"IMPACT OF MEASURING THE EFFICACY OF SELECTED CARE BUNDLES IN PREVENTION OF SELECTED MULTIPLE INFECTIONS AMONG CRITICAL PATIENTS ADMITTED AT HIGH DEPENDENCY UNITS IN A SELECTED TERTIARY CARE HOSPITALS, KOLAR"

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Research Project Submitted to

Sri Devaraj Urs College of Nursing Tamaka, Kolar as a part of Curriculum requirement for the Degree of Basic B.Sc.(N) & Post B.Sc.(N).

in

MEDICAL SURGICAL NURSING- SPECIALITY

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2023-2024

DECLARATION BY THE CANDIDATES

We hereby declare that, this research project work entitled "**Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar",** is a bonafide research work carried out by us under the guidance of **Dr. Zeanath Cariena. J**, Prof & HOD of Medical Surgical Nursing, Sri Devaraj Urs College of Nursing and Chief Nursing Officer of RLJH & RC Tamaka,Kolar, along with the Co-guidance of **Mrs. T Umadevi**, Assistant Prof. Dept of Medical Surgical Nursing, Sri Devaraj Urs College of Nursing, Tamaka, Kolar.

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This is to certify that the research project entitled "**Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar",** is a bonafide research work done by Medical Surgical Nursing research group of students under the guidance of **Dr. Zeanath Cariena Joseph,** HOD of Medical Surgical Nursing Dept & CNO of RLJH & RC,Sri Devaraj Urs College of Nursing, Tamaka, Kolar and with the co-guidance of **Mrs. T Umadevi**, Assistant Professor, Dept of Medical Surgical Nursing, Sri Devaraj Urs College of Nursing, Tamaka, Kolar. In partial fulfilment of the requirement for the degree of B.sc (N) & P.B.B.sc (N).

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ABSTRACT

BACKGROUND

Healthcare-associated infections are a leading cause of morbidity and mortality. Approximately 1.7 million hospitalized patients develop hospital-associated infections annually, and 98,000 lose their lives each year. It is ranked as the fifth leading cause of death acute care hospitals. Thus, the investigators felt the need to Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar." The study aimed to estimate the efficacy and effective ness of CLABSI care bundle by using Checklist

METHODS AND RESULTS

A quasi experimental one group pre and posttest design was used by selecting 200 patients admitted at HDUs of Tertiary Health Care Centre. The sample was collected by using purposive sampling technique. The training effectiveness was measured by using paired t' test by comparing pre and post test scores. There was a significant improvement between the before and after intervention mean scores of 15.13 with SD of ± 1.91, whereas after the intervention mean scores was enhanced to 19.16±0.515, and paired't' test values with comparison of mean scores within the group showed that "t" value is 28.217 respectively and found to be statistically significant at $P<0.001$ with degree of freedom at 199.

The overall area wise mean, Standard deviation distribution of CLABSI compliance status before and after the Intervention, area wise of catheter insertion shown that, mean 4.61 & SD 0.72, whereas in maintenance of central lines found to be 3.98 with SD of 0.76 and Removal of central lines found to be 1.11 & SD of 0.31 respectively. Whereas after the intervention training module, the mean scores have improved in the areas of catheter insertion 4.5 mean and SD of 0.70, maintenance of central lines 2.9 with SD of 0.56 and Removal of central lines 1.11 mean and SD of .31 respectively.

CONCLUSION:

The study concluded that, the **Training module** was found effective in improving the Efficacy of CLABSI care bundle and showed positive outcomes

List of abbreviations

SL. No	Abbreviations	
	HCAI	Health Care Associated Infections
	BSI	Blood Stream Infections
	ICU	Intensive Care Units
	HDUs	High Dependency Units
	CLABSI	Central Line-Associated Bloodstream Infections
	CB	Care Bundle
	RLJH&RC	R.L. Jalappa Hospital & Research Center
	F	F; Frequency
	%	Percentage

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CHAPTER-I

INTRODUCTION

Hospital-associated infections (HAI) are the most common complications of hospital care and have increased in the last two decades. Healthcare-associated infections are a leading cause of morbidity and mortality.[1] Approximately 1.7 million hospitalized patients develop hospital-associated infections annually, and 98,000 lose their lives each year. It is ranked as the fifth leading cause of death in U.S acute care hospitals.[2]

The central lines are considered a vital medical device in providing complex treatment regimens to critically ill patients.[3]The treatment includes but is not limited to lifesaving fluids and medications administration, hemodynamic monitoring, haemodialysis, and blood sampling. The treatment includes but is not limited to lifesaving fluids and medications administration, hemodynamic monitoring, haemodialysis, and blood sampling. Despite its potential benefits, central lines significantly increase the risk of central line-associated bloodstream infection (CLABSI), the most severe hospital-acquired infection.3

Bloodstream infections are a major cause of illness and death worldwide. The incidence of BSIs has increased over time and reported BSI rates range from 122 to 220 cases/100,000 population. Rising incidence is probably related to an aging population and an increasing prevalence of underlying conditions and invasive procedures.[2] Blood Stream Infections estimated 250,000 deaths annually in North America and Europe. Recent studies have reported BSI mortality rates of 21–32 deaths/100,000 population and 1-month case-fatality rates of 17%–28% for Nosocomial BSIs and 10%–19% for community-acquired BSIs. Higher mortality

rates of 40%–50% have been observed in surveys of patients with BSIs or septic shock in hospital intensive care units.[4]

The Standardized Infection Ratio (SIR) is a standard metric used to track and report CLABSI cases on national, state, and local levels. The CLABSI target set by Healthy People CLABSI in Adult ICU Patients 2020 is a 0.5 ratio interpreted as aiming to achieve fifty percent fewer actual infection cases than the predicted number of CLABSI cases. In 2019, the United States and the State of California scored a ratio of 0.69 and 0.67, respectively, on the SIR scores indicating more than 60% of actual CLABSI cases than the predicted infection cases in the nation and the state. The project site scored a ratio of 1.7 on the 2019 SIR report showing a significant prevalence of CLABSIs in the facility.[5]

A retrospective cohort study was conducted on Prevalence of Central Line-Associated Bloodstream Infections (CLABSI) in Intensive Care and Medical-Surgical Units. A total of 1,125 CVCs were reviewed (448 - ICU and 677 - medical-surgical units). The results of the study showed that 13 CLABSI, one patient had internal jugular (IJ), one patient had subclavian (SC), four patients had femoral, three patients had peripherally inserted central catheter (PICC) and four patients had haemodialysis catheters. Patients with CLABSI had CVC inserted for a range of five to 92 days with the average number of line days being 29 days. Hence the study concluded that the patients receiving a CVC must adhere to maintenance Care Bundle documentation in all units, any femoral or Haemodialysis CVC placed without a CLIP form should have the line changed within 48 hours, those patients with a femoral CVC or haemodialysis catheter in place for four days or greater with an abnormal WBC (<4.0 or >11 mg/dL) or abnormal temperature (<97.0F or >100.4F) should be considered for catheter

exchange, and those patients with an IJ, SC, or PICC CVC in place for seven days or greater with an abnormal WBC or abnormal temperature should have the catheter changed.[6]

NEED FOR THE STUDY

A bundle was defined as 'A small set of evidence-based interventions for a defined patient segment/population and care setting that, when implemented together, will result in significantly better outcomes than when implemented individually. The ventilator and central line bundles were the first two to be introduced. The guidelines for the design of each bundle were comprehensive, stating that bundles should only contain three to five interventions with the strong clinical agreement so that implementation would not lead to time lost debating over their validity.

Care bundles are designed around specific elements of patient care and consist of three to five key interventions, the so-called elements. These elements are either evidence based or are already generally accepted in ICUs and in national guidelines. The strength of a care bundle is that all elements must be performed in every eligible patient, unless medically contraindicated, using the all-or-none (AON) approach. Evidence-based bundle care interventions have been shown to significantly decrease the risk of developing CLABSI in Intensive Care Units (ICU) patients & saving 6,000 lives and $414 million in potential healthcare costs.[7]

Central line-associated bloodstream infections (CLABSIs) are serious infections that can lead to increases in the length of hospital stays, case costs and mortality and morbidity.[8] CLABSIs are a global healthcare problem despite the availability of guidelines, education and equipment to manage it. Most of these infections are preventable if evidence-based practices (including surveillance), insertion and maintenance guidelines are followed.[9-11]

Multiple systematic reviews and meta-analyses have been published investigating both adherence to and effectiveness of care bundles addressing a single clinical issue such as sepsis or surgical site infections.[12]

A Multinational prospective study was conducted on incidence and risk factors for central-line associated bloodstream infections in 728 intensive care units of 41 Asian, African, Eastern European, Latin American, and Middle Eastern countries. A Total of 278,241 patients followed during 1,815,043 patient days acquired 3,537 CLABSI were included in the study. The finding of the study revealed that pooled CLABSI rate was 4.82 CLABSIs per 1,000 central line days, The patients admitted in Intensive care unit type with highest risk was adult oncology followed by pediatric oncology and pediatric with regard to Central line type the highest risk was internal-jugular compare to femoral. Peripherally inserted central catheter are the lowest CLABSI risk. Hence the study concluded that implementing evidence-based CLABSI care bundle to prevent central line associated blood stream infection.[13]

Preliminary Survey

A total of Case fifty case files were reviewed retrospectively and the survey revealed that, the compliance rate of VAP was found to be (70%), VAD (80%), CAUTI (82%) when compared to the CLABSI maintenance care bundle was only (52%). Based on the identified gap and the poor patient outcomes in spite of evident literature on efficacy of maintenance care bundles in prevention of Health Care Associated Infections (HCAI), the investigators strongly felt the need to strengthen the quality patient care and patient safety by sensitizing the Health Care Professionals focusing

on safe infusion policy, in preventing morbidity, mortality associated with blood stream infections and cutting the cost in specific by implementing CLABSI Care Bundle.

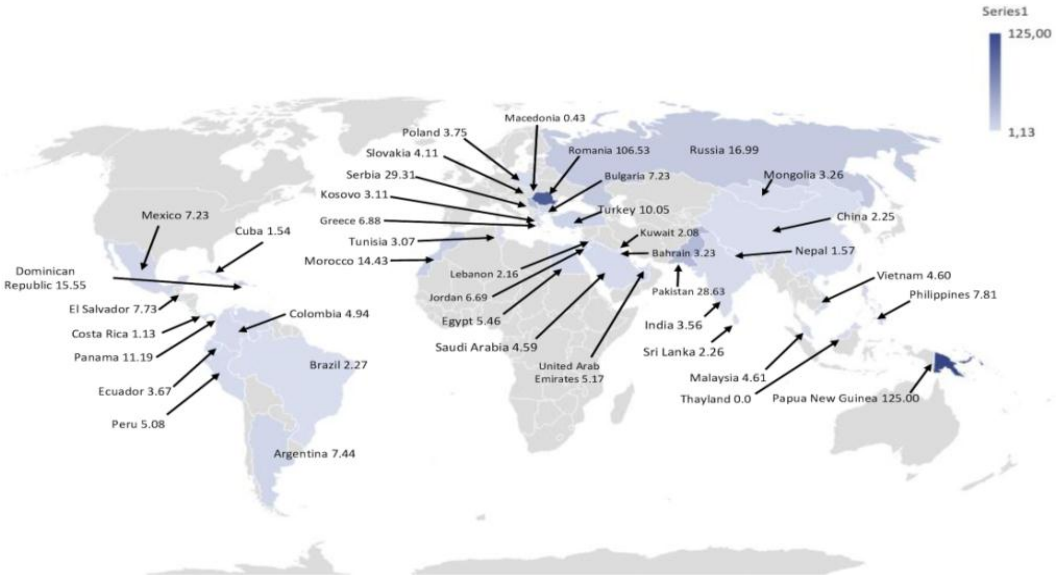


Fig No:-1: Multinational prospective study of incidence and risk factors for central-line–associated bloodstream infections

CHAPTER-II

CHAPTER -II

OBJECTIVES

This chapter deals with the statement of the problem, objectives of the study, operational definitions, assumptions, conceptual framework which provides a frame of reference for the study.

STATEMENT OF THE PROBLEM

"Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar."

OBJECTIVE OF THE STUDY

1. To estimate the efficacy of CLABSI care bundle compliance status using Checklist
2. To evaluate the effectiveness of the training module in preventing infections by comparing pre test and post test scores using CLABSI care bundle.
3. To determine the association between the CLABSI care bundle with selected socio demographic variables.

OPERATIONAL DEFINITIONS:

1. Impact: In this study it refers to the process of evaluating the effects of the Central Line Associated Blood Stream Infection Maintenance Care Bundles.

2. Efficacy: In this study it refers to the capacity of producing a desired positive outcome as prevention of selected infections as Central Line Associated Blood Stream Infection**.**

3. Care Bundles: In this study it refers to a written document on set of healthcare interventions used to prevent selected infections associated with blood stream and to achieve positive outcomes.

4. Prevention of Central Line Associated Blood Stream Infection: In this study it refers to Health care activities implemented and recorded on maintenance Care Bundles in view of preventing selected infections like Local Infection, Tube dislodgement, Pneumothorax, Hemothorax, Thrombosis.

5. Critical Patients: In this study critical patients refers to all the patients who are admitted at Intensive Care and High Dependency Units with acute or chronic actual or potential life-threatening conditions who are treated with intravenous and central line infusions by adhering to the maintenance Care Bundle Checklist.

6. High Dependency Units: In this study it refers health care unit of Medical or Surgical High/ Intensive care units where only the critical ill patients are admitted who require constant observation, monitoring, treatment, nursing and intensive care round the clock.

HYPOTHESES

H_1 There will be a significant difference before and after the implementation of training module of CLABSI maintenance care bundle checklist.

H_2 There will be significant difference in scores before and after the module training

Programme.

H_3 There will be significant association between Efficacy scores of CLABSI compliance and with selected socio demographic variables.

CONCEPTUAL FRAMEWORK

Conceptual framework refers to the interrelated concepts or abstractions that are assembled together in some rational scheme by virtue of their relevance to a common theme (George BJ 2002). The present study aims to measuring the efficacy of CLABSI Care Bundles in prevention of Central Line Associated Blood Stream Infection.

Based on the review of literature and the process of implementing maintenance care bundle the investigators felt the need of appropriateness of the Concept, Input, Process and Product (CIPP) model developed by Daniel Stufflebean (2003).

The aims of the conceptual frame work is to provide an analytic and rational basis for decision making based on the cycle of planning, structuring, implementing, reviewing and revising the decisions. Each concept is examined through a different aspect of evaluating like context, input, process and product evaluation (CIPP). CIPP model provides a comprehensive, systematic, continuous, and ongoing framework for programme evaluation.

The Concepts of Daniel Stufflebean Evaluation

- Context evaluation
- Input evaluation
- Process evaluation
- Product evaluation

Context Evaluation

It highlights on the environment in which the proposed programme exists. It evaluates and validates the needs, problems, opportunities, on the basis of defined goals, priorities and objectives. It helps in making programme planning decisions. In this context evaluation focuses on assessing the efficacy of CLABSI maintenance care bundle in prevention of Central Line Associated Blood Stream Infection.

Input Evaluation

Input evaluation involves steps and resources needed to meet the goals and objectives. It serves as a basis for structuring decisions. In the present study input refers to the,

- Validated Central Line Associated Blood Stream Infection by using maintenance checklist
- Validated Central Line care bundle outcome
- Selection of sample and framing a research design

Process Evaluation

It involves in measuring the implementation of plans to guide the activities and later to explain outcomes of the frame work adopted. In the present study it refers to implementation and compliance status of all the clients to maintenance checklist of CLABSI.

Product Evaluation

It helps to identify both intended and unintended outcome to keep the process on track and comparing them to anticipated outcome. It can be decided if the programme should be continued, modified or dropped altogether.

In this study product evaluation refers to safe infusion practice in preventing/ decreased number of blood stream associated infection.

This step of the model further leads to recycling decisions and need for modification to eliminate or terminate the negative outcomes contributing for unsafe health care outcomes among patients admitted in High Dependency Units.

SUMMARY:

This chapter dealt with the statement of problem, objectives of the study, operational definitions, assumptions and conceptual frame work adopted for the study.

