

Food Safety Practices of Food Establishments: Basis for Policy Enhancement

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Abstract – This study determined the Food Safety Practices of Food Establishment in Metro Manila in terms of Food Safety System, Facilities, Health and Hygiene, Water Supply, Equipment, Cleaning and Sanitizing Program and Waste Management; determine the Food Safety violation caused by human factors and non-human factors. Descriptive method was utilized using selected most visited food establishments such as Catering and Banquet, Hotels, Restaurants, Casino Hotel and Resorts as subject of the study. Food Safety audit checklist based on the standard food safety practices, HACCP regulations and ServSafe training module was used as the main data gathering instrument. Based on the result almost all of the food establishment complied with the food safety indicators in Food Safety system; Facilities; Health and Hygiene; Water Supply, Equipment; Cleaning and Sanitizing Program; and Waste Management, however, there are few food safety violations caused by human factors and non-human factors. It was also found out that there is no significant difference on the responses on food safety practices when grouped according to nature of establishment, all food establishment comply with food safety practices in the same level. The researcher recommended that a strict, regular and more detailed visitation and audit of government agency may be implemented and partnership with accredited health agencies to conduct a regular food safety seminar.

Keywords – Food Safety Practices, Food Establishment

INTRODUCTION

Food sanitation is more than just cleanliness. It includes all practices involved in protecting food from risk of contamination, harmful bacteria, poisons and foreign bodies, preventing any bacteria from multiplying to an extent which would result in an illness of consumers; and destroying any harmful bacteria in the food by thorough cooking or processing. The primary tenet of food-service sanitation is absolute cleanliness. It begins with personal hygiene, the safe handling of foods

during preparation, and clean utensils, equipment, appliances, storage facilities, kitchen and dining room. Control of the microbial quality of food must focus on the preparation of food itself, food handlers, facilities and equipment. The quality of food depends on the condition when purchased and the time temperature control during storage, preparation and service. Personal hygiene and cleanliness of the facilities and equipment also contribute to food safety [1], [2].

An effective national food safety program, therefore, instills confidence in the food supply and, in risk terms, may be defined as assurance that the food supply does not pose an unacceptable risk to human health. Health representatives to the Regional Committee meeting in 2011, from the World Health Organization, endorsed this Regional Food Strategy 2011-2015. The strategy is a framework for strengthening national food control systems in order to effectively protect public health, prevent fraud, avoid food adulteration and facilitate safe and healthy food. These strategies include improved food control and coordination throughout the food chain continuum and adequate funding; risk-based regulatory frameworks; improved availability of food safety data to better guide policy and risk analysis; inspection services; food safety training and education; capacity to detect, assess and manage food safety incidents and emergencies; and enhanced cooperative planning [3].

As Reported to Manila Bulletin, May of 2015, the Philippines ranked 72nd of 109 countries in the Global Food Security Index (GFSI) of the Economic Intelligence Unit (EIU), which lists the most and least vulnerable nations to food inadequacy. Scoring 49.4 out of 100 points, the Philippines' food security effort was rated "moderate." The Philippine strengths on food security, included nutritional standards, volatility of agricultural production, decreased food loss, agricultural import tariffs, urban absorption capacity, and food safety.

Hospitality industry consists of businesses and institutions that provide lodging, food and other services to travelers. Restaurant service demands an extensive

knowledge of international cooking, of beverages and bar service. Lodging and hotel industry consists of businesses that provide temporary accommodations to the travelers [4]. Up to date, the Hospitality industry is one of the leading industries that provides comfortability to the tourists and allowing them to have a meaningful experience with the quality food service and ensuring food safety and security.

Foodborne illnesses are a growing health problem in both developed and developing countries. It was reported that in 2000 alone, 2.1 million people died of diarrheal disease worldwide. Food safety is an increasingly important public health issue. Foodborne illnesses continue to have major impact on the health of individuals. This study is conducted to improve food safety practices of food service establishments. Furthermore, it also aimed to lessen the incidence of food-borne illnesses.

