

Research Article

The Knowledge and Practice of Nurses Related to Interventional Patient Hygiene in Critical Care Unit

Nasira Mustafa, Kausar Parveen, Muhammad Afzal, Muhammad Hussain, Muhammad Amir Gilani

Department of Nursing, Lahore School of Nursing, Lahore, Punjab, Pakistan

ABSTRACT

Background: Patient hygiene of intubated patients is important to the prevention of infection and patient pain. However, barrier to oral entrance and patient oral care patient hygiene have little bit interest. **Aim:** The aim of the study was to educate successfully new health professionals and untrained people in intensive care to use of protocols of patient hygiene in critical condition. **Materials and Methods:** Descriptive cross-sectional study conducted. Setting: Intensive care units (ICU's), the 150 health professionals involved in this study. Data correlated with patient hygiene, oral care, hand hygiene, skin care, and catheterization care untrained persons in ICU given knowledge about skin care, ulcers. Untrained staff members were observed by participants before and after given knowledge about patient hygiene. Before and after survey health professionals and non-licensed staff members are observed that they improve their selves. **Results:** Main results derived from this those health professionals who are not following the proper way or untrained staff from zero to reach 100% result. **Conclusion:** Knowledge gives best to untrained and health professional's incontinence results, hence good communication between health professionals gives good outcome.

Keywords: Hand hygiene catheterizations care, Intensive care units, Introduction, Oral hygiene, Skin care

Address for Correspondence: Nasira Mustafa, Department of Nursing, Lahore School of Nursing, Lahore, Punjab, Pakistan. E-mail: nasiramustafa5533@gmail.com

Introduction

Critical care nurses are very hardworking, they always face tough time to integrate interventions, complicated technologies and apply care based on present evidence, while at the same time care for the overall person is a big challenge and morally conflicts associated with critical illness.^[1] Interventional patient hygiene (IPH) has been characterized as a complete, proof based intercession and estimation model for

diminishing the bioburden of both patient and human services specialists. The study design is descriptive by convenient sampling technique. Sample size was 150 respondents. Questionnaire was used for data collection. Data entered on Statistical Package for the Social Sciences (SPSS). Study approved by ethical committee written consent taken from 150 health professionals. IPH parts incorporate hand cleanliness, oral consideration, skincare/antiseptics, and catheter site care. These proof based intercessions can diminish the rate of certain human services procured diseases (HAIs), including urinary tract infections (UTIs). The result derived from this study is that maximum participants agreed that patient hygiene in intensive care units is very difficult. Critical care nurses are confronting difficulties to coordinate intercessions, refined advances and actualize care dependent on current proof, while all the while thinking about the entire individual by tending to the psychosocial challenges and moral clashes related with basic ailment. Most nosocomial contaminations are believed to be transmitted by the hands of social insurance laborers. It has for quite some time been realized that hand cleanliness

