# QUALITY IMPROVEMENT PROJECT ON MEDICAL RECONCILIATION AT THE TIME OF ADMISSION TO IMPROVE PATIENT SAFETY AND CARE MAX HEALTHCARE, SAKET, DELHI

Dissertation Submitted to


**The IIHMR University, Jaipur**

for the partial fulfillment for the award of the

degree of Master of Business Administration

(MBA)

in

Hospital and Health Management

by

Dr Ananya Saini

Under the Supervision and Guidance of

Swapnil Gandhave

2024

DECLARATION BY STUDENT

I hereby declare that this dissertation titled Quality Improvement Project on Medical Reconciliation at the time of admission to improve patient safety and care 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 Information derived from the published or unpublished work of others has been duly acknowledged in the text.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: Dr. Ananya Saini

Date 4 - July - 2024

# CERTIFICATE

This is to certify that Dr. Ananya Saini in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her internship at Max Healthcare, Saket during March 28- June 28, 2024.

Place: Max Healthcare, Saket, Delhi

Date: 29- June - 2024

Preceptor/Head of the Organization

29/06/24

Name of the organization- Max Healthcare, Saket, Delhi

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IIHMR UNIVERSITY

# CERTIFICATE

This is to certify that the dissertation titled "**QUALITY IMPROVEMENT PROJECT ON MEDICAL RECONCILIATION AT THE TIME OF ADMISSION TO IMPROVE PATIENT SAFETY AND CARE IN A TERITARY CARE HOSPITAL"** is a record of the research work undertaken by **ANANYA SAINI** 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 her approach to the research study has been sincere, scientific, and analytical.

Swapnil Gadhave
Faculty Guide
IIHMR University
Date

Dr. Sanjay Gupta
School Dean
IIHMR University
Date 04/07/2024.

**Title**: - Quality Improvement Project on Medical Reconciliation at the time of admission to improve patient safety and care, Max Healthcare, Saket, Delhi

**Background:**

Every day, medical reconciliation is carried out in hospitals as a crucial part of patient care to guarantee patients' safety. The goal of this research is to have a thorough understanding of the inpatient medical reconciliation procedure. This includes analysing the medical reconciliation process and determining the causes that lead to its incompleteness. In the end, the study will offer insightful advice on how to ensure that the medical reconciliation procedure for inpatients is thorough enough to enhance patient safety and care. In order to improve patient safety and care, the quality improvement project sought to increase the accuracy of medical reconciliation at the time of admission. This quality improvement initiative has given important insights into areas that require improvement and the compliance situation as it stands right now. Additionally, this study increases the healthcare system's efficiency.

**Aim & Objectives**:

AIM- To evaluate and enhance the accuracy, efficiency and effectiveness of the medication reconciliation process during patient admission by minimize medication error to ensure the continuity of care without any discrepancies to improve the patient care and outcome.

**Objectives**-

- To study the medical reconciliation process at the time of admission.
- To identify the reason for incompleteness of the medical reconciliation process.
- Do a root-cause analysis of the cause of incompleteness of medical reconciliation at the time of admission.
- To recommend and implement measures to complete the medical reconciliation process at the time of admissions.

**Method**:
In Max Healthcare, Saket, Delhi, a renowned multi-super specialty healthcare centre, a prospective observational study was carried out at the time of admission. A straightforward random selection method was used to choose 249 patients for the trial, which had a duration of three months. Every disease category and medical history category from a computerized patient record system (CPRS) and medical reconciliation checklist were recorded at the time of admission for every patient. Patient demographic information, the reasons why the medical reconciliation was not completed at the time of admission, and various metrics and the state of medical reconciliation in various specializations were among the data gathered.

**Results:**
The results of the study identify important variables that lead to medication reconciliation procedure incompleteness. Medical history, prescription order, drug, dose, route, and frequency, as well as specific processes related to medication reconciliation, are the main reasons why medical reconciliation is inadequate when a patient is admitted, according to the report. The findings indicate that just 44% of medication reconciliations are documented, and 56% of these reflect non-compliance. Furthermore, medical histories were recorded in about 96% of instances, but they weren't in 4% of cases. Additionally, low compliance rates were seen across a variety of disciplines, including gastroenterology (37.1%) and ENT (30.8%). Physicians and nurses currently record 56% and 91%, respectively, of medication compliance. Additionally, following the intervention, there is an increase in medical reconciliation Compliance.

**Conclusion**:

In order to improve patient safety and care, the quality improvement project sought to increase the accuracy of medical reconciliation at the time of admission. This quality improvement initiative has given important insights into areas that require improvement and the compliance situation as it stands right now. The results show that while medical history recording and drug name correctness had excellent compliance rates (96%) and 98%, respectively, there are notable gaps in current medication evaluations (44%), route reporting (16%), and frequency documentation (78%). On the other hand, a 13% compliance rate for pharmaceutical orders indicates that some patients' requests were not accurately handled. This disparity highlights the necessity of enhanced procedures and guidelines to guarantee treatment continuity and precise medication administration. This study brought to light notable variations in the compliance rates among different specialization elevated. Significant differences in compliance rates between specialties were brought to light by this project. For example, internal medicine (76.7%) and endocrinology (100%) both had high compliance rates (>75%). ENT (30.8%), gastroenterology (37.1%), neurology (8%), oncology (16.7%), pulmonology (33.3%), and urology (35%), among other specialties, showed low compliance rates (<50%). In the field of nephrology, where nurses record 80% of current medications (CM) but doctors record 30%, there is a notable discrepancy in documentation. The most frequent documentation by physicians and nurses is in the field of cardiology. These results highlight how important it is to implement focused interventions to enhance medication reconciliation procedures, particularly in specialties where compliance rates are poor. In order to resolve these disparities and guarantee accurate and thorough drug documentation, greater interdisciplinary cooperation, standardized standards, and improved training are necessary. This will improve patient safety and Health Outcome.

## Acknowledgement

I would like to sincerely thank the following people and organizations for their invaluable assistance in helping me finish my dissertation: First and foremost, I would want to express my gratitude to my prestigious university, Indian Institute of Health Management and Research (IIHMR), Jaipur, for giving me the tools, direction, and learning atmosphere I needed to continue my studies. I have the utmost gratitude to Dr. P. R. Sodani, president of IHMR University in Jaipur, for his unwavering support and insightful advice during my academic career. Additionally, I would like to thank IIHMR Dean Dr. Sanjay Gupta for his support and advice. A special thank you to Mr. Swapnil Gandhev, my mentor, whose knowledgeable counsel, understanding, and support have greatly influenced the direction of my research and improved my academic abilities. I am appreciative to Max Healthcare for giving me the chance to work with their prestigious firm on my dissertation study. My study's successful conclusion was made possible by the Max Healthcare staff's assistance and collaboration. I owe Dr. Pranav Shankar (Vice President) Sir, Dr. Shuja Khan (Medical Superintendent) Sir, my reporting mentor and Dr Monica Manon (Head of Quality Department), Dr Ravi Shankar (Head of Clinical Pharmacy) and Dr Kannu Aggarwal (Assistant Manager) a debt of gratitude for all of his help and support during the dissertation process. My profound gratitude goes out to my parents and my brother Aditya Saini for their steadfast love, support, and inspiration. Their confidence in me and unwavering encouragement have been crucial to my academic success. Lastly, I would want to express my gratitude to Dr. Ravi Shankar for their unwavering support, direction, and inspiration to pursue excellence. I sincerely thank all of the people and organizations listed above for their tremendous assistance, without which I could not have finished my dissertation.

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## List of Abbreviations

| | |
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| IP | Inpatients |
| Medrec | Medical Reconciliation |
| ENT | Ear, Nose and Throat |
| ADE | Adverse Drug Event |
| ICU | Intensive Care Unit |
| BPMH | Best possible Medical History |
| ED | Emergency Department |
| AMO | Admission Medication Order |
| CPRS | Computerized Patient Record System |
| EMR | Electronic Medical Record |

## Lists of Figures

# Max Healthcare

**Mission-**

- To provide complete, superior, and patient-focused healthcare services.
- To uphold the best possible medical standards, welcome innovation
- To improve patient outcomes.
- Max Healthcare is dedicated to maintaining moral behaviour and promoting public health.

**Goal-**

Goal at Max Healthcare is to be the most reputable healthcare organization in India, dedicated to the best possible clinical outcomes and patient care, underpinned by state-of-the-art research and technology. We hold ourselves to the greatest standards in order to provide our patients with outstanding treatment. We strive for perfection in everything we do, making sure that our patient-focused procedures constantly satisfy the strictest standards of quality.

Nineteen hospitals are under the management of Delhi, India-based Max Healthcare Institute Limited, a for-profit private hospital company. This network provides more than 4,000 beds, primarily catering to the country's northern areas. Among the best healthcare institutions in India is Max Healthcare Institute Limited ("Max Healthcare"). The organization runs 19 hospitals with a total of 4,000 beds and provides services in over 30 specializations. It has more than 5,000 clinicians working for it throughout the NCR Delhi, Punjab, Uttarakhand, Maharashtra, and Haryana. Interestingly, almost 85 percent of its beds are located in Metro/Tier 1 locations. Beyond hospital treatment, Max Healthcare offers pathology services via Max Lab and home health services through Max@Home, both of which are available outside of its hospital network. At Max Healthcare, Abhay Soi is the Chairman and Managing Director. The current firm was formed after Radiant Life Care Pvt Ltd. purchased a 49.7% share in the former Max Healthcare and the two organizations' subsequent merger. Max Healthcare Institute Limited remained the name of the combined business. Abhay Soi led Radiant and served as its promoter before the merger.

Values-

Excellence - aim for excellence in every facet of operations. To maintain the highest standards of quality and safety for services by constantly aiming to innovate and improve.

Compassion - To constantly grasp the needs of patients on a deeper level and show empathy for them. This promotes the provision of patient-centered care at a higher standard of care.
To treat our patients with dignity and respect, both for them and for each other.
To understand the constructive social influence, we can make.

Consistency - To constantly maintain dedication to offering the best possible patient care at every turn, guaranteeing perfection every single time.
To upholding this dependability is essential to winning over our patients' trust and accomplishing our objectives.

Efficiency – To create a healing environment that is responsive by promptly adjusting to the demands of our patients and providing accurate, timely care. The method is innovative and smooth, personal and practical, efficient and focused, and guarantees that we give our patients the precise care they need.

Branch and scopes-

Max Foundation: Established in 1985, Max India Limited is a publicly traded business that is listed on the NSE and BSE. It has more than 37,000 shareholders.
The first hospital in Panchsheel Park to offer day surgery and outpatient services is MAX Med centre(2000).The first hospital in North Delhi to gain ISO accreditation is Max Hospital, Pitampura (2002), which is also the first upscale secondary care facility in the area.
With an emphasis on mother and child care, Max Hospital in Noida 2002 provides non-invasive cardiology, orthopaedics, ENT, ophthalmology, nephrology, and other services.
The first super tertiary care hospital with air evacuation services and Advanced Cardiac Life Support ambulances is Max Heart & Vascular Institute in Saket, which opened its doors 2004.
Located in Patparganj, East Delhi, Max Hospital is the first multispecialty tertiary care facility.

Chapter 1: **Introduction**

An elderly woman was admitted to a hospital with a working diagnosis of community-acquired pneumonia. Appropriate antibiotics and symptom management were ordered and commenced. Two days later the patient suffered a myocardial infarction and it was found that a beta-blocker (cardiac medication) had been omitted on admission. This incident occurred because a necessary home medication was unintentionally omitted upon hospital admission.

Medication reconciliation is a structured procedure whereby healthcare providers collaborate with patients to guarantee the precise and comprehensive transfer of medication information at the point of service.

**Medical reconciliation**- is a crucial procedure that takes place to enhance patient safety and results at the time of admission, transfer to a ward or intensive care unit, and discharge. Healthcare professionals such as doctors and nurses collaborate to execute medical reconciliation. Medication reconciliation is the process of comparing a patient's current medication with their medical order to prevent any discrepancies and adverse side effects, which improves patient health outcomes. It is done at every stage after a patient is admitted to ensure they are taking the right medication at the right time.

**For a number of reasons, accurate medication reconciliation is crucial**-

medication reconciliation assists medical personnel in minimizing side effects, drug errors, and duplication. When a patient is admitted, the first step of the medical process is completed during the inpatient assessment. Important details about the patient, including age, are included in the inpatient assessment. Gender, past medical history, and meds taken currently. Present medicine is a component of medical reconciliation, which involves multiple factors such as medication. Dosage, route, frequency, and—most importantly—YES whether the drug is continued, as shown by a medication order comparison. This procedure is carried out to prevent medication errors, inconsistencies, or negative effects. It also guarantees that the patient is taking the appropriate drug at the appropriate time.

