



## Original Article

## A Study to Assess the Knowledge, Attitude and Practice of Health Workers Regarding Nosocomial Infection at Selected Hospitals of Birtamode Municipality, Jhapa

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DOI: <https://doi.org/10.5281/zenodo.10784943>

Abstract	Manuscript Information
<p><b>Introduction:</b> A nosocomial infection is “an infection acquired in the hospital by a patient who was admitted for a reason other than that infection” (WHO). It is necessary to prevent the infection in order to reduce its impact on morbidity and mortality in patients. The aim of this study is to assess the knowledge, attitude, and practice of health workers regarding nosocomial infection in selected hospitals in Birtamode Municipality, Jhapa.</p> <p><b>Methods:</b> This cross-sectional study was carried out among 198 individual health workers from selected hospitals in Birtamode Municipality through a multistage sampling technique. Knowledge, attitude, and practice of health workers regarding nosocomial infection were assessed with a validated, self-administered, pre-structured questionnaire. Statistical Package of Social Science version 23 was used to analyze the data, and the Chi-square test was applied to identify the association of dependent variables with independent variables.</p> <p><b>Results:</b> 198 health workers with a 100% response rate participated in the study. It was found that 76.8% had good knowledge, 75.3% had a positive attitude, and 97% had good practice regarding nosocomial infection transmission, prevention, and control during health care delivery in selected hospitals in Birtamode Municipality. There was a significant association between health workers’ knowledge and their working department, attitude and their working department, as well as working hours per week, practice, and their working department, with a p-value less than 0.05.</p> <p><b>Conclusions:</b> The knowledge, attitude, and practice of health workers regarding nosocomial infection were adequate while delivering health care services in selected hospitals in Birtamode Municipality.</p>	<ul style="list-style-type: none"> <li>▪ ISSN No: 2583-7397</li> <li>▪ Received: 20-01-2023</li> <li>▪ Accepted: 22-02-2023</li> <li>▪ Published: 28-02-2024</li> <li>▪ IJCRM:3(2);2024:01-05</li> <li>▪ ©2024, All Rights Reserved</li> <li>▪ Plagiarism Checked: Yes</li> <li>▪ Peer Review Process: Yes</li> </ul> <p><b>How to Cite this Manuscript</b></p> <p>Dr. Rupesh Jung Belbase, Dr. Romi Budhathoki, Arisetty Radha Prasain, Rosan Prasain, Dikshya Nepal, Dr. Anil Kumar Basnet. A Study to Assess the Knowledge, Attitude and Practice of Health Workers Regarding Nosocomial Infection at Selected Hospitals of Birtamode Municipality, Jhapa. International Journal of Contemporary Research in Multidisciplinary. 2024; 3(2): 01-05.</p>

**Keyword:** Attitude; Health Workers; Knowledge; Nosocomial infection; Practice

## 1. Introduction

Nosocomial infection can be defined as “An infection acquired in hospital by a patient who was admitted for a reason other than that infection.”<sup>[1]</sup> Nosocomial infections have been linked with higher morbidity, mortality, and patient cost burden.<sup>[2]</sup> Health workers have played primary role in preventing, managing and controlling nosocomial infection.<sup>[3]</sup> Nosocomial infection prevention can act as a barrier between susceptible host and the microorganism which help healthcare center to deliver safe and high-quality services. Implementing practices for infection control is mostly the responsibility of health workers. They should have adequate knowledge to maintain appropriate practices for the prevention of spread of nosocomial infection throughout the duration of the patient’s hospital stay.<sup>[4]</sup> The main objective of the study is to assess knowledge, attitude and practice of health workers (ANM/CMA/SN/HA/BSC.N/BN) regarding nosocomial infection in selected hospitals of Birtamode Municipality, Jhapa.

