

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/353144996>

INFECTION PREVENTION CONTROL PRACTICES AND STRATEGIES AGAINST HOSPITAL ACQUIRED INFECTION AMONG NURSES IN A TERTIARY HEALTH INSTITUTION IN SOUTH WEST NIGERIA

Article · June 2021

CITATIONS

0

READS

342

9 authors, including:



[Simeon Kayode Olubiye](#)

University of Ilorin

34 PUBLICATIONS 59 CITATIONS

[SEE PROFILE](#)



[Julius Maitanmi](#)

Babcock University

37 PUBLICATIONS 14 CITATIONS

[SEE PROFILE](#)



[Sunday Oluwafemi Omoniye](#)

University of Ilorin

24 PUBLICATIONS 69 CITATIONS

[SEE PROFILE](#)



[Olorukooba Halima](#)

University of Ilorin

1 PUBLICATION 0 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Nursing intervention to correct Psychological Well-being among Mothers whose neonates are admitted into selected tertiary health Institutions in Ogun State, Nigeria [View project](#)



COVID-19 [View project](#)

**INFECTION PREVENTION CONTROL PRACTICES AND STRATEGIES AGAINST HOSPITAL
ACQUIRED INFECTION AMONG NURSES IN A TERTIARY HEALTH INSTITUTION IN SOUTH
WEST NIGERIA**

BY

Olubiyi Simeon Kayode: Department of Nursing Sciences, Faculty of Clinical Sciences, University of Ilorin

Anyebe E. Emmanuel: Department of Nursing Sciences, Faculty of Clinical Sciences, University of Ilorin

**Maitanmi Julius Olatade: Department of Community Health Nursing, Babcock University, Ilishan-Remo,
Ogun State**

**Ichu Sharon Ifeoma: Department of Nursing Science, Faculty of Health Science, National Open University
of Nigeria**

**Sunday Oluwafemi Omoniyi: School of Nursing, University of Ilorin Teaching Hospital, Ilorin, Kwara
State**

Imam A. Abubakar: Department of Nursing Sciences, Faculty of Clinical Sciences, University of Ilorin

**Ezendu Eunice Chichebem: Department of Nursing Science, Faculty of Health Science, National Open
University of Nigeria**

&

**Olorukooba, Halima: Department of Nursing Sciences, Faculty of Clinical Sciences, University of Ilorin;
Correspondence E-mail: simeonolubiyi@gmail.com**

Abstract

Many factors might promote hospital acquired infections but hospitals and organizations have developed effective techniques to prevent or reduce the incident of hospital acquired infections. The study assessed infection prevention and control strategies in reducing hospital acquired infection among nurses in Obstetrics and Gynecology Department, Lagos State University Teaching Hospital. A descriptive survey research design and self-structured questionnaire with four sections was used in the data collection over a period of one month. A convenience sample of 139 respondents was selected using Cochran's Formula for the study. Validity and Reliability of the instrument was determined. Data collected were analyzed descriptively and inferentially (at level of significance of 0.05) using Statistical Package for Social Science (SPSS) Version 25. The study reveals that 65(48.1%) of the respondents with average mean score of 4.1 strongly believed that all health workers, especially nurses should practice universal precautions, 57(42.2%) with the average mean score of 4.0 strongly affirmed that utilization of infection prevention and control is of utmost importance especially in the reduction of hospital acquired infection. The most common infection prevention and control practices among the nurses were disposing of sharps into safety box and usage of color coding bags (n=43; 32%), while 100(74%) and 87(65%) of the respondents with average the mean score of 50 and 40 respectively attributed effective utilization of infection prevention and control practices to inadequate supply of waste disposal and unavailability of water to wash hands. Based on the findings of the study, it is therefore recommended that continuous training of hospital staff on hospital policies regarding infection prevention and control. Hospital management should prioritize large allocation for purchase of hospital utilities, especially those items used for infectious waste segregation and management.