**WHO High 5 Project**-

Medication reconciliation is a crucial process that ensures correct and consistent patient medication information is transferred during care transitions. Every patient is impacted, and many medical professionals are involved at every level of the care process. Inaccurate medical histories can result in inappropriate treatment, the resumption of previously stopped medications, the termination of therapy, and undetected medication-related problems. Studies reveal that mistakes can be found in anywhere from 10 to 67% of medication histories that are acquired at the time of admission, and that inaccurate or incomplete medication histories may be responsible for up to 27% of prescription errors that occur in hospitals. Forgetting to take a medication as directed is the most common error. Individuals 65 years of age or older who take different medications are more likely to. Patients who are admitted to hospitals are more likely to stop taking their chronic medications, especially if they are admitted to critical care units.

Errors that are not fixed can have a negative impact on patients both during and after their hospital stay. Discrepancies are also frequent at discharge when prescriptions are prepared and discharge summaries are created.

**Who Involved in Medical Reconciliation**-

**Healthcare Professionals**- plays a crucial role in medical reconciliation process as they done medical reconciliation in collaboration and documented it after obtaining medical history from patients. Healthcare workers, such as physicians, nurses, and other medical experts, are essential because it is their responsibility to administer the appropriate drug at the appropriate time and dose and to make sure that the patient does not experience any negative side effects. Medication reconciliation is actively carried out by medical staff from the time of a patient's admission until their discharge.

**Patients Involved in Medical Reconciliation** -Patients play a crucial role in medication reconciliation since their active involvement ensures the process' effectiveness.

In a unique position, patients and their families can offer precise, current information about the drugs they take and how they administer them. Patients and their families are essential to the process because they are the main sources of information about how they personally take their medications. Their provision of medication containers, lists, and comprehensive

information can make a substantial contribution. By enabling patients to actively engage in their care, this collaborative approach enhances medication management accuracy and transparency throughout the continuum of care.


Figure 1.1- Interfaces between Patients and Multidisciplinary Fields in Medication

**Patient engagement education material**
Brochures and Posters
Videos
Newsletter: Handbags with medications
Data sheets
**Tools to support the maintenance of medication lists-**
Medication Lists Templates
Medication apps
Patient Charts or medical records

**Where should Medication Reconciliation take place -**

Figure 1.2: Medical Reconciliation steps at the time of patient admission

On Direct Admission – Done during Initial assessment by documented drug, dosage, route, frequency and YES for to be continue.

Emergency – ICU/Ward - Automatically Disable Through CPRS.

ICU - Ward - Renew Order and discontinue for no longer need

Ward - ICU - Renew Ordered - ICU - Renew Order and discontinue for no longer need.
er and discontinue for no longer need.

On Discharge – Reconciliation Medication only those required by patients.

Medication reconciliation should take place at the points when care meets (discharge, internal transfer, admission), as well as when a facility changes hands (acute care hospitals, for example). When a patient is under long-term or community care and has a high risk of medication errors. Vulnerable moments are another term for these periods. This Include: -

- Admission to hospital
- Transfer from ED to other care areas (wards, ICU, Home)
- Transfer from ICU to ward
- Discharge from hospital to home, long term care, other hospital
- Visit to primary care provider.

**Best possible medical history**: - A doctor compiles a complete medication history, known as a Best Possible Medication History (BPMH), from a variety of information sources. This history includes all regular medication consumption, both prescribed and non-prescribed. All prescribed (those that the doctor orders), non-prescribed (those taken against the doctor's advice), non-prescription (such as over-the-counter or herbal remedies), recreational, or "prn" (as needed) medications that the patient needs are all included in the BPMH.

**Importance of Medical History in medical reconciliation**-

- In order to ensure accurate and thorough documentation of a patient's prescription regimen, the Best Possible prescription History (BPMH) is essential to the medication reconciliation process.
- It provides a comprehensive picture of all the drugs a patient is taking.
- This all-encompassing strategy is necessary to spot any prescription errors, stop adverse drug events, and guarantee care continuity between various healthcare facilities.
- Through the reduction of inconsistencies and the assurance that all facets of a patient's drug use are taken into account and accurately reported throughout their treatment journey, the BPMH assists physicians in making well-informed decisions, improves patient safety, and improves clinical results.

How to Get a Best possible Medication History-

Compared to a standard primary medication history or a typical primary medication history, which is frequently a hastily assembled evaluation without full information, is different from and less thorough than the Best Possible Medication History (BPMH). Accuracy and thoroughness are ensured through a methodical process used in the BPMH to get a comprehensive medication history.

To guarantee that the patient's medication regimen is understood completely and accurately, this method involves cross-referencing pharmaceutical information from many sources, including pharmacy data, prior medical records, and patient interviews. This comprehensive approach improves patient safety and continuity of treatment, helps detect discrepancies, and prevents prescription errors.

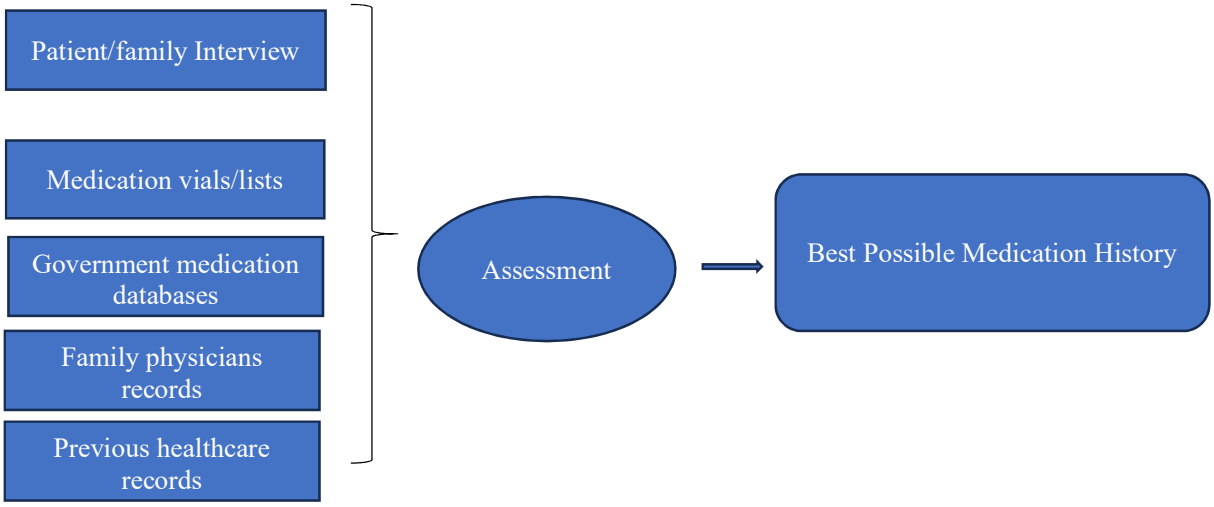


Figure1.3- Examples of medication history guide and tools.

Note - It is ideal to have the BPMH completed and discrepancies identified and communicated to the prescriber within 24 hours of the decision to admit the patient. It should be noted that formal medication reconciliation after 24 hours, although not optimal, will benefit the patient.

**Medical Reconciliation at the time of admission-**

The process of reconciliation begins with the collecting of the BPMH. When a patient arrives or decides to be admitted, the BPMH is generated and recorded, and the prescriber uses it to draft the admission medication orders (AMO) Occasionally, electronic or paper-based Tools that allow the physician to specify whether the medications should be continued, stopped, or adjusted are designed to record the BPMH and result in prescription orders.

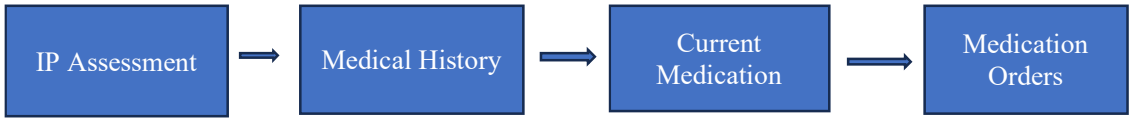


Figure 1.4- Medication reconciliation at the time of admission

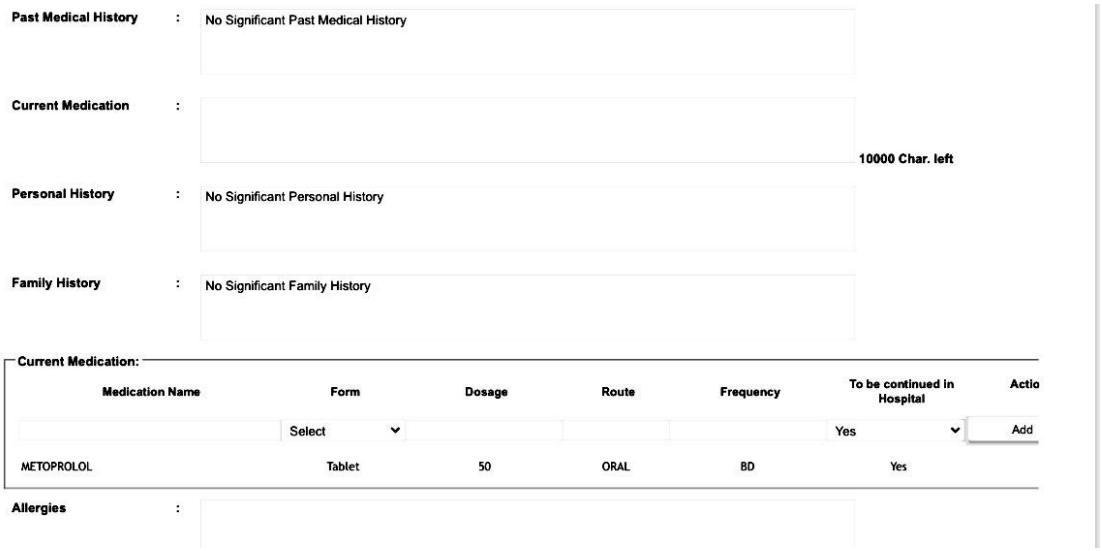


Figure 1.5 – Current medication and its parameters – part of medical reconciliation at the time of admission in the electronic healthcare system.

**Importance Of different parameters in medical reconciliation process-**

**Current medication -**Because current medicine directly affects patient safety, treatment efficacy, and healthcare outcomes, it is essential to medication reconciliation. It acts as the cornerstone of the procedure, guaranteeing that medical professionals are aware of the most recent and accurate information on the drugs a patient is currently taking.

Medication reconciliation is essential for patient safety, therapeutic continuity, patient participation, medication optimization, and efficient provider-to-provider communication. It emphasizes how important complete and accurate documentation is to ensuring high-quality healthcare delivery and better patient outcomes.

**Drug name and dose**- Precise recording of drug names and dosages is essential in medication reconciliation for multiple reasons that have a major influence on patient safety and care quality:

Prevention of medication error

Clinical decision making

Treatment Consistency

Patient safety and compliance

**Route and frequency -**The specifics of the medication's administration method and frequency—that is, how frequently it is taken—are critical elements of medication reconciliation that have a major impact on patient safety and therapeutic effectiveness. Ensuring that the route and frequency of drug administration are accurately documented guarantees that healthcare personnel possess a thorough comprehension of how to deliver and manage medications across a patient's whole care journey.

**Yes, to be continue** -In medical reconciliation, the "Yes to be continued" criterion plays a critical role in ensuring the safety and continuity of patient care. This indication means that a particular drug that had been prescribed before admission or during a prior visit with a healthcare provider should be taken as recommended for the duration of the current episode of care. It assists medical professionals in ensuring patients receive consistent care and avoiding therapy lapses that may harm patient results or health.

**Medication Order** - Medication orders comprise the precise guidelines that medical professionals give patients about the kind, amount, method, frequency, and length of time they should take their prescribed medications

## Need of the study

Several important aspects that affect patient safety and care continuity highlight the necessity for a quality improvement initiative on medication reconciliation at the time of admission:

- Concerns about Patient Safety: Adverse events in healthcare settings are primarily caused by medication errors, especially during care transitions such as hospital admission. Patient safety may be impacted by inaccurate medication histories or discrepancies that result in adverse drug events, therapy delays, or ineffective therapies.

- Healthcare Efficiency: By saving time spent figuring out drug histories and resolving inconsistencies, simplifying the medication reconciliation process improves healthcare efficiency and to make better clinical decision.

- Impact on Clinical results: Achieving the best possible clinical results requires effective medication reconciliation. By ensuring that patients are administered the appropriate drugs at the appropriate times and dosages, it enhances treatment compliance and effectiveness during their hospital stay.

- Regulatory and Accreditation Standards: As an objective for patient safety, medication reconciliation has been highlighted by regulatory authorities and accreditation agencies.

- Patient-Centered Care: Patient-centered care is facilitated by involving patients in the medication reconciliation procedure.

