

# Evaluation of food hygiene and safety practices in Bahri hospitals 2015 – Khartoum- SUDAN

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**Abstract:** This is a case study aimed to evaluate food hygiene and safety practices in Bahri hospitals in Khartoum of SUDAN during the period of January and May 2015. 7 hospitals were out of 8 were selected. Data was collected on handling and processing of food including personal hygiene of handlers, handling; processing and storage of raw and ready to eat food, cleaning and cleaning facilities, equipments, and management using structured questionnaire with 32 available food service staff, observation check list and interview with supervisors. The study revealed that majority of food handlers were females (83%). The age of employees ranged from 20 to 40 years, 22% were illiterate and have basic educational levels, none of them attend training on food hygiene and safety, half of supervisors never heard of HACCP, 43% have clean kitchen equipment that are easily cleanable and made of stainless steel, 29% of the hospitals stored utensils in conditions that could easily exposed to contamination. 29% of the hospitals use appropriate clothing (head caps and dust coats) when working in the kitchen. All the hospitals stored raw materials, chemicals (such as detergents) and other equipments in the same rooms. The study also showed that the majority of staffs (97%) Washing hands before handling food which could reduce the chance of food contamination. In conclusion the lack of strong food hygienic and safety systems lead to poor food handling which could consequently affect the health effects of patients. The study recommended provision of appropriate kitchens condition with equipment, training of all food services staff to improve their knowledge, attitudes and practices, and conduct regular microbial quality and time temperature checks of the food.

**Keywords:** food hygiene safety hospitals Bahri Khartoum Sudan.

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## I. INTRODUCTION

Food hygiene is a subject of wide scope. It aims to study methods for the production, preparation and presentation of foods that are safe and that are of good keeping quality. It covers not only the proper handling of many varieties of foodstuff and drink but also all the utensils and apparatus used in their preparation, service and consumption (1).

Food Hygiene is the efforts made to safeguard food from becoming health hazard and to prevent early spoilage and contamination caused by handling of the foods. It is the procedures applicable to the processing of food in such a way that the products derived thereof are safe and wholesome for human use. The general principle of food hygiene is to ensure that food products are safe, wholesome and fit for human consumption. Kitchens should be part of a structured and organized department that provides nutritional assistance by preparing high quality meals with standards of food safety (2, 3). When GMP (Good manufacturing Practices) programs or HACCP (hazard analysis and Critical Control Points System) prerequisite programs are put in place they should cover the basic control measures for raw materials, ingredients, packaging materials, employees, equipment, operations, and working environment that affect the safety of a food. These activities are necessary to ensure that the conditions exist support prevention of potential hazards (4).

Kitchens in Hospital expose to risks of infectious diseases and require extra effort to produce safer food with good quality due to the fact that generally, the intended users are among the high risk groups because of their health status.

The majority of kitchens in hospitals have the basic principles to produce safe food with good quality due to awareness and additional precautions taken by hospital to prevent the spread of infections. Food safety risk assessment could be used to improve kitchens performance in these hospitals. This study is aimed to evaluate the processes of food handing, storage, processing, and serving along with personal hygiene knowledge attitude and practice toward food hygiene and safety at the nutritional departments in the nutritional department hospitals of Bahri Locality in Khartoum of SUDAN

## II. MATERIALS AND METHODS

Bahri located in North of Khartoum between Blue Nile and River Nile. Has an area of about 45,597km<sup>2</sup>, total population of 752,281, 76.2% of it is population living in urban area, majority working in public sectors, few with private sectors; agriculture and trading. It is comprises of three administrative units, Baladiat Bahri, Bahri North, Bahri suburb. The locality has 8 governmental hospitals. Most of the population have sufficient safe water supply from bore whole well and water supply system. Solid waste involved in the plan of solid waste collection and treatment operated by the state government.

