INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact factor: 4.295
(Volume 4, Issue 3)
Available online at: www.ijariit.com

Compliance of nurses using infection control bundle in CCU

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ABSTRACT

A care bundle is a set of process that each aspect individually improves the patient outcome and should be performed together for all patients admitted in ICU. Objectives: 1. to assess the compliance of nurses in using infection control bundle in CCU. 2. To determine the association between the selected variables and the compliance of nurses on using infection control bundle in Critical care Unit. Method: A descriptive method was used to collect data from 30 nurses who were working in CCU of a selected Hospital, Chennai. The data was collected using the demographic and clinical variable Proforma & a rating scale to assess the steps while performing the care of the patient on the ventilator, central line catheter, and urinary catheterization. Results: The findings of the study revealed that there was no significant association between compliance of the nurses using infection control bundle in CCU. It is important for the nurses to follow this bundle, to prevent the infection like catheter-related bloodstream infection (CRBSI), ventilator-associated pneumonia (VAP), and catheter-associated urinary tract infection (CAUTI) and can provide optional care for the client. Discussion: The frequency percentage distribution of Compliance of Nurse in using Infection Control Bundle in CCU, shows that 12 staff nurses (73.3%) were good in the level of compliance and 8 staff nurses (26.6%) had averaged in the level of compliance.

Keywords: *Compliance, Infection care bundle*

1. INTRODUCTION

Healthcare-associated infections are a significant cause of morbidity and mortality of hospitalized clients accounting for approximate of 100,000 deaths yearly in the US (United States) published HAI (Hospital Acquired Infection) prevalence survey in 2011.

Though ICU (Intensive Care Unit) beds make up the minority of hospital nationwide, they account for the highest burden of nosocomial infections. In an ICU, Central Line-Associated Blood Stream Infections account for most of the morbidity, and mortality rate along with an increase in health cost expenditure.

The risk of developing a catheter-related bloodstream infection (CR-BSI) depends on a variety of factors such as the duration of catheterization, location of the catheter, and type of ICU to which a patient is admitted. Evidence-based interventions are effective in combating catheter-related bloodstream infection (CR-BSI) include, using chlorhexidine skin preparation and Maximal Sterile Barriers (MSB) during insertion of central venous catheters. Use of checklist for catheter insertion, using the subclavian or internal jugular vein instead of the femoral vein and daily review of the central line is important.

These techniques have been validated in the literature and put together in a "bundle" which was installed by the Institute of healthcare improvement (IHI) to help the providers to deliver more consistent care. However many of these studies have focused primarily on the insertion of the central line rather than on-going central line maintenance. Other studies using compliance coupled with adherence to safe line maintenance standards and prompt removal of the central line has shown improvement in (CL-BSI) rate but have not documented the rates below the National Health Safety Network (NHSN). Benchmarks for (CLA-BSI) certainly continue to show rates above the ultimate goal of 'near-zero'.

The care bundle is a new concept in critical care, which is currently being promoted by the National Health Service Modernisation Agency for Critical Care. Care bundles originated in North America and are described as the best group of evidence-based practice interventions. The theory behind care bundles is that when several evidence-based interventions are grouped together in a single protocol, it will improve patient outcome. Care bundles are relatively easy to develop, implement and audit, and provide practitioners with a practical method for implementing evidence-based practice.

Levy and colleagues evaluated the effectiveness of the surviving sepsis guidelines. In their study, the authors considered 165 sites across the USA, Europe, and South America where the surviving sepsis guidelines had been introduced. In total, there were 15 022 subjects with data collection between January 2005 and March 2008. At the

beginning of this time, whole bundle compliance was 10.9% but improved to 31.3% by the end of the second year. Compliance with the management bundle improved from 18.4% to 36.1%. This was associated with (whether casually or otherwise) a reduction in unadjusted hospital mortality from 37% to 30.8% over 2 years (*P*=0.001). The adjusted mortality odds ratio was shown to improve according to how long the site to which it related has been enrolled in the Surviving Sepsis Campaign. This resulted in an absolute reduction in the adjusted odds ratio for mortality of 0.8% per quarter, totaling 5.4% over a 2 yr period. The authors recognize that although the introduction of the Surviving Sepsis campaign care bundle was not necessarily the direct cause for the mortality reduction, across individual units, there was an association with improved bundle compliance and improved clinical outcomes.

