



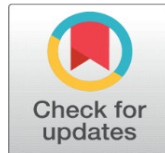
# NURSE'S PRACTICE REGARDING USE OF INFECTION CONTROL SAFETY MEASURES IN HEMODIALYSIS UNITS- AT KHARTOUM STATE, SUDAN

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## ABSTRACT

**Background:** Nurses play an important role at the dialysis units, they are the key health caregivers responsible for applying the foremost skills and principles of infection control steps throughout the process of hemodialysis. This may reflect their attitude and knowledge of infection control principles. Aim: This study aims at Assess Nurse's Practice Regarding Use of Infection Control Safety Measures Blood Born Diseases in Hemodialysis Units.

**Methods:** This is a descriptive, cross-sectional hospital-based study, conducted at Khartoum main haemodialysis). Itentres- Khartoum State, Sudan. Six main governmental hospitals were selected, plus the hospitals that provide haemodialysis. Seventy nurses providing haemodialysis nursing were enrolled in this study, data was collected using self-administered questionnaire with an observational check list for data collection, data analysis was carried out using the statistical package for social sciences (SPSS), and the results were presented in descriptive and numerical forms as well as cross tables.

**Result:** This study, revealed that the level of practice and using of the standards of infection control percussions; 65 (92.9%) of participants used gloves among isolated and re-used it among non-isolated patients, around half of the participants 36 (51.4%) did not use hand washing, following patient or patient's tools touching, where may have led to spread of blood borne diseases. There was no significant relationship between the practices and the study group, regarding the of level experience  $P\text{-value} < 0.445$ . The level of practices was satisfied. So, the level of practice regarding the hazards of contamination is recommended to establish in- service regular staff training to encourage infection control management, standardize practices check list.

**Keywords:** Blood Borne Diseases, Nurses, Competence, Safety Measures



## 1. INTRODUCTION

In 2017, the Centers for Disease Control and Prevention (CDC) released a set of Core Practices concentrating on infection prevention and control that are applicable to care delivered in all centers. Nurses have been named the country's most trusted profession. Improved infection prevention control training should be provided to

people in order to promote adherence to infection prevention measures. Hand hygiene, early and speedy gadget removal, engagement of family members and caregivers, and healthcare provider training are among the core concepts covered by the CDC guidelines. As a result, using the principles of basic infection prevention practice and developing a personal competency evaluation and accompanying professional development plan may be the individual duty of healthcare staff [Carrico et al. \(2018\)](#). According to a study conducted in Sudan, healthcare personnel are exposed to harmful and lethal blood borne diseases every day through infected needle sticks. It is one of the most serious dangers that frontline healthcare workers confront. The purpose of the Independent Study Module is to educate nurses on the law, the additional protections it offers, and other techniques they can adopt to prevent occupational exposure to blood borne viruses [Yousif \(2017\)](#). Nurses, as members of the medical team, are frequently exposed to blood and bodily fluids, exposing them to blood-borne infections while lying face down. Nurses can be protected against these infections by taking preventative measures. Nonetheless, nurses must exert rigorous control over these procedures. In order to avoid blood-borne illness infections, everyone should practice good hygiene. Hand washing and drying, proper handling and disposal of sharp substances, proper handling of patient care tools and dirty linen, environmental cleaning and spill management, proper waste management, and defensive garments such as hand gloves, outfits, smocks, covers, and protective eyewear are all examples of best practices [Stephanie \(2015\)](#). A percutaneous injury, such as a needle stick or a cut with a sharp instrument, or contact with the mucous membranes of the eye or mouth, or contact with non-impact/ intact skin resulting in contact with blood or other potentially infectious body fluids, is defined as a "occupational exposure" that may put nurses at risk of blood borne infection [El-Melligy et al. \(2016\)](#). According to the findings, nursing students are more vulnerable to workplace dangers such as needle sticks and sharps injuries. Because of a lack of knowledge and expertise Sharps injuries can result in serious complications such as hepatitis B and C infections, as well as HIV. The purpose of this study was to see how the educational program affected undergraduate nursing students' knowledge and practice regarding needle stick and sharps injury avoidance throughout practical training. Post-intervention educational program, the program contributed to a considerable improvement in nursing students' knowledge and practice regarding needle stick and sharps injuries. Increased sensitization of undergraduate nursing students for prevention and management is critical in preventing occupational hazards, according to this study. It also needs to be included in the nursing training curriculum plan, and ongoing educational programs are needed to raise needle awareness. [Abdelsatir \(2013\)](#). The goal of a study conducted in Sudan was to assess nurses' knowledge and practice of HD access care in Khartoum State, Sudan, with a focus on the application of proper hand hygiene and senior nurses instructing and educating new staff members on procedures and protocols. This kind of instruction, according to the researcher, is certainly beneficial and important, but it should not be used to replace structured training programs for new employees. More, according to our findings. Six [Goncalves and Goncalves \(2013\)](#). (WHO), When splashing, spraying, or splattering of blood or body fluid is predicted, as well as during HD vascular access cannulation or de-cannulation, it is recommended that you wear personal protective equipment. After the patient has left the dialysis station, the dialysis station should be disinfected on a regular basis. Pre/post educational program which indicate that there is highly difference in percentage between nurses' practices who done correctly all procedures', and no one follow the basic step in infection control (hand hygiene). [WHO \(2012\)](#).

