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Hygienic-Sanitary Conditions of Hospital Nutrition Services in Southern Brazil

Condições higienicossanitárias dos serviços de nutrição e dietética em hospitais do Sul do Brasil

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ABSTRACT

This study evaluated the good handling practices in the ten Hospital Nutrition Services of the respective hospitals in the South of Brazil, classified as general hospitals. For data collection, there was used a Checklist for Good Handling Practices for Food Services based on current legislation. Among the results, the average of adequacy of the hospitals stand out, showing that the items related to responsibilities and edifications had the lowest adequacies, 67% and 73%, respectively, followed by the food handler block, with 76% of adequacies. The block referring to food handlers showed that few of them sanitize the hands during the change of activity. The classification of hospitals in relation to Good Handling Practices was satisfactory, however, greater failure was observed related to the practices of the food handlers, which are crucial for the safety of food produced in Hospital Nutrition Services.

Keywords. food hygiene, food handling, quality control, food service hospital.

RESUMO

Este estudo avaliou as boas práticas de manipulação em 10 serviços de nutrição e dietética de hospitais do Sul do Brasil, classificados como hospital geral. Para a coleta de dados, utilizou-se uma Lista de Verificação em Boas Práticas para Serviços de Alimentação baseada na legislação vigente. Dentre os resultados destacam-se a média de adequação dos hospitais, mostrando que os itens relacionados a responsabilidades e edificações apresentaram as menores adequações, 67% e 73%, respectivamente, seguidos com o bloco de manipuladores, com 76% de adequações. O bloco referente aos manipuladores de alimentos mostrou que poucos deles higienizam as mãos durante a troca de atividade. A classificação dos hospitais em relação à Boas Práticas de Manipulação foi satisfatória, no entanto, observou-se que falta o cumprimento de alguns itens, relacionados com as práticas dos manipuladores, que são cruciais para a segurança dos alimentos produzidos nos serviços de alimentação.

Palavras-chave. higiene dos alimentos, manipulação de alimentos, controle de qualidade, serviço hospitalar de nutrição.

INTRODUCTION

The Hospital Nutrition Services (HNS) is responsible for developing activities related to food and nutrition of the hospitalized patients as well as of the companions and the collaborators of the hospital. Since the foods offered are complementary to the medical treatment, they should contribute to the recovery of the individual's health through nutritionally balanced and safe meals from the point of view of hygiene and sanitary quality[1].

In cases of poor hygienic-sanitary conditions, the safety of the food is lost and consequently, the meal can become a source of ill[1]. Food borne Diseases are caused by various types of pathogenic microorganisms that are able to contaminate food in different stages of preparation, as contamination places of production, processing or supply[2]. According to the World Health Organization, 1 in 10 people in the world become sick after eating contaminated food, reaching around 600 million people and causing 420 000 to die every year[3]. In Brazil, the epidemiological bulletin published by the Ministry of Health informs that between the year 2016 and 2019, 2,504 outbreaks of waterborne and food borne diseases (DTHA) were reported. Of these, 5.8% occurred in Hospitals and Health Units (5.8%)[4].

In order to achieve all the necessary hygienic-sanitary care and guarantee a safe food for the commensal, a control related to the implementation of quality tools is essential, highlighting the Good Handling Practices. This program includes all stages of food preparation, from the choice of supplier to the distribution of the meal to the commensal. Once implemented, the Good Handling Practices provide a parameter of quality in the service through correct procedures of hygiene and manipulation of the food[1].

On September 15, 2004, the Brazilian Ministry of Health ANVISA resolution nº 216 was released so that the responsible professionals could guide and evaluate the Food Services regarding to the Good Handling Practices in Brazil. There should be emphasized that, within the scope of application of this legislation, the Health Care Services are excluded[5].

Until the mid-2014, there was no current legislation in Brazil specifically aimed at implementing Good Handling Practices in Hospital Nutrition Service[1]. On September 29, 2014, RDC nº 52 added in RDC nº 216 other areas of application of this resolution, including the units of nutrition and health services[6].