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among social insurance laborers assumes. Hand washing is the best method for forestalling the spread of irresistible ailments.^[2] The reasons of absence of consistence to hand washing include: Absence of suitable hardware, low staff to understanding proportions, sensitivities to hand washing items, inadequate information among staff about dangers and systems, and the time required and easygoing mentalities among healthcare workers (HCWs) toward bio-security.^[3] Hand hygiene is a center component of patient security for the anticipation of Health Care Associated Infection (HAIs) and spread of hostile to microbial obstruction. Its advancement speaks to a test that requires a multi model methodology. Hand cleanliness forestalls cross contamination in emergency clinics, yet HCWs adherence to hand cleanliness rules is poor. Simple, convenient access to both hand cleanliness and skin assurance is important for palatable hand cleanliness conduct. Liquor based hand rub might be better than customary hand washing as they require less time, acts quicker, are less bothering, and add to continued improvement in consistence related with diminished disease rates.^[4] The hand cleanliness practices of social insurance laborers (HCWs) have long been the principle vector for nosocomial disease in emergency clinics. Hence, study to analyze effects on hazard judgment from the individual contrasts in information levels what is more; well-being convictions among HCWs are significant. Medical clinic obtained diseases groups an undeniable and genuine risk to all who are conceded in medical clinics. Pathogens are promptly transmitted through the hands of HCWs, and hand cleanliness generously diminishes the opportunity this transmission. Confirm based rules for HCWs, hand cleanliness practice exist, however, consistence with these are globally low.^[5] Transmission of micro-organisms from the hands of HCWs is the principle wellspring of cross disease in emergency clinic and can be forestalled by hand washing. Consistence with hand washing is moderate. Variety across clinic wards and kinds of HCWs recommends that focused instructive program might be valuable. The relationship between rebelliousness and power of care propose that under staffing may diminish the nature of patient consideration.^[6] Hand washing is a demonstrated advantage in forestalling transmission of disease, yet consistence with hand washing, particularly in emergency unit significant.^[7] Oral hygiene in mechanically ventilated patients is a main problem in intensive care units. Oral procedure such as (ETT) endotracheal tubes and orogastric tubes for keep open mouth, harm salivary flow, and correct the bacterial natural balance of the oropharynx.^[8] Changes in oral flora related to ventilator patient are microbes. They are main reason of changes in normal flora especially in pneumonia.^[9] Changes in bacterial and physical changes, environment of oral flora become painful and cause disease such as xerostomia, fungal infection, mucositis, caries, periodontitis, and gingivitis.^[10] Outcome of mechanical ventilation is tooth loss after long time.^[11] Cooperation of the limited patient in oral care, behavioral barriers play main role unconsciousness, at the

same the presence of pain, agitation, and delirium.^[12] Barriers contributing to insufficient or ineffective application of antimicrobial pneumonia prophylaxis are reported in 30% of ICU patient.^[13] In critically ill patients barrier of the skin care is infection and injury. Giving proper skin care gives impacts skin integrity, it plays important role in infection and pressure ulcers. Giving comforts to the patients in pressure ulcer are main priority for nurses. Nurses are main person to prevent from pressure ulcer and skin infection. Nurses take care of skin and gives therapeutic effects. In critical care units nurses spend their time intervention to prevent various complication belongs to skin integrity.^[14] In the United States, skin injuries/pressures ulcers are the main leading escapable error. Pressure ulcer remains minimum 4 days with pain. In hospital-acquired infection pressure ulcer increased. Results of a national survey from 1999 to 2004, due to result of survey the percentage of hospital-acquired pressure ulcer remains constant.^[15,16] Catheterization steps of insertion and ongoing care. The steps of catheterization cleaning of the urethral meatus, sterilization, drainage closed system, perform hand washing, an aseptic technique, and wearing gloves which are used and remove immediately after procedure to protect eyes and face in case of splash. The steps of performing hand hygiene, performing catheter hygiene (cleaning catheter site regularly as unit policy), aseptic technique is performing the catheter port.^[17] According to this article a conceptual framework for IPH is given.^[18]

Significance of the study

Principally, the nursing activity plan was centered on the fortifying of patients' host safeguards concerning healthy skin, oral consideration furthermore, and the board of self-control, at that point the IPH idea has been extended to hand cleanliness, catheter care, and skin antisepsis. The arrangement of cleanliness and of being clean is the focal point of IPH that ought to have an equivalent need to all other nursing mediations. On the off chance that fundamental nursing care is not preceded as suggested, it is essential to distinguish the obstructions that upset attendants from executing it. Fundamental nursing care might be cheapened or missing by slender or on the other hand confined structures that help the significance of essential nursing care, inability to consider medical caretakers responsible or reward/acknowledgment for doing them. This may require changing nursing society with an accentuation on the essentialness of fundamental nursing care.

Objectives of the study

The purpose of this study is to investigate knowledge and care practices of nurses for IPH. Specific objectives are as follows:

- Do nurses implement IPH practices in critical care units?
- Do nurses have IPH knowledge?

Materials and Methods

Study design

A descriptive cross-sectional study will be conducted.

Study technique

It will be a convenience sampling.

Study area and study population

The study population will be carried out at tertiary care hospitals of Lahore, Punjab, Pakistan. All nurses who are working in the selected tertiary care hospitals and involved in a direct contact with patients in critical care units will be invited to participate in this study.