## 2. Methods

### Selection and Description of Site and Participants

P.T. Birta City Hospital and Research Center Pvt. Ltd, Kankai Hospital Pvt. Ltd and Man Mohan Memorial Eastern Regional Community Hospital were three research sites selected from Birtamode Municipality to bring diverse range of private hospital and community hospital. These three selected hospitals are the renowned tertiary care centers in Birtamode Municipality, which admit the patients requiring critical care services in Intensive Care Unit (ICU), High Dependent Units (HDU), and Post-Operative Units (POU) with other Inpatient Departments. The study included the health workers (auxiliary nurse midwives (ANM), community medical assistants (CMA), health assistants (HA), staff nurses (SN) and BSc. Nursing or bachelor of Nursing nurses). The active number of these health workers in three hospitals were 393 in which P.T. Birta City Hospital and Research Center Pvt. Ltd (173), Kankai Hospital Pvt. Ltd. (50), Man Mohan Memorial Eastern Regional Community Hospital (170). Individual health workers were included in the study with exclusion of doctors, allied health professionals and OPD staff in the Out- patient Department.

### Technical information

The descriptive cross-sectional study was conducted in three selected hospitals from 10-NOV-2022 to 20-APR-2023. The total number of health workers in three selected sites were 393 and 198 were calculated sample size. Data were collected using multistage sampling technique (stage-1: proportionate sampling technique, Stage-2: convenient sampling technique). The sample size was calculated using Taro-Yamane formula with the sample size per hospital such as P.T Birta City Hospital and Research Center (87), Kankai Hospital Pvt. Ltd (25) and Man Mohan Memorial Eastern Regional Community hospital (86). The sample size was calculated in-accordance to the formula stated underneath where indicators follow the formula.

Taro-Yamane Formula:

$$n = \frac{N}{[1+Ne^2]}$$

**Indicators:** n=Sample size, N=estimated target population, e=Sampling error (0.05 acceptable error) at 95% confidence level, 5% error level and N= 393.

$$n = \frac{393}{[1+393(0.05)^2]}$$

n=198

Therefore, total sample size (n) = 198 health workers.

Stage-1, Proportionate-sampling technique

a) Sample taken at P.T Birta City Hospital and Research Center Pvt. Ltd

$$\begin{aligned} &= \frac{\text{No. of healthworker in P.T Birtacity Hospital} \times \text{Sample size}}{\text{Total number of health worker in three settings}} \\ &= \frac{173 \times 198}{393} \\ &= 87 \end{aligned}$$

b) Sample taken at Kankai Hospital Pvt. Ltd

$$\begin{aligned} &= \frac{\text{No. of Health workers at Kankai Hospital} \times \text{Sample Size}}{\text{Total number of healthworker in three settings}} \\ &= \frac{50 \times 198}{393} \\ &= 25 \end{aligned}$$

c) Sample taken at Man Mohan Memorial Eastern Regional Community hospital

$$\begin{aligned} &= \frac{\text{No. of healthworker in ManMohan memorail hospital} \times \text{Sample size}}{\text{Total number of health worker in three setting}} \\ &= \frac{170 \times 198}{393} \\ &= 86 \end{aligned}$$

The data collection tool was pre-structured self-administered questionnaire with tested validity =0.901 and reliability =0.812 using Alpha Cronbach test.

### Ethics

A totalitarian support and assistance from the three hospitals (P.T. Birta City Hospital and Research Center Pvt. Ltd, Kankai Hospital and Man Mohan Memorial Eastern Regional Community Hospital) and ethical approval from Nepal Health Research Council for the research conduction. Written Informed Consent were taken from each participants before participating in the study.

**Statistics**

Data was transcribed and analyzed in Statistical Package of Social Science (SPSS) version 23. Univariate analysis of dependent and independent variable was done in terms of

percentage and frequency. Bivariate analysis of variables was also done to identify the independent variables associated with knowledge, attitude and practice at 95% confidence interval and 5% level of significance using Pearson Chi-Square test.

