

A STUDY ON BACTERIAL CONTAMINATION OF CELL PHONES OF HEALTH CARE WORKERS (HCW) AT KIMS HOSPITAL, AMALAPURAMN. Padmaja¹, P. Nageswara Rao²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: A random 100 samples of cell phones of HCWs workers and Doctors working in various wards, OPDs and laboratories, Blood Bank, Causality, ICU of KIMS Hospital were subjected to bacterial analysis by conventional methods to know about the Bacterial contamination of the cell phones from July 2011 to December 2011. The commonest organism isolated from the contaminated cell phone is MRSA - 20%, followed by MSSA - 5%, CONS - 10 %, Micrococcus - 15 %. The obvious observation is none of the doctors' cell phones are contaminated. In the present study, the contamination rate is compared to the controlled group consisting patients, relatives attending in OPD's and not working in health care setting.

KEYWORDS: Healthcare workers, cell phones, MSSA, micrococcus.

INTRODUCTION: Hospital infections pose problem of increased mortality and morbidity in patients. The hands of the health care workers act as an important role in transmission of hospital infections. For more than one decade cell phones have become an accessory in day to day life and they have become a part of life.¹ The cell phones of health care workers act as a source of hospital infections. In this connection, it is imperative to study about the contamination of the cell phones which act as a vehicle of transmission of hospital infections.

The causative agents of hospital infections have found a significant way to spread infection in the hospital environment. The present study is aimed at investigating the rate of bacterial contamination of the cell phones of the health care workers in KIMS, Amalapuram. In the present study the contamination rate is compared to the controlled group consisting patients, relatives attending in OPD's and not working in health care setting.

MATERIALS AND METHODS: Random sampling of 100 cell phones from HCWs working in KIMS hospital from July 2011 to December 2011 was carried out. Samples were collected from OPD's, in patients wards, ICU, Burns ward and Laboratories. A sterile wet swab moistened with sterile demineralized water is used for collecting the sample from the sides of the cell phone and key pad of the cell phone.

The swabs were inoculated and streaked on 5% Sheep blood agar and MacConkey agar (Hi Media, India). The culture plates were aerobically incubated at 37° C for 24 hrs. Isolated organisms were processed according to the colony morphology and Grams stain. The isolates were identified according to the Standard protocol.²

Tests for identification of Gram positive cocci included catalase, Oxidative/ Fermentative test, aerobic mannitol fermentation and coagulase production, Oxacillin sensitivity of *Staphylococcus aureus* was carried out by using Oxacillin disk diffusion test.

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Out of 100 HCWs, Doctors - 25, Nurses - 25, Laboratory Technicians - 25, House Keeping - 25. Area wise distribution of sample is as follows:

OPD's: Pediatrics-2, Obg& Gyn-3, Medicine-2, Dermatology-2, Pulmonary medicine-2, Surgery-3, ENT-2, Dental-2, Orthopedics-3, Ophthalmology-1, Causality-2, ICU-1.

Wards: Pediatrics-2, Labor room-2, Medicine-3, Gynaecology-4, Blood bank-2, Surgery-2, ENT-2, Dental-2, Orthopedics-2, Ophthalmology-1, Burns ward-2, ICU-1.

Laboratories: 25 from laboratories (Microbiology, Pathology, Biochemistry, Radiology, Blood Bank) Biochemistry-5, Microbiology-6, Pathology-9, Radiology-2, Blood Bank-3.

Housekeeping: 25 in the present study, the contamination rate is compared to the controlled group consisting patients, relatives attending in OPD's and not working in health care setting.

RESULTS: Bacteriological analysis: Out of 100 samples 50 (50%) were contaminated with bacteria.

Out of 50 isolates from cell phones the following bacteria were isolated:

Methicillin resistant Staphylococci (MRSA) - 20%.

Methicillin Sensitive Staphylococci (MSSA) - 5%.

Coagulase Negative staphylococci (CONS) 10%

Micrococcus - 15 %.

From the above observations, it is clear that 25% of the cell phones are contaminated with hospital associated infections that is Staphylococcus aureus.

The pathogen staphylococcus aureus isolated from cell phones of Doctors is nil. Nurses-18, Laboratory workers-7, House keeping-10.

Area wise distribution of MRSA shows: 8 from HCW working in OPDs, 6 from Laboratories, 5 from wards, 1 from causality.

Controls of 50 samples were taken. Out of 50 control samples, 1 swab from control group showed isolation of Coagulase negative staphylococci. Remaining were sterile. From the above observations it is obvious that Gram negative bacteria and Enterococcus bacteria were not isolated in any of the cell phones and it is found that the hands of HCWs at KIMS hospital setting and the cell phones used by HCWs are colonized with Staphylococci.

Similarly, Brady et al. said 14 % of mobile phones showed growth of bacteria known to cause nosocomial infection.^{1,3} Comparing these studies with our study, a higher percentage (50%) of Cell phones sampled was contaminated and 20% HCWs had MRSA growing on their Cell phones.

Khivsara et al. reported 40% contamination of mobile phones by Staphylococcus and MRSA from HCWs working in a Mangalore Hospital.⁴ In a similar study from Turkey hospital, only 9% of mobile phones sampled showed contamination by bacteria associated with nosocomial infections.

DISCUSSION: The above study reveals cell phones as potential threat in infection control practices and causes health care associated infections. Cell phones carried these bacteria because count of these bacteria increase in high temperatures and our cell phones are ideal breeding sites for these

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microbes as they are kept in warm in our pockets and hand bags.^{5, 6} There are no guidelines for the care, cleaning and restriction of cell phones in our health care system. Control measures are quite simple and can include engineering modifications, such as the use of hands-free mobile phones, surfaces that are easy to clean and disinfect, hand washing, and the wearing of gloves by the appropriate personnel⁷.

So in a country like India, cell phones of HCWs play an important role in transmission of infections to patients which can increase the burden of health care.

CONCLUSION: In conclusion, it can be said that hand hygiene is overlooked and is under emphasized in health care settings. Simple measures like increasing hand hygiene and regular decontamination of cell phones with alcohols, disinfectant wipes may reduce the risk of cross contamination by these devices.

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