This could be due to less awareness and or lack of public education of these hazards. The FAO/WHO, 2005 regional report on food safety for Africa recorded microbiological hazards as the most eminent risk from street foods but also reported the danger of high levels of heavy metals including lead, cadmium, arsenic, mercury and copper and also pesticide residues from utensils, raw materials or transport methods used. This work looks at food safety and hygiene report in India.

- Desk top review of literature was carried out. Search was conducting using mainly Google search engine with phrases including 'food safety in India' food hygiene in India. Food hygiene training India and list of food poisoning in India journals used includes food control, internet journal of food safety. Food and nutrition science, food and public health, food science and technology, journal of infection in developing countries, journal of urban health and Africa journal of food agriculture nutrition and development professional sites included world health organisation (WHO), India health service and oxford library. Media sources were used for individual case of food poisoning in homes, commercial and institutional setup. Data used range from 1999 to 2013.

- Report from media and scholarly research articles

The report says

	Samples tested	Adulterated/ Misbranded	Convictions	Penalties/ Amount raised
Chandigarh	102	5	no mention	5/₹1.5 lakh
Punjab	7,860	1,458	82	no mention
Haryana	989	105	6	₹1,500
HP	725	461	18	₹8.88 lakh
JK	2,462	621	243	₹19.76 lakh
Uttarakhand	1,356	233	0	80/₹5.06 lakh

SOURCE: FSSAI

Aditi Tandon
Tribune News Service
New Delhi, December 3

Table: 2.1

Two in every 10 food samples tested for quality over the past year have been found to be either adulterated or misbranded, revealing alarming trends in the country's food safety sector. What's worse, conviction rate in these cases of poor food quality has been less than 10 per cent, meaning only one in every 10 cases of food adulteration and misbranding are ending in convictions.

These trends are contained in the Food Safety and Standards Authority of India (FSSAI)'s Annual Public Laboratory Testing Report 2014-2015, which shows that food testing labs under the regulatory network analysed 74,010 food samples for quality and mandatory health disclosures over the past year and found 14,599 of these either adulterated or misbranded. This implies 20 per cent of all samples failed the test of quality and branding regulations.

- Research Reports From Food Scientist In The Country

  Food hygiene practices among food handlers, mostly food vendors and catering services have been reported to br below standard ((Addo, Mensah, Bonsu, & Akyeh, 2007; Afoakwa, 2005; Feglo &Sakyi, 2012; Tomlins et al., 2002).
  Hospitality industry has been around hotels, restaurants, and street food vendors mostly in the capital city. High levels of total bacterial counts in street food beyond the acceptable reference figures <_105 Colony Forming Units (CFU) g_1 set by the Indian Standards Authority for Ready to Eat Foods. The food safety and standards authority of India **(FSSAI)** is an agency of the ministry of health and family welfare, government of India. The FASSI is responsible for protecting and promoting public health though the regulation and supervision of food safety. The FSSAI has been established under the food safety and standards Act, 2006 which is a consolidating statute related to food safety and regulation in India.

- The FASSAI is led by a non –executive chairperson appoint by the central government from amongst the persons of eminence in the field of food science or from amongst the person from the administration who have been associated with the subject and is either holding or has held the position of not below the rank of secretary to the government of India. Mr. Ashish Bahuguna is the current chairperson. The FSSAI has its headquarters at New Delhi the agency also has 8 regional offices located in Delhi, Chandigarh, Lucknow, Guwahati, Mumbai, Kolkata, Cochin and Chennai.

3. OBJECTIVE OF THE STUDY

1. To study about the clinically borne illness disease in food hygiene.
2. To study and analysis about the ready to eat food under the food safety.

4. RESEARCH METHODOLOGY

My Project Report is basically based on **Exploratory Research Techniques** as I have worked on already existing data. In this report I have evaluate and analysis the data to get the conclusion when are based on exiting data.

