Quality improvement project

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STANDARDIZING DISCHARGE SUMMARIES FOR IMPROVED COMMUNICATION AND BETTER PATIENT CARE: A QUALITY IMPROVEMENT PROJECT IN A PUBLIC SECTOR TERTIARY CARE HOSPITAL IN PAKISTAN.

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ABSTRACT

Background :Discharge summaries (DS) serve as a critical communication tool between healthcare providers and patients. However, inconsistencies in documentation can lead to poor patient understanding, medication errors, and increased readmissions. An initial audit at our tertiary care hospital revealed that only 55% of discharge summaries contained complete and standardized information. Missing details included medication changes (40% missing), follow-up plans (35% missing), and pending investigations (50% missing). This project aimed to standardize discharge summaries in accordance with the Royal College of Physicians (RCP) guidelines to improve completeness, clarity, and patient outcomes.

Aim & Objectives: To increase the completeness of discharge summaries from 55% to 90% within three months and Improve documentation of key clinical details (primary/secondary diagnosis, procedures, and hospital course).Ensure medication changes and allergy documentation are consistently recorded.Enhance clarity of post-discharge management plans, follow-ups, and pending investigations.

Methods: The study followed a Plan-Do-Study-Act cycle, conducting two audit cycles at Ayub Teaching Hospital. The first audit cycle reviewed 310 discharge summaries (DS), while the re-audit was conducted after an educational intervention during monthly round meeting, analysing 185 DS. The completeness of DS was assessed using predefined parameters, and improvements were analyzed using the Chi-squared test and effect size (Cramer's V).

Results: The findings revealed several shortcomings, with major gaps in recording pending investigations (50% compliance), findings of relevant investigations (50% compliance), and overall readability (55% compliance). Additionally, hospital course and procedures were documented in only 60% of cases, while changes to patients' medications were highlighted in just 60% of discharge summaries. Allergies were recorded in only 70% of cases, posing a potential risk to patient safety. On the other hand, some areas, such as patient identification (95% compliance) and documentation of primary and secondary diagnoses (85% compliance), were relatively well-maintained. These deficiencies underscored the need for a standardized discharge summary format to ensure clarity, accuracy, and continuity of care for patients after discharge.

Conclusion: The first audit cycle revealed deficiencies in DS completion and quality in several areas, including changes to medication, follow up plan, recording of allergies and legibility. Following the educational intervention, a significant improvement was observed in all these domains. Such projects highlight the importance of regularly conducting clinical audits to improve discharge summaries to enhance patient outcomes and clinical communication.

Keywords: Discharge Summary, documentation completeness, patient safety, clinical communication, hospital audit, tertiary care hospital, medical record improvement.

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INTRODUCTION

Discharge summaries (DS) are important medical documents that summarize a patient's hospital admission. A discharge summary should contain a sufficient level of information to ensure that both patients and other healthcare professionals are aware of the relevant events of a hospital admission.[1] It serves as a vital record to ensure continuity of communication for future reference. Poorly completed discharge summaries effect patient care and experience, and result in increased readmission rates and complications.[2] However, in many healthcare facilities in Pakistan, DS often lack essential components, leading to miscommunication between healthcare providers. DS completion is often looked at as a chore, and important details are omitted intentionally or otherwise while writing discharge summaries, especially by interns. This creates a problem that is unnecessary and entirely avoidable by proper educational intervention and adherence to standard protocols.In 2008, the Royal College of Physicians (RCP) produced guidelines designed to improve the quality of discharge summaries and standardize their format for transmission between care sectors. [3] A self-assessment checklist was developed for the same purpose.[4] Healthcare providers are intended to use this checklist when completing DS to ensure all the necessary details have been mentioned. We used this tool to set the standards for completeness of DS in our hospital setting for this audit cycle.This study was conducted as a Quality Improvement Project (QIP) at Ayub Teaching Hospital to assess the quality of DS and to implement standardized documentation. By applying the Plan Do Act Study (PDSA) cycle, we evaluated the impact of an educational workshop on DS completeness, aiming to improve current practices in DS documentation.