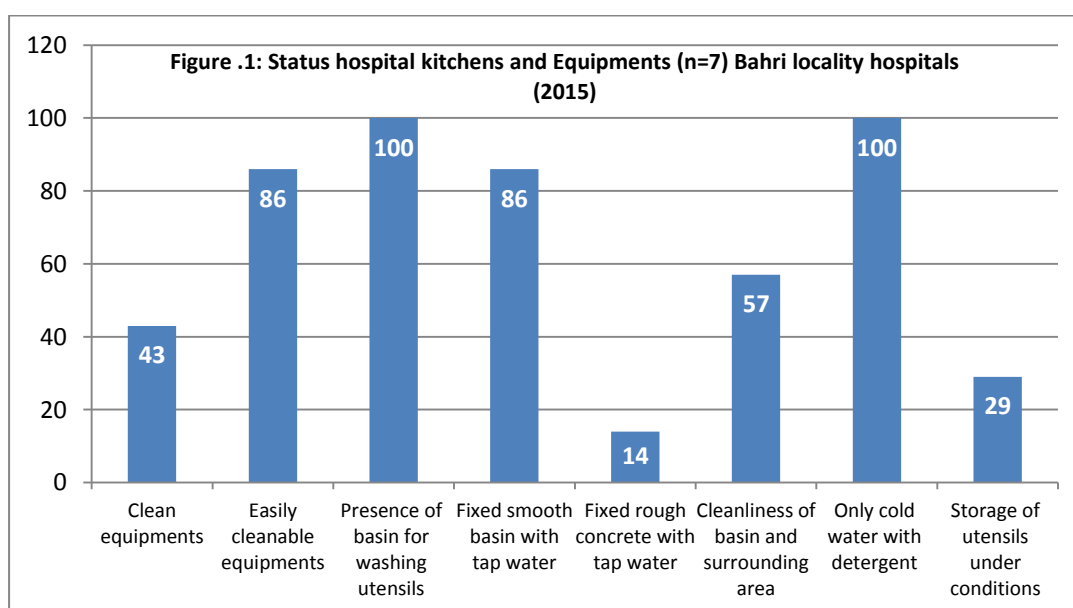
7 out of 8 hospitals in the locality were covered in the study, using questionnaires, observation check list and interview the data was collected on food hygiene and safety performance indicators from the nutritional departments. The questionnaire was designed to collect data on food hygiene and safety practices in Bahri locality hospitals nutritional department. The data collection tools included three parts: managers, kitchens and food handlers. Data was manually analyzed with frequency and percentages of tabular form.

## III. RESULTS AND DISCUSSION

The results show the status of the kitchen facilities as observed during the visits 43% of the kitchens had clean and appropriate kitchen equipments which they are easily cleanable and made of stainless steel. However, some equipment were observed to be defective (missing handles and had some cracks). 86% had fixed smooth and rough surface with tap water type basin for washing utensil and preparation of food. Clean washing basin and surrounding area was observed only in 57% of the hospital kitchens. All hospitals kitchens using cold water with detergent for cleaning, 29% of kitchens stored utensils in conditions that could easily expose them to contamination (figure.1).

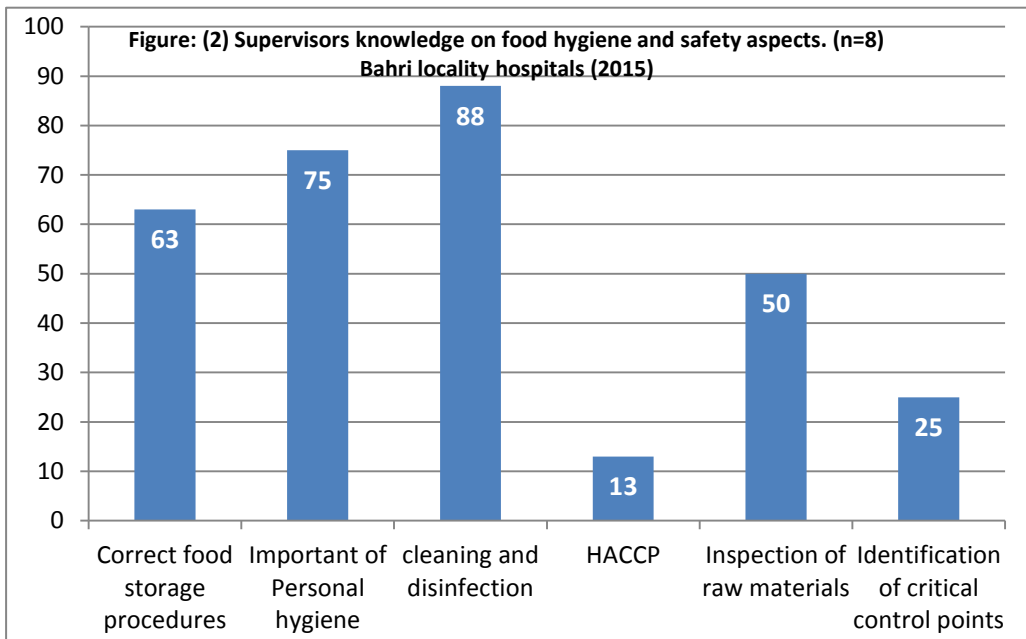
Experience from industrialized countries has shown that a comprehensive and well-funded regulatory system alone cannot prevent foodborne diseases. On the other hand, where regulatory and educational measures have been combined, they have been found to be effective in reducing foodborne diseases (5).

Basic kitchen sanitation guidelines are an important component of any food safety strategy, poorly cleaned utensils and equipment surfaces harbor and encourage the spread of pathogens. Equipments and utensils used in the hospitals (e.g. aluminum plates) need to be cleaned with warm water and detergent followed by disinfection. Suitable cooking procedures and recommendations need be observed in order to prevent the growth of pathogens (6, 7, 8).



