



PATIENT SAFETY AUDIT IN A CARDIAC INTENSIVE CARE UNIT OF A TERTIARY CARE TEACHING HOSPITAL

Dr. R. Mahendra	Junior Resident, Department of Hospital Administration, Nizam's Institute of Medical Sciences, Hyderabad, Telangana
Dr. Syed Salman Ahmed*	Senior Resident, Department of Hospital Administration, Nizam's Institute of Medical Sciences, Hyderabad, Telangana *Corresponding Author
Dr. N. Satyanarayana	Professor and Head, Department of Hospital Administration, Nizam's Institute of Medical Sciences, Hyderabad, Telangana
Dr. J N Rao	Professor and Head, Department of Hospital Administration, VRK Medical College, Hyderabad, Telangana

ABSTRACT

Introduction: Patient safety is a matter of growing interest and a key component of healthcare quality. Patient safety is even more crucial in patients admitted to high pressure departments, such as the intensive care units. **Objective:** To conduct real time patient safety audit in Cardiac Intensive care unit based on the checklist given by National Health Authority as part of National Patient Safety Goals. **Methodology:** Patient safety audit is done by filling the Patient Safety Audit Checklist based on national patient safety goals. The Audit method used are: Staff Interview, Observation and Record Review. **Results:** On staff interview 100% of the staff met the criteria for patient identification, 30% met the criteria for effective communication post discharge, 88% of the staff were of view that hospital maintains list of high risk medication, 100% staff agreed on safety measures for reducing the risk of health care associated infections and identify patient safety risks. On observation it was found that all staff met the goals for patient identification, improve the safety of high alert medications and reduce the risk of health care associated infections. During record review it was found that staff is maintaining all records pertaining to safety strategies except for post discharge communication and whom to contact to obtain urgent care post discharge. **Conclusion:** The hospital is taking all the measures to ensure patient safety as per the goals given by National Health Authority except for post discharge communication and policies and procedures to ensure when and how to obtain urgent care post discharge

KEYWORDS : Patient Safety, Audit, Intensive Care unit, National Patient safety Goals, National Health Authority

INTRODUCTION

Patient safety is a matter of growing interest and a key component of healthcare quality. WHO has defined Patient Safety as "A framework of organized activities that creates cultures, processes, procedures, behaviors, technologies and environments in health care that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, make error less likely and reduce its impact when it does occur." (1) A cornerstone of the discipline is continuous improvement based on learning from errors and adverse events." Patients, family members, managers and health professionals demand a safe, effective and efficient healthcare (2). It is an essential and vital component of healthcare quality and foundation of good patient care. Despite constant vigilance, health care providers face many challenges in today's health care environment in trying to keep patients safe. The issue of patient safety has become one of the most significant challenges facing the health care system. Almost every week, newspaper articles, radio and television reports, and articles in the medical literature keep issues of patient safety in the spotlight. Medical errors are one of the leading causes of death worldwide. More people have died from medical errors than from automobile accidents, breast cancer, or Acquired Immuno-Deficiency Syndrome (AIDS) according to the Institute of Medicine (3). Patient safety is now recognized in many countries, with global awareness fostered by the world health organization's world alliance for patient safety. And yet there continue to be significant challenges to implementing patient safety policies and practices. Patient safety is even more crucial in patients admitted to high pressure departments, such as the intensive care units. Modern intensive care of severely critically ill patients is a fast paced, complex, and high-risk environment. Many factors could potentially result in an increased rate of errors and adverse events that in the critically ill, may lead to fatal consequences (4)

AIMS & OBJECTIVE

- To conduct a real time patient safety audit in Cardiac Intensive care unit based on the checklist given by National Health Authority as part of National Patient Safety Goals
- To know the existing patient safety practices in the Cardiac Intensive care unit

MATERIALS AND METHODS

Study Design: A cross sectional audit design was used to determine the patient safety practices in cardiac intensive care unit.