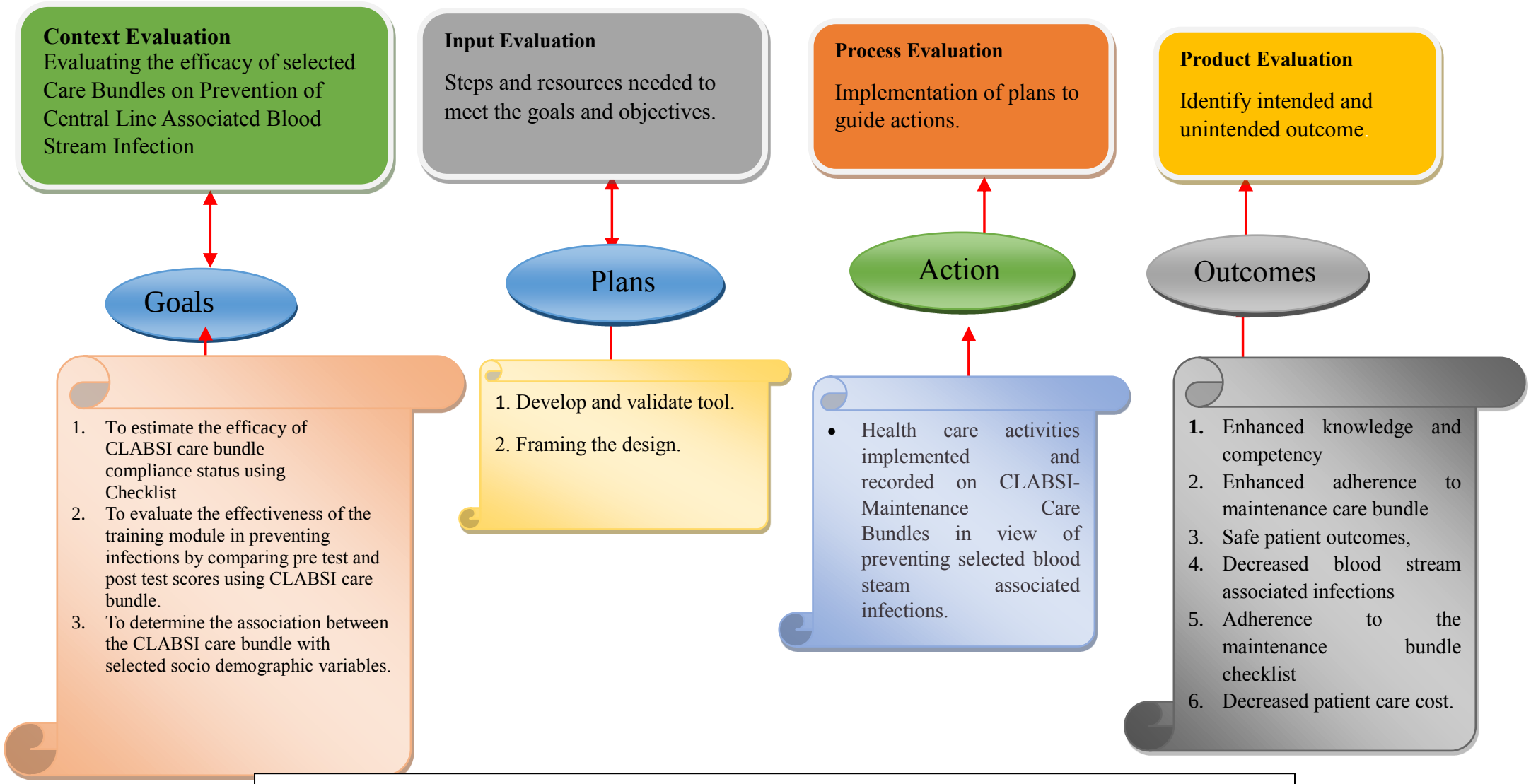
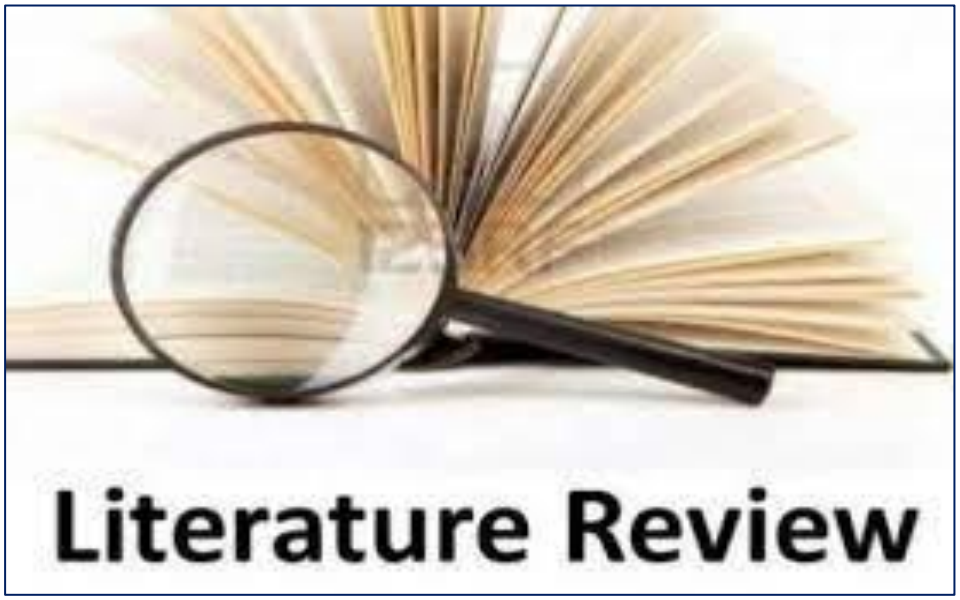
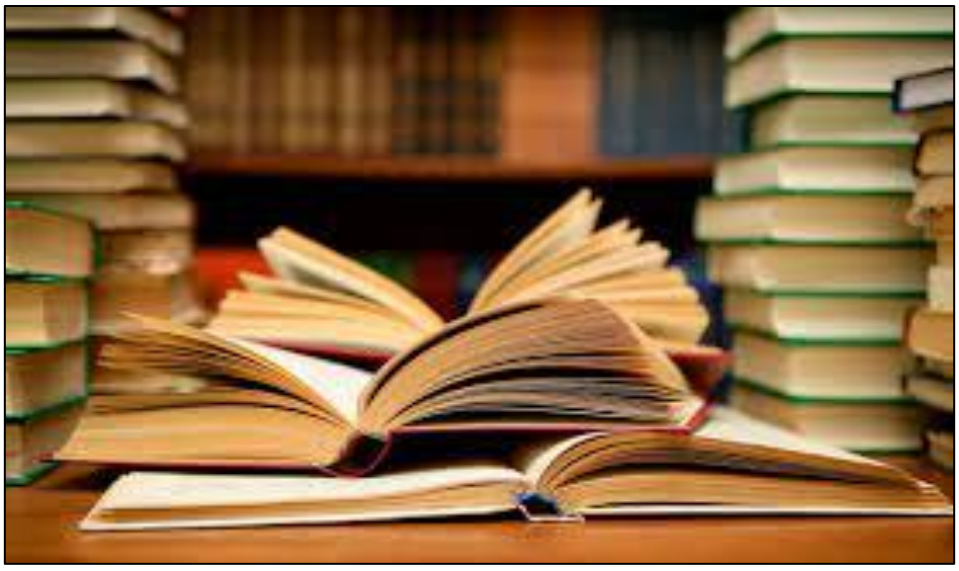


Fig 2: Conceptual Framework based on Daniel Stufflebean CIPP model -(2003)

CHAPTER-III





CHAPTER III

REVIEW OF LITERATURE

Review of Literature involves in identifying or searching for information on a topic and developing an understanding of the state of knowledge of the topic. The literature for the present study is be reviewed from the text books, journals, electronic resources articles and organized under the following heading

Studies related to efficacy of Care Bundle on Central Line Associated Blood Stream Infections

A time series study was conducted in a 17-bedded Medical Intensive Care Unit (ICU). Care bundles were uniformly implemented in the ICU from January 2015. Surveillance and identification of Health Care Associated Infection was done on the basis of Central Disease Control guidelines. The results of the present study showed that during the pre-implementation phase, the ventilator-associated pneumonia, catheter-associated urinary tract infection and central line-associated bloodstream infection rates were 9.57, 27.28 and 4.62/1000 device days which reduced to 1.51, 1.25 and 1.20/1000 device days in the post-implementation phase. The compliance percentage for the execution of care bundles for central line, urinary catheter and ventilator improved from 80%, 90% and 85% in 2016 to 85%, 97% and 92%, in 2017. Hence the study concluded that Care bundles have a significant impact on health care-associated infections.[14]

A Study was conducted on Nurses' views Use of Care Bundles to Prevent Healthcare-Associated Infections in Intensive Care Units at Türkiye. Two focus-group interview was conducted among nurses working at 14 intensive care unit. The results

showed that nurses stated that care bundles improved their perspectives and also providing reminders rather than a waste of time. Hence the study concluded that the uses of care bundles in Intensive care units will be helpful to prevent Health Care Associated Infections.[15]

A retrospective cohort study was performed on Incidence, risk factors and healthcare costs of Central Line Associated Blood Stream Infection in hematologic and oncologic patients at Germany. The results of the study showed that 610 patients was developed with Central Line Associated Blood Stream Infection with the incidence of 10.6 cases per 1,000 Central Venous Catheter days. The use of more than one Central Venous Catheter per case CVC insertion for conditioning for stem cell transplantation, acute myeloid leukaemia, leukocytopenia, carbapenem therapy and pulmonary diseases were independent risk factors for Central Line Associated Blood Stream Infection. Hospital costs directly attributed to the onset of Central Line Associated Blood Stream Infection were 8,810 € per case. CLABSI had a significant impact on the overall healthcare costs. Hence the study concluded that Knowledge about risk factors, infection control measures for Central Line Associated Blood Stream Infection prevention is crucial for best clinical practice.[16]

A Qualitative study was conducted on Implementation of central-line bundle in three clinical units at Canada. Medical Intensive Care Unit, Intensive Care Unit and Surgical Intensive Care Unit was included in the study. 74 interviews and 50 observations were documented. The results of the study showed that the nursing leaders were particularly concerned about Central Line Associated Blood Stream Infection being one of an overwhelming number of Quality Improvement targets and care bundle implementation strategies were initially reliant on unit-based nurse education. Hence the study concluded that CLABSI care bundle interventions

achieved limited impact on competing unit workflow demands, professional roles, interactions, and daily routines of work.[17]

A Study was conducted on early prediction of central line associated bloodstream infection by using machine learning. A total of 27,619 patients designated as having a central line procedure based on International Statistical Classification of Diseases and Related Health Problems 10 codes were included. The results of the study showed that the XG Boost was the highest performing Machine learning algorithm out of the three models, obtaining an AUROC of 0.762 for CLABSI risk prediction at 48 hours after the recorded time for central line placement. Hence the study concluded that Machine learning algorithm may be effective clinical decision support tools for assessment of CLABSI risk.[18]

A quasi experimental study was conducted on impact of two bundles on central catheter associated blood stream infection in critically ill patients at Santiago, Chile. Total 444 central catheters of 390 patients were observed with insertion and maintenance of bundle for a period of six months. The results of the study showed that the maintenance and insertion bundles reached 62.9% and 94.7% compliance and 50.7% of the insertions were supervised. 54.5% decrease in the rate of central line catheter infection 3.48 vs 1.52 x 1000 days/catheter compared with control group. Hence the study concluded that implementation of insertion and maintenance bundles has a positive impact on the reduction of catheter-related bloodstream infection & to improve quality and safety care in high dependency units. [19]

A study was conducted on implementation of a national bundle care program to reduce central line associated bloodstream infection in intensive care units at Taiwan. A total of 27 ICU, 15 Medical ICU, 11 Surgical ICUs and one mixed ICU were included in the study. The study period was divided into two – a pre intervention

and intervention phase. The results of the study showed that the CLABSI rates decreased by 12.2% from 5.74 per 1000 in pre intervention phase and 5.04 per in intervention phase. Hence the study concluded that there is significant decline in central line associated blood stream infection at hospital and ICUs .[20]

A systematic study was conducted on effectiveness of care bundles to prevent central line associated blood stream infection in patients admitted at ICU. A total of 11 non randomized intervention studies were included in the study. In that three studies from North India (27.2%), two at North Taiwan (18.2), one in Canberra(9.1), one at Korea (9.1), one in Tennessee(9.1),), one from Greece(9.1), one at Australia (9.1) and one from Turkey(9.1). The results of the study showed that there is a significant reduction in central line associated blood stream infection rate after the introduction of care bundles in ICU. Hence the study concluded that there is a effectiveness in implementation of care bundles to prevent infection among ICU settings.[21]

The study was conducted on reducing central line associated blood stream infection an improvement project in king Faisal speciality hospital and research centre at Saudi Arabia. infection control, hospital epidemiology and the quality department was collaborated and initiated a performance improvement project to address 144 CLABSI events in 2017.The results of the study showed that the CLABSI rate per 1000 patient days dropped from 1.5 per 1000 device days to 1.03 per 1000 device days. Central Line Associated Blood Stream Infection events reduction was 24% by 2018and 15% by 2019 thus overall decrease in CLABSI events was 35% and 10 units reported zero CLABSI events in 2018 and 2019 out of that four units had a high central line bundle utilization rate was more than 40%. Hence the study concluded that the implementation of CLABSI Care bundle interventions was effectively reduced CLABSI events in the hospital.[22]

A quasi-experimental study was conducted on how to minimize central line–associated bloodstream infections in a neonatal intensive care unit: a quality improvement intervention based on a retrospective analysis and the adoption of an evidence-based bundle in tertiary 24-beded NICU hospital at Belgium. The results of the study showed that the implementation of the new "bundles" and the change of certain materials resulted in a significantly decreased rate of Central Line Associated Blood Stream Infection from 8.4 to 1.8 infections per 1000 central venous catheter days and also decreased catheter-related complications from 47 to 10 Hence the study concluded the implementation of new evidence based central line care bundles was highly significant reduction in Central Line Associated Blood Stream Infection rate in NICU settings.[23]

A cross sectional correlational study was conducted on knowledge and compliance on prevention of central line associated blood stream infections among registered nurses at Jordan. By using convenient sample technique 144 registered nurses were included in the study. The result of the study showed that the rate of CLABSI was the lowest in the hospital using the Central venous catheter care bundle. Nurses' knowledge about Central Line Associated Blood Stream Infection prevention and practices was significantly correlated with their compliance to Central line maintenance care bundle and the Significant differences were also found according to the hospital and nurse-to-patient ratio. Hence the study concluded that there is need to expand the application of the Central venous catheter care bundle maintenance in hospital. [24]

A study was conducted on positive effect of care bundles on patients with central venous catheter insertions in tertiary hospital at China. A total of 212 patients with central venous catheter insertion were included in this study. Control group was

received conventional care and experimental group was administered with care bundles including nurse education, hand hygiene and maximum sterile barrier precaution techniques. The results of the study showed that the patients mean self-rating anxiety scale score, self-rating depression scale score and the mean number of hospitalization days, central line associated blood stream infections rate after nursing intervention were significantly lower in experimental group compared with control Hence the study concluded that care bundles are essential to prevent central line associated blood stream infections.[25]

A retrospective review was conducted on reducing the rate of central line-associated bloodstream infections a quality improvement project at University Hospital, Nairobi, Kenya. Active surveillance was performed in the critical care units. The results of the study showed that the central line associated blood stream infection rate before the intervention period was 8.83 and 5.62 after the intervention and related to compliance of insertion bundle the average compliance rate during the pre-intervention period was 97% and after the intervention it was increased to 98%. The compliance rate of maintenance bundles increased from 92 to 98% after the intervention. Hence the study concluded that improvement projects helps to reduce central line-associated bloodstream infections and face challenges related to implementing care bundle in real-world healthcare settings.[26]

An analytical prospective cohort study was conducted on Central Line Associated Blood Stream Infections and Effectiveness of Care Bundle Approach in Cheluvamba Hospital attached to Mysore Medical College and Research Institute at Mysuru, Karnataka, India. A total of 307 neonates with central line inserted were included in the study. The results of the study showed that implementation of the Central line associated blood stream infection care bundle resulted in the reduction of

the baseline CLABSI rate from 16.25 to 8.3/1000 Central line days and a significant reduction in the catheter dwell time and duration of NICU stay. Hence the study concluded that significant reduction in CLABSI rates can be achieved with widespread implementation of the Care bundle.[27]

A Semi experimental controlled study was conducted on impact of care bundle approach in preventing central line associated bloodstream infections in university hospital at Istanbul, Turkey. Total 163 patients in that 83 patients for experimental group and 80 patients for control group admitted at surgical intensive care units were included. The results of the study showed that 23.3% of patients had developed signs and symptoms of hospital acquired infections and 25.2% of catheter tip cultures were positive with Staphylococcus epidermidis. Hence the study concluded that Care bundle approach is effective in preventing central line associated blood stream infection.[28]

CHAPTER-IV

CHAPTER IV

METHODOLOGY

This chapter deals with the methodology adopted for the present study and the different steps under taken. It includes research approach, research design setting, sample and sampling techniques sampling criteria development and description of the tool, procedure of data collection and data analysis.

RESEARCHAPPROACH

The research approach used for this study is Quantitative research approach.

RESEARCHDESIGN

The design adopted for this study is quasi-experimental pretest-posttest design study

SETTING OF THE STUDY

The Study is conducted at Rural Tertiary Multi speciality Medical teaching hospital, R. L Jalappa Hospital & Research Centre, Tamaka, Kolar. With a total bed capacity of 1200 out of which nearly 250 beds are allotted for acute health care settings with a bed occupancy of more than 90%.

SAMPLE AND SAMPLE SIZE

SAMPLE: Patients case files with Central line Care Bundle.

ESTIMATION OF SAMPLE SIZE:

Sample size: n=1.962(1-p)(DEFF) d2

n=1.96x1.96 0.5(1-0.5) 20.05x0.05

n=1.96x1.96 0.5(1-0.5) 20.05x0.05=0.475

Where ‘p’= estimate of the expected proportion is assumed to be 0.5

‘d’= desired level of absolute precision is assumed to be 0.5

‘DEFF’=estimated design effect to be 2

Calculated Sample 180 and by considering 10% attrition rate a total of 200 samples will be included in the study.

SAMPLING TECHNIQUE

Purposive sampling technique will be used.

CRITERIA FOR SELECTION OF SAMPLE

Inclusion criteria

1. Patients case files with Central line Care Bundle and admitted to Intensive Care units,
2. Medical Intensive care units and Surgical Care Units,
3. Emergency care units and haemodialysis units.

Exclusion criteria

Patients case files with Central line Care Bundle and admitted to Paediatric wards.

DATA COLLECTION TOOL: The tool will be prepared based on the research problem; objectives of the study stated were assessed by using the following tool.

Section A: Socio Demographic data of patient which include Age, Gender, Hospital No, Date of Admission, Diagnosis, Length of hospital stay, Care Bundle: Start date & End date

Section B: Central line associated blood stream infection checklist consisting of 21 items, consisting of Cather Insertion, Maintenance of Central Lines, and Removal of Central Lines

Section C: Comprised the training module prepared by the investigators for the ICU nurses. The training content was validated by the experts of Hospital infection control Team.

Section B: Central Line care bundle outcome assessment Tool to check the outcomes.

METHODS OF DATA COLLECTION

The data will be collected by using following steps

Step 1: Ethical clearance will be obtained from the Institutional Ethical Committee of Sri Devaraj Urs College of Nursing.

Step 2: Permission will be obtained from Medical Superintendent &section Heads of High dependency units of R.L.Jalappa Hospital and research Centre.

Step 3: Based on inclusion criteria through purposive sampling technique 200 patients case files with Central line Care Bundle and admitted at High Dependency Units will be included in the study.

Step 4: The investigators as per the objectives & inclusion criteria of the study shall collect the following data.

1. Socio Demographic data of patient which include Age, Gender, Hospital No, Date of Admission, Diagnosis, Total No. days of Hospitalization, Care Bundle: Start date & End date.

2. The investigators shall use the validated Checklist on Central line Care Bundle by using Chart review technique and collect the data as follows.

Day 1: Cather Insertion detail

Day 4: Cather Maintenance detail

Day of discharge: Central Line Care bundle outcome assessment tool to measure the rate of complications.

