

# Knowledge, Attitude and Practices of Hand Hygiene Among First year and Fourth year MBBS Students; A Cross Sectional Comparative Study

## About the Author(s)

Lata Kumari<sup>1\*</sup>, Abida Sultana<sup>2</sup>, Maqsood Hayat<sup>3</sup>, Beenish Hafiz<sup>4</sup>, Ahmad Ehsan Rabani<sup>5</sup>

<sup>1</sup>Demonstrator, Department of Community Medicine, HBS Medical and Dental College, Islamabad

<sup>2</sup>Professor, Department of Community Medicine, HBS Medical and Dental College, Islamabad

<sup>3</sup>Associate Professor, Department of Community Medicine, HBS Medical and Dental College, Islamabad

<sup>4</sup>Demonstrator, Department of Community Medicine, HBS Medical and Dental College, Islamabad

<sup>5</sup>Assistant Professor, Department of Community Medicine, HBS Medical and Dental College, Islamabad

Received: June 02, 2023

Revised: August 18, 2023

\*Correspondence: sandhyasoorani1234@gmail.com Accepted: October 11, 2023

Published: January 05, 2024

HBS Medical and Dental College, Islamabad

DOI: <https://doi.org/10.70394/jhbsmdc.v3i2.17>

## Abstract

**Objective:** To compare the knowledge, attitude and practices of hand hygiene among first- and fourth-year medical students of HBS Medical and Dental College Islamabad.

**Methodology:** A cross sectional descriptive comparative study was carried out in HBS medical and dental college Islamabad from June to August 2022(n=200). The survey was based on self-structured closed-ended questionnaire about hand hygiene practices among the participants.

**Results:** We identified 90% of first year and 98% of fourth year medical students with adequate knowledge, attitude and practices about hand hygiene.

**Conclusions:** The majority of first and fourth year MBBS students had updated information regarding hand hygiene knowledge, attitude and practices.

**Key words:** Hand hygiene, Knowledge, Attitude, Practices, Medical students.

**Conflict of Interest:** None

**Funding Source:** None

## Introduction

Hand hygiene is the most effective way to control infectious diseases in every day life<sup>1</sup>. A survey suggested that decreased compliance may be related with forgetting to wash the hands before and after contact with any dirty object. In developing countries one of the commonest causes of morbidity are hand transmitted infections.<sup>3</sup> The burden of disease is even greater in developing countries, having limited resources such as South East Asia and Pakistan<sup>3</sup>. In short; Adequate hand hygiene practices prevent the risk of transmission of disease.

In clinical practice this is the simplest and most cost-effective method to decrease the chance of infection transmission<sup>4</sup> as the health care providers can quiet easily transmit serious infections to their patients and jeopardies their life.<sup>5</sup> If water is not available a simple rinsing of hands with antiseptic agent is recommended.<sup>6</sup> If these measures are not followed, it can adversely affect human health and poses a serious risk of

communicable diseases<sup>7</sup>. Infection prevention in clinical settings require a multidisciplinary approach. As apart from hands, the equipment and other vectors can transmit pathogenic microorganism<sup>8</sup>. In Wuhan, China during late December 2019 the Covid 19 outbreak was result of poor compliance to such practices.<sup>9</sup> Many studies have reiterated the transmission through contaminated hands and importance of hand hygiene.<sup>10,11,12</sup> These simple measures can reduce significantly and put a stop to many nosocomial infections. These can decrease the infection rate can be as high as 40%<sup>10,11,12</sup>. hence the compliance to protocols and disinfectants is much needed. lack of compliance could be due to shortage of time and poor knowledge. Also, skin irritation may occur but use of irritant and unhygienic products.<sup>13,14,15</sup>

WHO also recommends health care providers to follow these protocols strictly and adopts a Ayliffe technique which consists of six steps. Another WHO criteria for hand washing is called "5 moments of hand hygiene."<sup>16,17</sup>

1. The study will educate us about the knowledge attitude and practices of medical students and also how they have improved from first to fourth year.
2. Novelty of the proposal: This study will improve their existing knowledge and practices about hand hygiene.
3. Benefits to the medical field: It might be helpful in better management of hand hygiene & prevention of spread of infections.
4. Benefits to patient community: This article may be helpful to encourage the positive effects of hand hygiene among the masses.