Study Instrument: Patient safety audit is done by filling the Patient Safety Audit Checklist based on national patient safety goals given by National Health Authority (5). The Audit method used are: Staff Interview, Observation and Record Review. The parameters were entered and analyzed in MS Excel.

Study Setting: The patient safety audit was done in Cardiac Intensive Care unit at NIMS which has 16 beds, with 18 nurses and 22 doctors working in 3 shifts.

Patient safety practices were assessed by physical observation, record review and interview of the staff working in the cardiac intensive care unit.

RESULTS

The purpose of national patient safety goals is to improve patient safety. The goals focus on problems in health care safety and how to solve them. The patient safety goals given by the joint commission of health and National patient safety goals include different Patient Safety Goals (6) like:

- Patient Identification
- Effective Communication
- Safety of High-risk alert medication
- Reduce risk of Health care associated infections
- Identify Patient safety risks
- Use of Clinical Alarm safety
- Ensure Safe Surgery

The checklist given by National health authority covers all the patient safety goals and gives an estimate of the standard of patient safety practices in the hospital ICU setting. The present study was conducted in 3 parts.

- Staff Interview
- Record review
- Observation study

A) Staff interview: a total of 40 staff (18 nurses and 22 Doctors) working in the cardiac intensive care unit were interviewed to assess the patient safety practices in the ICU.

GOAL	STAFF INTERVIEW (18 nurses and 22 Doctors)	YES	NO

A) Patient Identification	1	Do you use 2 ways to identify patients	100%	
	2	Are documented policies & procedures available for identification of patient during diagnostic services, blood transfusion & medication	100%	
	3	Labeling of test containers prior to collection/phlebotomy	100%	
	4	The hospital ensures that patient blood samples for cross matching are securely identified with 2 unique identifiers	100%	
	5	Before administering medications, nurse uses 2 unique identifiers	100%	
B) Effective Communication	6	Policies, Procedures and system in place for communication of urgent critical results	100%	
	7	Policies, Procedures and system in place to ensure hospital wide recognition of and response to clinical deterioration	100%	
	8	Policies, Procedures and system in place to ensure safe communication of pending test results to patients and care providers after discharge also	30%	70%
	9	Hospital minimizes use of verbal and telephone orders and transmission of results and "read back" is practised where verbal communication is essential	100%	
	10	System in place for safe and thorough handover of patients between clinical teams	100%	
C) Improve the safety of high alert medications	11	Policies, Procedures and system in place to ensure when and how to obtain urgent care after discharge, if required.	82%	18%
	12	Policies and procedures are available and implemented for verifying the high- risk medication orders prior to dispensing	100%	
	13	The hospital have list of high risk medications and communicate it to the medical, nursing and pharmacy staff	88%	12%
	14	Medications shall preferably be given only after written orders & it should be verified by the staff before dispensing & administration and register to be maintained	100%	
D) Reduce the risk of health care associated infections	15	Provision of running water, soap/ soap solutions, clean towels and a pictorial instruction card/ chart/ display on proper technique of hand washing (recognized guidelines i.e. WHO, CDC)	100%	
	16	Where hand washing facility is not possible chemical skin friendly body disinfectants (sanitizer) with dispensers can be provided	100%	
E) Identify Patient Safety Risks	17	Policies and procedures for initial and on- going assessment of patients at risk of suicide.	100%	
	18	Process to measure compliance with policies and procedures to reduce risk of Inpatient suicides		100%
	19	Infrastructure is available to prevent such risks e.g., side rails, closing of roof for general public etc	100%	

GOAL	OBSERVATION STUDY	YES	NO
A) Patient Identification	1 Do you use 2 ways to identify patients	YES	
	2 Are documented policies & procedures available for identification of patient during diagnostic services, blood transfusion & medication	YES	

