

## EVERY NOTE COUNTS, A CLINICAL AUDIT ON MEDICAL RECORD QUALITY IN A MULTISPECIALTY TERTIARY HOSPITAL IN PAKISTAN

Dr. Muhammad Asad Javed <sup>\*1</sup>, Fatima Amjad<sup>2</sup>, Dr. Umnah Noor<sup>3</sup>, Zarish Fatima Malik<sup>4</sup>,  
Maheer Amjad<sup>5</sup>, Dr Mahrukh Khan<sup>6</sup>

<sup>\*1</sup>Al Aleem Medical College Gulab Devi Teaching Hospital

<sup>2</sup>Women Medical Officer Jinnah Hospital Lahore

<sup>3</sup>Postgraduate Resident Gulab Devi Hospital, Lahore

<sup>4</sup>Postgraduate Resident Children Hospital and University of Child Health Sciences, Lahore

<sup>5</sup>Postgraduate Resident Jinnah Hospital, Lahore

<sup>6</sup>House Officer Gulab Devi Hospital, Lahore

<sup>\*1</sup>dr.asadjaved@yahoo.com, <sup>2</sup>fatymaamjad@gmail.com, <sup>3</sup>umnahnoor@gmail.com, <sup>4</sup>zmalik439@gmail.com

<sup>5</sup>maheer.amjad83@yahoo.com, <sup>6</sup>mahrukh.khann24@gmail.com

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Corresponding Author: \*  
Muhammad Asad Javed

### Abstract

**Background:** Effective documentation is vital for quality clinical care, enabling proper treatment planning and continuity across providers. This audit assessed inpatient records in a multi-specialty hospital for compliance with established documentation standards.

**Aims and Objectives:** To assess medical notes quality across departments at Gulab Devi Teaching Hospital and suggest solutions to enhance records and address deficiencies.

**Method(s):** A retrospective audit was carried out at Gulab Devi Teaching Hospital from July 1<sup>st</sup> to December 31<sup>st</sup>, 2024. Out of 10,000 patients admitted during this period, 1,000 case notes were randomly selected for review. The clinical documentation was evaluated based on structured parameters set by the Punjab Healthcare Commission (PHC) and analyzed using MATLAB.

**Results:** This audit shows that targeted interventions improved documentation, raising compliance from 88.1% to 98.9%, enhancing safety, continuity, and accountability.

**Conclusion:** The audit reveals initial inadequate documentation practices in patient charts, posing significant risks for care and retrospective analyses. Subsequent orientation sessions significantly improved records, underscoring the importance of structured training to meet established documentation standards.

### INTRODUCTION

Clinical audit is a quality improvement tool that evaluates current practices against set standards by certain authorities, identifies deficiencies and gaps relative to established standards, and implements necessary changes. It remains one of the most

effective approaches for enhancing the quality and standards of patient care.<sup>1</sup> Maintaining high standards in clinical practice relies strictly on effective documentation. The General Medical Council (GMC), in its key guidance “Good Medical

Practice,” highlights the responsibility of doctors to maintain clear, accurate, and accessible patient records, capturing clinical findings, decisions, treatments, and discussions to support patient safety, continuity of care, and medico-legal accountability.<sup>2</sup> As the volume of patient observations recorded in medical charts continues to grow, clinicians are increasingly confronted with an overwhelming amount of data, registries, and documentation. This challenge spans across various care settings including outpatient clinics and inpatient admissions and affects all stages of the care process across medical specialties. Instead of widespread recognition of the importance of systematically evaluating the quality of medical records, consistent improvement remains a complex task. While enhancing the quality of documentation is a clear priority for healthcare organizations, achieving this goal can often prove challenging in practice.<sup>3</sup> Moreover, the proper management of health records alongside accurate, detailed, and comprehensive documentation has become essential in modern healthcare systems. This is not only critical for efficient administrative reporting and legal obligations but also plays a vital role in ensuring patient safety, quality of care, and evidence-based clinical decision-making. Additionally, for any healthcare institution aiming to achieve recognition as a center of excellence, maintaining high standards in record keeping is an essential requirement. Properly managed records support audits, quality assurance, performance evaluation, and regulatory compliance, ultimately contributing to the overall credibility and effectiveness of the healthcare system.<sup>4</sup>

