



Evaluation of Blood Requisition Forms Submitted to Transfusion Medicine Department of a Tertiary Care Hospital in Dhaka, Bangladesh

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Key words:

Blood requisition form (BRF), Communication, Standardization

Abstract:

Introduction: Blood requisition form (BRF) analysis is one of the most efficient and effective approaches to assess and monitor rational use of blood and its product. BRF is the first line of communication between the clinicians and transfusion medicine specialists which helps to recognize and evaluate inappropriate use of blood. This issue is frequently underrated by the clinicians which results in increased risk of inappropriate transfusion. The current study is aimed to examine the pattern of completion of blood requisition forms and to ensure safe blood transfusion.

Materials and methods: This cross sectional prospective study was conducted from January 2020 to December 2021, at the Department of Transfusion Medicine, Sir Salimullah Medical College Mitford Hospital, Dhaka, Bangladesh. A total of 32,133 blood requisition forms that were submitted during the study period were compiled and reviewed anonymously. The data were analyzed using Microsoft Excel.

Results: During the study period, a total of 32,133 Blood requisition forms were analyzed. Only 15.2% of these forms were duly completed. Rest of the forms had one or more important parameters left blank. The most common incomplete BRF items were the clinical history or differential diagnosis of the patient (52.66%), presumed date and time of transfusion (95.19%), previous transfusion history (95.9%), and referring doctor's name and designation (88%). Blood requests were more for females (52.02%) than males (47.98%) during the period. Requisitions were more for adults (90%) than pediatric patients.

Conclusion: The current study provides evidence that the rate of completion of BRFs is not satisfactory. The request forms evaluated were not covering acceptable demographic and clinical data of the patients. Both the Hospital Transfusion Committee (HTC) and the Department of Transfusion Medicine can help to improve and standardize transfusion practice by working together.

Introduction:

Blood transfusion plays a dynamic role in day-to-day clinical practice and is also a lifesaving procedure. It plays a vital role in the management of patients in both medical and surgical practice.¹ The appropriate use of blood and blood products means the transfusion of safe blood products only

to treat a condition leading to significant morbidity or mortality that cannot be prevented or managed effectively by other means.² The challenge of inadequate voluntary blood donors, poor storage facilities due to irregular power supply made availability of sufficient safe blood difficult in developing countries such as Bangladesh.³⁻⁵

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Analysis of blood requisition form (BRF) is considered as one of the most efficient and effective ways of evaluating and monitoring blood usage. BRF is the first line of communication between the clinician and transfusion medicine specialists. BRF used in Bangladesh are guided by the National Safe Blood Transfusion Program (SRO-145). A standard BRF contains demographic data and other information such as location of the patient, ward, indication, brief clinical history, number of units required, details of previous transfusion and pregnancy, other laboratory information, name, signature, and telephone number of the requesting physician. BRFs are designed to include the indications for transfusion that could help to reduce the inappropriate use of blood and blood products.⁶

Evaluation is a review of patient care quality assurance and improvement. It provides scope to review and enhance present processes, as well as identify critical system intervention points. Unfortunately, the clinical circumstances demanding transfusion are often poorly documented on the BRF and the patient's record because appropriate completion of BRFs is frequently underrated by clinicians. This results in wastage and increased risk of inappropriate therapy.⁷ Audits in blood banks must be organized to review the appropriateness of blood and blood components prescribed in accordance with patient needs and to make clinicians more familiar with transfusion triggers and indications. Audits have been described as reviewing blood requests before the release of blood products, which is done in this study.⁸

Therefore, this study was designed to analyze the pattern of blood requisition sent to the Department of Transfusion Medicine and their supply to respective wards or hospitals. Lack of such studies in hospitals of Dhaka is one of the prime reasons for designing this study. These findings will help in the knowledge of the physicians who order blood components for reduction of inappropriate use of blood components and wastage of valuable blood products.

Materials and Methods:

This cross sectional prospective study was conducted from January 2020 to December 2021, at the Department of Transfusion Medicine, Sir Salimullah Medical College Mitford Hospital, Dhaka which is a teaching hospital in Bangladesh.

A total of 32,133 blood requisition forms that were submitted during the study period were compiled and reviewed by on duty medical officers. The data were entered anonymously and recognized by a unique research ID. The data were analyzed using Microsoft Excel.