MATERIALS AND METHODS

The study was conducted in the medical and surgical wards of Ayub Teaching Hospital, Abbottabad, KPK, a public sector tertiary care hospital in Pakistan. These wards were selected as they managed a full range of acute adult patients in a high-pressure environment with a high patient turnover. The patients discharged tended to be older and had a complex medical background.

Eligibility Criteria

Inclusion Criteria: All patients discharged from Medical B and D and surgical C wards during the audit period.Exclusion Criteria: Patients who were transferred to other wards or left against medical advice.

PDSA Cycle Implementation:

1. **Plan:** An initial audit of 310 discharge summaries was conducted to assess documentation completeness and identify key deficiencies.
2. **Do:** A structured educational workshop was organized for healthcare providers, including interns, residents, registrars, and consultants. The session emphasized the importance of standardized documentation and introduced the RCP discharge summary template as a guideline.
3. **Study:** A re-audit of 185 discharge summaries was conducted post-intervention to measure improvements in compliance with documentation standards.
4. **Act:** Based on the re-audit findings, recommendations were developed for sustained quality improvement, including continuous education sessions, periodic audits, and the potential integration of electronic DS templates to ensure long-term adherence to best practices.

Data Collection and Analysis

The **first audit cycle (AC)** was conducted from **August 1, 2024, to September 30, 2024**, involving a **prospective review of 310 discharge summaries** from the **Medical and Surgical Units**. The primary aim was to assess **documentation completeness, clarity, and adherence to best practices**. The initial findings revealed significant gaps, particularly in **medication changes, pending investigations, and follow-up instructions**. To address these deficiencies, we organized a **targeted educational workshop** during a **routine mortality meeting** in the wards. This session, attended by **interns, residents, registrars, and consultants**, focused on **reinforcing the importance of high-quality discharge documentation**. Key components of an ideal DS, as per **Royal College of Physicians (RCP) guidelines**, were emphasized, with special attention given to the areas identified as deficient in the first audit. Additionally, **educational posters** summarizing **RCP guidelines** were strategically placed in **high-traffic areas** of the wards to serve as constant reminders for junior doctors.The **re-audit cycle (RAC)** was conducted from **October 5, 2024, to November 5, 2024**, during which **185 discharge summaries** were reassessed to measure improvements post-intervention.Data was meticulously analyzed using **Microsoft Excel 2023**, while graphical representations were created with **Microsoft Office Word 2023**. **Frequencies and percentages** were calculated to

quantify changes, and the **Chi-squared test** was applied to determine statistical significance. The analysis provided a clear picture of the intervention's impact, highlighting substantial improvements in DS completeness and quality.

RESULTS

First Audit Cycle

In the first audit cycle, we reviewed 310 discharge summaries (DS) and identified key deficiencies. Patient identification details were recorded in **295 (95%)** cases, while primary and secondary diagnoses were documented in **264 (85%)**. The hospital course and procedures were included in only **186 (60%)**, leaving gaps in the continuity of care, as the receiving team may struggle to understand the rationale behind clinical decisions made during admission. Relevant investigations, including pending tests, were mentioned in just **155 (50%)**, posing a significant risk of unnecessary repeat testing. Post-discharge management and follow-up plans were outlined in **202 (65%)** cases. Medication details, including changes, were recorded in **233 (75%)**, but allergy documentation was present in only **217 (70%)**, raising safety concerns about potential adverse drug reactions. Most critically, clarity and readability were adequate in just **171 (55%)**, making it difficult for both patients and healthcare providers to extract crucial information, increasing the risk of misinterpretation and medication errors.

Table 1. Completeness of the DS in the first audit cycle.