2. OBJECTIVES OF THE STUDY

a. To assess the compliance of nurses in using infection control bundle in CCU.
b. To determine the association between the selected variables and the compliance of nurses on using infection control bundle in Critical care Unit.

2. METHODOLOGY

2.1 Materials and Methods

Population and Sample

A descriptive method which is a powerful method available for testing the hypothesis of cause and effect relationship between variables was used. Data collection for the study was done by 30 nurses. Nurses who fulfilled the inclusion criteria such as working for at least 6 months in the CCU in the selected Hospital, were selected by purposive sampling.

Instrument& Data collection

Demographic variable Proforma and clinical variable Proforma were used to collect data. An observational checklist was used to assess the compliance of nurses on infection control bundle developed by the Hospital Quality systems. It consisted of 12 items with yes or no options which were to be observed. The items were the steps or techniques to be carried out while performing the care of a patient on a ventilator, central line catheter and urinary catheter in CCU.

The rating scale had 3 subsets, 6 for attributes of central line-related bloodstream infections, 6 for attributes of ventilator-associated infections and 5 for catheter-related bloodstream infection. They were given scores from 0 -5 for each subset with a maximum score of 12 and a minimum score of 0.

Reliability

The reliability of the rating scale was determined using the inter-rater- Inter-Rater Observer method among 10 Nurses in the Critical Care Unit –Extension and was found to be reliable. (r=0.81).

Ethical Concern

The setting permission was obtained from the Medical Superintendent and the Human Resources Dept. for collecting data from the staff nurses. Informed consent was obtained from the staff Nurses and confidentiality and anonymity of data was maintained.

3.RESULTS and DISCUSSION

Collected data were entered and analyzed in SPSS-18 using appropriate descriptive (frequency and percentage) and inferential (Chi-square) statistics.

Table 1: Frequency and percentage distribution of selected demographic variables of the staff nurses. (N=30)

S. No	Demographic variables	n	p
1.	**Age in years**		
	Up to 30 yrs	20	66.7%
	>30 yrs	10	33.3%
2.	**Gender**	09	30%
	Male	21	70%
	Female		
3.	**Qualification**	12	40%
	GNM	18	60%
	BSc		

We can infer from table1, that majority of staff nurses were between the age group of up to 30yrs (66.6%), females (70%).

Table 2: Frequency Percentage Distribution of Compliance of Nurse in Using Infection Control Bundle in CCU

Level of compliance	Good		Average	
	n	p	n	p
Compliance of nurses on infection control bundle in CCU	12	73.3%	8	26.6%

The data from the table 2 reveals that 12 (73.3%) nurses had a good level of practice and 8 (26.6%) nurses had an average level of practice in maintaining the infection control bundle in CCU.

Table 3: Association between Selected Demographic Variables and Compliance of Nurses in Using Infection Control Bundle in CCU

S. No	Demographic Variables	Above Mean	Up to Mean	2 ٨
1.	**Age in years**			
	Upto30	10	10	1.02
	Above30	07	03	(df=1)
2.	**Gender**			
	Mae	06	03	0.49
	Female	11	10	(df=1)
3.	**Qualification**			
	GNM	07	05	0.02
	BSc	10	08	(df=1)
4.	**Years of experience**			
	Upto2yrs	07	04	0.31
	Above 2yrs	10	09	(df=1)

Table 3 depicts that there is no significant association between demographic variables like age, gender, qualification and year of experience and compliance skills.

3.1 Discussion

The findings of the study revealed that there is no significant association between compliance of the nurses using infection control bundle in CCU. It is important for the nurses to follow this bundle, to prevent the infection like

catheter-related bloodstream infection (CRBSI), ventilator-associated pneumonia (VAP), catheter-associated urinary tract infection (CAUTI) and can provide optional care for the clients.

4.CONCLUSION

Introduction of infection control bundle in the ICU reduced the incidence of nosocomial infection and the reduction of anti-MRSA antibiotics use in critically ill patients.

More credible process measurements are essential to induce positive changes in the intervention and treatment care. Measurements for improvement should be simple and easily adaptable. The sepsis care bundles have an important role in future septic infection management. As a consequence, any effort undertaken for decreasing the hospital mortality due to severe sepsis should focus on increasing and encouraging compliance with these evidence-based interventions in the case of patients.

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