STANDARDIZING THE DATA COLLECTION PROCESS AND TOOLS OF IPSG KEY PERFORMANCE INDICATORS (KPIS) IN THUMBAY UNIVERSITY HOSPITAL

Dissertation Submitted to: Dr Arindam Das

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for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

In

Hospital and Health Management

by

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Under the Supervision and Guidance of

DR. ARINDAM DAS

2023

DECLARATION BY STUDENT

I hereby declare that this dissertation titled "standardizing the data collection process of TUH on key performance indicators (KPI's) in alignment with IPSG: A Study" is the Bonafede record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Name of Student

Date

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15th June 2023

To Whom It May Concern

This is to certify that **Ms. Ankita Chouhan** holder of Indian Passport Number W8245328 was working in our institution in the department of Quality Assurance as Management Trainee from 13th March 2023 to 13th June 2023.

We wish her all the best in her future endeavors.

For **Thumbay University Hospital, Ajman**

Dr. Thumbay Moideen
President

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CERTIFICATE

This is to certify that dissertation titled is standardizing the data collection process of TUH on key performance indicators (KPI's) in alignment with IPSG a record of the research work undertaken by Ankita Chouhan in partial fulfilment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide	School Dean
IIHMR University, Jaipur	IIHMR University, Jaipur
Date	Date

ABSTRACT

Background: This study focuses on the quality assurance department of a hospital and aims to enhance patient safety by standardizing the data collection process and incorporating new key performance indicators (KPIs) aligned with the International Patient Safety Goals (IPSG). *Objectives:* of the study is to prepare a standardized data collection tool for the nursing department, pharmacy, and infection control, introduce additional KPIs to improve patient safety, and streamline the data collection process in these departments. *Methodology:* involves reviewing the existing data collection process and tools, gathering feedback from end-users, and conducting iterative brainstorming sessions with the quality assurance department. Based on these sessions, new data collection sheets for the existing six KPIs are developed, two new KPIs are recommended, and training is provided to end-users. The study aims to improve patient safety by ensuring accurate and consistent data collection, allowing for targeted quality improvement initiatives. *Results:* of this study contribute to a culture of accountability and continuous improvement in patient safety practices. *Conclusion*: this study provides a comprehensive approach to standardize data collection, enhance patient safety, and align with international standards, ultimately leading to improved patient outcomes and a safer healthcare environment.

Key words: Key performance indicators (KPIs), International pateint safety goals (IPSG), Data collection tool, Data collation tool, Patient safety.

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Table of Contents

List of Figures:

CHAPTER : 1 - INTRODUCTION

Key performance indicators (KPIs) are useful tools used by hospitals and other healthcare organizations to enhance services and deliver high-quality care. KPIs act as instruments that allow them to gauge their performance in relation to predetermined benchmarks. To determine if they are improving, they look at patterns and advancements throughout time. They may determine where they are doing well and where they need to improve by comparing themselves to other businesses in a similar field. KPIs demonstrate how much progress they are making and are based on their goals and strategy. This enables them to monitor their performance, improve their decision-making, and make sure they are accomplishing their goals.

KPIs enables healthcare organizations to enhance their performance, provide patients with better treatment, and advance toward their objectives of being successful, efficient, just, and offering high-quality care.

Healthcare firms may create a culture of responsibility and continuous development by adopting KPIs. They can proactively identify areas in need of improvement and carry out focused interventions by using quantitative measures. In the end, the efficient use of KPIs allows healthcare companies to improve patient care, increase performance, and strive toward the broad objectives of effectiveness, efficiency, equity, and quality.

A healthcare facility's capacity to offer its patients high-quality services and care is measured by its commitment to patient safety. This key performance indicator evaluates how well a hospital or clinic protects patients from getting infections, complications following procedures, and other problems including sepsis. Hospitals place more emphasis on difficulties that arise directly or indirectly from the care given there than on pre-existing illnesses or problems that are the product of outside circumstances. This KPI has a number of uses, but it primarily assesses how well a healthcare institution takes care of its patients and identifies problem areas.(1).

IPSG- International patient safety goals

The World Health Organization (WHO) and other international healthcare organizations created the International Patient Safety Goals (IPSG), a collection of recommendations, to increase patient safety and decrease medical mistakes on a worldwide level. These objectives are created to deal with issues of concern and offer a framework for healthcare professionals to adopt safety procedures.

The IPSG usually concentrates on areas where patient safety problems are more likely to happen or have a big effect.

Goal 1: Identify patients correctly.

Errors involving the wrong patient are frequent. Therefore, the goal of this IPSG is to precisely identify the individual as the person for whom the service or treatment is meant as well as match the service or treatment to the individual. The JCI recommends using at least two identifiers, such as a patient's name or date of birth (DOB). You shouldn't utilize identifiers like the location or room number.

Although verifying patient identification processes might appear to be a time-consuming activity, patient identification errors can happen at any stage of the patient's journey and can negatively affect the patient's experience. For this reason, effective patient identification processes must be included into routine clinical operations.

Goal 2: Improve effective communication.

This IPSG emphasises the need of clear verbal directions for patient care, sharing significant diagnostic results, and handovers of patient care. In order to cut down on mistakes and increase patient safety, patient data must be sent accurately and understood by the receiver. To assist with this, orders made verbally or over the phone should be recorded as soon as practical and read back to the person giving the information. For internal transfers, the hospital should have a thorough and consistent handover procedure.

Goal 3: Improve the safety of high-alert medications.

The objective of this IPSG is to improve patient safety when administering High Alert Medications (HAMs). All medications have the potential to cause harm when used incorrectly, but HAMs have a larger risk of toxicity. To encourage the reduction of medication-related patient safety incidents, hospitals should maintain a list of what they consider HAMs and make sure that relevant clinical employees are aware of what is on the list. The hospital must have a strategy in place to prevent confusion regarding Look-alike/Sound-Alike (LASA) medications.

Goal 4: Ensure safe surgery.

The results of surgery that is performed on the wrong patient, at the wrong location, or with the wrong method can be extremely detrimental to the patient. These occurrences may be caused by inadequate communication, a lack of procedures, and a lack of patient engagement in site marking. This continues to worry hospitals. When choosing the ideal patient, course of treatment, and location, hospitals should employ a variety of approaches to assist lower the probability that these undesirable events might occur..

Goal 5: Reduce the risk of health care-associated infections.

Stopping the spread of diseases associated with healthcare requires effective infection prevention and control measures. Both patients and medical professionals have expressed serious worry about this, particularly during the previous two years during the COVID-19 pandemic. To lower the risk of healthcare-associated infections, this IPSG requests that the hospital create and implement a hand-hygiene policy that is supported by data throughout the whole institution.

Goal 6: Reduce the risk of patient harm resulting from falls.

In both inpatient and outpatient settings, patients may have a variety of injuries as a result of falls. People can trip and fall for a number of reasons, such as the hospital setting, the patient's medical background, particular medications, visual impairments, etc. Hospitals should have a process in place for assessing patients' fall risk on a regular basis and putting those precautions in place. Key performance indicators (KPIs) are already in place for the organisation based on these IPSG International patient safety goals. These KPIs act as quantifiable indicators to gauge and track the organization's development.(2).

Existing KPI’s are:

Goal 1: Identify patients correctly.

KPI 1.1: Percentage compliance to patient identification:

Goal 2: Improve effective communication.

KPI 2.1: Compliance to Nursing handover protocol (SBAR)

Goal 3: Improve the safety of high-alert medications.

KPI 3.1: Percentage Compliance to storage of High alert medications.

Goal 4: Ensure safe surgery.

KPI 4.1: Compliance to WHO Surgical Safety Checklist

Goal 5: Reduce the risk of health care-associated infections.

KPI 5.1: Percentage Compliance to Hand Hygiene Protocol

Goal 6: Reduce the risk of patient harm resulting from falls.

KPI 6.1: Patient Fall Rate

BACKGROUND

Problem Description:

Existing data collection tool to gather information on key performance indicators (KPIs).

Goal 1: KPI 1.1- Percentage compliance to patient identification:

QI: Patient Identification						
Serial No.	Date	Number of staff not call the patient by name	Number of staff not checking the ID band for name & Hosp No	Number of Staff not comparing the name & Hosp no on ID band with the file/request	Number of incidences where ID band is not present	Total no. of incidences

Figure 1- Existing Data collection tool for patient identification.

Gaol 2: KPI 2.1- Compliance to Nursing handover protocol (SBAR)

There is no standardized data collection tool available to collect data from different units of hospital, but data collation sheet is available.