Category	Baseline Compliance (%)	Number of Summaries Compliant (out of 310)
Patient Identification (Name, DOB)	95%	295
Primary & Secondary Diagnoses	85%	264
Hospital Course & Procedures	60%	186
Details of relevant investigations included	50%	155
Pending Investigations	50%	155
Post-Discharge Management Plan	65%	202
Follow-up plan mentioned (including date & specialty)	65%	202
Medication on Discharge	75%	233
Changes to the patient's medications highlighted	60%	186
Allergies Recorded	70%	217
Clarity & Readability	55%	171

Re-Audit Cycle

Following the educational workshop, a re-audit of 185 discharge summaries (DS) was conducted, assessing the same parameters. The documentation of patient identification details improved significantly, with **181 (97.8%)** summaries recording the patient's name and date of birth. Primary and secondary diagnoses were documented in **176 (95%)**, while the hospital course and procedures were detailed in **157 (84%)**, ensuring better continuity of care. Relevant investigations were mentioned in **148 (80%)**, and pending investigations saw a significant improvement, now recorded in **157 (84.8%)**, reducing the risk of missed follow-ups and unnecessary repeat testing. Post-discharge management plans were included in **167 (90.2%)**, enhancing guidance for both patients and healthcare providers. Medications at discharge were noted in **176 (95%)**, with changes explicitly documented in **157 (84.8%)**, improving medication safety. Allergy documentation increased to **167 (90.2%)**, reducing the risk of adverse drug reactions. The clarity and legibility of DS also improved, with **163 (88%)** summaries now deemed satisfactorily readable. All these improvements were statistically significant (**$p<0.05$**) with moderate effect sizes, demonstrating the positive impact of structured interventions in enhancing discharge documentation quality.

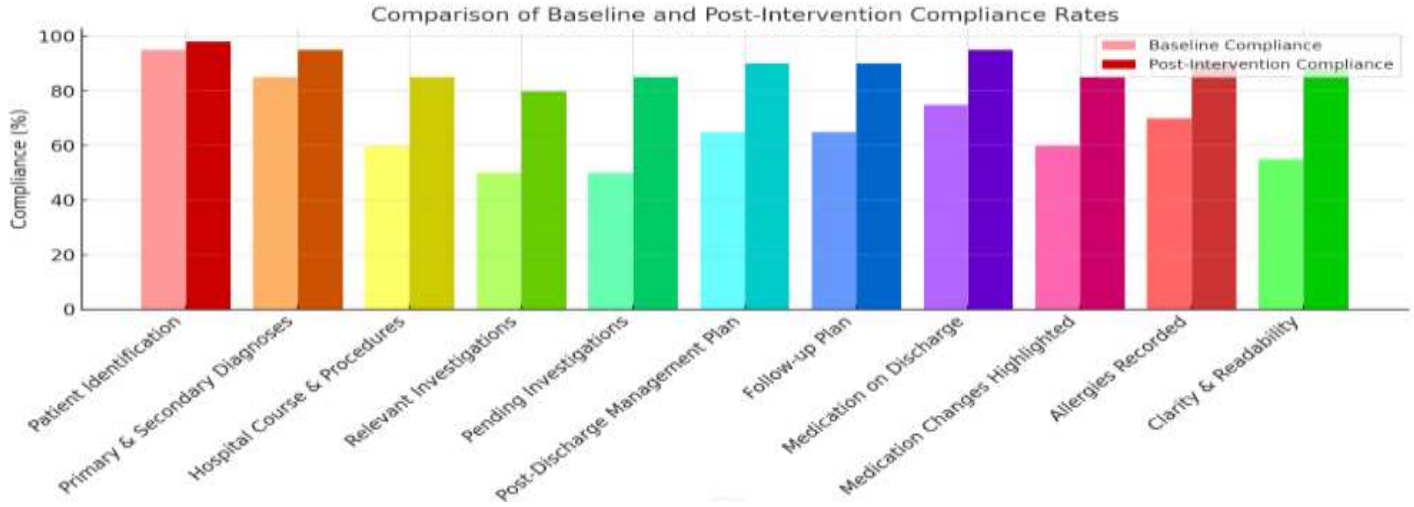
Table 2. Completeness of the DS in re-audit cycle

