

Knowledge and Practice of Hand Hygiene among Patients' Relatives in Jos University Teaching Hospital (JUTH) Jos-Nigeria

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Received November 07, 2019; Revised December 12, 2019; Accepted December 22, 2019

Abstract Background: Healthcare associated infections (HAIs) are drawing increasing attention from patients, care-givers, government and regulatory bodies. This is not only because of the problem in terms of the associated morbidity, mortality and cost of treatment but also due to the growing recognition that most of these are preventable. **Justification:** The medical community is witnessing an unprecedented advancement of infections transmission. There is now undisputed evidence that strict adherence to hand hygiene reduces the potential risk of cross-transmission of infection among patients to their relations and even to the medical practitioners. **Aim and objectives:** The study creates awareness among patients and relatives towards reducing cross infection in tertiary hospital in Jos. **Methodology:** The study used a survey method to assess the patients' relations in Jos University teaching Hospital (JUTH) using 345 volunteers. Responses on 12 variables were assessed and analyzed using SPSS 21. **Result:** 162 (47.0 %) males and 183 (53.0%) female relatives participated. 234 (67.2%) of the patients relative are from the age of 40 years and below. 200 (58.0%) participants are urban dwellers, 140 (40.6%) rural dwellers and only 5 (1.4%) did not indicate their location. Educational background shows that 18 (5.2%) of patient's relations are illiterate, 34 (9.9%) attended at least primary school while 116 (33.6%) have attended secondary school level and about 177 (51.3%) have attended up to tertiary education. Knowledge of Hospital acquired infections gave 284 (82.3%) Yes and 61 (17.7%) had not heard of HAIs. On the knowledge of pathogens transmission 296 (85.8%) said Yes and (13.6%) had no knowledge of it. On the knowledge of hand hygiene, 297 (86.1%) were aware and 48 (13.9%) did not. Before leaving the Hospital, 110 (31.9%) do wash hands, 235 (68.1%) do not wash their hands. After leaving the hospital, 95 (22.9%) do wash hand always, 182 (52.8%) sometimes and 68 (19.7%) do not care about washing hands. Patient relations washed their hands, 107 (31.0%) using water only, 210 (60.9%) used soap and water, 10 (2.9%) used ashes and water and 18 (5.2%) used sanitizer. Unfortunately, 17 (4.9%) do not have time to wash hands, to 11 (3.2%) washing hands was not necessary, 57 (16.5%) did forget and 45 (13.0%) hands always look clean but 119 (34.5%) do not have provisions for hand hygiene. **Conclusion:** The study supports the agenda of the world health organization (WHO) on patient and their relations safety programs, it is high time that developing countries including Nigeria formulated the much-needed policies for implementation of basic infection prevention practices in healthcare set-ups such as hand hygiene policy starting from Jos University Teaching Hospital.

Keywords: infection, transmission, hand hygiene, healthcare associated infections, Jos-Nigeria

Cite This Article: Olaniru B Olumide, Nedolisa Angela C, Song Elisha, Alla O Joel, Oyero Steve K, Obeta M Uchejeso, Michael E Paul, Isiguzoro Ikechukwu OU, Fiyaktu Yakubu Bwotle, Ntuhun Bala Dennis, Iheanacho U Charity, Caroline Andrew, Jugu P Kizito, Zingdam Nanfa, Kwanem Tracy, Mwanse Y Sarah "Knowledge and Practice of Hand Hygiene among Patient's Relatives in Jos University Teaching Hospital (JUTH) Jos-Nigeria." *American Journal of Public Health Research*, vol. 7, no. 6 (2019): 203-208. doi: 10.12691/ajphr-7-6-3.

1. Introduction

Hand hygiene has been described as the cornerstone and starting point in all infection control programs, with the hands of healthcare staff and patients relations being the drivers and promoters of infection in critical ill patients. Hospital porters and cleaners has been implicated as the major promoter of infection transmission in the hospital environment [1]. Hand hygiene has been identified as the treating intervention strategy that will drive down cross-transmission of pathogens in the healthcare environment. It has been proven to reduce to the barest minimum the incidence of nosocomial infection [2]. The objectives of this research were to assess patient's relatives on knowledge of healthcare associated infections (HAIs), hand hygiene, to assess patient's relatives on practice of hand hygiene, to compare knowledge and practice of hand hygiene among the study group, to find out the reasons that makes it difficult for people to adhere to proper hand hygiene practice and to compare age and practices of hand hygiene among the study groups.

Appropriate hand hygiene practices have been shown to reduce the rate of gastrointestinal, respiratory tract and skin infections. Such hand hygiene practices of the recent time have included the application of alcohol base lotion or rubs [3] as hand sanitizers.

