

Hand hygiene at the root level: As a part of Competency-Based Medical Education

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Abstract

Competency-based medical education (CBME) has been introduced through the Graduate Medical Education Regulations (GMER) from the Medical Council of India. As per the new curriculum designed for medical graduates, one of the skill modules included is on hand hygiene which is the key feature to avert hospital infections. The current study targeted at determining the impact of skill module on hand hygiene awareness among first-year medical graduates. This was an interventional study carried out at Vinayaka missions medical college and hospital. A total of 82 first-year medical graduates were included in the study. Student awareness was tested using a self-structured, pretest questionnaire on hand hygiene. The student awareness was assessed using

a self-structured hand hygiene pretest questionnaire and the same protocol was repeated after 3 weeks.

The skill module was conducted and focused on various theoretical and practical aspects of hand hygiene. Pre and post skill module data was analyzed and compared. Post skill module data revealed an improvement in knowledge on various aspects of hand hygiene among students and it was found to be significant compared to pre skill module. Our study showed the increase in knowledge on hand hygiene among medical graduates from first year and highlights the importance of introducing hand hygiene skill modules in the new curriculum of medical education under basic foundation course. Sensitizing medical graduates at an early stage regarding infection control practices is a sign towards cutting down the hospital acquired infections.

Keywords: Basic foundation course, Hand hygiene, infection control.

INTRODUCTION

The idea of competency-based preparation started during the 1920s when the U.S. industry and organizations began examining methods for showing their representatives the particular information and abilities expected to make a particular item in an institutionalized way. Competency based medical education (CBME) has been introduced through the Graduate Medical Education Regulations (GMER) from the Medical Council of India. ¹ Proposed central changes in various periods of the undergraduate educational program (MBBS) appear to be radical after numerous decades to see the light of the day. ²

The "foundation course" has been acquainted with assistance the students "Feel good to be a medical professional" in the initial month. During this period, figuring out how to oversee pressure, computer rudiments, vernacular of the patients, bioethics of medical instruction, quiet care, and research just as key issues of general wellbeing significance in the three-tier health care conveyance framework. This will help moral learning as opposed to abusing the oppressed consideration searchers as test creatures. Skill modules will help smoothen expectations to absorb information of the moderate students, more up to date aptitude refreshing, and other educating learning hitches.²

One of the skill modules included in the basic foundation course is on hand hygiene. Hand cleanliness means to battle the dissemination of infection. Hospital borne infections are a weight on our social insurance

framework. These type of infections prolong the hospitalization and can affect the monetary circumstance on our medical services framework essentially.³

Decreased hand hygiene consistence among medical professionals is viewed as a worldwide issue, despite the fact that hand cleanliness is plain and straight forward.⁴ A few researchers have stated that the information, mentality, and recognition of hand cleanliness by undergrad medical students is poor. An investigation in Saudi evaluated medical graduates 'knowledge and lead concerning standard safeguard and control of infection. The majority of undergraduates accepted that there was a dire requirement for preparing in infection control, and few perceived that their present curriculum program didn't give enough data.⁵

The present study planned to determine the knowledge on hand hygiene of first year medical undergraduate before and after the interventional program (Hand hygiene skill module as per the basic foundation course).

MATERIALS AND METHODS

This was a cross-sectional, pre and post interventional study carried out among first year medical undergraduates of Vinayaka missions medical college and hospital. The informed consent was obtained from all the participants.

The members were clarified the reason for the study in detail. Before the skill module (baseline), all participants were given self-reporting questionnaires to fill. The questionnaire form contained questions based on hand hygiene knowledge assessment (obtained from, 2009 Global patient safety strategy initiative WHO guidelines).⁶ It consists of 10 main questions with sub-questions. The answers were multiple choices, Yes/No type or a single choice, true/false etc.