Over the past few decades, assessing the quality of healthcare has become increasingly important for guiding improvement efforts, ensuring accountability, and enhancing transparency. To support this, governments, scientific bodies, and insurers have introduced both mandatory and voluntary quality indicators. These indicators enable comparisons between institutions, making accurate and reliable reporting significant.<sup>5</sup> The consequences of discontinuity of care are associated with higher healthcare costs, longer hospital stays, increased readmission rates, lower patient satisfaction, a greater risk of adverse events, and more frequent delays and errors in diagnosis and treatment.<sup>6</sup>

We strictly follow the medical record-keeping guidelines issued by the Punjab Healthcare Commission in 2022. These guidelines emphasize that medical notes must be readily accessible to healthcare professionals involved in patient care and properly stored. Current admission records should be arranged chronologically within the designated section. Every file must include the patient's name, date of birth, and a unique identifier. All entries must be clearly dated and timed using the 24-hour clock format. Furthermore, each entry should conclude with the healthcare provider's signature, printed name, designation, and contact number. Documentation must be clear, well-organized, and easily legible for accurate interpretation. To the best of authors' knowledge, no local study has been conducted before in a similar domain.

## 1. Aims and Objectives

The audit aimed to enhance the quality of medical note documentation at Gulab Devi Teaching Hospital. It also sought to assess documentation practices across various departments and identify existing deficiencies. Based on the findings, the audit intended to improve accuracy, completeness, and overall standard of medical record-keeping within the hospital.

## 2. Standard

The PHC Standard consists of twenty parameters (variables), as illustrated in Figure 1, and an overall grade would be given for each parameter as follows: Yes or No depending on completion of indicator.

## 3. Methodology

### 4.1 Audit Design

A combined retrospective and prospective observational study were conducted. In the first cycle, random inpatient medical records were audited retrospectively. Following the implementation of improvements, a second audit cycle was carried out prospectively.

### 4.2 Audit Area/Population

Gulab Devi Teaching Hospital, a Tertiary care Hospital in Lahore, Pakistan. This comprises of multiple disciplines with a capacity of over 1500 beds. The study included all the major departments at the hospital, Medicine, General Surgery, Cardiac Surgery, Thoracic Surgery, Urology, Eye, ENT,

Orthopedics, Cardiology, Rheumatology, Psychiatry, Dermatology, Nephrology, Pulmonology, Gastroenterology, Pediatrics and Obstetrics &

Gynecology. The inclusion criteria consisted of 5% files of patients admitted over the period of three months of audit.

Standard Parameter	Yes	No
Full Name and Medical Record Number	Yes	No
Date and Time of Admission and time of Initial Assessment	Yes	No
Consultant/Attending Doctor admission advice	Yes	No
History of Clinical Symptoms and Physical Examination	Yes	No
Reason of Admission and admitting diagnosis	Yes	No
Patient plan of care and medication order	Yes	No
Progress notes by Consultant/MO	Yes	No
Pre op anesthesia assessment	Yes	No
Pre Op checklist	Yes	No
Patient Safety Checklist	Yes	No
Intra op anesthesia noted	Yes	No
Operation Notes	Yes	No
Post Op check list	Yes	No
Post Op Revoery Monitoring	Yes	No
Admission of Medicine by Authorized Staff	Yes	No
Documented consent for admission/procedure	Yes	No
Data of Summary from routine and special monitoring	Yes	No
Investigation	Yes	No
Chronological order	Yes	No
<b>Discharge</b>	Yes	No
Reason of Admission	Yes	No
Significant diagnositc investigation	Yes	No
Any procedure or treatment	Yes	No
Patient response to treatment	Yes	No
Discharge Medication	Yes	No
Followup Instruction	Yes	No
<b>Death Notes</b>	Yes	No
Cause of Death	Yes	No
Documented Prove (Straight Line ECG)	Yes	No
Date and time of Death	Yes	No