### General objective

To determine nurses' practice regarding use of infection control Safety measures of blood born diseases in Hemodialysis units.

## 2. METHODS

This is descriptive cross sectional, Hospital based study was carried out in hemodialysis centres in Khartoum State. The total number of centres examined was 35. They constituted all the available haemodialysis centres in Khartoum State at the time of the study. The study was conducted in 6 governmental hospitals selected main hospitals, provide haemodialysis in Khartoum State, including ;( East Nile Hospital located Al Khartoum Bahri, Ahmed Gasim Hospital, Bashier Teaching Hospital,

Ibn Sina Specialized Hospital, Tropical Diseases Teaching Hospital and Ombada Teaching Hospital). The targeted populations were all nurses working in the Hemodialysis units in the six main hospitals. Both gender during study period and willing to participate (70). Practical rating scale [Ezzeldien \(2019\)](#). Good performance = if the participant performed more than 75% of the steps. Satisfied performance = if the participant performed more than (51-75%) of the steps Poor performance = if the participant performed less than 50% of the steps. The tool was examined by expertise in the field of the study and their comments about content and context was considered. Piloting was done among 10 nurses and alpha Cronbach's test was 84%. Data was analyzed by using statistical package of social program (SPSS) P value considered significant at (0.05). The research was respected the rights of participants, Consent was obtained from all participants after explanation. [Table 1](#), [Table 2](#), [Table 3](#), [Table 4](#).

**Table 1**

Table 1 Study Group Demographic Data n = (70)				
Item				
Qualification	Diploma		Bachelor	Master
	23(32.9%)		37 (52.9%)	10 (14.3%)
Gender	Male		Female	
	20 (28.6 %)		50 (71.4%)	
Period of experience in Hemodialysis	< one year		1-5 years	> 5 years
	11 (15.7%)		16 (22.9%)	43(61.4%)
Attend training course about infection control In Hemodialysis	> 2 years	Twice	once	none
	20 (28.6 %)	15 (21.4%)	23(32.9%)	12 (17.1%)
last training course attend	< one year		1-3 years	> 3 years
	20 (28.6 %)		22 (31.4%)	29(40%)
Source of information regarding infection control in Hemodialysis	Conference		journals articles	university
	15 (21.4%)		14 (20.0%)	41 (58.6%)

**Table 2**

<b>Table 2 General Requirement of Infection Control</b>			
<b>General Requirement of Infection Control</b>	<b>Done Correctly</b>	<b>Done Incorrectly</b>	<b>Not Done</b>
Attach a safety box at the patient's bed	7 (10.0 %)	11 (15.7%)	52 (74.3%)
Attached basket box at specific place	23 (32.9%)	45 (64.3 %)	2 (2.9%)
Sterilize patient lining	1 (1.4%)	5 (7.1%)	64 (91.4%)