Step 5: Based on the assessment of the efficacy of care bundle compliance, the validated training module is prepared by the investigators

Step 6: The training was conducted on session basis followed by post-test assessment using same tools.

PLAN FOR DATA ANALYSIS

Methods	Type of Statistics	Purposes
Descriptive Statistics	Frequency, Percentage, Mean, SD	Assess the socio demographic characteristics and study variables.
Inferential Statistics	Paired **'t'** test	Compare the outcome variables before and after intervention within the group
	Chi square	Find association selected socio demographic variables with outcome variables.

LIMITATIONS OF THE STUDY

- The study was limited to CLABSI maintenance checklist only
- The study was limited to patients admitted in HDUs only

CHAPTER-V

DATA ANLYSIS AND INTERPRETATION

CHAPTER-V

DATA ANALYSIS AND INTERPRETATION

This Chapter describes the analysis and interpretation of the data gather to evaluate the efficacy of CLABSI Care Bundle in prevention of Central Line Associated Blood Stream Infection.

OBJECTIVE OF THE STUDY

1. To estimate the efficacy of CLABSI care bundle compliance status using Checklist
2. To evaluate the effectiveness of the training module in preventing infections by comparing pre test and post test scores using CLABSI care bundle.
3. To determine the association between the CLABSI care bundle with selected socio demographic variables.

The study findings are organised as below based on the objectives of the study :

ORGANIZATION OF THE STUDY FINDINGS

Section A: Socio-demographic proforma of patient case files which includes Age, Gender, Diagnosis, and Length of hospital stay.

Section-B: Distribution of patient proforma according to the overall efficacy of CLABSI care bundle checklist compliance status before and after the training module.

Section C: Area wise Distribution of overall CLABSI compliance status according to the procedural efficacy in terms of mean, range and standard deviation, before and after the training module.

Section D: Frequency and percentage distribution of patient's proforma according to the complications developed > 72 Hours before and after the intervention

Section: E: Evaluate the effectiveness of the training module to assess the efficacy of CLABSI checklist compliance in preventing infections by comparing pre-test and post-test scores

Section F: Association between the efficacy of Central Line Associated Blood Stream Infection with selected socio-demographic variables

Section-A

Table-1: Frequency and percentage distribution of patients' proforma according to the Socio-demographic variables.

N=200

Sl.No	Variables	frequency	Percentage (%)
1.	**Age in years** a. 20-35 b. 36-50 c. 51-65 d. 66-80	 20 53 68 59	 **10** **26.5** **34** **29.5**
2.	**Gender** a. Male b. Female	 122 78	 **61** **39**
3.	**Diagnosis** a. Medical disorders b. Surgical disorders c. ENT disorders d. Other disorders	 84 51 22 43	 **42** **25.5** **11** **21.5**
4.	**Length of Hospital stay** **a.** 1-10 days **b.** 11-20 days **c.** 21-30 days **d.** 31-40 days	 122 60 18 0	 **61** **30** **9** **0**

Age in Years

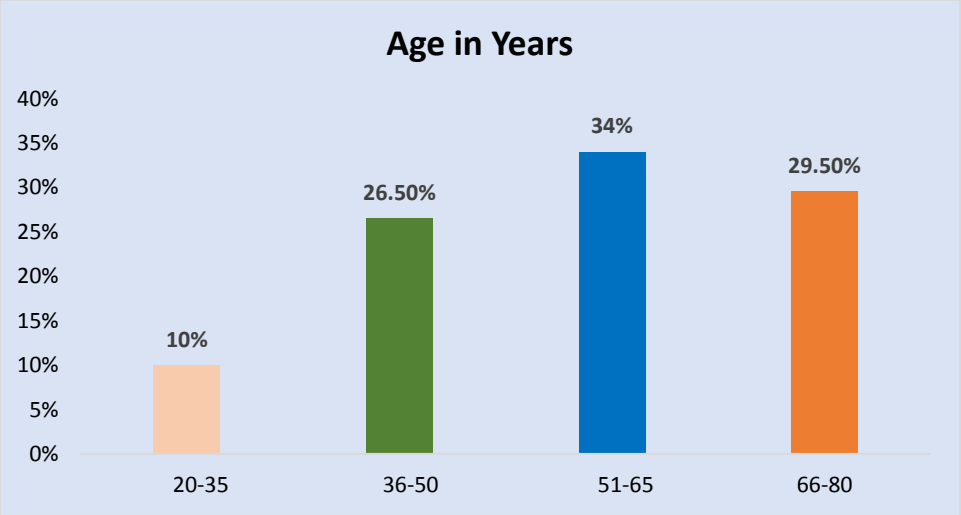


Fig No-3: Percentage distribution of study participants according to the age in years

The data presented in the Table No.1& fig No-3 it shows that, majority 68 (34%) of the study participants were between the age group of 51-65 years, 59 (29.5%) of them belongs to age group of 66-80 years, 53(26.5%) of them belongs to age group of 36-50 years and 20(10%) of them belongs to the age of 20-35 years.

Gender:

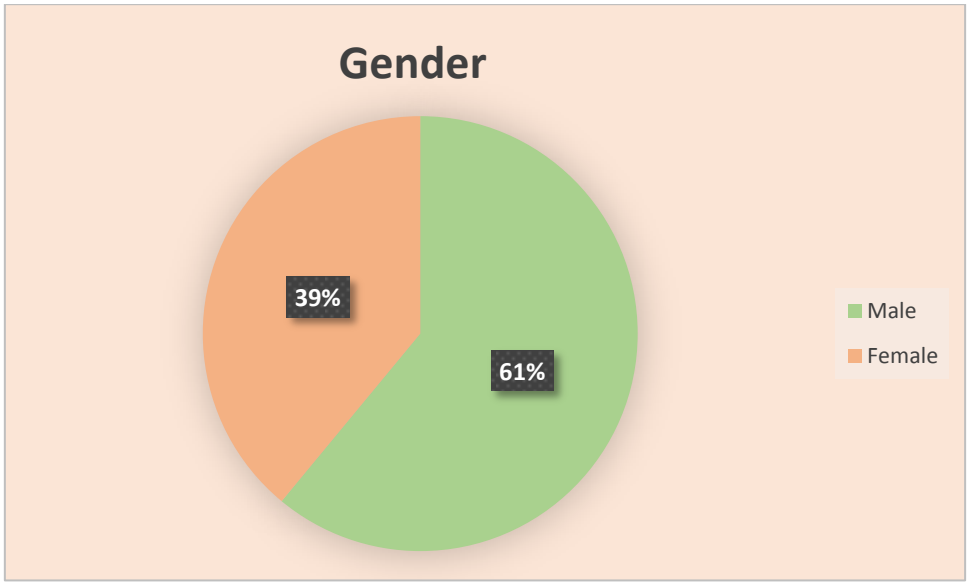


Fig No-4: Percentage distribution of study participant's according to the Gender

The data presented in the Table No.1& fig-4 shows that majority 122 (61%) of the study participants were male and 78(39%) of them were females.

Diagnosis

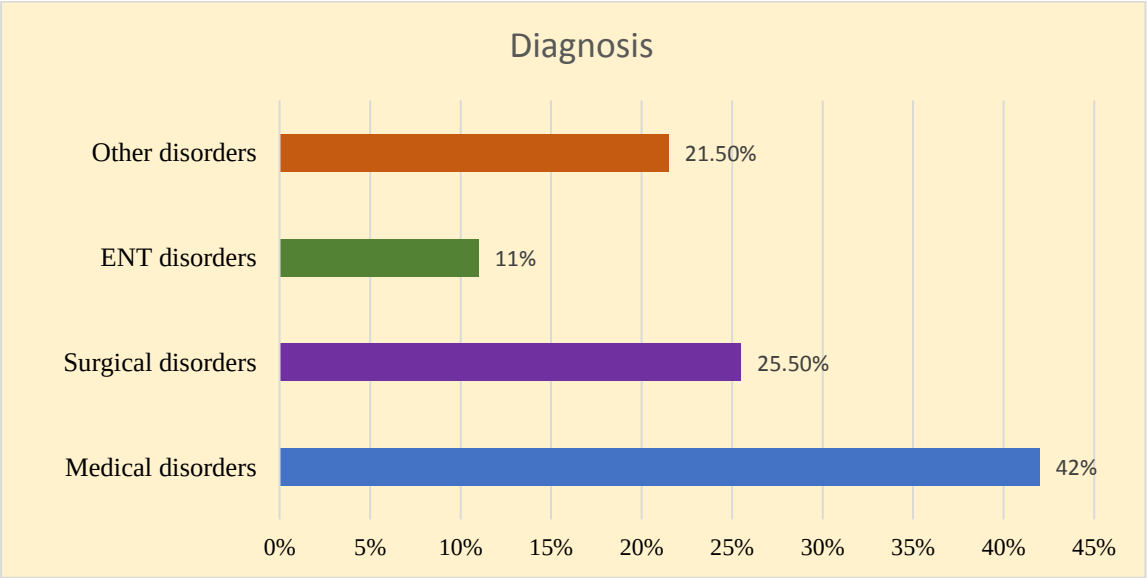


Fig No-5: Percentage distribution of study participants according to the diagnosis

The data presented in the Table No.1& fig-5 shows that majority 84 (42%) of the study participants had diagnosed with medical disorders, 51 (25.5%) surgical disorders, 43 (21.5%) other disorders and 22 (11 %) and had diagnosis related to ENT disorders.

Total No. days of Hospitalization

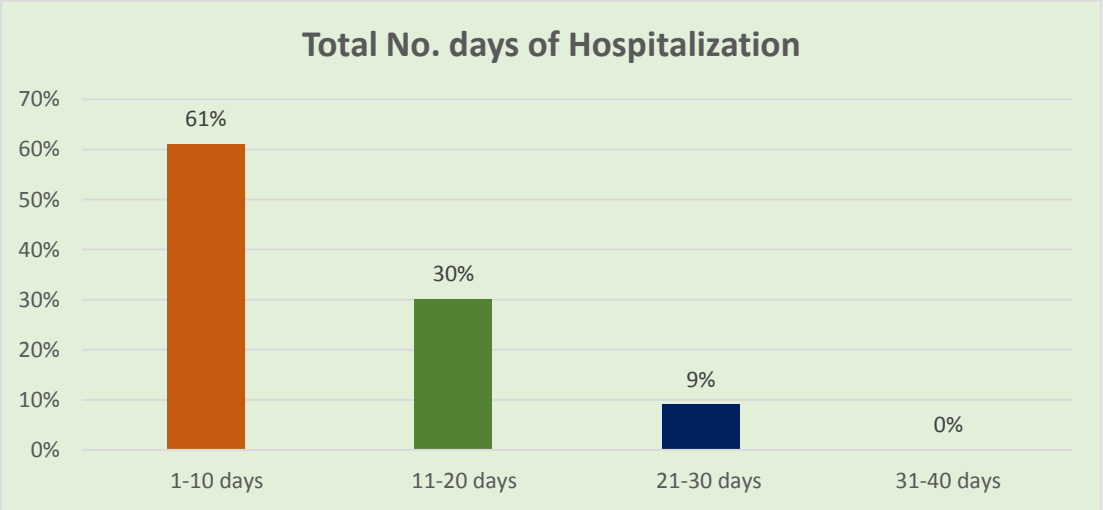


Fig No-6: Percentage distribution of study participants according to total No. days of hospitalization

The data presented in the Table No.1 and fig. -6 shows that majority 122 (61 %) of the study participants were hospitalised for 1-10 days, 60 (30 %) of them were admitted for 11-20 days and 18 (9 %) of them were hospitalised for 21-30 days.

SECTION-B

This section deals with the data pertaining to the distribution of sample according to the overall efficacy of CLABSI maintenance care bundle checklist.

OBJECTIVE-1

1. To estimate the efficacy of CLABSI care bundle checklist compliance status before and after the training module.

Table 2: Distribution of patient proforma according to the overall efficacy of CLABSI care bundle checklist compliance status before and after the training module.

N=200

Care bundles	Compliance status	Scores	Before Intervention		After intervention		χ2& p value
			F	%	f	%	
CLABSI	Compliance	>10	116	58	198	99	χ2=99.60 (< 0.001)** SS at $p < .05$.
	Non-Compliance	<10	84	42	02	1	

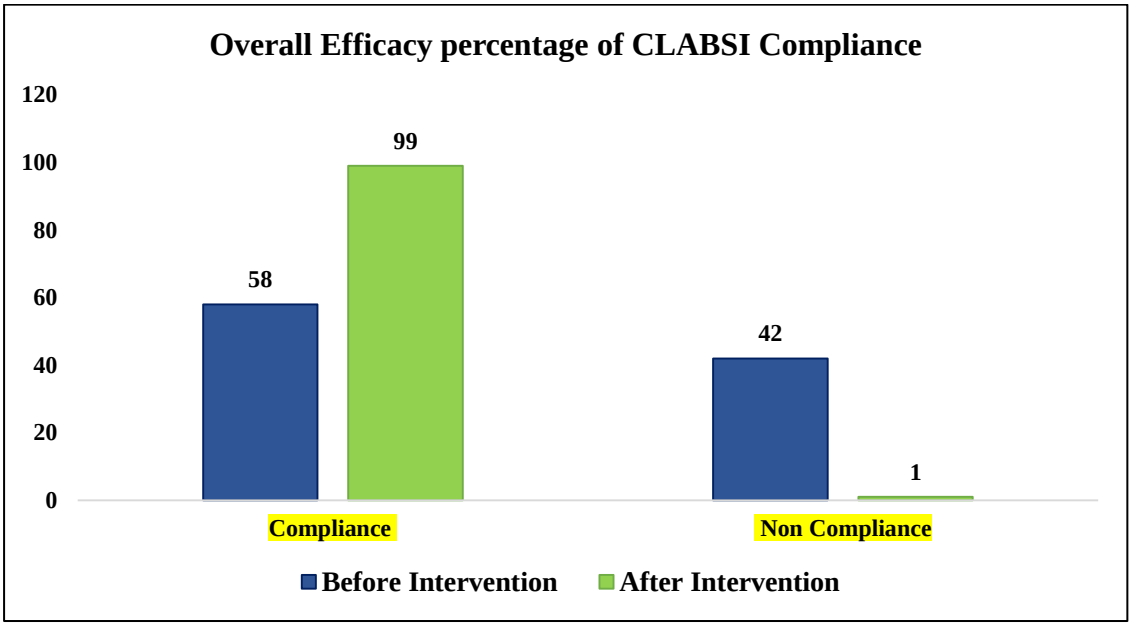


Table 2 & Fig no 7: describes the frequency and percentage distribution of Efficacy of CLABSI Compliance status before and After the Intervention. Majority 116 (58 %) had maintained the compliance for CLABSI checklist, 84(42%) found to be shown as non-compliance to checklist.

Considering the implementation of Training programme, the post-test compliance for CLABSI Checklist ranged from, Majority 198 (99%) of them had maintained good compliance whereas 02 (1%) had Non-compliance to Efficacy of CLABSI care bundle checklist.

Hence the Hypotheses, H_1 is accepted and found to be true indicating a significant difference before and after the intervention for CLABSI care bundle checklist.

SECTION C

Table-3 : Area wise Distribution of overall CLABSI compliance status according to the procedural efficacy in terms of mean, range and standard deviation, before and after the training module.

N=200

Sl.No	Area wise prevention of CLABSI	Max scores	Before Intervention		After Intervention	
			Range	Mean± SD	Range	Mean± SD
1.	**Cather Insertion** Before the procedure	5	2-5	4.61±0.72	3-5	4.50±0.70
	During the procedure	5	3-5	3.94±0.54	1-3	2.34±1.57
	After the procedure	3	1-3	1.64±0.56	2-5	1.62 ±0.85
2.	**Maintenance of Central Lines**	6	3-6	3.98±0.76	3-6	2.9±0.56
3.	**Removal of Central Lines**	2	1-2	1.11±0.31	1-2	1.11±0.31

Table 3 explains the overall area wise mean, Standard deviation distribution of CLABSI compliance status before and after the Intervention, area wise of catheter insertion shown that, mean 4.61 & SD 0.72, whereas in maintenance of central lines found to be 3.98 with SD of 0.76 and Removal of central lines found to be 1.11 & SD of 0.31 respectively.

Whereas after the intervention training module, the mean scores have improved in the areas of catheter insertion 4.5 mean and SD of 0.70, maintenance of central lines 2.9 with SD of 0.56 and Removal of central lines 1.11 mean and SD of .31 respectively.

SECTION D

Table-4: Frequency and percentage distribution of patient's proforma according to the complications developed > 72 Hours before and after the intervention.

N=200

Sl.no	Complications (Developed >72 Hrs)	Pre Intervention		Post Intervention	
		frequency	percentage	frequency	percentage
1.	Embolism	14	7	4	2
2.	Sepsis	42	21	6	3
3.	MODS	29	14.5	6	3
	No complications	115	**57.5**	184	**92**

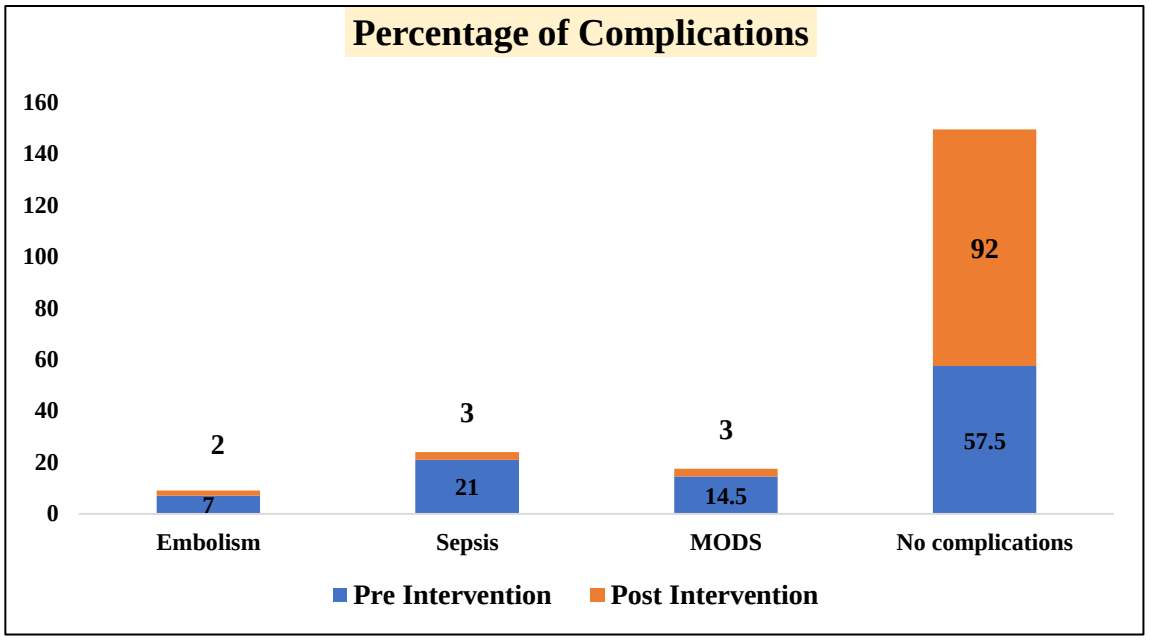


Table no 4 & Fig no 8 reveals that, percentage of complications shown before and after the intervention.

