



# Do the Nurse Practice the Five Moments for Hand Hygiene? An Observational Study during Pandemic COVID-19

Ardia Putra<sup>1\*</sup>, Hajjul Kamil<sup>1</sup>, Putri Mayasari<sup>1</sup>, B. Fahmi Annur<sup>2</sup>, Yuswardi Yuswardi<sup>1</sup>

<sup>1</sup>Department of Nursing Management, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia; <sup>2</sup>Academic Division, Politeknik Kesehatan Kemenkes Aceh, Meulaboh, Indonesia

## Abstract

**Edited by:** Ksenija Bogoeva-Kostovska  
**Citation:** Putra A, Kamil H, Mayasari P, Annur BF, Yuswardi Y. Do the Nurse Practice the Five Moments for Hand Hygiene? An Observational Study during Pandemic COVID-19. Open Access Maced J Med Sci. 2022 Apr 29; 10(B):9626-9629.  
<https://doi.org/10.3889/oamjms.2022.9626>

**Keywords:** Handwashing; Practice; Nurses; Inpatients; Hospitals

**\*Correspondence:** Ardia Putra, Department of Nursing Management, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia. E-mail: [ardia@unsyiah.ac.id](mailto:ardia@unsyiah.ac.id)

**Received:** 15-Mar-2022

**Revised:** 16-Apr-2022

**Accepted:** 19-Apr-2022

**Copyright:** © 2022 Ardia Putra, Hajjul Kamil,

Putri Mayasari, B. Fahmi Annur, Yuswardi Yuswardi

**Funding:** This research did not receive any financial support

**Competing Interests:** The authors have declared that no competing interests exist

**Open Access:** This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

**BACKGROUND:** Healthcare-associated infections (HAIs) are frequently found in patients worldwide each year with varying rates. Nurses have a significant role in reducing the number of hospital infections. Handwashing has received considerable attention during the coronavirus (COVID-19) pandemic. The COVID-19 pandemic is very challenging, but this challenge can be used as an opportunity to increase self-awareness of the importance of maintaining hand hygiene by washing hands and keeping good handwashing practices.

**AIM:** This clinical observation aims to identify the practice of five moments of hand hygiene in the surgical inpatient ward, General Hospital Banda Aceh.

**METHODS:** This clinical observation aims to identify the practice of five moments of hand hygiene in the surgical inpatient ward, General Hospital Banda Aceh. This clinical observation with a population of 26 nurses and a sample of 16 nurses was obtained through the incidental sampling method. The tool used to collect data is in the form of a hand hygiene observation sheet that was observed at five moments according to the World Health Organization (WHO) standards.

**RESULTS:** The five-moment hand hygiene showed that the nurse hand hygiene practice was 68.7%–100%. Two moments with the lowest percentage values of practicing hand hygiene are as follows: Nurses do not apply hand hygiene before contact with patients (68.8%) and nurses do not use hand hygiene before aseptic action (75%). For all moments of hand hygiene, only four respondents (25%) thoroughly applied five hand hygiene moments.

**CONCLUSIONS:** The leadership role of the head nurse is needed to optimize the practicing of hand hygiene in the hospital inpatient room, which is shown through role models, continuous supervision, and evaluation. In addition, good infrastructure is also needed to support these activities.

## Introduction

The hospital is a health institution that plays a key role in carrying out health efforts to prevent and treat disease [1]. However, the hospital is also a place for health services that can be a source of transmission of infections, generally referred to as nosocomial infections [2]. This infection can happen to anyone, such as patients, health workers, families, and hospital visitors [1].

The rate of healthcare-associated infections has been found in patients worldwide each year with varying rates. In developed countries, healthcare-associated infections in hospitals range from 5 to 15% and cause 9–37% of patients to be admitted to the intensive care unit (ICU) [3]. The impact caused by this infection is an increase in the patient's length of stay, causing long-term disability, and increasing the cost of treatment and care that must be incurred by the patient and his family [3]. The research of Yousif *et al.* [4] said that the hospital's poor infrastructure, inadequate

staff training, and lack of an established infection prevention team. All of these contribute to high rates of hospital-acquired infections, also known as healthcare-associated infections (HAIs) [5].

At present, the attention of the public, health insurance, government, and regulatory agencies is increasing on the issue of the incidence of infections acquired during the treatment period. One of the most effective prevention methods is to carry out basic infection prevention practices, such as hand hygiene practices [3]. Keeping hands clean by washing hands is the direct action to reduce infection. Sands and Aunger [6] said that hand hygiene is the most effective measure to prevent infection in hospitals. However, despite the simplicity of these procedures to avoid infection, compliance by healthcare workers is generally low worldwide.