Keywords: Prevention, Control, Practices, Strategies, Hospital acquired infection and Nurses

Introduction

Clinically effective infection prevention and control (IPC) practice has a central role in health care, social care and public health services. Patients receiving health and social care are at risk of developing an infection due to their potentially compromised state of health, underlying medical conditions, or contact with health care interventions such as surgery, diagnostic testing or invasive devices. In addition, health and social care settings can provide ideal conditions for micro-organisms to be transmitted between those who receive and give care. The close proximity and contact between each party and the continuous contact in a shared working and living environment can contribute to transmission (Hugonnet, Chevreton, & Pittet, 2017). Health care-associated infections have long been recognized as crucial factors bothering the equality and outcomes of health care delivery. Health care-associated infections (HAIs) are important cause of adverse health outcomes such as morbidity, mortality, and increased health care costs with possible attendant litigations.

Transmission of infectious agents within a health care setting requires three agents; a reservoir, susceptible host, and a mode of transmission. Patients, health care workers and visitors are susceptible host in the hospital environment. The complex interrelationship between a potential host and an infectious agent produces infection. The mode of transmission may vary by type of organism as some types of organism may be transmitted through more than one route. The complex interrelationship between a potential host and an infectious agent produces infection (Siegel, Rhinehart, Jackson, & Chiarello, 2017). The cause of nosocomial infections might be endogenous or exogenous. Endogenous infections are caused by organism present as part of the normal flora of the patient, while exogenous infections are acquired through exposure to the hospital environment, hospital personnel or medical devices (Medubi, Akande & Osagbemi, 2012). The challenge of current obstetrical infection prevention is to decrease the risk for health care-associated infection (HAIs) while supporting family-centered maternity care. Newborns hospitalized in neonatal intensive care units (NICUs) are at risk for HAIs because of their physiologic instability and exposure to invasive devices and broad-spectrum antibiotics. In addition, this group of newborns has some unique host risk factors that make them particularly vulnerable for acquiring HAIs, as well as experiencing more severe illness as a result of these infections. Most risk factors for infection in newborns includes; low birth weight, acuity of underlying illness, immature immune system, permeable skin (Edward, Peterson, Banerjee, Allen-Bridson and Morrell, 2009).

Healthcare-associated infections rank among the 10 leading causes of death in the United States, accounting for 1.7 million affected individuals and about 99 000 deaths in 2002 and resulting in up to USD33 billion of excess medical costs every year. In England, more than 100 000 cases of Healthcare associated infections (HCAI) are estimated to cost £1 billion and directly cause over 5000 deaths annually. Infected patients are a source of infection transmission to other patients, health care workers and visitors in hospitals. Healthcare-related infections have a considerable impact on the morbidity and mortality rates in the intra and extra-hospital environment, resulting in an increase in the time spent and costs of hospitalization, and are thus recognized as a serious world public health problem. Most health care infections are transmitted by health care personnel who fail to practice proper hand washing procedures and change gloves between client contacts. Therefore, infection control guidelines from the national and international organization have supported that hand washing remains the most effective measure in reducing the incidence of health care infections. Brooker, Waugh, and Waston (2007), stated that hospitalized patient exposed to infection resulting from a surgical or medical treatment called iatrogenic infection is frequently attributed to an invasive procedure and reported that over 60% of blood infection introduced by intravenous lines or catheter. Lagos State University Teaching Hospital been a fast developing hospital attending to large population of patient in Lagos was therefore examined for the current situational utilization of infection prevention and control in reducing hospital acquired infection among nurses, especially those working in Obstetrics and Gynaecology (O &G) Department.

Research Questions

1. What is the attitude of nurses working in Obstetrics and Gynaecology Department, LASUTH, towards utilization of infection prevention and control?
2. What is the infection prevention and control practices commonly utilised among nurses working in Obstetrics and Gynaecology Department, LASUTH?
3. What is the level of compliance to infection prevent and control among nurses working in Obstetrics and Gynaecology Department, LASUTH?
4. What are the factors hindering effective utilization of infection prevention and control among nurses working in Obstetrics and Gynaecology Department, LASUTH?

