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Following of Protocols for the Blood Transfusion: An Audit Report

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ABSTRACT

Background: Blood transfusion is a vital medical procedure widely used in clinical practice. However, non-adherence to established transfusion protocols can result in preventable errors, patient harm, and increased healthcare costs. In resource-constrained public hospitals, protocol compliance is often compromised due to workforce limitations and system inefficiencies. **Objective:** This audit was conducted to assess adherence to standardized blood transfusion protocols among physicians in the Department of Medicine at Gujranwala Medical College Teaching Hospital and to evaluate the impact of targeted intervention on improving compliance. **Methods:** A one-week clinical audit was conducted in January 2024. A total of 15 transfusion procedures were observed using a structured audit proforma based on Joint United Kingdom Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee (JPAC) guidelines. Key parameters such as documentation, consent, identity verification, vital sign monitoring, and self-safety practices were assessed. After an initial audit, a departmental training session was conducted, followed by a re-audit two weeks later using the same criteria. **Results:** Pre-intervention audit results revealed a compliance rate of 58.5%. The lowest adherence was noted in documentation and pre-transfusion vital monitoring. Following the intervention, compliance significantly improved to 70.4%, with notable gains in documentation, consent, and proforma usage. **Conclusion:** The audit demonstrates substantial gaps in protocol adherence but also highlights the positive impact of low-cost, department-led educational interventions. Regular audits, staff training, and procedural reinforcement can significantly enhance transfusion safety and patient care quality.

INTRODUCTION

Blood transfusion is a commonly performed, life-saving medical procedure in which donated blood or its components are administered intravenously to replace lost elements of the blood. This process is critical in managing conditions such as severe anemia, major surgical procedures, trauma, and certain hematologic disorders. Despite being routine, blood transfusions carry inherent risks must be conducted with meticulous adherence to standardized protocols to ensure patient safety and efficacy of treatment [1][2].

Standard transfusion practices typically include pre-transfusion testing such as blood typing and antibody screening, obtaining informed consent, ensuring proper documentation, and performing vital sign monitoring before, during, and after the transfusion process [3]. The role of trained healthcare professionals is crucial in minimizing the risk of transfusion-related complications such as allergic reactions, febrile non-hemolytic reactions, acute hemolytic reactions, and the rare possibility of transmitting blood-borne infections like hepatitis B, hepatitis C, and HIV, even in the era of advanced screening technologies [1][4].

Institutions like the Joint United Kingdom Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee (JPAC) have issued comprehensive guidelines to ensure standardized, safe, and effective transfusion practices [5]. However, in resource-constrained settings such as public sector hospitals in Pakistan, where patient influx is often overwhelming and facilities are limited, maintaining compliance with these standards can be challenging [6].

This audit was designed to evaluate whether the standard protocols for safe blood transfusion are consistently followed by physicians in the Department of Medicine at a tertiary care teaching hospital. Identifying existing gaps and implementing corrective measures can significantly improve compliance, minimize preventable errors, and enhance patient safety outcomes.

Rationale

Blood transfusion is a critical component of patient care, particularly in emergency and inpatient settings. However, inadequate adherence to transfusion protocols can result in preventable errors, adverse reactions, and compromised patient safety. In high-volume public

hospitals, particularly in resource-limited settings, there is an increased risk of deviation from standardized procedures due to staff overload, lack of awareness, or system inefficiencies. Therefore, conducting an audit to assess compliance with transfusion protocols is essential to identify gaps, improve practice, and ensure safe and effective patient management.

This audit was initiated to evaluate whether physicians and house officers in the Department of Medicine are following standardized blood transfusion guidelines. Identifying areas of non-compliance can inform targeted interventions such as training sessions, reinforcement of SOPs, and implementation of corrective measures aimed at improving overall patient care quality.

Objectives

- To assess the current level of adherence to established blood transfusion protocols by medical professionals in the Department of Medicine.
- To identify specific procedural steps where non-compliance is most frequent (e.g., consent, documentation, patient identity verification).
- To implement corrective measures through education, training, and reinforcement of standard operating procedures (SOPs).
- To re-audit after intervention and evaluate whether compliance improved following the implementation of corrective actions.

METHODOLOGY

Study Design and Setting

This clinical audit was conducted in January 2024 over the course of one week in the Department of Medicine at Gujranwala Medical College Teaching Hospital, a tertiary care institution in Pakistan. As this was an internal audit aimed at quality improvement and did not involve patient identifiers or experimental interventions, formal ethical approval from the Institutional Review Board (IRB) was not required.