Adherence to infection prevention and control practices are critical to providing safe and high-quality patient care in all settings, where healthcare is delivered. The research of Taryana *et al.* [7] revealed

that hand hygiene adherence among health workers in the neonatology unit was 74.5%. Based on all moments of hand hygiene, 83.3% were obtained before contact with the patient, 100% before performing aseptic procedures, 90% after exposure to body fluids, 74.5% after contact with the patient, and 42.2% after contact with the patient's environment. Furthermore, by profession category, hand hygiene compliance was found to be 78.4% for nurses, 30% for doctors, 78% for students, and 22.2% for other staff.

Handwashing has received considerable attention during the COVID-19 pandemic. The COVID-19 pandemic is very challenging, but this challenge can be used as an opportunity to increase self-awareness of the importance of maintaining hand hygiene by washing hands and maintaining good handwashing practices [8]. Hand hygiene is the primary preventive measure that can be done independently and is known as the first line of defense against COVID-19 and its spread during a pandemic [8]. Therefore, hand hygiene is an integral part of infection control and is the most important activity to prevent the transmission of microorganisms [3]. In the research, Rhee *et al.* [9] also mentioned that nosocomial infections were rare during a pandemic in his study area with strict infection control measures. This finding can be essential information for other agencies and reassure patients worried about contracting COVID-19 in hospitals. The study results during the COVID-19 pandemic by Jabarpour *et al.* [8] who showed a significant reduction in nosocomial infections during the COVID-19 outbreak. Furthermore, Jabarpour *et al.* [8] concluded that applying appropriate infection control protocols during the COVID-19 pandemic can reduce nosocomial infections.

In November 2021, there were 23 incidents of nosocomial infection at a General Hospital in Banda Aceh. Of these incidents, eight occurred in the surgical inpatient ward. These results were also found in previous studies related to the incidence of HAIs in RSUDZA Banda Aceh in 2016, quoted in Delinda and Jannah [10], which found that the leading causes of HAIs are ventilator-associated pneumonia (VAP) 19%, primary blood flow infection (IADP) 12%, urinary tract infection (UTI) 1%, and surgical wound infection 1%. Therefore, nurses have a significant role in reducing the number of hospital-acquired infections by utilizing the knowledge and skills of nursing practice to facilitate patient recovery while minimizing infection-related complications in patients.

From the explanations above, one of the practical ways to control infection that nurses can do is to carry out six steps of hand hygiene routinely at five central moments according to the WHO recommendations [3]. The general purpose of this clinical observation is to describe the practicing of five moments of nurse hand hygiene in the surgical inpatient ward, General Hospital Banda Aceh.

## Materials and Methods

### Design and setting

This clinical observation was conducted in the Surgical inpatient room at General Hospital in Banda Aceh. The room is a Female Surgical Inpatient Room with 26 nurses. We do the cross-sectional study, which is faster and cheaper than other models and can be used in planning, monitoring, and evaluating public health [11].

### Samples

The sampling used in this study was an accidental sampling technique, totaling 16 respondents. The inclusion criteria are nurses who are available or work during the clinical observation and agreed to be observed for their daily activity. The observational were made from December 30, 2021, to January 1, 2022, using the observation sheet.

### Procedures and ethical considerations

Before the observations were made, we first interviewed the head nurse of the inpatient room. As a result, the head nurse stated that generally, the nurses were still lacking in applying five moments of hand hygiene, especially in the first and second moments. From the results of interviews and observations carried out for three days, it was found that nursing problems were not optimal in practicing five moments of hand hygiene, especially in the first and second moments. Details are shown in Table 1.

**Table 1: Overview of the practising of hand hygiene nurses in hospitals (n = 16)**

Moments	Category	f	%
Before touching a patient	Applied	5	31.2
	Not applied	11	68.8
Before clean/aseptic procedures	Applied	4	25
	Not applied	12	75
After body fluid exposure risk	Applied	16	100
	Not applied	1	6.3
After touching a patient	Applied	15	93.7
	Not applied	1	6.3
After touching patient's surroundings	Applied	12	75
	Not applied	4	25

The instrument used to collect data is in the form of a hand hygiene observation sheet that was observed at five moments according to the WHO standards. The clinical observation of 5 moments of hand hygiene was monitored during several actions, such as checking vital signs, physical examination, insertion of NGT, giving IV lines, injection of drugs, taking blood samples, insertion, and removal of Dower Catheter, and implementing of bedside handover. This clinical observation is part of the nursing management professional practice station that has been generally stated in the cooperation agreement between the Faculty of Nursing USK and the General Hospital.

