

Assessment of Nurses' Practices Toward Infection Control Standardized Precautions in Azady Teaching Hospital in the City of Kirkuk

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المستخلص

الهدف: تهدف الدراسة الحالية إلى تقييم ممارسات الملاكات التمريضية نحو الإجراءات الوقائية القياسية بمستشفى آزادي التعليمي في مدينة كركوك. **المنهجية:** أجريت دراسة وصفية استخدم فيها أسلوب التقييم طبق على الممرضين للمدة من الثامن عشر من كانون الثاني لسنة ٢٠٠٩ ولغاية الثلاثين من أيلول، ٢٠٠٩. أختيرت عينة غرضية "غير احتمالية" مكونة من (٣٧) ممرض وممرضة العاملين في الردهات الجراحية في مستشفى آزادي التعليمي في مدينة كركوك لغرض الدراسة. كانت الاستبانة عبارة عن قسمين أحدهما الاستبانة الاستبائية والأخرى قائمة التقييم بالملاحظة. تضمنت الاستبانة الاستبائية جزئ لها علاقة بالصفات الديموغرافية للممرضين ومعلومات لها علاقة بمكان عمل العينة (الردهة الجراحية). تم إجراء دراسة تجريبية للدة من الثامن عشر من كانون الثاني ولغاية الثاني من شباط، ٢٠٠٩ لتحديد ثبات قائمة التقييم بالملاحظة بلسعمال طريقة التكافؤ. كما تم شمول (١٩) خبير لتحديد مصداقية محتوى قائمة تقييم بالملاحظة. تم تحليل البيانات من خلال تطبيق أسلوب التحليل الإحصائي الإستنتاجي للبيانات (مربع كاي). **النتائج:** أشارت نتائج الدراسة إلى أن غالبية الممرضين ونسبة (٩١.١%) لم يحصلوا على دورات تدريبية بما يخص السيطرة على العدوى وكذلك (٨٣.٨%) منهم لم يشاركوا في برنامج التعليم المستمر بما يخص السيطرة على العدوى. أما بخصوص مستوى الممارسات نحو الإجراءات الوقائية القياسية فتبين أن الممارسات الضعيفة للإجراءات الوقائية القياسية من قبل ممرضين قد شوهد في الردهات الجراحية. **التوصيات:** لتوصيات الدراسة بأن برامج التعليم الخاصة يمكن أن تُصمم وتُقدّم إلى الملاكات التمريضية في الردهات الجراحية وكذلك لكافة الملاكات في المستشفى لزيادة وعيهم نحو العدوى.

Abstract

Objective: The aim of the present study is to assess the practices of nurses towards standard precautions at Azady Teaching Hospital in the City of Kirkuk.

Methodology: A descriptive study, which uses the assessment approach and it was conducted on nurses from January 18th, 2009 to September 30th, 2009, using non-probability sampling a purposive sample of (37) subject (male and female nurses) who worked at surgical wards in Azady Teaching Hospital in Kirkuk city was selected. Two study instruments were utilized for proper data collection [questionnaire and observational checklist]; a questionnaire was developed for the purpose of the study. It was comprised of two parts which included the nurses' demographic characteristics and Information related to the setting of the sample (surgical wards). A pilot study was carried out for the period of January 18th, 2009, to February 2nd, 2009 to determine the observational checklist reliability through the use of (Inter-rater). A panel of (19) experts was involved in the determination of the observational checklist content validity. Data were analyzed through the application of descriptive statistical data analysis approach (frequency, percentage, mean of scores and standard deviation), and inferential data analysis approach (chi-square).

Results: The study findings revealed that the majority (91.9%) of the nurses did not get training sessions regarding infection control and (83.4%) of them had not participated continuous learning about infection control. According to the level of practices towards standard precautions, it has revealed that poor practices of standard precautions by surgical wards nurses had shown in surgical wards.

Recommendations: The study recommended that special education programs can be designed and presented to the surgical ward nurses and to all the hospital staff in order to increase their awareness towards infection.