Category	Post-Intervention Compliance (%)	Number of Summaries Compliant (out of 185)	p-value	Odds Ratio	Effect Size (Cramer's V)
Patient Identification (Name, DOB)	97.84%	181	0.0155	2.30	0.2105
Primary & Secondary Diagnoses	95.14%	176	0.0155	3.41	0.2105
Hospital Course & Procedures	84.86%	157	0.0155	3.74	0.2105
Details of relevant investigations included	80.00%	148	0.0155	4.00	0.2105
Pending Investigations	84.86%	157	0.0155	5.61	0.2105
Post-Discharge Management Plan	90.27%	167	0.0155	4.96	0.2105
Follow-up plan mentioned (including date & specialty)	90.27%	167	0.0155	4.96	0.2105
Medication on Discharge	95.14%	176	0.0155	6.46	0.2105
Changes to the patient's medications highlighted	84.86%	157	0.0155	3.74	0.2105
Allergies Recorded	90.27%	167	0.0155	3.98	0.2105
Clarity & Readability	88.11%	163	0.0155	6.02	0.2105

Interpretation of Statistical Results:

- **Chi-Square Test:** All p-values are statistically significant (**$p < 0.05$**), confirming a meaningful improvement post-intervention.
- **Odds Ratios:** Ranging from **2.30 to 6.46**, indicating a strong association between the intervention and improved compliance.
- **Effect Size (Cramer's V): 0.2105**, suggesting a moderate effect of the intervention.

Figure 1 illustrates the comparison between the first AC and RAC, highlighting the improvement in the percentage completeness in various parameters of the DS. This visual representation illustrates the positive impact of the educational intervention implemented between the two phases of the audit. The findings indicate a significant improvement in DS completion the second phase.



