Summer Internship Report

At

Sri Balaji Action Medical Institute

(April 23rd to June 23rd, 2024)

A Report on

Assessment of knowledge regarding Code Blue in Healthcare Professionals

By

Dr. Bhumika Hooda

Post -graduate Diploma in Hospital and Health Management

2023-2025

International Institute of Health Management Research, New Delhi

ACKNOWLEDGEMENT

I would like to express my deepest gratitude to those who have provided unwavering support and guidance throughout the completion of this report.

First and foremost, I would like to extend my sincere appreciation to my institution mentor **Dr. Rupsa Banerjee,** for their invaluable insights, patience, and encouragement. Their expert guidance and constructive feedback have been instrumental in shaping this work. I am deeply grateful for the time they invested in reviewing drafts, providing suggestions, and sharing their knowledge and experience with me.

I would like to express my sincere gratitude to **Dr. Sunil Sumbli** (Medical Superintendent) and **Dr. Meenakshi Mittal** (Additional Medical Superintendent), my mentor **Monika Targotra** and colleague **Dr. Pallavi Mishra** in Sri Balaji Action Medical Institute, New Delhi, for their continuous guidance who despite being busy with their duties, tooktime to hear me and guide me and gave helpful advice and constructive comments throughout the project. Their valuable inputs made this project possible.

Finally, I am immensely grateful to my family for their constant support and encouragement. Their understanding and patience during the times when my work demanded long hours and undivided attention have been incredibly supportive.

This report is a testament to the collaborative efforts and contributions of all those mentioned, and it is with great appreciation that I acknowledge their significant roles in making this possible.

Certificate of Approval

The Summer Internship Project of titled " **ASSESSMENT OF KNOWLEDGE REGARDING CODE BLUE IN HEALTHCARE PROFESSIONALS**" at "**SRI BALAJI ACTION MEDICAL INSTITUTE**" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.

Name of the Mentor
Designation
IIHMR, Delhi

FEEDBACK FORM

(IIHMR MENTOR)

Name of the Student: Dr Bhumika Hooda

Summer Internship Institution: Sri Aurobindo Balaji Medical Institute

Area of Summer Internship: Quality Dept.

Attendance:

Objectives met:

Deliverables:

Strengths: sincere, hardworking; keep it up!

Suggestions for Improvement:

Signature of the Officer-in-Charge (Internship)

Date: 11/12/24.
Place: N. Delhi

Sri Balaji
Action Medical Institute
Multi Speciality Hospital

SBAMI/HR-TR/2023/187

Date: 24th June 2024

To Whomsoever It May Concern

This is to certify that **Dr. Bhumika Hooda** D/o Mr. Jaideep Singh Hooda , student of IIHMR University , has undergone **2 months** internship program in the Department of Quality at Sri Balaji Action Medical Institute (which is a part of her course curriculum in PGDM Hospital and Health Management) with effect from **23rd April 2024 to 23rd June 2024**.

Her performance during internship period was found to be satisfactory.

We wish her success in all her future endeavors.

Pooja Sethi
24/6/24

Pooja Sethi
Dy. Manager –Training&HR

24/6/24

Dr. Sunil Sumbli
Medical Superintendent

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A UNIT OF LALA MUNNI LAL MANGE RAM CHARITABLE TRUST

FEEDBACK FORM

(Organization Supervisor)

Name of the Student: Dr. Bhumika Hooda

Summer Internship Institution: Sri Balaji Action Medical Institute

Area of Summer Internship: Quality Department

Attendance: Satisfactory

Objectives met: Yes

Deliverables: Descriptive study on assessment of knowledge about Code Blue amongst Healthcare workers.

Strengths: Hardworker, always ready to take challenges.

Suggestions for Improvement: Need to be calm while doing task.

Signature of the Officer-in-Charge (Internship)

Date: 21st June 2024
Place: New Delhi

10

Bhumika Hooda ST report

ORIGINALITY REPORT

9%	6%	4%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	global.oup.com Internet Source	2%
2	Hendri Purwadi, Harmili Harmili, Meri Afridayani. Adi Husada Nursing Journal, 2023 Publication	1%
3	Submitted to Tilburg University Student Paper	1%
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8	KAYKISIZ, Eylem Kuday, TONGÜN, Ali, SÖNMEZSOY, Mihriban and GÜVEN, Ramazan. ""Code Blue" in Theory Versus Daily Practice: Data from a Secondary Care	<1%

TABLE OF CONTENTS

Observational Learning

Section-A

Introduction

- Sri Balaji Action Medical Institute has been established with a mission to provide world class integrated healthcare facilities to all sections of the society with a humanitarian touch, while maintaining a high standard of ethical practice and professional competency with emphasis on training and education leading to research. "The Institute will impart free Medicare to the poor and needy people with an aim to run the institute on no profit no loss basis".

- "The Institute has been promoted by Lala Munni Lal Mange Ram Charitable Trust of Action Group of Companies. The chairman of the trust Lala Mange Ram Agarwal, a great philanthropist had a strong desire to build a hospital for the service of mankind".

- Equipment, facilities and nursing standards are all structured keeping patient welfare as the ultimate goal. The core catalyst of the hospital functions is patient welfare and recovery. For us, freedom from pain, restoration of perfect health and resumption of normal life with respect to the patient is of paramount importance and throughout the treatment process the mental and physical well-being of the patient is the main priority. We have thus encapsulated these work ethics in our motto “healing with a human touch” and strive to always uphold it.

- The Logo of the Institute portrays its philosophy; it consists of a hand embracing the flame of life with a sphere in the background. The Human Hand represents the healing touch and health care our dedicated teams of professional provide to brighten the lives of those who come to us. The Flame denotes the traditional values of honesty and selfless service towards our patients. The Sphere in the background reflects our commitment to maintain international standards of excellence.

Associated Hospitals:

- Action Cancer Hospital, Paschim Vihar, New Delhi
- Ginni Devi Action School of Nursing, Paschim Vihar, New Delhi

- **MISSION**

  Sri Balaji Action Medical Institute has been established with a mission to provide world class affordable health care facilities to all sections of the society with a humanitarian touch, whilst maintaining high standards of ethical practices and professional competency with emphasis on training and education leading to research.

- **VISION**

  To become the largest healthcare provider NGO in the country with a human touch.

- **VALUES**
  - Providing patient care with a human touch
  - Treating all the patients equally with respect and dignity
  - Following ethical practices and acting with utmost integrity
  - Emphasis on education and learning leading to research

- **GOALS**
  - Providing affordable healthcare
  - Providing healthcare by professionally competent person in ethical way
  - Patient safety is of utmost important while treatment
  - Patient's satisfaction related to treatment and other services

HOSPITAL MANAGEMENT- SBAMI

CHAIRMAN- MR.LALA MANGERAM AGGARWAL

VICE CHAIRMAN- MR.NAND KISHORE AGGARWAL

PRESIDENT- MR. RAJ KUMAR GUPTA

GENERAL SECRETARY- MR. CHHARIA

MEDICAL DIRECTOR- DR. ANAND BANSAL

MEDICAL SUPRITENDENT- DR. SUNIL SUMBLI

ADDITIONAL MEDICAL SUPRITENDENT- DR. MEENAKSHI MITTAL

DEPUTY MEDICAL SUPRITENDENT- DR. RAJIV KUMAR

ADDITIONAL MEDICAL SUPRITENDENT- DR. RAJNEESH BHARTI

NURSING SUPRITENDENT- LT. COL. SARITA

ACCREDITATION AND QUALITY

Quality Policy

- Providing high quality care according to the health needs of the patients.
- Facilitating patient satisfaction by exceptional service and ensuring the dignity and rights of patients.
- Providing a safe and conducive work environment for staff.
- Ensuring accountable, consultative and transparent management process.
- Providing basic and continuing education for staff.

Accreditations

The department of Lab Sciences is NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited

National Accreditation Board of Hospitals & Healthcare Providers (NABH) is a constituent board of Quality Council of India, set up to establish and operate accreditation programs for healthcare organizations. The board is structured to cater to the much desired needs of the consumers and to set benchmarks for the progress of the health industry.

POLICIES OF HR

- Employee can bring to an end any employee relationship whenever he/she want
- Laws related to the non-discrimination can be formally forbidden
- Distinguishing the employee on the basis of their working time
- Rules of the company like if an employee needs leave which is family related or the law
- Time the employee has been investing in the company which is accurate is taken into consideration
- Procedures which are urgent and are to be reported immediately
- Employee is supposed to follow the scheduled timings of reaching and leaving the place
- Forms which helps to know whether the Candidates are qualified during the hiring process
- Request submission regarding the leaves
- Employees are set free regarding the accommodation which is reasonable
- Reviews of the employee annually
- Expenses which related to the business are to be submitted in written

EMERGENCY CODES

Code	Situation	Response team
Red	**Fire**	**ERT**
Pink	**Child Abduction**	**ERT**
Blue	**CPR**	**ERT**
Violet	**Violence**	**ERT**
Yellow	**External Disaster**	**ERT**
Black	**Bomb Threat**	**ERT**
Orange	**Patient requiring intensive opinion in ward**	**ERT**

ERT Team

AMS on Duty, Security Supervisor, Fire Supervisor, Assistant Nursing Superintendent, Maintenance Executive, House Keeping Supervisor, Ward Boys and Plumber.