**3. Results**

Variables	Frequency (n=198)	Percentage (%)
<b>Age</b>		
20-29yrs	178	89.9
30-39yrs	17	8.6
40yrs and above	3	1.5
<b>Gender</b>		
Male	6	3.0
Female	192	97.0
<b>Professional Area</b>		
ANM/CMA	78	39.4
SN/HA	111	56.1
BSC/BN	9	4.5
<b>Working Hours per Week</b>		
More than 48 Hours	148	74.7
Less than 48 Hours	50	25.3
<b>Working Department</b>		
Emergency	15	7.6
Surgical ward	47	23.7
Medical Ward	16	8.1
Orthopedic Ward	12	6.1
ICU/NICU/CCU/HDU	53	26.8
Pediatric Ward	28	14.1
Gynecology and obstetrics ward	27	13.6
<b>Years of working experience as health worker</b>		
Below 6 Months	23	11.6
6 Months -2 Year	77	38.9
2 yrs. - 6 Year	56	28.3
6 yrs. and above	42	21.2

**Table 1:** Distribution of study participants according to variables (n=198)

According to table one, more than three quarter(89.9%) of health workers were in between (20-29yrs) of age group that means greater number of young health workers are working in these hospitals. There were majority of female health worker with 3% male. There were (56.1%) SN/HA, following ANM/CMA (39.4%) and least of BSC/BN (4.5%) who participated in the study. Majority (74.7%) had working hours more than 48-hours

per week. The distribution of health workers according to working departments was like emergency (7.6%), surgical ward (23.7%), Medical ward (8.1%), orthopedic ward (6.1%), ICU/NICU/CCU/HDU (26.8%), pediatric ward (14.1%) and gynecology and obstetrics ward (13.6%). Majority of health workers have work experience of 6 months-2yrs (38.9%).

**Table 2:** Analysis of Dependent variable (n=198)

Variables	Frequency (n=198)	Percentage (%)
<b>Knowledge about nosocomial infection</b>		
Good Knowledge	152	76.8
Poor Knowledge	46	23.2
<b>Attitude towards nosocomial Infection</b>		
Positive Attitude	149	75.3
Negative Attitude	49	24.7
<b>Practice</b>		
Good Practice	192	97.0
Poor Practice	6	3.0

Table two, shows the thrust analysis of Knowledge, attitude and practice towards nosocomial infection, transmission, prevention and control in hospital. This study showed that (76.8%) of health workers have good knowledge, (75.3%) of health workers have

positive attitude and majority (97%)of health workers have good practice regarding nosocomial infection transmission, prevention and control.

Table 3: Bivariate analysis of Independent and Dependent Variable (n=198)

		Attitude		P- value Chi-square (x2)						
Categories		Positive	Negative	0.033						
Working Hours per Week	More than 48 hours	78.5%	63.3%							
	Less than 48 hours	21.5%	36.7%							
		Knowledge		p-value	Attitude		p-value	Practice		p-value
		Good	Poor		positive	negative		Good	Poor	
Working Department	Emergency	8.6%	4.3%	0.012	8.1%	6.1%	0.00	7.8%	0	0.00
	Surgical ward	19.1%	39.1%		23.5%	24.5%		24%	16.7%	
	Medical Ward	7.9%	8.7%		4%	20.4%		6.3%	66.7%	
	Orthopedic Ward	5.9%	6.5%		2.7%	16.3%		6.3%	0	
	ICU/NICU/HDU	0.9%	13%		28.9%	20.4%		27.6%	0	
	Pediatric Ward	16.4%	6.5%		18.1%	2%		14.1%	16.7%	
	Gynecology and obstetrics ward	11.2%	21.7%		14.8%	10.2%		14.1%	0	

Table three shows bivariate analysis in which Chi-square value revealed that there were significant relationship between working hours per week and attitude towards nosocomial infection (p=0.033). There was also significant relationship between working department and knowledge (p=0.012), attitude (p<0.0001), and practice (p<0.0001).

