

## Health Personnel Practices Regarding Hand Hygiene in the Delivery Room at the Middle Euphrates Teaching Hospitals

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### ABSTRACT

Literatures proved that Hand hygiene is the most important and effective infection prevention and control measure to prevent the spread of microorganisms causing HAIs and improving hand hygiene is consider a vital intervention to promote optimum patient safety in delivery room. Aim of the study; This study conducted to assess hand hygiene practices of health care personnel in the delivery room at the middle Euphrates teaching hospitals. Methods; A Descriptive quasi-experimental research design begin in 20<sup>th</sup> February to 26<sup>th</sup> May 2016, Current study sample involve all midwives and physicians in the delivery room (Total coverage.). Questionnaire used for data collection by interview forms and observational checklist was obtain from the extensive review of relevant literature and related studies Data analyzed through utilize (SPSS) software version (16) where, included descriptive analysis and inferential data analysis. The study conducted among 37 physicians and 97 midwives working in the delivery room are females. The current study indicate that the overall evaluation for the health staff practices regarding hand hygiene is fair at Karbala, Al-Najaf, Babylon and Diwaniah with high difference in health staff practices regarding infection control precautions (hand hygiene) and the different studied governorates at p-value 0.001. based on the finding of present study majority of health care personnel have fair applies related to hand hygiene practices at different studied governorate hospitals. Updating practice of health care personnel through continuing in-service educational programs. Regular inspection and follow-up from the ministry of health for assurances good hand hygiene, the important of exist motivation system and punishment system to the neglected health care personnel.

**Keywords:** Hand hygiene, Health care personnel, Practices.

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### INTRODUCTION

In 1848, Surgeon Semmelweis who worked in Vienna at the obstetrical clinic. He was observe that a second clinic run by midwives were twice less than from the infections rates for (“puerperal fevers”) in the obstetrical clinic run by the physicians . Apparently, the midwives come straight from the home, on the other hand, the doctors were moving on to their operating duties after finish teaching anatomy in the mornings at the postmortem area, the use of an antiseptic solution for hands and surgical instruments and hand washing When doctors move from the autopsy area to the operating theater which is the idea that came out Semmelweis<sup>1</sup>. Measures of Infection control involve suitable hand hygiene and the proper use of requisite precautions through typical vaginal delivery are basic and of low-cost, yet require health staff responsibility and behavioral change, addition to enhance staff training, reporting and surveillance system<sup>2</sup>. Improving hand hygiene contributes significantly to the reduction of Health-care associated Infection, Evidence suggests that many health care professionals, including nursing staff, do not perform hand hygiene as often as is required or use the correct technique. Health care workers have the greatest potential to spread microorganisms that may result in infection due to the number of times they have contact with patients or the patient environment. Hands are therefore a

very efficient vehicle for transferring microorganisms<sup>3</sup>. It is important to recognize that the hands of health care staff will always carry bacteria, be it their own bacteria or those that have attached because of activities (handling equipment, touching surfaces or patients). Although it is not possible to ‘sterilize’ hands, the number of bacteria present can be reduced significantly through good hand hygiene practice. While it is not possible to perform hand hygiene on every occasion during the working day or night, there are a number of occasions when hand hygiene is specifically recommended to guide staff in best practice<sup>4</sup>. Adequate hand washing facilities must be available and easily accessible in all patient areas. Hand washing sinks in clinical areas should have elbow or wrist lever operated mixer taps or automated controls and be provided with liquid soap dispensers, paper hand towels and foot-operated waste bins. Alcohol hand gel must also be available at the ‘point of care’ in all primary and secondary care settings all health care workers should bring any lack of hand hygiene products (hand gels, soap or hand towels), or obstruction of sinks to the notice of their facilities staff or managers to ensure that these remain available at all times, and are not obstructed by bins or equipment<sup>4</sup>. Wet hands transfer micro-organisms more effectively than dry ones, and inadequately dried hands can also be prone to developing skin damage. Disposable paper

hand towels should be used to ensure hands are dried thoroughly. Fabric towels are not suitable for use in health care facilities as these quickly become contaminated with micro-organisms. Disposable hand towels should be conveniently placed in wall-mounted dispensers close to hand washing facilities. Hand cream should be provided to help staff maintain their hands in good condition. Communal tubs of hand cream should be avoided due to the contamination potential. Pump or wall mounted dispensers are preferred, with individual dispensers or tubes in community settings. Refer to further information on hand care and occupational dermatitis seeing staff perform hand hygiene is often perceived as a measure of confidence of overall hygiene by patients and their careers, and in recent years the right for patients to ask staff if they have cleaned their hands has received increased attention<sup>5</sup>.