**Research question**-To evaluate and enhance the accuracy, efficiency and effectiveness of the medication reconciliation process during patient admission by minimize medication error to ensure the continuity of care without any discrepancies to improve the patient care and outcome.

**Aim**- The purpose of this study is to assess and enhance the medication reconciliation process during patient admission in terms of its efficacy, efficiency, and accuracy. In order to improve patient care and clinical outcomes, this will be accomplished by reducing medication errors and guaranteeing smooth, inconsistent care continuity.

**Objectives**

- To study the medical reconciliation process at the time of admission.
- To identify the reason for incompleteness of the medical reconciliation process.
- Do a root-cause analysis of the cause of incompleteness of medical reconciliation at the time of admission.
- To recommend and implement measures to complete the medical reconciliation process at the time of admissions.

Chapter 2: **Review of Literature**

The study focuses to investigate the causes of incompleteness of medical reconciliation process. Relevant articles, research studies, and reports on medical reconciliation were collected from electronic databases, academic journals, and credible websites. The selected literature was carefully analyzed to identify common themes and factors associated with delayed discharge.

| Title | Author | Description |
|---|---|---|
| A QUALITY IMPROVEMENT PROJECT FOR MEDICATION RECONCILIATION (2021) | Garcia, Crystal | In comparison to physicians, nurses typically record a larger percentage of medical reconciliation across all specialties. The goal of the study was to put into practice a medication reconciliation quality improvement initiative in the intensive care unit of a hospital in the Midwest. Re-educating personnel, supplying documentation tools, and incorporating reminders into the electronic medical record (EMR) were all part of the initiative. of spite of these efforts, after the intervention period—which coincided with an increase of pandemic patients—the rate of medication reconciliations fell. In comparison to physicians, nurses typically record a larger percentage of medical reconciliation across all specialties. In intensive care units, medication reconciliation plays a critical role in maintaining patient safety and continuity of treatment throughout transitions, particularly upon admission. Research highlights the fact that erroneous or incomplete medication histories may cause adverse drug events, medication errors, and even injury to patients who are very sick. |
| Twelve-week project to improve medication reconciliation at hospitals in Wellington, New Zealand | Dabrowski Merrow Philip, Lawrie2 Kathryn | The Capital and Coast District Health Board (CCDHB), in Wellington, New Zealand, faces difficulties in guaranteeing proper medication reconciliation, despite the fact that it is essential for patient safety throughout hospital transfers. Early attempts indicated notable shortcomings in completion rates and discrepancy correction, which were ascribed to a lack of communication and variation in practice. Redesigned notification |

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| | | systems, standardized pharmacy procedures, and teaching sessions for house surgeons were all part of a 12-week quality improvement project. Even though the effort was effective in raising the percentage of completed reconciliations to 37%, maintaining gains in discrepancy correction proved difficult. Sustainability can be enhanced through ongoing training for aspiring house surgeons and technical innovations like updated notification systems. |
| Medication Reconciliation: A Guide to Enhancing Medication Safety in High-Risk Situations, World Health Organization (2019) | World Health Organization, Geneva | The World Health Organization released guidelines on medical reconciliation, and each guideline emphasizes the significance of medical reconciliation at every stage of the patient journey, from admission to discharge. These recommendations ensured higher-quality health outcomes while lowering drug errors and their negative effects on patients. It emphasizes how crucial the medication reconciliation process is to every change a patient experiences while in the hospital. The WHO recommendations guarantee a thorough and precise medication reconciliation process, offering fresh and essential insights into accurate patient treatment to assure their safety and care. This procedure aids medical practitioners in minimizing negative drug reactions, side effects, and inconsistencies. The World Health Organization has highlighted in these guidelines the need of ensuring the medical reconciliation process on a global scale. Accurate medication reconciliation and strategy implementation are also included. |
| Impact on patient safety of a comprehensive medication reconciliation quality | Mixon A, Stein J, Schnipper JL, et al | This study evaluate the impact of medication reconciliation on patient safety and care and also highlight the need of quality improvement tools to completeness of medication reconciliation process and ensure the timely audit and feedback for medication reconciliation process to reduce |

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| improvement intervention | | any disparities or medication error in hospital settings. Medication reconciliation is essential for patient safety during care transitions because it reduces adverse drug events, medication errors, and potential injuries. When there is successful reconciliation, accurate medication histories are acquired, validated, and disseminated among healthcare professionals. The goal of using electronic health records (EHRs), decision support tools, and automated reconciliation systems was to improve the efficacy of the reconciliation process while reducing errors. The findings emphasize the need of employing a range of techniques to improve medication reconciliation and patient safety. Subsequent research endeavours must to prioritize continuous evaluation, localizing interventions |
| Medication reconciliation. (2004) | Lehn Bom et al., 2014; Rozich et al. | which identifies and corrects discrepancies in drug information between many points of care, is crucial to ensuring patient safety Effective medication reconciliation programs typically combine a variety of approaches, including interprofessional teamwork, standardised reconciliation processes, and the use of technology, such as automated reconciliation tools and electronic health records (EHRs). Healthcare organizations can evaluate and improve medication reconciliation procedures continually by using quality improvement frameworks like the Plan-Do-Study-Act (PDSA) cycles. This will boost the procedures' effectiveness and sustainability. |
| An investigation of the prioritization of medication reconciliation in a tertiary care | Abraham Marium et.al, Sebastian Lisa et.al, Thomas Alan et.al | Drug reconciliation is an essential process that matches a patient's current drug regimen with their new prescriptions to identify and resolve discrepancies during care transitions. Medication reconciliation procedures are examined in this retrospective observational study, which runs from 2016 to |

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| hospital in South India, 2023 | | 2020. It identifies areas where modifications could have a major positive impact.in this study 406 patients who met the study's inclusion criteria were enrolled; of them, 39% were female and 61% were male. Sadly, medication reconciliation mistakes occurred in 56.2% of these patients during the admission (50%), hospital stay (20%), transfer of care (6.5%), and discharge (23.5%) phases of their care. Chi-square tests were used in the statistical analysis to reveal significant relationships between age, the number of comorbidities ($p < 0.001$), and mistakes in different phases ($p < 0.01$).<br>Diabetes (34.4%), hypertension (22.2%), and coronary artery disease were among the common medical disorders linked to increased reconciliation errors. The study comes to the conclusion that patients who are elderly or have several comorbidities are more susceptible to reconciliation errors, which emphasizes the need of giving these patient groups priority care.<br>Additionally, the study highlights how crucial it is to deal with reconciliation errors during the admission stage because they have the ability to spread throughout the hospital stay and discharge. Therefore, in order to reduce errors and enhance patient safety, equal consideration should be given to each stage of medication reconciliation. |
| Medication reconciliation process in a tertiary care hospital south Asia, ResearchGate,2023 | Anazi al Abdullah et.al | Assessing value, adoption, and the potential of information technology from pharmacists' perspective, health informatics journal, 2021 Medication reconciliation, or MedRec is essential for improving patient safety since it guarantees proper medication administration at the time of care transitions. To reduce medication errors, it entails compiling an exhaustive inventory of all prescribed medications, comparing it with fresh prescriptions, and resolving any inconsistencies. |

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| | | Medication inconsistencies are greatly decreased by the MedRec process, which lowers the likelihood of adverse events and readmissions to hospitals. Effective MedRec policies have been shown in studies to reduce medication discrepancies by 88% and hospital revisit rates caused by adverse events by 67%.<br><br>Information technology (IT) integration into MedRec has become a vital tactic to increase its efficacy. According to a poll, IT resources including electronic drug registration lists, electronic health records (EHRs), and personal health records (PHRs) are critical for streamlining the MedRec process. These solutions help to improve accuracy and continuity of care by facilitating the aggregation of pharmaceutical information from multiple sources, including community pharmacies, into a single platform. |
| Barriers and facilitators of medicines reconciliation at transitions of care in Ireland – a qualitative study, BMC family practice,2020 | Radmond Patrick et.al | Medication mistakes during care transitions are common and seriously jeopardize patient security. Regulatory and safety groups support the use of medication reconciliation procedures as a means of reducing errors and enhancing care coordination.<br>This research investigated the obstacles and enablers to the adoption of medication reconciliation during transitions of care by conducting semi-structured interviews with a broad sample of healthcare professionals (HCPs) in Ireland. A total of 35 participants—community pharmacists, hospital pharmacists, general practitioners, hospital consultants, and non-consultant hospital doctors—offered their perspectives on the difficulties and possible solutions related to medication reconciliation. The findings indicate that several key themes were found to be obstacles to the implementation of medication reconciliation, including |

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| | | resistance from established professional cultures, disparities in staff interest and training, communication gaps, and insufficient support for information and communications technology (ICT). Effective multidisciplinary teams, greater pharmacist participation in reconciliation procedures, the use of ICT solutions like linked prescribing databases and decision support systems, and the acquisition of more funding for expanded services like admission and discharge reconciliation and community pharmacist-delivered medication use review were among the facilitators suggested to improve implementation. |

Chapter 3: **Methodology**

The study was aimed to identify the factors contributing to Incompleteness of medical reconciliation process at the time of admission in the tertiary care hospital. A retrospective observational study was used, which involve collecting the data on daily patient admission. It was essential that this research provide valuable insights into the factors causing incompleteness of the medical reconciliation process at the time of admission to improve patient safety and care. The study adhered to rigorous methodology and ensure ethical data collection, analysis and interpretation.

The research findings provide valuable information that could be utilize by the max healthcare hospital, Saket on facing similar challenges for the incompleteness of medical reconciliation process for the patients at the time of admission and on different specialties to improve health outcome and patient safety.

Study Design: Retrospective Observational study.

Study Setting: In-patient ward of Max Healthcare, Saket (Delhi). Max healthcare –is amongst India's largest and most renowned multi-super specialty healthcare centers with 4000+beds, 30 super specialties units and accomplished doctors. Supported by state-of-the-art infrastructure, all the departments in the hospital are fully equipped with cutting-edge technology, modular Operation Theatre, and modernized monitoring systems in ICUs. Max healthcare in-patient wards are designed to take care of medical needs, maximize comfort and accommodate personal requirements for recovery. This study was conducted on the each floor of In-patient Department (IPD) of Max healthcare, Saket).

Study Duration: 3 months (March and June 2024)

Study Tools: The data collected with the help of preparing medical reconciliation checklist and CPRS (Computerized patient record system).

Study Population:

Inclusion criteria:

- Patients admitted to the hospital.
- Patients admitted to any hospital specialties, including Neurology, Nephrology, Urology, Cardiology etc.
- Patients who were discharged from the hospital during the study period
- Patients of all disease categories

Exclusion criteria:

- Patients move from ICU to Ward and vice versa
- Patient at the time of discharge.

Sample size: 250

Sampling techniques: Random Sampling Technique

Data collection method: The data was collected daily from the CPRS (Computerized patient record system) an electronic healthcare system in hospital which provide real time information on patient such as age, gender, date of admission and current medication.

The data was also collected by preparing an medical reconciliation checklist which has parameters for medical reconciliation process at the time of admission such as Drug, Dosage, Route and Frequency etc. which entered into spreadsheet on excel on daily basis.

Variables to be collected:

- Patients demographics (age, gender etc.)
- Medical history
- Medical reconciliation parameters status – Drug, Dosage, Route, Frequency and YES to be continued
- Medication Order status with continuation
- Reason for incompleteness of medical reconciliation process
- Factors that may impact medical reconciliation process at the time of admission.
- Reason for incompleteness of medical reconciliation in different specialties.
- Overall, the data collection method will enable study team to collect and analyze the data daily to analyze the factors contributing in incompleteness of medical reconciliation process in a tertiary care hospital.

Ethical considerations:

- Privacy and confidentiality: participant confidentiality will be maintained, with all data collected, stored securely, and accessed only by the study team.

- Risk Of harm- the researchers ensured that any process did not cause any harm to the participants.

- Recruitment of patients-The participants was selected on the basis of inclusion and exclusion criteria without any bias.

- Data collected and sharing- the researchers ensure that any data collected was used appropriately and reported in a responsible and transparent manner, without sharing the personal details of the study participants.

Chapter 4 – **Results**

Accurate medication administration during transitions of care is ensured by medical reconciliation at the time of admission, which is critical to improving patient safety and care. The purpose of this study was to assess how well enhanced medication reconciliation procedures work to reduce errors and enhance patient outcomes.

This primary objective of this study was to examine and analyses the medical reconciliation process at the time of admission in Max healthcare, Saket (Delhi).

While observing and studying the medical reconciliation process across different departments we gain a comprehensive understanding of how each department function in terms of medical reconciliation process at the time of admission. This allowed us to not only access the effectiveness of medical reconciliation process in different specialities but also provide us with valuable insights to develop targeted solutions specific to each specialities need.