	3	Labeling of test containers prior to collection/phlebotomy	YES	
	4	The hospital ensures that patient blood samples for cross matching are securely identified with 2 unique identifiers	YES	
	5	Before administering medications, nurse uses 2 unique identifiers	YES	
B) Improve the safety of high alert medications	6	Policies and procedures are available and implemented for verifying the high- risk medication orders prior to dispensing	YES	
	7	The hospital have list of high risk medications and communicate it to the medical, nursing and pharmacy staff	YES	
	8	Medications shall preferably be given only after written orders & it should be verified by the staff before dispensing & administration and register to be maintained	YES	
C) Reduce the risk of health care associated infections	9	Documented policy supported by procedures, guidelines, training and orientation and provision of infrastructure for this (rack or cabinet or crash cart), same drug with different strengths to be included in the list	YES	
	10	The hospital conforms to recognized guidelines for infection prevention and control i.e. WHO, NABH, CDC, etc.	YES	
	11	Infection control committee meetings proceeding, recommendations and action taken must be available	YES	
D) Use of Clinical Alarm Safety	12	Provision of running water, soap/ soap solutions, clean towels and a pictorial instruction card/ chart/ display on proper technique of hand washing (recognized guidelines i.e. WHO, CDC)	YES	
	13	Where hand washing facility is not possible chemical skin friendly body disinfectants (sanitizer) with dispensers can be provided	YES	
	14	Policies and procedures for management of alarms on medical equipment	YES	
	15	Training records of staff trained in management procedures	YES	

GOAL	RECORD REVIEW	YES	NO
A) Patient Identification	1 Are documented policies & procedures available for identification of patient during diagnostic services, blood transfusion & medication	YES	
	2 Labeling of test containers prior to collection/phlebotomy	YES	
	3 The hospital ensures that patient blood samples for cross matching are securely identified with 2 unique identifiers	YES	
	4 Before administering medications, nurse uses 2 unique identifiers	YES	
B) Effective Communication	5 Policies, Procedures and system in place for communication of urgent critical results	YES	
	6 Policies, Procedures and system in place to ensure hospital wide recognition of and response to clinical deterioration	YES	
	7 Policies, Procedures and system in place to ensure safe communication of pending test results to patients and care providers after discharge also	NO	
	8 Hospital minimizes use of verbal and telephone orders and transmission of results and "read back" is practised where verbal communication is essential	YES	

	9	System in place for safe and thorough handover of patients between clinical teams	YES	
	10	Policies, Procedures and system in place to ensure when and how to obtain urgent care after discharge, if required.	NO	
C) Improve the safety of high alert medications	11	Policies and procedures are available and implemented for verifying the high- risk medication orders prior to dispensing	YES	
	12	The hospital have list of high risk medications and communicate it to the medical, nursing and pharmacy staff	YES	
	13	Medications shall preferably be given only after written orders & it should be verified by the staff before dispensing & administration and register to be maintained	YES	
	14	Documented policy supported by procedures, guidelines, training and orientation and provision of infrastructure for this (rack or cabinet or crash cart), same drug with different strengths to be included in the list	YES	
D) Reduce the risk of health care associated infections	15	The hospital conforms to recognized guidelines for infection prevention and control i.e. WHO, NABH, CDC, etc.	YES	
	16	Infection control committee meetings proceeding, recommendations and action taken must be available	YES	
	17	Hospital antibiotic policy & guidelines for its implementation should be available.	YES	
	18	Documented policies, procedures & guidelines for monitoring surgical site infections	YES	
	19	Sending pus/swab for microbiological culture.	YES	
	20	All records of this monitoring to be preserved	YES	
	21	The hospital is authorized by prescribed authority for the management and handling of Bio-medical waste	YES	
E) Identify Patient Safety Risks	22	Policies and procedures for initial and on- going assessment of patients at risk of suicide.		NO
	23	Training records of staff trained in policies and procedures to reduce risk of Inpatient suicides		NO
	24	Process to measure compliance with policies and procedures to reduce risk of Inpatient suicides		NO
	25	Infrastructure is available to prevent such risks e.g., side rails, closing of roof for general public etc	YES	
F) Use of Clinical Alarm Safety	26	Policies and procedures for management of alarms on medical equipment	YES	
	27	Training records of staff trained in management procedures	YES	

During the study, on Staff interview the staff has met all the criteria for patient identification goal which was also confirmed by observation study and record review.