Figure 1: CPSA 12: Medical Records Review of Punjab Healthcare Commission<sup>7</sup>

## 4.3 Sample Size and Sampling Technique

A systematic simple random sampling method was used to select patient files from various departments, including Medicine, General Surgery, Cardiac Surgery, Thoracic Surgery, Urology, Eye, ENT, Orthopedics, Cardiology, Rheumatology, Psychiatry, Dermatology, Nephrology, Pulmonology, Gastroenterology, Pediatrics, and Obstetrics & Gynecology. The first audit cycle covered admissions from 1st July to 22nd September 2024, followed by a two-week gap, with the second cycle conducted from 7th October to 31st December 2024.

## 4.4 Data Collection Methods and Analysis

The data for this audit were gathered from case files available at the hospital's medical record office. Both survey and observation techniques were employed. To maintain consistency, a structured checklist was adopted from the Punjab Healthcare Commission, and patients' information was recorded into a pre-designed form that captured all relevant details. Each file was individually reviewed and assessed against the standard checklist. Every parameter was evaluated separately, and an overall grade was assigned based on the findings. In the first audit cycle, data were collected from 457 case files, while in the second cycle, 511 files were reviewed. These records were obtained from multiple departments,

including Medicine, General Surgery, Cardiac Surgery, Thoracic Surgery, Urology, Eye, ENT, Orthopedics, Cardiology, Rheumatology, Psychiatry, Dermatology, Nephrology, Pulmonology, Gastroenterology, Pediatrics, and Obstetrics & Gynecology.

Between the two audit cycles, a range of training and orientation activities, including lectures and focused group discussions, were carried out by the audit team. Nearly all medical staff received orientation. A more structured and refined medical record system was introduced, highlighting the significance of accurate documentation for patient care and medico-legal purposes. Clinical and clerical staff were sensitized to the importance of proper record-keeping, including admission and discharge summaries. After the training of two weeks a second cycle of audit was conducted, and the record for the next three months was evaluated. The data was

analyzed using MATLAB. The data analysis plan involved several key steps. Firstly, a master sheet was developed to organize the collected data systematically. Following this, a data cleaning process was carried out to ensure accuracy and reliability. Subsequently, descriptive statistics and summary measures were utilized to derive meaningful insights. Finally, the results were presented clearly through tables and figures.

#### 4. Results and Discussions

The heat map shown in Figure 2 illustrates the percentage compliance in first audit cycle against the PHC standards. It served as a baseline, followed by a second cycle conducted after implementing targeted quality improvement interventions (see Figure 3). Figure 4 shows the percentage difference (improvement or otherwise) between the two audit cycles.

