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Retrospective Analysis of Blood Requisition Forms at a Tertiary Care Hospital

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ABSTRACT

Introduction: The blood requisition form functions as a vital communication link between requesting physicians and blood bank staff. The proper completion of blood request forms (BRFs) is a frequently overlooked aspect by clinicians and insufficient information or errors during the BRF completion process can significantly affect the quality of laboratory results and consequently impact patient outcomes, resulting in increased resource wastage and a higher risk of inappropriate therapy.

Aims & Objectives: This study aims to assess the completeness and consistency of blood requisition forms submitted to the Blood Bank of a tertiary care hospital in Lahore with the objective of identifying gaps to improve documentation practices and enhance patient safety

Place and Duration of Study: The study was conducted at the Blood Bank of Shalamar Hospital, Lahore, over six months, from July 2020 to December 2020. The Institutional Review Board (IRB) of Shalamar Medical and Dental College (SMDC) reviewed and granted approval for the study protocol (SMDC-IRB/AL/101/2021).

Materials & Methods: A cross-sectional, retrospective study was undertaken at the Blood Bank of Shalamar Hospital Lahore from July 2020 to December 2020. Data was retrieved from previous blood bank records, specifically focusing on the completeness of blood requisition forms. All blood requisition forms received at the Blood Bank of Shalamar Hospital during the study period were included in the analysis. Key variables assessed included age, gender, ward, provisional diagnosis, history of previous transfusion, history of transfusion reaction, and units of component requested. Data analysis was carried out using SPSS version 20.0. Descriptive statistics were applied to summarize data, with results presented as frequencies and percentages.

Results: A comprehensive evaluation of 1000 blood requisition forms (BRFs) was conducted to assess their completeness and legibility. Among the analyzed BRFs, demographic data, including age was mentioned in 72.5% (n=725), gender in 75% (n=750), and ward in 67.2% (n=672). Pertaining to clinical information, the provisional diagnosis was documented in 48.7% (n=487), the history of previous transfusions achieved a completion rate of 62.4% (n=624), and the history of transfusion reactions was documented in 62.8% (n=628). The details of units of requested components and blood group were satisfactorily completed in 74.5% (n=745).

Conclusion: The current study identified deficiencies in BRF completion, revealing a lack of appropriate demographic and clinical data for patients. The efficacy of audits assessing proper transfusion practices and the optimal functioning of the blood bank relies on the evaluation of meticulously filled BRFs.

Keywords: Haemovigilance, Blood Request Forms, Blood Bank Audit, Blood Bank, Transfusion Medicine, Blood Request Protocol

INTRODUCTION

An effective blood transfusion service remains fundamental to modern healthcare systems. The evaluation of a blood bank service quality is assessed through three analytical phases: pre analytical, analytical, and post-analytical[1]. A systematic analysis of the procedural chain indicates that emphasizing the pre analytical phase yields optimal outcomes, particularly in resource-constrained areas, which contribute to 68% of total errors. The pre-analytical phase encompasses hospital-based procedures outside the domain of the blood bank, including requisition form completion, accurate identification of patient, sample handling, labeling, and sample transportation[2]. The transfusion process is intricate and involves collaboration among various professional groups, encompassing both donors and recipients[1]. Ensuring the safe provision of blood relies heavily on the effective communication of information from

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requesting physicians to the blood bank[2]. This communication is pivotal for blood bank technologists to accurately identify suitable blood products. Streamlining this communication process is particularly vital, especially in developing countries. This comprehensive process has given rise to the concept of haemovigilance[3]. In 2008, the World Health Organization (WHO) recommended the implementation of a standardized blood transfusion request form in each institution to facilitate the effective communication of patient information to the hospital blood bank through complete BRFs[4]. As highlighted in the "Serious Hazards of Transfusion" report from 2008, a substantial number of transfusion-related adverse events were associated with inadequate communication, often stemming from incomplete requisitions submitted to the blood bank[5].

In 2012, the British Committee for Standards in Hematology (BCSH) issued guidelines, emphasizing the necessity for organizations to establish local policies aimed at minimizing the risk of misinterpretation or transcription errors in all forms of communication—written, verbal, or electronic[5]. The guidelines explicitly advised that transfusion requisition forms include essential details: patient identification data, present diagnosis, notable comorbidities, explicit and well-defined reasons for the transfusion, the type and quantity of blood components required, and any specific clinical considerations (such as irradiated, washed, or leukocyte-depleted blood)[6]. Adherence to these guidelines requires healthcare personnel to thoroughly complete transfusion requisition forms, with hospitals implementing a strict policy against accepting partially filled forms[7]. Callum et al, in their analysis of near-miss events, reported a median frequency of three component request errors per month (range, 0-5) over a 14-month period, including orders for blood for the incorrect patient[8] Similarly, Linden et al noted that 5% (22 of 462) of transfusion-associated errors resulted from incorrect orders on blood requisition forms[9]. The current study aimed to evaluate compliance of requesting physicians regarding submitting completely filled request form to the blood bank. This audit was conducted as part of an initiative to improve standards and ensure adherence by medical staff in submitting properly completed transfusion requisition forms.