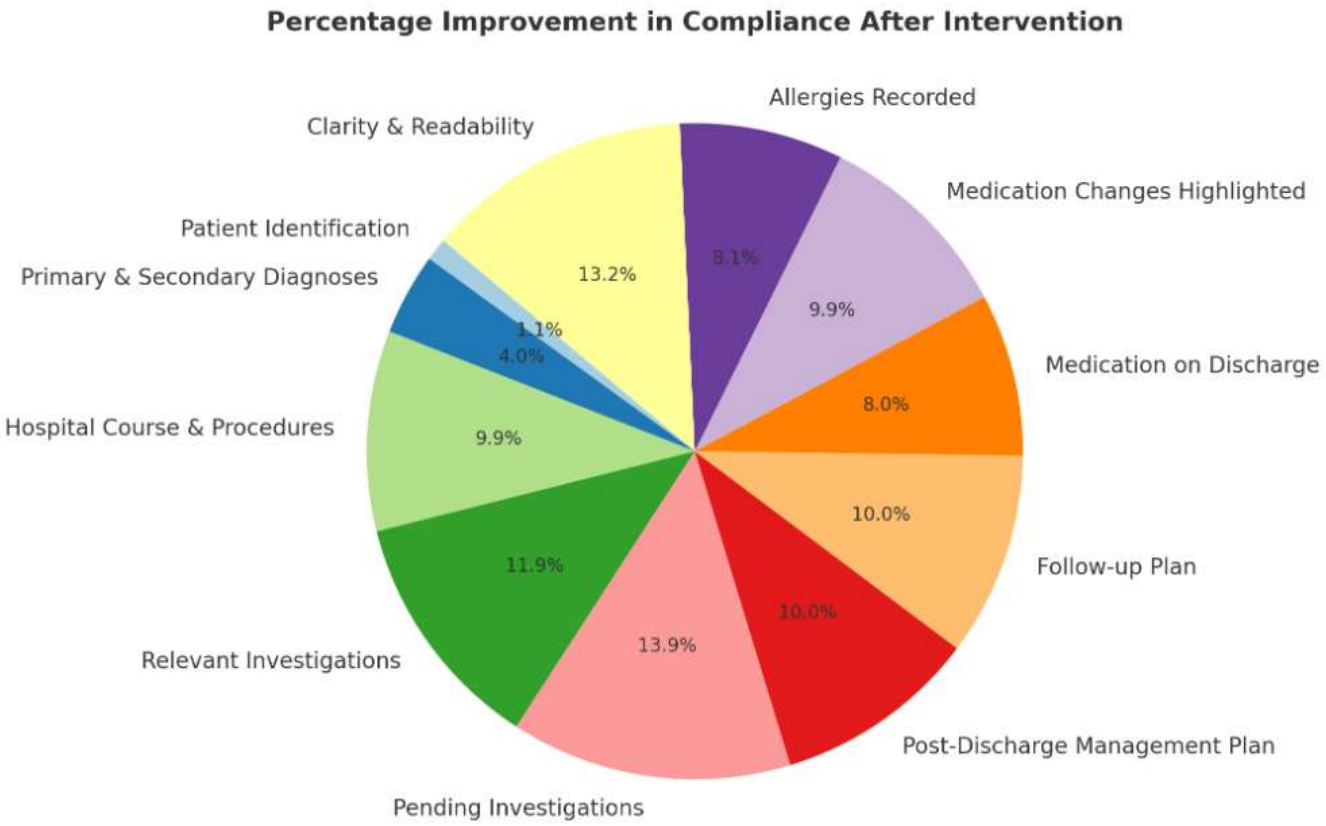


Figure 2 shows the percentage improvement in the areas of DS completion between the first and re-audit phases, with the highest improvement in pending investigations, clarity and readability, follow up plan and changes to the patient's medications. Allergy documentation was also improved by 8%.

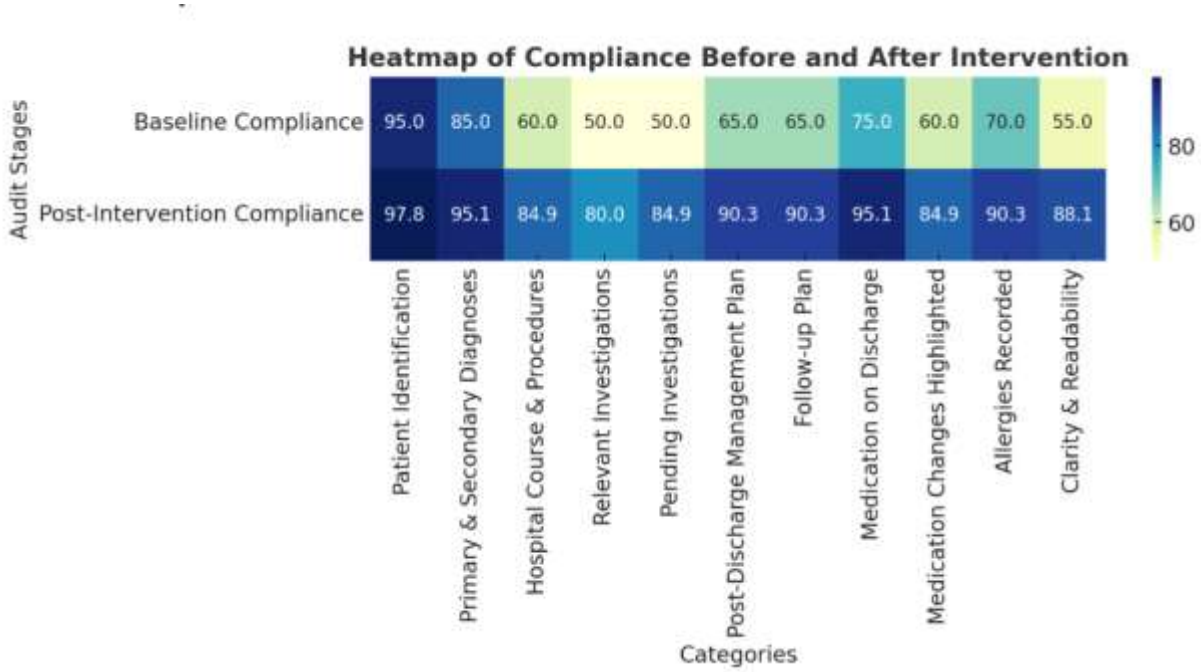


Figure 3 highlights the visual representation in percentage compliance of all the domains pre and post intervention. Improvement is observed in all the areas.