Floor Plan of SBAMI

Basement	Ground Floor	First Floor	Second Floor	Third Floor	Fourth Floor
Nursing School Administrative Office	Emergency Radio Imaging Dept.	North wing room no.1001 to 1019	North Wing 2001 to 2019	North Wing room No. 3001 to 3019	North Wing Room no. 4001 to 4015
CT Scan MRI	Minor-OT non-invasive cardiac lab	Respiratory Lab	Medical ICU Surgical ICU	Cath Lab Cath Recovery	South Wing Room No. 4051 to 4085
Physiotherapy	General OPD Private OPD	GI Surgery ICU 2	Urology Interventional Radiology	Heart Command ICU	
Blood Bank	Neuro ICU Spine and Rehabilitation	Neuro Surgery	Operation Theatre	Cardiac OT	
MRD	Billing TPA Admission Counter	Paediatrics ICU Mother Child Complex	South Wing Room No 2051 to 2061	South Wing Room no. 3051 to 3061	
HR Dept.	AMS Duty Room OPD Pharmacy	South Wing Room NO.1051 to 1061	Chemo day care ward	ICU 3	

SERVICES

- Standards: International
- Emergency Department: Yes
- Bed Availability: 275+ (At Present)

CLINICAL DEPARTMENT

- Cardiology
- Spine and Rehabilitation center
- Neurology
- Nephrology
- General Surgery
- Neurosurgery
- Respiratory Medicine
- Obstetrics and Gynecology
- Psychology
- Dermatology
- GI Surgery
- Orthopedics
- Pediatrics
- Physiotherapy and Rehabilitation
- Ophthalmology
- Plastic and Reconstructive surgery
- Urology
- Gastroenterology

CLINICAL DEPARTMENT

- Critical care
- Emergency Medicine
- Radiology
- Laboratory Medicine
- Transfusion Medicine
- Lactation counselling

SUPER SPECIALTY CLINIC

- Ano rectal Clinic
- Breast specialty clinic
- Child Asthma allergy chest clinic
- Cosmetic Clinic
- Retina clinic
- Shoulder Clinic
- Bariatric Clinic
- Child Development Clinic
- Cochlear implant clinic

DNB PROGRAM ACADEMICS

DIPLOMATE OF NATIONAL BOARD (DNB) PROGRAM

- DNB courses are recognized by National Board of Examination (NBE), Ministry of Health and Family Welfare Govt. of India. NBE conducts CET for admission to DNB courses. Admission is done through CET merit based counseling which is held by NBE at its office in Dwarka, New Delhi. Admissions to DNB Courses in Sri Balaji Action Medical Institute are done through National Board of Examinations. For any further clarification please refer to NBE website (www.natboard.edu.in)

Sri Balaji Action Medical Institute is running DNB program in the following specialties:

- DNB - General Medicine
- DNB - Immunohematology & Transfusion Medicine
- DNB - Obst & Gynae
- DNB - Pediatrics
- DNB - Radio Diagnosis
- DNB - Anesthesia
- DNB - Orthopedics
- DNB - General Surgery
- DNB – Neurology
- DNB - Nephrology
- DNB – Gastroenterology

Conclusion-

Sri Balaji Action Medical institute is well renowned hospital in northern India, capable of treating all kinds of disease. The hospital's distinguishing feature is its highly qualified doctors and employees, as well as an experienced management team. Their management / administration team eases out every situation / issue faced by the patient effectively. Ambience of the hospital, services provided to the patient is excellent.

GENERAL WORKING OF DEPARTMENTS

- Administration - To enhance the hospital staff's ability to manage and organize hospital effectively and professionally.

- HRD - HR managers oversee employee administrative affairs in organization. Arrange training programs for the staff.

- Finance Dept. - This dept. monitors and controls the hospital finances and setting of budgets on an annual basis.

- In-patient reception - After being seen by a physician, the patient or their proxy must fill out an admission form at this reception as directed by the physician.

- CSSD - The department of CSSD works on 24hrs shifts all 365 days. All the processes of cleaning, disinfection and sterilization are done under total aseptic condition in house.

- Medical Records - Documentation of a single patient's medical history and care across time within the jurisdiction of a single health care practitioner.

- Staff canteen/F&B - Includes the hospital food & beverage. hospital kitchen prepares patient's meal as per dietician's recommendations, while it constantly calculates the material requisition for cafeteria, fast food center, kitchen etc. it effectively tracks the required stock such as utensils, cutlery.

- Medical coordinators - Following the physician's indication that the patient is ready for discharge, coordinating patient discharge planning and after-care services.

- Admission center - Obtain basic information, provide vital information about your

hospital stay, respond to your questions before scheduling your doctor’s appointment.

- Linen/Laundry - Linen management has a significant impact on patient satisfaction, infection rates, and operating expenses, as well as physician satisfaction.

- CT Scan- Each check-up is tailored to the patient's unique needs, and radiation exposure is minimized thanks to the staff's efforts.

- Quality Department - At the departmental level, ensure that duties and team expertise are clear.

- Information& Technology - Using the most advanced and relevant information technology to provide you with the highest and most complex level of care possible.

- Reception - Through the welcome counter and ‘MAY I HELP YOU' desks, the reception serves as the initial point of contact for patients and their attendants in need of assistance.

- Registration - Patient registration specialists gather information about patients and execute a variety of administrative tasks, such as verifying insurance and completing admissions, transfers, and discharge procedures.

- Cash counter - All cash and credit bills of hospital cash account management will be centralized controlled and settled by the cash counter module. It increases financial discipline and successfully creates checks and balances to control all cash activities connected to receipts and payments, obviating the possibility of hospital finance manipulation.

- OPD - A consultant clinic's outpatient department is a department dedicated to allowing consultants and members of their teams to see outpatients. It consists of one or more consulting rooms, as well as supporting facilities such as a nurse’s station,

treatment rooms, and waiting areas.

- ECHO/ECG/TMT - An electrocardiogram (ECG) is a test that looks for issues with your heart's electrical activity.

- X-ray - The Radiology Department uses X-rays and Ultrasound scans to provide a high-quality diagnostic service to in-patients, out-patients, day care, and emergency patients. These radiological services produce images that can help with patient diagnosis and therapy.

- Specimen collection - The process of gathering tissue or fluids for laboratory analysis or near-patient examination is known as specimen collection. It's frequently the initial step toward selecting a diagnosis and treatment plan.

- Cath lab - A catheterization laboratory, often known as a Cath lab, is a room in a hospital or clinic equipped with diagnostic imaging technology for visualizing the arteries and chambers of the heart and treating any stenosis or abnormalities discovered.

- Emergency - An emergency department (ED), also known as an accident and emergency department (A&E), emergency room (ER), or casualty department, is a medical treatment facility that specializes in emergency medicine, or the acute care of patients who arrive without an appointment, either on their own or via ambulance.

- OT - An operating theatre, often known as an operating room (OR), or operating suite, is a medical facility where surgical procedures are performed in a sterile environment.

- ICU - Patients that require constant monitoring are admitted to the Intensive Care Unit (ICU). Patients may be extremely ill as a result of an acute illness or have been involved in an accident that resulted in major and life-threatening injuries.

- Pharmacy - In comparison to community pharmacies, pharmacies typically stock a wider selection of pharmaceuticals, including more specialized and exploratory medications (medicines that are being tested but have not yet been approved). It usually solely delivers pharmaceuticals to hospitalized patients and is not a retail store.

- General ward - When medical staff determines that patients no longer require such close monitoring and one-on-one care, they are transferred from the critical care unit to a normal ward. For many people, this is a vital stage in their journey from critical illness to recovery.

- Ward (Semi private) - A very basic curtain that is somehow filled with the magic of privacy creates privacy. But, in reality, this room is the temporary home for two patients–you and a 14-year-old stranger who is also recuperating, together with their medical team and any entourage they bring with them.

- Dietician - A dietician (or dietician) is a professional who specializes in dietetics, or human nutrition and diet regulation. A dietician adjusts a patient's diet based on their medical condition and unique requirements. Dieticians are the only certified healthcare practitioners who can examine, diagnose, and treat dietary issues.