Patient's relations most often do not always put any consideration to the environment they are occupying when taking care of the sick relative. Most of the utensils in contact with sick ones are not always disinfected before handling or using them. Even from the side of the healthcare staff, they always handle the objects which could be infected with bacteria and other microbes and most times in the presence of patients' relatives thereby creating confidence that those objects could be safe. The impact of no adherence to hand hygiene on the part of healthcare workers is seen in the high rates of nosocomial infections. This is fueled by the lack of improvement strategy in the health institutions. And so even the patient's relation will not care to ask for this hand cleaning utensils. Effective strategies targeted at improving hand hygiene should include education and training on hand washing [4] especially to patients' relatives of inpatients and outpatients upon entrance to hospital and using various media.

The world health organization WHO [5] has developed an evidence-based measure of hand hygiene called the five moments of hand hygiene which refer to washing hands before touching a patient, before clean up procedure or performing any aseptic procedure, after potential exposure to body fluids and after touching patient's surroundings [6]. This should be done to the patients and their relations. There are varying reports on the rates of contamination of the hand of healthcare workers and patients relations. Some studies reveal that about 68% of healthcare professional and patient's relations with *Staphylococcus aureus* is predominantly organism implicated [7].

Contamination of hands by other pathogens in the healthcare environment includes; vancomycin-resistant *enterococci*, *Clostridium difficile*, and *Enterobacteraceae*,

and some of these organisms persist on the hands for several week after contact [8].

Hand hygiene if done properly is the cheapest means of reducing the scaring rates of transmissible infections from healthcare workers to patients and from patients to relations and from patient's relations back to the healthcare workers. Past studies have shown that sufficient hand washing reduces the carriage rates of methicillin resistance *S. aureus* on the hands of Hospital staff [9,10,11].

2. Materials and Method

The study was done using a questionnaire and was distributed randomly to patients relative who are visiting and those that are staying with the patients in the wards, 345 patient's relatives filled in the questionnaire. The assessment was carried out in the Jos University Teaching Hospital (JUTH). The hospital is a 500 bed facility serving both local, university community and seem to be a referrals hospital to many states in Nigeria. The hospital consist of both single and multiple ward units and shared wards for inpatients and outpatients.

The checklist in the assessment included, twelve (12) variables that is Age, Sex, location, educational background, knowledge on hand hygiene, the presence or absence of hand washing facilities with the nature and frequency of hand hygiene were also recorded for analysis. The assessment tools had the following components such as compliance with hand hygiene before touching the patient, after contact with the patient, how the patient is greeted. Data were entered into SPSS version 21 computer program.

Ethical approval was sought and gotten from the ethical committee of the Jos University Teaching Hospital.

3. Result

A total of five hundred questionnaires were used among which three hundred and forty five response to the assessment. The table below shows the level of knowledge of hand hygiene by patient's relatives and the implication of not compliance. The demographic information which include the gender (sex) shows that 162 (47.0 %) male relatives enrolled on this study with a total of 183 (53.0%) female relatives. Age range shows that out of the total 345 patient's relatives that enrolled in this study shows that 234 (67.2%) of the patients relative are from the age range of 40 year and below and a total of 113 (32.8%) are from 41 years and above years. Location has a total of 200 (58.0%) participants for urban dwellers, 140 (40.6%) for rural dwellers and only 5 (1.4%) have not indicated their location for the study. Educational background shows that 18 (5.2%) of patient's relations are illiterate, they have never attended formal education in any level, 34 (9.9%) attended at least primary school while 116 (33.6%) have attended secondary school level and about 177 (51.3%) have attended up to tertiary education. On the knowledge of Hospital acquired infection, a total of 284 (82.3%) say yes to have heard of HAI but 61 (17.7%) says they have not heard of HAI. On the knowledge of pathogens

transmission 296 (85.8%) says they aware of this knowledge but 47 (13.6%) says have no knowledge of pathogen transmission, only 2 (0.6%) respondents never answer the question. On how relatives relate with patients, 110 (31.9%) relate to the patient through hand shake, 52 (15.1%) relate with the patient through hugging greetings, 183 (53.0%) relate by mere exchange of greeting words. On the knowledge of hand hygiene, 297 (86.1%) says yes they are aware of hand hygiene, 48 (13.9%) says no. on the question of washing hands, before leaving the Hospital 110 (31.9%) says yes they washed hands before leaving the Hospital, 235 (68.1%) says they don't wash their hands, after leaving the hospital, 95 (22.9%) says always, 182 (52.8%) says sometimes and 68 (19.7%) don't even washed hands at all. Before having direct contact with the