The results of the study revealed that intricacies involved in medical reconciliation process across different specialities. We are able to find gaps and areas of improvement for the incompleteness of medical reconciliation process at the time of admission. This information is valuable and vital for streamlined and optimizing the medical reconciliation process, ensuring the smooth and completeness of medical reconciliation for each patient in hospital at the time of discharge.

By highlighting the specific challenges within the medical reconciliation process, our study aims to contribute to the overall improvement of patient safety and care in Max healthcare. The department focused solution derived from our finding will assist in enhancing the efficiency, effectiveness and quality of medical reconciliation at different specialities, Ultimately, benefiting patients and healthcare professionals.

Identifying and listing standard procedures of a medical reconciliation and understanding the reason for incompleteness of medical reconciliation process at each step, while collected live data for each process give an opportunity of comparative study, the main focus was on finding the compliance and non-compliance of medical reconciliation and also the reason of incompleteness of medical reconciliation process in different specialities while The study brought to light differences in how doctors and nurses document medical reconciliation.

The purpose of our study was to investigate and evaluate the standard procedures followed in the medication reconciliation process at the time of admission in a tertiary care hospital. Our objectives were to determine whether this process was thorough, identify any gaps in it, and look at the rates of compliance and non-compliance with different aspects of medication reconciliation.

To achieving the best outcome, we carefully review the standing operating procedure and after reading the SOP we came up with a different framework for our study. We prepare a checklist for medical reconciliation process by involve the current medication and its different parameters like the drug, dosage, route and frequency and also the initials details of the patients such as name, identity, age, gender and most importantly medical history and inpatient assessment.

Our study includes on the basis of real – time data to exclude any disparities that cause medication reconciliation procedure not up to grade. We collect the data with the help of checklist and analyse the data to determine opportunities for improvement in medical reconciliation process at the time of admission by measuring the medical reconciliation process cause of incompleteness, for that we finding out the compliance and non-compliance of medication reconciliation process at the time of admission and also across the different specialities .so that we can improve the incompleteness of medication reconciliation process among different specialities.

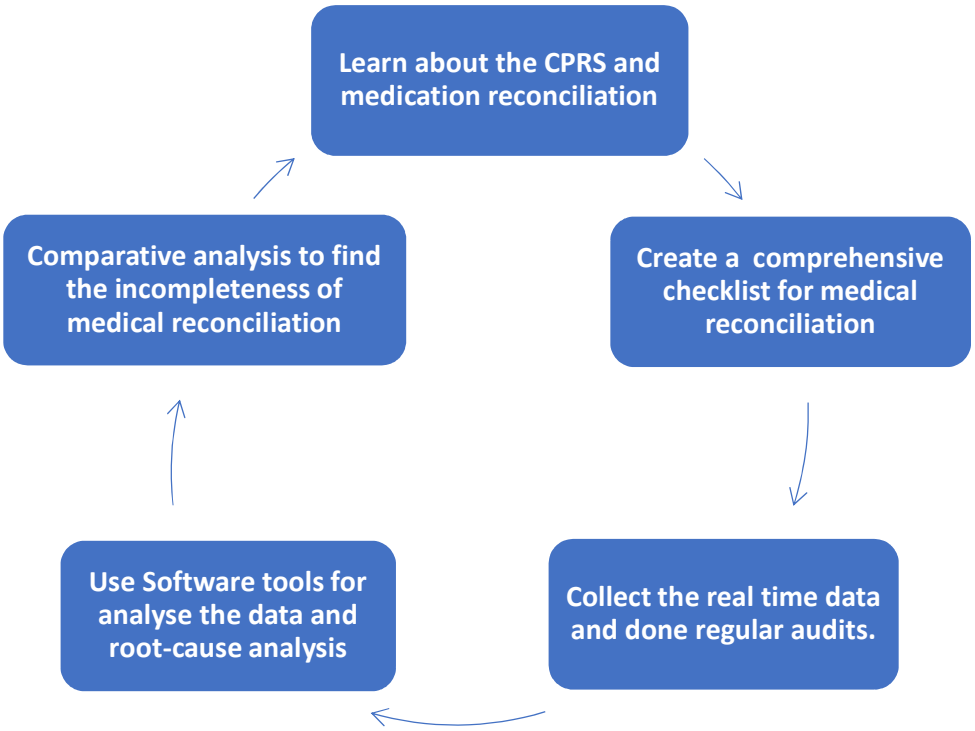
The results highlight the importance of medication reconciliation process at the time of admission and across different specialities. The result also highlights the compliance and non-compliance of medication reconciliation process actively documented by healthcare professionals which shows that in comparison to doctors, nurses are performing medication reconciliation actively. This methodology is important in enhancing the effectiveness in medication reconciliation process in hospital settings.

The results of our study offer valuable insights for healthcare professionals and it builds awareness on importance of medication reconciliation process across different specialities and we have identified significant areas for improvement by examine the incompleteness of medication reconciliation process.This research project highlight the need of continue monitoring and audit in hospital setting also the importance of data analysis.

Our study highlights the need of medication reconciliation process done at the time of admission to improve patient safety and care also most importantly ensure the effectiveness of medical reconciliation in hospital setting. We have identified particular parameters causing incompleteness of medical reconciliation process such as drug, dosage, route and frequency. This data help the healthcare for improving the non-compliance and incompleteness of medical reconciliation process to reduce any disparities and any adverse effect due to medication error. Hospital can improve their operation efficiency and effectiveness at the critical admission stage of patients by accurately medication management.

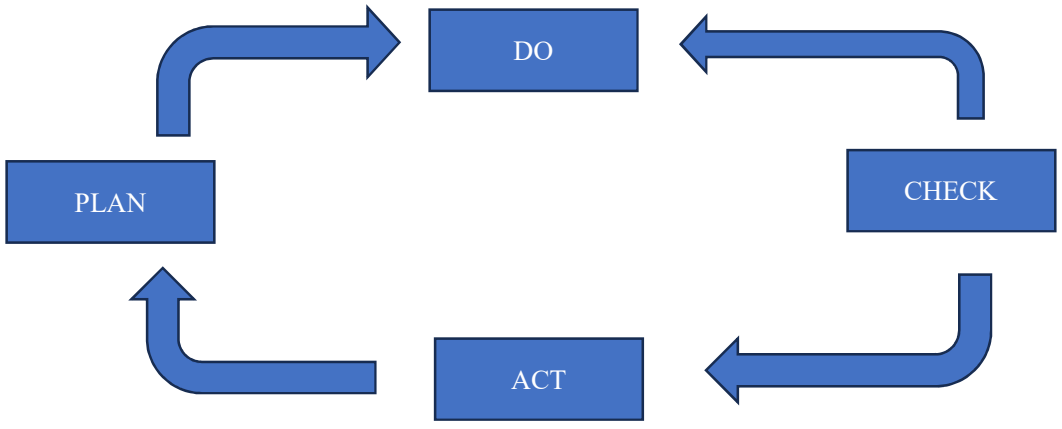
Ultimately, our findings demonstrate the importance of thorough medication reconciliation in enhancing patient safety, care quality, and overall health outcomes. By applying these insights, medical professionals can improve their processes to ensure accurate and comprehensive medication reconciliation, which will lead to better health outcomes and increase the efficiency of healthcare delivery.

**Figure 4.1-Data analysis procedure for medical reconciliation at the time of admission**




**PDCA Cycle**

A popular paradigm for ongoing quality improvement in many industries, including healthcare, is PDCA (Plan-Do-Check-Act). Here is how PDCA can be used for medical reconciliation at the time of admission:



PLAN-

creating the audit checklist in order to evaluate the drug, dosage, route, frequency, and continuance aspects of the medical reconciliation process.

learning how to use the computerized patient record system (CPRS) for data collection and making sure that the equipment is available on the floor.

March- June 2024 is the month that all project planning has begun.

DO-

carrying out the audit for patients in the month of (medical reconciliation audit has begun for March to June 2024). evaluating the staff's medical reconciliation knowledge. At the time of patient admission, note medication history and reconciliation activities. Carefully monitor the process and get staff input.

CHECK- Examine gathered data to ensure that parameters for the medical reconciliation procedure are accurate and comprehensive. Utilize spot inspections and routine audits to make sure protocols are being followed. Examine the compliance with the medical reconciliation procedure at each specialty as well as the audit for noncompliance with the process.

ACT-

Organize the floor managers and medical staff to ensure that the medical reconciliation procedure is completed. notified the floor manager of the daily medical reconciliation's incompleteness and Hold frequent review sessions to go over updates and progress. Promote a culture that prioritizes patient safety and ongoing progress. Talk about successes and improvements with the hospital staff.

**Data analysis** –

This is a thorough analysis and in-depth look at the study that was done, including a thorough investigation of its data gathering, conclusions, and interpretations. This study explores a wide range of topics, including important background data and comparative evaluations.

The study's main objective was to conduct a comprehensive analysis of the steps and practices related to medication reconciliation at tertiary care hospitals at the time of admission.

We collect the accurately and carefully real-time data with the help of using computerised patient record system. Evaluate the medical history of patient and current medication in inpatient admission while important parameter such as drug, dosage, route and frequency are contributing to completeness of medical reconciliation process. These parameters are essential to ensure the completeness of medical reconciliation procedure so we carefully evaluated these parameters without any discrepancies. The study findings provide valuable insights on present status of medical reconciliation. WE analysis the data and comparative studies finding highlight the need of medical reconciliation process across different specialities and need of awareness among healthcare professionals.

Furthermore, the analysis highlights the need of continue monitoring and audit of the medication reconciliation and also the importance of standardized operating procedure in hospital setting.

In the final analysis, through this research is a fundamental tool for healthcare professionals and administrators who want to improve medical reconciliation procedures. It highlights how necessary it is to keep assessing and improving processes in order to obtain high-quality patient care and operational effectiveness in hospital settings.

The live data was acquired from the Max healthcare's Health information system i.e. Computerized patient record system (CPRS) wherein a sequential log of medical reconciliation is continue updated in inpatient assessment by healthcare professionals to reflect the real time progress and documentation.

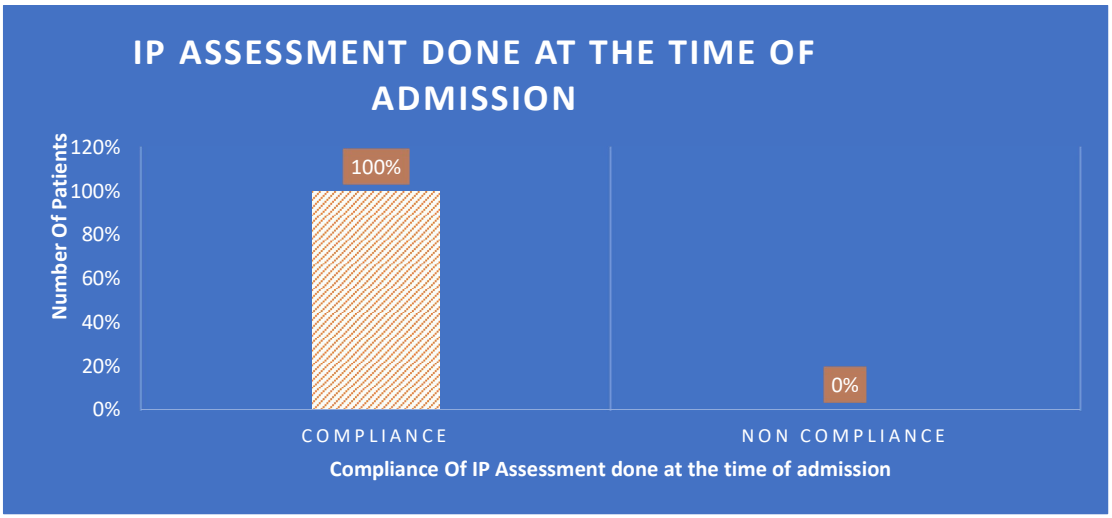


Figure 4.2- IP Assessment done at the time of admission

The data analysis yields the following findings-

This graph provides a visual representation of the compliance rate for inpatient (IP) assessments completed at the time of admission.

The compliance rate for IP assessments done at the time of admission is shown as 100%. This indicates that every patient admitted has had their inpatient assessment completed as required which implies that the hospital's processes for conducting IP assessments at admission are robust and strictly adhered to.