In the form of a checklist, in Rio Grande do Sul, a current legislation (Ordinance nº 78), approves a Good Handling Practices Checklist for Food Services, and, it also approves Good Handling Practice Courses[7]. Through Ordinance nº 78, it is possible to identify the nonconformities of the service so that later a plan of action is performed. In 2014, Ordinance nº 1224 amended Ordinance nº 78, including, within the scope of application, the units of food and nutrition of the health services to suit the amendment made in the federal level[7,8].

Based on that, the HNS should provide to the patients' foods in appropriate conditions of hygienic-sanitary to consumption and comply with the nutritional needs of patients and satisfying them. So, linking safe food with sensory and nutritional characteristics is a challenge for professionals working in HNS. The objective of this study is to evaluate the application of the legislation in good handling practice in the Hospital Nutrition Services of the hospitals of Porto Alegre, RS.

MATERIAL AND METHODS

Descriptive cross-sectional study where sixteen hospitals in the city of Porto Alegre were invited to participate. The selection of hospitals was performed through the National Classification of Health Facilities (NCHF), which was stratified to compose the sample only the general hospitals. Were used as inclusion criteria the hospitals had produce and distribute meals for patients and have at least one responsible nutritionist.

The research was submitted and approved by the Research Ethics Committee of the Universidade Federal do Rio Grande do Sul (UFRGS) under the registration number 66453917.7.0000.5347. The invitation to participate in this study, as well as the explanation of the project was carried out by the researchers via email and by phone directly with the local nutritionist. After the first contact, the researchers visited to the interested HNS to present the project and clarify possible doubts. Then the project was submitted to as well as was sent to the Research Ethic Committee of each the partner institution. After approval by both ethics' committees, was collected the institutional acceptance of participation in the research and the Free Prior and Informed Consent Term was signed.

For data collection a good handling practice checklist for feeding services was applied by a single trained researcher, based on the federal health legislation. The application of the checklist occurred in the second half of 2017, in a single visit lasting five hours in each HNS, during a day shift. The checklist that was used has 152 items, divided into 12 blocks: 1) Buildings, facilities, equipment, furniture and utensils (34); 2) Hygiene facilities, equipment, furniture and utensils (17); 3) Integrated pest control (07); 4) Water supply (09); 5) Waste management (03); 6) Food handlers (15); 7) Raw materials, ingredients, and packaging (12); 8) Food preparation (26); 9) Storage and transportation of prepared food (06); 10) Exposure to consumption of food prepared (09); 11) Documentation and registration (07); and 12) Responsibility (07)[7].

After the application of the checklist, the overall adequacy of Hospital Nutrition Service and they were classified as good, when they presented from 76 to 100% of attendance of the items; regular, with 51 to 75% of attendance of the items, and poor, with less than 51% of suitability[5].

The results of the evaluations were presented in relative frequencies and the responses of the questionnaires described qualitatively.

RESULTS AND DISCUSSION

The study sample consisted of 10 hospitals being 5 private and 5 public. Still of these, in relation to the size 5 were considered small, 3 medium and 2 large. The rest of the sample did not accept to participate. The hospitals named H1, H3, and H4 were classified as regular (51 to 75%) and the others were classified as good (76 to 100%). It is observed that none of the HNS obtained a poor classification in relation to the adequacy of the Good Handling Practices.

The data was also analyzed in blocks and the results are described in **Table**. Regarding the "Responsibility" block, one of the hospitals obtained a percentage equal to zero in the block referring to responsibilities and training, because despite having a technician in charge, no evidence was found of training and updates in good handling practice. Also in relation to updates of responsible in good handling practice in the hospital, only 50% of hospitals were adequate. It should be noted that all hospitals had a nutritionist. The item Responsibility of the current hygiene and sanitary legislation refers to the person responsible for food handling practice who that must be submitted to a specific Good Handling Practices Course.