Methodology

A descriptive survey research design was adopted for the study. in the data collection over a period of one month. A samples size of 139 respondents was selected out of the total population using Cochran's Formula through a convenience sampling techniques for the study. A self-structured questionnaire with four sections and thirty three question items was used to collect data. Validity and Reliability of the instrument was determined at a level of significance of 0.05). Data collected were descriptively and inferentially. Statistical Package for Social Science (SPSS) Version 25 was used for the analysis. Ethical approval was obtained for the study with informed consent and utmost confidentiality guaranteed for all participants.

Results

Table 1: Attitude of nurses towards utilization of infection prevention and control practices

Attitude (n = 135)	SA	A	D	SD	U	Mean Score
All health workers, especially nurses should practice universal precautions	65 (48.1%)	58 (43.7%)	0 (0.0%)	7 (5.2%)	4 (3.0%)	4.2
Hand washing takes time and effort	51 (38.0%)	27 (20.0%)	15 (11.0%)	36 (27.0%)	6 (4.0%)	3.6
Universal precaution is unrealistic and cannot be utilized effectively	42 (31.0%)	33 (24.0%)	12 (9.0%)	31 (23.0%)	17 (13.0%)	2.6
All healthcare institution must enforce effective utilization of hospital IPC	50 (37.0%)	32 (24.0%)	24 (17.7%)	26 (19.3%)	3 (2.0%)	4.5
Utilization of hospital IPC is important in reducing hospital acquired infection	57 (42.2%)	45 (33.3%)	19 (14.1%)	8 (6.0%)	6 (4.4%)	4.0
Hospital is a potential place for transmission of infection, and can only be controlled by hospital IPC	30 (22.2%)	21 (15.5%)	55 (42.0%)	21 (15.5%)	8 (6.0%)	3.3
All efforts and resources spent on effective utilization of hospital IPC is worthwhile	37 (27.4%)	39 (29.0%)	48 (35.5%)	9 (36.6%)	2 (1.5%)	3.7
Will advocate for the utilization of IPC in my hospital	40 (30.0%)	28 (21.0%)	57 (42.0%)	7 (5.0%)	3 (2.0%)	3.7
Average mean score						3.7

Table 1 above showed that 65(48.1%) of the respondents strongly believed that all health workers, especially nurses should practice universal precautions which was affirmed by 58(43.7%) who agreed to such standard. Fifty-seven 57(42.2%) strongly affirmed that utilization of infection prevention and control is of utmost importance especially in the reduction of hospital acquired infection and 45(33.3%) of them agreed to this

practice. For hand washing, 51(38%) of the respondents strongly agreed that all healthcare institutions must enforce effective utilization of hospital infection prevention and control. A good proportion of the participants 42(31%) strongly affirmed that universal precaution is realistic and can be utilized. Thirty-seven 37(27.4%) of them strongly believed that all efforts and resources spent on effective utilization of hospital infection prevention and control is worthwhile and 39(29%) agreed. Also, 30(22.2%) strongly attributed the hospital as a potential place for transmission of infection which can only be controlled by hospital infection prevention and control practices with 21(15.5%) of them agreeing to this.