5. ANALYSIS AND INTERPREATATION

5.1 Clinical Borne Illness

Food safety the food and drugs authority (FDA) is a national regulatory body under the ministry of health with the responsible of implementing food polices and ensuring the safety and wholesomeness of food for consumers (FDA) Roles including food manufacturing and processing site inspection, licens ing, product registration and monitoring they also provide good hygiene. Practise training for food handlers. The India standard author develops and promotes international and locally acceptable standards for the industry. Other sporting agencies including the ministry of health, ministry of health agriculture, Indian tourist board and the environment agency. The government of India is also given directives to the local authorities including metropolitan assemblies and their districts to actively control and monitor food safety practise of food vendors. Who are individual or group of people who sell ready to eat food at readily accessible areas including caterers, night club, beer bars, chop bars, cold store, hotels and restaurants operations and bagged water processors.



Fig: 5.1.1

The water and food hygiene unit of the environmental health department of the districts is responsible for the health monitoring and certification of food vendors. This is subject to renewal on a yearly basis world health organisation report of high levels of diarrhoeal cases of which a higher percentage are due to food and water borne infections

Table of Clinical Borne Illness

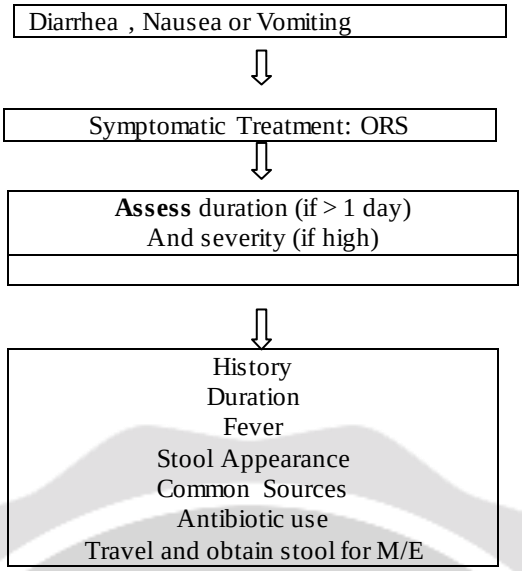

Table: 5.1.1

5.2 Ready to eat (RTE) food and processed foods with needed control

Selected food for hazards analysis by research revealed varying microbiological contamination levels (addo et al.2007 feglo and sakyi 2012 tomlins 2013) food from hotels sampled in Delhi showed acceptable levels whiles street food from the same city had detectable levels of enteric pathogens. Kenkey due to low PH was reported to be a low risk food in terms of microbial load (cooked rice and beans mixed) had a similar report but both could be contaminated with lead above the acceptable levels of 0.2 mg/kg due to usage of informally manufactured pots that could have lead levels as high as 419 mg/kg causing cumulative harm. Fufu due to its method of preparation had Escherichia coli and detectable staphylococcus (bacteria) aureus. Similar reports were made on high risk street foods in Delhi. Food studies including ice kenkey coca cola, fufu, ready to eat food, red pepper sauces, salad, and pasta. All had plate count level above the acceptable national standard of _5.0 log10 cfu/ml (Feglo & Sakyi, 2012). Enteric bacterial were also isolated.

5.3 Some Recommendation from Research out Put

Training of personnel in food safety and hygiene was highly recommendation across board. Training is a fundamental requirement for food safety management system and it is legal requirement.

Table of Selected Food research articles and recommendations

Authors	Year	Title	Finding and recommendation	Journal
Tortoe et al.	2013	Systematic Approach for the Management and control of food safety for the street/ informal food sector in Ghana	Modules developed for RTE street foods in Accra. Microbiological survey showed that some street foods are intrinsically safer than others thus requiring Systems of control. Intensified training of street food vendors and consumers created awareness of the relationship between contaminated food and food disease	Food and Public Health. 2013, 3(1):59e67
Feglo and Saky	2012	Bacterial contamination of street vending food in Kumasi, Ghana	Most ready to eat food are contaminated with enteric bacteria and other pathogens at higher levels than Acceptable.	Journal of medical and Biomedical Sciences(2012)
Johnson et al.	2008	A case study to	Food safety management based	Internet Journal of

		develop an appropriate quality assurance system for two cassava-based convenience foods in UK	on the HACCP principles is applicable to food processing industry in UK and HACCP Plan was contingent on addressing	Food Safety, Vol. 10. 2008 p 81e84
Saba and Gonzalez-Zorn	2012	Microbial food safety in Ghana meta-Analysis	Microbiological food contamination in Ghana was alarming. There was a downward trend in research in microbiological food safety and a concerted effort in this area was needed in Ghana to help curb the incidence of preventable food-borne disease	Journal of Infection in Developing Countries (2012); 6(12):828e835