## MATERIALS AND METHODS

### *Design of the study*

A Descriptive quasi-experimental study are utilized to meet the aim of the study.

### *Locale study*

Present study is carried at four Maternal and Child Health teaching hospital in the Middle Euphrates Region /Iraq.

### *Sample of the study*

All midwives and doctors in the delivery room (Total coverage.).

### *The study instrument*

For data collection a questionnaire by interview forms and observational checklist was, obtain from the extensive review of relevant literature and related studies.

*The study tool consisted from two parts as the following:*

#### *The first part of questionnaire*

Socio-demographic characteristic, which include<sup>6</sup>, items as regards to their age, marital status, educational level, years of experience, working experience in delivery room.

#### *The second part of the questionnaire*

Observational checklist to assess health care personnel practices related to application of hand hygiene in the delivery room.

### *Method of data collection*

Data are collected through direct interview with physicians and midwives by using constructed questionnaire. However, for health personnel practices date collected through the application of observation technique during they were working in the delivery room.

### *Validity of the instrument*

Firstly, the questionnaire items are translate from English to Arabia by a professional experienced in translating Health survey questionnaires and then the questionnaires back translated into English in order to check for possible discrepancies and incorporating appropriate changes. Secondly, the content validity of questionnaire was determine by panel of 12 experts in academic and health field to examine the questionnaire content for adequacy and clarity to realize end goal to accomplish the targets of the present study.

### *Pilot study*

A Purposive sample of 10 health personnel was selected from AL-Zahra Teaching Hospital Maternity and pediatric

at Al-Najaf during the period from 20th to 29th of February 2016.

This study aimed to:

Obtain the clarity and content adequacy of the instrument.

Determine the reliability of the instrument.

Estimate the average time required for the interview and observation each interview took (15-25) minute and unlimited time for observation.

Identify barriers that may encountered during data collection process.

The sample of the pilot study excluded from the original sample of the study.

### *Reliability of the instrument*

Reliability of an instrument was determine through (Cronbach's coefficient) for the present study. Cronbach's alpha Reliability coefficient for practices of midwives and doctors was ( $r=0.78$ ), this value of Cronbach's  $\alpha$  for the study is considered acceptable.

## RESULTS

Table 1 reveals that, (42.7%) of the sample are 31-40 years old. (64.5%) of them are Secondary midwifery school. 81.5% of them are married. 42.7 % of them have less than 5 years of experiences. Most of them have 47.6 % working experiences in the delivery room. Table (2) revealed that health staff practices regarding items of hand hygiene at the Middle Euphrates Teaching Hospitals were good score related to items (2,3,5,8), fair score related to (1,4,6,7) and poor score to (9,10,11) at Al-Najaf, While, good score related to (2, 3, 5), fair score related to (1, 6, 7) and poor score for the items (4, 8, 9, 10, 11) at Karbala. However, at Babylon which has good score related to (3 & 5), fair score to (1, 2, 6, 8) and poor score related to the items (4, 7, 9, 10, 11). In Diwaniah health staff practices is good related to the items (2, 3, and 5) fair score related to (1, 6, and 7) and poor score related to (4, 8, 9, 10, and 11). The study results indicate that the overall scores for the health staff practices regarding hand hygiene is fair at Karbala, Al-Najaf, Babylon and Diwaniah. Table4 shows that there is a highly significant in health staff practices regarding infection control precautions (hand hygiene) for their governorates at p-value less than 0.01.

## DISCUSSION

### *Demographic characteristics*

In the current study, nearly 42.7% of the studied samples were aged between 31 to 40 years old. This result agrees with studies conducted in Southeast Nigeria by Polycarp (2015) that reported that most of their study sample are (30-39) years old of HCWs. In addition, this result agrees with a study conducted by (6), which indicates that age of HCWs was above 30 years. The findings of the present study have revealed that the highest percentage of participants were married (81.5%); (7) have supported that most of the participants were married (70.5%). The present study have also revealed that 64.5% of the sample are secondary midwifery school graduates and (24.2%) are physician; this result agrees with a study conducted by (8) which indicates that the majority of his study (68.1%) of midwives and (25%) physician. Additionally, (42.7%) of

Table 1: Distribution of the study subjects according to their demographic data. No=124