- Physiotherapy - Physical therapies such as massage, heat treatment, and exercise, rather of medications or surgery, are used to treat sickness, injury, or deformity

- Infection control & Prevention - Infection control is a practical (rather than academic) sub-discipline of epidemiology focused with preventing nosocomial or healthcare-associated infection. It is essential but usually underfunded aspect of hospital.

Section-B: Project Report

ASSESSMENT OF CODE BLUE KNOWLEDGE IN HEALTHCARE PROFESSIONALS

Chapter 2: OVERVIEW

2.1 INTRODUCTION

Code Blue is an emergency code announced during cardiac arrest in the hospital to inform the resuscitation team about the falling health of the patient. The casualties can be admitted patients, patient's relatives, hospital personnel or others. In a healthcare setting, Code Blue situations require rapid and coordinated responses from healthcare professionals. A patient's survival depends heavily on the time between the onset of cardiac arrest and resuscitation, typically estimated to be within 3 to 5 minutes. (1)

According to the 2020 update from the American Heart Association on heart disease and stroke statistics, approximately 9.7 out of every 1000 adult cardiac arrests happen within hospital settings. (2)

In Western countries, studies have indicated that the occurrence of in-hospital cardiac arrest (IHCA) ranges from 0.78 to 4.60 per 1000 admissions. Moreover, mortality rates in these cases remain notably high, despite the administration of high-quality cardiopulmonary resuscitation (CPR). (3)

The purpose of Code Blue is to ensure that trained resuscitators reach the victim and necessitates resuscitations as quickly as possible without disrupting other functions of the hospital. (4)

The effectiveness of these responses is directly influenced by the knowledge and preparedness of healthcare personnel involved during a Code Blue situation. (5)

The Code Blue team comprises healthcare professionals with specialized training in resuscitation, including physicians, nurses, respiratory therapists, pharmacists, and other specialized staff. Each team member is assigned a distinct responsibility, such as airway management, chest compressions, or medication administration. This organized method ensures a cohesive and effective resuscitation procedure. Nurses have a vital role in initiating cardiopulmonary resuscitation as part of their responsibilities within the team. [6, 7]

In cases of sudden cardiac or respiratory arrest within the hospital, Code Blue is activated. Prompt initiation of this alert is crucial, as it significantly improves patient survival chances while minimizing potential complications. The Code Blue alert is broadcasted throughout the hospital via the public address system, accompanied by a distinct alarm to promptly notify healthcare providers across the facility. [8, 9]

The protocol involves activating Code Blue through a designated number or button, triggering the rapid response of a resuscitation team equipped with a Code Blue bag. Upon arrival, the team systematically assesses the situation using the Basic Life Support (BLS) checklist and begins cardiopulmonary resuscitation (CPR). Further steps include intubation, connecting to a Ventilator, and preparing inotropes (such as Noradrenaline) and drugs following the Advanced Life Support (ALS) protocol for immediate application if needed. Restocking Code Blue bags after intervention is a crucial part of the process, ensuring their availability in designated areas for future emergency [9]

Extensive research has focused on both in-hospital cardiac arrest (IHCA) and out-of-hospital cardiac arrest (OHCA) across different regions globally. However, existing studies predominantly concentrate on patients admitted to the intensive care unit (ICU). There is a noticeable gap in the literature regarding patients in ward settings. Therefore, this research project aims to investigate the clinical outcomes of in-hospital cardiac arrest specifically for patients admitted to hospital wards. [3]

Knowledge and awareness about swift and comprehensive response protocol highlights the critical role of Code Blue in preserving patient well-being and minimizing potential complications associated with cardiac or respiratory arrest. [8]

For this reason, it is necessary to continuously evaluate code blue practices, educate the staff, and organize improvement activities constantly.
The aim of this study is to assess the present knowledge of healthcare workers regarding Code Blue in a multi-specialty hospital in New Delhi and provide suggestions and alternatives for designing and improving the training protocol for Code Blue.

2.2 RATIONALE

Several studies suggest that healthcare professionals, particularly those outside critical care units, may have knowledge gaps regarding code blue protocols.[6]

This could be due to factors like infrequent code blue activations, lack of standardized training etc. Regular assessment can help healthcare facilities proactively address these potential shortcomings. The study is intended to recognize gaps in the areas of knowledge regarding Code Blue in the healthcare professionals in the hospital and provide recommendations to the hospital.

2.3 RESEARCH QUESTION

"What is the level of knowledge regarding Code Blue amongst Healthcare workers in non-critical areas of a multi-specialty hospital in New Delhi?"

2.4 AIM OF THE STUDY

This study aims to evaluate the current level of knowledge concerning Code Blue protocols among healthcare professionals working in non-critical care areas of the hospital.

2.5 OBJECTIVES

- To determine the overall knowledge level of healthcare professionals regarding Code Blue protocol
- To identify specific areas of strength and weakness in healthcare professional's knowledge of Code Blue practices
- To investigate the association between knowledge level and factor such as years of experience
- Offer suggestions for improvisation of the existing Code Blue practices

2.6 EXPECTED OUTCOMES

- A detailed evaluation of the current knowledge levels among healthcare professionals regarding Code Blue protocols will be provided.
- The research will identify specific areas where healthcare professionals demonstrate strengths and areas needing improvement in their understanding and application of Code Blue protocols.
- The association between healthcare professionals' knowledge levels and factors such as years of experience will be analyzed and revealed.
- Practical recommendations for enhancing the existing Code Blue practices will be proposed based on the study's findings.
- The findings will contribute to improved patient safety and outcomes by enhancing the preparedness of healthcare professionals in non-critical care areas.
- The results will provide a foundation for future research on the training and implementation of Code Blue protocols in various hospital settings.

Chapter 3: REVIEW OF LITERATURE

1. Purwadi et al. (2023) conducted a descriptive quantitative study with a cross-sectional design to assess nurses' cardiopulmonary resuscitation (CPR) knowledge as first responders to the Code Blue system at Manambai Hospital, West Nusa Tenggara. Utilizing a questionnaire based on the American Heart Association (AHA) 2020 guidelines, 82 nurses from non-critical wards were surveyed. Results indicate a substantial proportion (73.2%) of nurses exhibiting inadequate CPR knowledge, while only 26.8% demonstrate proficiency. This deficiency correlated significantly with limited CPR experience ($p < 0.000$). The study highlighted the critical importance of comprehensive CPR knowledge in facilitating prompt and effective response to cardiac arrests, directly influencing patient survival rates. The study advocates for regular training, courses, and simulations to improve CPR proficiency of nurses.

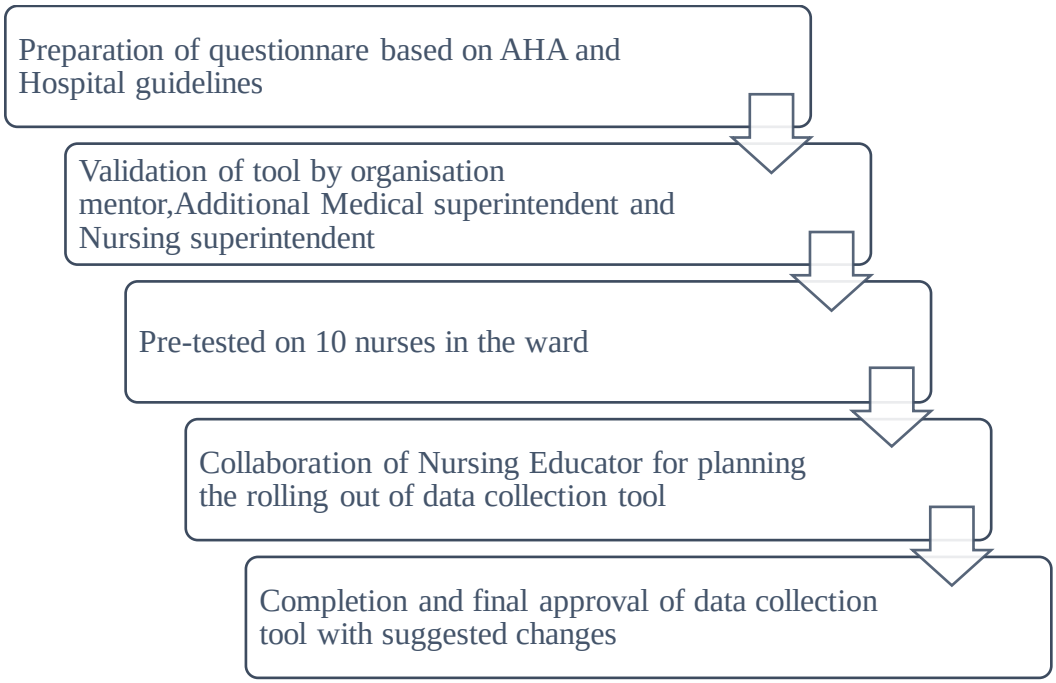
2. Sagun et al. (2021) conducted a study across six hospitals assessing healthcare professional's knowledge of Code Blue protocols and CPR. Results showed high awareness of the Code Blue number (86.6%) and concept (92.7%), but 25.9% hesitated to intervene during emergencies, and 41% reported inadequate documentation. While most had BLS training, recent uptake was low, and ALS training was lacking. The study underscored significant deficiencies in knowledge and confidence in executing Code Blue procedures, stressing the need for enhanced and ongoing training programs and standardized resuscitation guidelines to improve emergency response efficacy.