Data collection tool - SBAR content completion Compliance			
UNITS	**NO OF SBAR AUDITED**	**COMPLIANCE**	**NON COMPLIANCE**
4thFloor Ward			
3rd Floor Ward			
2nd Floor Ward			
ICU/CCU			
PACU			
LDR			
NICU			
ER			
Dialysis			

Figure 2- Existing data collection tool for SBAR

Goal 3: KPI 3.1- Percentage Compliance to storage of High alert medications.

Data collection tool - High alert medication storage compliance			
Month of Inspection	HAM Cabinets checked	Compliant cabinets	Compliance Percent

Figure 3- Existing Data collection tool for High alert medication storage

Goal 4: KPI 4.1- Compliance to WHO Surgical Safety Checklist.

Data collection tool - Surgical Safety Checklist Compliance									
S.No.	Patient Hospital No.	Surgery Date	Surgery/ Procedure done	Nurse verbally confirmed "the name of the procedure" with the team (Yes/No)	Nurse verbally confirmed the team that instrument/sponge/needle counts are correct (Yes/ No)	Specimen is accurately labelled- including the name of the patient (Yes/ No)	Nurse verbally confirmed the team whether there are any equipment problems to be addressed (Yes/ No)	Surgeon's Name	Compliance (Yes / No)

Figure 4- Existing data collection tool for SSC.

Goal 5: KPI 5.1- Percentage Compliance to Hand Hygiene Protocol

There is no digital data collection sheet and collation sheet available, for hand hygiene protocol, only compliance percentage is shared on monthly basis.

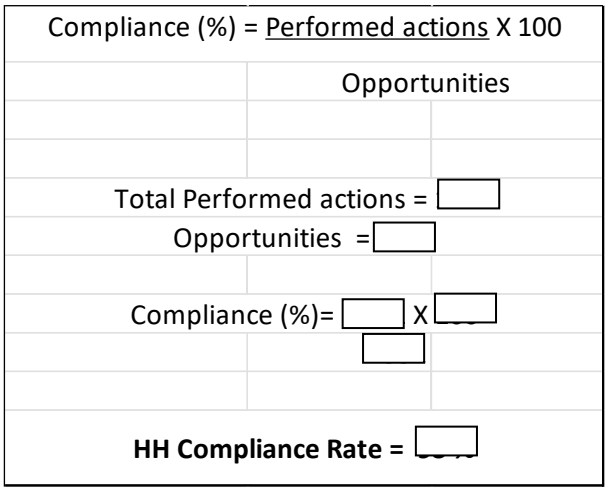

Figure 5-Compliance % calculation sheet for Hand Hygiene

Goal 6: KPI 6.1- Patient Fall Rate

QI- Patient Fall Rate										
Sr. no.	Date	Total cases	Patient in fall risk	Errors/Lapses/reported events of fall during hospitalization	Hospital ID	Fall Score	Cause of fall	Injury due to fall (No/ Mild/ Moderate/ Severe)	Corrective action taken	Remarks

Figure 6- Existing data collection tool for patient fall rate

Upon conducting a thorough assessment of the current data collection tool and collation process used for capturing data on selected key performance indicators, a rather striking observation came to light: a remarkable 100% compliance rate was recorded across all metrics. Such an exceptionally high level of compliance warrants a deeper examination to ascertain its underlying implications.

Goal 1: KPI 1.1- Per

centage compliance to patient identification:

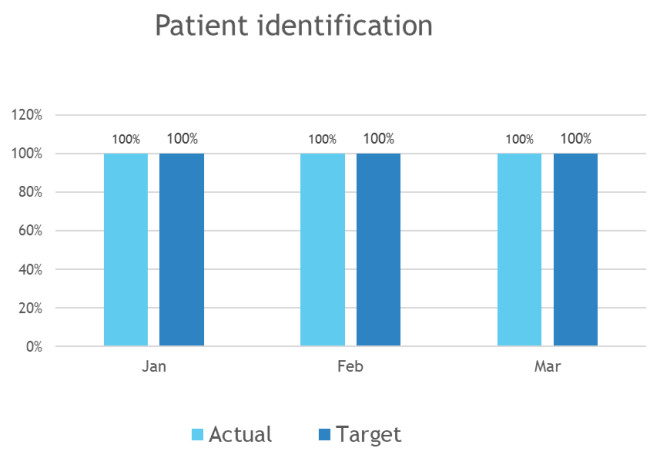

Figure 7- Compliance percentage for patient identification.

Goal 2: KPI 2.1: Compliance to Nursing handover protocol (SBAR).

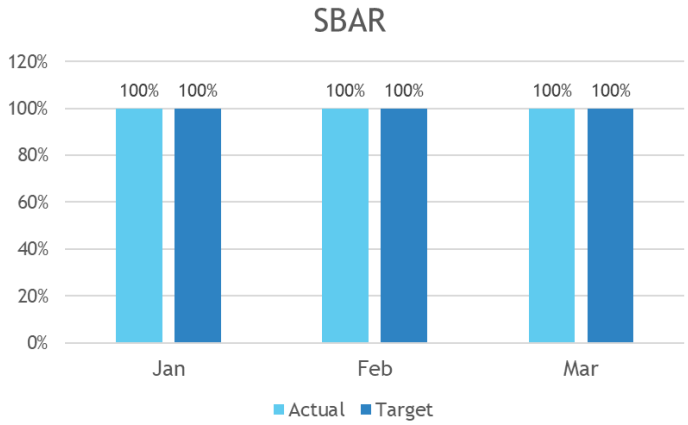

Figure 8- Compliance percentage for SBAR.

Goal 3: KPI 3.1: Percentage Compliance to storage of High alert medications.

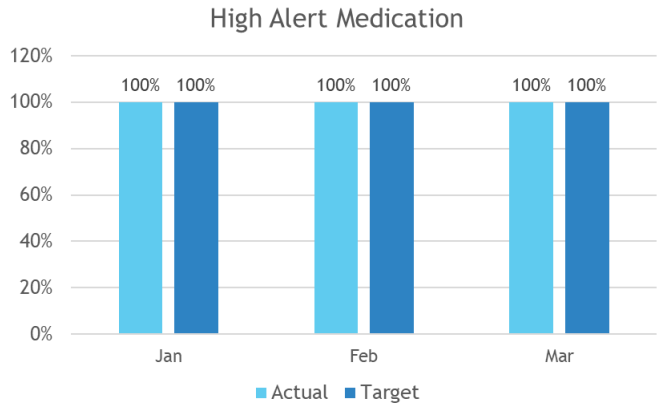

Figure 9-Compliance percentage to storage of High alert medications.

Goal 4: KPI 4.1: Compliance to WHO Surgical Safety Checklist

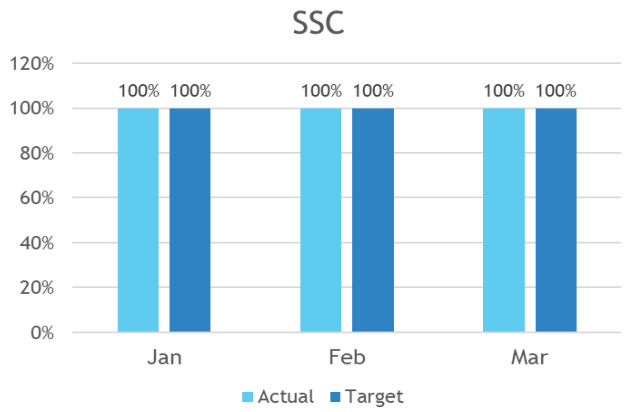

Figure 10- Compliance percentage to WHO surgical safety checklist

Goal 5: KPI 5.1: Percentage Compliance to Hand Hygiene Protocol

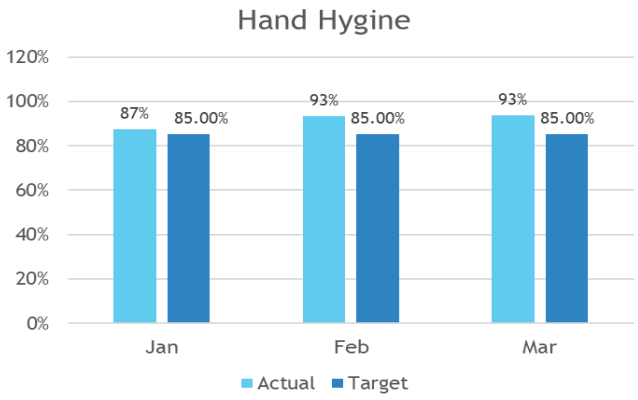

Figure 11-Compliance percentage to Hand Hygiene Protocol

Goal 6: KPI 6.1: Patient Fall Rate

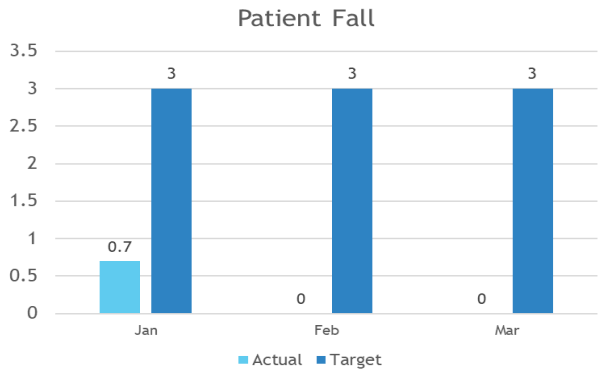

Figure 12-Compliance to Patient Fall Rate

On the one hand, a score of 100 might indicate an exceptionally high degree of operational excellence and efficiency, meaning that every part of the organization or process being evaluated is operating at its peak. This would suggest that there is limited space for future development because the current methods and procedures are producing excellent outcomes. It

