HACCP implementation in public hospitals: a survey in Crete, Greece

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Abstract

In the island of Crete, Greece, 7 major hospitals offer their services in conjunction with a number of public health centers. Between 2004 and 2009, personnel of the Technological Education Institute (TEI) of Crete, visited these hospitals and carried out food safety surveys. Our basic aim was to evaluate the degree of compliance to food safety and to investigate the actual difficulties that exist during the HACCP implementation process, in hospital mass-catering systems. Evaluation was based on personnel interviewing, checklist screening and microbiological analysis of food and water samples. Two of the hospitals we surveyed were already following HACCP methodology, two had just started to introduce the system and the remaining three were planning HACCP introduction at the time. Some potential problems were detected and unfortunately actual food-safety problems did occur in these hospitals in the same period. The overall results of the above screening have been only partially presented to the moment. Based on the actual findings and experiences of our survey, as well as relevant literature research we emphasize some elements, crucial for implementing and successfully operating HACCP systems in hospitals, as: Managerial commitment; availability and enforcement of risk-informed regulations; hospital registered-dieticians, food technologists, and hygienists involvement; patients menu’s planning; hospitals kitchen and food-management personnel training; integration of HACCP procedures with other hospital functions; hygiene supervision by central and regional public health authorities; external food delivery/introduction into the hospital; handling of minimally processed food; regular inspections of kitchenware; food storage conditions; food remaining disposal etc. Last but not least, a crucial element was the absence of HACCP certified suppliers for all food products, especially in the smaller cities.

Keywords: public hospitals; HACCP implementation; survey

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1. Introduction

Risk assessment is part of the risk analysis process, which also includes risk management and risk communication [1]. In hospitals, it is mainly used to estimate risks related to food safety and food-borne illness; review healthcare associated infections; review serum screening programs for Down’s syndrome; patients falls; management of wastes generated from endoscopy etc [2].

Risk assessment techniques can also be used to develop Hazard Analysis Critical Control Points (HACCP) programs [3] and control multiple risk factors, as consistency in food preparation, employee awareness and participation in food safety etc [4]. Patients in hospitals are actually provided with two forms of treatment, the medical (pharmaceuticals treatment, surgery etc) and the nutritional (carefully planned meals that provide all ingredients necessary for each patient’s case). Both treatments are of equal importance and should be safe for patients. Especially, since the hospital food-service system is considered to be the most complicated production process within the hospitality sector [5].

In the island of Crete, Greece, 7 major hospitals offer their services in conjunction with a number of public health centres. Between 2004 and 2009, personnel of the Technological Education Institute (TEI) of Crete, carried out food safety surveys in these hospitals. Our basic aim was to evaluate the degree of compliance to food safety [6] and to investigate the difficulties that exist during the HACCP implementation process, in hospital mass-catering systems. In this paper we summarise our relevant experience concerning the actual problems we observed on implementing HACCP in the hospitals of Crete.

2. Materials & Methods

The health sector in Greece operates mainly through public hospitals and public health centres. On the island of Crete, Greece, 7 major hospitals offer their services in conjunction with a number of public health centres in every city. During 2004-2009, the Technological Education Institute (T.E.I) of Crete, Departments of Nutrition-Dietetics and Commerce-Advertising, carried out a food safety survey in these 7 public hospitals. The basic aim of this research was to evaluate the degree of compliance to food safety and to investigate the difficulties that exist during the HACCP implementation process, in hospital mass catering systems. The evaluation process was based in personnel interviewing; checklist screening of important processes: menu design, suppliers evaluation, incoming materials control, storage, freezing and refrigeration, food preparation, food distribution and general HACCP prerequisites application, e.g. sanitation procedures, water hygiene, pest control, personnel hygiene etc; microbiological analysis in food and water samples [3, 6, 7].

Two of the hospitals we surveyed were following HACCP methodology, two had just started to introduce the system and the remaining three were planning HACCP introduction. The overall results of the above screening have only been partially presented [6].

3. Results and Discussion

Studies concerning the barriers of HACCP implementation in hospitals [8], have underlined the lack of HACCP prerequisites in hospitals; the lack of in-house HACCP skills; the high cost; the long time; the staff turn-over regulations within the hospital; the lack of management/owner commitment; the poor ownership of externally designed HACCP plans etc. Some potential problems were detected in our survey also and unfortunately actual food-safety problems did occur in these hospitals in the same period [9, 10]. Based on our actual findings from the 7 hospitals, we present a specific key-elements approach, in order to both implement and successfully operate HACCP systems in public hospital mass-catering systems. This approach could potentially be valuable to public health institutions or authorities, currently under the
process of implementing HACCP or quality management system, such as ISO 9001:2000. Our proposed approach is based on fourteen key elements (Table 1).

A “managerial effect” was observed to be of great importance for efficient HACCP implementation in the hospitals. Management commitment is the number one key-element in both starting and operating food safety systems. Hospital managers should believe in the importance of quality systems; devote the necessary time in the process; arrange for the required money needed for buying new equipment or redesigning the food processing areas; make the decisions; underline their personal commitment to the personnel, and finally be involved in the internal auditing process [11] of the food safety systems. Without active managerial involvement a HACCP system is almost impossible to operate successfully. A situation we observed in some Greek hospitals was that the hospital directors had difficulties to persuade the judiciary economic-supervisors (“Paredroi” in Greek) of the hospitals on the necessity to spend for HACCP and ISO systems introduction.

A lack of availability and enforcement of risk-informed regulations, guidelines and standards which are established by the hospital’s administration and incorporate assessments of safety significance or relative risk was recorded. These regulations, that may assist decision-making processes in the nutrition and dietetics department of the hospital [12], cleaning schedules in the kitchen, food purchase and storage procedures etc, ensure that the burden imposed by an individual regulatory demand or process is appropriate to its significance in protecting the health and safety of the patient, the personnel, the public and the environment. The establishment of internal regulations and guidelines facilitates the offer of standard services to the patients and the public in general.