In most of the cases 115 (57.5%) the complications were not developed, in 42 (21%) cases presented with symptoms of sepsis more than 72 hours, 29 (14.5%) of them had developed MODS and only14 (7%) of them had developed Embolism, while after the intervention, majority 184(92%) of the study participants had not developed complications, and only 6(3%), developed MODS, 6(3%), developed sepsis, and 4(2%) developed embolism.

SECTION E

OBJECTIVE 2

Table-5 : To evaluate the effectiveness of training module to assess the efficacy of CLABSI checklist compliance in preventing infections by comparing scores of before and after Intervention.

Table 5 : Comparison of differences before and after the Intervention care bundle training programme CLABSI Care bundle checklist.

N=200

Care bundles	Before Intervention Mean± SD	After Intervention Mean± SD	Enhancement	Paired "t"	df	P value
CLABSI	15.13±1.91	19.16±.515	**4.03**	**28.217**	**199**	**(<0.001)***

df=199 : *SS-Statistically significant at P<0.05, Paired **'t'** test

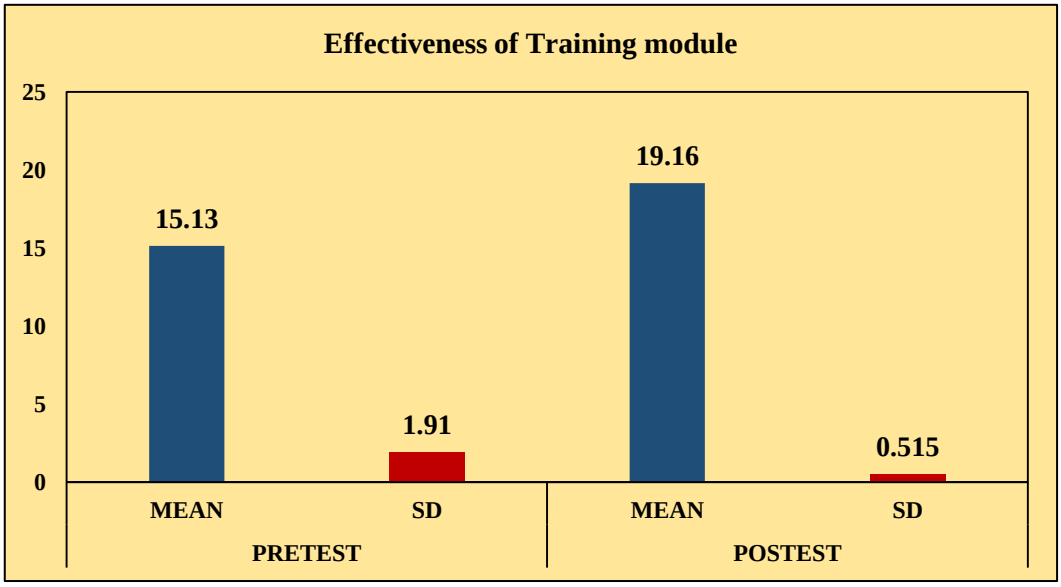


Table 5 and fig no. 9 represents the effectiveness of training module to assess the efficacy of CLABSI maintennance care bundle checklist compliance in preventing infections by comparing the differences between before and after intervention, There was a

significant improvement between the before and after intervention mean scores of 15.13 with SD of ± 1.91, whereas after the intervention mean scores was enhanced to 19.16±0.515, and paired 't' test values with comparison of mean scores within the group showed that “t” value is 28.217 respectively and found to be statistically significant at P<0.001 with degree of freedom at 199.

The findings of the study revealed that there was strong evidence that, the **Training module** was found effective in improving the Efficacy of CLABSI care bundle and showed positive outcome by decreased number of complications, cost of treatment and enhanced patient safety.

Hence hypotheses **H_2** is accepted and found to be true indicating a significant difference in scores before and after the module training Programme.

SECTION-F

Objective 3: To find the Association between efficacy of Central Line Associated Blood Stream Infection with selected socio-demographic variables.

Table 6: Association between efficacy of Central Line Associated Blood Stream Infection with selected socio-demographic variables.

N= 200

Sl. No	Variables	Efficacy of CLABSI		Chisquare (χ2)	Df	P Valve
		Below Median ≤11	Above Median ≥11			
1	**Age in years**					
	a.<50	45	28	1.23	1	0.26
	b.>50	68	59			**NS**
2.	**Gender**					
	a. Male	68	54	0.65	1	0.41
	b. Female	48	30			**NS**
3.	**Diagnosis**					**.035315**
	a. Medical disorders	76	48	4.4299	1	**SS***
	b. Surgical disorders	35	41			***p* < .05**
4.	**Length of Hospital stay**					
	a. <20 days	98	84	0.11	1	0.73
	b. > 20 days	11	07			**NS**

df-degree of freedom, NS-Not significant, SS-Statistically Significant

Table 6 indicates the association between the Efficacy scores and the selected socio-demographic variables, showing that the computed chi-square value for Age was (χ^2 1.23 df-

1,p-0.26), Gender (χ^2 0.65 df-1, p-0.41) and Length of Hospital stay (χ^2 0.11df-1, p-0.73) found to be not significant, while Diagnosis(χ^2 0.353 df-1) found to be significant at p-<0.05 level of significance.

As a result, the hypotheses **H_3,** which claimed that there is a substantial association between Efficacy scores of CLABSI compliance and with selected socio demographic variables.

CHAPTER-VI

Chapter- VI

SUMMARY AND CONCLUSION

Healthcare-associated infections are a leading cause of morbidity and mortality. Approximately 1.7 million hospitalized patients develop hospital-associated infections annually, and 98,000 lose their lives each year. It is ranked as the fifth leading cause of death acute care hospitals. Thus, the investigators felt the need to Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar."

The study aimed to estimate the efficacy and effective ness of CLABSI care bundle by using Checklist. A quasi experimental one group pre and post-test design was used by selecting 200 patients admitted at HDUs of Tertiary Health Care Centre. The sample was collected by using purposive sampling technique.

OBJECTIVE OF THE STUDY

1. To estimate the efficacy of CLABSI care bundle compliance status using Checklist
2. To evaluate the effectiveness of the training module in preventing infections by comparing pre test and post test scores using CLABSI care bundle.
3. To determine the association between the CLABSI care bundle with selected socio demographic variables.

HYPOTHESES

H_1 There will be a significant difference before and after the implementation of training module of CLABSI maintenance care bundle checklist.

H_2 There will be significant difference in scores before and after the module training

Programme.

H_3 There will be significant association between Efficacy scores of CLABSI compliance and with selected socio demographic variables.

Major Findings of the study

Based on the objectives and hypotheses of the study the findings are organized as below

Frequency and percentage distribution of patients' proforma according to the Socio-demographic variables

With regard to age in years the findings showed that, majority 68 (34%) of the study participants were between the age group of 51-65 years, 59 (29.5%) of them belongs to age group of 66-80 years, 53(26.5%) of them belongs to age group of 36-50 years and 20(10%) of them belongs to the age of 20-35 years.

With regard to gender the findings showed that majority 122 (61%) of the study participants were male and 78(39%) of them were females.

With regard to diagnosis of the patients the findings showed that majority 84 (42%) of the study participants had diagnosed with medical disorders, 51 (25.5%) surgical disorders, 43 (21.5%) other disorders and 22 (11 %) and had diagnosis related to ENT disorders.

With regard to total number of hospitalization days the findings showed that majority 122 (61 %) of the study participants were hospitalised for 1-10 days, 60 (30 %) of them were admitted for 11-20 days and 18 (9 %) of them were hospitalised for 21-30 days

As per the first objectives with regard to the estimation of the efficacy of CLABSI care bundle checklist compliance status before and after the training module. The findings revealed that, the frequency and percentage distribution of Efficacy of CLABSI Compliance status before and After the Intervention. Majority 116 (58 %) had maintained the compliance for CLABSI checklist, 84(42%) found to be shown as non-compliance to checklist. Considering the implementation of Training programme, the post-test compliance for CLABSI Checklist ranged from, Majority 198 (99%) of them had maintained good compliance whereas 02 (1%) had Non-compliance to Efficacy of CLABSI care bundle checklist. **Hence the Hypotheses, H_1** is accepted and found to be true indicating a significant difference before and after the intervention for CLABSI care bundle checklist.

As per the second objectives with regard to evaluating the effectiveness of training module to assess the efficacy of CLABSI checklist compliance in preventing infections by comparing scores of before and after Intervention. The findings revealed that the effectiveness of training module to assess the efficacy of CLABSI maintennance care bundle checklist compliance in preventing infections by comparing the differences between before and after intervention, There was a significant improvement between the before and after intervention mean scores of 15.13 with SD of ± 1.91, whereas after the intervention mean scores was enhanced to 19.16±0.515, and paired 't' test values with comparison of mean scores within the group showed that “t” value is 28.217 respectively and found to be statistically

significant at P<0.001 with degree of freedom at 199. The findings of the study revealed that there was strong evidence that, the **Training module** was found effective in improving the Efficacy of CLABSI care bundle and showed positive outcome by decreased number of complications, cost of treatment and enhanced patient safety. Hence hypotheses **H_2** is accepted and found to be true indicating a significant difference in scores before and after the module training Programme.

Based on the third objective with regard to **Association between efficacy of Central Line Associated Blood Stream Infection with selected socio-demographic variables, the findings revealed that** the association between the Efficacy scores and the selected socio-demographic variables, showing that the computed chi-square value for Age was (χ^2 1.23 df-1,p-0.26), Gender (χ^2 0.65 df-1, p-0.41) and Length of Hospital stay (χ^2 0.11df-1, p-0.73) found to be not significant, while Diagnosis(χ^2 0.353 df-1) found to be significant at p-<0.05 level of significance. As a result, the hypotheses **H_3,** which claimed that there is a substantial association between Efficacy scores of CLABSI compliance and with selected socio demographic variables.

IMPLICATIONS

Nursing Practice

The care bundle approach at nursing practice is found to be one of the most acceptable professional practices which enhance patient safety and professional accountability by contributing to the competency based learning- Evidence Practice.

N**ursing Education**

The curricular enrichment with patient care initiatives as set of nursing patient care protocols, care paths, algorithms and care bundles enhances competency skill of learner with a view to integrate theory with practice.

Nursing Research

The implementation of care bundles across the patient care setting sets a universal standard in meeting the health care need of the patient by enhancing nursing research through advanced technology for nurses to practice and benchmarks the professional evidence.

Nursing Administration

The nursing leaders can implement the portfolio criteria for each nurses and nursing student by implementing the maintenance care bundles as hands on skill with competency checklist in prevention of Health care associated infections.

Recommendations:

1. A true experimental study can be undertaken to measure the efficacy of CLABSI maintenance care bundles checklist
2. A comparative study can be undertaken to evaluate the effectiveness of care bundle implementation at different settings.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ANNEXURES

ANNEXURE-I

INSTITUTIONAL ETHICS COMMITTEE APPROVAL

Sri Devaraj Urs College of Nursing, TAMAKA, Kolar-563 103.
(Affiliated to RGUHS, Bangalore and Recognized by KNC, Bangalore & INC, New Delhi)
ISO 9001: 2015 Certified & NAAC Accredited
Phone: 9480880802 E-mail: sduconsen@yaboo.com, Website: sducon.ac.in

28-07-23

Review/ Meeting Minutes No of IEC 02

The meeting of the IEC for the year 2022-2023 was held at SDUCON Council hall on 28/07/2023 at 10:30am onwards under the chairmanship of Dr. Prashanti N, Chairperson, and Institutional Ethics Committee. Dr. Lavanya Subhashini, Member Secretary welcomed committee members, following members attended the meeting

Members Present

Sl. No.	Names	Position in the committee	Signature
1	Dr. Prasanthi Natala	Chairperson	
2	Dr. Prabhakar	Member	—
3	Dr. Dayanand	Member	—
4	Dr. Asha . B	Member	28/7/2023
5	Mr. Ganesh	Member	
6	Achary Chinmayananda Avadutha	Member	
7	Dr. Lavanya Subhashini	Member Secretary	

28/7/23
Member Secretary
MEMBER SECRETARY
ETHICS COMMITTEE
Sri DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

Chairperson
CHAIR PERSON
ETHICS COMMITTEE
Sri DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

Sri Devaraj Urs College of Nursing, TAMAKA, Kolar-563 103.

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After the proceedings the proposals listed for meeting were taken up for discussion. After deliberation the following decision were arrived.

No of proposals received:17

No of proposals Approved:16

No of proposals Approved and subjected to corrections:01

No of proposals rejected: Nil

The recommendations made by the committee to each proposal is detailed below

Undergraduate Synopsis (III BSc Nursing and II PBBSc Nursing)

Sl no	IEC Reg No of proposal	Name of the principal /Co-investigator	Title of research proposal	Accepted/Rejected	Recommendation of the committee
1	IEC/119/2023	Mrs. Vani R Assistant professor Dept. of Community Health Nursing	A true experimental study to assess the Effectiveness of aloevera juice in relieving constipation among older adults in a selected hospital, Kolar.	Accepted	Refer Minutes
2	IEC/120 /2023	Mrs. Gayathri K.V Associate professor Dept. of OBG SDUCON	An explorative study to assess the impact of peer mentoring on academic performance among Nursing students at selected Colleges, Kolar'	Accepted	Refer Minutes

8	IEC/ 126/2023	Dr. Zeanath Cariena.J HOD. Department of Medical Surgical Nursing	Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar.	Accepted	Refer Minutes
9	IEC/127/2023	Prof Punitha HOD. Department of OBG SDUCON	A study to Assess and Utilization of Adolescent Friendly Health Clinic (AFHC) among Adolescent's in selected school in Kolar	Accepted	Refer Minutes
			Postgraduate Synopsis (M.Sc N)		
01	IEC/128/2023	Ms. Anjali Medical Surgical Nursing Dept **Guide**:Dr. Vijayalaskhmi Principal, SDUCON	Effectiveness of Student Centric Method Versus Multimedia Media Method of Teaching in Improving Knowledge on Selected Topics Among Nursing Students at Selected Nursing College, Kolar.	Accepted	Refer Minutes
02	IEC/129/2023	Ms. Anjali Medical Surgical Nursing Dept **Guide**:Dr. Vijayalaskhmi Principal, SDUCON	Effectiveness of Peer Mentoring Versus Traditional Mentoring on Academic Performance Among BSc Nursing students In Selected Nursing College, Kolar.	Accepted	Refer Minutes
03	IEC/130/2023	Ms. Supriya I yr MSc (N) OBG **Guide:** Prof Punitha	A Study To Evaluate The Effectiveness Of Ginger Tea With Mint Leaves On Dysmenorrhea Among Nursing Students At Kolar	Accepted	Refer Minutes

A-QAR-3

Gayathri
IQAC
Sri Devaraj Urs College of Nursing
Tamaka, Kolar 563101

ANNEXURE-II

ರಾಜೀವ್ ಗಾಂಧಿ ಆರೋಗ್ಯ ವಿಜ್ಞಾನಗಳ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕರ್ನಾಟಕ, ಬೆಂಗಳೂರು
RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES, KARNATAKA, BENGALURU
4th T Block, Jayanagar, Bengaluru – 560 041

RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES, BANGALORE
UNDER GRADUATE PROJECT APPROVAL ORDER

Sub:	Orders for approval of research grants to the UG students of affiliated institutions of RGUHS to carryout research projects for the year 2023-24.reg
Ref:	1. University notification No: RES/UG-RESEARCH/ 188/2021-22 dated 06-01-2023
	2. Approval of the 180th Syndicate meeting held on 10-07-2023
Project Code	UG23NUR364
Subject and faculty	Medical Surgical Nursing NURSING
Principal Investigator	NINITHA ANNIE CHACKO
College	Sri Devaraj Urs College of Nursing
Name of the Guide/ Designation and Dept	Dr. Zeanath Cariena.J Professor & Head of the Department
Research Project Title	Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar.
Research Grants Sanctioned	15000
Duration of the Project	Three months from the date of issue of amount through NEFT/RTGS.

One of the main objectives of the University is to promote research activities in the University affiliated colleges. In this regard University had invited applications for financial assistance for conducting the research projects by the UG students of colleges affiliated to RGUHS for the year 2023-24, wherein university received 571 research proposals. The Subject Experts as suggested by the concerned BOS UG chairpersons and the Expert Committee have scrutinized the research proposals and shortlisted them based on the criteria set out by the University. Such of the proposals which have fulfilled the norms, have been recommended by the Expert Committee for sanction of research grants.

ANNEXURE-III

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

From,

Research Group VIII
3rd B.Sc. Nursing
Sri Devaraj Urs College of Nursing
Tamaka, Koar-563103.

To,

The Medical Superintendent,
R. L. Jalappa Hospital and Research Centre
Tamaka, Kolar-563103.

Forwarded Through:

The Principal and Research Guide
Sri Devaraj Urs College of Nursing
Kolar-563103.

Respected Sir,

Sub: Requesting Permission for Conducting Research Study-reg.

We the undergraduate students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for research project as a partial fulfillment of requirements.

Title of the topic:

"Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar".

With regard to the above mentioned subject, we kindly request you to grant permission to conduct research study on patient case files with CLABSI Care bundle to collect the data without disturbing the hospital routine.