is evidence of the outstanding performance that was obtained in fulfilling the predetermined performance objectives.

On the other side, a different explanation appears, prompting questions regarding the precision and thoroughness of the data gathering procedure. It is conceivable that the statistics may not accurately reflect the performance levels that actually existed. The results might have been influenced by problems including incorrect data input, missing data sets, or biased reporting, leading to the exaggerated compliance %. In this case, it is crucial to go further into the data gathering approach and look into any potential flaws or holes that could have led to this ostensibly perfect result.

The claimed compliance rate has to be given further consideration and study in order to be validated as reliable. This entails carefully reviewing the data gathering methods, comparing data points with outside sources or impartial evaluations, and confirming that the approach adheres to accepted standards or best practices. Any underlying anomalies or chances for improvement may be found by completing a thorough examination, which results in a more accurate portrayal of the genuine performance levels.

In conclusion, while the first discovery of a 100% compliance rate across all key performance metrics is notable, it necessitates a thorough investigation of the factors that led to this result. A more nuanced view may be obtained by considering both the possibility of extraordinary performance and probable data gathering mistakes, which results in decisions on how to go forward and solve any areas that need more attention being made.

Study objective:

- Primary Objective is to Establish a centralized and standardized data collection tool for patient safety key performance indicators (KPIs) and their corresponding data collection tool at Thumbay University Hospital Ajman (TUH).
- Develop a comprehensive framework that ensures consistent monitoring and evaluation of patient safety metrics.
- Provide recommendations for incorporating new KPIs to enhance patient safety practices at TUH.
- Enhanced Data Availability: Ensure regular availability of measured data and information related to patient safety KPIs.
- Streamlined Monitoring: Implement a systematic approach to track and analyze patient safety indicators.
- Improved Patient Outcomes: Aim to enhance patient safety protocols and procedures, resulting in improved overall patient outcomes.
- Quality Improvement: Use the collected data to identify areas for improvement and implement targeted quality enhancement initiatives.
- Standardized Reporting: Establish standardized reporting mechanisms to communicate patient safety performance internally and externally.

ORGANIZATIONAL SETTING

Thumbay University Hospital, located at Thumbay Medicity in Al Jurf, Ajman, stands out as the largest academic hospital in the region, boasting a capacity of 350 beds. Thumbay Dental Hospital, also located at Thumbay Medicity, is a specialized dental hospital equipped with 60 dental chairs, providing comprehensive oral healthcare services. Thumbay Physical

Therapy & Rehabilitation Hospital, also situated at Thumbay Medicity, offers advanced facilities for physical therapy and rehabilitation services.

ACCREDITATION & MEMBERSHIPS

- Ministry of Health UAE
- Joint Commission International (JCI)
- Joint Commission international Enterprise
- Medical Tourism Association
- Association of Academic Health Centers International
- International Hospital Federation
- Asian Hospital Federation
- International Board of Medicine and Surgery
- Dubai Health Experience (DXH)

CHAPTER 2: LITRATURE REVIEW

AUTHOR	STUDY LOCATION	SAMPLE SIZE	SAMPLING TECHNIQUE	SALIENT FEATURES
Mohamed Khalifa, MD and Parwaiz Khalid, PhD(2015)	Saudi Arabia	NA	NA	A case study on a particular tertiary care hospital is the topic of the article "Developing Strategic Healthcare Key Performance Indicators: A Case Study on a Tertiary Care Hospital," which offers a thorough and strategic approach to KPI creation in the healthcare context. The case study technique, strategic viewpoint, extensive framework, stakeholder participation, and research validation are all included in its quiet aspects. The study acknowledges that each KPI and category has a certain value or values. While some KPIs concentrate on timeliness, safety, or patient-centeredness, others measure the efficacy or efficiency of healthcare delivery. This multifaceted strategy guarantees a thorough evaluation of performance..(3)
Kyle M. Fargen, M.D., M.P.H., Maryam Rahman, M.D., M.S., Dan Neal, M.S., and Brian L.	Florida	**NA**	**NA**	Talk about the increasing number of neurosurgical procedures and the increased prevalence of unruptured cerebral aneurysms. Stress the significance of patient safety and HAC avoidance in this demographic. Stress the need of developing standardized performance metrics to improve patient outcomes and treatment quality.

Hoh, M.D (2013)				Define the hospital acquired conditions (HACs) and patient safety indicators (PSIs) taken into consideration for the analysis. Give the statistics on PSI and HAC prevalence among patients receiving treatment for unruptured cerebral aneurysms. Give pertinent statistics information and important findings. Discuss how the findings may affect efforts to enhance quality and patient safety. (4).
Nigel D Toussaint, Lawrence P Mcmahon, Gregory Dowling, Jenny Soding, Maria Safe,Richard Knight,Kathleen Fair,Leanne Linehan,Rowan G Walker And David A Power (2015)	Australia	NA	NA	• Concentrates on putting renal key performance indicators (KPIs) into use in clinical practice. • It aims to encourage better clinical results in the nephrology area. • Emphasizes the need of measuring and keeping track of KPIs in renal care. • Offers a thorough analysis of current kidney KPIs and their applicability to clinical practice. • Stresses the significance of defined KPIs for quality improvement and benchmarking projects. • Outlines the difficulties and obstacles associated with adopting renal KPIs and suggests alternative solutions. • Provides advice on how to choose and use suitable KPIs in renal care settings. • Advocates for the integration of KPIs into electronic health records (EHRs) and clinical workflows; • Encourages collaboration and interdisciplinary communication among healthcare providers for KPI implementation; • Examines the effects of KPI implementation on clinical decision-making and patient outcomes;

				• Acts as a helpful resource for clinicians, administrators, and policymakers interested in enhancing renal care by encouraging the implementation of evidence-based recommendations and best practices backed by KPI monitoring.(5).
Elaine Lo, Daniel Rainkie, William M Semchuk, Sean K Gorman, Kent Toombs, Richard S Slavik, David Forbes, Andrea Meade, Olavo Fernandes, and Sean P Spina (2016)	Canada	NA	NA	This study examines the measurement and application of clinical pharmacy key performance indicators (KPIs) for improving hospital pharmacy practise. It emphasises the need of performance assessment and quality improvement initiatives for enhancing pharmacy services and patient care. By selecting and defining applicable KPIs, the study aims to create a standardised framework for assessing the efficacy, safety, and quality of clinical pharmacy services. It respects the needs and expectations of various stakeholders, including chemists, physicians, administrators, and patients, and it appreciates their points of view. The study analyses strategies for efficient data collection and analysis that use electronic health records and data analytics in order to offer helpful insights. On patient care, pharmaceutical safety, and resource use, potential effects of clinical pharmacy KPI assessment are underlined. The study emphasizes the function of KPIs in promoting continuous improvement, enhancing quality improvement activities, and enhancing healthcare outcomes. It also discusses the difficulties and restrictions related to KPI measurement, offering solutions. In order to improve patient care, drug safety, and overall healthcare effectiveness, this study offers insightful ideas for incorporating clinical pharmacy KPIs in hospital pharmacy practice. (6).

