

Infection Control Practices – Problems and Constraints in its Implementation among Registered Nurses in Medical Wards of a Tertiary Care Hospital in Thiruvananthapuram

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Abstract

Infection prevention and control is a scientific approach for the prevention of Hospital Acquired Infections (HAIs). The nursing fraternity have colossal role in implementation of infection control practices, but the nurses come across many challenges in its implementation. The present study is a qualitative descriptive inquiry to explore the problems and constraints in implementation of infection control practices among registered nurses in a tertiary care hospital, Thiruvananthapuram (Kerala). The data collected by in-depth interview with 12 stakeholders and focus group discussions with 13 staff nurses working in medical wards. The data were analysed by Braun & Clarke's 6-step thematic analysis. The two main themes derived as problems in implementation of infection control practices among registered nurses were professional problems and behavioural problems. The four main themes that emerged as constraints in implementation of infection control practices among registered nurses were resource depletion, unsatisfactory work environment, socio-environmental factors and hospital policy and protocol implementation issues.

Key words: Infection control practices; Resource depletion; work environment

Hospital-acquired infection (HAI) is an infection occurring in a patient during the process of care in a hospital or other health care facility which was not present or incubating at the time of admission. Infection control practices (IPC) are the practical solutions for prevention of HAIs. Effective implementation of infection control practices is crucial in controlling the transmission of HAIs.

Nurses' influence is critical in implementing infection prevention and control practices. But there are many problems and constraints in its implementation among nurses. Yet, only few comprehensive assessments of the barriers to sustained, successful implementation of infection control practices among nurses have been performed in health care setting. It is essential to explore the issues encounter by nurses in implementation of infection control practices for its smooth and successful implementation.

Need of the study: Hospital-acquired infections occur at higher rates in low-and middle-income countries, like India, than in high income countries (CDC, 2019). Few studies are available from India addressing the burden of HAI. The rates of HAI

reported vary widely from 0.38 percent to 34.1 percent (Singh et al, 2013; Mehta et al, 2026; Mathai et al, 2016). In Kerala limited data are available regarding the prevalence of HAIs. A cross sectional, retrospective study conducted for a period of one year (2016-2017) in 988 hospitalised patients in a tertiary care hospital in Kerala reported that 14.17 percent developed nosocomial infections (Linu & Swami, 2021). The successful prevention of HAIs depends on the efficient implementation of infection prevention and control activities. But the health workers are being encountered by many problems and constraints in its implementation. These have to be explored first in depth. As nurses are in the frontline in smooth execution of infection prevention and control activities, it is essential to identify the problems and constraints faced by them in depth. It will help to restructure the policies in infection control practices thereby making a huge impact in prevention of HAIs. Hence the researcher selected this topic to explore the problems and constraints in implementation of infection control practices in medical wards of a tertiary care hospital.

Review of Literature

A qualitative study was conducted to identify the barriers and facilitators to infection control at a hospital in Haryana. The study found that the barriers are staff turnover; time spent on training

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new staff, work load, complex behavioural issues and lack of supply of personal protective equipments (Barker et al, 2017)

A phenomenological study to assess barriers to infection and control practice among health care workers was conducted in Amhara region teaching hospitals in Ethiopia. The data was collected from 10 in-depth interviews and 23 focus group discussion participants. Ten different barriers emerged as major themes such as availability of facilities, shortage of material supply, lack of maintenance of facilities and equipment, high patient flow, experience, emergency, healthcare worker behaviour and healthcare workers information about infection prevention, low awareness of patients and visitors and overflow of families and visitors to the hospital (Worku Yallew et al, 2007) .

Objective

The study endeavoured to explore the problems and constraints in implementation of infection control practices among registered nurses in medical wards of a tertiary care hospital in Thiruvananthapuram (Kerala).

Methodology

The study population was staff nurses and head nurses working in medical wards and infection control committee members of the tertiary care hospital, Thiruvananthapuram. Participants were selected by non-probability purposive sampling. Data were collected from 13 staff nurses (7 senior staff nurses and 6 junior staff nurses), 6 head nurses of medical wards and members of the infection control committee (HOD of infectious disease, HOD of Internal Medicine, Microbiologist, Social worker and 2 Infection Control Nurses). Sample size was based on the data saturation. Stakeholders and registered nurses who were not willing to participate in the study were excluded from the study.