We will be highly obliged and remain thankful for your great help

Thanking You,

Yours Sincerely

Date: 02-12-2023
Place: Tamaka, Kolar

1. Ms.Mercy Rani.K
2. Ms.Devika.S
3. Ms. Helan Rose Shibu
4. Ms.Ninitha Annie Chacko
5. Ms.Emilda Michael
6. Ms.Maria Elizabath Shaji
7. Ms.Swathy Krishna
8. Ms.Sowjanya.S
9. Ms Renjima. B
10. Ms. Helan Denny
11. Ms. Rincymol Philip
12. Ms. Nirmala.M

Principal
Sri Devaraj Urs College of Nursing
Tamaka, Kolar-563 101.

MEDICAL SUPERINTENDENT
Medical Superintendent
R.L. Jalappa Hospital & Research Centre
Tamaka, Kolar-563103.

ANNEXURE-IV

LETTER REQUESTING OPINION AND SUGGESTION OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL & MODULE

From,
Research Group VIII
3rd B.Sc Nursing
Sri Devaraj Urs College of Nursing
Tamaka, Koar-563103

To,
Respected madam/sir,

Sub: Request for opinion and suggestions of experts for establishing content validity of research tool.

We the undergraduate students of Sri Devaraj Urs college of Nursing, Tamaka, Kolar has selected the below mentioned topic for my research project for the fulfillment of requirements

Title of the topic:

"Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar".

With regards to above may we kindly request you to validate the tool (CLABSI Care Bundle Checklist, Central Line Care Bundle outcome assessment Tool & Module). Here we are enclosing the objectives of the study, along with the answer key.

I would be highly obliged and remain thankful for your great help.

Thanking you

Yours sincerely,

1. Ms.Mercy Rani.K
2. Ms.Devika.S
3. Ms. Helan Rose Shibu
4. Ms.Ninitha Annie Chacko
5. Ms.Emilda Michael
6. Ms.Maria Elizabath Shaji
7. Ms.Swathy Krishna
8. Ms.Sowjanya.S
9. Ms Renjima. B
10. Ms. Helan Denny
11. Ms. Rincymol Philip
12. Ms. Nirmala.M

Enclosures:

- Statement of the problem with objectives
- CLABSI checklist, Central line care bundle Outcome assessment tool & Module
- Content validity certificate.

Criteria rating scale for validating the Central Line Associated Blood Stream Infection Checklist, Central Line Care Bundle Outcome Assessment Tool & Module

Respected sir/Madam,

Kindly go through the content and rate the content in the appropriate columns given and your expert opinion in the remarks column.

Section-A

Sl.no	Item	Very Relevant	Relevant	Needs modification	Not Relevant
	Section-A: Socio-demographic data				
1.	Age in years				
2.	Gender				
3.	Hospital No.				
4.	**Diagnosis**				
	Primary				
	Secondary				
5.	Total No. days of Hospitalization				
6.	**Care Bundle**				
	Start Date				
	End Date				

Section –B: Central Line Associated Blood Stream Infection Checklist

Sl.no	Item	Very Relevant	Relevant	Needs modification	Not Relevant
Before the Procedure					
1.					
2.					
3.					
4.					
5.					
During the procedure					
6.					
7.					
8					
9.					
10.					
After the procedure					
11.					
12.					
13.					
Maintenance of Central Lines					
14.					
15.					
16.					
17.					
18.					
19.					
Removal of Central Lines					
20.					
21.					

Section-C: Central Line Care Bundle Outcome Assessment Tool

Sl.no	Item	Very Relevant	Relevant	Needs modification	Not Relevant
1.	Local Infection				
2.	Tube dislodgement				
3.	Pneumothorax				
4.	Hemothorax				
5.	Thrombosis				
6.	Embolism				
7.	**Others (Specify)**				

ANNEXURE - V

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of Under Graduate students of Sri Devaraj Urs College of Nursing, Tamaka, Kolar, who is undertaking research project as a partial fulfillment of requirements.

"Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar".

Seal& signature of the expert

Name & Designation

ANNEXURE - VI

LIST OF EXPERTS

1. Dr. Aravind

HOD. Dept of Microbiology
RL Jalappa Hospital & Research Centre
Tamaka, Kolar- 563103

2. Dr. Suresh

HOD. Dept of Anesthesiology & Incharge of ICU
RL Jalappa Hospital & Research Centre
Tamaka, Kolar- 563103

3. Mrs. Martha Shirley

ICN, Quality Link Nurse
RL Jalappa Hospital & Research Centre
Tamaka, Kolar- 563103

4. Ms. Mala. N

ICN, Quality Link Nurse
RL Jalappa Hospital & Research Centre
Tamaka, Kolar- 5631035.

5. Mrs. Uma.S

ICN, Quality Link Nurse
RL Jalappa Hospital & Research Centre
Tamaka, Kolar- 563103

6. Mrs. Vanaja. KT

ICN, Quality Link Nurse
RL Jalappa Hospital & Research Centre
Tamaka, Kolar- 563103

7. Mrs. Bharathi. S

ICN, Quality Link Nurse
RL Jalappa Hospital & Research Centre
Tamaka, Kolar- 563103

ANNEXURE – VII

CERTIFICATE FROM STATISTICIAN

I hereby certify that I have provided statistical guidance in analysis of the data to Under Graduate Students of Sri Devaraj Urs college of Nursing Tamaka, Kolar for their study titled as **"Impact of Measuring the Efficacy of Selected Care Bundles in Prevention of Selected Multiple Infections among Critical Patients admitted at High Dependency Units in a Selected Tertiary Care Hospitals, Kolar".**

Signature of statistician

Prof. Ravi Shankar
Assistant professor in Biostatistics
Department of Community Medicine
Sri Devaraj Urs Medical College
Tamaka, Kolar.

G. RAVISHANKAR
Lect./Assit. Professor
Dept. of Community Medicine
Sri Devaraj Urs Medical College,
Tamaka, Kolar-563101

ANNEXURE – VIII

Socio-demographic data of patient								
Age in years	Gender	Hospital No.	Date of Admission	Diagnosis		Total No. days of Hospitalization	Care Bundle	
				Primary	Secondary		Start Date	End Date

Section-A: Socio-demographic data

Section –B: Central Line Associated Blood Stream Infection Checklist

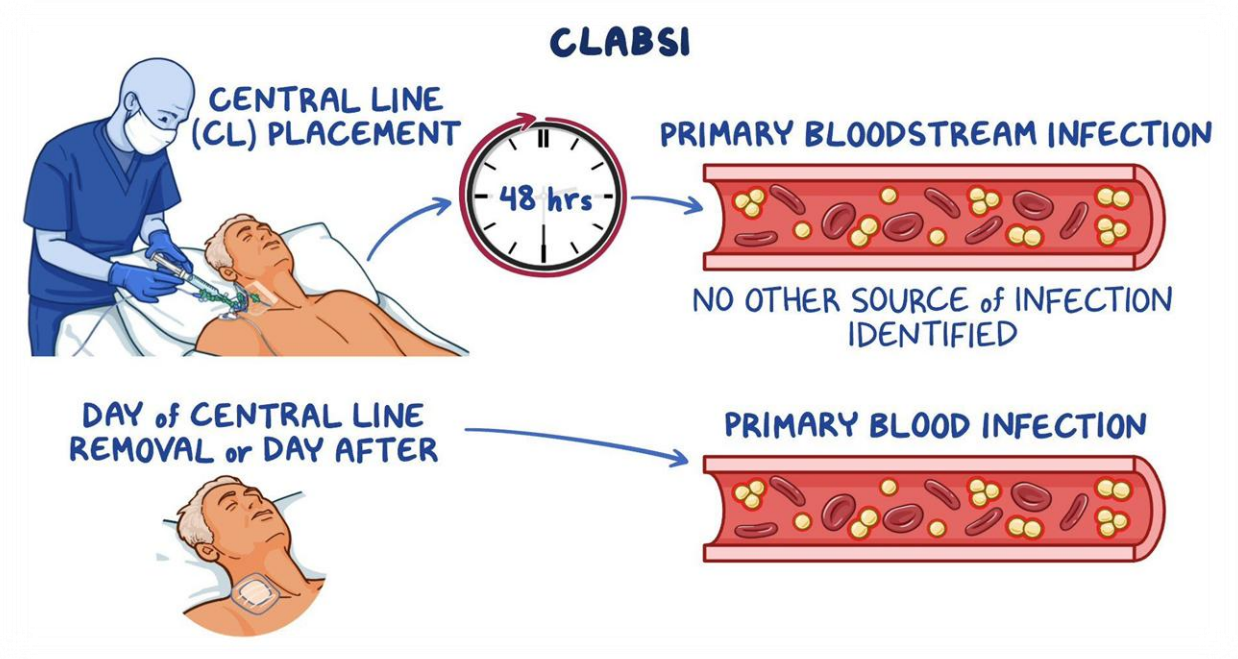
Checklist for Prevention of Central Line associated blood stream Infection	Yes	No
Follow proper insertion practices **Before the Procedure**		
1. Assess patient (history, time of last meal, previous chest X-rays, Coagulation tests)		
2. Provide patient/ family education		
3. Obtained informed consent		
4. Choose best site to minimize infections and complications		
5. Avoid Femoral Site in adult patients		
During the procedure		
6. Perform hand hygiene before insertion		
7. Adhere to aseptic techniques		
8. Use maximal sterile barrier precautions		
9. Perform skin aseptic with >0.5% Chlorhexidine with alcohol		
10. Cover the Site with sterile gauze, transparent, semipermeable dressings		
After the procedure		
11.Ensure guide wire present and intact		
12. Catheter caps placed on all lumens		
13. Document line placement in patient chart		
Maintenance of Central Lines		
14. Access the Catheters only with sterile devices		
15. **Scrub the hub** for at least 5 seconds with antiseptic solution and allow to dry prior to every access.		
16. No use of Ointments in dressings		
17. Look for signs of local site infection everyday		
18. Assess patency of lines by flushing and aspirating for blood return		
19. Replace sterile dressings that are wet, soiled		
Removal of Central Lines		
20.Remove & reinsert another site if suspicion of infection		
21. Prompt Removal of unnecessary catheters		

Section-C: Central Line Care Bundle outcome assessment Tool

Sl. No	List of Complications	Developed within 48 Hrs.	Developed within 72 Hrs.	Developed >72 Hrs.	Not developed
1.	Local Infection				
2.	Tube dislodgement				
3.	Pneumothorax				
4.	Hemothorax				
5.	Thrombosis				
6.	Embolism				
7.	**Others (Specify)**				

Sri Devaraj Urs College of Nursing

Module on CLABSI Maintenance Care Bundle



Prepared By

Ms. Mercy Rani. K, Ms. Devika S, Ms. Helan Rose Shibu, Ms. Ninitha Annie Chacko, Ms. Emilda Michael, Ms. Maria Elizabath Shaji, Ms. Swathy Krishna, Ms. Sowjanya. S, Ms. Renjima. B, Ms. Helan Denny, Ms. Rincymol Philip, Mrs. Nirmala. M

Under the guidance of

Dr. Zeanath Cariena. J

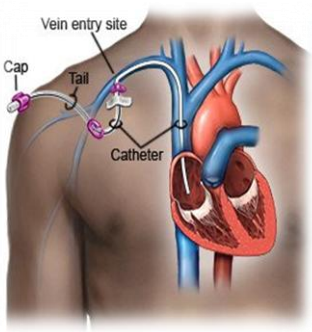
Prof & HOD of MSN.
SDUCON
& Chief Nursing Officer
RLJH & RC Tamaka, Kolar

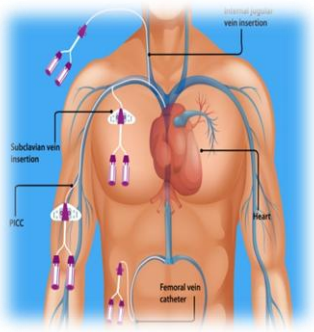
Co-guidance of

Mrs. T Umadevi

Assistant Professor
Dept of MSN
SDUCON, Tamaka, Kolar

A central line is a catheter or tube that doctors often place in a large vein in the neck, chest or groin to give medication, fluids or to collect blood for medical tests. Central lines access a major vein that is close to the heart and can remain in place for weeks or months and also a freeway for germs to enter the body to cause serious bloodstream infections. These lines are commonly used in intensive care units & High dependency unit





Care bundle is a set of scientifically evidenced elements in patient care, that when implemented together, results in better patient outcome. Formulating the Care bundle protocol, training of health care workers and strict adherence to the Care bundle practice are essential in reducing the incidence of HCAI.

Indications

- Vasopressor support for extended periods or at high doses
- Need for rapid administration of blood products or resuscitative fluids without adequate
- peripheral access
- Invasive monitoring (central venous pressure, pulmonary artery pressure)
- Vesicant or irritant medication (eg., certain chemotherapeutic agents)
- TPN administration
- 3% Hypertonic saline administration > 50 ml/hour or any rate > 24 hours

Choice of Site

- ✓ Choice of site based on provider experience, patient factors and provider preference
- ✓ Subclavian vein has the lowest CLABSI risk
- Risk of pneumothorax is slightly higher than IJ (1-2% vs < 1%)
- Consider patient factors (possible need for future dialysis)
- Internal Jugular vein is preferred over femoral vein.
- Distal (lower on the neck) venous puncture site preferred over higher puncture site
- The catheter should be sutured inferolaterally towards the shoulder (away from the oropharynx)
- Femoral vein is the least preferred site due to highest CLABSI risk

Choice of Line

a. Anticipated length of therapy

- <7 days: recommend nontunneled central line placement
- >7 days: recommend PICC placement

b. Number of lumens

- Infection risk increases with number of lumens
- Recommend least number of lumens feasible

c. Antibiotic-impregnated lines

- Our current triple lumen central lines are antimicrobial

Sterile Technique

a. Personnel

- Hand hygiene
- Hand washing: minimum of 20 seconds per CDC recommendations

Avagard per manufacturer protocol

- Apply three pumps to clean & dry hands; do not rinse
- ii. Cap, mask, eye protection, gown, gloves required
- iii. All personnel in room, including those not performing the line insertion, should have
- masks and caps on
- iv. Limit the number of people in the room to the minimum necessary

b. Skin preparation

- Chlorhexidine (Chlora Prep) scrubs strongly preferred
- Scrub insertion site for 30 seconds and allow to fully dry before skin puncture

c. Barrier

- Use the full body drape provided in the kits. Do NOT use a small drape.

d. Dressing

- Use CHG-impregnated dressing.
- If unavailable, use Bio Patch with Tegaderm
- A Bio Patch should not be used with a CHG-impregnated dressing.

- If significant oozing present, dress with gauze dressing only

GUIDELINES FOR THE PREVENTION OF INTRAVASCULAR CATHETER-RELATED INFECTIONS

General guidelines: Hand Hygiene and Aseptic Technique

1. Perform hand hygiene procedures, either by washing hands with conventional soap and water or with alcohol-based hand rubs (ABHR). Hand hygiene should be performed before and after palpating catheter insertion sites as well as before and after inserting, replacing, accessing, repairing, or dressing an intravascular catheter. Palpation of the insertion site should not be performed after the application of antiseptic, unless aseptic technique is maintained.
2. Maintain aseptic technique for the insertion and care of intravascular catheters.
3. Wear clean gloves, rather than sterile gloves, for the insertion of peripheral intravascular catheters, if the access site is not touched after the application of skin antiseptics.
4. Sterile gloves should be worn for the insertion of arterial and central catheters.
5. Use new sterile gloves before handling the new catheter when guidewire exchanges are performed.
6. Wear either clean or sterile gloves when changing the dressing on intravascular catheters.

Surveillance and Care bundles for CLABSI:
Regular surveillance of patients on Central line is done and any development of CLABSI is captured

Surveillance definition for CLABSI:
Patient has indwelling vascular catheter for more than 48 hours, developing Fever (>100.4 °F) or Hypothermia (< 97.70F) with any one of the following:

a) Positive blood culture - both peripheral venous blood sample and sample drawn through the vascular catheter at the same time growing the same organism or
b) Both peripheral venous blood sample and the catheter tip taken at same time growing the same organism, or
c) Common skin contaminant is cultured from two or more blood cultures drawn on separate occasions (e.g., diphtheroids, coagulase-negative staphylococci, or micrococci) or
d) Single positive blood culture in pediatric patients and no other source evident

Calculation of CLABSI Rate: No. of CLABSI in a month / No. of Central line days in that month x 1000.

Guidelines for Prevention of Bloodstream Infection:

i. Strict adherence to infection control protocols and Universal Precautions is required.
ii. Properly dispose off all needles and syringes after procedure. Do not reuse disposable needles and syringes.
iii. Do not recap, bend or break needles. Needle recapping may be accomplished by using a mechanical device or one-handed technique.
iv. Place contaminated needles in a readily available puncture resistant container.

Intravenous Sets:

i. Intravenous sets should be used not more than 96 hours after initiation of use.
ii. Replace tubing used to administer antibiotics within 24 hours of initiating the infusion
iii. Tubing used for administering TPN to be discarded after each use
iv. Tubing used for blood and blood products to be discarded after each use

a. Infusion syringes and extension tubing to be replaced every 96 hours

v. It is mandatory that all the intravenous sets, extension tubing, infusion syringes to be labeled with date and time of initiation.

Central Line Catheters:

i. To be changed as and when oozing or inflammation or signs of infection is seen.

ii. Central line dressing should be done every day using aseptic technique when the dressing becomes damp, loosened or visibly soiled. Otherwise the transparent dressings can be used for 7 days if there is no sign of infection.

iii. The central line catheters should have proper labels mentioning the date of insertion.

iv. Multiple dose vials should be limited to a single patient use and can be used for a month and according to the instructions of the manufacturer. It should be secured and covered properly.

v. Ampoules should be appropriately cleaned prior to opening. Their contents should be aspirated with a filter needle, which is removed prior to administration. Clean rubber stoppers of vials prior to each use. Only sterile access systems should be used for each penetration of the stopper.

vi. Do not reprocess for multiple uses any intravenous fluids, tubing or other intravascular infusions or connectors that are single-use disposable items. This includes transducers, tubing and other items that make contact with the vascular system or other body compartments.

vii. Stopcocks and injection ports are major sites of contamination. When administering medications intravenously, all access ports must be maintained aseptically.

viii. Always before administration of fluids or medicines, injection port should be cleaned with alcohol swab and allowed to dry.