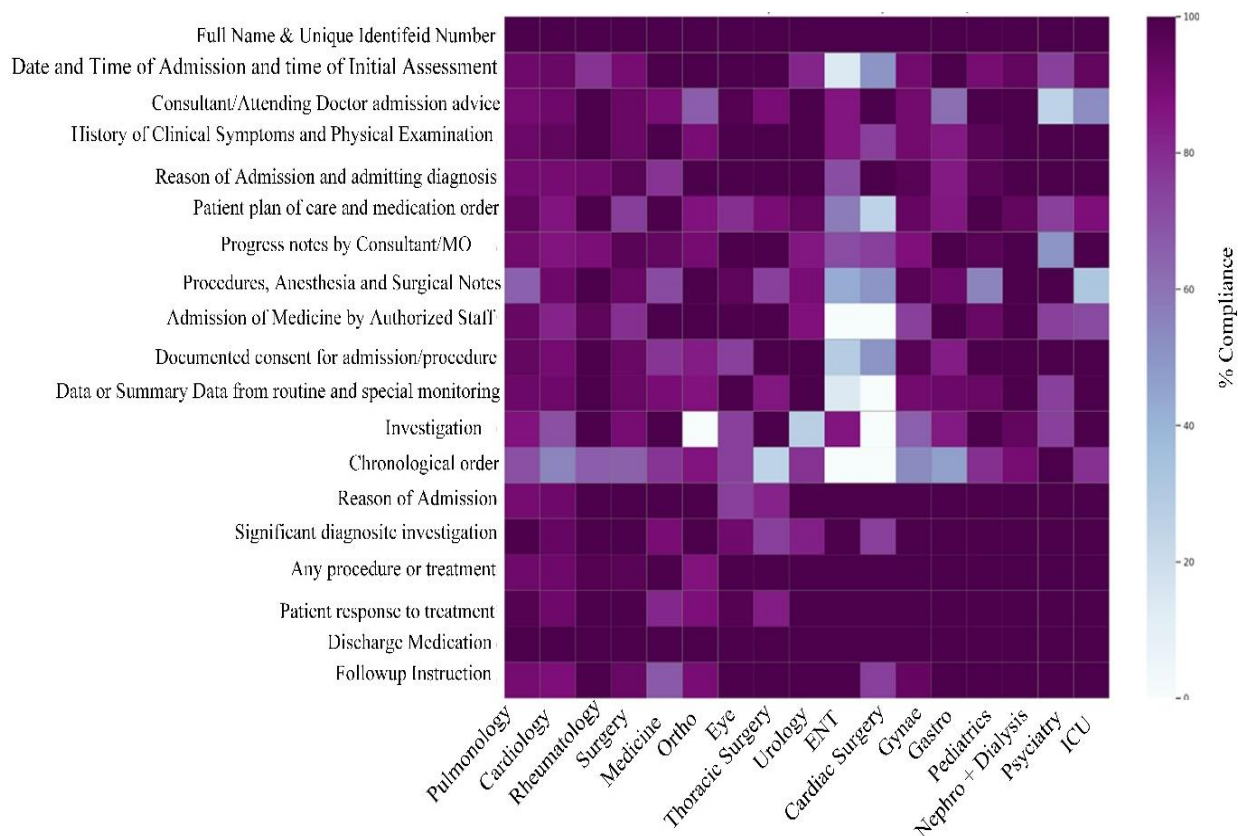


Figure 2. Documentation compliance across various department-first cycle

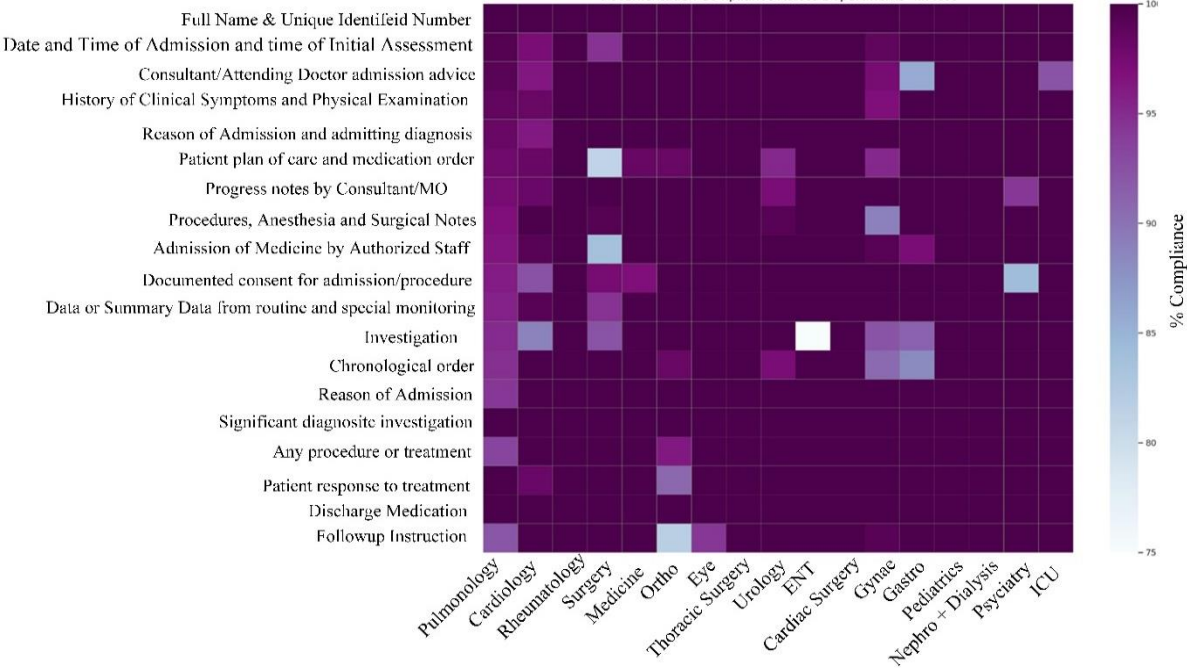