The request forms were evaluated for the fullness of the data requested therein: patient's name, patient's registration number, patient's ward and bed, diagnosis of the patient- a clinical history and/or differential diagnosis, type of blood components required, number of units of blood components required, previous history of transfusions, patient's blood group, and referring doctor's name, designation and signature. These data should be present on 100% of requests if completed correctly.

Results:

During the study period of 2 years a total of 32,133. Blood requisition forms (BRF) were analyzed. Only 15.2 % of these forms were duly completed. Parameters of BRF found complete were patient's name; 99%, patients registration number; 98%, patient's age; 96%, patient's sex; 19%, patients ward and bed 75%, type of blood components required; 93 %, number of units blood components required; 91.6%, date and time when components are required; 4.8%, patient's blood group: 83%, Previous history of transfusion 4.1% and referring doctor's signature; 89.1% and referring doctor's name 12%. No patient's diagnosis was provided on 58% of forms and when a diagnosis was present it was abbreviated. Previous history of transfusion (95.9%) were the most incomplete parameters.

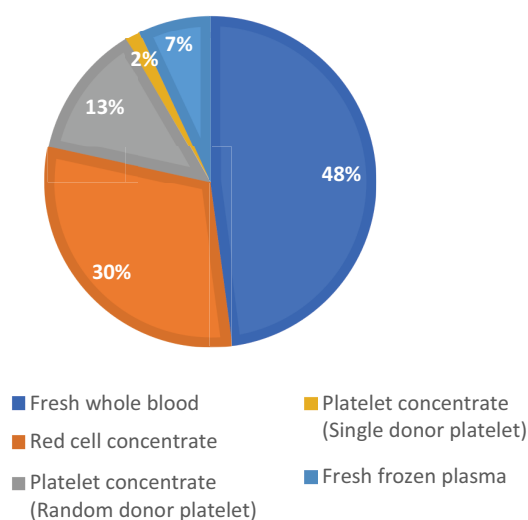
Blood requests were more for females (52.02%) than males (47.98%) during the period. Requisitions were more for adults (90%) than pediatric patients.

Table I: Parameters of Blood requisition forms found complete

Sl. no.	Parameters to note	Numbers found complete (N=32133)	% (n)
1	Patients name	31812	99
2	Patients registration number	31490	98
3	Patient's age and sex	30848	96
4	Patients ward and bed	24100	75
5	Diagnosis of the patient	15211	47.33
6	Type of blood components required	29884	93
7	Number of units blood components required	29434	91.6
8	Date and time when components are required	1548	4.81
9	Patient's blood group	26670	83
10	Previous history of transfusion	1320	4.1
11	Referring doctor's signature	28631	89.1
12	Referring doctor's name	3856	12

Table II: Distribution of supplied blood/blood products through demand of blood requisition forms send by different departments (BRF)

Sl. no.	Blood/Blood product	Total no. of unit requested (N)	Total number of units supplied (n)	Request: Supply ratio (%)
1	Fresh whole blood	15423	15201	98.56%
2	Red cell concentrate	9747	8325	85.4%
3	Platelet concentrate (Random donor platelet)	4232	3712	87.71%
4	Platelet concentrate (Single donor platelet)	471	115	24.41%
5	Fresh frozen plasma	2260	2113	93.49

**Fig.-1: Distribution of Total Number of Units Requested By Different Departments (N=32133)****Table III: Distribution of requisition forms based on requesting department**

Ward/Unit	Frequency (n=32133)	n (%)
Gynecology & Obstetrics	7094	22.08
Surgery and allied	5173	16.10
Medicine and allied	4218	13.13
Casualty an Emergency	3591	11.18
Pediatrics and allied	3123	9.72
Outdoor patients	2754	8.57
Hematology	2644	8.23
Intensive care unit	1990	6.19
Dialysis unit	976	3.04
Others	570	1.77

Discussion:

The transfusion of blood or blood components is one of the most significant aspects of delivery of healthcare services in a hospital setting. Unfortunately, this service is always linked with the risk of an adverse event or reaction, which can be life threatening. Completing the blood requisition form in accordance with international standards can lessen irregularities and, as a result, standardize the transfusion practice, resulting in superior hemovigilance, improved patient care, and cost effectiveness. These bits of vital information will enable the blood bank to process the demand without loss of valuable time, and plan to arrange for the required number of donors.

The study revealed that of the required pieces of information on BRF form different wards only 50% of information (Patient's name, Registration number, Age, Type of blood components required, number of units required and referring doctors' signature) are completed in nearly 90% cases. The most commonly incomplete item on BRF forms was the sex of the patient, presumed Date and time of transfusion, previous history of transfusion and referring doctor's name).

