

Hand Hygiene Practices and Infection Control Measures among Emergency Units Health Care Providers

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Abstract

Background: Emergency units is a main part for hospital admission. It is the front line of the healthcare systems in the response to emergencies and public disasters, so the infection preventive measures practices can be easily overlooked or neglected by immediate and life threatening issues.

Objectives: To assess the practices of health care providers regarding hand hygiene.

Methodology: A descriptive cross-sectional study design carried out from the period between (Sep. 2018 to Aug. 2019). The study has been conducted in the emergency units at Al-Hilla teaching hospitals. Non probability (purposive) sample of (125) health care providers who work in the emergency unit were selected, (110) nurses, (15) physicians were selected related to special criteria. Special checklist prepared, inter-observer reliability calculated the statistical results recorded (r: 0.90), which is statistically accepted.

Results: The results shows that the higher percentage of the study sample 104 (83.2%) were between (20-30) years age group, 73 (58.4%) were male, while most of the study sample 67 (53.6%) were Bachelor or postgraduate degree holder, related to the study sample marital status, the higher percentage 64 (51.2%) were married. Overall hand washing practices which consider as the most important measures to control of infection were poor (1.61 0.748).

Conclusion: Regarding to the healthcare providers practices in hand washing with respect to the infection control measures during their daily caring in the emergency units the statistical results show low level of practices.

Recommendation: Effective educational program should take place for all healthcare providers by task based strategies to utilize the practices include bedside procedures.

Keyword: *Infection control, measures, practices, emergency unit.*

Introduction

Hand hygiene strategy is a cornerstone in the infection control protocols, the hands of healthcare providers are essential vehicle to transmit the infection to the patient. Hand hygiene recognize as treating interventional strategy to reduce the transmission of the pathogens in the healthcare climate. Hand hygiene practices decrease the incidence of the respiratory tract, gastrointestinal and skin infections. Recently alcohol-based practices included with hand hygiene strategy ¹.

Semmelweis and Holmes pointed that infectious diseases were transmitted by contaminated hands of healthcare providers, he suggested hand scrubbing should be performed with chlorinated solution prior to any direct handling with the patient particularly after leaving the autopsy laboratory, after this procedure the mortality rate decreased to (13%). Semmelweis, intervention consider as a model of epidemiological directed strategies to prevent infection ².

In America recommended that even antimicrobial soap or any antiseptic agent which may use for hands cleaning when leaving the patients units with multi

drug resistant bacteria. Recently their guidelines which published in 2002, focused on the issue of alcohol – based hand rubbing where accessible standard directed to hand washing practices for the healthcare setting³.

Geneva's university hospital study many basics strategies focusing on alcohol hand rub, the applied study shows significant improvement of healthcare providers compliance related to hand hygiene which reduce the hospital associated infections⁴.

One of the factors which effecting hand hygiene non-compliance is dermatitis, skin irritation and pain, which may produce by abrasive cleansers when used for several times during shift time prevent healthcare providers from washing their hands before, during, after providing care for their patients⁵.

Objectives: To assess the practices of health care providers regarding hand hygiene.

Methodology: A descriptive (observational) cross-sectional study design is selected to study the phenomena of interest related to assessing the infection control measures practices for emergency unit healthcare providers.

Setting: The study has been conducted in the emergency units in the following teaching hospitals in four teaching hospitals at Al-Hilla city.

Sample: Non probability (purposive) sample of (125) health care providers who work in the emergency unit were selected, (110) nurses, (15) physicians related to special criteria.

Checklist: Special checklist prepared after comprehensive reviewing of related literature. Standard infection control measures practices adopted after modification to make it suitable for emergency unit healthcare providers⁶, divided to three parts:

Part I: Consist of the demographical characteristics of the study sample includes: (6) Items: (Gender, age, educational level, marital status, residency, specialty).

Part II: Includes general informations related to (Years of experience, years of experience in emergency unit, training courses related to Infection Control).

Part III: Consists of (8) items related to hand hygiene.

Validity: Content validity obtained for the checklist by (9) expert panel to determine the relevancy, and clarity of the checklist to study the phenomena of interest.

Pilot study: A pilot study carried out to define the reliability of the checklist, (10) healthcare providers who work in the emergency unit included in this study, after obtaining their consent to participate in the study, each participant expose to three observation from three observer at the same time. Those (10) healthcare providers were excluded from the study sample.

Reliability of the checklist: Inter-rater or inter-observer reliability applied to obtain the stability of the checklist content/ when many observers award consistent estimation for the same phenomenon, it is a score of how much homogeneity or consensus exists in the ratings given by various judges⁷. The researcher and two colleagues who graduate from nursing college to perform this step, each participant in the pilot study exposed to observed from three observers at the same time for each practice, the statistical results recorded (r: 0.90), which is statistically accepted.

Ethical consideration: Ethical consideration in quantitative research is one of the most important elements, this type of researches commonly use of human subjects. The consent may be given in written or oral form depending on the nature of the research. Ethical standards also protect the confidentiality and anonymity of the subjects. The formal agreement obtained from the study sample related to special agreement form.