Barliba Ioan , Andrei Stefan Nestian and Silviu-Mihail Tiţă (2012)	Romania	NA		The importance of key performance indicators (KPIs) in a hospital performance management paradigm is highlighted by this study. It highlights the significance of performance monitoring and measurement in assessing hospital operations and raising general performance. The research intends to provide a standardized framework for evaluating and optimizing important areas such as patient happiness, quality of care, operational efficiency, financial performance, and employee productivity by choosing and applying relevant KPIs. The research acknowledges the necessity of good data collection, analysis, and reporting as well as stakeholder participation, and it tackles issues to ensure the successful implementation of KPIs. In the end, our research helps enhance hospital performance and promote ongoing patient care improvement. (7).
Anders Ruter, MD; Hel&ie Nilsson, RN; Tore Vilkstrom, MD, PhD (2006)	Sweden	NA	NA	The purpose of this pilot project, "Performance Indicators as Quality Control for Testing and Evaluating Hospital Management Groups," is to look at how performance indicators are used in these processes. It focuses on whether using performance indicators as a quality control measure is practical and beneficial. The study looks at the applicability, validity, and reliability of the chosen indicators for gauging the standard and efficacy of management techniques. It evaluates the viability of using these indicators and investigates how they could affect attempts at quality assurance and improvement made by hospital management groups. The study establishes the framework for more extensive research in this area and offers insightful information for future investigation. (8).

Christopher Elliot,Cheryl Mcullagh,Michael Brydon,Karen Zwi (2018)	Sydney	NA	NA	The development of key performance indicators (KPIs) for a network of tertiary children's hospitals is the main topic of this research article. It emphasizes how crucial performance assessment is to be determining and raising care quality. The process of creating KPIs that are specific to the network of children's hospitals and consider the opinions of key stakeholders is described in the paper. It explores the possible consequences for quality improvement and discusses the relevance and viability of applying the KPIs. By presenting a methodology for assessing and improving the standard of care in a network of tertiary children's hospitals, the research study makes a contribution to the field of pediatric healthcare.(9).
G. Hübner-Bloder; E. Ammenwerth (2009)	Austria	NA	NA	To develop key performance indicators (KPIs) for comparing hospital information systems, a study paper titled "Key Performance Indicators to Benchmark Hospital Information Systems - A Delphi Study" was written. To determine and validate the pertinent KPIs, this study applies the Delphi method, a consensus-building strategy using professional viewpoints. The research uses the Delphi method, a systematic and iterative approach, to get opinions from a group of professionals in the field of hospital information systems. This approach encourages agreement on the chosen KPIs and assures the participation of many viewpoints. The paper's main focus is on developing a broad range of KPIs that may be used to accurately gauge the effectiveness of hospital information systems. Aspects including system functioning, data correctness, user happiness, system security, interoperability, and reaction time may be included in these indicators. Expert Consensus: The research aims to reach agreement among the expert panel about the specified KPIs via several rounds of data collection and feedback. The chosen indicators are certain to be broadly acknowledged and representative of the opinions of subject-matter experts thanks to this consensus.

				The need of benchmarking hospital information systems is emphasized by the study in order to promote improvement and boost productivity. As a standardized method for comparing and assessing the performance of various systems, the discovered KPIs help businesses pinpoint their systems' strengths, shortcomings, and potential development areas. Practical Application: The study explores how the selected KPIs may be used practically to compare hospital information systems. It examines how to use the KPIs for performance evaluation and improvement tasks in an efficient manner, including the implementation procedure, data gathering approaches, and analysis strategies. Future Research: The study recognizes the necessity for ongoing investigation and KPI improvement when comparing hospital information systems. It emphasizes how crucial it is to stay current with technology developments and changing healthcare needs in order to maintain the relevance and efficacy of the identified indicators.(10).

CHAPTER 3: METHODOLOGY

The nursing department, pharmacy, and infection control are the three departments that are the focus of this study's research field. These divisions were chosen because the study's objective was to find and assess key performance indicators (KPIs) that were consistent with the international patient Safety Goals (IPSG) objectives. The project aims to address components of healthcare delivery that are essential to patient safety and care quality by focusing its research just on these departments. To ensure the overall efficacy and efficiency of the hospital's operations, each department is essential.

For the months of January through March 2023, data on key performance indicators (KPIs) were gathered from infection control, pharmacy, and nursing departments. The goal is to assess these departments' performance using the KPI data that is currently available.

Step 1:

- Reviewing the present statistics and data gathering methods employed by the infection control, pharmacy, and nursing departments:
- Determine the departments by: Find the relevant departments, which in this case are infection control, pharmacy, and nursing.
- Gather existing data: Collect data collecting forms, methods, guidelines, and any reports or databases where the collected data is kept from each department.

Step 2:

- Organize repeated meetings with the relevant departments to comprehend the data gathering procedure:
- Arrange meetings: Set up meetings with the heads of the departments of infection control, pharmacy, and nursing to talk about how they currently gather data.
- Gather information: Have open talks with department personnel to acquire a thorough knowledge of the existing data collection process. This stage will assist in identifying your strengths, weaknesses, and potential improvement areas.

Step 3:

- Create new, uniform data gathering tools for the involved departments in accordance with IPSG objectives to enhance patient safety:
- Brainstorming session: To get the feedback and ideas of the end users of the data gathering tools (workers from infection control, pharmacy, and nursing), facilitate a brainstorming session with them.
- Clearly define the objectives of the data collecting process and specify any conditions that must be met in order to comply with the International Patient Safety Goals (IPSG).
- Create new, standardized data gathering methods that satisfy the defined goals and needs based on the feedback collected. These tools ought to be simple to use, effective, and supportive of patient safety.

Step 4

- As a result of brainstorming meetings with the Quality team, modify the data gathering tools:
- Work with the Quality team Participate in a brainstorming session with the Quality team to benefit from their insight and knowledge on the data gathering tools.
- Review and modify: Examine the current data gathering tools and take into account the comments and ideas made throughout the session. Make the required adjustments to increase the instruments' efficiency in gathering pertinent data and assisting quality improvement projects.
- Sensitise the data collection tool: Make sure the revised data collection tools are in compliance with the objectives and needs of the Quality team as well as the broader organisation. In order for the tools to function optimally at this point, they must be enhanced and modified.

Research question:

i. What are the current data collection practices for the nursing department and infection control?

ii. How data collection process for nursing, pharmacy and infection control be standardized to improve patient safety and quality of care?

iii. What new KPIs can be developed to align with the IPSGs, and how can they be integrated into the data collection process for nursing and infection control?

Research Area/Population:

All clinical staff members who directly or indirectly contribute to patient care are included in the research, along with the nursing department, infection control, and pharmacy. This inclusive approach guarantees that views and viewpoints from a variety of healthcare experts are captured:

- Nurses and medical assistants
- Infection control specialists, technicians, doctors, and pharmacists.

The study seeks to thoroughly comprehend the dynamics and difficulties of providing patient care by incorporating the full care team and developing solutions that address the collaboration features among these departments.

Research approach: Given that the key performance indicators (KPIs) data gathering instrument was created through brainstorming meetings, it is a qualitative research methodology. Because it allows for in-depth examination, contextual knowledge, flexibility, and cooperation, this technique is suitable for data gathering and enhancing patient safety. Brainstorming sessions make it possible to record subjective viewpoints, investigate intricate processes, iteratively improve the tool, and adjust to new revelations. This qualitative method makes sure that patient safety is thoroughly understood and makes it easier to implement customized treatments to make improvements.

Data Collection procedures.

The nursing, infection control, and pharmacy departments' already-existing data gathering methods are used for this study. Key performance indicators (KPIs) are used to measure performance and quality of care delivered by the respective departments. The data is gathered by the involved departments and shared with the Quality Assurance department on a monthly basis.

All key performance indicators (KPIs) have data definition sheets, which are thorough papers detailing the KPIs' fundamental constituent parts. They cover the justification for assessing each KPI, the standards for including and excluding data, the desired aim or goal to reach, comparative benchmarks, and the data gathering technique. They cover the justification for assessing each KPI, the standards for including and excluding data, the desired aim or goal to reach, comparative benchmarks, and the data gathering technique. These sheets give stakeholders a clear knowledge of the objectives, parameters, anticipated results, and particular techniques employed to gather and analyse data for efficient performance monitoring and assessment.

Data definition sheets for Key performance indicators.

1. Gaol 1:

- **KPI 1**-Percentage compliance to patient identification protocol:

Type of Measure: (*Tick one*) ☑**Clinical** ☐ **Managerial**	☐ ***Structure*** ☐***Process*** ☐ ***Outcome*** ☑***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Percentage compliance to Patient Identification protocol
DEFINITION OF INDICATOR: *Include all important terms, references*	Patient identification is the process of recognizing an individual through sets of patient identifiers established by Thumbay enterprise to ensure that the right patient is indeed receiving the right treatment / care. To ensure all patients are correctly identified two patient identifiers are used in the Outpatient Department "full name of the patient and the Date of Birth", which is available on Patient Visit Record (PVR). The identifiers selected for all In-patients are "full Name of the patient and Hospital Number". Patients are identified in the following conditions (Not Limited to)-: • Administration of all medicines • X-rays and imaging procedures • Surgical interventions and any invasive procedures • Blood transfusion • Collection of patient samples/ specimens • Transport/ transfer of the patient • Confirmation of death
RATIONALE FOR MEASURE COLLECTION	Patient identification during blood transfusion, sample collection transport / transfer of patient, Surgical interventions and any invasive procedures and medication administration is a vital activity to prevent any wrong barcoding/labelling leading to wrong diagnosis and medication error/adverse events.
INCLUSIONS AND EXLCUSIONS IF ANY	IPD, OPD patients undergoing. •Medication administration • X-rays and imaging procedures • Surgical interventions and any invasive procedures • Blood transfusion • Collection of patient samples/ specimens • Transport/ transfer of the patient
NUMERATOR & DENOMINATOR *if applicable*	***Numerator:*** Total number of compliances to patient identification protocol ***Denominator:*** Total number of audit (IPD, OPD)
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: 100 % Benchmark: NA
DATA COLLECTION PLAN:	Data will be collected by the nursing in-charge by directly observing the nursing staff, physician, pharmacist, Physiotherapist & dietician during Administration of all medicines , X-rays and imaging procedures, Surgical interventions and any invasive procedures, Blood transfusion , Collection of patient samples/ specimens, Transport/ transfer of the patient ,Confirmation of death. The data collection tool (Patient identification observation checklist) shall be filled in by the nursing in-charge during IPD rounds daily for checking patient identification process. The data must be standardized area-wise in order to ensure that all areas of the hospital are monitored for the process.
DATA COLLECTION METHODOLOGY:	☐ Retrospectively ☑ Concurrently
DATA SOURCES/ **AREA OF MONITORING:**	Patient identification observation checklist IPD, OPD
FREQUENCY OF COLLECTION:	*Frequency:* ☐ Weekly ☑Monthly ☐ Quarterly ☐ Others ……
RESPONSIBILITY ASSIGNED TO:	**For Data Collection:** Nursing Supervisor **For Data Analysis and Reporting:** Enterprise Quality Assurance

Figure 13- Data definition sheet for patient identification protocol.

2. Gaol 2:

- **KPI 2.1- Verbal and Telephonic order:**

Type of Measure: (*Tick one*) ☑ **Clinical** ☐ **Managerial**	☐ ***Structure*** ☐ ***Process*** ☑ ***Outcome*** ☐ ***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Percentage compliance to verbal and telephonic order.
DEFINITION OF INDICATOR: *Include all important terms, references*	Verbal order refers to an instruction given orally, without a written document, typically in a face-to-face or direct communication setting. Telephonic order, on the other hand, refers to an instruction given over the phone, where the verbal communication is conducted remotely through a telephone conversation.
RATIONALE FOR MEASURE COLLECTION	Collecting data on verbal and telephonic orders allows for accurate records, accountability, legal compliance, and analysis of communication patterns, trends, and efficiency for process improvement and decision-making.
INCLUSIONS AND EXLCUSIONS IF ANY	**Inclusions:** All patients **Exclusions:** Complex or high-risk procedure
NUMERATOR & DENOMINATOR *if applicable*	☐ NA ***Numerator:*** Total number of verbal/telephonic order documented ***Denominator:*** Total number of verbal and telephonic order received.
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: NA Benchmark: NA
DATA COLLECTION PLAN:	The data shall be collected through an incident reporting portal by the Unit Quality team and will be shared with the enterprise quality assurance department monthly.
DATA COLLECTION METHODOLOGY:	☑ Retrospectively ☐ Concurrently
DATA SOURCES/ AREA OF MONITORING:	All patient care area
FREQUENCY OF COLLECTION:	*Frequency:* ☐ Weekly ☑ Monthly ☐ Quarterly ☐ Others ……
RESPONSIBILITY ASSIGNED TO:	*For Data Collection: Nursing* *For Data Analysis and Reporting: Enterprise Quality team*
DATA ANALYSIS PLAN: *Frequency, Graphs / Display*	*Display* : ☐ Report ☑ Graphs (*specify: line/bar/pie charts)* *Frequency:* ☑ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
ANALYSED REPORTS: To Whom? Frequency of Reporting?	☐ **Head of Department** *Frequency* ☑Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual ☐ Others ….
	☐ **Hospital Committee,** *specify:* …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Hospital Staff** *Frequency:* ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Other/s** …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☐Quarterly ☐ Bi-annual ☐ Annual

Figure 14- Data definition sheet for Verbal and Telephonic order

KPI 2.2- Percentage Compliance to hand over communication.

Type of Measure: (*Tick one*) ☑ **Clinical** ☐ **Managerial**	☐ ***Structure*** ☑***Process*** ☐ ***Outcome*** ☐ ***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Percentage Compliance to hand over communication.
DEFINITION OF INDICATOR: *Include all important terms, references*	Patient handovers are the transfer of information and professional responsibility and accountability between individuals and teams. Timely and effective handover of critical information ensure continuity of patient care and safe delivery.
RATIONALE FOR MEASURE COLLECTION	Breakdowns in communication can occur during any handover of patient care and can result in adverse events. Standardized, critical content for communication between the patient, family, caregiver, and health care providers can significantly improve the outcomes related to handovers of patient care.
INCLUSIONS AND EXLCUSIONS IF ANY	**Inclusions:** Shift Handover, patient transfer from one care unit to another, transfer of patient one physician to other. **Exclusions:** Non-Medical departments
NUMERATOR & DENOMINATOR *if applicable*	☐ NA ***Numerator:*** Number of handovers complied as per the policy ***Denominator:*** Total number of Handovers audited
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: 100 % Benchmark: NA
DATA COLLECTION PLAN:	The data will be collected by the Nursing Supervisor monthly by auditing the patient medical record and handover register. The data collected in the data collection tool will be submitted monthly electronically (on excel sheet) to the quality assurance department.
DATA COLLECTION METHODOLOGY:	☐ Retrospectively ☑ Concurrently
DATA SOURCES/ AREA OF MONITORING:	Medical Records, Handover Register, SBAR All patient care area
FREQUENCY OF COLLECTION:	*Frequency:* ☐ Weekly ☑ Monthly ☐ Quarterly ☐ Others
RESPONSIBILITY ASSIGNED TO:	**For Data Collection:** Nursing Supervisor **For Data Analysis and Reporting:** Quality Assurance
DATA ANALYSIS PLAN: *Frequency, Graphs / Display*	*Display* : ☐ Report ☑Graphs (*specify: line/bar/pie charts)* *Frequency:* ☑ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
ANALYSED REPORTS: To Whom? Frequency of Reporting?	☐ **Head of Department** *Frequency* ☑ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual ☐ Others …. ….
	☐ **Hospital Committee,** *specify:* …. …. …. …. …. …. …. …. …. …. …. …. …. …. …. *Frequency:* ☐ Monthly ☐ Bi-Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Hospital Staff** *Frequency:* ☐ Monthly☐ Bi-Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Other/s** …. …. …. …. …. …. …. …. …. …. …. …. …. …. …. *Frequency:* ☐ Monthly ☐ Bi-Monthly ☐Quarterly ☐ Bi-annual
RELATED FORMS / AUDIT TOOL	Handover Register, SBAR
COMMENCEMENT DATE	June - 2023

Figure 15- Data definition sheet for hand over communication.

- **KPI 2.3- Percentage Compliance to hand over communication**

Type of Measure: (*Tick one*) ☑ **Clinical** ☐ **Managerial**	☐ ***Structure*** ☐ ***Process*** ☐ ***Outcome*** ☑ ***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Percentage compliance to Critical value reporting.
DEFINITION OF INDICATOR: *Include all important terms, references*	Critical values are potentially life-threatening diagnostic results that must be conveyed immediately to the physician or other health care professional so that therapeutic measures can be instituted rapidly. Monitoring of process indicates the timely reporting of the critical values from diagnostics departments.
RATIONALE FOR MEASURE COLLECTION	Delay information of critical diagnostic tests values can lead to the serious medical issue and sometime may lead to the death of the patient. The timely reporting will provide information to the treating team to take timely therapeutic decisions to improve the patient's medical condition.
INCLUSIONS AND EXLCUSIONS IF ANY	**Inclusions:** All critical values identified and approved by the hospital **Exclusions:** values do not present in the critical value list
NUMERATOR & DENOMINATOR *if applicable*	☐ NA ***Numerator:*** Number of Critical values reported (Laboratory, Radiology) within the defined time. ***Denominator:*** Total number of Critical values reported (Laboratory, Radiology)
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: 100 % Benchmark: NA
DATA COLLECTION PLAN:	The data will be collected by the laboratory quality officer and radiology medical secretary monthly. The collected will be shared with the quality assurance monthly.
DATA COLLECTION METHODOLOGY:	☑ Retrospectively ☐ Concurrently
DATA SOURCES/ AREA OF MONITORING:	Critical value register Laboratory and Radiology
FREQUENCY OF COLLECTION:	*Frequency:* ☐ Weekly ☑ Monthly ☐ Quarterly ☐ Others ……
RESPONSIBILITY ASSIGNED TO:	*For Data Collection: Lab Quality Officer, Radiology Medical Secretary* *For Data Analysis and Reporting: Quality Assurance*
DATA ANALYSIS PLAN: *Frequency, Graphs / Display*	*Display* : ☐ Report ☑ Graphs (*specify: line/bar/pie charts)* *Frequency:* ☐ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
ANALYSED REPORTS: To Whom? Frequency of Reporting?	☐ **Head of Department** *Frequency* ☑Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual ☐ Others ….
	☐ **Hospital Committee,** *specify:* …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Hospital Staff** *Frequency:* ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Other/s** …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☐Quarterly ☐ Bi-annual ☐ Annual
RELATED FORMS / AUDIT TOOL	Critical value register

Figure 16- Data definition sheet for hand over communication

3. Gaol 3:

- **KPI 3: Percentage Compliance to storage of High alert medications.**

Type of Measure: (*Tick one*) ☐ **Clinical** ☑ **Managerial**	☐ ***Structure*** ☑ ***Process*** ☐ ***Outcome*** ☐ ***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Percentage Compliance to storage of High alert medications
DEFINITION OF INDICATOR: *Include all important terms, references*	High-alert medications are drugs that bear a heightened risk of causing significant patient harm when they are used in error. Although mistakes may or may not be more common with these drugs, the consequences of an error are clearly more devastating to patients. The standardized storage of high alert medication reduces the risk of harm.
RATIONALE FOR MEASURE COLLECTION	High alert medication can cause heightened effects to patient and can lead to serious adverse drug reactions. Standardized storage reduces the risk form harm.
INCLUSIONS AND EXLCUSIONS IF ANY	**Inclusions:** All high alert medication storage areas **Exclusions:** General medication storage
NUMERATOR & DENOMINATOR *if applicable*	☐ NA ***Numerator:*** Number of High alert medications stored as per policy ***Denominator:*** Total number of High alert medications stored
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: 100 % Benchmark: NA
DATA COLLECTION PLAN:	The data will be collected by the pharmacist monthly and data will be shared with the quality assurance on monthly basis.
DATA COLLECTION METHODOLOGY:	☑ Retrospectively ☐ Concurrently
DATA SOURCES/ AREA OF MONITORING:	Sub-store Medicines inspection checklist IPD, OPD, Pharmacy
FREQUENCY OF COLLECTION:	*Frequency:* ☐ Weekly ☑ Monthly ☐ Quarterly ☐ Others ……
RESPONSIBILITY ASSIGNED TO:	**For Data Collection:** *Pharmacist* **For Data Analysis and Reporting:** *Quality Assurance*
DATA ANALYSIS PLAN: *Frequency, Graphs / Display*	*Display* : ☐ Report ☑ Graphs (*specify: line/bar/pie charts)* *Frequency:* ☐ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
ANALYSED REPORTS: To Whom? Frequency of Reporting?	☐ **Head of Department** *Frequency* ☑Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual ☐ Others ….
	☐ **Hospital Committee,** *specify:* …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Hospital Staff** *Frequency:* ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Other/s** …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☐Quarterly ☐ Bi-annual ☐ Annual
RELATED FORMS / AUDIT TOOL	Sub-store Medicine inspection checklist

Figure 17- Data definition sheet for storage of High alert medications.

4. Gaol 4:

- **KPI 4.1: Percentage compliance to Surgical safety process.**

Type of Measure: (*Tick one*) ☑ **Clinical** ☐ **Managerial**	☐ ***Structure*** ☑***Process*** ☐ ***Outcome*** ☐ ***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Overall Percentage Compliance to Surgical safety process
DEFINITION OF INDICATOR: *Include all important terms, references*	The surgical safety checklist essentially identifies three distinct phases of an operation, each corresponding to a specific period in the normal flow of work: Before the induction of anesthesia before the incision of the skin, and before the patient leaves the operating facility. In each phase, a 'checklist coordinator' must confirm that the surgical team has completed the listed tasks before it proceeds with the procedure.
RATIONALE FOR MEASURE COLLECTION	The wrong patient, wrong site and wrong procedure can lead to serious adverse or sentinel events. Use of surgical safety checklist is important process during surgical procedures to ensure that the operation site, procedure and the patient to be operated are all accurate so as to elude any harm to patients due to surgical errors.
INCLUSIONS AND EXLCUSIONS IF ANY	**Inclusions:** All Surgical and invasive procedures **Exclusions:** Non-Invasive Procedure
NUMERATOR & DENOMINATOR *if applicable*	☐ NA ***Numerator:*** Number of Surgical safety Documentation undertaken (IPD, OPD, ER) as per policy ***Denominator***: Total number of Surgical safety documentation audited
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: 100 % Benchmark: NA
DATA COLLECTION PLAN:	The data is collected by the nursing supervisor on a monthly basis by using the standardized data collection tool. The data will be shared with the quality assurance on a monthly basis.
DATA COLLECTION METHODOLOGY:	☐ Retrospectively ☑ Concurrently
DATA SOURCES/ AREA OF MONITORING:	Surgical safety checklist Operation Theater, OPD procedure rooms, Minor OT
FREQUENCY OF COLLECTION:	*Frequency:* ☑ Weekly ☐ Monthly ☐ Quarterly ☐ Others
RESPONSIBILITY ASSIGNED TO:	For Data Collection: Nursing For Data Analysis and Reporting: Quality assurance department
DATA ANALYSIS PLAN: *Frequency, Graphs / Display*	*Display* : ☐ Report ☑ Graphs (*specify: line/bar/pie charts)* *Frequency:* ☐ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
ANALYSED REPORTS: To Whom? Frequency of Reporting?	☐ **Head of Department** *Frequency* ☑ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual ☐ Others …….
	☐ **Hospital Committee,** *specify:* …… *Frequency:* ☐ Monthly ☑ Bi- Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Hospital Staff** *Frequency:* ☐ Monthly ☑ Bi- Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Other/s** *Frequency:* ☐ Monthly ☑ Bi- Monthly ☐Quarterly ☐ Bi-annual
RELATED FORMS / AUDIT TOOL	Surgical safety checklist, Surgical Safety Compliance checklist