Table 2: Commonly utilized infection prevention and control practices

Practices	SA	A	D	SD	U	Total
Wash my hands before and after every procedures	21 (15.0%)	25 (19.0%)	62 (46.0%)	24 (18.0%)	3 (2.0%)	135 (100%)
Soap and running water is always available for me to wash my hands always	23 (17.0%)	21 (15.0%)	50 (37.0%)	36 (27.0%)	5 (4.0%)	135 (100%)
Wear protective apron before every procedure	19 (14.0%)	16 (12.0%)	52 (39.0%)	41 (30.0%)	7 (5.0%)	135 (100%)
Use protective eye shades before every procedure that might result in splash of fluids	11 (8.0%)	12 (9.0%)	81 (60.0%)	25 (19.0%)	6 (4.0%)	135 (100%)
All waste are disposed based on colour coding of the waste bags	39 (29.0%)	26 (19.0%)	37 (27.0%)	29 (22.0%)	4 (3.0%)	135 (100%)
Dispose sharps into puncture proof box	43 (32.0%)	25 (19.0%)	44 (32.0%)	20 (15.0%)	3 (2.0%)	135 (100%)
Wear gloves before every procedures	36 (27.0%)	19 (14.0%)	54 (40.0%)	18 (13.0%)	8 (6.0%)	135 (100%)
Wash my hands before wearing gloves	22 (16.0%)	17 (13.0%)	60 (44.0%)	31 (23.0%)	5 (4.0%)	135 (100%)
Wash my hands always after removing gloves	35 (26.0%)	20 (15.0%)	58 (43.0%)	17 (12.0%)	5 (4.0%)	135 (100%)
Overall Practice	28 (21.0%)	20 (14.0%)	55 (41.0%)	27 (20.0%)	5 (4.0%)	135 (100%)

From the table above, 43(32%) of the study population strongly agreed to disposing sharps into puncture proof box, 39(29%) strongly agreed to disposing all wastes based on their colour coding of the waste bags and 26(19%) also agreed to be involved in this practice. Thirty-six 36(27%) and 35(26%) of them strongly agreed to wearing gloves before every procedures and wash their hands before wearing gloves respectively. Further in the table, 21(15%) of the study population strongly agreed to washing their hands before and after every procedures and 25(19%) agreed to this practice, 23(17%) attested strongly that soap and running water is always available for them to wash their hands always which 21(15%) of them agreed to while 19(14%) strongly attested to wearing protective apron before every procedure and 16(12%) of them agreed to this practice.

Table 3: Factors hindering effective utilization of infection prevention and control (IPC) practices

Factors	SA	A	D	SD	U	Total
No water to wash hands before and after procedures	40 (30.0%)	47 (35.0%)	9 (6.0%)	35 (26.0%)	4 (3.0%)	135 (100.0%)
Lack of adequate understanding of what IPC entails	16 (12.0%)	10 (7.0%)	63 (47.0%)	35 (26.0%)	11 (8.0%)	135 (100.0%)
Inadequate supply of gloves for every procedure	47 (35.0%)	35 (26.0%)	30 (22.0%)	23 (17.0%)	0 (0.0%)	135 (100.0%)

Excessive workload prevents the effective utilization of IPC	36 (27.0%)	39 (29.0%)	38 (28.0%)	16 (12.0%)	6 (4.0%)	135 (100.0%)
Hospital sometimes runs out of safety box	52 (39.0%)	29 (22.0%)	26 (19.0%)	21 (15.0%)	7 (5.0%)	135 (100.0%)
Inadequate supply of waste disposal nylon and plastics	64 (47.0%)	36 (27.0%)	18 (13.0%)	17 (13.0%)	0 (0.0%)	135 (100.0%)
Utilization of IPC is not common among fellow staff	22 (16.0%)	19 (14.0%)	55 (41.0%)	39 (29.0%)	0 (0.0%)	135 (100.0%)
Insufficient supply of personal protective equipment	42 (31.0%)	44 (33.0%)	21 (15.0%)	16 (12.0%)	12 (9.0%)	135 (100.0%)
Usage of personal protective equipment is uncomfortable	31 (23.0%)	28 (21.0%)	41 (30.0%)	28 (21.0%)	7 (5.0%)	135 (100.0%)
Supply of disinfectant is limited compared to need	28 (21.0%)	31 (23.0%)	38 (28.0%)	35 (26.0%)	3 (2.0%)	135 (100.0%)

From table 3, 86(64%) respondents attributed insufficient supply of personal protective equipment while 82(61%) of the participants believed that inadequate supply of gloves for every procedure and hospitals sometimes running out of safety boxes respectively hinders the utilization of infection prevention and control practices. Furthermore, 59(44%) of the respondents opined that once the supply of disinfectant is limited as compared to its need, the effective utilization of infection prevention and control practices will be hindered and that the usage of personal protective equipment if perceived as being uncomfortable will further hinder the effective utilization of infection prevention and control practices. Lack of understanding of what infection prevention and control entails hinders its effective utilization among nurses was reported by 26(19%) respondents.