## Methodology

This cross-sectional, descriptive, comparative study conducted between June 2022 to August 2022 at HBS medical and dental college Islamabad. Total 200 student, 100 from each class of 1st and 4<sup>th</sup> year MBBS students of HBS medical and dental college Islamabad was enrolled in this study. Non probability consecutive sampling technique was used. Analysis was carried out by using SPSS version 25.

- **Inclusion criteria:** First and fourth year MBBS students of HBS medical and dental college Islamabad
- **Exclusion criteria:** Students who were not willing to participate in the study
- Self-structured closed ended questionnaire was used.

Knowledge in Hand Hygiene, Attitudes towards Hand Hygiene, Self-reported Hand Hygiene Practices.

## Discussion

Hand hygiene is considered as the basic measure in preventing the spread of microorganisms. It is also proven to be effective method in decreasing the incidence of hospital acquired infections.<sup>18,19</sup> Although hand hygiene protocols are simple, healthcare providers hand hygiene compliance is not very good.<sup>20</sup> Our study showed that knowledge regarding hand hygiene among medical students of HBS medical college is remarkable but there is some slackness of attitude and practices. After COVID 19 pandemic the knowledge of hand hygiene has increased many folds and now almost everyone is fully aware. Unlike a study conducted at tertiary care hospital Lahore, Pakistan, which showed hand hygiene knowledge, attitude and practices of health care workers as unsatisfactory.<sup>21</sup> Boyce and Pittet have reported that the average compliance rates of hand hygiene among doctors and nurses at the University Hospital in Geneva were approximately 30-50% only.<sup>19</sup>

Despite the attained hand hygiene education, many students are still unable to carry out the hand hygiene procedure as per WHO guidelines successfully.<sup>22</sup> Our results had very similar findings just like a study done in Sri Lanka showing that in spite medical students having some knowledge regarding hand hygiene practices they still needed improvements.<sup>23</sup> Study identifies that though

Questions	1 <sup>st</sup> Year		4 <sup>th</sup> Year		Mean	SD	P value
	Yes	No	Yes	No			
Do you feel hand hygiene will reduce the risk for transmission of infections?	98%	2%	99%	1%	.000	.201	1.000
Do you feel our hand are at higher exposure to 94% germs then other part of body?	90%	10%	94%	6%	-.050	.479	.299
Do you consider hand hygiene important for overall health?	92%	8%	6%	94%	.040	.281	.158
Curriculum /Training received in order to improve hand hygiene practice?	67%	33%	35%	75%	-.760	1.138	.000
Do you feel improper hand hygiene promote hospital acquired infection 81% fourth correct answer 81 % first student correct answer.	81%	21%	81%	21%	.000	.620	1.000
Do you consider hand hygiene facilities at your work place/educational institution are adequate or not?	63%	57%	97%	3%	.320	.548	.000
Do you feel hand jewelery and artificial nails should be removed before washing hands?	63%	47%	70%	30%	.060	.679	.379
Minimum time required for proper hand hygiene to control infection?	38%	62%	43%	57%	-.220	.773	.005

## Results

The survey had a total of 200 respondents. 100 students from 1st year and 100 from 4th year. 38% male participants and 64% female's participants were included in the study. Age of the participants ranges from 18 to 24 year. The results were divided into three sections according to the group of questions being asked:

health care workers have adequate knowledge but they still do not fully practice hand hygiene.<sup>23</sup> Another research showed poor knowledge and practices and they required proper guidance and training.<sup>24</sup> A gap in knowledge attitude and practices regarding hand hygiene in the 1<sup>st</sup> year medical students was also identified<sup>25</sup>.