The hand hygiene skill module was centered around procedures for making changes in practices, convictions and propensities concerning conventional hygiene. There was also an emphasis on five movements for hand hygiene, the significance of hand hygiene concerning morbidity and mortality related to nosocomial infections and the epidemiological proof of the impacts of a definitive improvement in HH. At the end of the lecture, all participants were divided into small groups. Each group was provided with sanitizer containing alcohol and a video of the hand rub technique was played on the screen of the lecture hall.

Three weeks after the completion of the skill module on hand hygiene, all participants were given again self-reporting questionnaires to fill. Questionnaire form contained questions based on hand hygiene knowledge assessment (obtained from, 2009 Global patient safety strategy initiative WHO guidelines).⁶

Statistical analysis: The data obtained were stored in Microsoft Excel and analyzed using SPSS version 21 program was used to prepare proportional and analyzing tables.

RESULTS AND DISCUSSION

A total of 82 students have attended the skill module and agreed to participate in a questionnaire-based study. In the present study, females (52.4%) were more in number than males (47.6%). All study participants were found to have poor knowledge of hand hygiene before skill module and considered as baseline. Knowledge level on hand hygiene was increased after the skill module and the knowledge difference was found to be significant. Table.1

Table.1 Score Before and after intervention comparison

Groups	Mean ± SD	Wilcoxon Signed-Rank Test	P-value
Score Before intervention	49.90 ± 11.51	- 7.618	0.0001 Significant
Score After intervention	62.35 ± 10.63		

Before attending the skill module response to the first question was NO from 51.2% of students. After attending skill module, all students response was YES (100%) as everyone undergone intervention. A highly significant difference was observed concerning question no.8. Before the skill module response to the question, no.8 was only 29% and after the skill module increased drastically to 97.6%. No considerable distinction was noted before and after the skill module concerning question number 10b and 10c. The majority of participants had firm awareness of the increased probability of colonization of hands with pathogenic microbes when the skin is injured and contains long fingernails. Table.2

Table.2 Comparison of pre and post skill module correct responses regarding knowledge of hand hygiene.

Question	Before intervention	After intervention
Q1 Any formal hand hygiene practice in the last three years?	40(48.8%)	82(100%)
Q2 Will you consistently use hand washing dependent on alcohol for manual hygiene?	24 (29.3%)	29(35.4%)
Q3 What is the primary route of transmission of potentially dangerous germs in a health-care facility for patients?	22(50%)	55(67.1%)
Q4 Which is the most prevalent cause of germs responsible for infections associated with the healthcare?	41(50%)	55(67.1%)
Q5 Any of the following hand hygiene steps avoids bacteria spread to the patient?	62(75.6%)	73(89%)
5a. Before a patient is contacted. Yes No		
5b. Quickly after a risk of infection to body fluids Yes No	20(24.4%)	43(52.4%)
5c. When subjected to the immediate surroundings of the patient. Yes No	29(35.4%)	51(62.2%)
5d. Just before a sterile / aseptic process .Yes No	64(78%)	71(86.6%)
Q6 The following hand hygiene steps avoids bacteria transfer to health care staff	53(64.6%)	67(81.7%)
6a. Since having touched a patient No		
6b Quickly upon exposure to body fluid. Yes No	60(73.2%)	66(80.5%)
6c. Just before a sterile / aseptic procedure Yes No	29(35.4%)	47(57.3%)
6d. Once a patient has been subjected to the immediate surroundings Yes No	50(61.0%)	66(80.5%)
Q7. Of the following claims are accurate for hand rubbing dependent on alcohol and hand washing with soap and water?	41(50%)	63(76.8%)
7a) Hand rubbing is faster for hand cleaning than hand washing True False		
7b. Hand rubbing creates more dry skin than hand washing True False	37(45%)	54(65.9%)
7c. Hand rubbing is better against germs than hand washing True False	33(40.2%)	61(74.4%)
7d. Hand brushing and hand cleaning shall be carried out subsequently True False	21(25.6%)	30(36.6%)
Q8 Total time that alcohol-based hand rubbing takes to remove much of the germs on hands.	24(29.3%)	80(97.6%)
Q9 In the following situations which form of hand hygiene procedure is required?	25(30.5%)	54(65.9%)
a. just before abdominal palpation		
9b Before giving an injection	35(42.7%)	56(68.3%)
9c Having cleaned a bedpan	60(73.2%)	63(76.8%)
9d After removal of hand gloves	14(17.1%)	21(25.6%)
9e Having made a patient's bed	20(24.4%)	34(41.5%)
9f Upon access to clear blood	57(69.5%)	63(76.8%)
Q10 Rising of the following should be stopped, when combined with increased likelihood of hand colonization of dangerous germs ?	42(51.2%)	74(90.2%)
10a. Wearing jewellery		
10b. Injured skin	73(89%)	77(93.9%)