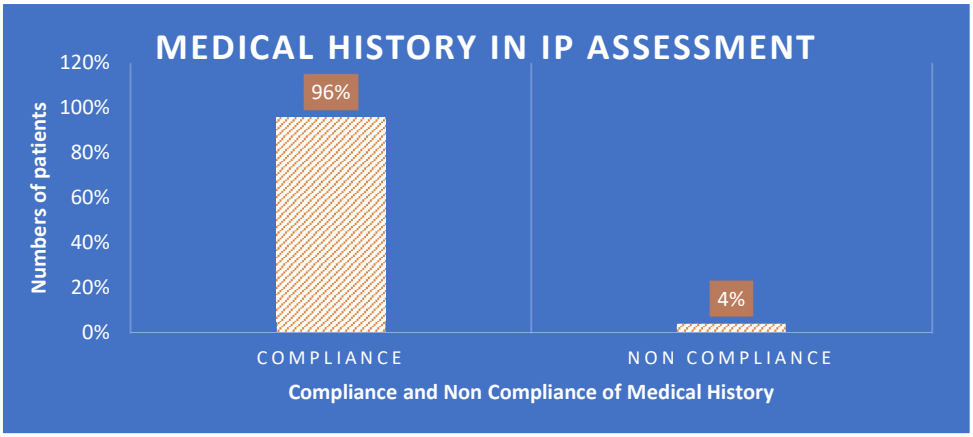


Figure 4.3 – Compliance and non-compliance of medical history done in IP Assessment

The data analysis yields the following findings-

Medical history documentation - comprises a complete medical history of all prescribed and non-prescribed medication use on a regular basis, draws on a variety of information sources.

A recorded medication history is included in 96% of IP (Inpatient) assessments, which demonstrate great compliance. The non-compliance rate of 4% denotes the occurrences of

medication history not being recorded during IP evaluations. This highlights an area needing attention to achieve complete and accurate medical reconciliation. This gap is crucial because inadequate medication history records have a negative effect on the entire process of medical reconciliation.

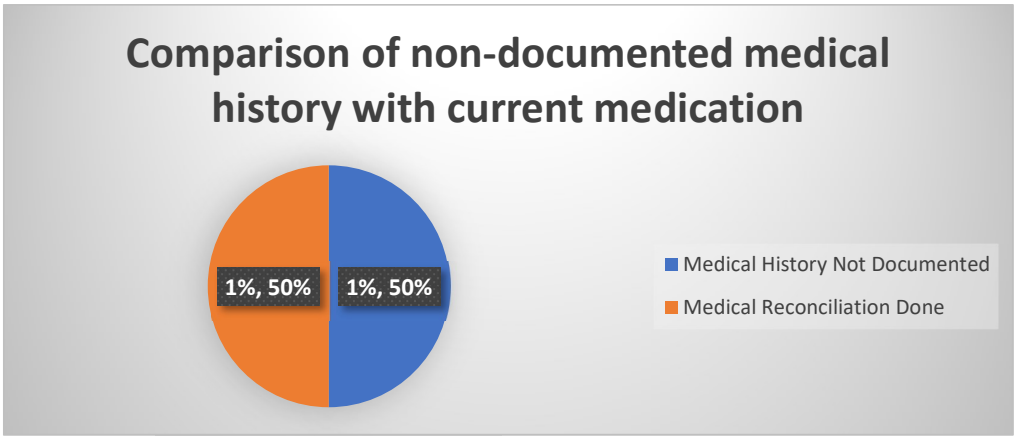



Figure 4.4 – Comparison of non - documented medical history with current medication

The data analysis yields the finding: -

Within this 4%, an alarming 1% proceeds with documenting current medications, which highlights a critical flaw in the medication reconciliation process.

The risk of an incomplete reconciliation, which compromises patient safety and care quality, is indicated by the 1% compliance rate in recording current drugs without a comprehensive medication history.

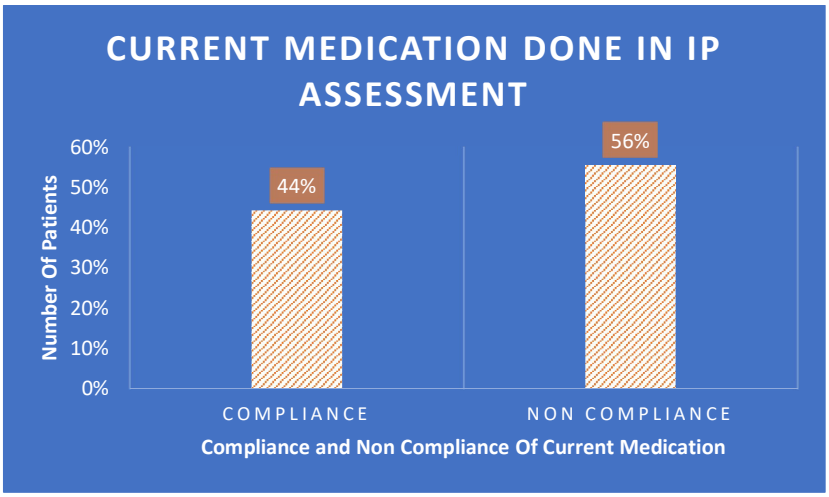



Figure 4.5- Compliance and Non- Compliance of Current medication in IP Assessment

The data analysis yields the findings; -

- Less than half of the patients are guaranteed that their current drugs are examined and appropriately assessed at the time of admission, with only 44% compliance.

- The alarmingly high 56% non-compliance rate highlights the critical need for the medication assessment procedure to be improved.

- In real terms, 56 patients do not have an assessment of their current drugs performed for every 100 inpatient admissions.

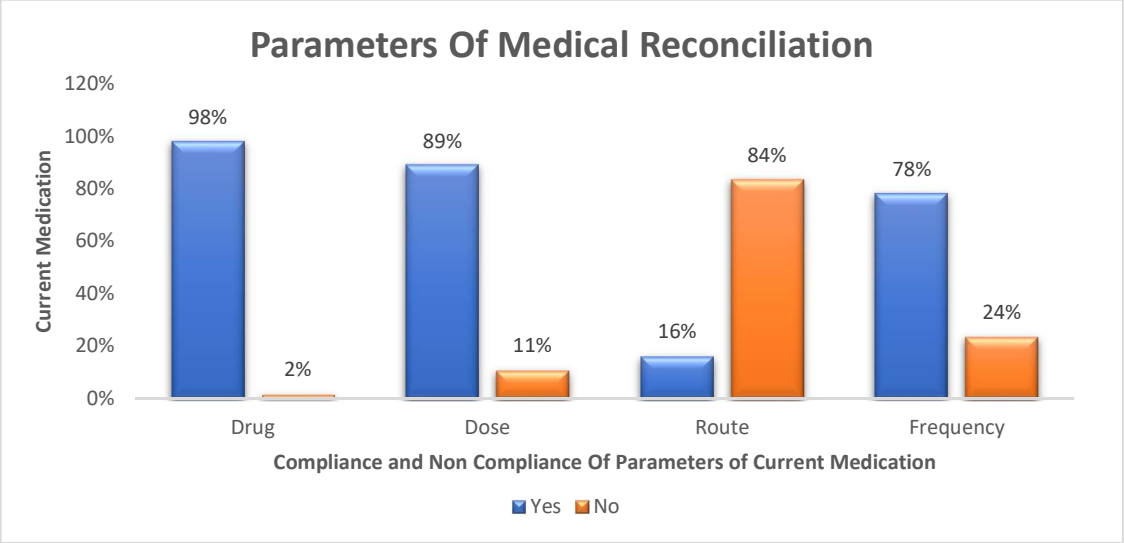



Figure 4.6- Compliance and non-compliance of different parameters of Medical Reconciliation

The data analysis yields the findings: -

- The "Parameters of Medical Reconciliation" graph displays the rates of compliance and non-compliance for a range of medical reconciliation parameters after admission inpatient (IP) evaluations.

- The drug parameter has the highest compliance rates (98%), and the fact that there is only 2% non-compliance shows how accurate and trustworthy the drug name documentation.

  Even while the dosage and frequency parameters exhibit reasonably high compliance (89% and 78%, respectively), the current non-compliance rates (11% and 24%) indicate that there is still room for improvement in these areas and that medication errors may still occur.

- The extremely low (16%) compliance percentage for the route parameter indicates an immediate need for action. Ensuring that drugs are taken accurately and safely requires accurate documentation of the route.

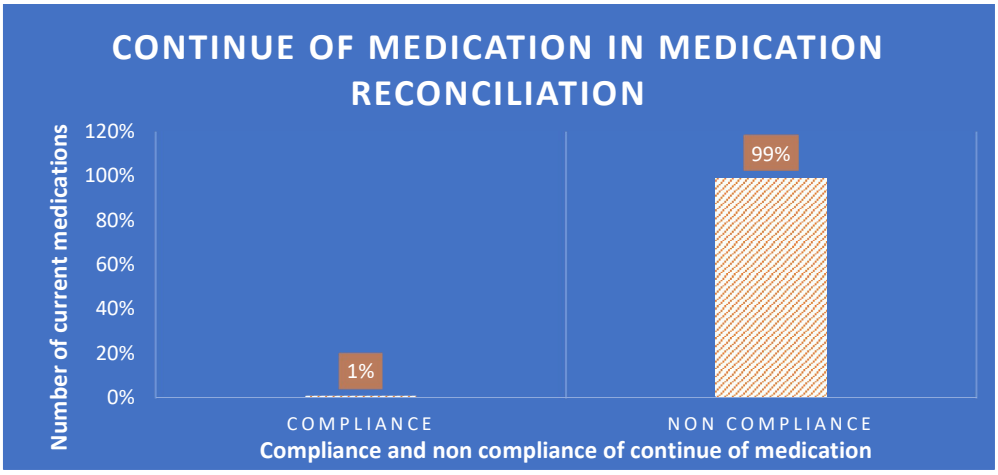


Figure 4.7- Compliance and non-compliance of continuation of medication

The data analysis yields the findings:

- The following information is displayed in the graph "Continuation of Medication in Medication Reconciliation": Merely 1% of the present drugs were accurately continued throughout the reconciliation procedure. It is clear from this incredibly low compliance rate that very few drugs are correctly continued through the reconciliation procedure.

- The large majority of prescriptions are not being properly assessed and continued, which is a serious shortcoming in the medication reconciliation process that is highlighted by this high non-compliance rate.

- The fact that 99% of patients do not continue taking their existing drugs as prescribed highlights a serious issue with the medication reconciliation procedure. Significant prescription errors, patient safety concerns, and unfavourable health outcomes might result from this gap.

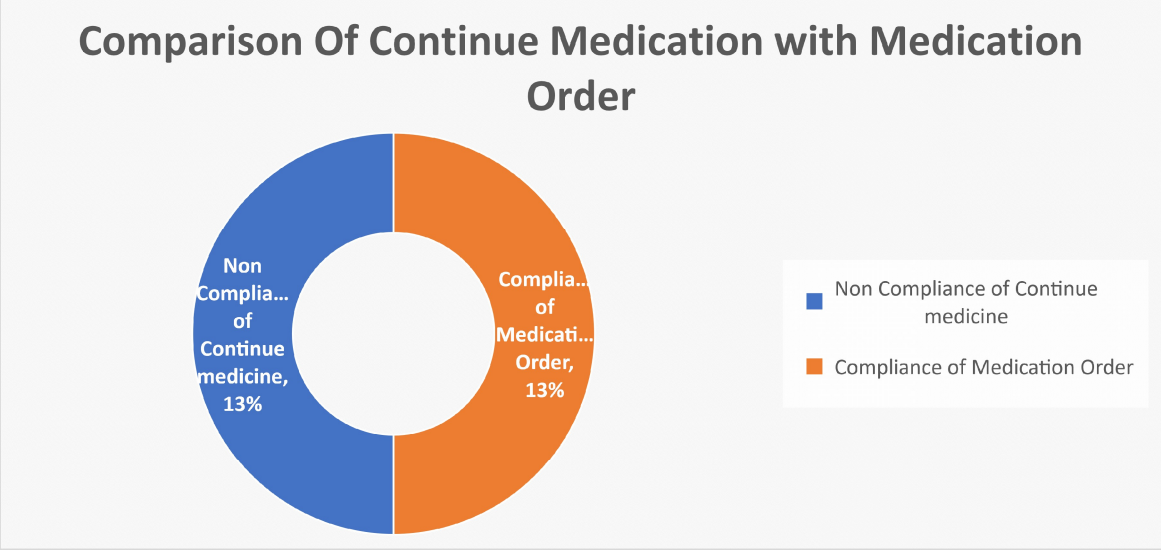



Figure 4.8- Compliance and non-compliance of Continue medication with medication order

The data analysis yields the findings: -

One of the most important steps in the medication reconciliation process is continuing your prescription. By guaranteeing that each continuous medication is precisely recorded by medical practitioners, it protects patient safety and care. The usefulness and thoroughness of the medication reconciliation procedure depend on accurate documentation of drug continuance.

- 13% of patients stopped taking their prescriptions, which suggests a serious problem with non-compliance.

- Comparably, 13% of patients' medicine orders were completed appropriately, meaning that their requests were correctly processed.