### Statistical analysis

Univariate analysis is used to explain and describe the characteristics of each variable under study [12]. The univariate analysis in this clinical observation is frequency and percentage to determine the categories of respondent characteristics and Practicing of Hand Hygiene according to five moments. The data obtained are presented in a master table using and analyzing data using the Excel program.

## Results

### Respondent characteristic

From Table 2, it is known that most nurses who were respondents in the study were in the early adulthood, and all of them were female. The last education of nurses was dominated by diploma 3 nursing, and the majority had a working period of fewer than 10 years.

**Table 2: Respondent characteristic (n = 16)**

Respondent characteristic	F	Percentage
Age: M = 33.87 ± 4.34 (minimum = 27; maximum = 42)		
Early adult (26–35 years)	10	62.5
Late adults (36–45 years)	6	37.5
Sex		
Female	16	100
Educational level		
Diploma 3	7	43.8
Bachelor	6	37.5
Bachelor + Ners	3	18.7
Working period: M = 8.31 ± 4.33 (minimum = 3; maximum = 15)		
10 years	11	68.8
>10 years	5	31.2

### Practicing hand hygiene according to five moments

From Table 1, it can be configured that all nurses had done the handwashing after they were exposed to the patient's body fluid. Otherwise, from Table 3, it is known that in the overall practicing of five moments of hand hygiene by the inpatient room nurse, the most dominant result was "Incomplete" for as many as 12 respondents (75%). This result also shows that most nurses practice hand hygiene only for three moments.

## Discussion

Based on the results of observations that have been made, it can be concluded that only four respondents (25%) applied five moments of hand hygiene thoroughly. In contrast, the rest (75%) did not thoroughly apply five hand hygiene moments. Hand hygiene is the most crucial health procedure

**Table 3: Category of practising of five moments of hand hygiene**

Practicing of 5 moments	F	%
Mean = 3.25 ± 1.23, Median = 3		
Incomplete		
1 moment	1	6.3
2 moment	3	18.7
3 moment	7	43.7
4 moment	1	6.3
Complete		
5 moment	4	25

that everyone can do to prevent or reduce nosocomial infections [13]. In general, the lack of awareness of handwashing is the high mobility of nurses so that it is practically easier to use gloves. This action triggers negligence to perform hand hygiene before and after using gloves [1].

Nurses who are not obedient in performing hand hygiene correctly and adequately can be considered a significant cause of infection and the spread of multiresistant microorganisms in health care facilities and contribute to the increase in HAIs [14]. The impact of HAIs is an increase in the length of treatment for patients, which causes additional suffering for patients and families, is at risk for disability due to prolonged treatment periods, increases antimicrobial resistance, burdens patients and the country financially, and increases mortality rates [5].

Five-moment hand hygiene observations show that nurses pay less attention to the moment of hand hygiene before contact with patients and before aseptic actions. This clinical observation is sequent with the research conducted by Taryana *et al.* [7]. The study revealed that hand hygiene adherence among health workers in the neonatology unit was 74.5%. Based on all moments of hand hygiene, 83.3% were obtained before contact with the patient, 100% before performing aseptic procedures, 90% after the risk of exposure to body fluids, 74.5% after contact with the patient, and 42.2% after contact with the patient's environment [7].

Moreover, to improve good hand hygiene practices, various efforts are needed by the Hospital Management. Mohaithef [15] and Gaol *et al.* [5] suggested providing posters and other visual aids containing information about hand hygiene to raise awareness of hand hygiene among nurses. In a brief report submitted by Baier *et al.* [16], it is suggested that students in health education institutions should be taught about hand hygiene. Teaching should specifically address the indications for hand hygiene and its practical implementation. In this brief report, Baier *et al.* [16] also suggested that teaching efforts, apart from containing the theory of hand hygiene, are also adapted to meet the needs of Generation Z students so that they can be applied during internships or in the world of work.

Further, Hammerschmidt and Manser [17] conveyed that efforts to improve hand hygiene should be focused on strategies that facilitate the provision of hand hygiene support materials such as disinfectants found in nurse work units. In addition, nursing managers

must be made aware of the impact of their role models, and they must apply it in their daily practice. Even though it looks simple, maintaining hand hygiene is not an easy thing to do. However, it is also not impossible to realize this, but it requires the participation of all parties because it is not enough to have good knowledge and attitude. However, it needs to be supported by infrastructure, a leadership role, and good work culture.

## Conclusions

This clinical observation in the field of nursing management shows unsatisfactory results. The observations showed that only four respondents (25%) had carried entirely out five hand hygiene moments when they performed various nursing actions. These results are the shared responsibility of all policymakers and hospital leaders, especially for the head of the room to increase the role of leadership to be a role model in optimizing hand hygiene in the inpatient room. In addition, continuous supervision and evaluation are needed to fulfill good infrastructure needs to support the successful implementation of optimal hand hygiene.

