TITLE

Study on hand washing practices and occurrence of Microbes on the hands of food handlers.

AIM

To study the bacterial spectrum colonizing the hands of food handlers and effectiveness of simple hand washing techniques in reducing the contamination.

INTRODUCTION

In India, due to globalization and urbanization along with change in lifestyles like long working hours, lack of time, nuclear families etc many people now depend on outside catering services and ready to eat food, leaving the field open for unhealthy food practices. There has been rapid growth of food industry and mushrooming of fast foods, restaurants, road side eateries and stalls in recent years.

Food safety has emerged as an important global issue with international trade and public health implications [1]. Studies revealed that food borne diseases are a serious health hazard and an important cause of morbidity and mortality in developing countries [1]. Food can transmit a wide range of diseases in a condition termed food infection where food serves as a vehicle for transfer of pathogens to the consumer in whom the pathogen grow and cause disease [2].

Data on risk factors for food borne diseases indicate that the majority of outbreaks result from inappropriate food handling practices [3] [4]. Food handlers with poor hygiene, working in food serving establishments could be potential source of infections of many enteric pathogenic bacteria [5].There is evidence from the food industry showing that microorganism are transferred to the hands in the process of handling food and through poor personal hygiene, resulting in the hands being heavily contaminated with enteric pathogens[5]. Also, kitchens are used communally in many places for example schools, youth hostels, hospitals, nursing homes and prisons adding to the spread of infection[6].

Hand washing, a simple and effective way to cut down on cross contamination is all too often forgotten. In addition, some of the food handlers use gloves which are usually made of inferior quality plastic and are not discarded after use. Moreover, another disadvantage is that if individuals do not wash their hands before putting on the gloves, both the interior and exterior gets contaminated and microorganisms on the hand could multiply rapidly in the moist and warm environment [3].

More than 40 different foods borne microbial pathogen are known to cause human infection. Previous studies in western countries have shown organisms like *Staphylococcus* spp, *Salmonella* spp, *E. coli* etc

Very few studies have been undertaken and very little data is available in our country regarding the occurrence and the type of pathogenic bacteria on hands. This study is

therefore aimed at investigating bacteria colonizing on hands of food handlers before and after hand washing, thereby demonstrating the effectiveness of hand wash.

OBJECTIVES

1. To isolate and identify the organism from hands of food handlers in hospital and private eateries before and after the hand wash

2. To demonstrate appropriate hand washing technique to the food handlers.

3. To evaluate the effect of hand washing technique which is a simple and cost effective method of disinfection.

4. To study and compare any difference in the isolated microbes from the two groups of food handlers i.e. hospital and private eateries.

MATERIALS AND METHODS

SAMPLE SIZE: n1 = 50; staff working in hospital kitchen, hostel kitchen and canteen.
n2 = 50; staff working in private eateries around the hospital.

SOURCE OF DATA: Food handlers working in the Hostel kitchen, Hospital kitchen and Canteens of the 4 attached hospitals of Bangalore Medical College and Research Institute and a few private eateries around these hospitals.

INCLUSION CRITERIA
Food handlers above 18 years of age

EXCLUSION CRITERIA
Presence of cuts, ulcers, or any skin diseases on hands.

STUDY DESIGN
A Cross sectional study will be carried out in the Department of Microbiology Bowring and Lady Curzon Hospital, BMCRI. 100 food handlers, 50 from 4 attached teaching hospitals of BMCRI and 50 from private eateries will be included in the study

1. Informed consent shall be obtained from each subject included in the study

2. Samples will be taken from the palm of the food handlers, from index fingers and thumb of both right and left hands using a sterile swab wetted with normal saline

3. A simple 13 seconds hand wash whereby the hands were soaped lathered and during lathering rinsed underneath a faucet of flowing water[7] , shall be demonstrated to the participant and after hand wash a second sample will be collected from the same areas.

4. Each of these samples will be placed in sterile container and immediately transported to laboratory for microbiological analysis within half an hour.

5. Aerobic cultures will be done on Mac Conkey's Agar and Blood Agar, and shall be incubated at 37^0C, for 18 hours. If there is growth, the total viable count shall be determined. If there is no growth then the sample is further incubated up to 48 hours before declaring no growth.

6. The isolated organisms shall be identified using standard identification techniques. Antibiotic sensitivity testing will be done using Standard Kirby Bauer's method

7. The results obtained will be statistically analyzed and evaluated

IMPLICATIONS

1. "The food handler is one link in the complex multiphase process of contaminated food-infection-enteric disease."[1]. Food handlers do not receive any training on hand hygiene as a daily routine. This study will help in training food handlers in our hospitals regarding simple hand hygiene practices.

2. This will help to create awareness among managements and also among food handlers' committees in formulating disinfectant protocols like hand washing techniques as propriety to curb the spread of infections from person to person.

REFERENCE

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ETHICAL PRINCIPALS FOLLOWED DURING THE STUDY

The present research will adhere to guidelines of ICMR "Policy statement an ethical consideration involving in research on human subjects [1980]". It will also abide by principles enunciated in the "Declaration of Helsinki" adopted and amended by the 52 nd WMA General Assembly, Edinburgh 2000

- The subject whose systems are being used, will be given a true and complete picture of the study in the language of there understanding.
- The project will be in no way a hindrance to their work.
- The data obtained during the study will be recorded to the best of my conscious and will be kept confidential.
- The identity of the subject will not be revealed at any time during the study The rules of consent will be strictly followed and explained consent will be taken
- This study will not be of any hindrance in any way whatsoever with the work of the food handlers
- No invasive methods will be employed on the subject as a part of the study
- The subject is free to withdraw from the research without necessarily giving any reasons which would not adversely affect the subject's medical and nursing care
- The result/data obtained during the study will be confidential, be unbiased and would be recorded at the best of my knowledge
- The information gathered from the subject will be kept strictly confidential
- There will be no legal binding for the research investigator

INFORMED CONSENT

Will be taken

INSTITUTIONAL REVIEW BOARD/ETHICAL COMMITTEE

Will be applied

ANNEXURE: 01
INFORMED CONSENT FORM

I,_____aged,_____D/O,W/O_____Residen t of_____ have been explained in a language that I understand, the objectives and implications of the research "*Hand washing techniques and occurrence of microbes on the hands of food handlers"*

I have been assured that my identity will be kept confidential throughout the study. I understand that this project is for the betterment of the society. I have also been told about the need for dressings with special technique involving Aloe Vera.

I voluntarily permit and give my acceptance for being a part of this study. I shall be able to withdraw from the present study at any stage without giving any reason, incase I find it difficult to be a part of it.

My participation in the present project shall not interfere with my treatment and stay in the hospital. I have been assured that the information obtained will be confidential.

Signature of the subject/
Responsible attendant.

Signature of the witness.

Left thumb impression

Place:
Date:

Place:
Date: