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LOOKING THROUGH THE LENSE OF NATIONAL PATIENT SAFETY GOALS: AWARENESS ABOUT INFECTION CONTROL PRACTICES AMONG NURSES IN SUPERSPECIALITY HOSPITAL OF DELHI

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ABSTRACT

PSGs are meant to ensure patient is not harmed due to hospitalization. The awareness regarding PSGs is elementary to their implementation, hence the study attempts to gauge the same. A quantitative, non-interventional and prospective study approved by Institutional Research Review Committee was carried out using a pre-tested questionnaire on 25% randomly selected nursing personnel (60) to measure their awareness regarding the PSGs. The primary objectives of the study were Assessing the awareness level among the nursing staff regarding NPSGs and identifying areas warranting immediate attention about PSGs related to infection control. The study revealed that 75% nurses had diploma in GNM and 25% were graduates of nursing. The awareness level of nurses was highest for infection control at 91.4% followed by patient identification and medication safety at 86.34% and 76.6%. Higher the educational qualification, higher is the level of awareness regarding methods to reduce healthcare associated infections, however w.r.t the process involved to reduce SSI the nurses are equally aware irrespective of educational qualification. Only around 80% GNMs are aware about importance of conducting periodic risk assessment for MDR organism and regarding the usage of short and long term catheters in CLABSI infections. 93.9% GNMs were found aware about importance of catheter check list and standardized protocol for central venous catheter insertion.

Key words : Patient safety goals (PSG), nosocomial Infections, Ventilator Associated Pneumonia (VAP), Surgical Site Infection (SSI), Catheter Related Blood Stream Infection (CRBSI) and Catheter Associated Urinary Tract Infection (CAUTI), Multi-drug resistant (MDR)

INTRODUCTION

It may not be possible to eradicate all hospital related infections. However an effective infection control programme will provide optimum protection for both the hospital clientele and the hospital staff. In order to provide better and safer hospital facilities for its patients and personnel Indian Spinal Injuries Centre (ISIC) has adopted a program of infection control involving all sections of the hospital community. In all concerned departments, the departmental heads and all staff are responsible for becoming familiar with and implementing the hospital's policies and procedures that are designed to achieve the objectives of the infection control programme. It is only through the cooperative efforts of every member of the staff that nosocomial infections can be prevented.

The efforts of a number of conscientious individuals can be rendered ineffective by any break in technique or lapse in discipline on the part of one person. The infection control program will support and facilitate not only good hospital practices but also teach staff and students the necessary values, attitudes and behaviour. The Goals and Objectives of this programme at ISIC are to prevent or minimize

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the potential for Nosocomial infections to patients as well as to staff. The programme itself will have the following objectives.

1. To develop written policies, procedures and standards for cleanliness, sanitation and asepsis in the hospital.
2. To interpret, uphold and implement the hospital infection control policies and procedures in specific situations.
3. To provide surveillance for nosocomial infections.
4. To review and analyze infections those occur, in order to take corrective steps.
5. To develop corrective measures designed to control, prevent or minimize the risk of nosocomial infections.
6. To develop a mechanism to supervise infection control measures in all phases of hospital activities.

Nosocomial infections are defined as infections acquired during or as a result of hospitalization. (1) Thus it is in contrast to infections acquired in the community setting. Generally, a patient who has acquired an infection after 48 hours of hospital admission is considered to have a nosocomial infection. Some nosocomial infections may not manifest as disease immediately. Therefore any disease due to infection found within one month of the day of admission, is considered to be due to hospital acquired infection unless proved otherwise. Four types of nosocomial infections are Ventilator Associated Pneumonia (VAP), Surgical Site Infection (SSI), Catheter Related Blood Stream Infection (CRBSI) and Catheter Associated Urinary Tract Infection (CAUTI). Among the nosocomial infections, Bloodstream infections (BSI) are the fourth most frequent type of health care- associated infection (HAI) in Europe, accounting for 10.7% of HAI and about 313 000 episodes every year. 39.5% of BSI are catheter-related and a number of those identified as "of unknown origin" (31.7%) are often probably associated with the catheter. According to the United States Centers for Disease Control and Prevention, between 12 and 25% of patients who acquire CRBSI die (2). Many others have extended hospital stays, and increased overall treatment costs. At least 35% of BSI can be prevented by general IPC measures and recent studies from John Hopkins University (http://www.who.int/patientsafety/ implementation/bsi/background/en/have shown that central line-associated BSI rates can be dramatically reduced using approaches focused on patient safety and best practices in catheter insertion and maintenance. The public health threat of resistance was highlighted last year in a World Health Organisation report that warned the world was entering a "post-antibiotic era". The UK's chief medical officer, Sally davies, has put antibiotic resistance on the government's national risk register, alongside terrorist attacks and pandemic flu, and warned that without new antibiotics, more people will die after routine operations in the next 20 years. In December, a report commissioned by David Cameron warned that failure to tackle drug resistant infections will cost the global economy up to £64tn ($ 100tn) by 2050

Goal 7: Prevent Infections (3)

Use the hand hygiene guidelines from the Centers for Disease Control and Prevention (CDC) or the World Health Organization (WHO) (4). Set goals for improving hand cleaning. Use the goals to improve hand cleaning.

Implement evidence-based practices to prevent central line-associated bloodstream infections.

Implement evidence-based practices to prevent health care-associated infections due to multidrug-resistant organisms in acute care hospitals.

Implement evidence-based practices for preventing surgical site infections.

Implement evidence-based practices to prevent indwelling catheter-associated urinary tract infections.

AIM AND OBJECTIVE

The study aims at:

- ✓ Assessing the awareness level among the nursing staff regarding national patient safety goals related to infection control
- ✓ Establishing the baseline of knowledge of nursing staff regarding national patient safety goals
- ✓ Identify the specific areas in which targeted intervention is required

MATERIALS AND METHODS

A quantitative, non-interventional and prospective study approved by Institutional Research Review Committee was conducted for a period of one week. A pre-tested questionnaire having 30

questions was used to evaluate awareness of nursing staff on the following PSGs:-

- ✓ Prevent infections

Sampling

25% of Nursing staff on rolls of hospital was randomly selected using a single blind method to measure their awareness regarding the PSGs.

Sample size

The study was conducted on 60 (75% of the total sampled population) nursing staff who were randomly selected and participated in the study at their own will. The indirect identifier was used for staff and informed consent was obtained from all the volunteer participants. The sample size was inclusive of rate of no response from the nursing staff which amounted to 25% (80 nurses). The overall rate of no response was There was no conflict of interest of the researcher, hospital administration or any other personnel in the study.

Table no. 1 : Percentage distribution for characteristics of nurses

Age of Nurses	
20-25	25% (15)
25-30	60% (36)
30-35	11.7% (7)
35-40	1.7% (1)
40-45	1.7% (1)
Ward wise Distribution	
Casualty	20% (12)
Everest ward	15% (9)
Heritage ward	16.7% (10)
General ward	21.7% (13)
New ward	26.7% (16)
Educational Qualification	
BSc Nursing	18.3% (11)
GNM (General Nursing and Midwifery)	81.7% (49)

Inclusion Criteria

- ✓ Subjects who are nurses of ISIC
- ✓ Subjects who were willing to participate in the study.

Collection of data

A pre-tested questionnaire with thirty questions was used for collecting data from the selected group of nurses. The questionnaire comprised of multiple choice, true/ false and yes/ no type of questions. The questions were self explanatory in nature. The questionnaire was administered by an independent staff member (not related with nursing team) and collected back after 48 hours of distribution. The respondents were oriented and explained the purpose and importance of the study. They were assured about the confidentiality of their responses. All the questionnaires were numbered serially for analysis of results. SPSS 16 was used for analyzing the data on the listed parameters.

Table no. 2 : Distribution of Nurses Educational qualification and their respective ward

Educational Qualification	Casualty	Everest Ward	Heritage Ward	General Ward	New Ward	Total
BSc Nursing	1 (9.1%)	2 (18.2%)	2 (18.2%)	3 (27.3%)	3 (27.3%)	11 (100%)
General Nursing and Midwifery (GNM)	11 (22.4%)	7 (14.3%)	8 (16.3%)	10 (20.4%)	13 (26.5%)	49 (100%)
Total	12 (20%)	9 (15%)	10 (16.7%)	13 (21.7%)	16 (26.7%)	60 (100%)

RESULTS AND DISCUSSION

The above table shows that 60% of nurses belong to the age group 25-30, followed by 25% of nurses belonging to age group 20-25, followed by 11.7% of nurses between age group 30-35 and only 1.7% of nurses belong to age group 35-40 and 40-45 respectively.

The above table shows the distribution of nurses Educational qualification in respective ward. $3/4^{th}$ of nurses have pursued diploma in General Nursing and Midwifery (GNM) and $1/4^{th}$ of the nurses have pursued graduation in BSc Nursing.

The above table illustrate the relationship between the nurses designation and the age group in which they fall. There are in total 4 Incharge nurses which fall under age group 30-45 and 6 Assistant Incharge which fall under age group 25-35. Rest 50 are the staff nurses which fall under age group 20-35.

Table no. 3 : Distribution of Nurses Designation and their Age group

Designation	Age Group					Total
	20-25	25-30	30-35	35-40	40-45	
Incharge	0	0	2 (50%)	1 (25%)	1 (25%)	4 (100%)
Assistant Incharge	0	2 (33.3%)	4 (66.6%)	0	0	6 (100%)
Staff Nurse	15 (30%)	34 (68%)	1 (2%)	0	0	50 (100%)
Total	15 (25%)	36 (60%)	7 (11.6%)	1 (1.6%)	1 (1.6%)	60 (100%)

Table no. 4 : Percentage distribution of nurses awareness that how healthcare associated infections can be reduced

Educational Qualification	Healthcare associated infection can be reduced		Total
	Unaware	Aware	
BSc nursing	0	11 (100%)	11 (100%)
GNM	3 (6.1%)	46 (93.9%)	49 (100%)
Total	3 (5%)	57 (95%)	60 (100%)

The above table illustrate the that 11 (100%) nurses with educational qualification as BSc nursing were aware and 46 (93.9%) nurses with educational qualification as General nursing and midwifery were aware out of 49 nurses. Higher the educational qualification, higher is the level of awareness regarding methods to reduce healthcare associated infections. The chi square value obtained is 0.709. The null hypothesis is rejected.

Table no. 5 : Percentage distribution of nurses awareness about the process that is included to reduce surgical site infections.

Educational Qualification	Process to reduce surgical site infections		Total
	Unaware	Aware	
BSc nursing	2 (18.2%)	9 (81.8%)	11 (100%)
GNM	10 (20.4%)	39 (79.6%)	49 (100%)
Total	12 (20%)	48 (80%)	60 (100%)

The above table illustrate that 9 (81.8%) nurses with educational qualification as BSc nursing were aware out of 11 nurses and 39 (79.6%) nurses with educational qualification as General nursing and midwifery were aware out of 49 nurses. All the nurses are equally aware irrespective of educational qualification towards reduction of surgical site infections. The chi square value obtained is 0.028. We fail to reject the null hypothesis.

Table no. 6 : Percentage distribution of nurses awareness about the term CAUTI

Educational Qualification	Term CAUTI		Total
	Unaware	Aware	
BSc nursing	0	11 (100%)	11 (100%)
GNM	4 (8.2%)	45 (91.8%)	49 (100%)
Total	4 (6.7%)	56 (93.3%)	60 (100%)

The above table illustrate that 11 (100%) nurses with educational qualification as BSc nursing were aware and 45 (91.8%) nurses with educational qualification as General nursing and midwifery were aware out of 49 nurses. Higher the educational qualification, higher is the level of awareness about the term CAUTI. The chi square value obtained is 0.962. The null hypothesis is rejected.

Table no. 7 : Percentage distribution of nurses awareness that hand hygiene is essential to reduce healthcare associated infections.

Educational Qualification	Hand hygiene reduces healthcare associated infections		Total
	Unaware	Aware	
BSc nursing	0	11 (100%)	11 (100%)
GNM	3 (6.1%)	46 (93.9%)	49 (100%)
Total	3 (5%)	57 (95%)	60 (100%)

The above table illustrate 1 (100%) nurses with educational qualification as BSc nursing were aware and 46 (93.9%) nurses with educational qualification as General nursing and midwifery were aware out of 49 nurses. Higher the educational qualification, higher is the level of awareness that hand hygiene is essential to reduce healthcare associated infections.The chi square value obtained is 0.709. The null hypothesis is rejected.

Table no. 8 : Percentage distribution of nurses awareness about conducting periodic risk assessment for multi-drug resistant organism is important.

Educational Qualification	Periodic risk assess-ment for multi-drug resistant organism is important to conduct		Total
	Unaware	Aware	
BSc nursing	0	11 (100%)	11 (100%)
GNM	9 (18.4%)	40 (81.6%)	49 (100%)
Total	9 (15%)	51 (85%)	60 (100%)

The above table illustrate that 11 (100%) nurses with educational qualification as BSc nursing were aware and 40 (81.6%) nurses with educational qualification as General nursing and midwifery were aware out of 49 nurses. Higher the educational qualification, higher is the level of awareness about conducting periodic risk assessment for multi-drug resistant organism is important. The chi square value obtained is 2.377. The null hypothesis is rejected;

Table no. 9 : Percentage distribution of nurses awareness about the short and long term catheters are included in central line associated blood stream infections.

Educational Qualification	Short and long term catheters		Total
	Unaware	Aware	
BSc nursing	0	11 (100%)	11 (100%)
GNM	8 (16.3%)	41 (83.7%)	49 (100%)
Total	8 (13.3%)	52 (86.7%)	60 (100%)

The above table illustrate that 11 (100%) nurses with educational qualification as BSc nursing were aware and 41 (83.7%) nurses with educational qualification as General nursing and midwifery were aware out of 49 nurses. Higher the educational qualification, higher is the level of awareness about the short and long term catheters are included in central line associated blood stream infections. The chi square value obtained is 2.072. The null hypothesis is rejected

Table no. 10 : Percentage distribution of nurses awareness about the importance of catheter check list and standardized protocol for central venous catheter insertion.

Educational Qualification	Importance of catheter checklist and standardized protocol		Total
	Unaware	Aware	
BSc nursing	0	11 (100%)	11 (100%)
GNM	3 (6.1%)	46 (93.9%)	49 (100%)
Total	3 (5%)ss	57 (95%)	60 (100%)

The above table illustrate that 11 (100%) nurses with educational qualification as BSc nursing were aware and 46 (93.9%) nurses with educational qualification as General nursing and midwifery were aware out of 49 nurses. Higher the educational qualification, higher is the level of awareness about the importance of catheter check list and standardized protocol for central venous catheter insertion. The chi square value obtained is 0.709. The null hypothesis is rejected

CONCLUSION

According to the Centers for Disease Control and Prevention, each year, millions of people acquire an infection while receiving care, treatment, and services in a health care organization. Consequently, health care–associated infections (HAIs) are a patient safety issue affecting all types of health care organizations. One of the most important ways to address HAIs is by improving the hand hygiene of health care staff. Compliance with the World Health Organization (WHO) or Centers for Disease Control and Prevention (CDC) hand hygiene guidelines will reduce the transmission of infectious agents by staff to patients, thereby decreasing the incidence of

HAIs. To ensure compliance with this National Patient Safety Goal, an organization should assess its compliance with the CDC and/or WHO guidelines through a comprehensive program that provides a hand hygiene policy, fosters a culture of hand hygiene, and monitors compliance and provides feedback. Hand hygiene, contact precautions, as well as cleaning and disinfecting patient care equipment and the patient's environment are essential strategies for preventing the spread of health care–associated infections.

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