Tools and technique: The investigator used in-depth interview guide which consisted of nine questions with probes and focus group discussion by using focus group discussion guide having six questions with probes to explore problems and constraints in implementation of infection control practices among registered staff nurses in medical wards.

Data collection process: Data were collected after obtaining informed consent from the participants and ethical clearance from the concerned authority

of the hospital Nursing College. The researcher conducted 12 in-depth interviews with stakeholders each took more than 30 minutes. The data saturation was reached at 12th in-depth interview as the researcher noticed the same themes coming out repeatedly. Two focus group discussions (FGD) were conducted, first FGD with 6 junior staff nurses and the second with 7 senior staff nurses. The FGD was conducted in local language, Malayalam and translated into English. The first FGD was completed in 44 minutes and the second in 65 minutes. Both in-depth interview and FGDs were recorded by using audiotape. The researcher completed the data collection in two weeks.

Data analysis: The analysis was divided into 2 sections, A and B. Section A consisted of socio personal data of the participants involved in in-depth interviews and FGDs. Section B consisted of analysis of the data with Braun and Clarke's thematic analysis.

Result

Section A (Socio personal data)

Data related to socio-personal characteristics in given in Table 1.

Table 1: Socio-personal data of participants involved in in-depth interviews (n =12)

SL. No	Sex	Age (In years)	Designation	Total year of experience (in years)	Educational qualification
1	Female	47	Head nurse (HN)	24	GNM
2	Female	50	Head nurse	29	GNM
3	Female	48	Head nurse	23	GNM
4	Female	49	Head nurse	25	GNM
5	Female	45	Infection Control Nurse (ICN)	18	MSc Nursing
6	Female	56	Social worker (SW)	28	MSc Zoology, MA Sociology MA population studies PG diploma in health education
7	Female	45	Head nurse	27	GNM
8	Male	40	Medical Officer (MO) - HOD of Infectious disease	10	MD (Internal Medicine)
9	Female	44	Head nurse	21	Post Basic BSc Nursing
10	Male	62	Medical Officer (HOD of Internal Medicine)	35	MD (Internal medicine)
11	Female	46	Microbiologist (MB)	16	MSc Medical Microbiology
12	Female	46	Infection Control Nurse	23	GNM

Table 2: Socio-personal data of participants involved in FGD-1 (n=6)

SL. No	Gender	Age (In years)	Designation	Total year of experience (in years)	Educational qualification
1	Female	23	Staff Nurse (SN)	3 months	BSc Nursing
2	Female	25	Staff Nurse	6 months	BSc Nursing
3	Female	25	Staff Nurse	1 year and 6 months	BSc Nursing
4	Female	27	Staff Nurse	7 months	BSc Nursing
5	Female	23	Staff Nurse	9 months	GNM
6	Female	29	Staff Nurse	1 year	GNM

Table 3: Socio personal data of the participants involved in FGD 2 (n=7)

SL. No	Gender	Age (In years)	Designation	Total year of experience (in years)	Educational qualification
1	Female	35	Staff Nurse	9 Years	GNM
2	Female	31	Staff Nurse	6 Years	BSc Nursing
3	Female	27	Staff Nurse	4years and 6 months	BSc Nursing
4	Female	38	Staff Nurse	10 years	Post Basic BSc Nursing
5	Female	39	Staff Nurse	9 years	Post Basic BSc Nursing
6	Female	35	Staff Nurse	9 years	GNM
7	Female	34	Staff Nurse	6 years	MSc Nursing

Section B

This section dealt with thematic analysis of the data collected by IDIs & FGDs. Braun and Clarke's thematic analysis was used. It is a step-by-step analysis of the data.