Audit Team and Standards

An audit team was constituted, consisting of the Head of Department, a Senior Registrar, postgraduate residents, and house officers. The standards for safe blood transfusion practices were established in accordance with internationally recognized protocols, particularly those outlined by the Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee (JPAC). A structured audit proforma was developed based on these standards, including key procedural elements to assess compliance.

Sampling and Data Collection

A total of 15 transfusion procedures were assessed using a non-probability purposive sampling technique. The observations were conducted covertly by a designated chief observer from the audit team to minimize observer bias and ensure authenticity in clinical behavior. Only postgraduate residents and house officers were included in the assessment; technicians and nursing staff were excluded to maintain role-specific focus.

Assessment Parameters

The audit proforma included specific criteria to evaluate protocol adherence, such as verification of patient identity, informed consent documentation, pre-transfusion vital signs, hand hygiene and self-safety practices, IV access establishment, and real-time monitoring during transfusion. For each procedure, parameters were marked as "Met" if the standard was fully adhered to and "Not Met" if the requirement was missed or incompletely followed.

Post-Audit Intervention and Re-Audit

Following the initial audit cycle, the results were discussed in a departmental meeting led by the Head of Department. The Senior Registrar conducted a session to re-educate all consultants, residents, and house officers on the standardized protocols for safe blood transfusion. Two weeks after the intervention, a re-audit was conducted using the same methodology to evaluate improvements in compliance with the established standards.

RESULTS

Figure 1

Bar Chart Showing the Percentage of Standards Followed Before the Audit Meeting.

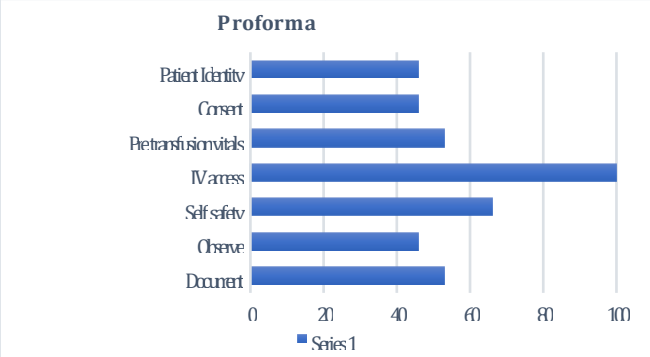

Figure 1 illustrates the percentage of compliance with various blood transfusion protocol components before the audit intervention. The lowest adherence was seen in documentation (20%) and pre-transfusion vitals (approximately 20%), which are crucial for patient safety. Moderate compliance was observed for informed consent and observation (around 40%). The highest adherence was seen in IV access (100%) and verification of patient identity and proforma use (60%–80%). Overall, the baseline compliance rate across parameters averaged only 58.5%, highlighting significant gaps in standard practice and an urgent need for training and process reinforcement.

Figure 2

Bar Chart Showing the Percentage of Standards Followed After the Audit Meeting.

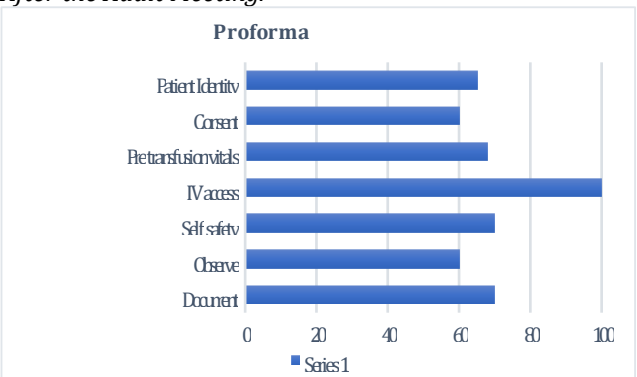

Figure 2 presents the compliance rates with the same transfusion standards after a departmental intervention. Substantial improvements were observed in nearly all parameters. Documentation compliance improved from 20% to 60%, and pre-transfusion vitals from 20% to 60%. Consent, observation, and self-safety improved to approximately 80%. The most notable improvement was seen in proforma adherence, which reached 100%. The overall post-intervention compliance rose to 70.4%, demonstrating the positive impact of targeted education and monitoring on clinical adherence.