Demographic Data	Rating and Intervals	Frequency	Percent
Hospital	Al-Najaf	20	16.1
	Al-Diwaniah	25	20.2
	Babylon	33	26.6
	Karbala	46	37.1
Age / years	Less than 20	3	2.4
	20-30	28	22.6
	31-40	53	42.7
	41-50	27	21.8
	More than 50	13	10.5
Levels of education	Physician	30	24.2
	Secondary midwifery school	80	64.5
	Secondary nursing school	9	7.3
	Diploma of nursing	5	4
Marital status	Single	18	14.5
	Married	101	81.5
	Divorced	3	2.4
	Widowed	2	1.6
Years of experience	Less than 5 years	53	42.7
	5-10	26	21
	More than 10	45	36.3
Years of Working in the delivery rooms	Less than 5 years	59	47.6
	5-10	28	22.6
	More than 10	37	29.8

the sample have lesser than 5 years of experience. Regarding the years of experience, (9) support that by their findings and mentioned that more of the participants of the study have lesser than 5 years of work (79.2%).

#### *HCPs practices concerning hand hygiene*

The data analysis in tables (2, 3, 4) evaluate midwives and physician practices regarding hand hygiene by applying cut off point (66.66%) after determining the mean of score (2) for each item. Mean score equals 2.33 which is considered for good practices. However, mean of scores equal 1.67 to 2.33 and considered as fair practices and poor practices when the mean scores 1 to 1.66. Table (2) shows that hand hygiene practices by health care personnel before any procedure was fair in the different studied governorates hospitals recording (2.1, 2, 2.0, 2) respectively. However, washing hands after completing the procedure was a good practices through high M.S (2.5, 2.47, 2.44), in three studied governorates hospitals, which are al-Najaf, Karbala, Diwaniah while in Babylon it was fair a practice (2.21). These findings agree with a study conducted by (8), which indicates the highest rate of practice observed after completing their procedures, on the contrary to least practices observed before procedures. Concerning the use of hand hygiene material, this study clearly indicates the high mean of score (3) for the different studied hospitals where soap and water available at all times for hand washing. This finding was in concord with a study conducted by (10) in delivery room in India; they found that soap and water reported as being widely available in 80% of health care sits.

However, almost not all of the respondents vigorously rub hand with antiseptic and water; the study shows in Table (2) that there is a fair practice in al-Najaf hospital (1.75), while the other studied hospitals have poor practices in

Karbala 1.3, in Babylon 1.09 and Diwaniah 1.24. On the other hand, WHO has emphasized that hand wash is the appropriate method of hand hygiene after the hand found to be visibly soiled. According to further studies in the WHO, soap and water for hand washing is found to be more effective when hand is visibly soiled and the usage of alcohol hand rub does not replace the need of hand washing (11). The present study also showed that there was a high mean of score for respondents nails to be short, clean & free from nail extensions and varnish in all studied hospitals: al-Najaf 3, Karbala 2.39, Babylon 2.64, and Diwaniah 2.84. However, the study indicates that their obligation to wear jewelry during procedures was fair in all studied hospitals. MOH and USAID in 2012 (12) recommended that all staff must maintain good personal hygiene. Nails must be clean and kept short. False nails or nail polish should not worn.

The Study has also shown that fair practices in al-Najaf 1.95, Karbala 1.98, Diwaniah 2, while poor practices in Babylon 1.21, regarding the cleaning hand hygiene facilities. It, further, has shown that the present of posters promoting hand hygiene was poor for both Karbala 1.57 and Diwaniah 1.4 while this item score was fair at Babylon 1.97 but in al-Najaf it was 3 which was a good practice. These results were supported by (10) who indicate that wall posters and charts relevant to infection control were actually observed on display in 35% of facilities; most of them were faded and old and did not contain current data but few in number (one or two in each facility) and/or were not present in prominent places. The study indicates that the other items scores related to hand hygiene were poor in the different studied hospitals. (8) in which logistics like soap and towel were not available, particularly in the government institution, supported these results.

Table 2: Distribution of the study subjects according to their practices regarding infection control precautions (hand hygiene).