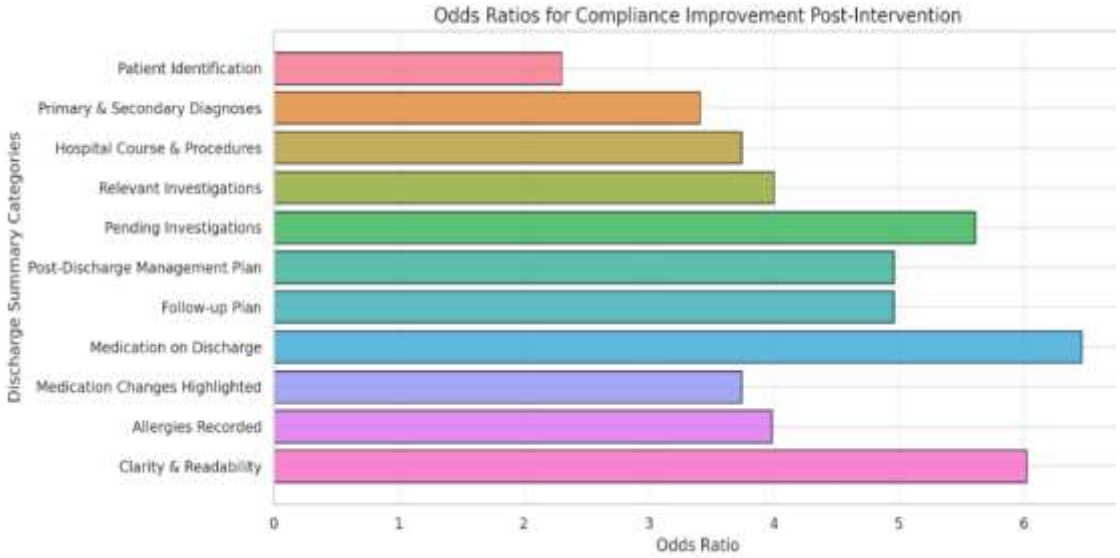
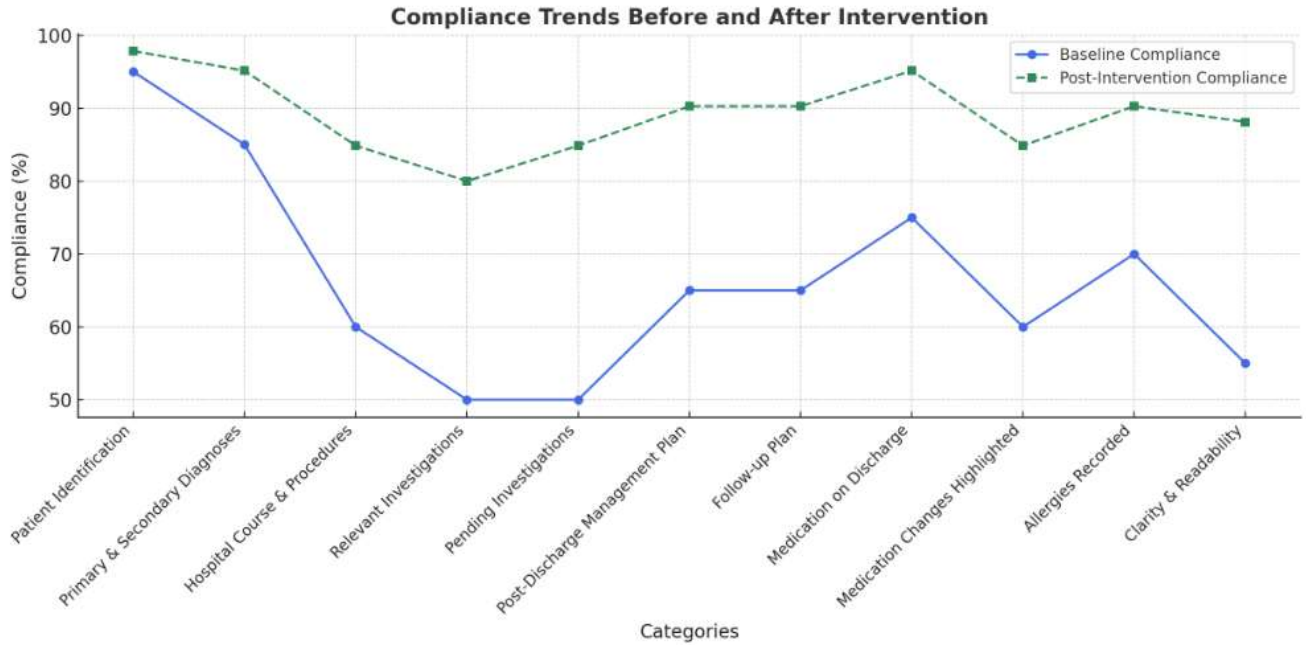