Two main themes emerged as the problems in implementation of infection control practices among registered nurses: professional problems and behavioural problems. There were three sub themes under the professional problems which included lack of knowledge, improper ward management and improper documentation. Two sub themes emerged under the behavioural problems, attitudinal problems and adjustment problems. The attitudinal problems were unwillingness and neglect and the adjustment problems were resistance to change and non-cooperation.

Problems in implementation of infection control practices among registered nurses in medical wards

Theme 1: Professional problems

Lack of knowledge

The participants in this study shared that some of the new staff had insufficient knowledge due to lack of clinical experience. *"It seems like some of the new staffs have very little knowledge about infection control practices. Sometimes new staff like trainees don't even know how to use the syringe or how to load injections."*

Improper ward management

The participants conveyed that improper ward management existed in the medical wards. *"The mop is usually dipped only once in the chlorine solution for cleaning this large floor. The main reason for this is inadequacy of our supervision."*

Improper documentation

Almost all the participants agreed that there was no proper documentation of infection control practices.

"Nurses never document if one patient is catheterised. Sometimes they don't have time to record. IV-line insertion is not recorded anywhere. They do not have time in fact."

Theme 2: Behavioural problems

Both stakeholders and staff nurses pointed out that the nurses had poor compliance with infection control practices in medical wards. They disclosed that nurses have some kind of unwillingness and negligence in implementation of infection control practices. *"The one who is permanent in the ward has an attitude to clean and maintain the cleanliness in the ward just like home. The relieving duty staff did not take responsibilities just like a permanent staff."*

Attitudinal problems

The need of positive attitude about infection prevention is unquestionable to prevent health care associated infections. Both stakeholders and staff nurses pointed out that the nurses had poor compliance with infection control practices in medical wards. Some sort of unwillingness and negligence among nurses in implementation of infection control practices is evident.

Adjustment problems

In this study the nurses and stakeholders strongly agreed there was non-cooperative behaviour among some of the staff nurses which hinders the infection control practices in medical wards. *"Sometimes juniors may not accept what we say. I had such an experience. Once I said to a junior to dispose the waste properly. She vanished without accepting and obeying me. Then I took the risk of it."*

Constraints in implementation of infection control practices among registered nurses in medical ward

Four themes emerged as constraints in implementation of infection control practices includes; resource depletion, unsatisfactory work

Table 4: Problems and constraints in implementation of infection control practices among registered nurses in medical wards

THEMES	MAIN THEMES	SUB THEMES
PROBLEMS	1. PROFESSIONAL PROBLEMS	1.1 Lack of knowledge 1.2 Improper ward management 1.3 Improper documentation
	2. BEHAVIOURAL PROBLEMS	1.1 Attitudinal problems 1.2 Adjustmental problems
CONSTRAINTS	1. RESOURCE DEPLETION	1.1 Improper material management 1.2 Paucity in physical structure 1.3 Deficiency in human resource
	2. UNSATISFACTORY WORK ENVIRONMENT	2.1 Increased work load 2.2 Overcrowding 2.3 Instability of tenure 2.4 Lack of advanced technologies 2.5 Inadequate learning environment 2.6 Improper authoritative direction 2.7 Improper collaboration among health workers
	3. SOCIOENVIRONMENTAL FACTORS	3.1 Poor public support 3.2 Unanticipated disaster (COVID -19 infection)
	4. HOSPITAL POLICIES AND PROTOCOL IMPLEMENTATION ISSUES	4.1 Lack of infection control implementation policies 4.2 Non-adherence to visitor's policy

in the infection control practices among nurses. *"Here we do not have any isolation wards to separate the infectious patients. We are keeping all MRSA patients in the middle of other patients."*

Improper nurse-patient ratio

The nurse patient ratio in the medical wards is not as per the recommended standards of High-Power Committee (1987). The nurse patient ratio in medical wards is 2:110 and the number of infection control nurse is only 2 for 3050 beds. *"If you say it is 3050 beds, how many infection control nurses do you require? One per 110 beds according to international standards. What we used to have is one ICN (Infection Control Nurses). Here for 2 years only 2 infection control nurses. So, it is impossible to work for 3050 beds."*

environment, socio-environmental factors & hospital policies and protocol implementation issues. The three sub themes categorised under resource depletion were improper material management, paucity of physical structure and deficient human resource. The seven sub themes included in unsatisfactory work environment were increased workload, overcrowding, instability of tenure, lack of advanced technologies, inadequate learning environment, improper authoritative direction & improper collaboration among health care workers. The two sub themes under socio-environmental factors were unanticipated disasters like COVID-19 pandemic and poor public support.

