Assessment of Health Care Providers Practices Concerning Infection Control in Delivery Rooms in Maternity Hospitals in Kurdistan Region

Mrs.Aveen Fattah Haji Mam* Dr. Badiaa M .Najib**

ABSTRACT

Background and Objectives: During delivery both mother and baby particularly vulnerable to infection, care must be taken to observe aseptic technique when preparing sterile equipment. So standard precautions are necessary to reduce the risk of blood borne and other pathogens. Aim of this study is to assess health care providers' practices concerning infection control in the selected delivery rooms.

Subject & Methods: A descriptive study was conducted in three delivery rooms, which were located in Maternity Teaching Hospital in Hawler, Suleimania, and Maternity Department /Azadi Teaching Hospital in Duhok during the period 1st of December / 2007 to 1st of November / 2008. A convenience sample of 103 Health Care Providers was included in the study; Data were collected by using questionnaire interview forms and observational checklists.

Results : Health Care Providers practices in Duhok Azadi Hospital Maternity Unit were better than those of other two cities: concerning hand washing and clothing.

Conclusions: There was inconsistency in Health Care Providers practices regarding infection control in the selected delivery rooms. Therefore, these practices have to be improved.

Key words: Assessment, Infection control, Practices, Health care providers.

INTRODUCTION:

Nosocomial infections also called hospital – acquired infection (HAI), are defined as infections occurring in patients after admission to the hospital and were not present prior to the admission [1,2].During the 19th century, women in childbirth were dying at alarming rates in Europe and the United States. Up to 25% of women who delivered their babies in hospitals died from childbed fever (puerperal sepsis). [3].Since the 1940s the hospital has been considered to be the safest place for a woman to give birth. probably partially owing to optimal standards of hygiene in hospitals [4]. In 2003, the Iraqi Ministry of Health in collaboration with an American health team had arranged a workshop on Nosocomial infections (NIs). Discussion had revealed a rough estimate sites than in gynecological ones [5]. Moreover, it was reported that the health infrastructure in Kurdistan was very much below the optimal standard, and the health services provided were unsatisfactory [6]. Therefore, the Iraqi Ministry of Health established a committee for infection control at ministry level, and subcommittees in the general hospitals, and guidelines to control hospital infection were issued and implemented on the first of November 2004 [5]**.** Standard precautions prevent the transmission of a variety of organisms. Which were developed for use in hospitals. Universal precautions involve the use of protective barriers such as gloves, gowns, aprons, masks shoes covers and caps, or protective eyewear, which can reduce the risk of exposure of the health care worker's skin or mucous membranes to potentially infective

* Assist. Lecturer, Maternity unit, College of Nursing, Hawler Medical University
** Assist. Prof., Maternity unit, College of Nursing, Hawler Medical University.

SUBJECTS & METHODS:

A convenience sample of all health care personnel who worked in delivery rooms and gave direct care to mothers and newborn babies in delivery, the study was conducted in the following delivery wards.

1. Hawler teaching Maternity Hospital (H.M.H). It is the main maternity hospital in Hawler city. Sample size of health personnel working in the delivery room in the hospital were : { (22) Doctors, (3) Nurses, (12) Midwives}.
2. Suleimania Teaching Maternity Hospital (S.M.H). sample size of health personnel working in the delivery room in the hospital were: {(14) Doctors, (7) Nurses, (14) Midwives}
3. Maternity Department /Azadi Teaching Hospital/Duhok city (DAH/MU): sample size of health personnel working in the delivery room in the hospital were: {(19) Doctors,(11) Nurses, (1) Midwives}

Tools for collecting data: Two tools were developed for purpose of collecting data for the present study.

(١) An interview questionnaire form was developed to collect information concerning health care providers who were working in the delivery rooms which include: Demographic data about health care providers which included:

Place of work, gender, age, marital status, years of experience in the delivery room, number and duration of in service education courses.

(٢) Observational checklist was developed after extensive review of literature {with two alternatives Yes and No, score (2) was designated for Yes and (1) was designated for No} to collect the following information concerning health care providers practices who were working in the delivery rooms regarding: Hand washing, gloving, clothing.