- The data shows a 13% dual compliance and non-compliance rate, indicating that a sizable percentage of patients are either not receiving their prescriptions as prescribed or have their prescription orders completed incorrectly.

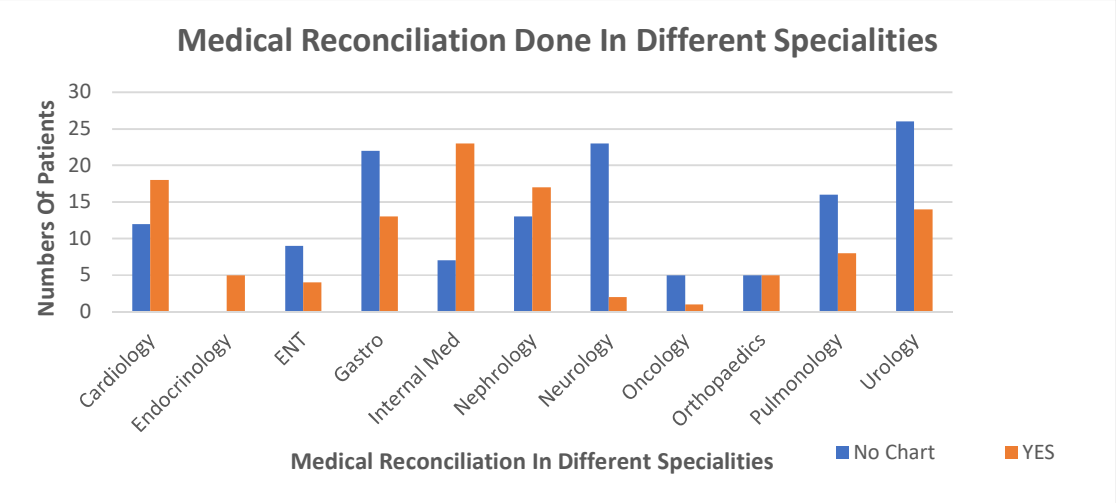



Figure 4.9- Medical reconciliation documented in different specialties

- The data analysis yields the key findings: -
- Endocrinology demonstrated excellent adherence to medication reconciliation standards, achieving 100% compliance.

- With a 76.7% compliance rate, Internal Medicine also fared well, indicating a strong commitment to drug reconciliation procedures.

- 60.0% of cardiology cases followed medication reconciliation protocols, indicating a moderate compliance rate.

- With a 56.7% compliance rate, nephrology demonstrated reasonable adherence but still needed improvement. With 50.0% compliance, orthopaedics had an even split, indicating the need for additional efforts to improve medication reconciliation adherence.

- With only 30.8% adherence, ENT showed poor compliance, indicating serious flaws in the drug reconciliation procedure.

- Additionally, gastroenterology had poor compliance, with a rate of 37.1%, suggesting much space for improvement. With one of the lowest compliance rates (8.0%), neurology is clearly a key issue that requires immediate attention. The poor compliance rate of 16.7% in oncology indicates that there is a need for significant improvement in this department's medication reconciliation procedures.

- The pulmonology department's 33.3% compliance percentage indicates serious flaws in the reconciliation procedure.

- The 35.0% compliance rate in urology suggests that targeted improvement initiatives are required.

- Different departments' compliance rates show different degrees of medication reconciliation protocol adherence. While Internal Medicine and Endocrinology are two departments with high compliance rates, Neurology and Oncology have extremely poor compliance rates. This discrepancy emphasizes the necessity of focused measures to harmonize drug reconciliation procedures throughout all departments.

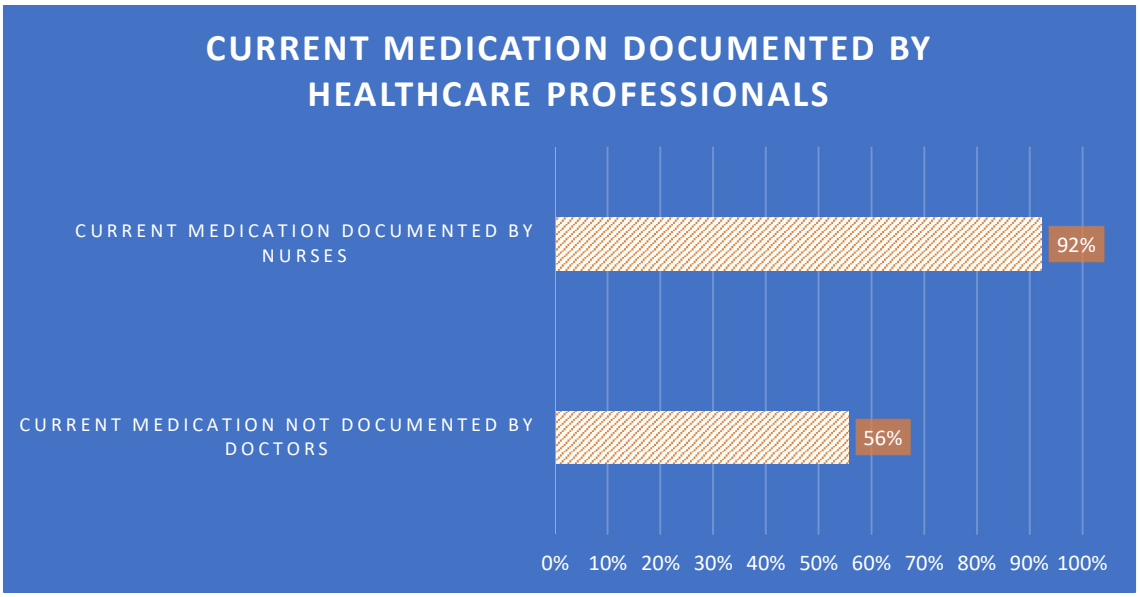
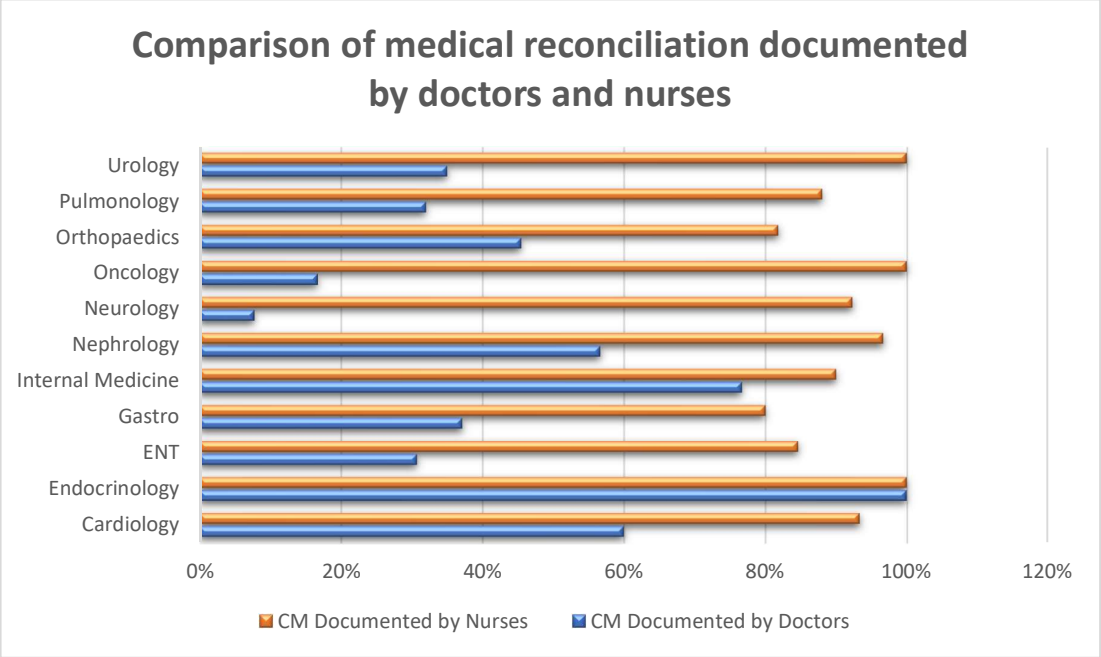


Figure 4.10- Compliance and non-compliance of current medication documented by healthcare professionals

The data analysis yields the findings: -

- The percentage of clinicians who now document drug compliance is 56%. The 91% of nurses have reported that they are currently taking their medications as prescribed. This suggests that nurses have a much higher documentation rate and are almost at complete compliance, whereas more than half of doctor's record medication compliance. Physicians must update their present drug documentation in order to improve patient care and safety. In order to guarantee accurate and consistent patient medication information communication during transitions of care, medication reconciliation is essential.




Figures 4.11- Comparison of medication reconciliation documented by doctors and nurses in different specialties

The data analysis yields the findings: -

- In comparison to physicians, nurses typically record a larger percentage of medical reconciliation across all specialties. In the field of nephrology, nurses document 80% of patient care while doctors document 30%. This discrepancy in documentation is particularly noticeable. Cardiology has the highest rate of documentation by physicians and nurses, with physicians documenting around 55% of cases and nurses documenting nearly 95%.
- Endocrinology has the least discrepancy in documentation between nurses and doctors, at roughly 15%. The fact that nurses consistently document at higher rates than their physician colleagues underscore the important role that nurses play in medical reconciliation documentation across a range of medical specialties.

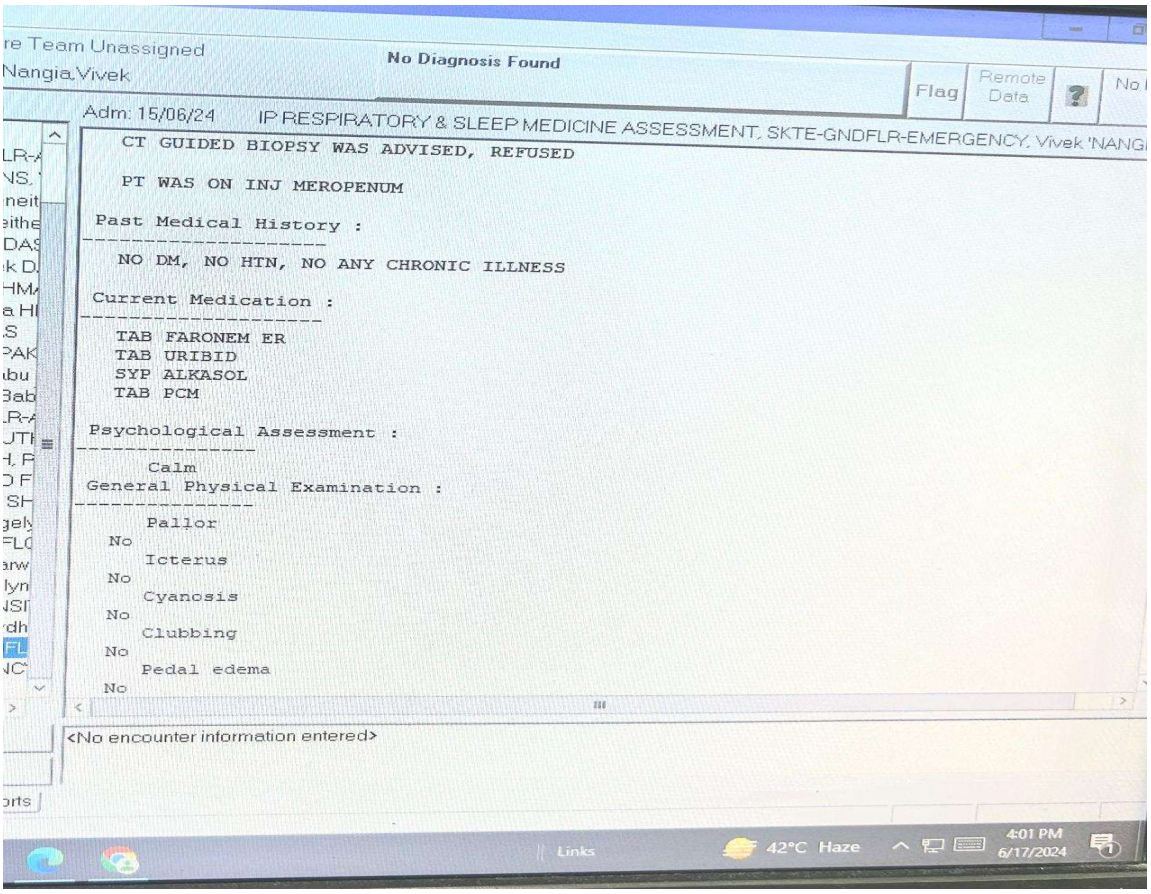



Figure 4.12- this image shows the incompleteness of medical reconciliation and its parameters; the drug name is documented but dosage, route, frequency and yes to be continuation not mentioned in the electronic health information system.