Sample size

Epidemiological information system (EPI) will be utilized to calculate the sample size of the study. A total number of 150 respondents will be considered to fulfillment of our work.

Research subjects

Inclusion criteria

Health professionals who work at least 2 months in the direct care of CCU/ICU patients were included in the study.

Exclusion criteria

Health workers who were extremely ill and on annual leave during data collection were excluded from the study.

Duration the study

The study of duration was 6 months after approval of synopsis.

Data collection

A self-administered questionnaire will be used for the purpose of data collection which contains items related to knowledge and practice of regarding the knowledge and care practices of nurses for IPH. It is divided into the following two sections:

- Section I – IPH observational checklist
- Section II – IPH knowledge questionnaire.

Statistical analysis

SPSS version 23.0 IBM Corporation Armonk, New York, USA will be used for data entry and analysis. Initial analysis will be included; computing frequency distribution for

categorical variables, mean values (\pm standard deviation), and median values (with interquartile range) to describe the continuous data with and without normal distribution, respectively. Univariate analyses including *t*-test and Chi-square were used to test the significance of results of quantitative and qualitative variables. A significant *P*-value was considered as 0.05.

Ethical considerations

- The approval for the study will be obtained from the educational authorities of University of Lahore
- The approval for the study will be obtained from the research and ethics committees of the university and the participating hospitals
- Confidentiality, anonymity, and privacy of all participants will be guaranteed at all levels of this study
- Written informed consent will also be obtained from each participant.

Results

A total of 150 health professionals were interviewed yielding a response rate of 95% and majorities, 87 (58%) were male. More than half of, 79 (52.7%) were aged 25 or >25. The mean age of the respondents was 25.25 (SD \pm 4.5) and a higher proportion (50%) of the respondents was bachelor's degree holder and 88% of healthcare worker were staff nurses [Table 1].

Table 1: Demographic characteristics of nurse's working in Tertiary Care Hospitals, Lahore, Pakistan (*n*=150)

Characters	Frequency	Percentage
Age		
>25	71	47.3
\leq 25	79	52.7
Sex		
Male	87	58.0
Female	63	42.0
Educational status		
Diploma degree	45	30.0
Bachelor's degree	75	50.0
Masters or above	30	20.0
Work experience (year)		
<5	32	21.3
5–10	96	64.0
>10	22	14.7
Current position		
Head nurse	18	12.0
Staff nurse	132	88.0
Had taken training of hand hygiene		
Yes	81	54.0
No	68	46.0
Is there is any hand hygiene protocol in the ICU		
Yes	97	64.7
No	53	35.3

Only 42% of nurses carried out proper hand hygiene actions prevent transmission of microorganisms to the patients. About 39% jewelry wearing is associated with increased the risk for colonization of hands with microorganisms. The majority of the respondents (38%) mentioned that oral care is important for proper administration of oral medications followed by the oral care position of supine. Forty-two percent respondents agreed that chlorhexidine is the best solution for oral care followed by Gauze pad. Less than half of the respondents (38%) said that the proper technique used for indwelling urinary catheter insertion is with sterile equipment, followed by petroleum jelly is not a risk factor associated for catheter associated UTI [Table 2].

It has been that the mean level of information the score is higher than the mean rate practice score in all IPH things

Table 2: Demonstrated the proper hand hygiene actions prevent transmission of microorganisms to the patients

Characters	Frequency	Percentage
Material used in oral care		
Tooth brush	47	27.3
Cotton swabs	46	30.7
Gauze pad	63	42.0
Immediately before a clean/aseptic procedure	0	0.00
Characteristics of ideal oral cleaning solution		
Contains alcohol	33	22.0
Antibacterial	63	42.0
Maintains oral moistness	16	10.7
Increases viscosity of oral mucus	30	20.0
Promotes wound healing	8	5.3
Which of the following is not a risk factor for catheter associated urinary tract infection?		
Prolonged catheterization	33	22.0
Hypertension	63	42.0
Impaired immunity	30	20.0
Diabetes mellitus	24	16.0
Which is not an indicator for indwelling urinary catheterization in critically ill?		
Acute urinary retention	33	22.0
Need for accurate measurements of urinary output	63	42.0
Patients who receive large volume infusions	16	10.7
Obtaining urine for culture	30	20.0
Which is the proper technique used for indwelling urinary catheter insertion?		
Clean technique	48	32.0
Aseptic techniques with sterile equipment	44	29.3
Clean technique with sterile equipment	58	38.7
Which of the following is not a risk factor associated for catheter associated urinary tract infection?		
Altered urinary PH	33	22.0
Hypertension	63	42.0
Impaired immunity	16	11.0
Diabetes mellitus	15	10.0
Petroleum Jelly	8	5.0
Oxygen peroxide	15	10.0

