Original article:

Correlation of bacteriological isolates from Mobile phones of health care workers with that of non health care workers

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Abstract:

Introduction: Health care associated infection (HCAI) cause a significant rate of mortality and morbidity. A large proportion of microorganisms associated in HCAI are multidrug resistant and spread through the hands of health care provider and inanimate objects used by them. The most common and indispensable accessories are the mobile phones which found to be used in hospitals by patients, visitors, health care workers.

Material and methods: The present study was conducted in Rao Nursing Home , Pune . In this two study were confirmed and included viz. Health care workers and HDFC , Pune , Bank employee group. We collected 70 samples from Group A while 68 samples from Group B . The statistics and sample size estimation was done with the help of expert.

Results : In our study, organism growth was observed in 82.85% in group A while 33.8% in group B.

Conclusion: From present study we may conclude that the use of mobile phones in the course of a working day has made mobile phones potential agents of microbial transmission. The increase use of mobile phones is seen as responsible for rise in community infection rates reported by ecological.

Keywords: Health care associated infection, mobile phone

Introduction:

Health care associated infection (HCAI) cause a significant rate of mortality and morbidity. A large proportion of microorganisms associated in HCAI are multidrug resistant and spread through the hands of health care provider and inanimate objects used by them. The most common and indispensable accessories are the mobile phones which found to be used in hospitals by patients, visitors, health care workers. [1,2]

The mobile phones of health care workers (HCWs) harbor many harmful pathogens which serve as a reservoir for nosocomial infections. [3] The continuous use of cell phones provides the exposure of microorganisms to transfer from hand to mobile. Now a days all groups of people from rich population to small businessman found to keep mobile phones as an important accessory. At present, Asia has the fastest growth rate of cellular phone subscribers in the world. [4] The mobile phones of HCW can be a health hazard in hospitals as this population handles infectious materials every day.

Cell phones are commonly used in healthcare settings for rapid communication within hospitals. Concerns have been increased about the use of these devices in hospitals, as they can be used everywhere, even in

toilets. Therefore, they can be vehicles for transmitting pathogens to patients.

Material and methods:

The present study was conducted in Rao Nursing Home , Pune . In this two study were confirmed and included viz. Health care workers and HDFC , Pune , Bank employee group. We collected 70 samples from Group A while 68 samples from Group B . The statistics and sample size estimation was done with the help of expert.

With the permission of concern authority the samples were collected with sterile swabs, moistened with normal saline by rotating the swabs on the key pad and back of the mobile. The swabs were immediately inoculated.

Swab for bacterial culture was taken from mobile phones used by 60 health care workers and 60 bank employs were compared.

Results:

A] Hospital data:

Total mobile samples- 70

Growth positive – 58(82.85%)

No Growth – 12 (17.15 %)

Sr.no.	Name of Organism	Number isolated
1	Coagulase negative Staphylococcus	20
2	Mithicillin Sensitive Staphylococcus[MSSA]	12
3	Bacillus spp	9
4	Micrococcus	8
5	E.coli	6
6	Pseudomonas spp	4
7	Klebsiella spp	3
8	**Methicillin Resistant Staphylococcus Aureus**[MRSA]	2
	Total	**64**

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B] Bank data [HDFC] :

Total mobile samples- 68

Growth positive – 23(33.8%)

No Growth – 45(66.2%)

Sr.no.	Name of Organism	Number isolated
1	Coagulase negative Staphylococcus	12
2	E.coli	4
3	Mithicillin Sensitive Staphylococcus[MSSA]	4
4	Streptococcus	3
	Total	**23**

C] **Category of staff at RNH :**

Category of staff at RNH	**No.**
Doctors	12
Nurses	20
Technician	13
Housekeeping/ Patient Care attendant.	12
Administrative	13

In our study, organism growth was observed in 82.85% in group A while 33.8% in group B.

Discussion:

Hands play a major role in the transmission of infection in healthcare institutions in industrial settings such as food industries and also in all community and domestic setting [5] . Hands and instrument used by workers serve as vectors for the transmission of micro-organisms [6] . A mobile or cellular telephone is a long-range, portable electronic device for personal telecommunication. The vast majority of mobile phones are hand-held. In less than 20 years, mobile phones have gone from being rare and expensive pieces of equipment used primarily by the business elite, to a common low-cost personal item. In many countries, mobile phones outnumber landline telephones since most adults and many children now own mobile phones. At present, Asia has the fastest growth rate of cellular phone subscribers in the world.

Mobile phones have also been reported to be a reservoir for microorganisms and can harbor more microorganisms than a man's lavatory seat, sole of a shoe or door handle. [7] As there is limited information about mobile disinfection method that are both effective and do not damage the mobile phonesand

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our study also showed an alarming picture and focus on the emphasis of limiting use of mobile in critical care units. The above matter requires to be taken up seriously to mitigate chances of propagation of unwanted infections amongst the patients undergoing treatments in critical care units of different Hospitals.

The concern about cell phone contamination in medical settings is increased due to the possibility of cross-contamination of these devices that act as an environmental reservoir and source of bacterial cross-contamination, particularly in the most sensitive clinical areas such as operating theaters, intensive care units and burn units and [9, 10] . A crucial part of patient safety is reduction of the bio-transfer potential of these objects, especially to susceptible patients . Thus, we suggest involving medical students at an early stage in training programs in patient safety, to increase their awareness about infection transmission, prevention, and control in medical environments before they begin clinical work.

Microbiologist say that the combination of constant handling with the heat generated by the phones create a prime breeding ground for many microorganisms that are normally found on the skin. A well-practiced infection control plan that encompasses hand hygiene, environmental decontamination, and surveillance contact isolates is effective for prevention of such pathogenic organisms . Colonization by potentially pathogenic organisms on various objects such as duster, marker, pen, chalk, pagers, computer, keyboards and mobile phones has been reported and these materials are implicated in transmission of pathogens .In recent times there has been an increase in the use of mobile phones by academic and non-academic staff of educational institutions. Innovations in mobile phones have led to better strategic life with good communication . [9,10]

Conclusion:

From present study we may conclude that the use of mobile phones in the course of a working day has made mobile phones potential agents of microbial transmission. The increase use of mobile phones is seen as responsible for rise in community infection rates reported by ecological.

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