**Post Intervention – Medication Reconciliation Process**

Medication reconciliation is a important procedure that makes sure patients' medication information is appropriately recorded and managed during care transitions. Acknowledging its significance, a post-intervention study was launched in June 2024 to evaluate medication reconciliation's efficacy and compliance throughout the hospital's departments. The goal of this project was to find ways to improve the reconciliation procedure in order to improve patient care and safety overall.

Assessment of Implementation Effectiveness: This gives an indication of how successfully the intervention has been put into practice and followed by various departments. Determining Compliance Levels: we find out compliance and noncompliance of medical reconciliation and its parameters which shows that which department are lacking medication reconciliation. it is necessary to bring implement solution to specialities having high non-compliance. Measuring the Impact on Patient Safety: By comparing data collected prior to and

during the intervention, one may ascertain how the reconciliation process affects patient safety and how much medication errors are decreased.

Post-intervention studies were carried out in the month of June,2024 which provide ongoing data on quality improvement and empowering healthcare professionals to improve the medication reconciliation process. The medication reconciliation during post-intervention provides valuable insights on importance of medication reconciliation and its adherence to different departments. These results highlight the how important theses therapies to improve patient safety and care.

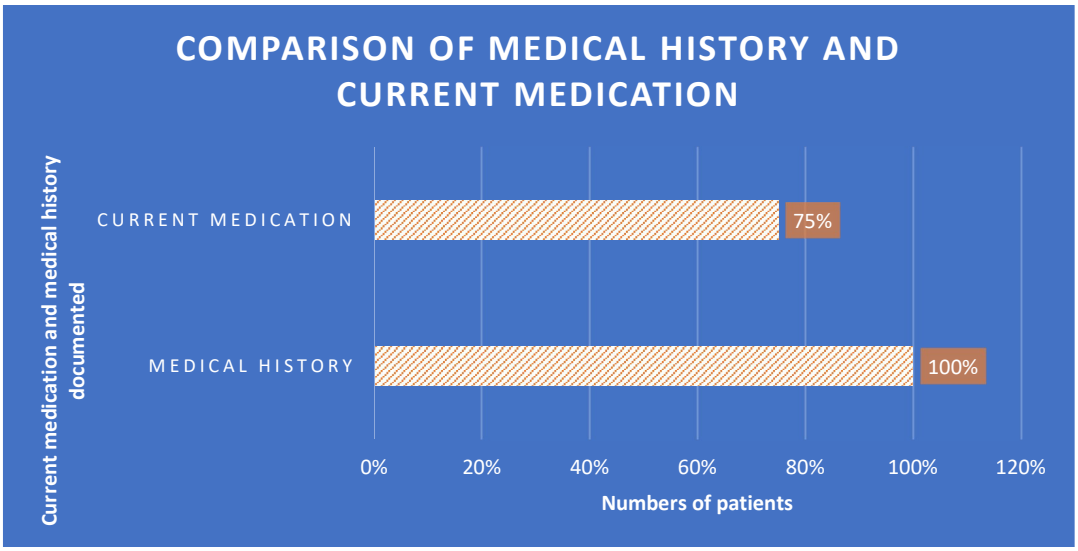



Figure 4.13-Comparison of medical history and current medication

Data analysis yields the findings: -

The graphic displays the proportion of a patient's current medication list to their whole medical history. This procedure has significantly improved, according to a recent post-intervention analysis, demonstrating the value of actions taken to increase patient safety and treatment quality.

Key Findings: 100% Compliance: All patients' medical histories were recorded with 100% accuracy, demonstrating that healthcare personnel regularly took thorough and accurate medical histories for each patient.

Careful Record-Keeping: This high degree of compliance indicates that healthcare providers are making good use of the system in place for recording medical histories. 75% Involvement Post-Intervention: A substantial improvement over prior rates was seen in the post-intervention analysis, which showed a 75% compliance rate for recording current drugs.

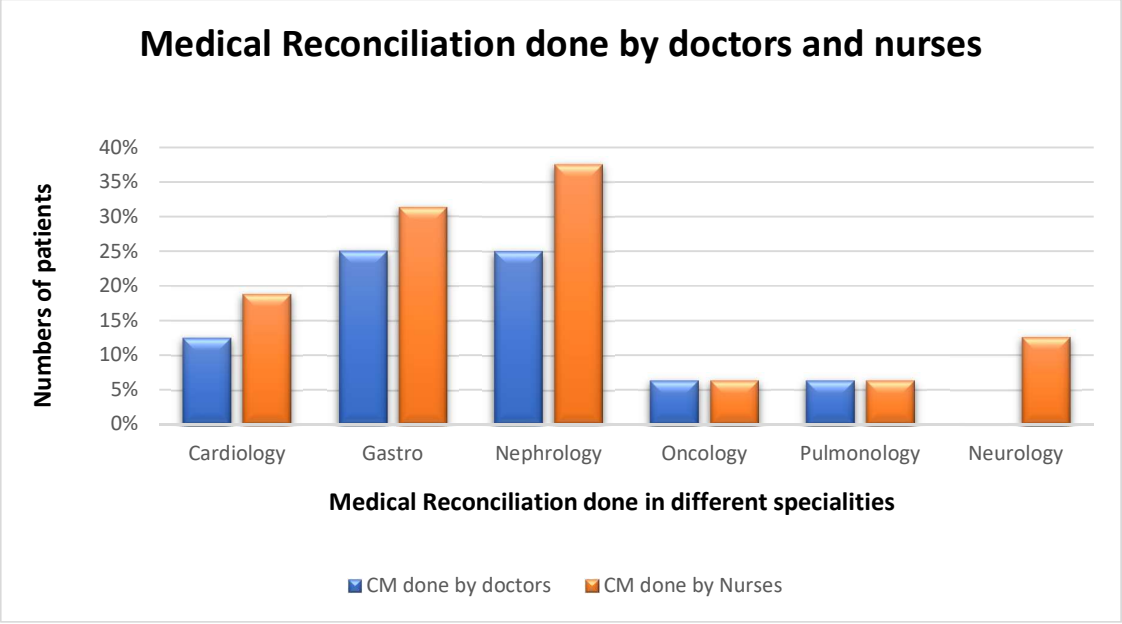



Figure 4.13- Medication reconciliation documented by healthcare professionals in post intervention

Data analysis yields the key findings; -

This analysis highlights the importance of healthcare professionals and identifies specialties that need more attention by comparing compliance rates before and after interventions.

Compared to physicians, nurses in the cardiology and neurology departments take a more active role in drug reconciliation.

The compliance rates in these specialties have increased as a result of this involvement, highlighting the critical role that nursing staff plays in keeping correct medication records. Endocrinology (100.0%): Following the intervention, the department's compliance rate was perfect, meaning that all patient's medication records were accurately reconciled. Internal Medicine (76.7%): A notable improvement was noted, with compliance rates rising to 76.7% in this field. Cardiology (60.0%): The Cardiology department had a modest compliance rate of 60.0% with active nurse involvement. Nephrology (56.7%): Following the intervention, Nephrology attained a 56.7% compliance rate, suggesting potential for more enhancement. Orthopaedics (50.0%): With a 50.0% compliance rate, orthopaedics also shown a moderate improvement. ENT (30.8%): The ENT department's low compliance rate was 30.8% in spite of the intervention. Gastroenterology (37.1%): At 37.1%, gastroenterology compliance improved but stayed below 50%. Neurology (8.0%): Although nurses were heavily involved in this area, the compliance rate was still low at 8.0%. Oncology (16.7%): With a poor compliance rate of 16.7%, oncology showed a need for further focus. Pulmonology (33.3%): With only 33.3% compliance, Pulmonology also needed extra resources. Urology (35.0%): With a compliance rating of 35.0%, Urology still needs to improve.

**Discussion of result: -**

Medication reconciliation is a crucial procedure for guaranteeing patient safety, especially when patients are being admitted, transferred, and discharged from the hospital. During transitions of care, medication reconciliation is a crucial process in healthcare that accurately documents and cross-verifies a patient's entire and current list of drugs. The goal is to ensure patient safety. In order to find out any discrepancy first ensure the medical history of patient inpatient assessment and then current medication with its parameter such as drug, dosage, route and frequency. the most importantly parameter YES to be mentioned in case if drug is continued which is compare with medication order with each medication that patient has been talking. Clarification is made while patient is taking medication – prescription or over the counter medication and it is necessary for verification for completeness of medication reconciliation process. By verifying and clarifying the medication it reduce any adverse reaction, allergies or drug interaction which improve patient safety and care.

IP Assessment and Medical History-

Medical history is first obtained from patient by healthcare professionals which play an important role in medical reconciliation and inpatient assessment is the first step which take place during the first 24 hour of admission of patient in hospital. IP Assessment have all the information about the patient such as age, gender, allergy, identity and current medication. Current medication is a part of medical reconciliation which have to be done in inpatient assessment during patient admission and ensure the completeness of all the necessary parameters are completed to ensure patient safety and care.

The compliance for inpatient (IP) assessments at the time of admission is shown in the above graph. For IP assessments completed at the time of admission, the compliance rate is 100%. This shows that the efficacy and stringent adherence of the hospital's admission IP evaluation standards, as each patient who was admitted had completed their inpatient examinations as required. The data analysis shows that the compliance of medical history in inpatient assessment is 96% while non-compliance for medical history in inpatient assessment is 4% that highlight the need of medical history documentation during patient admission.

Medication Reconciliation and its parameters: -

Medication reconciliation is a crucial process that ensures a precise and comprehensive evaluation of a patient's prescription regimen at the time of admission in hospital settings. Medication reconciliation should be done at the time of admission to improve patient safety

and care at initial stage. For completeness of medical reconciliation process, four primary medication reconciliation parameters have to be filled- drug, dosage, route, and frequency.
The drug parameter shows that doctors are highly successful in precisely recording the names of drugs given to the patients, with a high compliance rate of 98%. This exceptional compliance rate shows how reliable hospital records' medication lists are, which is essential for minimizing prescription errors and ensuring that medicine is taken according to schedule. The 89% compliance rate and 11% non-compliance rate for the dose parameter, however, suggest possible regions of discrepancy. This highlights the importance of properly monitoring prescribed dosages to prevent possible issues with under- or over-medication that may compromise patient safety.

In contrast, the route parameter indicates an important amount of opportunity for improvement, with only 16% compliance and 84% non-compliance. Healthcare practitioners need to drastically change the way they record this information if they are to provide therapy effectively and lower the risk of administration errors. This entails accurately documenting the method of administering the medicine (e.g., intravenously, oral).
However, with a 78% compliance rate and a 22% non-compliance rate, the frequency parameter shows that there is scope for improvements to the reporting of drug administration regimens. Improving compliance in this area is critical to maximizing therapeutic results, lowering the risk of missing doses, and ensuring patients receive their prescriptions on time.

Overall, the results show that medication reconciliation during IP testing is not without its opportunities and challenges. Although medication names and dosages have been submitted as required, there is undoubtedly scope for improvement in the precision with which administration methods and treatment frequency are recorded. Addressing these disparities is necessary to ensure complete care during the hospital stay, reduce prescription errors, and improve patient safety and care.
The medication reconciliation process that important parameter yes to be continue which have to mentioned in case if drug is continue, the compliance for this parameter is only 1% while 99% is non-compliance which shows that this parameter is not filled as per its importance which shows the serious problem with the medication reconciliation process.
medications, this graph emphasizes a serious problem with medication reconciliation. This shows the importance of medication reconciliation during transition of patients.

Medication reconciliation in different specialties: -

On the other hand, internal medicine efficiently executes medication reconciliation procedures and has an elevated level of compliance; endocrinology, on the other hand, has an intense dedication to drug reconciliation operations and assures full documentation (100%). Cardiology's moderate 60.0% compliance rate indicates a major effort in medication reconciliation, while 56.7%: Similar modest compliance is seen in nephrology, which highlights medication reconciliation difficulties for patients with renal insufficiency (50.0%): It can be especially difficult to ensure that medications and surgical treatments complement one another in orthopaedics because to the moderate compliance rate.

ENT (30.8%), gastroenterology (37.1%), pulmonology (33.3%), and urology (35.0%): Medication reconciliation procedures may need to be got better according to by lower compliance rates in several organizations. There may be difficulties with managing medications in addition to administrative duties and in interdisciplinary teams' coordination of care. Enhancing patient safety and treatment efficaciousness in ENT, pulmonary, gastrointestinal, and urological care requires resolving these disparities. The lowest compliance rates have been observed in neurology (8.0%) and oncology (16.7%), which have to do with the most complicated prescription schedules, frequent adjustments, and strict monitoring protocols. Reconciliation protocols in these fields need to be improved in order to optimize symptom management, adherence to medication, and quality of life for patients with neurological conditions and cancer

Medication reconciliation can have many advantages, some of which include reducing prescription errors, minimizing adverse drug events, raising patient satisfaction, and improving therapeutic outcomes. To improve medication safety in a range of healthcare settings, research needs to focus on standardizing reconciliation processes, utilizing technology for real-time updates, and encouraging strict oversight and interdisciplinary collaboration.