Discussion of Findings

More than 48% of the respondents believe that universal precautions should be practiced by nurses. More than close to half of the respondents (42.2%) affirmed strongly that utilization of infection prevention and control measure is paramount in control of hospital acquired infections. Similarly, In a study conducted by Ali, Hatem, Bazzid and Ahmede (2015) the research indicated high levels of uncertainty among healthcare workers across a range of infection prevention and control issues but there was evidence to suggest that staff in private hospitals and nurses were more confident than other staff types they argue that urgent multi-factorial actions are needed to try to ensure outbreaks of communicable diseases can be minimized and contained.

Similarly, in the study conducted by Ojulong, Mitonga and Ipinge (2013) in a study among Students of health sciences observed that an overall score for nurses was relatively high (66%), although this was below the medical students which was 73%. From the findings of this study, it can be deducted that usage of punctured proof box is commonly used by the nurses as more than 43 (32%) strongly affirmed this. In addition, colour coding waste bag is also a common method of waste disposal practices use by the nurses.. However, regarding washing of hand before and after every procedure, the results revealed that the nurses didn't practice this maximally, as high as 62 (46%) of the respondents indicate that they don't usually wash hands before and after each procedure. Only about 21 (15%) of the respondents strongly agreed they do while 25 (19%) agreed. There is similarity between the findings of the study and the one conducted by Egwuenu and Okanlawon (2014), which discovered that in spite of the high levels of knowledge on importance of utilization of infection prevention and control, the practice however was below average for use of hand gloves, face mask was as low as 17.7% and eye shades was as low 7%. Conversely, the study conducted by Amoran and Onwune (2013) reveals that more than as 70% of the health workers usually use gloves before attending to patients. The study group comprises of numbers of health workers from different departments, this might account for the reported high rate of gloves usage, although only about 12.6% indicated they wash their hands before wearing gloves, 10.7% wash hands after

removing gloves. Only about 3.3% had sharp disposal systems in their work place, such as usage and management of safety boxes.

In a comparative study done by Vinodhini and Bhooma (2016) among nurses, paramedics and housekeeping staff of a hospital, practice of hand washing was moderately higher among nurses (77%), more than half (58%) used personal protective equipment. However, about 72% were not practicing proper health waste management. From the findings of the study, 86 (64%) agreed supplies weren't enough while 82 (61%) indicated that hospital sometimes run out of gloves and other personal protective equipment, and this seriously hindered effective compliance to effective infection prevention and control. Regarding impact of workloads on utilization of infection prevention and control, about 38 (28%) of the respondents disagreed that workloads has an impact, while majority agreed it does, 36(27%) strongly agreed while 39 (29%) agreed. This indicates the nurses are likely to comply with hospital protocols regarding infection prevention and control if workloads are reduced by employment of more staff or creation of new facilities. Similarly, Amoran and Onwube (2013), in their study, the majority (98.6) of the respondents noted that the reason for noncompliance to hospital infection prevention and control was due to unavailability of equipment. Hospital will need to prioritize supply of personal protective equipment and other materials needed for effective utilization of infection prevention and control, this will promote the nurses and other medical staff to make use of them in controlling hospital acquired infections. Similarly, in a study to evaluate the availability of running water and other materials needed for utilization of infection prevention and control in some selected hospitals done by Okonofua et.al (2012), among all the 63 health facilities of different levels used, only half were observed to have 24 hours running water, only two third had soap and antiseptics in delivery and operating rooms.

Implication for Nursing Practice

Nurses are health care providers who have the most direct contact with the patients, spending longer hours in the hospital and carrying out mote procedures which bring them in contact with the patient. This therefore implies strongly that nurses take active, advocacy and leadership role in the control of hospital acquired infections. This involves strict compliance to the hospital protocols, reward and punishment of staff that do not follows the available rules and guide, advocacy for adequate supply of resource and increase staff strength. Continuous research on prevention of hospital acquired infections is necessary.