MATERIALS AND METHODS

A cross-sectional, retrospective study was conducted at the Blood Bank of Shalamar Hospital, Lahore, from July 2020 to December 2020. Ethical approval was granted by the Institutional Review Board (IRB) of Shalamar Medical and Dental College under Approval No: SMDC-IRB/AL/101/2021. A complete census of all blood requisition forms received at the Blood Bank during the study period was conducted to ensure comprehensive coverage and avoid selection bias. Forms with incomplete mandatory fields were excluded to maintain data quality and reliability. Data from the blood requisition forms were entered into a structured proforma designed to capture all relevant variables The proforma was reviewed by subject specialists to ensure it was fit for the study's objectives and covered the necessary fields. To ensure data accuracy and minimize errors, two independent reviewers entered and cross-checked the data. Key variables assessed included age, gender, ward, provisional diagnosis, history of previous transfusion, history of transfusion reaction, and units of component requested for the completeness of BRFs. Data analysis was performed using SPSS version 20.0. Descriptive statistics, including frequencies and percentages, were used to summarise the data. Results were presented in tabular and graphical formats to provide a clear depiction of the findings.

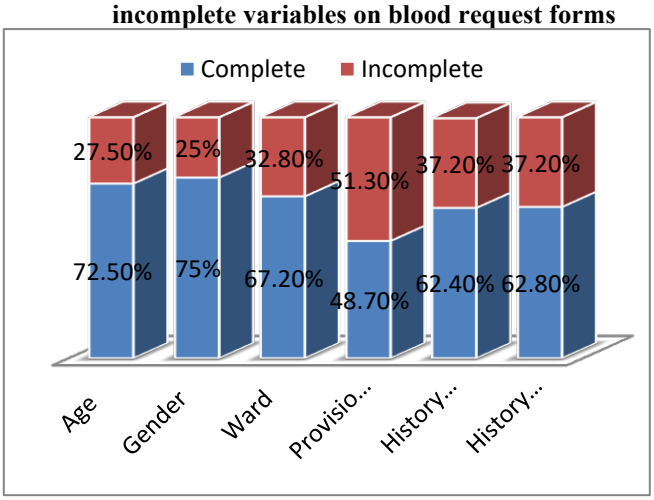
RESULTS

A total of 1000 BRFs were analyzed, of which 48% were completely filled by clinicians. Among demographic information following parameters of BRF were incomplete: patient's age 27.5%, patient's gender 25%, ward 32.8%. Among Clinical information Provisional diagnosis was missing in 51.3% of BRF, previous history of transfusion was not mentioned in 37.6% of BRFs and units of blood components requested were incomplete in 25.5% of forms. Table 1, Figure 1.

Table No I: Percentage of Blood Request Forms for various parameters

Parameters of BRFs	Completed n (%)	In-completed n (%)
Age	725 (72.5)	275 (27.5)
Gender	750 (75)	250 (25)
Ward	672(67.2)	328 (32.8)
Provisional Diagnosis	487(48.7)	513(51.3)
History of previous Transfusion	624 (62.4)	376(37.6)
History of Transfusion reaction	628(62.8)	372(37.2)
Units of Blood component requested	745(74.5)	255(25.5)

Figure No I : Frequency distribution of complete and incomplete variables on blood request forms



DISCUSSION

The intricate process of dispensing and transfusing blood products involves several phases. The blood request form serves as a vital means of communication, allowing clinicians to provide essential clinical details to specialists. A thoroughly completed request form improves service efficiency and minimizes the risk of errors, while an incomplete form can lead to pre-analytical errors with potentially fatal consequences. Pandey et al, in their research, highlighted that during the initial phase of their audit, 54.2% of Blood Request Forms (BRFs) were incomplete. This finding closely aligns with the present study, where 52% of the forms were identified as incomplete[7]. Another study conducted in Northwest Nigeria reported that 18.8% of forms lacked essential patient details[10]. Whereas studies carried out at national levels revealed a high rate of incompliance in completely filling BRFs, with 93.2% reported in the blood bank of Shaikh Zayed Medical Complex[11]. In contrast, Nasir et al, in their audit at AKU, found that 46.5% of BRFs were complete, a result comparable to our study where 48% of BRFs were fully filled[12]. These variations are attributed to differences in hospital settings, specifically the comparison between private and public sector hospitals. Regarding Blood Request Forms (BRFs), demographic information, specifically age and gender, was included in 74.5% and 75% of the forms received at the blood bank. This aligns with Shaukat et al's study in Mirpur, where they reported that age and gender were filled in 73.6% and 56% of the forms, respectively[13]. At AKU, age was mentioned in 96% of forms during the first audit, while Ghazanfer et al reported higher compliance, with age and gender being filled in 97% and 100% of forms, respectively [11,12] In our analysis, clinical details such as provisional diagnosis, history of previous transfusion, and history of transfusion reaction were recorded in 48.7%, 62.4%, and 62.8% of the forms, respectively. This trend corresponds with studies in Lahore and Mirpur, highlighting the tendency of clinicians and nursing staff to overlook clinical parameters when submitting requests to the blood bank for blood products[11,13]. Concerning the units of the requested component, Shaukat et al. reported a complete filling rate of 75.4% in blood requisition forms, which is consistent with our findings of 75%[13]. The perspectives of healthcare workers responsible for completing the BRFs were not solicited. The study did not assess the impact of errors arising specifically from inadequately completed BRFs on the management outcomes of patients.

CONCLUSION

Ensuring the thorough completion of blood requisition forms (BRFs) is essential for improving blood transfusion practices and services. Incomplete blood transfusion request forms present challenges to blood bank staff, making it difficult to comprehend requests and potentially jeopardizing patient safety. For the improvement of blood transfusion practices and services, duly completed BRFs are inevitable to reduce errors in blood transfusion practices. Present study revealed that half of the BRFs were incomplete.

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