RESULT:

Table (1) shows that the overall mean score (1.569) of hand washing practices in D.A.H/MU is higher than that of the other two cities. The mean score of hand washing after handling garbage or trash (MS ± SD, 1.971± 0.169) is higher than of other items of hand washing practices in the three cities.

-Majority of H.C.Ps. washed their hands in D.A.H/MU and as follows; (MS ± SD, 2.000±0.00) on leaving the work. (MS ± SD, 1.97±0.18),(MS ± SD, 1.97±0.18) respectively before taking a break and after handling garbage or trash. But none of them washed their hands before having direct contact with the mother and only (MS ± SD, 1.10±0.30) washed their hands before use of gloves.

-Majority of H.C.Ps. washed their hands in H.M.H and as follows; (MS ± SD, 2.000±0.00) after handling garbage or trash while only (MS ± SD, 1.24±0.43), (MS ± SD, 1.24±0.43) respectively washed their hands before having direct contact with the mother and before use of gloves. Majority of H.C.Ps. washed their hands in S.M.H and as follows; (MS ± SD, 1.97±0.17) on leaving the work. But only (MS ± SD, 1.03±0.17) washed their hands before having direct contact with the mother. Table (2) shows that the overall mean score (1.706) of gloving practices in S.M.H is higher than that of the other two cities.

-The mean score of gloving use for handling items or soiled surfaces with blood or body fluid. (MS ± SD, 1.959± 0.199) is higher than that of the other items of gloving practices in the three cities.

-Majority of H.C.Ps. wearing gloves in S.M.H are as follows; (MS ± SD, 2.000±0.00) wearing gloves during conducting deliveries. (MS ± SD, 1.97±0.18), (MS ± SD, 1.97±0.18), (MS ± SD, 1.97±0.17) respectively wear gloves during vaginal examination, care for newborn baby, and use handling items or soiled surfaces with handling items or

surfaces with blood or body fluid while none of them use sterile gloves for each mother. And only (MS ± SD, 1.06 ±0.24) use proper method for wearing and taking off sterile gloves. In H.M.H. H.C.Ps. wearing gloves is as follows; (MS ± SD, 1.94±0.24), (MS ± SD, 1.94±0.23) wearing gloves during vaginal examination in case of handling items or soiled surfaces with blood or body fluid. While none of them used proper method for wearing and taking off sterile gloves or used sterile gloves for each mother.

- In D.A.H/MU H.C.Ps. wearing gloves is as follows; (MS ± SD, 1.96.±0.19), (MS ± SD, 1.96.±0.19) care for newborn babies and use handling items or soiled surfaces with blood or body fluid. However, only (MS ± SD, 1.06±0.25) use proper method for wearing and taking off sterile gloves, but none of them used sterile gloves for each mother. Table (3) shows that the overall mean score (1.290) of clothing practices in D.A.H/MU is higher than that of the other two cities. The mean score of removing rings. (MS ± SD, 1.728± 0.447) is higher than that of other items in the three cities. In H.M.H H.C.Ps. wearing cloth is as follows; (MS ± SD, 1.73±0.45) wear white gowns, whereas none of them wear overheads (hair covers), mackintosh (plastic gown).And only (MS ± SD, 1.03±0.16) wear masks. In Suleimania H.C.P. is as follows; (MS ± SD, 1.63±0.49) remove rings. And only (MS ± SD, 1.03±0.17) eye protection and mask when splashing of body fluid was expected. In Duhok H.C.P. is as follows; (MS ± SD, 1.90.±0.30) remove rings, whereas none of them wear sterile gowns, masks and eye protection and mask when splashing of body fluid was expected. While only (MS ± SD, 1.13±0.34) wear overheads (hair

Table 1: Mean Scores and Standard deviation of hand washing practices of health care providers in delivery rooms in the three cities.