OBJECTIVES OF THE STUDY

This study aimed to describe the Food Safety knowledge and practices of food establishments in terms of the following food safety system; facilities, health and hygiene, water supply, equipment, cleaning and sanitizing program and waste management. to determine the causes of food safety violations caused by human and non-human factors and also determine if there is any significant difference between food safety knowledge and food safety violations when the respondents are grouped according to the type of food establishments i.e. Hotel, Hotel Casino, Catering and Banquet, Restaurant and Resort; and finally, proposed a policy enhancement in compliance to Food Safety Practices and regulations.

METHODS

Research Design

This study used the descriptive method to provide an accurate information of the subject food safety and security.

Participants

The participants of the study were selected most visited food establishments. Thirty-eight percent (38%) of the participants were from the Catering and Banquet, 23 percent from the Hotel same as Restaurants and 8 percent were casino and resorts.

Instrument

The instrument used in this study was the food safety audit checklist based on the standard food safety practices, HACCP regulations and ServSafe training

module. It consists of two parts; first part described the demographic profile of the participants, presenting the number of years of existence and classification of the hotel. The second part was the food safety practices checklist. Please see appendix for the instrument to be used.

Data Collection Procedure

After the approval of the proposed topic by research committee and the University President, the researchers conducted the audit in the selected food establishments and retrieved the results of the previously audited food establishment, which were not mentioned all throughout for confidentiality purposes.

Data Analysis

The collected data were tallied, encoded and interpreted using different statistical tools such as frequency distribution, weighted mean and Analysis of Variance (ANOVA) The abovementioned tools like frequency distribution were used to describe the profile of the business; weighted mean was used to determine the Food Safety knowledge and practices as well as the Food Safety violations.

RESULTS AND DISCUSSION

The results of the audited food establishment were not named for confidentiality, though for the profile, the researcher just made use of the nature of food establishments categorized as Restaurant, Catering and Banquet, Casino Hotel, Hotel Resorts and Hotel. The scale used in the questionnaire are one (1) which means the food establishment complied to the said indicator and zero (0) which means that the food establishment did not comply.

Table 1 presents the Food safety knowledge and practices in terms of Food safety system, Facilities, Health and Hygiene, Water Supply. Equipment, Cleaning and Sanitizing program and waste management. The scales used in the questionnaire are one (1) which means the food establishment complied to the said indicator and zero (0) which means that the food establishment does not comply.

In terms of food safety system, all food establishments complied with all the government requirements regarding food safety such as sanitary permit, mayor's permit and the required Food Safety Officer. Based on Republic Act No. 10611: The Philippine Food Safety Act of 2013, appropriate authorizations shall be developed and issued in the form