Keywords: Nurse; Standard Precautions

Introduction

Healthcare-associated infection (HCAI) is a major health problem today. The impact of HCAI implies prolonged hospital stay, long-term disability, increased resistance of microorganisms to antimicrobials, massive additional financial burden, high costs for patients and their families, and excess deaths. Although the risk of acquiring HCAI is universal and pervades every health-care facility and system around the world, the global burden is unknown because of the difficulty of gathering reliable diagnostic data. Overall estimates indicate that more than 1.4 million patients worldwide in developed and developing countries are affected at any time⁽¹⁻²⁾.

The field of hospital infection control started in the middle of the 1800s when Semmelweis and Nightingale introduced sanitation and hygienic practices into hospital. Modern 'infection control' as practiced today, was initiated when a series of hospital outbreaks of *Staphylococcus Aureus* infection in the 1950 occurred in United States and United Kingdom⁽³⁾.

Infection control is a priority for all nurses and healthcare staff⁽⁴⁾ because nurses are being in direct contact with the patients round the clock and performing various nursing procedures and assisting physicians and surgeons in various procedures, it plays an important role in preventing and controlling HCAI. Therefore, the need for a high degree of awareness, and skill in nursing practice is essential to prevent healthcare-associated infections⁽⁵⁾. Furthermore, surgical ward nursing has been shown to have higher incidence of exposure to patient's blood compared with nurses from some other wards⁽⁶⁾.

Infection control refers to policies and procedure used to minimize the risk of spreading infections, especially in hospitals and health care facilities⁽⁷⁾. Standard precautions are meant to reduce the risk of transmission of blood-borne and other pathogens from both recognized and unrecognized sources. They are the basic levels of infection control precautions which are to be used, as a minimum, in

the care of all patients, these include; Performing hand washing, wearing personal protective equipments (like gloves, gown, goggle....etc), Respiratory Hygiene and cough Etiquette, Prevention of Needle Sticks and other Sharps-Related Injuries, Patient Care Equipment and Instruments/Devices, Management of linens and waste disposal⁽⁸⁻⁹⁾.

Methodology

The present study was carried out through the application of quantitative design of a descriptive study which uses the assessment approach, and it was conducted on nurses at surgical wards in Azady Teaching Hospital in the City of Kirkuk from January 18th to September 30th, 2009. Non-probability sampling a purposive sample of (37) subject (male and female nurses) who worked at surgical wards in Azady Teaching Hospital in Kirkuk city was selected. Two study instruments were utilized for proper data collection [questionnaire and observational checklist]; a questionnaire was developed for the purpose of the study. It was comprised of two parts which include the nurses' demographic characteristics and Information related to the setting of the sample. The checklist modified by the researcher is based on Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings⁽¹⁰⁾ and Practical Guidelines for Infection Control in Health Care Facilities⁽⁸⁻⁹⁾. A pilot study was carried out for the period of January 18th, 2009, to February 2nd, 2009 to determine the observational checklist reliability through the use of (Inter-rater). A panel of (19) experts was involved in the determination of the observational checklist content validity. The observational checklist was rated to type Likert scale as (always, sometimes and never) and it was scored as (3) for always, (2) for sometimes, and (1) for never. Data were analyzed through the application of descriptive statistical data analysis approach such as (frequency, percentage, mean of scores and standard deviation), and inferential data analysis approach such as (chi-square).

Results

Table 1. Distribution of the subjects by their sociodemographic characteristics

Age (Years)	Frequency	Percent
18-22	1	2.7
23-27	14	37.8
28-32	7	18.9
33-37	7	18.9
≥ 38	8	21.6
Total	37	100
Gender		
Male	28	75.7
Female	9	24.3
Total	37	100
Years of employment		
< 1	7	18.9
1-5	11	29.7
6-10	10	27.0
11-15	3	8.1
16-20	0	0
≥ 21	6	16.2
Total	37	100
Level of Education		
Graduate from elementary nursing school	2	5.4
Graduate from secondary nursing school	16	43.2
Graduate from medical institute	19	51.4
Total	37	100

Table 2. Distribution of the supportive activities for nurses in surgical wards by frequency and percentage

List	Items	Scales	Frequency	Percent
1	Number of Nurses who had training sessions about infection control	Available	3	8.1
		Not available	34	91.9
		Total	37	100
2	Number of Nurses who had participate periodic educational program in their department regarding infection control	Available	6	16.2
		Not available	31	83.8
		Total	37	100
3	Number of Nurses who attended symposia regarding infection control	Available	0	0
		Not available	37	100
		Total	37	100