3. The study by Nanthini et al. (2019) investigates code blue protocol knowledge differences between general ward and critical care unit nurses at Mahatma Gandhi Medical College and Research Institute. It highlights the necessity for efficient response and resuscitation during medical emergencies, particularly cardiac and respiratory arrests. Using a descriptive research design, 60 nurses were surveyed with a semi-structured questionnaire. Results indicate significantly higher knowledge levels among critical care nurses (mean score: 19.30) compared to general ward nurses (mean score: 15.23), with a statistically significant p-value ($p \leq 0.000$). The study emphasizes the importance of enhanced training in critical care units for better code blue protocol execution, crucial for improving patient outcomes in emergencies.

4. Amatya et al. (2015) conducted a cross-sectional study in Nepal to assess CPR knowledge among 145 health institution members using a 2010 BLS guideline-based questionnaire. The average score was 18 out of 30 (60%), with only 9% correctly identifying the CPR sequence. ANOVA revealed significant score differences by professional background, highest in clinical professionals (mean 19) and lowest in non-clinical individuals (mean 15.09), but no significant associations with other variables. The study highlights a widespread deficiency in CPR knowledge, emphasizing the need for enhanced CPR training in health education programs.

Chapter 4: METHODOLGY

- **Study Design:** Descriptive Cross-sectional study
- **Study Setting:** Multi-Super specialty Hospital located in West Delhi area.
- **Study Duration:** 2 months (May-June 2024)
- **Study Population:** Nurses and Doctors in non-critical areas of the Hospital
- **Sampling method:** Exhaustive Sampling (120 Nurses and 12 Duty Doctors)
- **Data Collection Mode:** Primary
- **Data Analysis:** Microsoft Excel and R Software
- **Study Tool:** Structured Questionnaire
- **Development of Data Collection Tool:**



The Questionnaire consisted of 27 questions based on AHA (American Heart Association) Adult BLS Algorithm for Healthcare Providers and protocol guidelines followed by the hospital. The questionnaire was divided into 5 major categories.

- Awareness regarding Code Blue in Hospital
- Knowledge regarding identification and announcement of Code Blue
- Knowledge regarding BLS technique during Code Blue
- Knowledge regarding Crash Carts in the ward
- Effective communication between staff and Doctors and team composition

Chapter 5: DATA ANALYSIS AND INTERPRETATION

Socio-Demographic Details

- **Total respondents**: 118 (106 Nurses and 12 Doctors)
- **Mean Age of respondents**: 26 Years
- **Department representation**: Nurses and Duty Doctors from non-critical care area
- **Years of Expeirence:** Ranging from 2 to 20 Years
- **Educational background:**
    - Nurses: GNM, BSc Nursing and Post BSc graduates
    - Doctors: MBBS