(hand cleanliness (71.28 ± 25.46 , contrasted and 46.15 ± 17.87), oral consideration (100.0 ± 0.0 , contrasted and 25.32 ± 24.25), catheter care (75.76 ± 9.40 , contrasted and 8.97 ± 24.14), and skincare (47.80 ± 6.79 , contrasted and 26.28 ± 16.57). The distinctions between medical caretakers' practices and information with respect to IPH things were factually noteworthy ($P < 0.0001$). The connection between nurture/understanding proportion and IPH attendants rehearses was measurably huge in all IPH things aside from hand cleanliness [Table 3]. The comparison of comparison between the mean percentage practice score and the mean percentage knowledge score of nurses toward items of IPH [Table 4].

Discussion

This study tells us how to prepare the skin for insertion of catheter, although is estimated that 30 million people

Table 3: Demonstrate that the mean level of information the score is higher than the mean rate practice score in all IPH things

Characters	Frequency	Percentage
The bag should be emptied every (hour)		
8	47	27.3
12	46	30.7
24	63	42.0
Others	0	0.00
Urine culture should be obtained from		
The catheter	83	55.3
The bag	67	44.7
The bags should be collected in a separate container for each patient		
Yes	69	46.0
No	81	54.0
Bed bath should be performed for patients every (hour)		
8	47	27.3
12	63	42.0
24	30	20.0
Others	24	16.0
Each patients should have disposable basin for bed bath		
Yes	81	54.0
No	69	46.0
Basins can be reused between patients		
Yes	63	42.0
No	87	58.0
ICU staff gets rid of basins after patients discharge		
Yes	81	54.0
No	69	46.0
It is important to use sterile water in bed bath		
Yes	81	54.0
No	69	46.0
Bed bath is the most important procedure for skin assessment		
Yes	63	42.0
No	87	58.0
The skin should be rubbed forcefully for better cleanness		
Yes	81	54.0
No	69	46.0

Table 4: Comparison between the mean percentage practice score and the mean percentage knowledge score of nurses toward items of interventional patient hygiene ($n=150$)

Interventional patient hygiene	Percentage		<i>t</i> -value	<i>P</i> -value
	Practice score	Knowledge score		
	Mean±S.D	Mean±S.D		
Hand hygiene	46.15±17.87	71.28±25.46	5.0453*	0.0001
Oral hygiene	25.32±24.25	100.0±0.0	19.2320	0.0001
Catheter hygiene	8.97±24.14	75.76±9.40	16.1009*	0.0001
Skin care	26.28±16.57	47.80±6.79	7.5049	0.0001

*Significant at $P<0.05$

inserted folys and use chlohexidine to prevent from infection. Although chlorhexidine is consider the most helpful antiseptic for reducing catheter related infections. The poor technique of hand washing, which is necessary in preventing the transmission of infections between patients, will become too rapid spread source of healthcare related infections in the hospitals. Use of the clean gloves was better than hand washing the nursing staff.

ICU nurses supposed that they checked patients' oral cavities daily. According to researcher ICU nurses are responsible for ensuring that oral care assessments are thoroughly carried out and that symptoms of complications are well-known. During performing oral health assessments identifies patient's oral problems and to check for intervention's effectiveness^[9-12] the results show that educating staff members related to basic skin care, implement an available and easy tool, and implement a IPH plan about bathing and incontinence protocols for reduction of impaired skin integrity. The educational results show for staff knowledge about skin care.^[19]

Conclusion

This study shows results that nurses have improper IPH practices. In addition, according to this study, knowledge patient hygiene was satisfactory. Related to skin care and unsatisfactory about hand hygiene, oral care, and catheter care. Barriers for IPH in ICUs are workload, shortness of resources, insufficient knowledge/training, and lack of policy for implement IPH.