Items	H.M.H		S.M.H		D.A.H/MU		TOTAL	
	MS	SD	MS	SD	MS	SD	MS	SD
Used proper method for washing hand	١.٣٥	٠.٤٨	١.٥٤	٠.٥١	١.٦٨	٠.٤٨	١.٥١٥	٠.٥٠٢
hand washing immediately after entering delivery room	١.٦٢	٠.٤٩	١.٦٦	٠.٤٨	١.٧١	٠.٤٦	١.٦٦٠	٠.٤٧٦
before having direct contact with the mother	١.٢٤	٠.٤٣	١.٠٣	٠.١٧	١.٠٠	٠.٠٠	١.٠٩٧	٠.٢٩٨
after contact with a mother	١.٣٢	٠.٤٧	١.٤٠	٠.٥٠	١.٢٦	٠.٤٤	١.٣٣٠	٠.٤٧٣
after contact with blood and body fluid	١.٥٧	٠.٥٠	١.٦٦	٠.٤٨	١.٦٨	٠.٤٨	١.٦٣١	٠.٤٨٥
before use of gloves.	١.٢٤	٠.٤٣	١.٠٩	٠.٢٨	١.١٠	٠.٣٠	١.١٤٦	٠.٣٥٤
after use of gloves.	١.٣٠	٠.٤٦	١.٤٣	٠.٥٠	١.٣٢	٠.٤٨	١.٣٥٠	٠.٤٧٩
before taking a break.	١.٧٣	٠.٤٥	١.٨٩	٠.٣٢	١.٩٧	٠.١٨	١.٨٥٤	٠.٣٥٤
after handling garbage or trash.	٢.٠٠	٠.٠٠	١.٩٤	٠.٢٤	١.٩٧	٠.١٨	١.٩٧١	٠.١٦٩
on leaving the work	١.٨٩	٠.٣١	١.٩٧	٠.١٧	٢.٠٠٠	٠.٠٠	١.٩٥١	٠.٢١٦
GMS	١.٥٢٥		١.٥٦١		١.٥٦٩		١.٥٥٠	

Table 2: Mean Scores and Standard deviation of gloving practices of health care providers in the three cities

Items	H.M.H		S.M.H		D.A.H/MU		TOTAL	
	MS	SD	MS	SD	MS	SD	MS	SD
Before putting gloves, cut nails short.	١.٨٦	٠.٣٥	١.٧٤	٠.٤٤	١.٩٤	٠.٢٥	١.٨٤٥	٠.٣٦٤
Using proper method for wearing and taking off sterile gloves.	١.٠٠	٠.٠٠	١.٠٦	٠.٢٤	١.٠٦	٠.٢٥	١.٠٣٩	٠.١٩٤
Using sterile gloves for each mother.	١.٠٠	٠.٠٠	١.٠٠	٠.٠٠	١.٠٠	٠.٠٠	١.٠٠	٠.٠٠٠
Wearing gloves during Vaginal examination.	١.٩٤	٠.٢٤	١.٩٧	٠.١٨	١.٩٣	٠.٢٧	١.٩٤٧	٠.٢٢٦
Wearing gloves during conducting deliveries.	١.٧٢	٠.٤٥	٢.٠٠	٠.٠٠	١.٨٣	٠.٣٨	١.٨٣٩	٠.٣٧٠
Wearing gloves during caring for newborn baby	١.٨٩	٠.٣٢	١.٩٧	٠.١٨	١.٩٦	٠.١٩	١.٩٣٨	٠.٢٤٣
Wearing gloves before touching blood and body fluids.	١.٧٢	٠.٤٥	١.٩٤	٠.٢٤	١.٩٣	٠.٢٦	١.٨٥٧	٠.٣٥٢
Use for handling items or soiled surfaces with blood or body fluid.	١.٩٤	٠.٢٣	١.٩٧	٠.١٧	١.٩٦	٠.١٩	١.٩٥٩	٠.١٩٩
GMS	١.٦٣٣		١.٧٠٦		١.٧٠١		١.٦٧٨	

Table 3: Mean Scores and Standard deviation of gloving practices of health care providers in the three cities