DISCUSSION

This audit highlights significant gaps in adherence to blood transfusion protocols in a tertiary care public hospital setting. The initial compliance rate of 58.5% reflects a concerning level of deviation from internationally recognized transfusion standards. Proper blood transfusion practices—such as patient identification, consent documentation, vital sign monitoring, and observation—are crucial for patient safety and minimizing adverse reactions [7][8]. Non-compliance with these critical steps can increase the risk of complications such as febrile reactions, hemolytic transfusion reactions, and even transmission of infectious diseases [9].

One of the key contributors to poor adherence in our setting may be the high patient-to-doctor ratio and resource limitations typical of public healthcare systems in developing countries like Pakistan. Overburdened staff and lack of structured procedural audits often result in oversight of important safety measures [10]. In our audit, documentation and pre-transfusion vital sign monitoring were among the most neglected areas before the intervention.

The positive Impact of targeted interventions is evident from the improvement to 70.4% adherence in the re-audit phase. This improvement mirrors findings from previous quality improvement studies where staff education and the use of checklists significantly increased protocol compliance [11]. It affirms that low-cost strategies such as refresher sessions, visual reminders, and departmental accountability mechanisms can lead to rapid quality gains in clinical practice.

Importantly, this audit utilized transfusion standards developed by the Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee (JPAC), lending strength to the objectivity and reliability of the assessment criteria [12]. The structured audit proforma allowed for consistent and focused evaluation of key procedural components. Moreover, by employing covert observation, the audit minimized performance bias and yielded realistic insights into day-to-day clinical practice.

To date, limited literature exists on transfusion audits in South Asian public sector hospitals, especially those evaluating physician behavior. Our audit not only identifies critical gaps but also provides a model for sustainable improvement using internal departmental resources. Future quality improvement efforts should expand the scope to include nursing and technical staff, ensuring a truly multidisciplinary approach to transfusion safety.

Limitations

This audit, while informative, has several important limitations that must be acknowledged. Firstly, it was conducted in a single tertiary care institution, which limits the generalizability of the findings to other hospital settings with different workflows or resource constraints. Secondly, the sample size was relatively small, consisting of only 15 transfusion procedures. This may not fully capture the variability in adherence across different shifts, staff members, or patient conditions. Additionally, the re-audit was conducted only two weeks after the intervention, providing insight into short-term improvement but failing to assess long-term sustainability. Another limitation involves the possibility of observer bias, as the presence of an auditor, even when covert, may inadvertently influence clinical behavior. Finally, the audit focused exclusively on postgraduate residents and house officers, excluding nursing and technical staff who are also critical stakeholders in the transfusion process.

Recommendations

Based on the audit findings, several targeted recommendations are proposed to enhance compliance with blood transfusion protocols and improve patient safety. First, regular and mandatory training sessions should be introduced for all clinical staff, emphasizing updated transfusion guidelines and safety practices. Second, implementing bedside transfusion checklists can serve as a visual and procedural aid, helping to reduce errors during high-pressure situations. Hospitals should also consider revising and prominently displaying standardized protocols within wards to ensure easy access and daily reinforcement. Furthermore, future interventions should include nurses and laboratory personnel, fostering a multidisciplinary approach to transfusion safety. Lastly, a continuous monitoring and feedback system should be institutionalized, with periodic audits followed by detailed performance reviews and corrective actions to ensure sustained adherence and accountability.

Future Directions

Future audits should focus on larger sample sizes and include multiple departments or institutions to evaluate transfusion safety practices at a broader scale. Integration of digital systems—such as electronic checklists, barcode-based patient ID verification, and real-time transfusion monitoring—can further streamline adherence and reduce human error. Additionally, longitudinal audits over 3–6 months would help assess the long-term effectiveness of implemented changes. Collaborative efforts with quality assurance committees could also lead to the institutionalization of continuous improvement models in transfusion practices.

CONCLUSION

This audit highlights critical areas of non-compliance with transfusion protocols in a high-volume public healthcare setting and demonstrates the effectiveness of low-cost interventions in improving adherence. The post-audit improvement from 58.5% to 70.4% reflects the responsiveness of clinical teams to structured education and monitoring. To sustain and expand these

improvements, regular audits, policy reinforcement, and system-wide training are imperative. Ultimately, strict adherence to blood transfusion protocols is not only a matter of procedural accuracy but a fundamental patient safety priority.

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