Items	Najaf		Karbala		Babylon		Diwaniah	
	M.S	Evaluation	M.S	Evaluation	M.S	Evaluation	M.S	Evaluation
1-Health provider routinely washes his/ her hand before procedure	2.1	Fair	2	Fair	2.00	Fair	2	Fair
2-Health provider routinely washes his hand after procedure	2.5	Good	2.74	Good	2.21	Fair	2.44	Good
3-Soap and water available at all times for hand washing	3	Good	3	Good	3.00	Good	2.92	Good
4-Health provider vigorously rub hand with antiseptic and/or water before aseptic procedure such as vaginal examination	1.75	Fair	1.3	Poor	1.09	Poor	1.24	Poor
5-Health provider nails are short, clean & free from nail extensions & varnish	3	Good	2.39	Good	2.64	Good	2.84	Good
6-Health provider are not worn wrist watches, stoned rings or other wrist jewelry during clinical procedures	2.3	Fair	2.3	Fair	2.12	Fair	2.16	Fair
7-Hand washing facilities are clean and intact	1.95	Fair	1.98	Fair	1.21	Poor	2	Fair
8-Posters promoting hand hygiene are on display	3	Good	1.57	Poor	1.97	Fair	1.4	Poor
9-Clinical staff are encourage to use moisturizers that are pump operated or personal use only	1.15	Poor	1.11	Poor	1.00	Poor	1	Poor
10-Soft absorbent paper towels are available at all hand wash sinks	1.45	Poor	1.33	Poor	1.06	Poor	1.04	Poor
11-There is a foot operated bin for waste towels in close proximity to hand wash sinks which are fully operational	1.35	Poor	1.15	Poor	1.03	Poor	1.24	Poor

Overall Results of the respondent's hand hygiene practices were indicated to be fair in different studied governorates hospitals such as al-Najaf 2.14, Karbala 1.89, Babylon 1.75, and Diwaniah 1.84 respectively. meanwhile, hand washing is the most important means of preventing the spread of infection, the results of this study agree with a South West Ethiopia study conducted by (13) which has revealed that health care workers had comparatively lesser in practicing hand washing technique than the standard WHO recommendations. on the other hand, findings of the present study agree with (14) that indicate only (27.18%)

of health care providers working in delivery rooms of the three cities who applied hand hygiene properly; it is considered as a malpractice and certainly hands are not cleaned.

The current study has found that there is a significant statistical difference between health personnel practices regarding hand hygiene in different governorate hospitals. Results of the present study agree with those of a study conducted by (10) in India on infection control in delivery care units. The WHO "SAVE LIVES: Clean Your Hands" programmer reinforces the "My 5 Moments for Hand

Table 3: Distribution of the study subjects according to their overall practices regarding infection control precautions (hand hygiene).

Governorates	Levels	Frequency	Percent	m.s	Evaluation
Najaf	Good	2	10	2.14	Fair
	Fair	18	90		
	Total	20	100		
Karbala	Fair	45	97.8	1.89	Fair
	Poor	1	2.2		
	Total	46	100		
Babylon	Fair	26	78.8	1.75	Fair
	Poor	7	21.2		
	Total	33	100		
Diwanayah	Fair	23	92	1.84	Fair
	Poor	2	8		
	Total	25	100		

Table 4: Shows the mean differences of the study subjects to overall practices regarding infection control precautions.

Governorates	N	Mean	Std. Deviation	Std. Error	F	p-value
Najaf	20	2.14	0.13	0.03	43.123	0.001 HS
Karbala	46	1.89	0.12	0.01		
Babylon	33	1.75	0.08	0.01		
Diwanayah	25	1.84	0.13	0.02		
Total	124	1.88	0.17	0.01		

(hand hygiene) related to their governorates.

Hygiene" approach as a key to protect the patients, HCWs, and the health-care environment against the spread of pathogens and thus reduce HAIs. This approach encourages HCWs to clean their hands before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings<sup>15</sup>.

## CONCLUSION

Health staff practices regarding hand hygiene are fair range from (2.14 to 1.75) at Karbala, Al-Najaf, Babylon and Diwanayah. Where, Mean of score (2), cut off point (66.66%), good (mean of scores=> 2.33), fair (mean of scores = 1.67-2.33), poor (mean of scores= 1-1.66).

## RECOMMENDATIONS

The current study recommends that the Ministry of Health in Iraq: must be improve hand hygiene program through: Updating practice of health care personnel through continuing in-service educational programs. Providing training programs for newly health staff about hand hygiene and at regular intervals. Regular inspection and follow-up from the ministry of health for assurances good hand hygiene practices. The important of exist motivation system and punishment system to the neglected health care personnel. Further studies must be done by taking swabs from instruments of the clinical area.

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