What are some of the things that healthcare providers are doing to prevent CLABSI

Healthcare providers can take the following steps to help prevent CLABSIs:

- Follow recommended central line insertion practices to prevent infection when the central line is placed, including:
  - Perform hand hygiene
  - Apply appropriate skin antiseptic
  - Ensure that the skin prep agent has completely dried before inserting the central line
  - Use all five maximal sterile barrier precautions:
    - Sterile gloves
    - Sterile gown
    - Cap
    - Mask
    - Large sterile drape
- Once the central line is in place:
  - Follow recommended central line maintenance practices
  - Wash their hands with soap and water or an alcohol-based hand rub before and after touching the line
- Remove a central line as soon as it is no longer needed. The sooner a catheter is removed, the less likely the chance of infection.

What can patients do to help prevent CLABSI?

Here are some ways patients can protect themselves from CLABSI:

- Research the hospital, if possible, to learn about its CLABSI rate.
- Speak up about any concerns so that healthcare personnel are reminded to follow the best infection prevention practices.
- Ask a healthcare provider if the central line is absolutely necessary. If so, ask them to help you understand the need for it and how long it will be in place.
- Pay attention to the bandage and the area around it. If the bandage comes off or if the bandage or area around it is wet or dirty, tell a healthcare worker right away.
- Don’t get the central line or the central line insertion site wet.

- Tell a healthcare worker if the area around the catheter is sore or red or if the patient has a fever or chills.
- Do not let any visitors touch the catheter or tubing.
- The patient should avoid touching the tubing as much as possible.
- In addition, everyone visiting the patient must wash their hands—before and after they visit.

Care Bundle: Central Line IV Cather

Insertion care bundle	Maintenance care bundle
Use single lumen unless indicated otherwise	Review need for CVC on daily basis and remove promptly if not required
Use maximal sterile barrier precautions during insertion Use single lumen unless indicated otherwise	Inspect CVC on daily basis for sign of infection
Avoid femoral site, subclavian vein is the preferred site	Use aseptic technique for daily care (hand hygiene before accessing the device and use of sterile single use antiseptic solution to disinfect hub)
Disinfect skin with single use sterile solution of 2%chlorhexidine gluconate in 70% isopropyl alcohol and allow it to dry	
Use semi permeable dressing (with sustained release chlorhexidine gluconate-impregnated sponge)	

Conclusion

CLABSIs are a serious but preventable healthcare-associated infection. Using a multifaceted approach that includes multidisciplinary teams that follow an evidence-based, bundled approach resulted in a significant reduction in CLABSI rates in an ICU setting. We will continue to assess new interventions/preventions as guided by infection-control teams and the recent literature to sustain the gains already achieved

ANNEXURE –X

FORMULAS USED FOR DATA ANALYSIS

1. Mean= $\bar{x} = \sum x/n$
2. Standard Deviation (SD) = $\sqrt{\frac{\sum(x-\bar{x})^2}{n}}$
3. Spearman Brown's formula:

$$r^1 = \frac{2r}{1+r}$$

r=Correlation coefficient

r^1 = Estimated reliability of the entire test

4. Difficulty Index

$$DI = \frac{H+L \times 100}{N}$$

5. Discrimination Index

$$DI = \frac{H-L}{N/2}$$

6. Paired t-test

$$t = \frac{\sum d}{\sqrt{\frac{n(\sum d^2)-(\sum d)^2}{n-1}}}$$

d= Difference per paired value

n= Number of Samples

$\sum d$= Sum of difference

7. Chi- Square test

$$x^2 = \frac{\sum(O-E)^2}{E}$$

O=Observed frequency

E=Expected frequency

ANNEXURE – XI

Section A : Socio-demographic data of patient								
Age	**Gender**	**Hospital No.**	**Date of Admission**	**Diagnosis**		**Total No. days of Hospitalization**	**Care Bundle**	
				Primary	**Secondary**		**Start Date**	**End Date**
29yrs	Male	RLJH.225836	25-04-23	Epilepsy	Status epilepsy	17 days	30-04-23	12-05-23
53yrs	Male	RLJH.218268	04-04-23	Fever	Tubercular meningitis	22days	06-04-23	12-04-23
65yrs	Female	RLJH.209907	14-03-23	Breathlessness	Metabolic encephalopathy	11 days	17-03-23	18-03-23
55yrs	Male	RLJH.256272	08-07-23	Diarrhea, vomiting	acute gastroenteritis	12 days	09-06-23	13-06-23
40 yrs	Female	RLJH.251506	26-06-23	Cough with expectoration	Heart failure	12 days	28-06-23	03-07-23
46 yrs	Male	RLJH.246435	15-06-23	Seizures	Seizure disorder	20 days	19-06-23	21-06-23
52 yrs	Female	RLJH.259259	14-07-23	Seizures	Encephalopathy	14 days	17-07-23	27-07-23
78 yrs	Male	RLJH.244558	19-06-23	Increased frequency of micturition	Benign prostatic hyperplasia	13 days	21-06-23	24-06-23
63 yrs	Male	RLJH.233248	14-05-23	Swelling of left lower limb	Necrotizing fasciitis	7 days	17-05-23	28-05-23
55 yrs	Male	RLJH.209038	12-03-23	Fever , vomiting	Peritonitis	12 days	19-03-23	23-03-23
26 yrs	Female	RLJH.215345	27-03-23	Fever, Breathlessness	Emergency LSCS	6 days	28-03-23	31-03-23
71 yrs	Male	RLJH.211197	16-03-23	Joint pain , Breathlessness	Granulomatous with polyangiitis	16 days	16-03-23	23-03-23
61 yrs	Male	RLJH.240613	31-05-23	Unconscious	Metabolic encephalopathy	11 days	01-06-23	07-06-23
58 yrs	Male	RLJH.259230	14-07-23	Generalized weakness	CKD initiated on hemodialysis	10 days	14-07-23	23-07-23
77 yrs	Female	RLJH.247699	18-06-23	Left sided weakness	Acute ischemic stroke	8 days	26-06-23	28-06-23
67 yrs	Female	RLJH.225833	25-04-23	Vomiting, diarrhea, fever	CVA with left hemiparesis	21 days	07-05-23	13-05-23
48 yrs	Female	RLJH.39846	21-10-21	Exploratory laparotomy	Exploratory laparotomy	8 days	27-10-21	28-10-21

59 yrs	Male	RLJH.200749	20-02-23	Burns	Acute kidney injury	6 days	21-02-23	23-02-23
45 yrs	Female	RLJH.201007	21-02-23	Meningitis	Meningitis	7 days	21-02-23	27-02-23
70 yrs	Male	RLJH.201203	21-02-23	Pneumonia	pneumonia	11 days	24-02-23	01-03-23
72 yrs	Male	RLJH.201908	23-02-23	COPD	Congestive cardiac failure	11 days	04-03-23	05-03-23
39 yrs	Male	RLJH.202842	28-02-23	COPD	COPD	10 days	01-03-23	07-03-23
70 yrs	Male	RLJH.206805	07-03-23	Cardiomyopathy	Urosepsis	10 days	08-03-23	10-03-23
38 yrs	Male	RLJH.206908	02-06-23	Severe head injury	Craniotomy	13 days	03-06-23	09-06-23
50 yrs	Male	RLJH.211115	16-03-23	Bronchopneumonia	Bronchopneumonia	14 days	25-03-23	30-03-23
66 yrs	Male	RLJH.213696	23-03-23	Pyelonephritis	Carcinoma gastroesophageal	3 days	24-03-23	25-03-23
70 yrs	Male	RLJH.213740	24-03-23	Carcinoma stomach	Carcinoma stomach	2 days	24-03-23	25-03-23
70 yrs	Male	RLJH.214753	26-03-23	Peritonitis	Peritonitis	7 days	27-03-23	01-04-23
45 yrs	Male	RLJH.216899	31-03-23	RTA	Temporal bone fracture	19 days	14-04-23	18-04-24
50 yrs	Female	RLJH.217433	02-04-23	Old CVA	Old CVA	7 days	06-04-23	08-04-23
78 yrs	Male	RLJH.217970	03-04-23	Anemia	COPD, VAP	4 days	03-04-23	05-04-23
80 yrs	Male	RLJH.218311	04-04-23	Respiratory failure	Metabolic encephalopathy	29 days	04-04-23	10-04-23
33 yrs	Male	RLJH.218476	05-04-23	Craniotomy	Craniotomy	3 days	05-04-23	07-04-23
40 yrs	Female	RLJH.220075	09-04-23	Carcinoma tongue	Carcinoma tongue	15 days	10-04-23	23-04-23
40 yrs	Male	RLJH.220128	10-04-23	CKD	CKD	2 days	10-04-23	11-04-23
48 yrs	Female	RLJH.221577	12-04-23	Snake bite	Snake bite	2 days	12-04-23	13-04-23
42 yrs	Male	RLJH.222173	13-04-23	Craniotomy	craniotomy	2 days	13-04-23	15-04-23
56 yrs	Male	RLJH.222409	15-04-23	Aspiration pneumonia	Meningoencephalitis	5 days	18-04-23	19-04-23
58 yrs	Male	RLJH.223997	18-04-23	Acute pulmonary edema	Acute pulmonary edema	7 days	19-04-23	24-04-23
60 yrs	Female	RLJH.224521	20-04-23	CVA	CVA	2 days	21-04-23	21-04-23
85 yrs	Female	RLJH.225240	23-04-23	Acute pulmonary edema	Acute pulmonary edema	6 days	23-04-23	28-04-23
72 yrs	Male	RLJH.225823	24-04-23	Pulmonary Tuberculosis	Pulmonary Tuberculosis	4 days	24-04-23	27-04-23

55y yrs	Female	RLJH.254737	04-07-23	Bronchopneumonia	Acute renal failure	14 days	09-07-23	17-07-23
62 yrs	Male	RLJH.256527	08-07-23	CVA	CVA	4 days	09-07-23	11-07-23
82 yrs	Female	RLJH.261571	20-07-23	Diabetic ketoacidosis	Cardiogenic shock	4 days	20-07-23	23-07-23
78 yrs	Male	RLJH.261620	21-07-23	Diabetic ketoacidosis	pneumonia	1 days	21-07-23	21-07-23
38 yrs	Male	RLJH.264274	27-07-23	Acute kidney injury	MOD/ Bilateral hydrocele	1 days	27-07-23	27-07-23
60 yrs	Male	RLJH.266466	02-08-23	Cellulitis of right lower limb	Acute renal failure	2 days	02-08-23	04-08-23
58 yrs	Male	RLJH.205961	06-03-23	Bilateral frozen shoulder	Bilateral frozen shoulder	6 days	06-03-23	11-03-23
45 yrs	Female	RLJH.219479	07-05-23	Carcinoma ovary	Carcinoma ovary	4 days	07-05-23	11-04-23
45 yrs	Male	RLJH.249829	22-06-23	CVA	CKD	17 days	22-06-23	08-07-23
60 yrs	Male	RLJH.253039	30-06-23	OP Compound	OP Compound	8 days	30-06-23	07-07-23
70 yrs	Female	RLJH.262925	25-07-23	Aspiration pneumonia	Multiple metastasis of cancer/ Acute kidney injury	17 days	29-07-23	13-08-23
57 yrs	Male	RLJH.269287	09-08-23	Chronic kidney disease	Chronic subdural hemorrhage with CKD	4 days	10-08-23	12-08-23
70 ys	Female	RLJH.271909	17-08-23	Pneumonia	Renal failure/MOD	1 days	17-08-23	17-08-23
51 yrs	Male	RLJH.261262	20-07-23	Acute respiratory distress syndrome	MOD/Dengue shock syndrome	18 hrs	20-07-23	21-07-23
45 yrs	Female	RLJH.265686	31-07-23	Bronchopneumonia	Rheumatic heart disease/Cardio embolic stroke	18 days	15-08-23	17-08-23
42 yrs	Male	RLJH.252418	28-06-23	Alcoholic liver disease	Hepatic encephalopathy	30 days	28-07-23	31-07-23
62 yrs	Female	RLJH.273671	22-11-23	Liver abscess	Liver abscess	6 days	21-11-23	26-11-23
55 yrs	Male	RLJH.310998	26-11-23	CKD	CKD	2days	26-11-23	27-11-23
40 yrs	Male	RLJH.302923	18-11-23	Peritonitis	Peritonitis	3 days	18-11-23	20-11-23
48 yrs	Male	RLJH.306343	16-11-23	RCC with lung	RCC with lung	3 days	22-11-23	24-11-23

				metasis	metasis			
46 yrs	Male	RLJH.219616	07-04-23	Fever	CKD	21 days	11-04-23	15-04-23
50 yrs	Female	RLJH.227345	28-04-23	Cough	Bronchopneumonia	9 days	30-04-23	03-05-23
65 yrs	Female	RLJH.226173	25-04-23	Cough	Chronic bronchitis	6 days	26-04-23	28-04-23
60 yrs	Male	RLJH.229336	03-07-23	Right flank pain	right lower calyceal calculus	9 days	03-07-23	07-07-23
76 yrs	Male	RLJH.205891	04-03-23	Breathlessness	Acute pulmonary edema	8 days	05-03-23	06-03-23
65 yrs	Male	RLJH.244874	11-06-23	Breathlessness	Acute pulmonary edema	10 days	11-06-23	15-06-23
75 yrs	Male	RLJH.224152	20-04-23	Breathlessness	COPD	15 days	20-04-23	28-04-23
80 yrs	Male	RLJH.228995	03-05-23	Loss of appettite	Pulmonary tuberculosis	28 days	03-05-23	22-05-23
80 yrs	Male	RLJH.222670	16-04-23	Fever	Acute excerbation of COPD	19 days	18-04-23	25-04-23
60 yrs	Female	RLJH.221554	26-04-23	Abdominal pain	Adenocarcinoma ascending colon	19 days	26-04-23	05-05-23
58 yrs	Male	RLJH.204903	02-03-23	Weakness , vomiting	Recurrent stroke with right hemiparesis	8 days	02-03-23	08-03-23
39 yrs	Female	RLJH.232506	12-05-23	RTA	Diffuse axonal injury with mandibular fracture	4 days	12-05-23	16-05-23
75 yrs	Male	RLJH.241528	03-06-23	Breathlessness	Cardiac arrest	11 days	05-06-23	09-06-23
40 yrs	Female	RLJH.248757	20-06-23	Left pylonephrosis	Left pylonephrosis	30 days	28-06-23	08-07-23
45 yrs	Female	RLJH.205958	05-03-23	Fever	Acute excerbation of COPD	7 days	05-03-23	09-03-23
73 yrs	Male	RLJH.207604	09-03-23	Fever	Acute excerbation of COPD	27 days	09-03-23	23-03-23
81 yrs	Male	RLJH.205494	15-03-23	Fever	Heart failure	6 days	15-03-23	20-03-23
63 yrs	Female	RLJH.224364	20-04-23	Breathlessness	Right lower pneumonia	10 days	20-04-23	18-04-23

22 yrs	Male	RLJH.221952	01-06-23	Abdominal pain	Neuroendocrainal tumor	13 days	01-06-23	09-06-23
28 yrs	Female	RLJH.226291	26-04-23	Amenorrhea	Emergency hysterotomy	12 days	26-04-23	08-04-23
80 yrs	Male	RLJH.214799	27-03-23	Breathlessness	Bronchopneumonia	9 days	27-03-23	03-03-23
70 yrs	Male	RLJH.219421	07-04-23	Breathlessness	Acute excerbation of COPD	5 days	08-04-23	11-04-23
70 yrs	Male	RLJH.206006	06-03-23	Noisy breathing	Papilloma supraglottis	30 days	07-03-23	20-03-23
68 yrs	Male	RLJH.206003	08-03-23	Breathlessness	Acute pulmonary edema	3 days	08-03-23	10-03-23
77 yrs	Female	RLJH.243249	09-06-23	Abdominal pain	Right pyelonephritis	11 days	10-06-23	19-06-23
75 yrs	Female	RLJH.255962	07-07-23	Lower limb swelling	Acute excerbation of COPD	14 days	07-07-23	19-07-23
31 yrs	Male	RLJH.237737	24-05-23	Abdominal pain	Sepsis with mods	9 days	24-05-23	02-06-23
74 yrs	Female	RLJH.267848	06-08-23	Breathlessness	Urosepsis	11 days	07-08-23	15-08-23
77 yrs	Male	RLJH.217045	01-04-23	Breathlessness	Acute excerbation of COPD	10 days	02-04-23	09-04-23
29 yrs	Male	RLJH.228150	30-04-23	Consumption of avenger	Organophosphorous compound consumption	28 days	30-04-23	21-05-23
65 yrs	Female	RLJH.206978	08-03-23	Fever	Bronchopneumonia	17 days	10-03-23	22-03-23
61 yrs	Male	RLJH.213289	23-03-23	Slurring of speech	Acute ischaemic stroke	5 days	23-03-23	27-03-23
70 yrs	Female	RLJH.215475	28-03-23	Self fall	Dorsal Vertebral fracture	15 days	28-03-23	10-04-23
64 yrs	Female	RLJH.205458	03-03-23	Breathlessness	Acute excerbation of COPD	13 days	03-03-23	10-03-23
58 yrs	Male	RLJH.201261	03-03-23	Ulcerating growth over the right buccal mucosa	Left renal cell carcinoma	30 days	03-03-23	01-04-23
60 yrs	Male	RLJH.245874	13-06-23	Sudden loss of consciousness	Stroke with left hemiparesis	9 days	14-06-23	20-06-23