Table 3. Association between levels of practices of standard precautions of the sample (37 nurses) with their ages in surgical wards

Ages groups of sample	Practices of standard precautions						Total
	Always		Sometimes		Never		
	Scores	%	Scores	%	Scores	%	
(18 – 22) Years	7	13.7	25	49	19	37.3	51
(23 – 27) Years	152	21.3	239	33.5	323	45.2	714
(28 – 32) Years	104	29.1	105	29.4	148	41.5	357
(33 – 37) Years	80	22.4	152	42.6	125	35	357
(≥ 38) Years	136	33.4	133	32.6	139	34	408
Total	479		654		754		1887
χ^2 obs = 44.9 df = 8 χ^2 crit = 15.51 P ≤ 0.05							

df= degree of freedom; P= p value, %= percentage; χ^2 crit= critical chi square; χ^2 obs= observed chi square; %=Percent

Table 4. Association between levels of practices of standard precautions of the sample (37 nurses) with their gender in surgical wards

Gender of sample	Practices of standard precautions						Total
	Always		Sometimes		Never		
	Scores	%	Scores	%	Scores	%	
Male	329	23.0	505	35.4	594	41.6	1428
Female	150	32.6	149	32.5	160	34.9	459
Total	479		654		754		1887
χ^2 obs = 17.5 df = 2 χ^2 crit = 5.99 P ≤ 0.05							

df= degree of freedom; P= p value, %= percentage; χ^2 crit= critical chi square; χ^2 obs= observed chi square; %=Percent

Table 5. Association between levels of practices of standard precautions of the sample (37 nurses) with their years of employment in surgical wards

Years of employment	Practices of standard precautions						Total
	Always		Sometimes		Never		
	Scores	%	Scores	%	Scores	%	
(< 1) Years	62	17.4	131	36.7	164	45.9	357
(1 – 5) Years	116	20.7	201	35.8	244	43.5	561
(6–10) Years	145	28.4	160	31.4	205	40.2	510
(11–15) Years	57	37.3	58	37.9	38	24.8	153
(≥ 21) Years	99	32.4	104	34	103	33.6	306
Total	479		654		754		1887
χ^2 obs = 49.6 df = 8 χ^2 crit = 15.51 P ≤ 0.05							

df= degree of freedom; P= p value, %= percentage; χ^2 crit= critical chi square; χ^2 obs= observed chi square; %=Percent

Table 6. Association between levels of practices of standard precautions of the sample (37 nurses) with their levels of education in surgical wards

Level of education	Practices of standard precautions						Total
	Always		Sometimes		Never		
	Scores	%	Scores	%	Scores	%	
Graduate of primary nursing school	20	19.6	32	31.4	50	49	102
Graduate of secondary nursing school	246	29.7	289	34.9	293	35.4	828
Graduate of medical institute	213	22.3	333	34.8	411	42.9	957
Total	479		654		754		1887
χ^2 obs = 20.0 df = 4 χ^2 crit = 9.49 P ≤ 0.05							

df= degree of freedom; P= p value, %= percentage; χ^2 crit= critical chi square; χ^2 obs= observed chi square; %=Percent

Table 7. Association between levels of practices of standard precautions of the sample (37 nurses) with their training sessions regarding infection control in surgical wards

Training sessions	Practices of standard precautions						Total
	Always		Sometimes		Never		
	Scores	%	Scores	%	Scores	%	
Available	42	27.5	51	33.3	60	39.2	153
Not available	437	25.3	603	34.7	694	40	1734
Total	479		654		754		1887
χ^2 obs = 0.387 df = 2 χ^2 crit = 5.99 P ≤ 0.05							

df= degree of freedom; P= p value, %= percentage; χ^2 crit= critical chi square; χ^2 obs= observed chi square; %=Percent

Table 8. Association between levels of practices of standard precautions of the sample (37 nurses) with their participation in continuous learning regarding infection control in surgical wards