Conclusion

Hospital acquired infection remains an integral cost of health care management worldwide, universal precautions is considered effective step in reducing hospital acquired infections. Generally, nurses are well informed and equipped with skills needed to adequately practice universal precautions. The attitude of all health workers toward infection prevention and control can affect the utilization of all the preventive measures, it is therefore important for attention to be directed to the promotion of positive behaviour and attitude.

Recommendations

1. Nurses must identify themselves as been at risk and a risk to others and should take responsibility in preventing themselves and others from hospital acquired infection.
2. Hospital management, especially the leaders of nursing department must see to it that all staff understand and are able to follow hospital protocols regarding prevention of hospital acquired infection. They should organize periods, trainings and seminars to review and update the nurses on importance and new trends on hospital infection prevention and controls.
3. Nursing and Midwifery Council of Nigeria should initiate policies that will promote compliance to hospital infection prevention and control.

References

- Amoran, O., & Onwube, O. (2013). Infection control and practice of standard precautions among healthcare workers in northern Nigeria; *Journal of Glob Infect Dis.* 5(4):156-63
- Anderson, J.D, Kaye, S.K., Chen, Fl., Schmader, E.K., Choi, Y., Sloan, R, &Sexton, J.D (2009). Clinical and financial outcomes due to Methicillin Resistant Staphylococcus aureus surgical site infection: A multi-center matched-outcomes study. *PloS ONE*, 4(12), 1- 8
- Rabaan, A. A., Alhani, H. M., Bazzi, A. M., & Al-Ahmed, S. H. (2017). Questionnaire-based analysis of infection prevention and control in healthcare facilities in Saudi Arabia in regards to Middle East Respiratory Syndrome. *Journal of infection and public health*, 10(5), 548-563
- Brooker, C., Waugh, A., & Waston, R. (2013). Caring for the person having surgery, *Foundations of nursing practice*, Edinburgh [Scotland] : Mosby Elsevier, Boston, Massachusetts : Credo Reference, pg 223-300
- Edward, R., Peterson, D., Banerjee, S., Allen-Bridson, K., and Morrell, H. (2018). National Healthcare Safety Network (NHSN) report: Data summary for 2016 through 2018, issued December 2019; *American Journal of Infection Control* 37(10):783-805
- Egwuenu, S., & Okanlawon, F. (2014). Universal precaution in Delta State, Nigeria, *African Journal of Medicine* 43(2):127-34
- Hugonnet, S., Chevrolet, J., & Pittet, D. (2017). The effect of workload on infection risk in critically ill patients. *Care Med*, 35(1):76-81
- Medubi, S., Akande, T., & Osagbemi, G. (2012). Awareness and pattern of needle stick injuries among health workers at University Teaching Hospital Ilorin, Nigeria, *African Journal of Clinical and Experimental Microbiology*, 7(3): 183-188
- Ojulong, J., Mitonga, K., & Ipinge, S. (2013). Knowledge and attitudes of infection prevention and control among health sciences students at University of Namibia; *Africa Health Sci*, 13(4), 1071-1078
- Okonofua, F., Okpokunu, E., Aigbogun, O., Nwandu, C., Mokwenye, C., Kanguru, L., & Hussein, J. (2012). Aternal Mortality in Nigeria: Trend, Triggers and Implications for Sustainable Development; *American Journal of Life Sciences*, 8(5), 135-143
- Siegel, D., Rhinehart, E., Jackson, M., & Chiarello, L. (2017). Health Care Infection Control Practices Advisory Committee. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings. *American Journal of Infection Control*, 35(10), S65-164
- Vinodhini, K., & Bhooma, V. (2016). Study on infection control practices among healthcare workers in a speciality hospital, Chennai. *International Journal*, 35(3), 549-555
- World Health Organization. (2013). *Global tuberculosis report 2013*. World Health Organization.
- World Health Organization. (2014). *Global status report on noncommunicable diseases 2014* (No. WHO/NMH/NVI/15.1). World Health Organization