10c. Long fingernails	77(93.9%)	80(97.6%)
10d. Usage of a hand cream daily	52(63.4%)	65(79.3%)

Hand hygiene targets to battle the dissemination of infection. Hospital acquired infections are a weigh down on our health sector. These infections expand the hospitalization and can influence the monetary circumstance on social insurance framework altogether.⁷Medical students during their routine clinical postings come in close touch with patients and their contaminated environment regularly. These contaminated hands could be the source of life-threatening infections among hospitalized patients. In India, while customary hand cleanliness is absorbed and advanced at school and community level to reduce the incidence of diarrhea, there is a lack of data on exercises to advance hand hygiene in medical facilities .⁸

According to the new regulations placed by the Graduate Medical Education Regulations (GMER), a basic foundation course was introduced during the initial phase of the MBBS course. As a part of the basic foundation course, theoretical and practical aspects of hand hygiene will be thought to the students as a skill module. The present study aimed at determining the impact of competency based medical education on hand hygiene awareness among first year medical graduates.

After reviewing the literature it was found that the majority of studies were conducted on hand hygiene knowledge assessment among final year medical graduates. Hand hygiene compliance among our students was significantly high (p-value:0.0001) as compared to the level of knowledge among final year medical graduates.⁹Mortel et al,¹⁰ noticed that 63% of undergraduates were knowing the proper guidelines for hand hygiene while Mann and Wood¹¹ reported awareness in only 56% of undergraduates. Mortel et al¹⁰ equated the hand hygiene awareness, mixed values and behaviors among nursing and medical undergraduates. They noticed that hand hygiene awareness was substantially more in nursing undergraduates than that of medical undergraduates¹²

To achieve accurate hand hygiene after hand washes or hand rub the most critical step is to maintain contact time between hand and disinfectant or soap. Before the interventional programme the knowledge was poor and accounted for only 29%. But after the interventional programme the knowledge in this aspect raised to 97% and found to be statistically significant. Similarly, as per Chauhan et al, after training awareness of students towards constituents of sanitizer and duration of surgical scrub drastic increase was noticed.¹³

Our study emphasizes the significance of the hand hygiene skill module in the new curriculum of medical education. Even though the present study's targeted population is not exposed to the hospital environment as a part of their curriculum, it is prudent to inculcate the knowledge on basic principles of infection control at the beginning of the medical course.

The present study has few limitations such as overall knowledge of students on hand hygiene was enriched by skill module but compliance was not measured due to the short duration of the study. The knowledge scores of first year medical graduates after skill module was not compared with final year graduates who have not undergone skill module and can be carried out in the future. With these limitations, our benchmark evaluation may give a manual for future endeavors in improving Hand Hygiene in further investigations.

CONCLUSION

Our study showed the increase in knowledge on hand hygiene among first year medical graduates and highlights the importance of introducing hand hygiene skill modules in the new curriculum of medical education under the basic foundation course. Sensitizing medical graduates at an early stage regarding infection control practices is a sign towards cutting down the hospital acquired infections. Acquired knowledge on hand hygiene can be sustained by regular monitoring and organizing various educational programs on infection control.

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