Questions	1 <sup>st</sup> year		4 <sup>th</sup> year		Mean	SD	P value
Do you consider washing hands a necessity or an option? (a) Necessity	94%	6%	93%	7%	.000	.318	1.000
What are barriers that keep you away from hand hygiene? (c) Lack of education.	41%	59%	22%	18%	-.300	1.840	.106
Do you fear washing hands frequently will cause excessive skin dryness/allergy? or could lead to a skin condition?	64%	36%	54%	46%	-.400	.841	.000
Which is strongest motivation of the hand hygiene practice?	36%	64%	13%	87%	.940	1.013	.000

Question	1 <sup>st</sup> year		4 <sup>th</sup> year		Mean	SD	P value
How frequently do you wash your hands (b) 2 to 5 times in a day.	53%	47%	61%	94%	.520	.627	.000
Do you wash your hand before after meal? (a) Often mis.	30%	70%	46%	54%	-.160	1.212	.190
Do you perform hand hygiene after sneezing or coughing?	40%	60%	48%	52%	-.070	.517	.179
Do you wash your hand after attending toilet?	89%	11%	73%	27%	.070	.355	.52
What do you normally practice for hand hygiene(a) Soap & water.	87%	13%	92%	8%	-.160	.564	.005
How do you wipe your hand after hand 90% washing? (a) With towel.	70%	30%	90%	10%	.590	1.156	.000
Do you feel using gloves will minimize the spread of disease and improve your hand hygiene?	78%	22%	87%	13%	.150	.609	.016
What do you observe from your senior doctor regarding hand hygiene practices? (a) Majority practice after leaving duty time.	23%	77%	53%	47%	-.030	1.840	.106
Does hospital environment encourage you to do hand hygiene?	82%	12%	76%	24%	.050	.479	.299

Unsatisfactory findings were seen among many health workers about these attributes.<sup>26</sup>

Unlike undergraduates the postgraduate trainees were quite practical about good knowledge attitude and practices regarding hand hygiene<sup>27</sup>. Our study showed knowledge improvement from first to fourth year, which was good but suggested that more emphasis is required on attitudes and practices. In short, an attitude and practice change needs enforcement rather than knowledge alone to implement WHO guidelines.

## Conclusion

This study shows that the students have good knowledge regarding hand hygiene. Although there are some deficiencies and practices in attitude and practice.

### Recommendation

Improvement is required regarding hand hygiene, attitude and practice among potential health care providers for better infection prevention in future. It is necessary to educate medical students regarding proper hand hygiene procedures on regular basis. Continuous medical education and skill-assessment should be included in their teaching curriculum, which will help to minimize the risk of preventable infections.

## References

1. Allegranzi B, Pittet D. Role of hand hygiene in healthcare-associated infection prevention. *Journal of hospital infection*. 2009 Dec 1;73(4):305-15.
2. Novák M, Breznický J, Kompaníková J, Malinová N, Hudečková H. Impact of hand hygiene knowledge on the hand hygiene compliance. *Med Glas (Zenica)*. 2020 Feb 1;17(1):194-9.
3. Allegranzi B, Nejad SB, Combescure C, Graafmans W, Attar H, Donaldson L, Pittet D. Burden of endemic healthcare-associated infection in developing countries: systematic review and meta-analysis. *The Lancet*. 2011 Jan 15;377(9761):228-41.
4. Mathur P. Hand hygiene: back to the basics of infection control. *The Indian journal of medical research*. 2011 Nov;134(5):611.
5. Boyce et al. (2009) Boyce J, Chartier Y, Chraiti M, Cookson B, Damani N, Dharan S. Geneva: World Health Organization [https://apps.who.int/iris/bitstream/handle/10665/4102/9789241597906\\_eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/4102/9789241597906_eng.pdf). [19 November 2017]; *WHO guidelines on hand hygiene in health care*. 2009 [Ref list]
6. Mittermayer H, Rotter M. Vergleich der Wirkung von Wasser, einigen Detergentien und Äthylalkohol auf die transiente Flora der Hände.
7. Wałaszek M, Kołpa M, Wolak Z, Różańska A, Wójkowska-Mach J. Poor hand hygiene procedure compliance among polish medical students and physicians—The result of an ineffective education basis or the impact of organizational culture. *International journal*