Table 1. Crucial elements for HACCP implementation in hospitals

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<td>Availability and enforcement of risk-informed regulations</td>
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Nutritional, microbiological and food technology expertise is necessary for the establishment of an effective HACCP program in the hospital, with respect to the analysis of hazards, identification of critical control points and actions to be taken when limits are exceeded [13]. The presence of well trained professionals is a key-element. An adequate number of dieticians, according to patients’ number, and at least one administrative dietician [14] should be involved in HACCP. Dieticians or/and food technologists can also be in charge of HACCP supervision if there is not a person, of relevant training, available from the hospital’s managerial board.
Of key-importance is the correct planning of patient’s menu, within the HACCP system. Specific care must be taken by dieticians during menu design according to the patients group that is to consume the specific food item [4]. Foods (e.g., certain types of cheese) that are safe to be consumed by customers in mass-catering establishments can be critical if consumed by patients in hospitals [15], i.e., pregnant women, patients with a suppressed immune system due to chemotherapy or HIV etc. Furthermore, measures must be taken for monitoring the needs for adjusting the menu to the changing needs of a patient.

The systematic identification, prevention and management of malnutrition in hospital patients, is an important issue for hospitals worldwide, since the nutritional status of a significant number of patients deteriorates over the course of admission [16]. Malnutrition causes dangers for the survival and well-being of the patients, increases the length of their stay in the hospital, increases the possibility of pressure ulcers/injuries appearance etc [17]; must therefore be prevented within the HACCP and/or any other quality management system applied in the hospital.

Personnel involved in food processing within the hospital must fully understand the required personal hygiene procedures that have to follow, have to be well trained by public health authorities, and further training must be provided regularly [18]. In our survey, occasional difficulties were observed in sustaining the use of gloves and head covers, within the kitchen personnel that were many years in the job.

Similarly, in Italy, Angellilo et al. recorded that only 54.9% of those involved in touching or serving unwrapped raw or cooked foods routinely used gloves during this activity; and this practice was significantly greater among younger workers [19]. Important is also to secure that any illness will exclude the person from work until a medical clearance for his/her return is provided.

Specific HACCP prerequisites and a HACCP design (hazard analysis, critical control points or CCPs determination, HACCP plan etc) “tailor-made” for each hospital [5] facilitate the integration of HACCP procedures with other hospital functions. The time/temperature relationships (during freezing, thawing, refrigeration, thermal processing, and food processing), sanitation procedures and pest control programs should be well outlined and followed [11] during food preparation in the hospital kitchens [5]. The specific character of hospital menus (more boiled and cooked meals served warm for immediate consumption, rather than cold meals) helps in establishing food safety.

Public-health authorities should be systematically involved in hospitals’ food-safety process with both supervision, in terms of informing and training personnel, and facilitate auditing through evaluation of the chemical and microbial quality of the prepared meals [20]. Since it is recognized that the application of the HACCP methodology is desirable by all sectors of the food industry [15], public-health authorities should make it mandatory for mass-catering services in hospitals, due to the high risk that can be associated with food consumed by patients.

Food hygiene in the hospital is occasionally challenged by unexpected problems [21]. Food that can reach patients through external visitors, may introduce a high risk (both microbial and dietetic danger) and it should not be allowed by hospital’s safety-personnel. In Greece, it’s a custom for those visiting patients in a hospital, to bring food, fruits, juices etc, with them. These items are to be consumed by the patient or by the relatives that help and support him. This tradition, which was developed in the past when food was scarce and nursing within the hospitals was only essential, may represent a danger for patients that suffer from diabetes, high cholesterol etc, as well as a danger for microbial transmission into hospitals.

Concerning the handling of minimally processed food in the hospitals, a number of recommendations can be suggested: special care must be taken to reduce microbial risks (through vegetables disinfection/sanitation) in menus that are designed to be consumed without further heat processing [6]. The HACCP-systems consulters should strongly emphasise and encourage the utilisation of Good Manufacturing Practises (GMPs) and Good Hygiene Practises (GHPs), focusing on personnel hygiene and personnel training [6]. Purchasing food from HACCP-certified suppliers facilitates
HACCP implementation in a hospital; consequently the availability of certified suppliers affects the final result.

All kitchenware, food cutting boards and food contact surfaces of equipment, used in the preparation of serving of food or drink and all food storage utensils must be thoroughly cleaned after each use. Cooking surfaces of equipment must be cleaned every twenty-four (24) hours. All utensils and food contact surfaces of equipment used in the preparation, service, display, or storage must be thoroughly cleaned and sanitized prior to each use. Non-food contact surfaces of equipment must be cleaned at such intervals as to keep them in a clean and sanitary condition [22].

Food items must be stored in accordance with standard dry food storage techniques [22]. Hospital food-remaining disposal: food left over during food processing and distribution should be destroyed separately from the rest hospital’s garbage and certainly are not to be taken by personnel in order to feed domestic animals, as occasionally observed; this is to be considered high risk introduced in terms of general public health.

4. Conclusion

Based on our actual findings and experiences after a survey in Crete, Greece, we emphasize some elements, crucial for implementing and successfully operating HACCP systems in hospitals. The specific requirements of HACCP in the hospitals, as well as the benefits that can offer to patients must be further investigated and presented to the health professionals involved, as nutritionists and/or dieticians, food technologists, nurses, biologists etc. Cooperation is necessary between hospital administrators, public-healthy authorities, universities and research centres, in order to advance the quality of the services that the Greek hospitals offer.

References


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