Figure 18- Data definition sheet for Surgical safety process

5. Gaol 5:

- **KPI 5.1: Hand Hygiene compliance Rate.**

Type of Measure: (*Tick one*) ☑ **Clinical** ☐ **Managerial**	☐ ***Structure*** ☑***Process*** ☐ ***Outcome*** ☐ ***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Hand Hygiene Compliance Rate
DEFINITION OF INDICATOR: *Include all important terms, references*	**Hand hygiene:** A general term referring to any action of hand cleansing. Hand rubbing with an alcohol-based hand rub or hand washing with soap and water aimed at reducing or inhibiting the growth of Micro-organisms on hands. **Hand hygiene indication:** Reason for a hand hygiene action. Hand hygiene opportunity: The opportunity is an accounting unit equivalent to the number of hand hygiene actions required, regardless of the number of indications. Or Moment during health-care activities when hand hygiene is necessary to interrupt germ transmission by hand. **Hand Hygiene Action:** Probable hand hygiene performed by a HCW against a hand hygiene opportunity. The action may be either negative (not performed) or positive (performed). A positive action indicates compliance; a negative action indicates non-compliance
RATIONALE FOR MEASURE COLLECTION	• To monitor the degree of compliance with hand hygiene among health-care workers. • To avoid any transmission of infection (direct or cross infection) through the employees of the organization to the patients. • To help determine the most appropriate interventions for hand hygiene promotion, education, and training.
INCLUSIONS AND EXLCUSIONS IF ANY	**Inclusions:** Total number of hand hygiene opportunities for all health care providers **Exclusions:** A positive action that is not justified by an identified indication that therefore cannot be translated into an opportunity cannot be included when measuring compliance.
NUMERATOR & DENOMINATOR *if applicable*	☐ NA ***Numerator:*** Number of Actions (conformance events) observed ***Denominator:*** Total Number of Opportunities (Events: Probable Hand hygiene practice activity)
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: 82.2% Benchmark: NA
DATA COLLECTION PLAN:	The data is collected by the infection control nursing monthly by using the standardized data collection tool. The data will be shared with the quality assurance department monthly.
DATA COLLECTION METHODOLOGY:	☐ Retrospectively ☑ Concurrently
DATA SOURCES/ AREA OF MONITORING:	WHO Hand Hygiene Observation Tool.
FREQUENCY OF COLLECTION:	*Frequency:* ☑ Weekly ☐ Monthly ☐ Quarterly ☐ Others
RESPONSIBILITY ASSIGNED TO:	For Data Collection: Nursing For Data Analysis and Reporting: Quality assurance department
DATA ANALYSIS PLAN: *Frequency, Graphs / Display*	*Display :* ☐ Report ☑ Graphs (*specify: line/bar/pie charts)* *Frequency:* ☐ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
ANALYSED REPORTS: To Whom? Frequency of Reporting?	☐ **Head of Department** *Frequency* ☑ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual ☐ Others …….
	☐ **Hospital Committee,** *specify:* …… *Frequency:* ☐ Monthly ☑ Bi- Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Hospital Staff** *Frequency:* ☐ Monthly ☑ Bi- Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Other/s** *Frequency:* ☐ Monthly ☑ Bi- Monthly ☐Quarterly ☐ Bi-annual
RELATED FORMS / AUDIT TOOL	Surgical safety checklist, Surgical Safety Compliance checklist

Figure 19- Data definition sheet for Hand Hygiene

GOAL 6:

- **KPI 6: Fall rate per 1,000 occupied bed days.**

Type of Measure: (*Tick one*) ☑ **Clinical** ☐ **Managerial**	☐ ***Structure*** ☐ ***Process*** ☑ ***Outcome*** ☐ ***Process and Outcome***
TITLE OF PERFORMANCE INDICATOR	Fall rate per 1,000 occupied bed days
DEFINITION OF INDICATOR: *Include all important terms, references*	Fall is a sudden loss of an upright or erect position of the body. The fall did not result from any forcible physical action of another person.
RATIONALE FOR MEASURE COLLECTION	Patient falls are common adverse events that occur in all healthcare environments. Patient falls are a common cause of morbidity ("disability caused by accident") and the leading cause of nonfatal injuries producing trauma-related hospitalizations. Patient fall results in longer hospital stays, increase in medical costs and reduced quality of life for the patients who experience these events. Knowledge of patient fall rates can help focus patient fall prevention efforts.
INCLUSIONS AND EXLCUSIONS IF ANY	**Inclusions:** All patients **Exclusions:** None
NUMERATOR & DENOMINATOR *if applicable*	☐ NA ***Numerator:*** Total number of falls in the organization ***Denominator:*** Total occupied inpatient days
TARGET / BENCHMARK (WITH REFERENCE): *As Applicable*	Target: NA **Benchmark: 3.44** https://bmcgeriatr.biomedcentral.com/articles/10.1186/s12877-019-1368-8#:~:text=National%20benchmarks%20indicate%20a%20rate,%247000%20per%20injury%20%5B4%5D
DATA COLLECTION PLAN:	The data shall be collected through an incident reporting portal by the Unit Quality team and will be shared with the enterprise quality assurance department on monthly basis.
DATA COLLECTION METHODOLOGY:	☑ Retrospectively ☐ Concurrently
DATA SOURCES/ AREA OF MONITORING:	Incident reporting portal All patient care area
FREQUENCY OF COLLECTION:	*Frequency:* ☐ Weekly ☑ Monthly ☐ Quarterly ☐ Others ……
RESPONSIBILITY ASSIGNED TO:	*For Data Collection: Unit Quality team* *For Data Analysis and Reporting: Enterprise Quality team*
DATA ANALYSIS PLAN: *Frequency, Graphs / Display*	*Display* : ☐ Report ☑ Graphs (*specify: line/bar/pie charts)* *Frequency:* ☑ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual
ANALYSED REPORTS: To Whom? Frequency of Reporting?	☐ **Head of Department** *Frequency* ☑Monthly ☐ Quarterly ☐ Bi-annual ☐ Annual ☐ Others ….
	☐ **Hospital Committee,** *specify:* …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Hospital Staff** *Frequency:* ☐ Monthly ☐ Bi- Monthly ☑ Quarterly ☐ Bi-annual ☐ Annual
	☐ **Other/s** …… ***Frequency:*** ☐ Monthly ☐ Bi- Monthly ☐Quarterly ☐ Bi-annual ☐ Annual
RELATED FORMS / AUDIT TOOL	Incident report

Figure 20- Data definition sheet for patient Fall rate

Ethical consideration:

• Informed Consent: Obtain informed consent from those taking part in the data collecting process by clearly outlining the study's objectives and participant rights to them.

• Privacy and Confidentiality: Ensure the privacy and confidentiality of participant data by handling it securely, limiting access to only those who need it, and anonymizing participant data before presenting or publishing results.

• Institutional Review Board (IRB) permission: To make sure the study conforms with applicable laws and ethical standards, request IRB or ethics committee permission.

• Transparent Communication: Throughout the study, be transparent with participants and address any queries or worries they may have.

CHAPTER 4: Results

To standardize data collecting for IPSG key performance indicators (KPIs) at TUH, a thorough evaluation of the currently used tools and procedures has been conducted. The team that collected the data, which included nurses, medical orderlies, and technologists, provided insightful criticism that has been taken into consideration. The most effective methods for gathering data in relation to the specified KPIs have been looked at. New data gathering technologies are being created based on these findings. Additionally, training sessions are being held to make sure end users have the knowledge and abilities needed to use these technologies efficiently.

Goal 1: Identification of Patients

IPSG 1- At least 2 identifiers, should be used for Identification of patient.

KPI 1.1- Percentage Compliance to Patient Identification Protocol.

Performance Measuring-Nursing									
INDICATOR-Patient Identification									
Sr. No.	Date	Patient Name	Hospital No.	Pateint Identification using 2 Identifiers		Patient Demography available on each page	Patient Identification During (example-Sample collection, admission,etc)	% Compliance	Remark
				Id Band checked	Patient full name checked				
1									
2									
3									

Figure 21- New data collection sheet for patient identification.

Goal 2: Enhance efficient communication

IPSG 2- A process for enhancing effective communication should be created and implemented by the hospital.

KPI 2.1- Percentage compliance to Verbal/ Telephonic order

Performance Measuring-Nursing								
INDICATOR-Verbal/ Telephonic Order								
Sr. No.	UNITS	Patient Name	Hospital Id	Documentation of Verbal order	Verbal Order READ BACK Evidence	Telephonic Order confirmed by Doctor	Doctor's Acknowledgment within 24 hours	% Compliance
1								
2								
3								

Figure 22- New data collection sheet for Verbal and telephonic order.

IPSG 2.1- Hospital should develop and implement a process for reporting critical results of diagnostics tests.

KPI 2.2- Percentage compliance to critical test results.

Performance Measuring-Nursing										
Indicator-Critical Test Result										
Sr. No.	UNITS	Patient Name	Hospital Id	Test result logged as critical	Critical result reported within 30 minutes	Receiving time/whom documented?	Informing time/whom documented?	Action advised by the doctor documented?	Appropriate action taken	% compliance
1										
2										
3										
4										

Figure 23-New data collection sheet for critical test results.

IPSG 2.2- Hospital develop and implements a process of handover communication**.**

KPI 2.3- Compliance percentage to Nursing handover protocol.

Performance Measuring-Nursing											
INDICATOR-Situtation Background Assessment Recommendation											
Sr. No.	UNITS	PT NAME	HOSPITAL ID	Handover Type	Departement of Handover	Situation Documented	Background Documented	Assesment Doucmented	Reccomendation	Overall Compliance %	Audited by
1											
2											
3											
4											

Figure 24- New data collection sheet for Nursing handover protocol.

Goal 3: increase the high-alert drug's safety..

IPSG 3: A method should be created and implemented by the hospital to increase the safety of high alert medications.

3.1- Process to increase the safety of medications that sound and look comparable.