Table. Percentage of overall adequacy and for items of Hospital Nutrition Services, in Southern Brazil, according Ordinance nº 78/2009

Evaluated items	Number of Items	H1* (%AD)**	H2* (%AD)	H3* (%AD)	H4* (%AD)	H5* (%AD)	H6* (%AD)	H7* (%AD)	H8* (%AD)	H9* (%AD)	H10* (%AD)
Buildings, facilities, equipment, furniture, and utensils	34	38	71	67	65	79	88	76	91	94	65
Hygiene facilities, equipment, furniture, and utensils	17	88	100	82	88	93	100	93	100	100	94
Integrated pest control	07	100	100	100	100	100	100	86	86	100	71
Water supply	09	100	100	100	100	50	100	100	100	50	100
Waste management	03	67	100	100	33	100	100	100	100	100	100
Food handlers	15	36	80	43	80	93	93	93	87	73	80
Raw materials, ingredients, and packaging	12	58	92	83	75	100	100	83	92	67	83
Food preparation	26	85	100	78	75	100	88	91	95	86	84
Storage and transportation of food prepared	06	67	83	67	67	100	100	67	100	83	67
Exposure to consumption of food prepared	09	57	100	25	75	100	88	88	100	88	88
Documents and recording	07	57	100	86	100	100	100	29	100	71	86
Responsibility	07	0	67	25	67	100	100	71	71	71	100
Overall adequacy	152	60	88	71	76	92	94	81	93	85	81

*H= Hospital; ** %AD = Percentage of overall adequacy

As important as training is how often happen. As far as those responsible for food handling are concerned, there was observed that 67% of the sample had adequate training. The responsible for food handling must be guide the food handlers regarding to good handling practices, through training and updates. Training food handlers in the workplace is a way to bring theory closer to practice and ensure that they understand and assimilate the learning to reproduce in their work[9].

Many factors are involved in the adequacy of Good Handling Practices. Even though the hospitals were classified as regular and good, some points related to the handling of the food itself reached low percentages, which may be related to the lack of responsible for good handling practice and nonconformities in buildings. These findings corroborate with study of Läikkö-Roto et al[10], numerous barriers can contribute to the lack of compliance in places where food is manipulated, among them are the lack of commitment and time of supervisors regarding the requirement of care in production; insufficient education of food handlers, and lack of adequate investment. Adding to that, the study of Stangarlin-Fiori et al[1] proposed that the lack of building and physical installations can be decisive in the failure to implement Good Handling Practices.

The buildings, facilities, equipment, furniture and utensils block was the second with the highest percentage of nonconformities. In addition, only 10% of the evaluated hospitals had a door in the preparation and storage area with automatic closing and barriers for the protection of vectors and pest. These have been seen as physical planning items that directly reflect the hygienic-sanitary conditions of the food service and need to be thought and structured to prevent cross-contamination[2]. Besides, with proper layout planning, it is possible to protect food, maintain hygienic-sanitary conditions, and improve aspects of cleaning and pest control in place.

According to the current legislation[6], grease boxes must be located outside the area of food production and storage. In this study only 40% of the facilities were in compliance. In addition, only 20% of the HNS that have been visited presented drain with closing system. These items, if are not adequate, allow the entry of vectors and pests into food production.

All the evaluated hospitals presented illumination in order to provide adequate visualization of the activities, without compromising the hygiene and the sensorial characteristics of the food.

It is important to reinforce that the temperature control is considered one of the items with the greatest health risk and for the effectiveness of this control in any food service the thermometer must be calibrated in order to guarantee reliable temperatures to food safety[11]. Regarding thermometers all HNS had. However, calibration was reported by only 33% of the sample and of these, only 66% of them presented the calibration registration.

In the item referring to hand washing of food handlers during the exchange of activity or interruption of work, there was observed that 20% of the food handlers did it. According to Lima et al[12], who evaluated the practice of hand sanitization through microbiological analysis of Food Services employees, a high number of microorganisms, bacteria and yeasts was observed, possibly due to the inefficiency of hand washing. Based on these studies, there was observed that hand washing remains a problem in Food Services, including HNS, which represent a place where hygienic-sanitary care needs to be even more rigorous to ensure safety.

The hands when not sanitized can spread pathogenic microorganisms in the environment and in food. Hand washing is an indispensable item to contributing to guarantee food safety[12].

In this study, 67% of the hospitals had exclusive hand washing sink with all the necessary items for correct hygiene. In the absence of these items, the risk of microbiological contamination of food is present. Still, it is not enough to show conformity in the physical structure if the hand washing of the food handlers does not happen in fact. As described by Cunha et al[11], the personal hygiene of the food handlers is capable of directly interfering with food safety and, therefore, endangers the health of patients, their companions and employees.