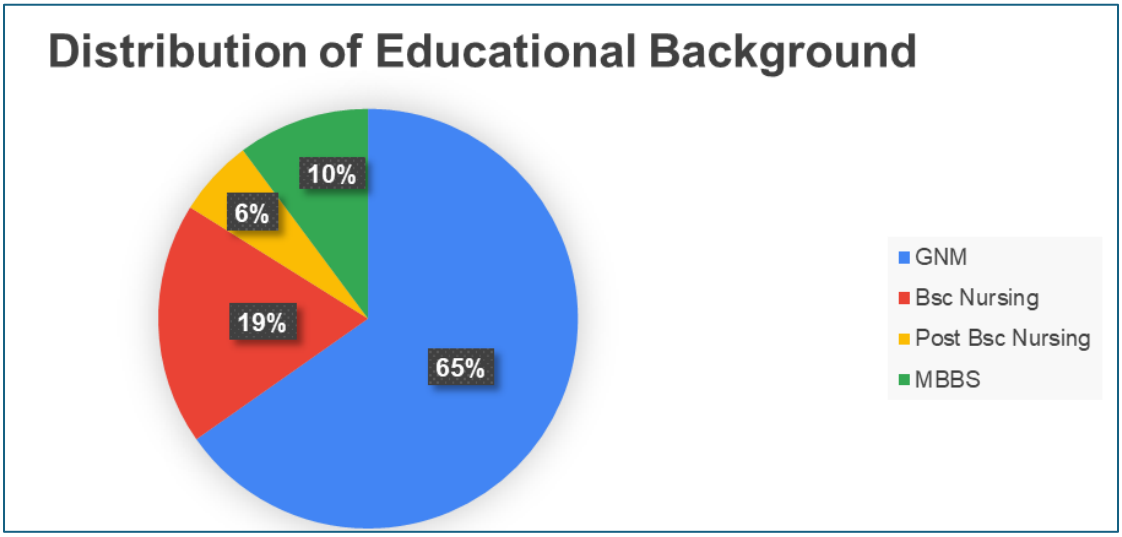


Figure 1: Distribution of Years of Education of healthcare professionals

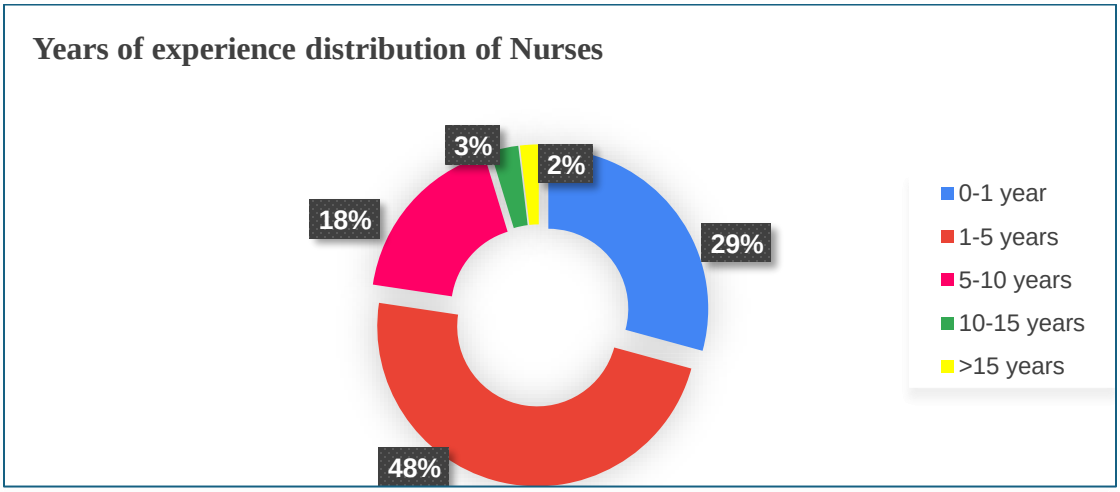


Figure 2: Distribution of Years of experience of Nurses

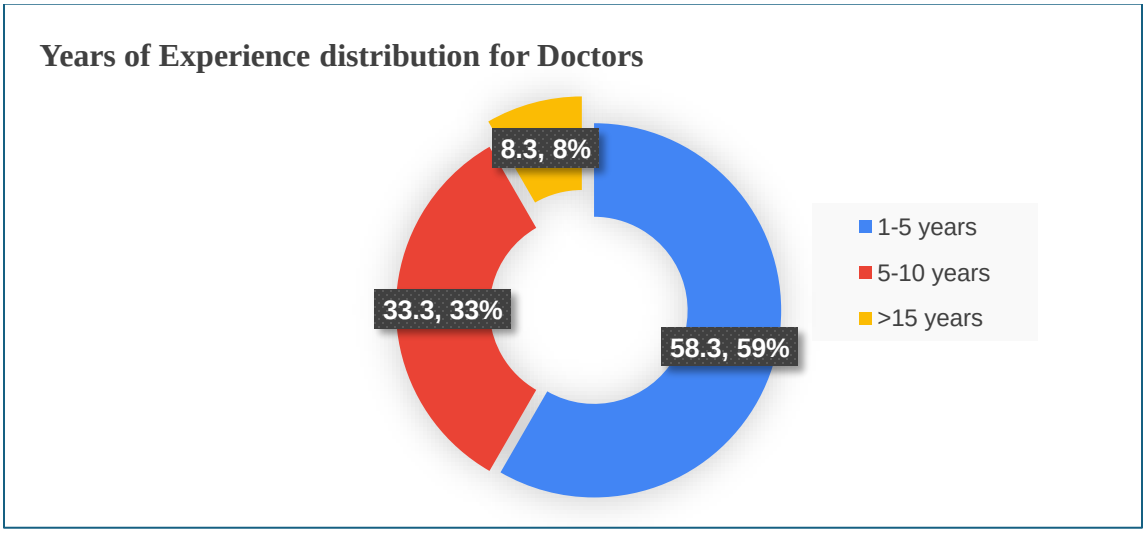


Figure 3: Distribution of Years of experience of Doctors

Results

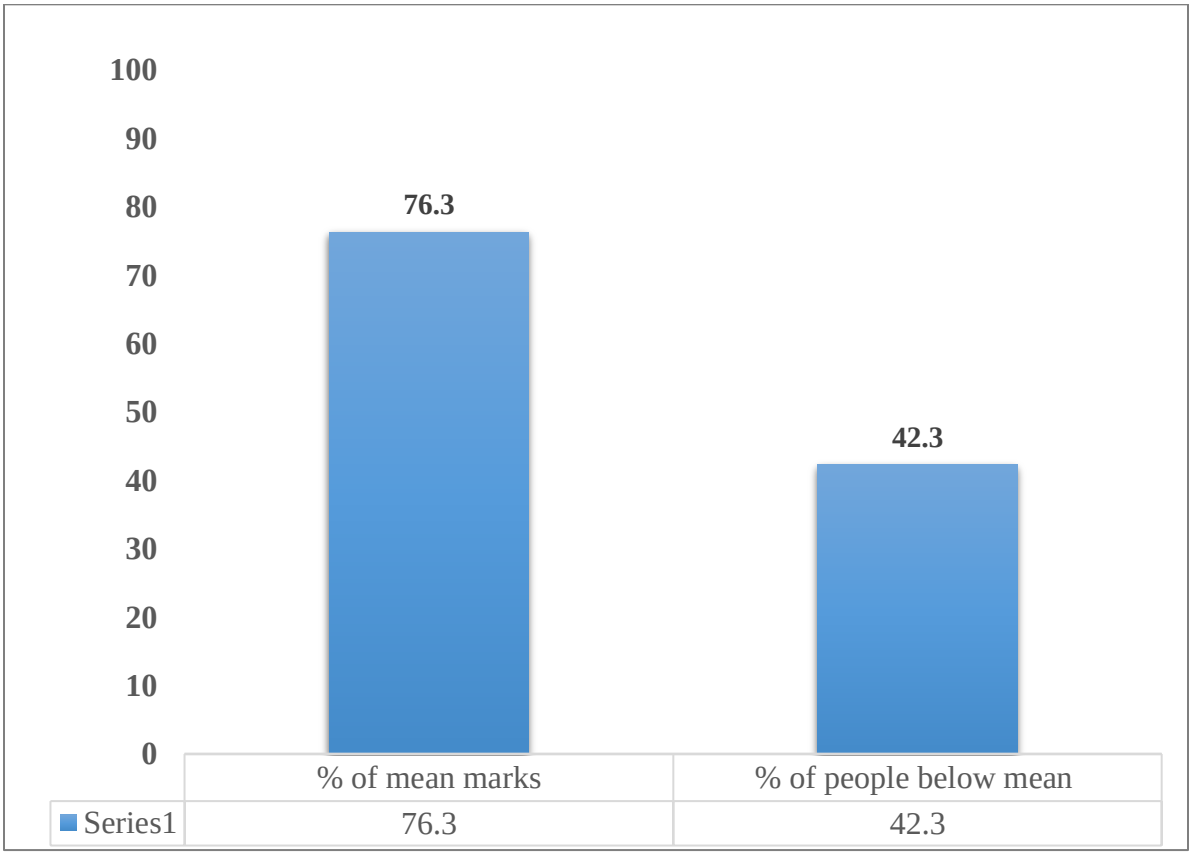


Figure 4: Knowledge assessment results in healthcare professionals

Overall, 42.3% of healthcare professionals had their knowledge scores below the mean marks.

Mean marks= 20.6/27 (76.3%)

While 93.2% were aware about meaning of Code Blue in the hospital, significant gaps were identified regarding knowledge about Code Blue announcement call, correct techniques to follow during CPR and contents and location of crash carts in the work area.

There was evident lack of awareness regarding Code blue team composition as well

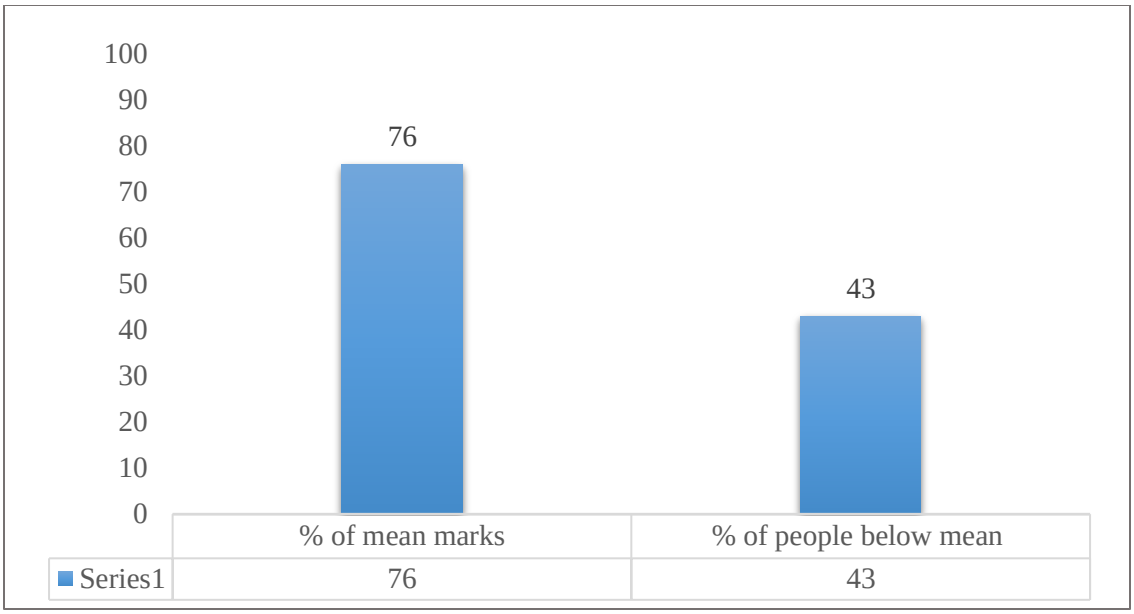


Figure 5: Knowledge assessment results of Nurses

43% of nurses had their knowledge scores below the mean marks with their mean marks were 20.5/27 (76%) whereas 50% of Doctors had their knowledge scores below the mean marks 21.5/27 (79.3%)