Table 1. Food Safety knowledge and practices

Food Safety System	Mean	Verbal Interpretation
1. All pertinent operating permits are available and updated	1.00	Complied
2. There is a designated Food Safety Officer (FSO) or equivalent	1.00	Complied
3. There is a Food Safety Program/Manual/Procedures or equivalent available	1.00	Complied
4. All staff are trained on Food Safety	0.00	Not Complied
Facilities		
1. Designated work areas (i.e receiving, storing, preparing, etc) are available and used as designated	1.00	Complied
2. Handwashing, food preparation sinks and or dish washing sink are available and have complete amenities	1.00	Complied
3. Toilets are clean, without foul odor and with complete hand washing amenities	1.00	Complied
4. Designated dining area for staffs are available and kept clean.	1.00	Complied
5. Dressing rooms and lockers are available, kept clean	1.00	Complied
6. Food preparation area is well lighted and ventilated	1.00	Complied
7. Light bulbs are covered/guarded to ensure safety food and employees from broken glass	1.00	Complied
8. Drainages and pipes are kept clean and in good condition	1.00	Complied
9. Floors, walls and ceilings are made of acceptable material and maintained in good condition	1.00	Complied
Health and Hygiene		
1. All staff on duty are wearing complete and clean uniform including appropriate protective clothing where necessary	1.00	Complied
2. Protective clothing are used and stored properly	1.00	Complied
3. All staff have short and clean fingernails without polishing/proper grooming	1.00	Complied
4. No staff was seen wearing any jewelry or accessories while on duty	1.00	Complied
5. Staff are practicing proper hand washing procedure	1.00	Complied
6. All staff have updated health certificates/medical requirements	1.00	Complied
7. Food handlers are not engaging in unsanitary activities while on duty	1.00	Complied
8. Visitors are provided with extra protective clothing prior to being allowed to enter the kitchen premises	1.00	Complied
Water Supply		
Drinking Water		
1. Bottled water containers are properly stored and in sanitary condition	1.00	Complied
2. Bottled water are not more than 5 days old since delivery date	1.00	Complied
3. Water dispenser is regularly cleaned and maintained	1.00	Complied
Water for Food Handling Activities		
1. Adequate water supply in the kitchen is available	1.00	Complied
2. Adequate water treatment facilities are available and well maintained	0	Not Complied
Equipment		
1. Ventilation equipment are functioning and kept clean	1.00	Complied
2. Food equipment and utensils are in good repair; without cracks, chips, crevices and rough welds, corrosion	1.00	Complied
3. Food equipment are placed/installed appropriately (allow access for cleaning and prevents cross-contamination)	1.00	Complied
4. Food equipment are clean and sanitized; without adhering food debris, molds, dirt and dust	1.00	Complied
5. Food thermometer are functioning, regularly and properly calibrated	1.00	Complied
Cleaning and Sanitizing Program		
1. Cleaning schedule is available and cleaning tasks are monitored	1.00	Complied
2. Cleaning materials and chemicals are available, functioning and used as necessary	1.00	Complied
3. Ready to use cleaning chemicals are available and diluted correctly and in good condition	1.00	Complied
4. Proper care and storage of cleaning materials and chemicals are carried out	1.00	Complied
5. MSDS or equivalent of all poisonous materials are readily available	1.00	Complied
6. Cleaning and sanitizing procedure for food contact surfaces, utensils and equipment is implemented	1.00	Complied
7. Color coded rags/mops are in place as designated	1.00	Complied
8. Over-all facilities are generally clean	1.00	Complied
Waste Management		
1. Suitable waste bins are available in strategic locations	1.00	Complied
2. Waste containers are lined with plastic bags, are not overflowing and properly covered	1.00	Complied
3. Waste areas and equipment are cleaned regularly	1.00	Complied
4. Waste being collected regularly and hygienically	1.00	Complied

of a permit, license and certificate of registrations or compliance that would cover establishments, facilities engaged in production, postharvest handling, processing, packing, holding or producing food for consumption in accordance with the mandated issuances of regulatory agencies issuing such authorizations. Though result also shows that there are still a few food establishments that do not conduct regular food safety training for their staff which is not a requirement of the government but is essential for better compliance to food safety practice.

With regards to Facilities, all food establishments follow the standard layout and facilities required for the production area. This only proves that facilities contribute a great impact on compliance to food safety practices.

Health and hygiene of the staff is essential to the food safety. With this, all food establishments were strict in their implementing and monitoring the standard operating procedures in health and hygiene.

As water, being highly used in any food establishment is given attention as to their potability. Some food establishments have water treatment facility installed to ensure potability of water supply. But for those establishments who have no treatment facility they undergo regular water analysis at least every six months and should have a PASSING mark. Some food establishments make use of bottled drinking water.

The equipment's condition and cleanliness have great impact on Food safety. Cross contamination causing food-borne illnesses is possible if equipment is not in good condition and not well maintained. Result shows that all food establishments make sure that all their equipment are given attention as to cleanliness and

condition. Some of them make use of checklist to ensure implementation and monitoring of maintenance schedule.

In terms of cleaning and sanitizing, all food establishments included in the study follow cleaning and sanitizing program. Cleaning defined as the absence of dirt is regularly practiced in all establishments through the use of detergent and water. But to further enhance cleanliness, sanitizing is done with the use of food grade chemicals to kill microorganisms. Food establishments find this program of utmost importance to their operations so as to keep food safe.

Waste management is also found to be essential to food safety practices. Waste being the main source of microorganisms that causes illnesses should be carefully looked into, presence of pests in food establishments can also be attributed to improper waste management. Additionally, pests are also carriers of diseases. Still, results imply Implies that all food establishments conform to proper waste management to ensure adherence to food safety program.