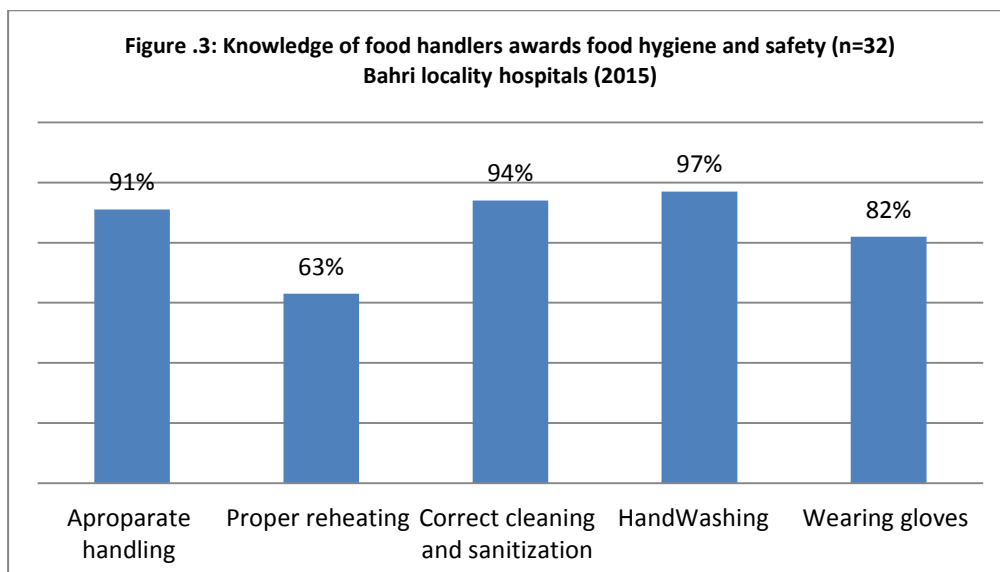
Out of 7 kitchens 32 food handlers, the results revealed that 50% of food service manager’s were aware about food hygiene standards and never heard of HACCP before, 63% of the managers were aware about food storage procedures, 75% knew the procedures for appropriate personal hygiene and food handling, 88% were aware about cleaning and disinfection material and precautions, 50% understand the important of raw materials inspection and 25% were able to identify the critical control points (Figure.2).

It is very important to provide toilets with basin with soap and disinfections to wash hands and prevent spread of disease. Provide proper water treatment and distribution systems and sewage disposal. Water as a resource has several different uses in the hospitals. The hospital should ensure that the water supply systems provide safe water for use in the hospital. Water for drinking should be portable for intake. Where safe portable water is not available, it should be made safe through boiling or various purification mechanisms. It should meet the recommended guidelines for drinking water quality. The raised storage tanks should be cleaned on a regular basis. Water should be sampled from time to time for laboratory analysis to check for fecal and pathogen contamination (9, 10).



The results also indicated that 67% of the hospital use water sources installed from the municipal as their major source while 33% of the hospitals use water supplied from private suppliers (tankers) and 29% of the hospitals had appropriate toilets facilities

Our Results revealed that the majority of staffs (97%) know the important of washing hands before handling food to reduce contamination and (63%) understand that inadequate reheating of food contribute to food poisoning (Figure. 3)



Deficiency of knowledge among food handlers/consumers and negligence are contributing factors to unhygienic practices. However, other studies have shown that improved knowledge of food hygiene practices does not always result to the required transformation in food handling behavior. The findings of a research done at Kenyatta National Hospital in Kenya elucidate on a case study of food handlers who scored highly in a questionnaire on hygiene practices whereas each contaminated a sample of food he/she had handled. Safe hygienic practice among food handlers in hospitals is an outcome of their intrinsic knowledge and attitudes on food safety [9, 10, 11 and 4].

This study revealed lower educational levels of food handlers and not take courses in food hygiene and foodborne diseases. And some managers had never heard of HACCP before. All hospital kitchens using cold water with detergent only and not use drying racks for the cleaned and sanitized equipments. Majors of the hospitals stored utensils in conditions that could easily expose them to contamination. Major of the hospitals not had tankers for shortage time and toilets. Some of the hospital kitchens had floors in bad conditions (cracks on the floors). Not had adequate lighting and ventilation. The hospital kitchens lack control of rodents and houseflies. The lack of good food hygienic and safety practices systems lead to poor food safety and contribute to deterioration of health status of patients.

Concluded appropriate kitchens condition with equipment and facilities. Providing education about the HACCP system or/and other appropriate standard food safety operation procedures may help. The hospitals management should institute training and retraining programmers for all food service staff to improve their knowledge and practice of food hygiene and safety. Without microbial analyses and time/temperature checks of the food, it is impossible to determine if the food safety curriculum and delivery of the program made the food served by food handlers to patients. Further exploration and testing the safety of the food is needed.

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