Our audit revealed that only 15.2 % forms were completed in full. Our figure is comparable to some extent with a study from Brazil where only 14.07% requests for red cell transfusions were categorized as duly completed.⁹ Studies from Nigeria and India stated that 81.2% and 97% of BRFs were filled out completely respectively.¹⁰⁻¹¹

Previous history of blood transfusion was mentioned in only 4.1% of the cases. This is an alarming situation because the information if left incomplete can result in unavoidable transfusion related reactions and hence increased morbidity and mortality.^{12,13} Complete documentation and reporting of a transfusion reaction is important to identifying the problem and the risk to blood recipients in the transfusion chain. So, previous transfusion history is of utmost importance.¹⁴

In our study, BRFs has information for age and sex of the patients in 96% and 19% cases. These findings were comparable to Jegede et al¹⁵ Our findings are higher than the Lagos, Nigeria study, which reported 68% completion for patient age and 32% for sex.¹⁶

In our study most of the referring physicians signed the BRF (89.1%) but most of them failed to write their full name and designation (88%). The results are almost similar to Nutt et al.¹⁷ in 90.1% case of physicians signing a paper. Lower proportions (65.2%) was seen in Zemlin et al. An Australian study reported that 43% of forms lacked complete information; missing items included physician's name and pager number(s).

Diagnosis of the patient was noted correctly in 47.33% cases in our study. In a study reported from Australia, 16% of the red cell transfusions were not appropriate mostly because the clinician did not document the indication for transfusion, other studies also support this issue.^{22,23}

Reason for these variations in our setting may be related to work pressure on physicians working at root levels. Sometimes there are scarcity of junior doctors who usually initiate the process of transfusion by issuing the BRFs. Another important point is probably improper orientation regarding the impact of incomplete BRFs on the quality of patient care. This training is done usually by senior physicians, occasionally without collaboration with transfusion specialists or laboratory professionals. Because of the communication gap that exists between physicians and other health care providers in various countries, it is not unusual for physicians to be hesitant to follow the advice of medical laboratory professionals.²⁰ In some African countries like Nigeria, it is common for staff to consider such documentation as unnecessary paperwork and an extra burden.²¹

Recommendations:

Few recommendations may be made for proper use of BRFs in different settings and to get utmost benefits:

- a) Briefly meeting one-on-one with the physicians. Soumerai et al mentions a reduction in inappropriate transfusion among study surgeons from 40% to 24%.²⁴
- b) To have discussions at scheduled CME and hospital seminars. Morrison et al improved transfusion practices in obstetrics and gynecology by reducing the number of patients undergoing transfusion by 60%.²⁵

- c) to review each order before issue of blood products and in case of any controversy, refer the matter to the Hospital Transfusion Committee, Solomon et al and Hawkins et al mentions a reduction in requirement of FFP by 52% and 33% respectively, with this strategy (26-27) and
- d) by way of installing algorithms and guidelines for transfusion in various different clinical settings like Depotis et al (28) and by Reinertsen et al (29) who are few among the successful ones.

Limitations:

As with any study, the present one has limitations. The present study was conducted on relatively small sample size as such the findings cannot be generalized to reference whole population. Utilization of blood and blood products supplied from Transfusion Medicine Department was not investigated which can give more light of wastage of blood after being supplied. A longer study is needed to follow up on the skills of referring physicians in order to improve their knowledge of how to use BRFs properly.

Ethical approval:

Ethical approval for this study was obtained from the Research and Ethics Committee of Sir Salimullah Medical College Mitford Hospital and confidentiality of all information was ensured and maintained.

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Conclusion:

The current study provides evidence that the rate of completion of BRFs at this hospital is not satisfactory. The request forms evaluated were not covering acceptable demographic and clinical data of the patients.

According to our study, in this hospital, quality management is not yet well advanced and there is a lack of coordination between clinicians and transfusion medicine specialists. To achieve success in this endeavor, the Department of Transfusion Medicine has to adopt multiple approaches.

The Hospital Transfusion Committee (HTC) can play a key role in the improvement of this situation. The HTC should organize sensitization and advocacy sessions with the clinicians and especially with the new doctors and interns and for proper ordering and utilization practices. Medical graduates and nursing staff should be adequately sensitized regarding the blood bank and its functions; this, in return, will help them in understanding the complementary role played by blood service in clinical practice.

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