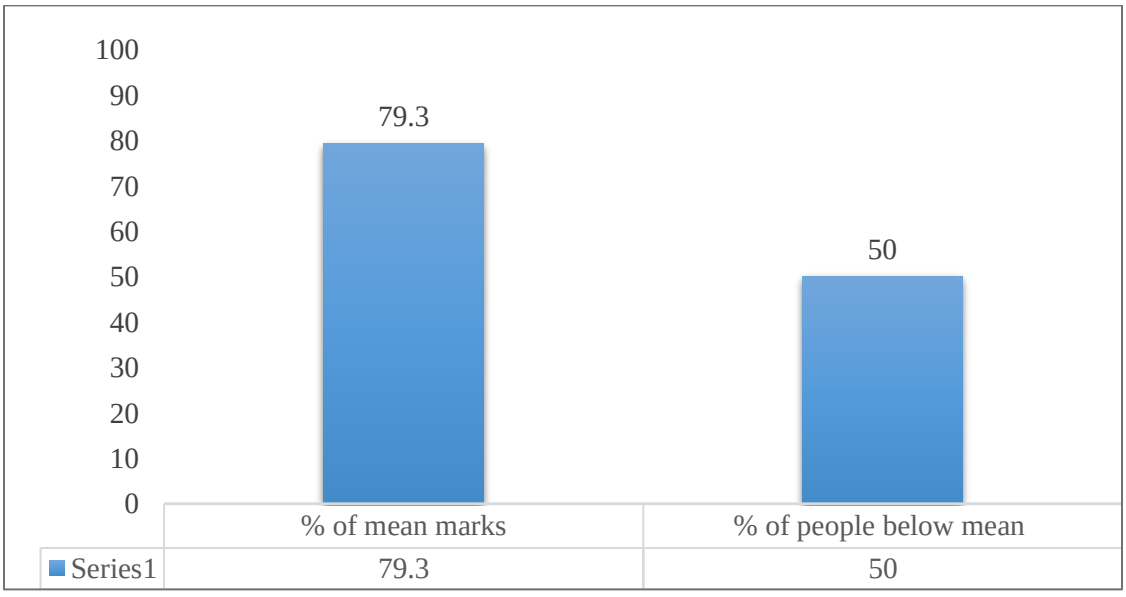


Figure 6: Knowledge assessment results of Doctors

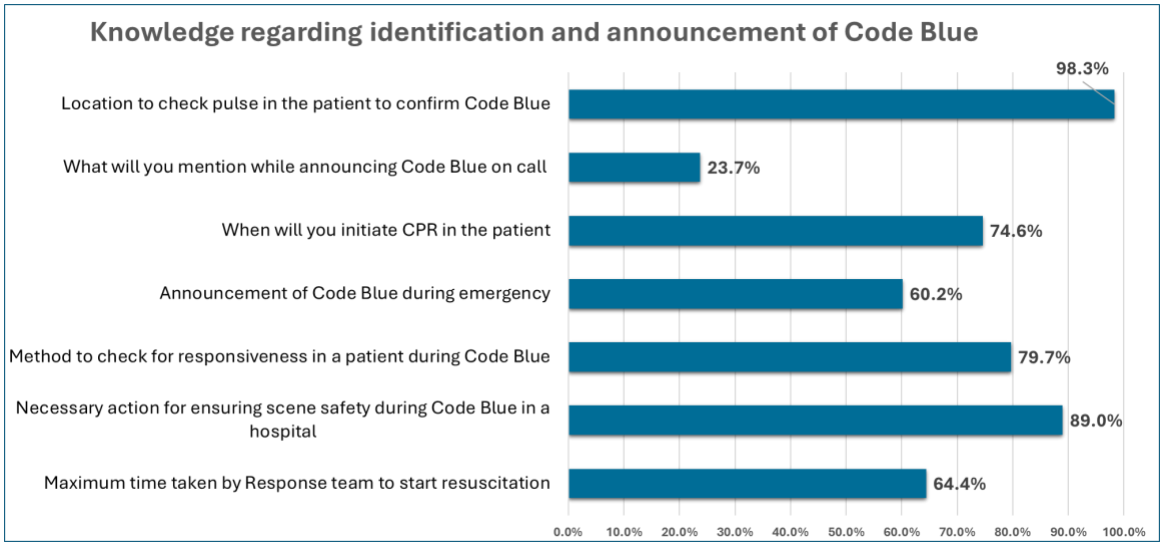


Figure 7: Knowledge regarding identification and announcement of Code Blue

The graph titled "Knowledge regarding identification and announcement of Code Blue" shows how aware healthcare workers are regarding aspects of handling a Code Blue. The data reveals nearly everyone (98.3%) knows how to announce a Code Blue emergency, making it the highest percentage among the categories. In contrast, only 23.7% know what to mention while announcing a Code Blue call, which is the lowest percentage, indicating a significant gap in this area.

About three-quarters of respondents (74.6%) are aware of when to initiate a Code Blue. More than half (60.2%) know how to announce a Code Blue and approximately 79.7% of respondents were aware of the correct method to check for responsiveness in a patient during Code Blue. 89% marked the correct response regarding necessary action for ensuring scene safety. Overall, the graph highlights that while there is a strong understanding of announcing Code Blue and initiating BLS, there is a noticeable lack of knowledge about using the Code Blue call itself. Enhancing training and awareness in these areas could improve responses to medical emergencies.

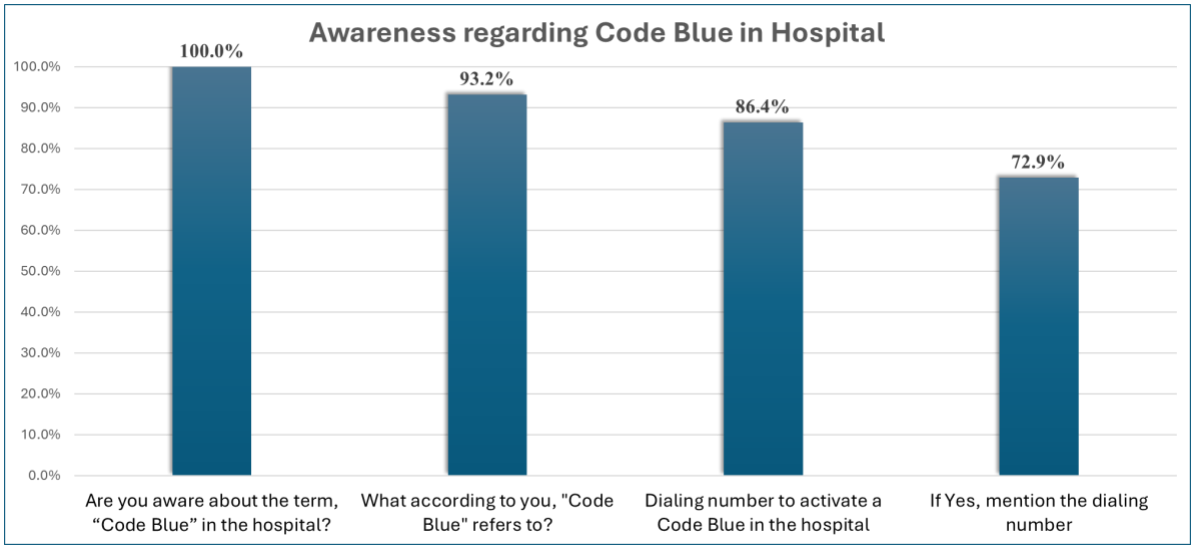


Figure 8: Awareness regarding Code Blue in Hospital

The bar chart titled **"Awareness regarding Code Blue in Hospital"** highlights varying levels of awareness about the Code Blue emergency protocol across four categories. While the first category demonstrates complete awareness at 100%, subsequent categories show a gradual decline, with awareness levels at 93.2%, 86.4%, and the lowest at 72.9%. This suggests that although awareness is generally high, there is a noticeable gap in understanding among certain groups. The findings indicate a need for targeted educational efforts or training programs to ensure consistent and comprehensive knowledge of the Code Blue protocol across all groups in the hospital.

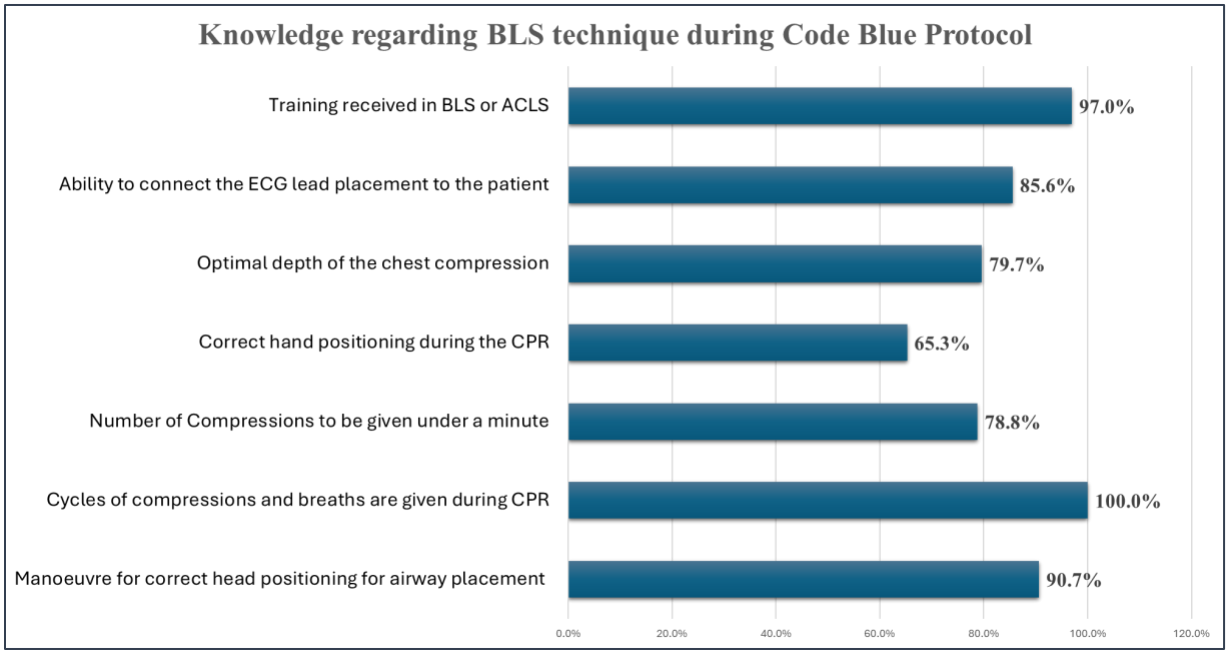


Figure 9: Knowledge regarding BLS technique during Code Blue Protocol

The graph depicts knowledge regarding BLS technique during Code Blue Protocol. 97% of healthcare workers have received training in BLS or ACLS. 85.6% had knowledge regarding the ECG placement to the patient. Optimal depth of the chest compression was marked correct by 79.7% of healthcare workers. Though 100% participants marked correct answer for cycles of compressions and breaths are given during CPR, only 65.3% marked correct answer for correct hand poisoning during the CPR. Overall, the graph highlights strong knowledge in most areas but identifies opportunities for training enhancements in specific aspects of BLS protocol implementation.