Medication reconciliation that healthcare professionals have recorded: Medication reconciliation documents must be kept by medical professionals, especially nurses and doctors, in order to guarantee patient safety and treatment continuity. Carefully documenting the procedure for reconciling medications can help prevent prescription challenges, such as incorrect amounts, duplicated prescriptions, or incorrect prescriptions. Monitoring patient safety is of utmost importance, particularly in situations when frequent medication improvements occur during care transitions such as admission, discharge, or transfer. Documentation makes it easier for the medical team to communicate and coordinate care when

everyone has access to the most updated drug lists. This must be done to successfully treat patients in a variety of specialties and medical environments. 96% of practitioners in nursing: Because of their high rate of medication reconciliation compliance, nurses play an essential part in both patient treatment and medication management. Health care workers (56%): The lower rate of compliance raises the possibility that practitioners' methods for medication reconciliation are inefficient or incorrect. Some of the possible factors that could be causing this include clinical workflow priorities, inconsistent documenting standards, and time limits. Improving physician adherence is critical to maintaining accurate administration of medications and lowering errors that could compromise patient safety.

Discussion summary-

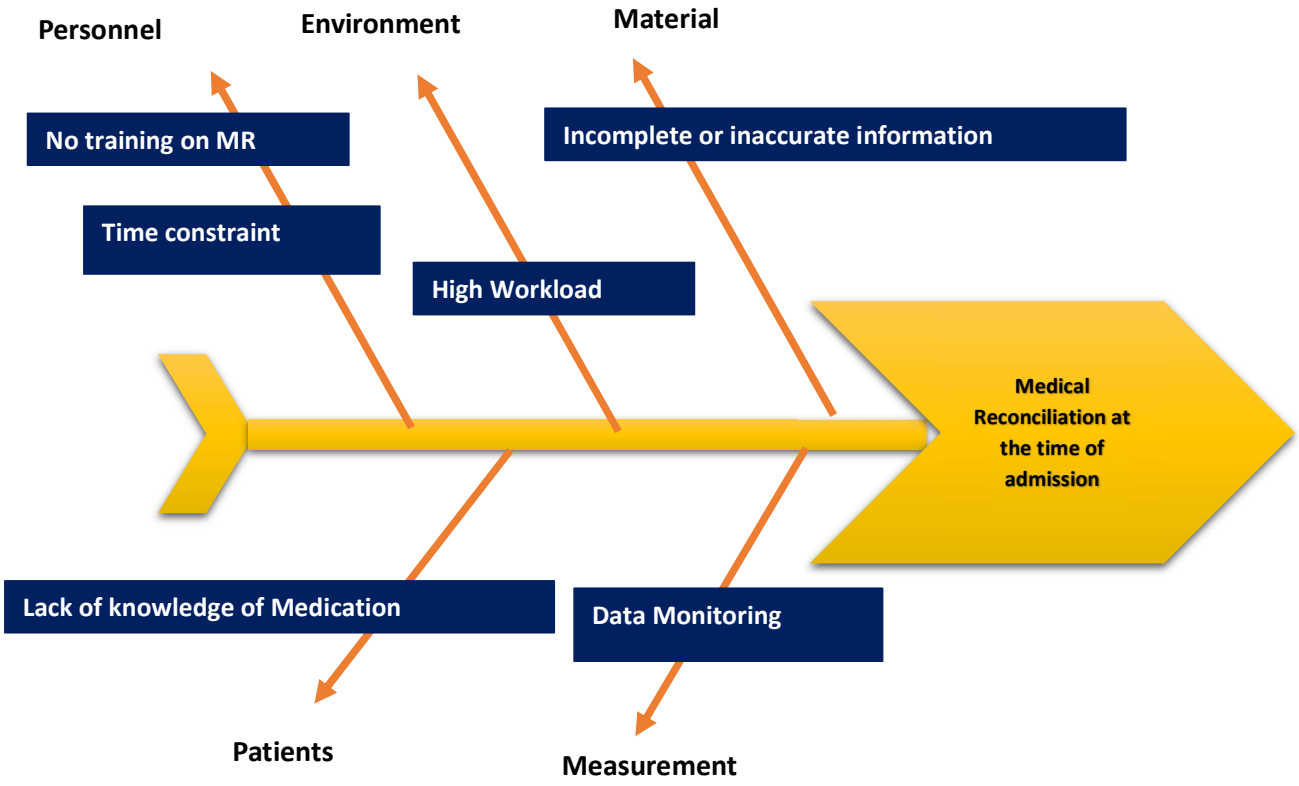
This case emphasizes the significance of medication reconciliation is to maintaining patient safety during modifications to the procedure of patient care in healthcare settings. This approach involves meticulously documenting and verifying the patient's whole list of medications in order to locate and correct any inconsistencies between the patient's former drug regimen and their current prescriptions. However, there is a wide variation in the rates of compliance with medical reconciliation (4%), and medical history documentation (96%) requirements. However, 100% of inpatient exams are finished at the time of admission, demonstrating outstanding adherence to protocol. This indicates that a comprehensive medication history may have been mainly overlooked when it comes to putting data into reconciliation procedures, despite its crucial role in guaranteeing accurate treatment regimens and reducing prescription errors.

This gap requires to be reconciled in order to enhance the results of treatment and patient safety during hospital stays. The data highlights the importance of medication reconciliation in maintaining patient safety and treatment continuity in different healthcare environments. As demonstrated by their high reporting reconciliation compliance rate of 96%, nurses play a critical role in the regulation of drugs.

In contrast, the compliance rate among physicians is only 56%. Workflow priorities and time restrictions may be to blame for this. Precisely verifying and reconciling a patient's medication list is crucial throughout care transitions. However, significant gaps exist in the reporting of the dosage (89%), route (16%), and frequency (78%) components, pointing to areas that need to be improved in order to minimize errors and maximize the administration of therapy. The

concerning figure that just 1% of prescription The fact that medications were correctly maintained during the reconciliation suggests that there are systemic issues with sustaining treatment uniformity. applying interdisciplinary teams, stricter documentation guidelines, and standardized processes to overcome these discrepancies. Collaboration is even more crucial to enhancing patient outcomes and hospital care safety than the procedure needed to precisely authenticate and reconcile a patient's prescription list throughout care transitions. The information displayed shows that different specialties have varied levels of medication reconciliation compliance. Endocrinology has a 100% adherence rate, which guarantees accurate record-keeping and patient security. While internal medicine is not far behind with effective procedures, there are still issues with structuring prescription regimens for complex illnesses, as evidenced by the moderate compliance rates for cardiology and nephrology.

**Fishbone analysis -** A Fishbone analysis, sometimes referred to as an Ishikawa diagram or a cause-and-effect diagram, is a useful technique for figuring out what causes lead to problems like medication reconciliation in the medical field.



## Chapter 5- **Conclusion**

The quality improvement initiative, which assessed and enhanced the precision of medication reconciliation at the time of admission, has produced significant data on current compliance rates in many specialties. It also highlighted issues that require quick correction. Notable high compliance rates were observed for medical history reporting (96%) and medicine name correctness (98%). Important medication reconciliation components, such as current medication evaluations (44%), route documentation (16%), and frequency recording (78%), are still noticeably missing. Above all, the measurably low percentage of patients whose medicine orders were accurately filled—13 percent—raises grave concerns.. This highlights how urgently better policies and processes are needed to ensure continuity of treatment and accurate drug management. The degree of compliance varied by specialty; for example, there were notable variations in ENT (30.8%), gastroenterology (37.1%), neurology (8%), oncology (16.7%), pulmonology (33.3%), and urology (35%). A significant discrepancy was seen in nephrology between nurses (80% compliance in current medication reporting) and doctors (30% compliance), which may indicate that interdisciplinary teams lack certain procedural or communication skills. Cardiology, on the other hand, had the highest percentage of doctor and nurse documentations. To address these inequalities, targeted efforts are required to enhance medication reconciliation practices. These involve implementing better medical staff training programs, adopting standardized protocols for the documentation and reconciliation processes, and promoting enhanced cross-disciplinary cooperation. By encouraging better channels of communication and ensuring that team members understand their responsibilities, healthcare companies may lower errors and enhance patient safety.

The project additionally highlights the importance it is that healthcare settings maintain a high standard of care. Continuing advancements in medication reconciliation protocols requires regular assessment of embraced changes, feedback channels, and routine audits. Healthcare facilities can improve the quality of patient care by improving workflows, reducing errors, and using technology like Fishbone analysis to find the root causes of non-compliance. It is advised to use a methodical approach. In order to address differences in medication reconciliation practices within areas of specialization, healthcare providers need to collaborate.

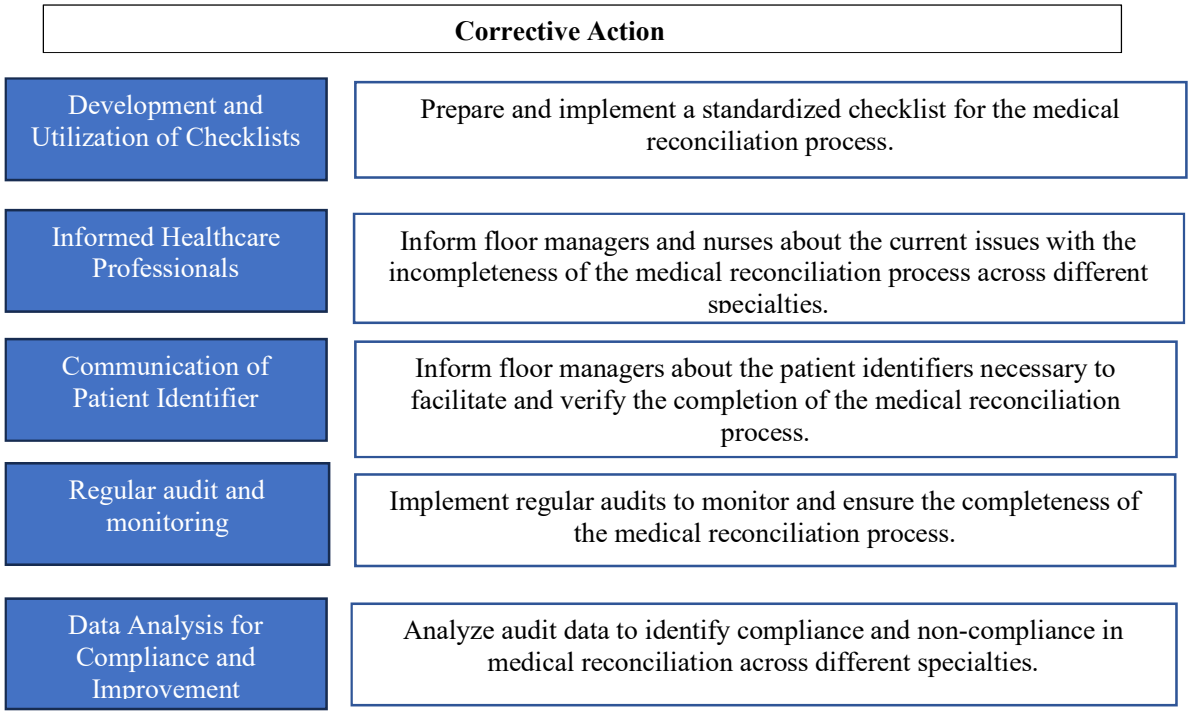



Figure 5.1- Corrective action for medical reconciliation improvement

# Recommendations

1- **Standardize Process and Protocol**-Establish standardized procedures for medical reconciliation that outline roles and responsibilities of healthcare providers involved (e.g., physicians, pharmacists, nurses).

2- **Interdisciplinary Collaboration-**To ensure comprehensive medication history gathering s reconciliation. Feedback mechanisms to address challenges and improve reconciliation practices.

3- **Feedback and Audit Mechanisms-**Regular audits and reviews of medication compliance documentation practices. Analyze trends and identify areas for improvement.

4- **Standardize Documentation Protocols-** Implement standardized protocols for medical reconciliation across all specialties. Clearly define the roles and responsibilities of nurses and doctors in the reconciliation process. Communicated effectively and consistently.

5- **Patient Engagement:** Involve patients actively in the reconciliation process by encouraging them to maintain accurate medication lists and share updates with their healthcare team.

6- **Utilization of Tools**: Teach employees how to efficiently use reconciliation software or electronic health records (EHRs). Electronic Health Records (EHR): Make use of EHR technologies to make reconciliation simpler and more precise. Instruments for Supporting Decisions: Use decision support capabilities in EHRs to notify medical professionals of inconsistencies or partial reconciliations.

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