3.2- Control the concentrated electrolyte's safety.

KPI 3.1-Percentage Compliance to storage of High alert medications

Performance Measuring- Pharmacy								
INDICATOR-Storage of High Alert Medication								
Sr. No.	Date	Medication Name	CONCENTRATED ELECTROLYTES AND HIGH ALERT MEDICATIONS STORAGE				% Compliance	Remark
			Restricted access Evidence	Secure storage	Medication Label	Near Expire Label Available		
1								
2								
3								
4								

Figure 25- New data collection sheet for storage of High alert medications

Goal 4: Ensure safe surgery.

IPSG 4-Implement a process for the preoperative verification.

4.1- Hospital should implement a time-out and Sign-out process.

KPI 4.1- Percentage Compliance to WHO Surgical Safety Checklist

Performance Measuring-Operation Therater (OT)							
INDICATOR- Surgical Safty Checklist							
				SIGN IN			
S.No.	Pt. Hospital No.	Surgery Date	Surgery/ Procedure done	Pre-op site marking	A pre -operative checklist is utilized to verify correct site,	Known Allergy	Difficulty in respiration

Figure 26-New data collection sheet for WHO Surgical Safety Checklist (1).

TIME OUT DOCUMENTED			
Time Out documented	**Verbal confirmation of site and Procedure**	**Antibiotic prophylaxis within 60 min**	**VTE prophylaxis been undertaken**

Figure 27-New data collection sheet for WHO Surgical Safety Checklist (2).

SIGN OUT						
Count of the instruments, swabs and sharps confirmed	**Specimen is labelled (Including Patient name and UHID)**	**Equipment problems identified**	**Key concerns for the recovery and management of post operative patient identified**	**Surgeon's Name**	**Circulating Nurse**	**Compliance %**

Figure 28-New data collection sheet for WHO Surgical Safety Checklist (3).

Goal 5: Reduce the risk of health care-associated infections.

IPSG 5- Should implement evidence biased hand-hygiene guidelines.

KPI 5.1- Percentage compliance to hand hygiene Protocol.

Performance Measuring- Infection control											
INDICATOR- Hand hygine Protocal											
Sr. No	Location	Professional Category	Hand Hygine Moments					HH Action		
			Total	Bef-Pat	Bef-asept	Aft-pat	Aft-sur	HR	HW	Missed
1	OT	Nurses								
2	OT	Doctors								
3	OT	Technician								
4	OT	Medical Orderly								
5	OT	others								
6	LDR	Nurses								
7	LDR	Doctors								
8	LDR	Technician								
9	LDR	Medical Oderly								
10	LDR	others								
11	2nd Floor	Nurses								
12	2nd Floor	Doctors								
13	2nd Floor	Technician								
14	2nd Floor	Medical Oderly								
15	2nd Floor	others								
16	4th Floor	Nurses								
17	4th Floor	Doctors								
18	4th Floor	Technician								
19	4th Floor	Medical Oderly								
20	4th Floor	others								
21	IP	Nurses								
22	IP	Doctors								
23	IP	Technician								
24	IP	Medical Oderly								
25	IP	others								
26	OP	Nurses								
27	OP	Doctors								
28	OP	Technician								
29	OP	Medical Oderly								
30	OP	others								

Figure 29-New data collation sheet for hand hygiene Protocol.

Goal 6: Reduce the risk of patient harm resulting from falls.

IPSG 6- Implement the process to reduce the risk of patient harm resulting from patient fall

KPI 6.1- Patient fall Rate per 1000 bed days.

Perfomance Measuring- Nursing										
Indicator- Patient Fall (Inpatient)										
Sr. No.	Date	Patient Name	Hospital ID	Risk of Patient Fall	Precautions	Patient Fall	Corrective Action	Escalation	Remarks	%Compliance
1										
2										
3										
4										

Figure 30- New data collection sheet for Patient fall Rate.

DISCUSSION

End users have not received adequate training on how to gather the data, and the present IPSG KPI data collecting procedure lacks a common format across all hospital units. End users now rely on the number of patients who were released who were thought to be at risk of falling for obtaining data for the patient fall rate KPI. However, this strategy is problematic and insufficient for gathering precise information on patient falls.

Data gathering is not a part of the situation background assessment and recommendation (SBAR) process as it stands now. Based on the preceding sheet, only aggregated data is offered; access to the raw data is not permitted. This lack of specific information makes it difficult to conduct thorough research and get valuable insights from the SBAR procedure.

Currently, counting the number of cabinets that have been examined to determine compliance for high-alert medications. This strategy, nevertheless, could not adequately reflect actual.

adherence to high-alert drug guidelines.

Only sign-out criteria are included in the current collecting sheet for the surgical safety checklist procedure. However, it is crucial to include all important characteristics, such as sign-in, time-out, and sign-out, to provide a thorough review of the checklist process.

The sole Key Performance Indicator (KPI) whose data gathering is being done correctly is hand hygiene. A proposed data collation sheet, however, aids in the interpretation of the data that has been gathered.

New data collection forms have been designed in order to improve the data collecting procedure for all Key Performance Indicators (KPIs). Dropdown options on these redesigned sheets provide more streamlined and consistent data input. Additionally, a formula has been added to the sheets so that compliance percentages may be calculated automatically. End users no longer need to perform manual computations thanks to this functionality. End users have received training sessions to guarantee correct data gathering.

CHAPTER 5: CONCLUSION

To improve patient safety and match with worldwide standards, this study provides a thorough method to standardizing data gathering procedures in healthcare settings. Healthcare businesses may create a consistent framework for acquiring and analysing vital data by establishing standardized data collection techniques, which will lead to better patient outcomes and a safer working environment in the medical field.

Adopting standardized data collecting techniques guarantees that information is gathered consistently and methodically across various divisions or departments within a healthcare organization. Because of this uniformity, performance indicators may be compared and benchmarked with accuracy, allowing healthcare professionals to spot differences, trends, and areas for development. Healthcare institutions may execute focused interventions and quality improvement projects, proactively addressing patient safety problems, by collecting trustworthy and comparable data.

In conclusion, the thorough method for standardized data gathering in healthcare described in this study helps to better patient outcomes, a safer healthcare setting, and compliance with international standards. Healthcare organizations may discover areas for improvement, strengthen patient safety measures, and ultimately give their patients better treatment by implementing standardized processes. By adopting standardized procedures, healthcare organizations can gather accurate, dependable, and comparable data.

REFERENCES:

1. Najim DO. HAAD JAWDA Quality Performance KPI Profile.

2. JCI HospitalStandards_7thEdition_FAQ_Feb 2022.pdf.

3. Khalifa M, Khalid P. Developing Strategic Health Care Key Performance Indicators: A Case Study on a Tertiary Care Hospital. Procedia Comput Sci. 2015;63:459–66.

4. Fargen KM, Rahman M, Neal D, Hoh BL. Prevalence of patient safety indicators and hospital-acquired conditions in those treated for unruptured cerebral aneurysms: establishing standard performance measures using the Nationwide Inpatient Sample database: Clinical article. J Neurosurg. 2013 Oct;119(4):966–73.

5. Toussaint ND, McMahon LP, Dowling G, Soding J, Safe M, Knight R, et al. Implementation of renal key performance indicators: Promoting improved clinical practice: Renal key performance indicators. Nephrology. 2015 Mar;20(3):184–93.

6. Lo E, Rainkie D, Semchuk WM, Gorman SK, Toombs K, Slavik RS, et al. Measurement of Clinical Pharmacy Key Performance Indicators to Focus and Improve Your Hospital Pharmacy Practice. Can J Hosp Pharm [Internet]. 2016 Apr 28 [cited 2023 Jun 18];69(2). Available from: http://www.cjhp-online.ca/index.php/cjhp/article/view/1543

7. Ioan B, Nestian A, Tiţă SM. Relevance of Key Performance Indicators (KPIs) in a Hospital Performance Management Model. J East Eur Res Bus Econ. 2012 Apr 1;1–15.

8. Rüter A, Nilsson H, Vilkström T. Performance Indicators as Quality Control for Testing and Evaluating Hospital Management Groups: A Pilot Study. Prehospital Disaster Med. 2006 Dec;21(6):423–6.

9. Elliot C, Mcullagh C, Brydon M, Zwi K. Developing key performance indicators for a tertiary children's hospital network. Aust Health Rev. 2018;42(5):491.

10. Hübner-Bloder G, Ammenwerth E. Key Performance Indicators to Benchmark Hospital Information Systems – A Delphi Study. Methods Inf Med. 2009;48(06):508–18.