#### 4. Discussion

In this study, health workers providing care in various healthcare facilities were evaluated for their knowledge, attitude, and practice regarding prevention and control of nosocomial infections transmission. Adequate knowledge, a positive attitude and good practice of health workers prevent nosocomial infection transmission while delivering health services in a health-care setting. According to this study, 76.8% had good knowledge regarding nosocomial infection transmission prevention and control. Similar to this, a study by Kaushik Nag et al. in Tripura revealed that the majority 87.4% had adequate knowledge regarding nosocomial infections.<sup>[6]</sup> This study also showed that there was a significant association between health workers' knowledge and their working department like in a study of Alansar General Hospital by Hamid Ali et al.<sup>[7]</sup> Likewise, this study showed 75.3% of health worker had positive attitude towards nosocomial infection transmission, prevention and control while Farid Najafi *et al.*'s study of Kermanshah University of Medical Science found that 61.5% of health worker had medium attitude regarding it.<sup>[8]</sup> Also a study by EF Mbon *et al.*, showed 92.4% of health worker had a good attitude towards the prevention of nosocomial infections.<sup>[9]</sup> This study revealed a higher percentage of health worker with a positive attitude than Farid Najafi *et al.*, but a lower percentage than that of EF Mbon's study. In a study by Bayleyegn B *et al.*, 90% had good knowledge but only 36% had good practices, demonstrating that health workers were aware of the nosocomial infection but only marginally kept it in practice.<sup>[10]</sup> According to a comparable study by EF Mbon *et al.*, 80% of health workers practiced effective nosocomial infection prevention.<sup>[9]</sup> In this study, 97% of health workers were engaged in good nosocomial infection, prevention and control practices. This exemplify that, despite being in the third quartile for knowledge and attitude, the

majority of health workers had good practice in the healthcare context. The reason for having majority of health workers with good practice may be due to the result of ongoing supervision and monitoring by the hospital's infection control team to adhere towards infection prevention and control.

#### 5. Conclusion

Health workers in this study demonstrated good knowledge, positive attitude and good practice regarding nosocomial infection transmission, prevention and control. According to the findings, there were significant association between health workers' working hours and their attitude. In addition, the working department was associated with knowledge, attitude and practice of health worker. Health workers working in critical care setting like ICU, NICU, and HDU showed better knowledge, attitude and practice another-department. Furthermore, this study showed that health worker's practices were up to the par, but one third of them had comparatively less knowledge and attitude regarding nosocomial infection transmission, prevention and control. A skill development course and continuing education program might be necessary to improve knowledge, attitude and practice of health workers regarding nosocomial infection transmission, prevention and control.

#### 6. Acknowledgement

We would like to thank the administration of all three hospitals (P.T. Birta City Hospital and Research Center Pvt. Ltd., Manmohan Memorial Eastern Regional Community Hospital, and Kankai Hospital Pvt. Ltd.) for their approval to conduct research. A special thanks to the health workers who participated in the study and we are grateful to P.T. Birta City Hospital and Research Center Pvt. Ltd. for assistance, funding, and managing the entire research project.

#### 7. Research Attributed to-

P.T Birta City Hospital and Research Center Pvt. Ltd.

## 8. Conflict of Interest Notification

There are no reported conflicts of interest for the authors. The manuscript's contents have been reviewed and approved by each co-author, and there are no conflicting financial interests to disclose. We certify that the submission is original and is not being considered by another publisher.

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## Abbreviations

- **ANM:** Auxiliary Nurse and Midwife
- **BN:** Bachelor of Nursing
- **BSC.N:** Bachelor of Science in Nursing
- **CMA:** Certified Medical Assistant
- **HA:** Health Assistant
- **HDU:** High Dependent Unit
- **ICU:** Intensive Care Unit
- **Ltd:** Limited
- **POU:** Post-Operative Unit
- **P.T:** Purna Tunga
- **Pvt:** Private
- **SN:** Staff Nurse
- **SPSS:** Statistical Package of Social Science

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