Items	H.M.H		S.M.H		D.A.H/MU		TOTAL	
	MS	SD	MS	SD	MS	SD	MS	SD
Overhead(hair cover)	١.٠٠	٠.٠٠	١.٣١	٠.٤٧	١.١٣	٠.٣٤	١.١٤٦	٠.٣٥٤
Overshoes (delivery room slippers/boots).	١.٤٣	٠.٥٠	١.٤٦	٠.٥١	١.٣٥	٠.٤٩	١.٤١٧	٠.٤٩٦
Mackintosh (plastic gown).	١.٠٠	٠.٠٠	١.٠٦	٠.٢٤	١.٣٢	٠.٤٨	١.١١٧	٠.٣٢٢
White gown.	١.٧٣	٠.٤٥	١.٤٦	٠.٥١	١.٦١	٠.٥٠	١.٦٠٢	٠.٤٩٢
Sterile gown.	١.١٤	٠.٣٥	١.٠٣	٠.١٧	١.٠٠	٠.٠٠	١.٠٥٨	٠.٢٣٥
Mask.	١.٠٣	٠.١٦	١.٠٣	٠.١٧	١.٠٠	٠.٠٠	١.٠١٩	٠.١٣٩
Eye protection and mask when splashing of body fluid is expected.	١.١٦	٠.٣٧	١.٠٣	٠.١٧	١.٠٠	٠.٠٠	١.٠٦٨	٠.٢٥٣
Removing rings	١.٦٨	٠.٤٧	١.٦٣	٠.٤٩	١.٩٠	٠.٣٠	١.٧٢٨	٠.٤٤٧
GMS	١.٢٧٠		١.٢٥٠		١.٢٩٠		١.٢٦٩	

DISCUSSION:

Hand washing is universally considered the most basic but vital infection control measure [8]. Results of present study indicated that (55.94%) of H.C.Ps in the three cities generally practiced hand washing properly, but this is in contrast with stander precautions for infection control, which indicates that all health care providers should wash their hands in hospitals. In addition the mean score of hand washing after handling garbage or trash was higher than other items which is considered a positive aspect, but the lower mean score for such practice was for hand washing before having direct contact with the mother and that is contrast with opinion of other authors who mentioned that careful hand washing after contacts with each client helps to prevent the transfer of infection from one client to another [9] It is worth mentioning that H.C.Ps should wash their hands with soap and water following contact with blood, body fluids, execration and items contaminated with such fluids [10,11] Findings of the present study indicated that only (27.18%) of health care providers working in delivery rooms of the three cities washed their hands with water and soap and that is considered a malpractice and certainly hand are not cleaned properly. Wearing gloves help to protect health care providers from exposure to blood and body fluids, studies has shown that wearing one pair of gloves reduces the risk of HIV transmission from a needle stick by 50% the use of 2 gloves(so-called double gloving) reduces HIV transmission from a needle stick by 80%. Results of the present study showed that (67.97%) of H.C.Ps in the three cities practiced gloving properly, and the mean score of using gloves for dealing with soiled surfaces with blood or body fluid was higher than that of other gloving practices in the three cities and that is supported by other studies which emphasized the importance of wearing gloving when in contact with blood or body substances [5]. Findings of the present study health care providers in three cities used sterile gloves when taking care for an individual mother. And this is considered a malpractice because it is highly recommended that gloves must be changed before and between patients in ordered to prevent cross-contamination [12].

Clothing practices: hospital staff must abide by a dress code. Jewellery and wristwatches should be removed, sleeves shorted and headscarves tied back [13, 14]. As labor is established well-fitting latex gloves and plastic aprons should be worn for vaginal examinations and whenever there is a risk of splashing with blood or liquor [15,16]. Results of the present study indicated that (27.02%) of H.C.Ps in the three cities practiced clothing properly. and these results are in contrast with the opinion of other authors who recommend highly using proper clothing during labor and delivery to prevent the risk of infection. It is worth mentioning that the overall mean score (1.290**)** of clothing practices in D.A.H/MU was higher than that of the other two cities. The present study also showed that the mean score **(**1.728) of removing rings during practices was higher than that of other items in the three cities and that is very essential to prevent the risk of infection. Because several studies have demonstrated that skin underneath rings are more heavily colonized than comparable areas of skin on fingers without rings.