Figure 3. Documentation compliance across various department-second cycle

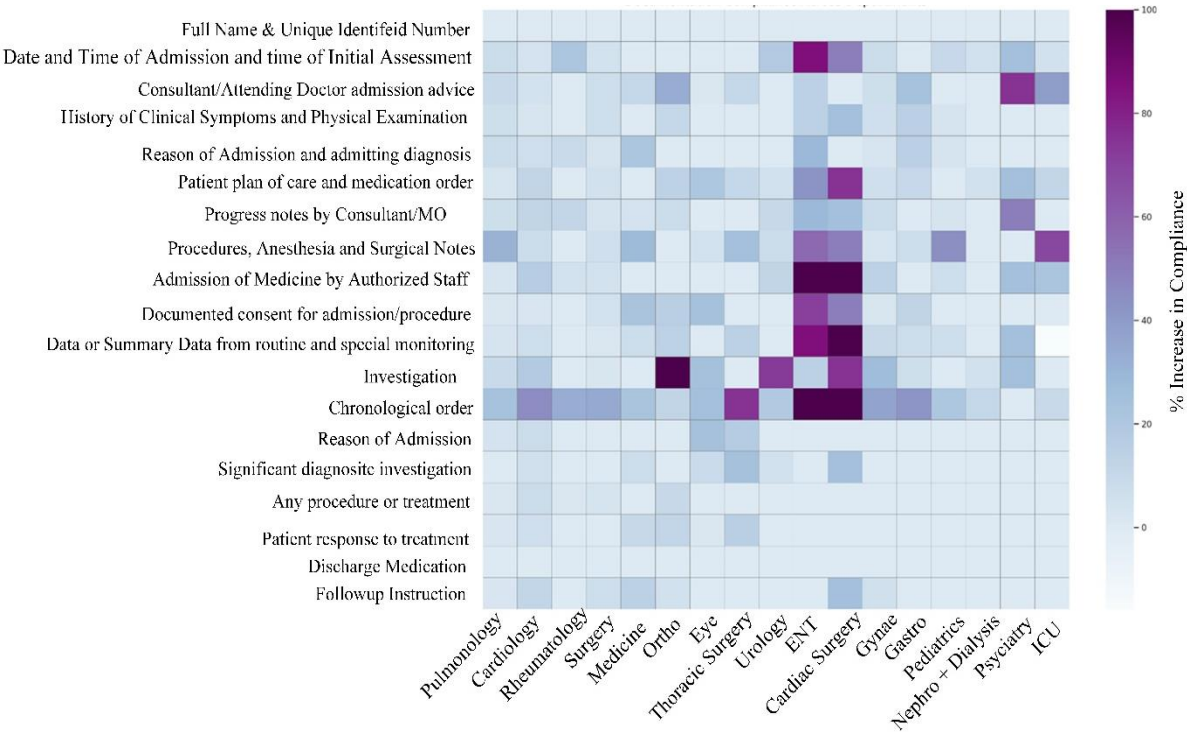


Figure 4. Percentage difference in the documentation compliance across various department