Continuous learning	Practices of standard precautions						Total
	Always		Sometimes		Never		
	Scores	%	Scores	%	Scores	%	
Available	78	25.5	112	36.6	116	37.9	306
Not available	401	25.4	542	34.2	638	40.4	1581
Total	479		654		754		1887
χ^2 obs = 0.783 df = 2 χ^2 crit = 5.99 P ≤ 0.05							

df= degree of freedom; P= p value, %= percentage; χ^2 crit= critical chi square; χ^2 obs= observed chi square; %=Percent

Discussion

The findings of the (table 1) reveal that the greater number for nurses' age group was accounted with age group (23–27) years which constitute (37.8%), two-third of these nurses were male which represent (75.7%), about one-third of nurses have (1- 5) years which constitute (29.7%) Concerning the nurses' level of education, the findings revealed that half of those nurses were graduated from medical institutes (51.4%). In fact, no one of nurses have (bachelor and above) degrees in nursing because

college of nursing had been established before 7 years and this fact led to shortage of academic nurses in Azady Teaching Hospital. If there is adequate nursing staff, it is more likely that infection control practices, including Standard Precautions, will be given appropriate attention and applied correctly and consistently⁽¹¹⁾. In the study released in the May 2008, which shows a strong link between nurses' educational level and patient outcomes, they found that every 10% increase in the proportion of bachelor nurses on the hospital staff was associated with a 4% decrease in the risk of death⁽¹²⁾.

The results of (table 2) show that majority of nurses (91.9%) have not attended training sessions regarding infection control, regarding nurses' participation in periodic educational program in surgical wards, (83.8%) of them have not participated. Concerning to Symposia regarding infection control, all of surgical wards nurses have not attended, while another study showed a significant improvement in compliance with the standard precautions from 48% to 74% after an educational symposium⁽¹³⁾. Furthermore, education and training of healthcare personnel are a prerequisite for ensuring that policies and procedures for Standard Precautions are understood and practiced⁽¹⁴⁾.

Poor practice of standard precautions by surgical wards nurses had been shown in surgical wards due to following reasons: Lack of infection control committee as well as infection control team which play an important role on nurses' practices; Unavailability of most of equipments in the surgical wards, affected nurses' performance towards standard precautions.

The study findings had depicted highly significant positive relationship between nurses' age and their practices of standard precautions (table 3). This means that nurses' ages have great impact on their practices regarding standard precautions. Furthermore the gender factor has an impact on nurses' practices towards standard precautions (table 4). Years of employment of nurses (table 5) have affected their compliances to standard precautions, thus more years of employment lead to more experiences which finally influences on nurses' practices. According to the nurses' level of education (table 6), a significant association has been found with level of nurses practices toward standard precautions, because most of nurses have been graduated from medical institute which is highest level of education that found at surgical wards in Azady Teaching Hospital, so that administrative faculty have to make baccalaureate nurses work in these critical wards because there is evidence that the quality of patient care improves with higher nurse educational level⁽¹⁵⁾. Furthermore, In February 2007, the Council of Physician and Nurse Supply released a statement calling for a national effort to substantially expand baccalaureate nursing programs. In the

statement, the Council noted that a growing body of research supports the relationship between the level of nursing education and both the quality and safety of patient care⁽¹⁶⁾.

On the other hand, no relationship has been found between training session's factor as well as continuous learning factor with level of practice of standard precautions (tables 7 & 8) because the program of training that is given to the nurses is inadequate and has no framework of infection control/standardized precautions and has not influences on nurses' practices. The findings disagree with international literature which emphasize that all healthcare workers including support staff, must receive training in infection control⁽¹⁷⁾. Understanding the scientific rationale for the standard precautions will allow nurses to apply procedures correctly, as well as safely modify precautions based on changing requirements, resources, or healthcare settings⁽¹⁸⁾.

Recommendations

1. Establish an infection control committee which will in turn appoint an infection control team; and provide adequate resources for effective functioning of the infection control programmes.
2. Provide job - or task-specific education and training on preventing transmission of infectious agents associated with healthcare during orientation to the healthcare facility; update information periodically during ongoing education programs. Target all nurses for education and training.
3. Posters should be posted in the surgical wards to remind nurses of the need to comply with standard precautions.

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