For the goal of Effective Patient communication, the staff has partially met the criteria of safe communication of pending test results to patients post discharge and also information regarding when and how to obtain urgent care post discharge which was also evident by record review that there are no policies, system and procedures to communicate the same.

In a study done by Shaheen A et al (7) to assess the compliance of patient identification and effective communication among healthcare workers it was found that before counselling of the staff the compliance was low and after counselling the compliance significantly improved. This highlights the importance of creating awareness in health care workers with respect to patient identification and effective communication.

High alert medications (HAMs) are considered to be one of the most medications associated with a high risk of serious harm if administered improperly, and are responsible for the majority of harmful errors (8), (9). For the goal to improve safety of high alert medications, during staff interview the staff has partially met the criteria for the hospital to maintain a list of high-risk medication and communicate it to staff even though it was found on observation and record review that the hospital maintains a list of high-risk medication which is communicated to the staff. This difference can be due to lack of communication with the staff through out the 3 shifts, which needs to be addressed.

Healthcare-associated infections (HCAIs/HAIs) are increasingly driving the outcomes of patients in both acute- and long-term care health facilities. Device-associated infections (DAIs) such as ventilator-associated pneumonia (VAP), central line-associated bloodstream infections (CLA-BSIs), catheter-associated urinary tract infections (CA-UTIs) and surgical-site infections (SSIs) together account for most of the HAIs across the world (10,11).

In the present study, for the goal to reduce the risk of health care associated infections, all the criteria has been met on staff interview, observation and record review.

A growing body of evidence from well-designed studies indicate that up to 10%–70% of HAIs can be prevented by implementation of appropriate infection control protocols. Most studies support the observations that at least 1/3rd of HAIs can be prevented in HCFs by surveillance and implementation of evidence-based guidelines for prevention of infections (especially device-related infections and SSIs) (12,13). Some of the most effective infection prevention measures are the most basic, easy and cost-effective practices that can be incorporated in routine patient care workflows

Screening of patients who may have suicide ideation is an important step to adequately measure risk and allow for the best care plan possible (14). Having a better understanding of a patient's motives and history will allow for better care and a more effective plan of action for patient.

In the present study, for the goal to identify patient safety risks, on staff interview it was reported that there are no policies, procedures for initial and on-going assessment of patients at risk of suicide and its compliance but there is adequate infrastructure available to prevent such risks which was evident on observation and record review. This requires the implementation of training programs and introduction of policies and procedures to mitigate self harm or suicides in patients in healthcare settings especially in ICU's.

Requiring suicide training at the organization level can improve attitudes and confidence when interacting with suicidal patients (15). Nurses and non-clinical hospital staff should have comprehensive training to improve their knowledge and skill in caring for patients with suicide ideation (16) and be required to work with a multidisciplinary team when caring for patients expressing suicide ideation. Physicians should be formally trained to appropriately administer and score suicide risk assessments to ensure proper use and determination of risk (17). Additionally, policy change should address better monitoring and reporting of suicide and self-harm attempts during a patient stay to improve surveillance and measurement.

The increasing use of clinical alarm systems in the ICU setting leads to the concept of alarm fatigue. Alarm fatigue occurs when clinicians are exposed to a high occurrence of alarms, resulting in a failure to recognise and respond to true alarms that require bedside clinical intervention (18). Alarm fatigue is an important clinical problem and delayed responses may impair patient care, leading to patient deterioration and possible patient mortality in the ICU setting (19). Therefore, it is very important to have policies and procedures in place for the management of alarms on medical equipment. In the present study, all criteria were met for the goal of clinical alarm safety on staff interview, observation and record review.