In the baseline cycle (Figure 2), the overall mean documentation compliance across all departments and parameters was 88.1%. While certain

departments such as Pediatrics and Rheumatology already demonstrated high baseline performance, several others—particularly Cardiac Surgery, ENT,



Eye, and ICU—exhibited notably low compliance in key areas. For instance, ENT recorded only 14.3% compliance in documenting “Date and Time of Admission,” and Cardiac Surgery showed just 52.6% compliance for “Documented Consent for Admission/Procedure.” These findings identified significant gaps in structured record-keeping, especially for high-risk or surgical specialties.

As discussed earlier, after the baseline audit, hospital-wide interventions were rolled. These included department-specific orientation sessions, the use of checklist-based documentation protocols, real-time supervision, and feedback loops. As a result, the second cycle demonstrated a marked improvement. The mean documentation compliance increased to 98.9%, reflecting a 10.8 percentage point increase overall. Departments such as Pediatrics, Rheumatology, and Psychiatry achieved 100% compliance in all assessed parameters, underscoring the effectiveness of the interventions. The most notable improvements by documentation domain included the following: (a) Full Name & Unique Identified Number: Improved from a baseline of

97.6% to 100% across all departments (+2.4%); (b) Discharge Medication: From an average of 82.1% to full 100% compliance (+17.9%); and (c) Reason of Admission and Admitting Diagnosis: Improved from 89.7% to 99% (+9.7%)

Among departments, the highest improvements were seen in ENT (+49.4%), Eye (+33.5%), and Cardiac Surgery (+31.2%)—each of which scored the lowest in the initial cycle. Meanwhile, departments with high baseline scores, such as Pediatrics and Rheumatology, maintained performance with marginal but complete gains, suggesting a ceiling effect of intervention efficacy. Despite overall improvements, some parameters exhibited relatively lower improvement such as Admission of Medicine by Authorized Staff showed a mean improvement of 2.8%, and Investigation showed a 3.8% increase—potentially indicating either reporting saturation or persistent workflow inefficiencies that warrant more specialized interventions. However, to check the statistical significance of this increase, the *p* values were also calculated and reported in Table 1

**Table 1: p values of the parameters**

Variables	Q1 Mean	Q2 Mean	Mean Difference	p-Value
Date and Time of Admission and time of Initial Assessment	14.48706	99.42122	84.93416	3.75E-11
Consultant/Attending Doctor admission advice	13.92	98.28584	84.36584	2.59E-12
History of Clinical Symptoms and Physical Examination	5.375882	99.64035	94.26447	6.99E-20
Reason of Admission and admitting diagnosis	5.781765	99.67844	93.89668	1.18E-18
Patient plan of care and medication order	14.50882	97.90289	83.39406	9.38E-13
Progress notes by Consultant/MO	10.01471	99.23643	89.22172	3.37E-15
Procedures, Anaesthesia and Surgical Notes	20.11176	99.08701	78.97525	1.07E-10
Admission of Medicine by Authorized Staff	18.15412	98.58991	80.43579	1.29E-08
Documented consent for admission/procedure	12.22059	98.05975	85.83916	2.86E-12
Data or Summary Data from routine and special monitoring	15.69941	99.38031	83.6809	4.33E-09
Investigation	22.35176	96.17974	73.82797	1.85E-08
Chronological order	35.90882	98.19127	62.28245	1.71E-07
Reason of Admission	3.193529	99.6646	96.47107	1.15E-20
Significant diagnostic investigation	4.577647	100	95.42235	1.03E-18
Any procedure or treatment	1.431176	99.39288	97.9617	1.79E-37
Patient response to treatment	2.745294	99.35631	96.61101	4.72E-28
Follow-up Instruction	4.175882	98.08911	93.91323	5.52E-28

From table 1 it can be seen that the parentage compliance improvements are statistically significant in all the parameters/variables. It may be noted that the values were shown for all the parameters except where the compliance is 100% in both cycles.