Results of a study indicated that 40% of nurse's harbored gram-negative bacilli on skin under rings and that certain nurses carried the same organism under their rings for several months [17-19]. The present study also showed that the mean score **(**1.019) of wearing mask during practices was lower than that of other items in the three cities. Clean dry masks covering the nose and mouth are worn during delivery procedures. They must be changed frequently and should not hang around the neck when not in use. In addition personnel should wear a cap, mask, and

CONCLUSIONS AND RECOMMENDATION:

1. Infection control practices were not implemented properly almost in all delivery rooms which were included in the study.
2. Hand washing and wearing clothes practices were better in D.A.H/MU than the other hospitals:

Generally, there was inconsistency among health care providers concerning infection control practices in the selected delivery rooms. Therefore, it is recommended to encouraging infection control committees in different maternity hospitals to take more active roles in supervising and training all health care providers concerning infection control.

REFERENCES:

1.Braunwald ,E.,Isselbacher,K.J.,Peterdorf,R.G.,Wilsonj.D.,Martin,J.B and Fauci,A.S. Harrison's principles of internal Medicine, 11th edition, Mc Graw-Hill Book Co. New York; 1987.p.p 470-73.

٢.Tasota, F.J, Fisher, E.M., Coulson, C.F. and Hoffman L .A. Protecting ICU patients from Nosocomial Infections; practical Measures for Favorable Outcomes, J Critical care nurse,; 1998,18 (1); p.p 54-67.

٣.Case. L., Hand washing, USA, National health museum, 1996. (Accessed on 23/2/2008 at http:// www.accessexcellence.org)

٤.Ayliffe, A. and English. P., Hospital infection, 1st edition Cambridge university press.2003.

٥.Adwar B., Nosocomial infections in respiratory care unit at the surgical specialization teaching hospital in Baghdad, (master thesis), college of medicine, university of Baghdad. 2005

٦.Talabani J., Assessment of Kurdistan hospital for the purpose of implementing of emergency maternal Child Health with essential surgical skills course (EMCH-ESS), 2006; P.p 3-7

٧.Center of Disease control,.Infection control, (2007) (Accessed on 11/11/2007; at http://www.cdc.gov)

٨.Pittet D., and Boyce J.M., Hand hygiene and patient care: pursuing the Semmelweis Legacy, Lancet infect Dis; 2001, p.p 1:9-20.

٩.Reeder S; Martin L.and Griffin Deborab.Maternity nursing family, newborn and woman health care, 18th edition, Philadelphia.Lippincott Co,;1997 , p.p 1028-35.

١٠.Karadey S., Derbentl, S., Nakipoglu, Y., Esenf. Hand washing frequencies in an intensive care unit, J.Hosp.infect. 2002, 50(1); p.p 36-41

١١.Garner ,J.S.,Jarvis W.R.,Emori T.G.,Horan T.C.,and Hughes J.M.CDC .Definition for nosocomial infection in Olmsted R.N:APIC Infection Control and Applied Epidemiology :principles and practices St.Lousi; Mosby; 2002 p.p 1-20.

١٢.Mast ST., Woolwine J., and Gerberding JL., Efficacy of gloves in reducing blood volumes transferred during simulated needles stick injury, 1993(Accessed on 3/11/2008 at /flu/proyect/ covercough.htm.)http://www.cdc.gov

١٣.Gary A. and Lance R. Engineering infection control trough facility design, Chicago, Illinors. (2001). (accessed on 12/11/2007 , at http;// www.cdc.gov).

١٤.Frank ,.Indoor air quality standards in hospital. 2003 (Accessed on 3/2/2008)http:// www.cdc.gov/od/oc/media/pressrel/r2k0306c.htm

١٥.Centers for Disease Control and prevention . Guideline for infection control in Health care personnel.. 2006 (accessed on 10/12/2007, at. http;//www.cdc.gov).

١٦.Fraser M. Diana; Cooper A. Margaret, Myles textbook for midwives, 14th Edition, United Kingdom, Churchill Livingstone; 2004, p.p 497-99.

١٧.Hoffman V., Infection control, National center of continuing education, Phladelphia, Lippincott, 2004, P: 19

١٨.Rao S., Hospital Administration, structural requirements for infection control in hospitals, J Hospital infection,2004, 16(2). p.13

١٩.Burrougs A., and Leifer G., Maternity Nursing, 8th edition, Phladelphia, Pennsylvania, W.B.Saunders Co., 2001, p.p 111-13.