65 yrs	Male	RLJH.202948	05-04-23	Fever, vomiting	Bronchopneumonia	9 days	05-04-23	13-04-23
30 yrs	Female	RLJH.227697	28-04-23	Abdominal pain	RHD with severe mitral stenosis	2 days	28-04-23	29-04-23
73 yrs	Male	RLJH.221164	12-04-23	Abdominal pain	Peritonitis	1 day	12-04-23	12-04-23
58 yrs	Male	RLJH.222631	16-04-23	Chest pain	Pulmonary tuberculosis	18 days	17-04-23	12-04-23
60 yrs	Female	RLJH.245867	13-06-23	Headache, weakness	Stroke with hemiparesis	16 days	30-06-23	14-06-23
69 yrs	Male	RLJH.252760	30-06-23	Bloating abdomen	Bronchopneumonia	25 days	30-06-23	30-06-23
27 yrs	Male	RLJH.241414	02-06-23	Fever,Abdominal pain	pyelonephritis with sepsis	27 days	02-06-23	25-06-23
51 yrs	Female	RLJH.213686	23-03-23	Carcinoma left buccal mucosa	Carcinoma left buccal mucosa	23 days	24-03-23	12-04-23
35 yrs	Female	RLJH.249826	22-06-23	Fever, vomiting	Diabetic ketoacidosis	23 days	22-06-23	12-07-23
22 yrs	Female	RLJH.268671	01-09-23	Abdominal pain	Emergency LSCS	3 days	01-09-23	03-09-23
80 yrs	Female	RLJH.232579	06-07-23	Left sided weakness, reduced responses	Acute intraparenchymal hemorrhage	13 days	06-07-23	08-07-23
65 yrs	Male	RLJH.213245	22-03-23	Breathlessness	Acute excerbation of COPD	19 days	22-03-23	06-04-23
57 yrs	Male	RLJH.222689	16-04-23	Fever, Breathlessness	Bronchopneumonia	6 days	16-04-23	21-04-23
57 yrs	Male	RLJH.239087	16-07-23	Breathlessness, vomiting	Acute pulmonary edema	7 days	16-07-23	22-07-23
52 yrs	Male	RLJH.230652	06-05-23	Loss of consciousness	Stroke with chronic infract in cerebellum	11 days	06-05-23	15-05-23
80 yrs	Male	RLJH.200459	20-02-23	Breathlessness	Acute excerbation of COPD	16 days	20-02-23	06-03-23
52 yrs	Male	RLJH.217333	01-04-23	Fever, cough	Bronchopneumonia with ARDS	16 Ddays	03-04-23	11-04-23

64 yrs	Male	RLJH.230250	05-05-23	Non healing wound over left lower limb	wet gangrene of left leg and foot with sepsis	17 days	05-05-23	12-05-23
57 yrs	Male	RLJH.239087	29-05-23	Breathlessness	LRTI with sepsis	15 days	29-05-23	09-06-23
56 yrs	Female	RLJH.239862	02-06-23	Vomiting, Burning micturation	Right non-functioning kidney	16 days	02-06-23	16-06-23
55 yrs	Male	RLJH.271389	15-08-23	Dengue fever	Dengue fever	12 days	15-08-23	27-08-23
55 yrs	Male	RLJH.254226	03-07-23	Uintracrainal bleed	Uintracrainal bleed	8 days	03-07-23	10-07-23
42 yrs	Female	RLJH.751231	10-08-19	Chronic fissurein ano	Chronic fissurein ano	10 days	10-08-19	20-08-19
66 yrs	Male	RLJH.269291	09-08-23	Pneumonia	Pneumonia	2 days	09-08-23	10-08-23
62 yrs	Female	RLJH.300153	31-10-23	Internal debulking surgery	Internal debulking surgery	12 days	31-10-23	10-11-23
40 yrs	Male	RLJH.300412	02-11-23	Traumatic brain injury	Traumatic brain injury	4 days	02-11-23	06-11-23
45 yrs	Male	RLJH.308633	22-11-23	Decompressive cranitomy	Decompressive cranitomy	6 days	22-11-23	28-11-23
47 yrs	Male	RLJH.295689	20-11-23	Total thyroidectomy	Total thyroidectomy	4 days	20-11-23	24-11-23
37 yrs	Male	RLJH.309695	23-11-23	Decompressive cranitomy	Decompressive cranitomy	5 days	23-11-23	28-11-23
48 yrs	Male	RLJH.311030	27-11-23	Bronchopneumonia	Bronchopneumonia	1 day	27-11-23	27-11-23
63 yrs	Male	RLJH.302904	08-09-23	CVA	CVA	19 days	08-09-23	20-09-23
86 yrs	Female	RLJH.310398	24-11-23	Rupture brain abscess	Rupture brain abscess	3 days	24-11-23	27-11-23
42 yrs	Male	RLJH.309254	22-11-23	Compressive mylopathy	Compressive mylopathy	6 days	22-11-23	28-11-23
67 yrs	Male	RLJH.310938	26-11-23	Bronchopneumonia	Bronchopneumonia	2 days	26-11-23	28-11-23
65 yrs	Female	RLJH.306865	17-11-23	Bronchopneumonia	Bronchopneumonia	11 days	17-11-23	27-11-23
30 yrs	Male	RLJH.205877	16-11-23	Exploratory laprotomy	Exploratory laprotomy	11 days	16-11-23	14-11-23
50 yrs	Male	RLJH.308647	22-11-23	Unknown compound consumption	Unknown compound consumption	6 days	22-11-23	27-11-23
39 yrs	Male	RLJH.212065	15-11-23	Bronchopneumonia	Bronchopneumonia	2 days	15-11-23	17-11-23

63 yrs	Female	RLJH.309202	22-11-23	Bronchopneumonia	Bronchopneumonia	6 days	22-11-23	26-11-23
42 yrs	Male	RLJH.008520	21-11-23	Left diabetic foot	Left diabetic foot	7 days	21-11-23	25-11-23
72 yrs	Male	RLJH.309257	22-11-23	COPD	COPD	5 days	22-11-23	24-11-23
56 yrs	Male	RLJH.310411	24-11-23	Multiple fracture	Multiple fracture	4 days	24-11-23	27-11-23
80 yrs	Female	RLJH.310946	26-11-23	Atrial febrillation	Atrial febrillation	1 day	26-11-23	26-11-23
62 yrs	Male	RLJH.310941	26-11-23	Pulmonary edema	Pulmonary edema	1 day	26-11-23	26-11-23
40 yrs	Male	RLJH.310985	26-11-23	Ischemic stroke	Ischemic stroke	1 day	26-11-23	26-11-23
80 yrs	Male	RLJH.307169	20-11-23	Meningoencephalitis	Meningoencephalitis	8 days	20-11-23	25-11-23
74 yrs	Female	RLJH.306867	18-11-23	Hypoglycemia	Hypoglycemia	10 days	18-11-23	26-11-23
63 yrs	Male	RLJH.309780	24-11-23	Bronchopneumonia	Bronchopneumonia	4 days	24-11-23	28-11-23
45 yrs	Female	RLJH.282885	25-11-23	Seizure disorder	Seizure disorder	2 days	24-11-23	26-11-23
40 yrs	Female	RLJH.310926	25-11-23	Bronchopneumonia	Bronchopneumonia	2 days	25-11-23	27-11-23
63 yrs	Male	RLJH.310931	26-11-23	Hyponatremia	Hyponatremia	2 days	26-11-23	27-11-23
32 yrs	Female	RLJH.302258	18-11-23	OP poisoning	OP poisoning	10 days	19-11-23	24-11-23
65 yrs	Female	RLJH.307715	21-11-23	Anemia	Anemia	7 days	21-11-23	26-11-23
54 yrs	Male	RLJH.306391	19-11-23	Fever	Fever	9 days	20-11-23	26-11-23
49 yrs	Male	RLJH.306833	18-11-23	Pulmonary edema	Pulmonary edema	10 days	19-11-23	15-11-23
82 yrs	Male	RLJH.308618	21-11-23	COPD	COPD	7 days	22-11-23	28-11-23
33 yrs	Male	RLJH.310999	26-11-23	Yellow phosphorous consumption	Yellow phosphorous consumption	1 day	26-11-23	26-11-23
26 yrs	Female	RLJH.310872	25-11-23	TB	TB	2 days	25-11-23	26-11-23
25 yrs	Male	RLJH.311021	26-11-23	OP poisoning	OP poisoning	1 day	26-11-23	26-11-23
61 yrs	Female	RLJH.306340	16-11-23	Carcinoma left buccal mucosa	Carcinoma left buccal mucosa	12 days	17-11-23	26-11-23
53 yrs	Female	RLJH.271616	17-11-23	Squamous cell carcinoma esophagus	Squamous cell carcinoma esophagus	13 days	16-11-23	28-11-23
56 yrs	Female	RLJH.299680	16-11-23	Inguinal hernia	Inguinal hernia	12 days	19-11-23	26-11-23
50 yrs	Female	RLJH.309707	26-11-23	Subacute intestinal obstruction	Subacute intestinal obstruction	2 days	26-11-23	27-11-23
40 yrs	Female	RLJH.311008	26-11-23	Phenochromocytoma	Phenochromocytoma	2 days	26-11-23	28-11-23

				with HTN	with HTN			
57 yrs	Female	RLJH.310399	24-11-23	Left foot abscess with cellulitis	cellulitis	4 days	24-11-23	26-11-23
30 yrs	Female	RLJH.310196	24-11-23	Cholelithiasis	Cholelithiasis	4 days	24-11-23	28-11-23
50 yrs	Female	RLJH.310379	24-11-23	Wet gangrene	Wet gangrene	4 days	24-11-23	27-11-23
46 yrs	Male	RLJH.309803	23-11-23	RTA	Traumatic brain injury	5 days	23-11-23	26-11-23
26 yrs	Male	RLJH.305407	15-11-23	Right partial craniotomy	Right partial craniotomy	13 days	15-11-23	28-11-23
70 yrs	Male	RLJH.306853	26-11-23	BPH	TURP with clot retention	2 days	26-11-23	27-11-23
50 yrs	Male	RLJH.310997	26-11-23	RTA	Multiple soft tissue injury	2 days	26-11-23	28-11-23
40 yrs	Female	RLJH.310959	26-11-23	Fever	Fever	2 days	26-11-23	27-11-23
29 yrs	Female	RLJH.310942	26-11-23	SOLOMON poisoning	SOLOMON poisoning	2 days	26-11-23	28-11-23
62 yrs	Female	RLJH.306885	17-11-23	Hemorrhagic stroke	Hemorrhagic stroke	11 days	17-11-23	26-11-23
58 yrs	Female	RLJH.310257	24-11-23	Fever	Fever	4 days	24-11-23	27-11-23
40 yrs	Female	RLJH.306826	17-11-23	Bronchopneumonia	Bronchopneumonia	11 days	17-11-23	24-11-23
36 yrs	Female	RLJH.310918	25-11-23	Febrile thrombocytopenia	Febrile thrombocytopenia	3 days	25-11-23	27-11-23
34 yrs	Female	RLJH.310811	25-11-23	Dengue fever	Dengue fever	3 days	25-11-23	28-11-23
40 yrs	Female	RLJH.309361	23-11-23	Unknown bite	Unknown bite	5 days	23-11-23	25-11-23
58 yrs	Female	RLJH.311011	26-11-23	Acute gastritis	Hypovolemic shock	2 days	26-11-23	28-11-23
48 yrs	Female	RLJH.305859	15-11-23	Acute pulmonary edema	Acute pulmonary edema	13 days	18-11-23	22-11-23
63 yrs	Female	RLJH.307702	20-11-23	Acute pulmonary edema	Acute pulmonary edema	7 days	20-11-23	25-11-23
58 yrs	Female	RLJH.309178	22-11-23	Acute gastritis	Acute gastritis	6 days	24-11-23	27-11-23
26 yrs	Female	RLJH.309252	22-11-23	Acute febrile illness	Acute febrile illness	6 days	22-11-23	25-11-23
68 yrs	Female	RLJH.261803	09-11-23	Irritable bowel syndrome	Irritable bowel syndrome	19 days	12-11-23	19-11-23
80 yrs	Female	RLJH.234660	23-11-23	UTI	UTI	5 days	23-11-23	26-11-23

58 yrs	Male	RLJH.308989	02-11-23	COPD	COPD	26 days	10-11-23	19-11-23
45 yrs	Male	RLJH.309790	12-11-23	Seizure	Seizure	16 days	14-11-23	19-11-23
65 yrs	Male	RLJH.306929	22-11-23	CVA	CVA	6 days	22-11-23	26-11-23
65 yrs	Male	RLJH.310311	23-11-23	COPD	COPD	5 days	23-11-23	25-11-23
46 yrs	Male	RLJH.310403	25-11-23	Fever	Fever	3 days	25-11-23	27-11-23
55 yrs	Male	RLJH.316498	22-11-23	IHD	IHD	6 days	22-11-23	24-11-23
45 yrs	Male	RLJH.309605	21-11-23	Anemia	Anemia	7 days	21-11-23	24-11-23
36 yrs	Male	RLJH.310328	26-11-23	Fever	Fever	2 days	26-11-23	27-11-23
45 yrs	Male	RLJH.310827	02-11-23	COPD	COPD	26 days	03-11-23	15-11-23
53 yrs	Male	RLJH.309264	26-11-23	Fever	Fever	2 days	26-11-23	28-11-23
26 yrs	Male	RLJH.310693	15-11-23	Dengue fever	Dengue fever	13 days	17-11-23	22-11-23
38 yrs	Male	RLJH.306402	21-11-23	DKA	DKA	7 days	21-11-23	27-11-23
56 yrs	Male	RLJH.310896	26-11-23	Fever	Fever	2 days	26-11-23	27-11-23
62 yrs	Female	RLJH.305709	15-11-23	Cholelithiasis	Umbilical hernia	13 days	18-11-23	20-11-23
70 yrs	Female	RLJH.303511	09-11-23	Peritonitis	Peritonitis	19 days	11-11-23	17-11-23
72 yrs	Female	RLJH.298871	09-11-23	Carcinoma cervix	Carcinoma cervix	19 days	09-11-23	13-11-23

Section –B: Central Line Associated Blood Stream Infection Checklist

Sample	Before the Procedure						During the procedure						After the procedure				Maintenance of Central Lines							Removal of central line			
	1	2	3	4	5	**Total**	6	7	8	9	10	**Total**	11	12	13	**Total**	14	15	16	17	18	19	**Total**	20	21	**Total**	**TOTAL**
1.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	1	1	**3**	1	1	1	1	1	1	**6**	0	1	**1**	**19**
2.	1	1	1	1	1	**5**	1	0	1	0	1	**3**	1	0	1	**2**	1	0	1	1	0	1	**4**	1	0	**1**	**15**
3.	1	1	1	1	1	**5**	1	1	1	1	1	**5**	0	1	1	**2**	0	1	1	1	1	1	**5**	0	1	**1**	**18**
4.	1	1	1	1	0	**4**	1	1	1	1	1	**5**	1	1	0	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**16**
5.	1	1	0	1	0	**3**	1	1	1	1	1	**5**	1	0	1	**2**	1	1	1	1	1	1	**6**	0	1	**1**	**17**
6.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	1	0	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**16**
7.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	0	1	**1**	1	1	1	0	1	1	**5**	0	1	**1**	**16**
8.	1	1	1	0	1	**4**	1	0	1	0	1	**3**	1	0	0	**1**	1	1	1	0	0	1	**4**	0	1	**1**	**13**
9.	1	0	1	1	0	**3**	0	1	1	1	1	**4**	0	0	1	**1**	0	1	1	1	1	1	**5**	0	1	**1**	**14**
10.	1	1	1	1	1	**5**	1	0	1	0	1	**3**	0	0	1	**1**	0	1	1	0	1	1	**4**	0	1	**1**	**14**
11.	1	1	0	1	0	**3**	1	1	1	1	1	**5**	1	0	1	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**15**
12.	1	1	1	0	1	**4**	1	1	1	1	1	**5**	0	1	0	**1**	1	1	0	1	0	1	**4**	1	1	**2**	**16**
13.	1	1	0	1	0	**3**	1	1	1	1	1	**5**	0	0	1	**1**	1	0	1	1	0	1	**4**	1	1	**2**	**15**
14.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	1	1	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**17**
15.	1	0	1	1	1	**4**	1	1	1	1	1	**5**	1	1	0	**2**	1	1	1	1	0	1	**5**	0	1	**1**	**17**
16.	1	1	0	1	0	**3**	1	1	1	1	1	**5**	1	1	0	**2**	0	1	0	1	0	1	**3**	0	1	**1**	**14**
17.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	1	**2**	0	1	1	0	0	1	**3**	0	1	**1**	**15**
18.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	0	1	1	1	1	1	**5**	0	1	**1**	**16**
19.	1	0	1	1	0	**3**	1	1	1	1	1	**5**	0	0	1	**1**	1	0	1	1	1	1	**5**	0	1	**1**	**15**
20.	1	1	1	0	1	**4**	1	1	1	1	1	**5**	0	0	1	**1**	1	0	1	1	0	1	**4**	0	1	**1**	**15**
21.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	1	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**16**
22.	1	1	1	1	1	**5**	1	0	1	0	1	**3**	1	0	1	**2**	1	1	0	1	1	1	**5**	0	1	**1**	**16**
23.	1	0	1	0	1	**3**	1	1	1	1	1	**5**	1	1	0	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**16**
24.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	0	1	0	**1**	0	1	1	0	1	0	**3**	0	1	**1**	**14**
25.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	0	1	1	**2**	0	1	0	1	1	0	**3**	0	1	**1**	**15**
26.	1	0	1	0	0	**2**	1	1	1	1	1	**5**	1	0	0	**1**	1	1	0	1	1	1	**5**	0	1	**1**	**14**
27.	1	1	0	1	1	**4**	1	1	1	1	1	**5**	0	1	1	**2**	0	1	1	0	1	1	**4**	0	1	**1**	**16**