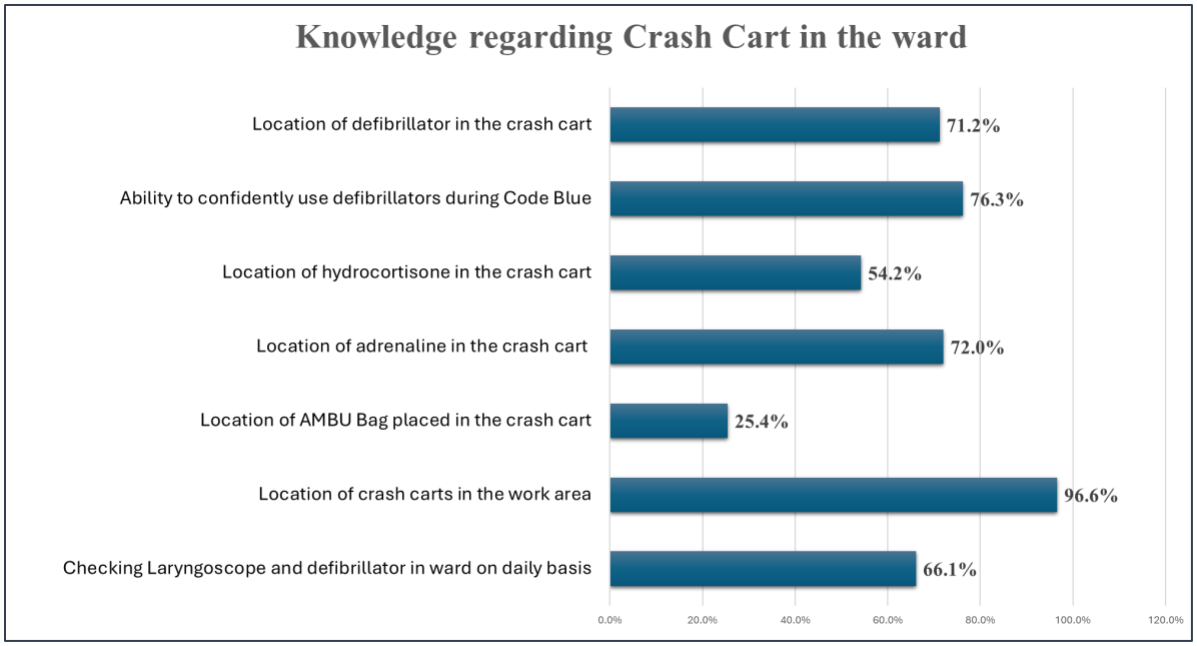


Figure 10: Knowledge regarding Crash Cart in the ward

The graph provides a detailed analysis of the knowledge levels regarding the crash cart in a ward setting. The data indicates that the highest level of awareness recorded at 96.6% reflecting understanding regarding the location of crash cart among the respondents. Moderately high knowledge is observed in categories scoring 76.3%, 72.0%, and 71.2%, indicating a relatively robust knowledge in ability to use defibrillator during Code Blue along with knowing the location of defibrillator and adrenaline in crash cart. However, a significant knowledge gap is identified in location of AMBU Bag placed in crash cart, with only 25.4% of respondents demonstrating familiarity, highlighting the need for targeted training. Participants with a score of 54.2%, suggests an intermediate level of knowledge regarding, location of hydrocortisone in crash cart. Overall, the findings suggest that while knowledge regarding most aspects of crash cart management is satisfactory, there are critical areas that require immediate attention to ensure optimal preparedness and effective utilization of the crash cart in clinical emergencies.

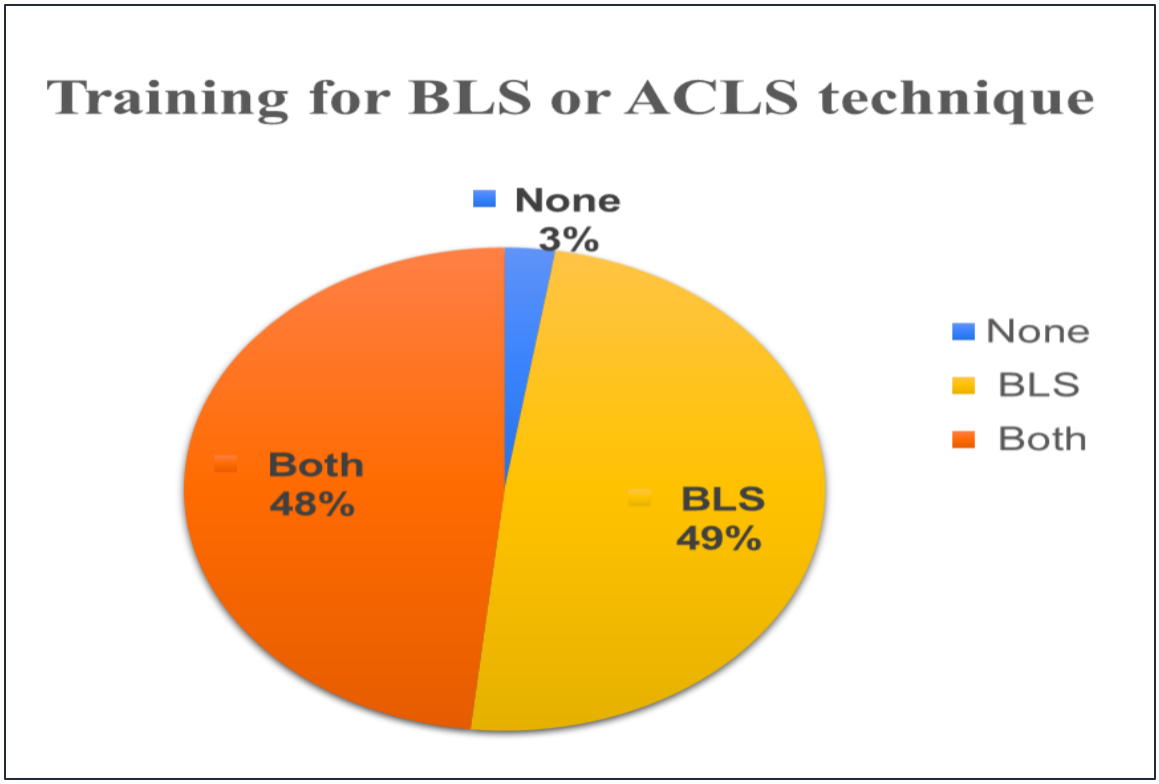


Figure 11: Training for BLS or ACLS technique

The pie chart illustrates the distribution of training among individuals for Basic Life Support (BLS) and Advanced Cardiovascular Life Support (ACLS) techniques. The largest segment represents 49%, indicates individuals who have received training exclusively in BLS, 55 out of 106 nurses (51.8%) and 3 out of 12 Doctors (25%) had received Basic Life Support (BLS) training. Another significant portion, 48%, represents individuals trained in both BLS and ACLS techniques, 51 out of 106 nurses (48.11%) and 6 out of 12 Doctors (50%) had received both (BLS and ACLS) training. A minimal segment, 3%, corresponds to individuals who have not received any training in either BLS or ACLS, 3 out of 12 Doctors (25%) did not receive any training regarding BLS or ACLS by the hospital. This distribution highlights a strong emphasis on BLS training, with nearly half of the respondents being proficient in both life-saving protocols, while a very small percentage lacks training altogether.