Data collection: Self-report method adopted as a method to complete the first and second parts of the prepared checklist, which takes about (5 to 10) minutes. While the third parts needs one to seven days to complete three observation for each participant. The data collection extended about (56) days, it started from (18 of May and ended in 5 July. 2019).\

Results

Table (1): Distribution of the study sample related to their employment characteristics

Variables			Number of participants	Percentage %
Specialty	Nurses	Registered Nurse (academic)	52	41.6
		Clinical Nurse	44	35.2
		Practical Nurse	14	11.2
	Physicians	Specialist	2	1.6
		Permanent	5	4.0
		Rotator	8	6.4
		Total	125	100%
Years of Experience	1 to 10 years	112	89.6	
	11-20	6	4.8	
	21-30	7	5.6	
Years of Experience in Emergency	5 years or less	111	88.8	
	6-10	6	4.8	
	11-15	4	3.2	
	16-20	4	3.2	
		Total	125	100%

Table (1) Shows that the most of the sample who agree to participate in the study 52 (41.6%) were academic nurses, related to the years of experience in the field 112 (89.6%) were between (1 to 10) years of experience, 111 (88.8%) of the study sample were with ≤ 5 years of experience in the emergency units

Table (2): Practical level of the study sample related to infection control measures (hand washing)

No.	Items	Always Do		Sometimes Do		Never Do		Mean \pm SD	Level
		F	%	F	%	F	%		
1	Hand must be immediately washed before and after each episode of direct contact with patient during care.	00	00	2	1.6	123	98.4	1.02 \pm 0.126	Poor Practice
2	After contact with a source of microorganisms (body fluid substance, mucous membranes).	106	84.8	00	00	19	15.2	2.70 \pm 0.721	Good Practice

Cont... Table (2): Practical level of the study sample related to infection control measures (hand washing)

3	After contact between different patients.	34	27.2	13	10.4	78	62.4	1.65±0.882	Poor Practice
4	After removing gloves	83	66.4	0	0	42	33.6	2.33±0.948	Fair Practice
5	Dry with paper towel, reusable sterile or single use towels	0	0	0	0	125	100	1.00±0.00	Poor Practice
6	Turn off the water using clean, dry paper towel	0	0	0	0	125	100	1.00±0.00	Poor Practice
Total								1.61±0.748	Poor Practice

MS (Poor Practice =1-1.6, Fair Practice = 1.7-2.3, Good Practice = 2.4-3)

Table (2) This table presented that the most of the study sample shows poor practices within four items (1, 3, 5, 6), while just one item recorded good practice (2), a fair practice recorded for item (4), overall hand washing practices which consider as the most important measures to control of infection were poor (1.61 0.748).

Table (3): practical level of the study sample related to infection control measures (hand antisepsis).

No.	Items	Always Do		Sometimes Do		Never Do		Mean ±SD	Level
		F	%	F	%	F	%		
1	Using before performance of invasive procedure	0	0	0	0	125	100	1.00±0.00	Poor Practice
2	Hand antiseptic between care of different patient	0	0	0	0	125	100	1.00±0.00	Poor Practice
Total								1.00±0.00	Poor Practice

MS (Poor Practice =1-1.6, Fair Practice = 1.7-2.3, Good Practice = 2.4-3)

Table (3) Shows that most of the study sample recorded poor level of practice related to hand antisepsis (1.00 0.00).

Discussion

The majority of sample were male, while most of the study sample in Kilic, 2016, were female, the disagree in this point is regarding the cultural status of our country and the stressful of emergency unit that needs so much effort that is difficult to a female to manage it⁸ Regarding the educational level most of the sample (53.6%) were with high educational level (bachelor and post graduate), which agree with a study carried out by ⁹, in Jordan

related to healthcare providers in emergency department that shows the majority of sample (59.5%) were hold a Bachelor degree.⁹ The results shows that most of the sample (51.2%) were single, while regarding to Kilic, 2016, the majority (53.2%) were married, the reason behind this disagreement is because the healthcare providers that included in this study were young and newly graduated⁸ Table (1) Shows that the majority (41.6%) were Nurses who work in emergency unit, this findings

agree with Kilic, 2016, that presents (68.5%) were nurses working at emergency unit.⁸ Regarding to the years of experience the results show that (89.6%) have (1 to 10) years of experience which almost all of them spent (5 or less) years in the emergency unit, Al Bashtawy, 2016, in his study mention that the majority (43.2%) have about (5) years of experience in emergency unit.⁹ Table (2) Represent that most of the sample shows poor practice regarding hand washing that considered as key element of infection control, a longitudinal quantitative study in Brazil carried out by Zottele, 2017, about the healthcare professional compliance related to hand hygiene in an emergency room, shows that hand hygiene compliance was low, he suggested multidisciplinary approach is necessary to develop learning and compliance related to hand hygiene¹⁰ Table (3) This table shows that majority of the healthcare providers who participate in the study related to hand anti sepsis for not visible soiled hands in the emergency units were poor (100%), these findings seems to be similar with a study carried out in Boston which carried out by Venkatesh, 2011, this study, concluded that adequate supply of hand rub solutions, and training program does not ensure adequate performance of hand antisepsis still this issue needs focus program to improve adherence.¹¹ Infection control measures and its compliance issue, commonly needs special knowledge and training for the move, its compliance requires change in the personal behavior to obtain this results the healthcare personnel needs educational and training programs and proper environmental and facilities to practice properly, while continuous monitoring and evaluation needed to maintain correct practices in order to improve quality of care and patients safety.

Conclusion

Regarding to the healthcare providers practices with respect to the infection control measures during their daily caring in the emergency units the statistical results show low level of practices related to hand hygiene.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Adult Nursing Department-College of nursing/University of Babylon, Iraq and

all experiments were carried out in accordance with approved guidelines.

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