28.	1	1	1	0	1	**4**	1	1	0	1	1	**4**	0	1	0	**1**	1	1	1	1	0	1	**5**	0	1	**1**	**15**
29.	1	1	1	1	1	**5**	1	0	1	0	1	**3**	1	0	1	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**15**
30.	1	0	1	0	1	**3**	1	1	1	1	1	**5**	0	0	1	**1**	1	0	1	0	1	1	**4**	1	0	**1**	**14**
31.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	0	0	1	**2**	0	1	1	0	1	1	**4**	0	1	**1**	**16**
32.	1	1	1	1	1	**5**	1	1	1	1	1	**5**	0	1	0	**1**	1	1	0	1	1	1	**5**	0	1	**1**	**17**
33.	1	1	0	1	0	**3**	1	1	1	0	1	**4**	0	1	0	**1**	1	1	1	1	0	1	**5**	1	0	**1**	**14**
34.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	1	**2**	1	1	1	1	1	1	**6**	0	1	**1**	**18**
35.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	0	1	**1**	1	1	1	1	0	1	**5**	0	1	**1**	**16**
36.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	0	**1**	1	0	1	1	1	1	**5**	0	1	**1**	**16**
37.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	1	**2**	1	1	0	1	1	1	**5**	1	0	**1**	**17**
38.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	0	1	1	0	1	1	**4**	0	1	**1**	**16**
39.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	1	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**16**
40.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	1	1	0	1	1	0	**4**	0	1	**1**	**17**
41.	1	0	1	0	1	**3**	1	1	1	1	1	**5**	1	0	1	**2**	0	1	1	0	1	1	**4**	0	1	**1**	**15**
42.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	1	1	0	1	1	1	**5**	0	1	**1**	**16**
43.	1	0	1	1	1	**4**	1	1	1	0	1	**4**	0	1	1	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**16**
44.	1	1	1	1	1	**5**	1	1	1	1	1	**4**	1	1	0	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**15**
45.	1	1	0	1	0	**3**	1	1	0	1	1	**4**	0	0	1	**1**	0	1	1	0	1	0	**3**	0	1	**1**	**12**
46.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	1	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
47.	1	1	0	1	1	**4**	1	0	1	0	1	**3**	1	0	0	**1**	0	1	0	1	1	1	**4**	1	0	**1**	**13**
48.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	0	1	0	1	1	0	**3**	0	1	**1**	**15**
49.	1	0	1	1	0	**3**	1	1	1	1	1	**4**	1	1	0	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**14**
50.	1	1	1	1	1	**5**	1	0	1	1	0	**3**	1	0	1	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**14**
51.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	0	0	1	**1**	1	1	0	1	0	1	**4**	0	1	**1**	**15**
52.	1	1	1	1	1	**5**	0	1	1	0	1	**3**	1	0	0	**1**	1	0	1	1	0	1	**4**	0	1	**1**	**14**
53.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	0	**1**	0	1	1	0	1	0	**3**	0	1	**1**	**14**
54.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	0	1	0	**1**	1	0	1	0	1	1	**4**	0	1	**1**	**15**
55.	1	0	1	1	0	**3**	0	1	1	1	1	**4**	0	0	1	**1**	1	1	1	1	1	1	**4**	0	1	**1**	**13**
56.	1	1	0	1	1	**4**	0	1	1	0	1	**3**	1	0	0	**1**	1	0	1	1	0	1	**4**	0	1	**1**	**13**
57.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	1	0	0	**1**	1	0	1	0	1	0	**3**	0	1	**1**	**14**

58.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	0	1	0	1	1	1	**4**	0	1	**1**	**15**
59.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	1	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
60.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	1	**2**	0	1	0	1	1	1	**4**	0	1	**1**	**16**
61.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	0	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
62.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	1	**2**	0	1	1	0	1	1	**4**	0	1	**1**	**16**
63.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	0	**2**	1	0	1	1	1	1	**5**	0	1	**1**	**17**
64.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
65.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	0	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**16**
66.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	1	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**15**
67.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	1	1	0	**2**	1	1	0	1	1	1	**5**	0	1	**1**	**17**
68.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	0	1	**1**	1	1	1	0	1	0	**4**	0	1	**1**	**15**
69.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	1	**3**	1	1	0	1	1	1	**5**	0	1	**1**	**18**
70.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	1	1	1	1	1	1	**6**	0	1	**1**	**18**
71.	1	1	1	1	1	**5**	1	1	1	1	1	**4**	0	1	0	**1**	0	1	0	1	0	1	**3**	0	1	**1**	**14**
72.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	0	1	**1**	1	0	1	0	1	1	**4**	0	1	**1**	**15**
73.	1	1	1	1	1	**5**	1	1	1	1	1	**4**	1	0	1	**2**	0	1	0	1	0	1	**3**	0	1	**1**	**15**
74.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	1	1	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
75.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	1	0	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
76.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	1	1	0	0	1	1	**4**	0	1	**1**	**15**
77.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	1	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**16**
78.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	0	**1**	1	0	1	1	1	0	**4**	0	1	**1**	**15**
79.	1	1	1	1	1	**3**	1	1	1	1	1	**4**	1	0	1	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**14**
80.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	0	1	**1**	0	1	1	1	0	1	**4**	0	1	**1**	**15**
81.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	1	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**16**
82.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	1	0	0	**1**	1	0	1	0	1	1	**4**	0	1	**1**	**15**
83.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	1	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**16**
84.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	0	1	**1**	1	1	0	1	1	0	**4**	0	1	**1**	**15**
85.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	1	1	1	1	1	0	**5**	0	1	**1**	**16**
86.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	0	1	0	1	0	1	**3**	0	1	**1**	**15**
87.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	1	1	0	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**17**

88.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	0	**1**	0	1	1	0	1	0	**3**	0	1	**1**	**14**
89.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	0	1	**1**	1	0	1	0	1	1	**4**	0	1	**1**	**15**
90.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	1	**2**	0	1	0	1	1	0	**3**	0	1	**1**	**15**
91.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	0	**2**	0	1	0	1	0	1	**3**	0	1	**1**	**15**
92.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	0	1	1	**2**	1	1	0	1	1	0	**4**	0	1	**1**	**16**
93.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	1	0	1	0	1	1	**4**	0	1	**1**	**16**
94.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	0	1	0	1	1	0	**3**	0	1	**1**	**14**
95.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**15**
96.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	0	1	0	**1**	0	1	1	0	1	1	**4**	0	1	**1**	**15**
97.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**16**
98.	1	1	1	1	1	**3**	1	1	1	1	0	**4**	1	1	0	**2**	1	0	1	1	1	0	**4**	0	1	**1**	**14**
99.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	0	1	**1**	1	1	0	1	1	0	**4**	0	1	**1**	**15**
100.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	1	1	0	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**17**
101.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	1	0	**1**	1	0	1	1	1	1	**5**	0	1	**1**	**16**
102.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	1	**2**	1	1	1	1	0	1	**5**	0	1	**1**	**17**
103.	1	0	1	1	1	**4**	1	1	1	1	1	**5**	1	1	0	**2**	1	1	1	1	0	1	**5**	0	1	**1**	**17**
104.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**16**
105.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	1	**2**	1	0	1	1	1	0	**4**	0	1	**1**	**16**
106.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	1	0	**2**	0	1	1	0	1	1	**4**	0	1	**1**	**16**
107.	1	0	1	0	1	**3**	1	1	1	0	1	**4**	0	1	1	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**14**
108.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	1	1	**3**	1	0	1	1	0	1	**4**	0	1	**1**	**17**
109.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	1	**3**	1	1	0	1	1	0	**4**	0	1	**1**	**17**
110.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	0	1	0	**1**	1	0	1	1	0	1	**4**	0	1	**1**	**15**
111.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	0	1	**1**	0	1	1	1	1	0	**4**	0	1	**1**	**15**
112.	1	1	0	1	1	**4**	0	1	1	0	1	**3**	0	1	0	**1**	1	0	1	0	1	0	**3**	0	1	**1**	**12**
113.	1	1	1	1	1	**5**	0	1	0	1	1	**3**	0	0	1	**1**	1	0	1	1	0	1	**4**	0	1	**2**	**15**
114.	1	1	1	1	1	**5**	1	0	1	1	0	**3**	0	1	0	**1**	0	1	1	0	1	0	**3**	0	1	**2**	**14**
115.	1	1	1	1	1	**5**	1	1	0	1	0	**3**	1	0	0	**1**	0	1	0	1	1	0	**3**	0	1	**1**	**13**
116.	1	1	1	1	1	**5**	0	1	0	1	1	**3**	0	1	0	**1**	1	0	1	0	1	0	**3**	0	1	**2**	**14**
117.	1	1	1	1	1	**5**	0	1	1	0	1	**3**	1	0	0	**1**	0	1	1	0	1	1	**4**	0	1	**1**	**14**

118.	1	1	1	1	1	**5**	0	1	1	1	0	**3**	1	1	1	**3**	1	0	1	0	1	1	**4**	0	1	**1**	**16**
119.	1	0	1	0	1	**3**	0	1	1	1	1	**4**	1	0	1	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**13**
120.	1	1	1	1	1	**5**	1	1	0	1	0	**3**	1	1	0	**2**	0	1	1	1	0	1	**4**	0	1	**2**	**16**
121.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	1	0	**2**	1	0	1	0	1	0	**3**	0	1	**2**	**16**
122.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	1	1	0	1	0	1	**4**	0	1	**2**	**16**
123.	1	1	0	1	1	**4**	1	1	1	0	1	**4**	1	0	1	**2**	1	0	1	0	1	0	**3**	0	1	**2**	**15**
124.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	0	1	**1**	0	1	1	0	1	1	**4**	0	1	**1**	**15**
125.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	1	0	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**15**
126.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	0	**1**	0	1	1	0	1	1	**4**	0	1	**1**	**15**
127.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	1	0	1	1	0	0	**3**	0	1	**1**	**15**
128.	1	0	1	1	0	**3**	1	1	1	0	1	**4**	0	1	0	**1**	0	1	1	0	1	0	**3**	0	1	**1**	**12**
129.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	0	1	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
130.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	0	**1**	0	1	1	0	1	1	**4**	0	1	**1**	**15**
131.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	1	**2**	1	0	1	1	0	1	**4**	1	1	**2**	**17**
132.	1	1	1	0	1	**4**	1	1	1	1	0	**4**	0	1	1	**1**	1	1	0	1	1	0	**4**	1	1	**2**	**15**
133.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	1	0	**2**	1	0	1	1	0	1	**4**	1	1	**2**	**17**
134.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	1	**3**	0	1	1	1	0	1	**4**	1	1	**2**	**18**
135.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	0	**1**	0	1	1	1	1	0	**4**	1	1	**2**	**16**
136.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	0	1	**1**	1	1	0	1	0	1	**4**	1	1	**2**	**16**
137.	1	0	1	1	0	**3**	0	1	1	1	1	**4**	1	0	1	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**15**
138.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	1	**3**	1	1	1	1	0	1	**5**	0	1	**1**	**18**
139.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	0	1	0	**1**	1	1	0	1	1	1	**5**	0	1	**1**	**16**
140.	1	1	0	1	1	**4**	1	1	0	1	1	**4**	0	1	1	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**16**
141.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	1	1	**3**	1	0	1	1	1	1	**5**	0	1	**1**	**18**
142.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	1	**1**	1	1	1	0	1	1	**5**	0	1	**1**	**16**
143.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	1	1	**2**	0	1	1	1	1	1	**5**	0	1	**1**	**17**
144.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	1	0	0	**1**	1	1	1	1	0	1	**5**	0	1	**1**	**16**
145.	1	1	0	1	0	**3**	1	1	0	1	1	**4**	1	1	1	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**13**
146.	1	1	1	1	1	**5**	1	1	1	1	1	**5**	0	1	0	**1**	1	0	1	1	0	1	**4**	0	1	**1**	**16**
147.	1	1	1	1	1	**5**	1	1	1	1	1	**5**	1	0	0	**1**	0	1	1	0	1	0	**3**	0	1	**1**	**15**

148.	1	1	1	1	1	**5**	1	1	1	1	1	**5**	0	1	0	**1**	1	0	1	0	1	1	**4**	0	1	**1**	**16**
149.	1	1	0	1	1	**4**	1	1	1	1	1	**5**	1	0	1	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**16**
150.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	0	**1**	0	1	1	0	1	0	**3**	0	1	**1**	**14**
151.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	1	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**16**
152.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	1	0	1	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**16**
153.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	1	1	0	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**15**
154.	1	1	0	1	0	**3**	1	1	1	1	1	**5**	1	0	1	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**15**
155.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	1	0	**1**	1	1	1	0	1	1	**5**	0	1	**1**	**16**
156.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	0	1	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**16**
157.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	1	0	**2**	1	1	0	1	1	1	**5**	0	1	**1**	**17**
158.	1	1	0	1	1	**4**	1	1	1	1	1	**5**	0	0	1	**1**	1	0	1	1	0	1	**4**	0	1	**1**	**15**
159.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	0	1	1	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**15**
160.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	0	**1**	1	0	1	1	0	1	**4**	0	1	**1**	**15**
161.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	0	1	1	**2**	1	1	0	1	1	1	**5**	0	1	**1**	**17**
162.	1	1	0	1	0	**3**	1	1	1	0	1	**4**	1	0	0	**1**	0	1	1	1	0	1	**4**	0	1	**1**	**13**
163.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	1	0	1	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**17**
164.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	1	1	0	**2**	0	1	1	1	0	1	**4**	0	1	**1**	**16**
165.	1	1	0	1	1	**4**	1	0	1	1	0	**3**	1	0	1	**2**	1	1	0	1	1	1	**5**	0	1	**1**	**15**
166.	1	1	1	1	1	**5**	1	1	0	1	0	**3**	1	1	0	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**15**
167.	1	1	1	1	1	**5**	0	1	1	0	1	**3**	1	0	1	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**14**
168.	1	1	1	1	1	**5**	1	0	1	0	1	**3**	0	1	0	**1**	1	1	0	1	1	0	**4**	0	1	**1**	**14**
169.	1	0	1	1	0	**3**	0	1	1	1	1	**4**	1	0	1	**2**	1	1	0	1	1	1	**5**	0	1	**1**	**15**
170.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	1	0	**1**	0	1	1	1	0	1	**4**	0	1	**1**	**15**
171.	1	1	1	1	1	**5**	1	0	1	1	0	**3**	1	0	0	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**14**
172.	1	1	1	1	1	**5**	1	1	0	1	0	**3**	0	1	0	**1**	0	1	1	0	1	1	**4**	0	1	**1**	**14**
173.	1	1	0	1	1	**4**	0	1	1	0	1	**3**	0	0	1	**1**	1	0	1	0	1	0	**3**	0	1	**1**	**12**
174.	1	1	1	1	1	**5**	1	0	1	1	0	**3**	1	0	0	**1**	1	1	0	1	0	1	**4**	0	1	**1**	**14**
175.	1	1	1	1	1	**5**	1	1	0	1	0	**3**	1	0	0	**1**	0	1	1	0	1	1	**3**	0	1	**1**	**13**
176.	1	1	1	1	1	**5**	0	1	1	0	1	**3**	0	1	0	**1**	1	0	1	1	0	1	**4**	0	1	**2**	**15**
177.	1	0	1	1	0	**3**	1	1	0	1	1	**4**	1	0	1	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**13**

178.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	0	**1**	1	0	1	0	1	1	**4**	0	1	**1**	**15**
179.	1	1	1	1	1	**5**	0	1	1	0	1	**3**	1	0	1	**2**	1	0	1	0	1	0	**3**	0	1	**2**	**15**
180.	1	0	1	1	1	**4**	1	0	1	1	0	**3**	0	1	1	**2**	0	1	0	1	0	1	**3**	0	1	**1**	**13**
181.	1	1	1	1	1	**5**	1	0	1	1	0	**3**	1	0	1	**2**	1	0	1	0	1	0	**3**	0	1	**1**	**14**
182.	1	1	1	1	1	**5**	1	0	1	1	0	**3**	0	1	1	**2**	1	0	1	0	1	1	**4**	0	1	**1**	**15**
183.	1	0	1	0	1	**3**	1	1	0	1	1	**4**	1	0	1	**2**	0	1	1	1	1	1	**5**	1	1	**2**	**16**
184.	1	1	1	1	1	**5**	0	1	1	1	1	**4**	1	0	1	**2**	0	1	1	0	1	1	**4**	1	1	**2**	**17**
185.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	1	1	0	**2**	0	1	0	1	0	1	**3**	1	1	**2**	**16**
186.	1	1	1	1	1	**5**	1	1	1	1	0	**4**	1	1	1	**3**	0	1	1	0	1	1	**4**	1	1	**2**	**18**
187.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	0	1	1	**2**	1	0	1	0	1	1	**4**	1	1	**2**	**17**
188.	1	1	1	0	1	**4**	0	1	1	0	1	**3**	1	0	1	**2**	1	1	0	1	0	0	**3**	1	1	**2**	**14**
189.	1	1	1	1	1	**5**	1	0	1	0	1	**3**	1	0	1	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**16**
190.	1	1	1	1	1	**5**	1	1	0	1	0	**3**	1	1	0	**2**	1	0	1	1	0	1	**4**	0	1	**1**	**15**
191.	1	1	1	1	1	**5**	0	1	1	0	1	**3**	1	1	0	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**15**
192.	1	1	1	0	1	**3**	1	0	1	1	1	**4**	1	0	1	**2**	1	1	1	0	1	1	**5**	0	1	**1**	**15**
193.	1	1	1	1	1	**5**	1	1	0	1	1	**4**	1	1	0	**2**	0	1	1	0	1	0	**3**	0	1	**1**	**15**
194.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	0	1	**2**	1	0	1	0	1	1	**4**	0	1	**1**	**16**
195.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	1	1	0	**2**	1	0	1	0	0	1	**3**	0	1	**1**	**15**
196.	1	1	1	1	1	**5**	0	1	1	1	0	**3**	1	0	1	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**15**
197.	1	1	1	1	1	**5**	1	0	1	1	1	**4**	1	1	0	**2**	1	0	1	0	0	1	**3**	0	1	**1**	**15**
198.	1	1	0	1	0	**4**	1	1	1	0	1	**4**	1	0	1	**2**	1	1	0	1	0	1	**4**	0	1	**1**	**15**
199.	1	1	1	1	1	**5**	1	1	1	0	1	**4**	0	0	1	**1**	1	1	0	1	0	0	**3**	0	1	**1**	**14**
200	1	1	1	1	1	**5**	1	1	1	1	1	**5**	1	0	0	**1**	1	1	1	0	1	0	**4**	0	1	**1**	**16**

Section-C: Central Line care bundle outcome assessment Tool

Sl. No	List of Complications	Developed within 48 Hrs.	Developed within 72 Hrs.	Developed >72 Hrs.	Not developed
1	Local Infection	-	-	-	-
2	Tube dislodgement	-	-	-	-
3	Pneumothorax	-	-	-	-
4	Hemothorax	-	-	-	-
		-			
5	Thrombosis	-	-	-	-
6	Embolism	-	-	10	-
7	Others (Specify)				
	Sepsis	-	-	42	-
	MODS	-	-	29	-
	No complication	-	-	-	119

ANNEXURE – XII

Photographs