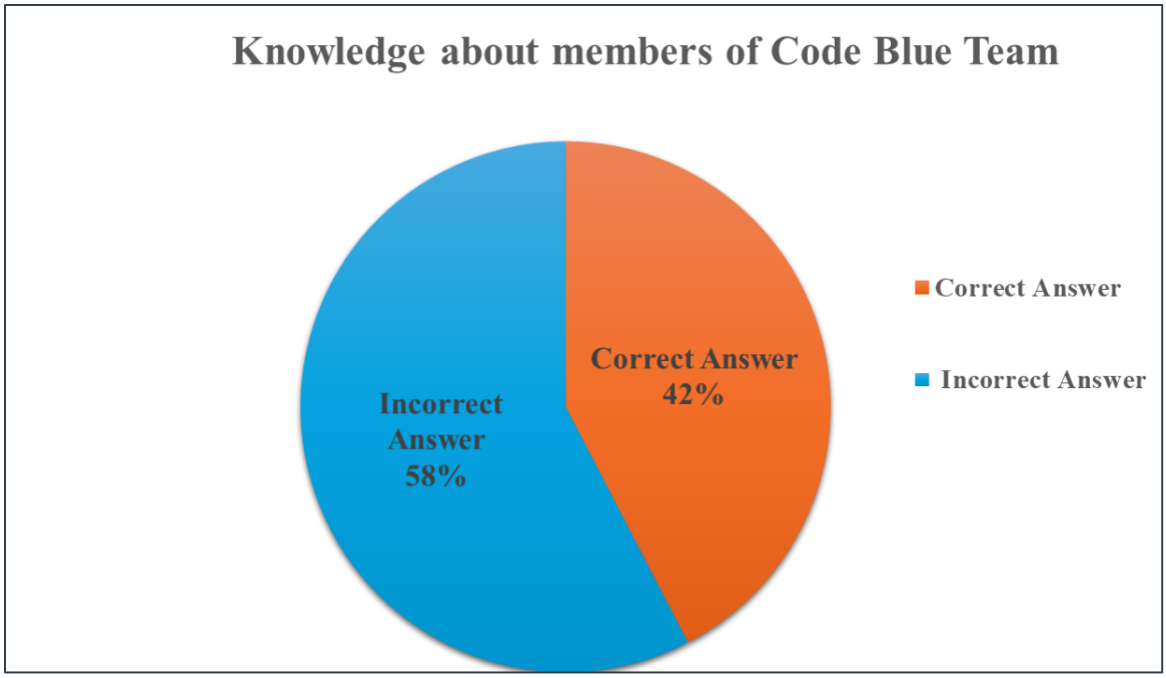


Figure 12: Knowledge about members of Code Blue Team

There was an evident critical knowledge gap among healthcare professionals concerning the complete composition of Code Blue teams. Only 42% of respondents demonstrated full understanding of the team's members. This lack of clarity regarding team composition necessitates improved education to ensure all healthcare professionals are familiar with the roles and expertise of each member during a Code Blue emergency.

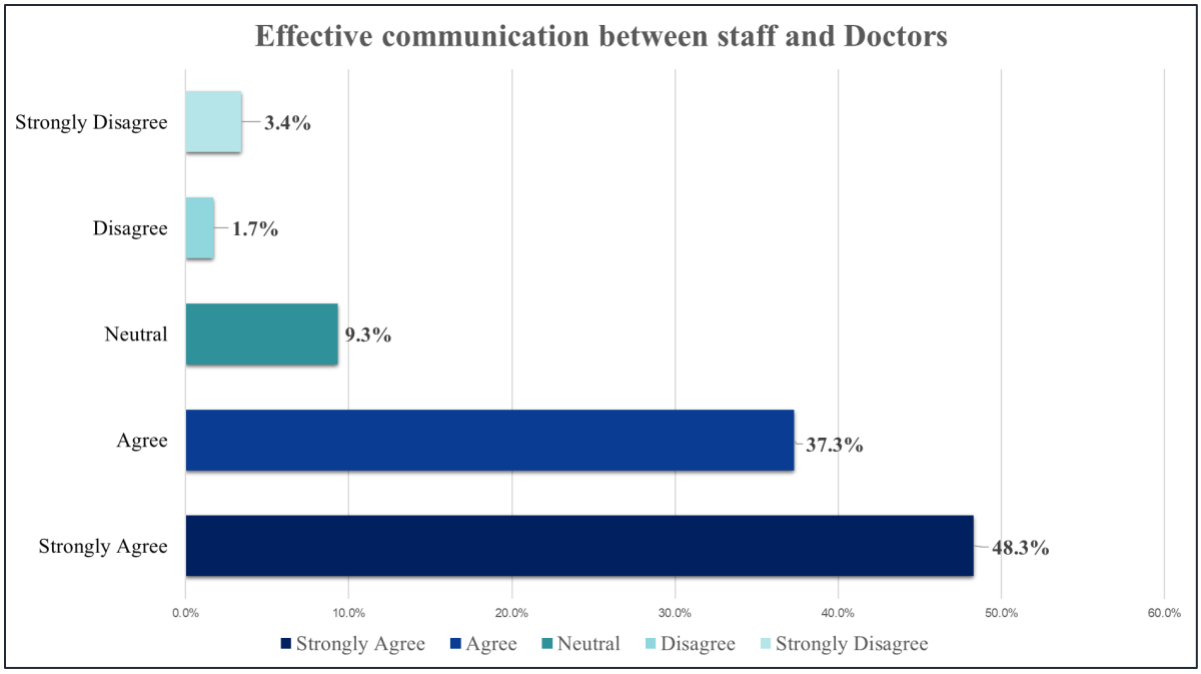


Figure 13: Effective communication between Doctors and Nurses

The provided graph illustrates the perceived effectiveness of communication between staff and doctors, as indicated by survey responses. The majority of respondents, constituting 48.3%, strongly agree that communication is effective. Additionally, 37.3% agree with the effectiveness of communication, while 9.3% are neutral. A small percentage, 1.7%, disagree with the effectiveness, and only 3.4% strongly disagree. These findings suggest that a high level of satisfaction exists regarding the communication between staff and doctors during Code Blue.

Statistical test like Chi-square analysis were implemented to see if there's a significant association between the categories, “Years of experience” and the “level of Code Blue knowledge scores”.

H_0: There is no significant association between the scores and the years of experience of healthcare professionals.

H_1: There is a significant association between the scores and years of experience of healthcare professionals.

The Chi-square analysis was done in RStudio Software with results. Based on the Chi-square test, the p-value of 0.02448 is less than the 0.05 significance level, therefore, we reject the null hypothesis and conclude that there is a statistically significant association between the categories.

Chapter 6: DISCUSSION

The study revealed several critical bottlenecks in the current Code Blue protocol implementation, highlighting significant gaps in knowledge, awareness, and operational readiness. Notably, a significant number of healthcare professionals demonstrated incomplete awareness of the meaning and implications of a Code Blue event.

This lack of understanding can hinder timely and effective response, as it may lead to confusion, misinterpretation of the situation, and delayed activation of the emergency response team. This delay can have significant consequences for patient outcomes, as every second counts during a cardiac arrest. Early recognition and immediate initiation of CPR and advanced life support are crucial for improving survival rates. Furthermore, deficiencies were observed in the knowledge of basic life support (BLS) procedures, specifically regarding correct hand positioning during CPR, the number of compressions per minute, and optimal chest compression depth.

These are critical skills for successful resuscitation efforts, and any deviation from best practices can significantly impact patient outcomes. For instance, incorrect hand positioning can reduce the effectiveness of chest compressions, while an insufficient number of compressions or inadequate compression depth can compromise blood flow to the brain and other vital organs, diminishing the chances of successful resuscitation.

Additionally, healthcare professionals exhibited a lack of knowledge about the contents of the crash cart, including the location of essential equipment such as the AMBU bag, hydrocortisone, and defibrillator. This lack of familiarity can delay critical interventions during a Code Blue event, as valuable time is wasted searching for necessary equipment. This delay can impede the delivery of timely and effective care, potentially exacerbating the patient's condition and further diminishing their chances of survival.

These findings underscore the critical need for comprehensive training programs, standardized protocols, and regular drills to ensure that all healthcare professionals are adequately prepared to respond effectively to Code Blue events and provide optimal patient care during these critical situations.

Chapter 7: CONCLUSION

The analysis of current Code Blue protocol implementation revealed several critical bottlenecks, including knowledge gaps in BLS procedures, lack of awareness about the contents of the crash cart, incomplete information regarding Code Blue announcements, and deficiencies in communication and coordination among healthcare professionals.

These deficiencies can significantly impact patient outcomes during critical events. To address these issues and improve the overall effectiveness of Code Blue responses, several recommendations have been outlined. These include conducting regular hands-on training and simulation-based drills, including role-specific training and practice sessions for code blue announcements and protocols, developing and implementing standardized scripts for code blue announcements, conducting regular competency evaluations and providing feedback, and incorporating information on code blue procedures and emergency equipment locations into new staff orientation and regular refresher courses. By implementing these recommendations, healthcare institutions can significantly improve their response to Code Blue events, enhance patient safety, and ultimately improve patient outcomes.

Addressing the identified bottlenecks is crucial for improving the effectiveness of Code Blue responses. Regular training and education are essential for maintaining and improving the skills and knowledge of healthcare professionals. Standardized protocols and clear communication are critical for ensuring coordinated and effective responses during critical events. Continuous evaluation and feedback are necessary to identify areas for improvement and ensure ongoing enhancement of Code Blue response capabilities.

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