It was identified that the health control of the food handlers occurred in accordance with the legislation and the document confirming was available in 50% of the samples analyzed. Sithole et al[13] evaluating hospital workers in relation to a possible food outbreak in the hospital cafeteria in Zimbabwe and there was found that the possible

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source of contamination could have been the food itself or could have been contaminated by the food handlers during preparation or storage of food. With this, the need for do the examinations and health control of the food handlers is reinforced.

In the block related to food preparation, there was observed that in all hospitals the heat treatment guaranteed the temperature of at least 70°C in all parts of the food, according to requiring the legislation[5]. Heat treatment is extremely important and necessary to ensure the food safety. However, the registration of hot storage temperature was performed correctly in only 44% of the HNS. Lack of verification and incomplete registrations were some of the nonconformities of this item.

Concerning the transportation of prepared foods, 30% of the hospitals checked the temperature of the food in the process, with registration, verification, date and signature. The absence of food temperature control during the transportation phase can compromise both the hygiene and sanitary quality of food and patient satisfaction[1].

In hospital practice, there is a considerable time between the period of filling of the meal and the consumption of it by the patient. The lack of temperature control in this period is a determinant factor for microbial multiplication, so it is of the utmost importance that the service has a control measure in order to avoid the long exposure of the food at room temperature.

The lack of binomial time and temperature control during refrigeration, cooking, holding and distribution are responsible for approximately 80% of the occurrences of food borne diseases outbreaks[2]. Thus, the control of the time-temperature binomial is essential to ensure hygienic-sanitary quality in HNS. Maintaining the adequate temperature of the meal served in order to favor and stimulate the eating of the commensal is as important, since temperature is one of the main complaints of hospitalized patients[14].

In the item related to packaged and identified prepared foods if stored under refrigeration or freezing, 60% of the HNS were compliant. The main nonconformities observed included stored foods without wrappings, unsuitable packaging materials and damaged packaging. As well as a study that evaluated the profile of food services (commercial restaurants, snack bars, grocery stores and others) in around 14.900 facilities between 2005 and 2015 in the city of Curitiba, southern Brazil, who found irregularities (70.1%) such as unidentified products and inadequate packaging[15].

Most of the hospitals evaluated (80%) used disposable cleaning cloths and they were changed with each use. A study that contaminated cloths commonly used in food services with microorganisms verified that none of the studied strains presented significant growth in the two hours of incubation. However, the guideline is that disposable cloths should be discarded every 2 hours, not exceeding 3 hour[7].

Integrated pest control is a measure of prevention against transmission of pathogenic microorganisms and possible food borne diseases[2]. Although the chemical control described in the pest and vector control block was being carried out, one of the preventive measures, concerning the block of buildings it was not met because were not identified barriers on doors to prevent the entry of vectors who is an item that, although it is present in the buildings block, is related to pest control. Thus, as important as being in conformity, the interconnection of blocks is necessary for the correct hygiene-sanitary control.

In the block referring to water supply, the use of drinking water was in conformity in all hospitals. However, 20% of them presented nonconformities in the item referring to the hygiene of water reservoirs. Therefore, the water potability may be impaired.

The high adequacy of water supply and integrated pest control in HNS in most hospitals can be justified by the fact that they have frequent visits by different inspection bodies due to the fact that it is an environment that requires greater hygienic care[1].

The Manual of Good Handling Practices is the document that should include all the procedures that involve the activities of the area of preparation and distribution of food of a certain institution. It is an instrument that, according to Ordinance nº 78/2009, must be accessible to employees[7]. In this study, most hospitals presented the Manual of Good Handling Practices, however, due to the percentage of nonconformities, it is inferred that the Manual is not being effective.

CONCLUSION

Can be concluded that all hospital nutrition services had good to regular ratings. However, fail that

interfere in the hygiene-sanitary quality of the foods offered, such as the absence of hand washing during the exchange of activity and lack of temperature control during food transportation were observed. Reiterates the importance to conduct further studies in the area of hospital nutrition services in order to improve the diagnosis of the applicability of legislation in hospital environments.

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