Table 2 presents the food safety violation caused by human factors, which shows that all food establishment complied in terms of health and hygiene, meanwhile in food safety system, there are some food establishments that fail to comply in training their staff in food safety. Evidently, human failure in health in hygiene is very vital in food safety. Human factors pertaining to the health and hygiene of the employee by maintaining a safe and clean environment are needed in the production area.

Training people is very important in any business. More importantly in food business, it is a continuing essential to ensure food safety.

Table 2. Food Safety violation caused by human factors

Food Safety System	Mean	Verbal Interpretation
1. All pertinent operating permits are available and updated	1.00	Complied
2. There is a designated Food Safety Officer (FSO) or equivalent	1.00	Complied
3. There is a Food Safety Program/Manual/Procedures or equivalent available	1.00	Complied
4. All staff are trained on Food Safety	0.00	Not Complied
Health and Hygiene		
1. All staff on duty are wearing complete and clean uniform including appropriate protective clothing where necessary	1.00	Complied
2. Protective clothing are used and stored properly	1.00	Complied
3. All staff have short and clean fingernails without polishing/proper grooming	1.00	Complied
4. No staff was seen wearing any jewelry or accessories while on duty	1.00	Complied
5. Staff are practicing proper hand washing procedure	1.00	Complied
6. All staffs have updated health certificates/medical requirements	1.00	Complied
7. Food handlers are not engaging in unsanitary activities while on duty	1.00	Complied
8. Visitors are provided with extra protective clothing prior to being allowed to enter the kitchen premises	1.00	Complied

There are a lot of trainings and certifications available that food establishment may consider and inculcate in their food safety program. Every food business must also have a Food Safety Supervisor contactable at all times. They must also have a Food Safety Program in place and operational [5].

Table 3 presents the Food safety violation caused by non-human factors. Untrained Food safety employees and water treatment should be the main focus, since these are the indicators which several food establishments failed to comply. Non-Human Factors are also very crucial in food safety.

Water treatment is a process that is used to make sure that the water being used in any food establishment is

clean and safe. Making use of unsafe water has a big negative effect to human body and may lead to at risk. There should be adequate water treatment to all food establishment to secure food safety.

Drinking water sources are subject to contamination and require appropriate treatment to remove disease-causing agents. Public drinking water systems use various methods of water treatment to provide safe drinking water for their communities. Today, the most common steps in water treatment used by community water systems (mainly surface water treatment) includes coagulation and flocculation, sedimentation, filtration, disinfection. [6].

Table 3. Food Safety violation caused by non-human factors;

Facilities	Remarks
1. Designated work areas (i.e receiving, storing, preparing, etc) are available and used as designated	Complied
2. Handwashing, food preparation sink and or dish washing sink are available and have complete amenities	Complied
3. Toilets are clean, without foul odor and with complete hand washing amenities	Complied
4. Designated dining area for staffs are available and kept clean.	Complied
5. Dressing rooms and lockers are available, kept clean	Complied
6. Food preparation area is well lighted and ventilated	Complied
7. Light bulbs are covered/guarded to ensure safety food and employees from broken glass	Complied
8. Drainages and pipes are kept clean and in good condition	Complied
9. Floors, walls and ceilings are made of acceptable material and maintained in good condition	Complied
Water Supply	
Drinking Water	
1. Bottled water containers are properly stored and in sanitary condition	Complied
2. Bottled water are not more than 5 days old since delivery date	Complied
3. Water dispenser is regularly cleaned and maintained	Complied
Water for Food Handling Activities	
1. Adequate water supply in the kitchen is available	Complied
2. Adequate water treatment facilities are available and well maintained	Not Complied
Equipment	
1. Ventilation equipment are functioning and kept clean	Complied
2. Food equipment and utensils are in good repair; without cracks, chips, crevices and rough welds , corrosion	Complied
3. Food equipment are placed/installed appropriately (allow access for cleaning and prevents cross-contamination)	Complied
4. Food equipment are clean and sanitized; without adhering food debris, molds, dirt and dust	Complied
5. Food thermometer are functioning, regularly and properly calibrated	Complied
Cleaning and Sanitizing Program	
1. Cleaning schedule is available and cleaning tasks are monitored	Complied
2. Cleaning materials and chemicals are available, functioning and used as necessary	Complied
3. Ready to use cleaning chemicals are available and diluted correctly and in good condition	Complied
4. Proper care and storage of cleaning materials and chemicals are carried out	Complied
5. MSDS or equivalent of all poisonous materials are readily available	Complied
6. Cleaning and sanitizing procedure for food contact surfaces, utensils and equipment is implemented	Complied
7. Color coded rags/mops are in place as designated	Complied
8. Over-all facilities are generally clean	Complied
Waste Management	
1. Suitable waste bins are available in strategic locations	Complied
2. Waste containers are lined with plastic bags, are not overflowing and properly covered	Complied
3. Waste areas and equipment are cleaned regularly	Complied
4. Waste being collected regularly and hygienically	Complied