## Acknowledgment

Our thanks to the nurses involved for their time in this study.

## References

- Ritonga EP. Implementation of five moments of hand hygiene in the inpatient room of Medan Private Hospital. *J Ilm Keperawatan Imelda*. 2017;3(2):342-7. <https://doi.org/10.52943/jikeperawatan.v6i2.439>
- Onoigboria OR, Dibia PN, Okoedion S. Improving hand hygiene compliance among health education students of ambrose Alli University, Ekpoma, Edo State, Nigeria. *World J Res Rev*. 2018;7(2):1-5. <https://doi.org/10.9790/7388-04542227>
- World Health Organization. WHO Guidelines on Hand Hygiene in Health Care. In: WHO Guidelines on Hand Hygiene in Health Care. Geneva: World Health Organization; 2009. p. 270.
- Yousif M, Tancred T, Abuzaid M. A survey of knowledge, attitudes and practices regarding hand hygiene among doctors and nurses in Ribat university hospital. *Int J Med Rev Case Rep*. 2020;1:19-27. <https://doi.org/10.5455/ijmrcr.hand-hygiene-doctors-nurses>
- Gaol BL, Sagita S, Koamesah S. The effect of poster media on the implementation of five-moment hand hygiene on nurses at X Hospital Kupang. *Cendana Med J*. 2019;7(1):1495.
- Sands M, Aunger R. Determinants of hand hygiene compliance among nurses in US hospitals: A formative research study. *PLoS One*. 2020;15(4):e0230573. <https://doi.org/10.1371/journal.pone.0230573> PMID:32255783
- Taryana AM, Sampurna MT, Sari GM. Compliance in maintaining hand cleaning on health care workers in neonatology unit in tertiary referral hospital Indonesia: The usage of CCTV for supervision. *Indian J Public Health Res Dev*. 2019;10(8):1188-93. <https://doi.org/10.5958/0976-5506.2019.02057.6>
- Jabarpour M, Dehghan M, Afsharipour G, Abaee EH, Shahrababaki PM, Ahmadijad M, et al. The Impact of COVID-19 outbreak on nosocomial infection rate: A case of Iran. *Can J Infect Dis Med Microbiol*. 2021;2021:6650920. <https://doi.org/10.1155/2021/6650920> PMID:33680220
- Rhee C, Baker M, Vaidya V, Tucker R, Resnick A, Morris CA, et al. Incidence of nosocomial COVID-19 in patients hospitalized at a large US academic medical center. *JAMA Netw Open*. 2020;3(9):e2020498. <https://doi.org/10.1001/jamanetworkopen.2020.20498> PMID:32902653
- Delinda V, Jannah N. Implementation of supervision of the head of the room on five moments for hand hygiene nurse practitioners. *J Ilm Mhs Fak Keperawatan*. 2018;3(4):92-101.
- Tabatabaei SN, Abbasi S. Risk assessment in social security hospitals of Isfahan Province in case of disasters based on the hospital safety index. *Int J Heal Syst Disaster Manag*. 2016;4(3):82-7. <https://doi.org/10.4103/2347-9019.191108>
- Notoatmodjo S. *Health Research Methodology*. Jakarta: Rineka Cipta; 2018.
- Suhanda S, Lismayanti L, Nurjanah N, Setiawan H, Kurniawan R. Implementation of five moments of handwashing nurses in the inpatient room of the Ciamis Regency general hospital. *J Kesehat STIKes Muhammadiyah Ciamis*. 2018;5(1):72-87. <https://doi.org/10.52221/jurkes.v5i1.25>
- World Health Organization. Health Care-associated Infections Fact Sheet. Geneva: Geneva: World Health Organization; 2015.
- Al Mohaithef M. Assessing hand hygiene practices among nurses in the Kingdom of Saudi Arabia. *Open Public Health J*. 2020;13(1):220-6. <https://doi.org/10.2174/1874944502013010220>
- Baier C, Albrecht UV, Ebadi E, Vonberg RP, Schilke R. Knowledge about hand hygiene in the Generation Z: A questionnaire-based survey among dental students, trainee nurses and medical technical assistants in training. *Am J Infect Control*. 2020;48(6):708-12. <https://doi.org/10.1016/j.ajic.2020.02.002> PMID:32234262
- Hammerschmidt J, Manser T. Nurses' knowledge, behaviour and compliance concerning hand hygiene in nursing homes: A cross-sectional mixed-methods study. *BMC Health Serv Res*. 2019;19(1):547. <https://doi.org/10.1186/s12913-019-4347-z> PMID:31382968