Overall, this audit demonstrates that structured, department-specific interventions can lead to statistically and operationally significant improvements in clinical documentation. The transition from 88.1% to 98.9% average compliance represents a critical improvement in medico-legal safety, patient care continuity, and institutional accountability. These findings affirm the value of cyclic audit-feedback systems and suggest the need to institutionalize them within hospital governance frameworks. It is noteworthy that similar results were reported in the study conducted in Sudan at Managil Teaching Hospital in 2023 where in the first cycle, documentation quality was unsatisfactory or poor in 66.7% of cases. However, after a series of medical practitioners' orientation a significant improvement was observed regarding inpatient medical records filling in the second cycle showed marked improvement, with 100% rated good or excellent.<sup>8</sup>

## 5. Summary and Conclusions

The audit aimed to thoroughly examine the existing practices related to inpatient medical records documentation at Gulab Devi Teaching Hospital. It focused on evaluating the accuracy, completeness, and organization of the records maintained by healthcare professionals. The primary objective was to identify any gaps or deficiencies in the current system and to propose practical strategies for improvement. This effort was directed towards aligning the hospital's documentation practices with the standards set by the Punjab Healthcare Commission, ensuring high-quality record-keeping that supports safe, effective patient care and fulfills medico-legal, administrative, and audit-related requirements. This study demonstrates an improvement in the quality of medical records following the implementation of an internal audit program at a tertiary care teaching hospital. The initial assessment in the first cycle revealed numerous shortcomings, with 88.1% meeting the minimum acceptable standards and notable variation between departments and care units. However, three months

later, the second audit cycle showed improvement with 98.9% across all evaluated areas. The transition from 88.1% to 98.9% compliance across over 340 data points (19 parameters × 17 departments) indicates a successful quality improvement cycle. The most significant improvements were observed in departments with initially poor performance, which aligns with the goals of equitable system-wide upliftment. Furthermore, the findings suggest that even seemingly minor gaps in documentation—such as incomplete discharge instructions or missing admission times—can be corrected through structured, department-specific strategies. Importantly, full compliance in documentation supports not only clinical continuity and patient safety but also strengthens the medico-legal defensibility and data quality for clinical audits and research.

In conclusion, internal quality assessment can serve as a valuable departmental performance indicator and should be routinely utilized by all clinicians. This audit highlights that the documentation of essential clinical information was initially inadequate in a few departments, even within a tertiary care setting, underlining the urgent need for improved standards. Poor record-keeping affects not only individual patient care but also the overall quality of healthcare delivery. Medical records are fundamental tools within any hospital or health system, critical for continuity of care, research, and medico-legal purposes. Our teaching hospital initially demonstrated unsatisfactory documentation during the first audit cycle. However, after targeted orientation sessions for medical staff, a significant improvement was observed. Emphasizing the value of accurate and complete documentation should remain a continuous priority in all clinical departments. Some authors have suggested that costs can be significantly reduced by using proper health informatics software. Through the smart application of statistical techniques to manage big data, it is possible to develop effective predictive models and provide targeted training. This approach could benefit everyone's patients, hospitals, and the healthcare system, making it a more sustainable solution.<sup>9</sup>

## Ethical Clearance

The study's ethical clearance was obtained from the ethical committee/Internal Review Board (IRB) at Gulab Devi Teaching Hospital.

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