Table 4. Difference of Responses on Food Safety Practices When Grouped According to Nature of Establishment

Practices	F - value	p - value	I
Food Safety System	1.182	0.388	NS
Facilities	1.639	0.256	NS
Health and Hygiene	0.616	0.663	NS
Water Supply	3.658	0.056	NS
Equipment	2.083	0.175	NS
Cleaning and Sanitizing Program	2.188	0.161	NS
Waste Management	0.308	0.865	NS

Legend: Significant at p-value < 0.05

Based from the result, all computed p-values were greater than 0.05 alpha level, thus the researcher fails to reject the null hypothesis. This means that there is no significant difference and implies that the different establishments follow the food safety.

Table 4 proves that food safety practices are being strictly practiced by all food establishments regardless of its nature. Food being their main business is given much attention so as to render it safe for human consumption.

However, though there are no specific standard program for food safety implementation, each establishment has its own food safety program adopted for its business. Moreover, whatever food safety program each establishment has, it is geared toward the objective of keeping the food safe for their customers.

*PROPOSED POLICY ENHANCEMENT:

Requirements for Mayor’s Permit

1. Certification – either one of the following: DTI Business Name Certificate; or, SEC Articles of Partnership; or, SEC Certificate of Incorporation
2. Barangay Clearance / Permit
3. Authorization letter of owner with ID
4. Contract of Lease or Land Title / Tax Declaration
5. Sketch of Location
6. Occupancy Permit
7. Locational Clearance
8. Public Liability Insurance
9. Community Tax Certificate (Cedula)
10. Fire Permit
11. Sanitary Permit
12. Food safety training certificates
13. Water Analysis Result

Table 5. Proposed Action Plan to Policy Enhancement

Key Result Area	Action Plan	Persons Involved
1. Food Safety System: Food Safety Training	Conduct Food Safety Training per Food Establishment regularly and as need arises. Avail Certification for food safety	HR Department and Food Safety Officer of Food Establishment Food Safety Officer of Food Establishment in partnership with ServSafe & FoodShap
2. Water Supply: Water Treatment	Food Establishment submitting an application for water supply accreditation Regular monitoring and inspection of water supply	Food Establishment and Department of Health (DOH) through the FDA Food Safety Officer of Food Establishment
3. Utilization of the research	Food Safety Seminar Conduct Regular Food Safety Audit as Community Extension	CITHM Department and Selected Food Establishments Adopted Community with their Canteen

CONCLUSION AND RECOMMENDATION

With regards to Food Safety system almost all of the food establishments complied with all the food safety indicators. There are few Food Safety violation caused by human factors and non-human factors discussed. In terms of human factors, there are food establishment which were not able to give food safety training to their staff which is vital in food safety. Meanwhile, for non-human factors, water treatment should be given attention. There is no significant difference and implies that the different establishments follow the food safety, which means whatever food establish it is, they are able

to come up with food safety program and they implement and monitor it. The researcher proposed an action plan and policy enhancement in compliance to Food Safety Practices and regulations.

The researchers recommend the following to further strengthen the existing food safety policies. Food establishment should have the include Food safety training certificates of food workers and Water Analysis result as a requirement for licenses and permit to operate for Food establishments. Food safety seminars to be conducted and initiated by City Health offices to ensure that all food workers and owners as well are

knowledgeable of standard food safety practices. A strict adherence to RA 10611 and the food safety regulatory system to be carried out by Food Safety Regulatory Agencies (FSRA and LFU's). Future researches maybe conducted on other areas of food service operations regarding food safety.

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