Table: 5.3.1

5.4 Reported Ready to eat (RTE) food types and style of preparation locally.

Food type	**Ingredients**	**How prepared**	**How served**
Kenkey	Corn dough	Semi cooked corn dough shaped in corn husk/ plantain leaves and boiled	Mostly hot and intact in local packaging (corn husk/plantain leaves)
Waakye	Rice and beans	Rice added to pre boiled beans/cowpea and boiled until soft	With ladles or hands of food handler
Cocoa drinks	Cocoa powder and sugar	Mixture of cocoa powder and water; no boiling	Packaged into polythene bags by hand
Red pepper sauce	Pepper, onion, salt and tomato	Grinding in public disc attrition mills or locally made clay grinders	Served with spoon
Salad	Leaves, fresh vegetables	Washed with water and cut into desired shapes and sizes with knives or hand	Served with spoon or hand
Macaroni	Wheat flour	Boiled	Served with spoon or hand
Fresh fruit juice	Individual or mixed fresh fruit, water and sugar	Washed, peeled and milled with added water and sugar	Poured into cups or bottles by hand

Table: 5.4.1

5.5 Possible support and interventions for India

The food industry is only as strong as its weakest link in the food chain (Taylor, 2001).
The food industry in every nation whether developed or not stand to lose if all stages in the food chain are not motivated and strengthened to use food safety approaches. The benefits of reducing hazards in food include reduced morbidity, mortality and demands on healthcare services, a reduction in absences from education or loss of productivity at work and increased consumer confidence in food safety (Food Standards Agency, 2011). The India efforts listed below could strengthen the food services and manufacturing sectors to become competitive whiles ensuring consumer safety.

i. Continuous sensitization programmes for food handlers and consumers along the food chain of their roles on compliance with food safety requirements.

ii. Good Hygiene Practices which are mostly called Prerequisite measures to be available and enforced as the basic requirement for food industries and vendors. These include the establishment of the following; process and facility design to acceptable standards, personal hygiene of food handlers which include effective hand washing, use of protective clothing, reporting and proper handling of infectious diseases including diarrhoea and vomiting, absence of jewellery/ self-adornment during preparation and service etc, cleaning procedures for both equipment and food environment, waste

management, pest control, routine training programmes for staff, planned preventive maintenance and transport, supplier and raw material monitoring and control, process control and temperature monitoring (WHO/FAO, 2009). These when available creates a safe and conducive environment for the processing and or preparation of food.

iii. HACCP which is a more flexible. Industry specific food safety tool could be made a legal requirement for manufacturing and processing industries with a given period whit in which absence could be a breach of the national law. This will help to raise the standard of operations and practices of the food industry in India to an International level (FAO/WHO, 2009), enabling them to compete in the international market.

Fig: 5.5.1

iv. Small and Medium Size Enterprises (SMEs) support systems could be initiated by the Government's appropriate agencies and educational institutions to help them establish acceptable food safety management systems. Government and local authority's intervention in the form of free or subsidized training, developed food safety standards by **(2008)** referred to its use as contingent in addressing food safety constraints in the country. Rheinlander et al. (2008) reported of the need to include good hand hygiene and cleanliness of kitchen facilities and environment in training programmes as consumers current risk avoidance strategy of looking at appearance of food, food stands and trustworthiness of food vendors were not enough to protect them from food borne diseases.

CONCLUSION

The food industry as reported by researches has more room for improvement. Good hygiene principles need to be regulated and enforced. There is a need for introduction of standards, development on food safety management system that are suitable for the locality with continuous and intensive workshops for food handlers. Small and medium size enterprises require government special intervention in from on sponsored training publicity and other means of awareness creation there is also the need for increased public awareness on good hygiene and food safety practices that consumers should look out for apart from aesthetic attributes this will increase demand for quality and safe food, a driving force that has pushed food safety and quality system up in developed countries research in various regions and sector of the food industry was in adequate and more should be done. Every nation has regulations that are supposed to protect its people against unsafe practises in food production, and the existing agencies needs to be equipped to change control.

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