The two sub themes under hospital policies and protocol implementation issues were lack of infection control implementation policies and non-adherence to bystander's policies resource depletion.

Theme 1: Resource depletion

Improper material management

The nurses as well as the stakeholders reported they had undergone through many situations with poor supply of basic materials for delivery of health care and practice of infection prevention and control. *"We do not have sufficient disinfectants. I must say, we do not even have a proper broom for sweeping here."*

Paucity of physical structure

The participants were revealed that issues with infrastructure and logistics as important obstacles

Theme 2: Unsatisfactory work environment

The participants claimed that they are working in an unsatisfactory work environment, which hinder the adherence to infection prevention and control measures in the medical wards.

Workload

According to the participants the aggravating factors of workload in medical wards were increased census and lack of time. *"Workload will automatically increase when the census increases"*.

Overcrowding

The medical wards are always congested with patients and overflow of bystanders. It can easily spread the infection and make the wards more unhygienic. *"In medical wards a lot of patients and bystanders are occupied even in the verandas. So, infection control practice is a big challenge."*

Instability of tenure

According to some of the participants the relieving duty staff had little commitment in the accomplishment of infection control practices in medical wards.

Lack of advanced technologies

A few participants claimed that the advanced technologies could save time and it can be used effectively for better infection control activities. *"If we have modern technologies like EHR (Electronic Health Record), then we can save time spent for recording."*

Inadequate learning environment

The knowledge regarding infection control practices is essential for proper practice of it. The working atmosphere of the nurses should provide an adequate learning environment to enrich the knowledge related with infection control practices. *"We are not able to conduct classes due to the rush in the ward and lack of staff. If there is staff shortage, the classes cannot be conducted."*

Improper authoritative direction

The participants expressed that it would have been better if there was periodic inspection. *"It would be great if infection control team can supervise at least once in a shift."*

Improper collaboration among health care workers

There is need of multidisciplinary approach in the successful practice of infection control activities. Other health care personnel with immediate contact with nurses in the clinical field like doctors and nursing assistants usually gave poor support to the nurses in the implementation of infection control practices. *"There is a category of doctors who walk around when the cleaning staff cleans the floor even without noticing it. They do not even care about it and always tell it as an emergency."*

Theme 3: Socio-environmental factor

Poor public support

The participants disclosed that the public provides only poor support to the nurses in the execution of infection control practices in medical wards. *"Here the patients and the companions throw food wastes in an improper way. Waste is not disposed properly. They won't obey us; no matter how much we say."*

Unanticipated disaster (COVID-19 Infections)

The emergence of COVID-19 pandemic also recently affected the infection control practices. *"The link nurse system is sort of crashed due to shuffling of the staff for COVID duty. So, for last one year, it is*

very difficult to come out with the CAUTI, VAP etc.... because the system is not in place in non-COVID areas."

Theme 4: Hospital policies and protocol implementation issues

Existence of implementation policies along with infection control policies and protocols has been shown to reduce the burden of HAIs in health care institutions. This institute has strong infection control policies. But the lack of implementation policies resulted in non-compliance to infection control practices among nurses in medical wards. *"If it is a private hospital, we can punish a person if he is not sticking to hand hygiene measures or practicing the care bundles. But in this tertiary care hospital, you cannot do that, only thing you can do is face the straining."*

Discussion

The two main themes that emerged as problems were professional problems in this study and behavioural problems. The professional problems include lack of knowledge, improper ward management, and improper documentation. Some of the study findings support it (Barker et al, 2017). In the current study, the sub-themes derived under the behavioural problems were attitudinal and adjustment problems. A study on "Why Health care Workers Don't Wash their Hands: A behavioural Explanation" by Michael Whitby conducted in Brisbane reported that attitude towards handwashing was important (Worku et al, 2007).