patient 79 (22.9%) say yes, 266 (77.7%) says no. after having direct contact with the patient, 214 (62.0%) says yes they washed their hands, 131 (38.0%) says they don't washed their hand. On handshake after visiting the patient, 117 (33.9%) says they give handshake, 228 (66.1%) says no. on how patient relation washed their hands, 107 (31.0%) use water only, 210 (60.9%) says they use soap and water, 10 (2.9%) uses ashes and water and 18 (5.2%) uses sanitizer. The last question shows that about 17 (4.9%) says they don't have time to wash hands, 11 (3.2%) says washing hands was not necessary, 57 (16.5%) says they use to forget, 45 (13.0%) says they hands always look clean, 119 (34.5%) do not make provision for such materials available while 97 (27.8%) never response to the question this is because of the yes in question 10.

Table 1. The level of knowledge of hand hygiene by patient's relatives and implication of non-compliance

VARIABLES	FREQUENCY	PERCENT	V. PERCENT	C. PERCENT
SEX				
MALE	162	47.0	47.0	47.0
FEMALE	183	53.0	53.0	100.0
TOTAL	345	100.0	100.0	
AGE				
<40	232	67.2	67.2	67.2
>41	113	32.8	32.8	100.0
TOTAL	345	100.0	100.0	
LOCATION				
URBAN	200	58.0	58.0	58.0
RURAL	140	40.6	40.6	98.6
No Response	5	1.4	1.4	100.0
TOTAL	345	100.0	100.0	
EDUCATION				
ILLITERATE	18	5.2	5.2	5.2
PRIMARY	34	9.9	9.9	15.1
SECONDARY	116	33.6	33.6	48.1
TERTIARY	117	51.7	51.3	100.0
TOTAL	345	100.0	100.0	
HAVE YOU HEARD OF HAI?				
YES	284	82.3	82.3	82.3
NO	61	17.7	17.7	100.0
TOTAL	345	100.0	100.0	
TRANSMISSION OF PATHOGENS				
YES	296	85.8	85.8	85.8
NO	47	13.6	13.6	99.4
QTN 3	1	0.3	0.3	99.7
QTN 11	1	0.3	0.3	100.0
TOTAL	345	100.0	100.0	
RELATING with patient				
HANDSHAKING	110	31.9	31.9	31.9
HUGGING	52	15.1	15.1	47.0
EXCHANGE of words	183	53.0	53.0	100.0
TOTAL	345	100.0	100.0	
ARE You Aware Of Hand Hygiene?				
YES	297	86.1	86.1	86.1
NO	48	13.9	13.9	100.0

VARIABLES	FREQUENCY	PERCENT	V. PERCENT	C. PERCENT
TOTAL	345	100.0	100.0	
BEFORE LEAVING HOSPITAL?				
YES	110	31.9	31.9	31.9
NO	235	68.1	68.1	100.0
TOTAL	345	100.0	100.0	
AFTER LEAVING THE HOSPITAL?				
ALWAYS	95	27.5	27.5	27.5
SOMETIMES	182	52.8	52.8	80.3
NEVER	68	19.7	19.7	100.0
TOTAL	345	100.0	100.0	
BEFORE HAVING DIRECT CONTACT				
YES	79	22.9	22.9	22.9
NO	266	77.1	77.1	100.0
TOTAL	345	100.0	100.0	
AFTER HAVING DIRECT CONTACT				
YES	214	62.0	62.0	62.0
NO	131	38.0	38.0	100.0
TOTAL	345	100.0	100.0	
HANDSHAKE BEFORE GOING HOME?				
YES	117	33.9	33.9	33.9
NO	228	66.1	66.1	100.0
TOTAL	345	100.0	100.0	
HOW DO YOU WASH HANDS?				
WATER ONLY	107	31.0	31.0	31.0
SOAP AND WATER	210	60.9	60.9	91.9
ASHES AND WATER	10	2.9	2.9	94.8
HAND SANITIZER	18	5.2	5.2	100.0
TOTAL	345	100.0	100.0	
IF NO TO QUESTION10, WHY?				
NO TIME	17	4.9	4.9	4.9
NOT NECESSARY	11	3.2	3.2	8.1
USE TO FORGET	57	16.5	16.5	24.6
HANDS ARE CLEAN	45	13.0	13.0	37.7
NO PROVISION OF ITEMS	119	34.5	34.5	72.2
NO RESPONSE	96	27.8	27.8	100.0
TOTAL	345	100.0	100.0	