CONCLUSION

The overall compliance of the Cardiac Intensive care unit is good with respect to the Patient Safety Goals given by the National Health Authority as per the audit check list given by them. The Hospital is taking all the measures to ensure patient safety except for few measures like establishing policies and procedures to reduce the risk of inpatient suicides. This can be addressed by ensuring training of staff after establishing policies and procedures to reduce risk of inpatient suicides. There is also lack of policies and procedures for effective communication of reports to patients post their discharge and information regarding when and how to obtain urgent care post discharge which needs to be addressed by acquainting and training the staff about the importance of effective communication.

REFERENCES

1. World Health Organization, G. Conceptual framework for the international classification for patient safety. In: Version 1.1 final technical report January 2009; 2009.
2. J.M. Aranz, C. Aibar, J. Vitaller, P. Ruiz. Estudio nacional sobre efectos adversos ligados a la hospitalización. Eneas 2005
3. Institute of Medicine (IOM). (2004). Keeping patients safe: Transforming the work environment of nurses. Washington, DC: National Academies Press
4. Stockwell DC and Slonim AD. Quality and safety in the intensive care unit. *Journal of Intensive Care Medicine*. 2006; 21:199–210.
5. <https://pmjay.gov.in/sites/default/files/2021-05/Patient-safety-audit-checklist.pdf>
6. https://www.jointcommission.org/-/media/tjc/documents/standards/national-patient-safety-goals/2022/npsg_chapter_hap_jan2022.pdf
7. Shaheen A et al / Int. J. of Allied Med. Sci. and Clin. Research Vol-7(2) 2019 [515-521]
8. Shawahna R, Masri D, Al-Gharabeh R, Deek R, Al-Thayba L, Halaweh M. Medication administration errors from a nursing viewpoint: a formal consensus of definition and scenarios using a Delphi technique.
9. *J Clin Nurs*. 2016;25(3–4):412–423. doi: 10.1111/jocn.13062
10. Durlach R, McIlvenny G, Newcombe RG, Reid G, Doherty L, Freuler C, et al. Prevalence survey of healthcare-associated infections in Argentina; comparison with England, Wales, Northern Ireland and South Africa. *J Hosp Infect* 2012;80:217-23
11. Raffaldi I, Scolfaro C, Pinon M, Garazzino S, Dalmasso P, Calitri C, et al. Surveillance study of healthcare-associated infections in a pediatric neurosurgery unit in Italy. *Pediatr Neurosurg* 2011;47:261-5
12. Haley RW, Quade D, Freeman HE, Bennett JV. The SENIC project. Study on the efficacy of nosocomial infection control (SENIC project). Summary of study design. *Am J Epidemiol* 1980;111:472-85
13. Harbarth S, Sax H, Gastmeier P. The preventable proportion of nosocomial infections: An overview of published reports. *J Hosp Infect* 2003;54:258-66.
14. de Beurs et al., 2018; National Institute for Health and Care Excellence, 2013; The Joint Commission, 2020
15. Donald, M., Dower, J., & Bush, R. (2013). Evaluation of a Suicide Prevention Training Program for Mental Health Services Staff. *Community Mental Health Journal*, 49(1), 86-94. doi:10.1007/s10597-012-9489-y
16. Navin, K., Kuppli, P. P., Menon, V., & Kattimani, S. (2019). Suicide Prevention Strategies for General Hospital and Psychiatric Inpatients: A Narrative Review. *Indian Journal of Psychological Medicine*, 41(5), 403-412. doi:10.4103/ IJPSYM. IJPSYM_169_19
17. Grant, C. L., & Lusk, J. L. (2015). A multidisciplinary approach to therapeutic risk management of the suicidal patient. *Journal of multidisciplinary healthcare*, 8, 291-298. doi:10.2147/JMDH.S50529
18. Welch J. An evidence-based approach to reduce nuisance alarms and alarm fatigue. *Biomed Instrum Technol* 2011;45(s1):46-52. <https://doi.org/10.2345/0899-8205-45.s1.46>
19. Petersen EM, Costanzo CL. Assessment of clinical alarms influencing nurses' perceptions of alarm fatigue. *Dimens Crit Care Nurs* 2017;36(1):36-44. <https://doi.org/10.1097/DCC.0000000000000220>