Figure 4 demonstrates the odds ratio (OR) for compliance post intervention. It is more than 1 in all the parameters measured, indicating that improvement was achieved.



DISCUSSION

The findings of this Quality Improvement Project (QIP) highlight a critical issue in hospital discharge documentation: the lack of completeness and standardization in discharge summaries (DS). This deficiency has significant implications for patient safety, continuity of care and healthcare system efficiency. This study was conducted to improve the quality and completeness of DS in a tertiary care hospital in Pakistan. The results revealed deficiencies in several important but optional areas including changes to the medication with reason for the change (60), details of relevant investigations (50%), follow-up plan (65%) and allergies documented in only 75%. Schwarz et al. discovered in their analysis of DS that optional yet important items were often lacking[5]. A number of studies have been conducted to assess the quality and

items on DS. A study conducted in the United States according to the Joint Commission mandated discharge summary components revealed that the majority of DS adhered to the standard protocols.[6] Another more recent study in Australia developed a self-assessment tool for DS completion as advised by the GPs in aspects they thought were important.[7] A retrospective analysis in Austria identified deficiencies in the quality of DS, particularly in areas such as the use of abbreviations and medical jargon, and important missing details.[8,9] A similar study conducted in Pakistan revealed that DS were lacking in important areas such as patient details, primary diagnosis and investigations. However, the re-audit cycle (RAC) after the educational intervention demonstrated that significant improvement was achieved in all these domains, with changes to medication being highlighted in 84.8%), relevant investigations in 80%, post discharge management plan and follow up plan being outlined in 90%, allergies documented in 90.2% and legibility of the DS improving to 88.11%. These findings demonstrated how targeted interventions can bridge communication gaps. In developed healthcare systems, standardized DS are a mandatory component of patient care. Countries like the United Kingdom and Australia have national guidelines for DS[2,3], ensuring consistency across all hospitals. Studies have shown that adherence to structured discharge documentation reduces hospital re-admissions and improves patient satisfaction[1]. The findings of this study align with international research, reinforcing the need for national guidelines to regulate DS documentation in Pakistan. Implementing electronic discharge summary templates and mandatory workshops for physicians could lead to further improvements. Despite the improvements observed in this study, several challenges remain. The improvements may decline over time unless continuous training and audits are implemented. The sample size was limited, restricting the generalizability of the results. Further multi-center studies are needed. Hospitals should conduct quarterly audits to assess DS completeness and quality and provide feedback to physicians. Senior clinicians should oversee the DS before patients are discharged.

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Availability of data and materials

The datasets analyzed during the current study are available from the corresponding author on reasonable request.

Authors Contribution

Concept & Design of Study; **Abbas Khan[1], Rameesha Siddique[2], Ahmad Zeb[3]**
Drafting; **Rameesha Siddique[2], Ahmad Zeb[3]**
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Critical Review: **Elaf Aslam[4]**
Final Approval of version; **Abbas Khan[1], Ahmad Zeb[3]**

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