4. Discussion

Our findings shows that a very large number of the public have heard about hand hygiene but it still remain one of the difficult practice to be adopted by everyone as it is often difficult to remember to washed hands after work or even after visiting a patient in the hospital. Looking at the number of our respondents 17.7% of them said they have never heard about hospital acquired infections, this means that there is high awareness (83.3%) among patients' relatives just as Uneze *et al.* [12], reported high compliance of up to 63.3% among healthcare workers in Nigeria and Abdulraheem *et al.* [13], observed it in North Eastern Nigeria. In our study, we observed that practicing of hand washing was almost left for the staff working in the hospital and who are having direct contact with the patient to carry on with the hand

washing education. Patients relatives shows little or no concern over hands washing even after having several contact and exchange of hugs and handshakes with the patient because after all they just greeted and see nothing too much of contacting infection by that act.

We also encounter a lot of reasons as to why many people do not adopt the practice of hand hygiene. Among these reasons is that fact that people need to be thought and be given detailed explanation as to why washing of hands is very key in maintaining healthy living. One reason why many of our participants said they normally do not wash hand even after visiting their relation in the hospital is that fact that their hands are always looking clean beside they have not too much time with the patient. Some say that they always forgot to wash hands even while in the hospital. One most striking challenge facing the practice of hand hygiene is the fact that most of the

hospital workers especially the healthcare providers do not even get involved in the practicing of hand hygiene. [14] Sreejith *et al.* [15], reported higher knowledge among the Nursing world in India among other medical workers. It is also surprising that the patient relatives are becoming aware of HAIs and hand hygiene but the unavailability of hand washing materials and sanitizers discourages the practice. Li *et al.* [16], reported 62.5% knowledge of hand washing in India and invariably, the patient relations should be aware

Hospitals must come to the aid of patients and their relations, in making available these washing items in the wards, laboratory and every corner of the hospital environment looking at the spread of dangerous communicable diseases in around the hospital environment. Health workers should get involve in ensuring that the awareness of practicing hand hygiene is introduced and maintained in working environment for both the medical practitioners, patients and patients relations. This is because, Wu *et al.* [17], reported high interest in hand hygiene among patients and relatives.

The public must also be shown the importance of having this practices is maintain even at home. This research has really expose the fact that so many people need to understand that the spreading of this infections we are having around is also attributed to the noncompliance of hand hygiene. As many having given excuses that they often forget to wash hands after a work long day. Families must adopt the World Health Organization (WHO) principle of five moments of hand hygiene, which require washing hands after work long day before eating, washing of hands after having long contact with friends via handshaking, washing hands before going to the hospital to visit patients, wash hands before having contact with patient and after having contact with the patient. This is already looking discriminating to some of our respondents but the public must be properly informed that introducing hand washing in the hospital is not in any way discriminatory to patients but a way to reduce transfer of HAIs infections of which Anderson *et al.* [4], described as costly, than hand washing practices.

5. Conclusion

The observance of hand hygiene is still low in our local environment and even our hospitals and health centers, Jos University Teaching Hospital in particular. The public should be adequately informed that the practicing of hand hygiene is not in any way discriminatory to the patients and so the importance of washing of hands after relating with friends and well-wishers is very necessary considering the spread of the deadly diseases in our society today and healthcare associated infections which is also possible in our tertiary hospital.

Hospitals and health centers especially JUTH should employ various measures to enforce the practice of hand hygiene for the both hospital staff, patients and patients' relations through adequate health education and provision of hand washing provisions. Committee should be set up by hospital to monitor level of compliance by all and sundry. Hand sanitizers should as a matter of public importance be stationed at the receptions, wards, medical

laboratories, pharmacy departments and offices to ensure total compliance. Hand washing must be seen as hospital routine order to ensure a well and clean environment for patients, their relations and the hospital staff to include the clinical departments and the administrative departments. HAIs prevention strategies in line with Kathrine *et al.*, [18] Sax *et al.* [6], WHO [5] should be developed both for healthcare providers, patients and patient relatives bearing in mind the 5 Moments for Hand Hygiene in hospitals [19].

Hand hygiene awareness should be improved in agreement with Oyeomoro *et al.* [20] and as well be thought in schools, may be as part of curriculum to students so that at home it will be a daily activity for pupils of primary, secondary and tertiary students. Family members and friends should also adopt this hand hygiene practice to ensure control of spreading of hospital diseases such as Hospital-Acquired Methicillin-Resistant *Staphylococcus aureus* Infection to family members and friends as a result of hospital visitation.

Financial Support

None.

Conflict of Interest

None.

Acknowledgements

The entire Medical Laboratory Services staff of JUTH are acknowledged for cooperation during the study.

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