References

1. Stankova J, Rola PM. Interleukin 6 production by mononuclearphagocytes can be stimulated by leukotrienes. *Arch Immunol Ther Exp (Warsz)* 1992;40:17-21.
2. Morton PG, Fontaine DK. *Essentials of Critical Care Nursing a Holistic Approach*. 11th ed. Philadelphia, PA: Wolters Kluwer Health, Lippincott Williams and Wilkins; 2013.
3. Bataduwaarachchi VR, Balasubramaniam M, Balasooriya D. Compliance with the aseptic precautions during intravenous access among the nursing staff at the National Hospital of Sri Lanka (NHSL). *Int J Infect Control* 2011;7:3.
4. Hernandez QC, Casbas MT, Rafferty AM, Busse R, Zander-Jentsch B, Sermeus W, editors. *Strengthening Health Systems through Nursing: Evidence from 14 European Countries*. Vol. 52. Copenhagen, Denmark: European Observatory on Health Systems and Policies; 2019. p. 12.
5. El-Soussi AH, Asfour HI. A return to the basics: Nurses' practices and knowledge about interventional patient hygiene in critical care units. *Intensive Crit Care Nurs* 2017;40:11-7.
6. Lipsett PA, Swoboda SM. Washing compliance depends on Professional status. *Surg Infect* 2011;2:241-5.
7. Pittet D. Improving adherence to hand hygiene practices. *Emerg Infect Dis* 2011;7:234-40.
8. Shanu SJ. *A Study to Assess the Hand Hygiene Practices among Health Care Workers in CSICU*. Trivandrum: Sree Chitra Tirunal Institute for Medical Science and Technology; 2011.
9. Barrera L, Zingg W, Mendez F. Effectiveness of a hand hygiene promotion strategy using alcohol-based handrub in 6 intensive care units in Colombia. *Am J Infect Control* 2011;39:633-9.
10. Maher A, Eslami Z, Ali-Mohammadzadeh K. Effect of hand hygiene education on knowledge, attitude and practice of NICU and pediatric staff in Zanjan Hospitals. *Hum Resour Manag* 2016;3:35-43.
11. Sadeghi L, Khodadadi E, Sadeghi R. Investigating the factors affecting on hand hygiene compliance from the viewpoints of Iranian nurses who working in intensive care units. *J Res Med Dent Sci* 2018;6:93-8.
12. Duffin C. Increase in nurse numbers linked to better patient survival rates in ICU. *Nurs Stand* 2014;28:10.
13. Andersson M, Wilde-Larsson B, Persenius M. Intensive care nurses fail to translate knowledge and skills into practice a mixed-method study on perceptions of oral care. *Intensive Crit Care Nurs* 2019;52:51-60.
14. Goss LK, Coty MB, Myers JA. A review of documented oral care practices in an intensive care unit. *Clin Nurs Res* 2011;20:181-96.
15. Terezakis E, Needleman I, Kumar N, Moles D, Agudo E. The impact of hospitalization on oral health: A systematic review. *J Clin Periodontol* 2011;38:628-36.

16. Berry AM, Davidson PM, Masters J, Rolls K. Systematic literature review of oral hygiene practices for intensive care patients receiving mechanical ventilation. *Am J Crit Care* 2007;16:552-62.
17. Labeau S, Blot S. Oral care in incubated patients: Necessities and controversies. In: *Annual Update in Intensive Care and Emergency Medicine*. Cham: Springer; 2014. p. 119-31.
18. Titsworth WL, Hester J, Correia T, Reed R, Williams M, Guin P, *et al.* Reduction of catheter-associated urinary tract infections among patients in a neurological intensive care unit: A single institution's success. *J Neurosurg* 2012;116:911-92.
19. Goudet V, Timsit JF, Lucet JC, Lepape A, Balayn D, Seguin S, *et al.* Comparison of four skin preparation strategies to prevent catheter-related infection in intensive care unit (CLEAN trial): A study protocol for a randomized controlled trial. *Trials* 2013;14:114.