**Table 3**

<b>Table 3 Application of Infection Control Measures</b>			
<b>Application of Infection Control Measures</b>	<b>Done Correctly</b>	<b>Done Incorrectly</b>	<b>Not Done</b>
Wash hands after touching the patient, Tools?	7 (10.0%)	27 (38.6%)	36 (51.4%)
Dispose needles in safety boxes?	18 (25.7%)	41 (58.6%)	11 (15.7%)
Use needless technique?	43 (61.4%)	16 (22.9%)	11 (15.7%)
Recapped t needle after use?	17 (24.3%)	30 (42.9%)	23 (32.9%)
Wash hands after procedures?	19 (27.1%)	14 (20.0%)	37 (52.9%)
Wash hands after touching the patient, Tools?	6 (8.6%)	28 (40.0%)	36 (51.4%)
Goggles	8 (11.4%)	0.00%	62 (88.6%)
Gloves	61 (87.1%)	0.00%	9 (12.9%)
Face mask	60 (85.7%)	2 (2.9%)	8 (11.4%)
Dispose of hemodialysis set in baskets?	54 (77.1 %)	10 (14.3%)	6 (8.6%)
Wipe used drip and re-used?	27(38.6%)	10 (14.3%)	33 (47.1%)
Use gloves among isolated and re-used among non-isolated patients?	65 (92.9%)	5 (7.1%)	0.00%

**Table 4**

<b>Table 4 Nurses' Performance When Dealing with the HD Machine</b>			
Re-using the acid solution?	62 (88.6%)	2 (2.9%)	6 (8.6%)
Re-use Bicard?	66 (94.3%)	1 (1.4%)	3 (3.4%)
Empties acid bouquets at each other and re-used?	67 (95.7%)	2 (2.9%)	1 (1.4%)

### 3. DISCUSSION

**Table 5**

<b>Table 5 Total Level of Practice of Study Group</b>			
<b>Level of practice</b>	<b>Frequency</b>	<b>Percent</b>	<b>Mean <math>\pm</math> (std)</b>
Good performance	9	12.9	
Satisfied performance	42	60.0	2.14 $\pm$
Poor performance	19	27.1	-0.62
Total	70	100.0	

Regarding the study group level of practice and using of standard infection control percussions to prevent transmission of blood born diseases in Hemodialysis was found that, 65 (92.9%) of them used gloves among isolated and re-used it among non-isolated patients and 36 (51.4%) more than half of nurses not doing to wash hands after touching the patient Tools and, while the two third of them 54(77.1%) Follow steps of infection control but the ways not properly and more than half of nurses Dispose needles in safety boxes but the ways not properly 52 (74.3%)and most of them 64 (91.4%) not done Sterilize patient lining these lead infectious to nurse and patient by blood borne disease and more than half of nurses not doing to Wash hands after procedures 36 (51.4%) these lead to spread blood borne disease . They were no significant relationship between total parasites and study group level experience P-value < 0.445, training P-value < 0.143 course P-value < 0.662 In spite of level experience, training and course have effect to practices .These finding was in agreement these findings was in agreement with study done in Sudan' to evaluate nurses' awareness and practice of HD access care in Khartoum State, Sudan, focusing on the application of proper hand hygiene and focusing on the application of proper hand hygiene and senior nurses to instruct and educate new staff members on techniques and protocols. The author emphasized that this method of education is undeniably useful and necessary, but it should not replace structured training programs for new staff members. [Abdelsatir \(2013\)](#). our results indicated that more. If hand washing not done properly can increase the risk to exposure to blood borne disease among nurses working in haemodialysis unit. the .(WHO), Recommended that, wearing Personal protective equipment when splashing, spraying or splattering of blood or body fluid is expected, and during HD vascular access cannulation or de-cannulation Regarding Routine disinfection of the Dialysis Station after patient has left station of the dialysis pre/post educational program which indicate that there are highly difference in percentage between nurses' practices who done correctly all procedures' steps among pre and post – educational program and observed that no one follow the basic step in infection control ( hand hygiene [WHO \(2012\)](#)).

#### 4. CONCLUSION

The study concluded that satisfying the level of practice regarding the hazards of contamination is recommended to establish in- service regular staff training to encourage infection control management, Standardize check list of practices, further large multicentre studies for more clarification of the health concern.

#### CONFLICT OF INTERESTS

None.

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