- of environmental research and public health. 2017 Sep;14(9):1026.
8. Ryan CE. Determinants of Hand Hygiene among Registered Nurses Caring for Critically Ill Infants in the Neonatal Intensive Care Unit. University of Windsor (Canada); 2012.
  9. Team E. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19)—China, 2020. *China CDC weekly*. 2020 Feb 2;2(8):1
  10. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, Qiu Y, Wang J, Liu Y, Wei Y, Yu T. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *The lancet*. 2020 Feb 15;395(10223):507-13.
  11. Kampf G. State-of-the-art hand hygiene in community medicine. *International journal of hygiene and environmental health*. 2003 Jan 1;206(6):465-72.
  12. Kampf G, Löffler H, Gastmeier P. Hand hygiene for the prevention of nosocomial infections. *Deutsches Ärzteblatt International*. 2009 Oct;106(40):649.
  13. Molina-Cabrillana J, Álvarez-León EE, García-de Carlos P, López-Carrió I. Incrementar la adherencia a la higiene de manos en el hospital es posible. *Enfermedades Infecciosas y Microbiología Clínica*. 2008;26(2):119-20.
  14. Gil JD, Fernández AV, Robles EP, Díaz GF. Higiene de manos de los fisioterapeutas: prevención de infecciones nosocomiales. *Fisioterapia*. 2009 Jan 1;31(1):24-31.
  15. Sánchez-Payá J, Rebeca M, García-González C, Fuster-Pérez M, López-Fresneña N, Avendaño-Corcoles F, González-Torga A. Grado de cumplimiento y determinantes de las recomendaciones sobre la higiene de manos. *Enfermedades infecciosas y microbiología clínica*. 2007 Jul 1;25(6):369-75.
  16. Sax H, Allegranzi B, Uckay I, Larson E, Boyce J, Pittet D. 'My five moments for hand hygiene': a user-centred design approach to understand, train, monitor and report hand hygiene. *Journal of Hospital infection*. 2007 Sep 1;67(1):9-21.
  17. Allegranzi B, Gayet-Ageron A, Damani N, Bengaly L, McLaws ML, Moro ML, Memish Z, Urroz O, Richet H, Storr J, Donaldson L. Global implementation of WHO's multimodal strategy for improvement of hand hygiene: a quasi-experimental study. *The Lancet infectious diseases*. 2013 Oct 1;13(10):843-51.
  18. Pittet D, Hugonnet S, Harbarth S, Mourouga P, Sauvan V, Touveneau S, Perneger TV. Effectiveness of a hospital-wide programme to improve compliance with hand hygiene. *The Lancet*. 2000 Oct 14;356(9238):1307-12.
  19. Boyce JM, Pittet D. Guideline for hand hygiene in health-care settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *Infection Control & Hospital Epidemiology*. 2002 Dec;23(S12):S3-40.
  20. Novák M, Breznický J, Kompaníková J, Malinovská N, Hudečková H. Impact of hand hygiene knowledge on the hand hygiene compliance. *Med Glas (Zenica)*. 2020 Feb 1;17(1):194-9.
  21. Salman M, Raza MH, Mustafa ZU, Shrestha S, Ali M, Asif N, Shehzadi N, Hussain K. Knowledge, attitudes and practices of hand hygiene among Pakistani health professionals: A cross-sectional study. *The Journal of Infection in Developing Countries*. 2018 Jan 31;12(01):063-6.
  22. Novák M, Breznický J, Kompaníková J, Malinovská N, Hudečková H. Impact of hand hygiene knowledge on the hand hygiene compliance. *Med Glas (Zenica)*. 2020 Feb 1;17(1):194-9.
  23. Liyanage G, Dewasurendra M, Athapathu A, Magodaratne L. Hand hygiene behavior among Sri Lankan medical students during COVID-19 pandemic. *BMC medical education*. 2021 Dec;21(1):1-8.
  24. Amin TT, Al Noaim KI, Saad MA, Al Malhm TA, Al Mulhim AA, Al Awas MA. Standard precautions and infection control, medical students' knowledge and behavior at a Saudi university: the need for change. *Global journal of health science*. 2013 Jul;5(4):114.
  25. Al Kadi A, Salati SA. Hand hygiene practices among medical students. *Interdisciplinary perspectives on infectious diseases*. 2012 Sep 16;2012.
  26. Ariyaratne MH, Gunasekara TD, Weerasekara MM, Kottahachchi J, Kudavidanage BP, Fernando SS. Knowledge, attitudes and practices of hand hygiene among final year medical and nursing students at the University of Sri Jayewardenepura.

#### Authors Contribution:

- 1,2 Substantial contributions to the conception or design of the work;
- 3,4,5 The acquisition, analysis, or interpretation of data for the work;
- 2 Final approval of the version to be published;
- 1,2,4 Drafting the work or revising it critically for important intellectual content.