The main themes derived as the constraints in this study were resource depletion, unsatisfactory work environment, issues related to hospital policy and protocol implementation and socio-environmental factors.

Resource depletion such as material, human and physical facilities is one of the major themes that emerged as constraints out of the study.

The insufficiency in the availability of the materials (both supplies and equipment), the improper handling and improper distribution were the major factors contribute to the improper material management. Improper nurse-patient ratio is the mostly highlighted constraint by the participants. The same echoes' in other studies and articles (Danchaivijitr et

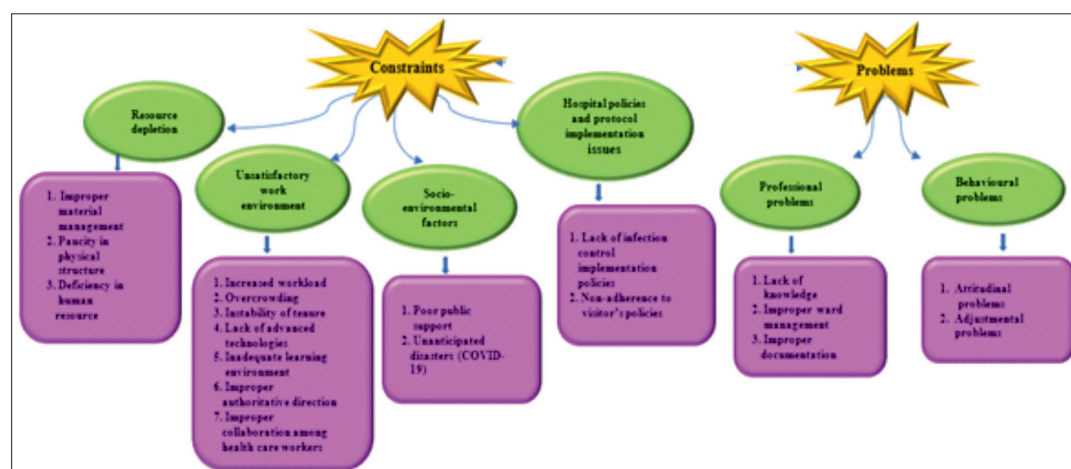


Fig 1: Problems and constraints in implementation of infection control practices among registered nurses in a tertiary care hospital, Thiruvananthapuram.

al, 1995; Whitby et al, 2006; Moore et al, 2005; Swaminathan et al, 2017).

In this study, as within the wider literature (Ferrer et al, 2014; Rimi et al, 2014; Alp et al, 2011), it was identified that unsatisfactory work environment especially overcrowding of the hospital with patients and bystanders, increased census, and improper collaboration among multi-professional health workers also makes a negative impact on proper execution of the infection control practices among nurses in medical wards.

There is a well-structured infection control manual in this institution, but there is a gap between practices and knowledge among nurses in medical wards due to lack of infection control implementation policies. A systematic review of implementation strategies for infection prevention and control promotion for nurses conducted by Amy Elizabeth et al concluded that the key stone to IPC among nurses was the existence and a better understanding of implementation strategies on infection control practices (Gaikwad et al, 2018).

Conclusion

The objective of the study was to explore the problems and constraints in the implementation of infection control practices among registered nurses in a tertiary care hospital. There are several problems and constraints encountered by the nurses which consisted of resource depletion, unsatisfactory work environment, socio-environmental factors, and issues related to hospital policies and protocol implementation, and professional problems. An unsatisfactory working environment and resource depletion were the major constraints.

Recommendation

- Further research needs to be done to identify various aspects related to infection control practices among registered nurses. The infection control practice is a team work by all category of employees. Further research needs to be done to explore the issues faced by other health care workers in health care institutions.
- Similar study can be conducted (a) by using mixed approach, (b) in another study setting such as surgical wards and ICUs.
- Further studies can be conducted to identify both facilitators and barriers in implementation of infection control practice in medical wards.

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