

**Research Article**

**A retrospective clinical audit of blood transfusion requests  
in tertiary care hospital**

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**Abstract**

**Introduction:** The inappropriate use of medical technology is a major factor in increased health care expenses and inappropriate use of blood is costly. There is a need for continuous audit of the use of products as therapy. Audits are useful tools in the education of those ordering blood components, potentially resulting in the reduction of inappropriate use of blood components.

**Aim:** A retrospective clinical audit of blood transfusion requests in patients at a tertiary care hospital.

**Material and Methods:** This retrospective clinical audit conducted at NKP salve institute of medical sciences & research center & lata mangeshkar hospital Nagpur for a period of 3 months from April 2013 to June 2013. A retrospective analysis of blood and its component requisitions in all patients from different clinical departments was reviewed regarding diagnosis, indication for transfusion, number of units requested and the speciality prescribing it. Reports of silent investigations like hemoglobin, platelet count, coagulogram was also recorded.

**Results:** Out of 869 requisitions, 301 were for male patients and 568 were for female patients. Total number of blood components distribution request was 1188. 632 were for whole blood, 364 were for packed red cells, 182 were for FFP and 10 for platelet concentrate. Pre transfusion Hemoglobin was >8 gm/dl in 273 requests. Pre transfusion hemoglobin values were not available for 192. The urgency for transfusion was mentioned on 728, indication was mentioned on 804 and diagnosis was mentioned on 755 requisition forms. Multiple blood components requests were 97. The maximum request was from Department of Obstetrics and Gynaecology.

Total blood components issues were 707. Out of which 329 whole blood, 194 packed red cells, 182 FFPs and platelet concentrate were 2. Total donors were 554.

**Conclusion:** Clinical audits helps to reduce inappropriate use of blood and blood components, avoids blood transfusion reaction and avail the deprived patients.

**Keywords:** Audit, Blood components, Blood bank

**1. Introduction**

Blood transfusion is an essential part of modern health care. Used correctly, it can save life and improve health. However, as with any therapeutic intervention, it may result in acute or delayed complications. In addition, it carries the risk of transmission of infectious agents, such as HIV, hepatitis viruses, syphilis, etc. It is also expensive and uses a scarce human resource.

The risks associated with transfusion can only be decreased by close collaboration between the blood transfusion service and clinicians in managing the components of the transfusion process for which they are each responsible:

1. An adequate supply of safe blood and blood products
2. The effective clinical use of blood and blood products

There is no an absolute acceptable level for all patients exists. But the concept of, transfusion is only indicated when Hb <7 g/dl, has been general accepted in most of the countries in the world.<sup>1</sup>

The blood component implies separation of whole blood into various potential components like packed red cells, Platelet rich plasma, fresh frozen plasma, cryoprecipitate and leucocytes.<sup>2,3,4,5</sup> To maximize the effectiveness, safety and utility clinicians and intravenous therapists should be knowledgeable about the potential risk of blood component therapy.<sup>6</sup>

We should keep in mind the appropriate indication for ordering blood components there by Avoid misuse and unnecessary exposure of the recipient to various infectious and non infectious complications.

Clinical audit is a important part of the quality assurance programme which can provide necessary information for improving transfusion medicine practice.<sup>2</sup> It is a management tool for the appraisal and justification of appropriateness and efficiency of transfusion therapy.<sup>3</sup>

Various strategies have been developed to reduce the inappropriate use of blood components. These include guidelines and consensus conferences as well as monitoring of transfusion practice, education, and self-audit by clinicians.<sup>5,7,8</sup>

## 2. Material and Methods

This retrospective audit conducted at NKP salve institute of medical sciences & research center & lata mangeshkar hospital Nagpur for a period of 3 months from April 2013 to June 2013. A retrospective analysis of blood and its component requisitions in all patients from different clinical departments was reviewed regarding diagnosis, indication for transfusion, number of units requested and the speciality prescribing it. Reports of silent investigations like hemoglobin, platelet count, coagulogram was also recorded.

## 3. Results

Out of 869 requisitions, 301 were for male patients and 568 were for female patients.(Table 1) Total no. of blood group distribution requests were 880. (Table 2)

Total number of blood components distribution request was 1188. (Table 3) 632 were for whole blood, 364 were for packed red cells, 182 were for FFP and 10 for platelet concentrate.

Pre transfusion Hemoglobin was >8 gm/dl in 273 requests. Pre transfusion hemoglobin values were not available for 192. (Table 4) Pre-transfusion hemoglobin was >10 gm/dl in 97, 8-10 gm/dl in 176, 6-8 gm/dl in 209, 4-6 gm/dl in 142, <4 gm/dl in 53 patients. Platelet count was not written in any of the FFP requests.

The urgency for transfusion was mentioned on 728, indication was mentioned on 804 and diagnosis was mentioned on 755 requisition forms. The commonest indication in Medicine dept is chronic anemia 80% in surgery department pre operative and intraoperative transfusion for correction of acute blood loss due to trauma, chronic anemia. In OBG dept commonest indication is Post Partum Haemorrhage (PPH) and pre operative correction of anemia. In ortho dept commonest indication is acute blood loss and pre operative correction anemia. In pediatrics main indication was anemia and exchange transfusion. Multiple blood components requests were 97. The maximum request was from Department of Obstetrics and Gynaecology. (Table 5) 210 requests from medicine, 124 from surgery, 304 from Obstetrics and Gynaecology, 110 from orthopaedics and 121 from other departments (Pediatrics, ENT, TB chest, skin, others and outside).

Total blood components issues were 707.(table 6) Out of which 329 whole blood, 194 packed red cells, 182 FFPs and platelet concentrate were 2.(table 7) There were no blood transfusion reaction reported to blood bank. Total donors were 554. During three months 3 HIV positive blood units, 12 units were HbsAg and 2 were HCV positive.

**Table 1: SEX DISTRIBUTION**

SEX	N
Male	301
Female	568
TOTAL	869

**Table 2: BLOOD GROUP DISTRIBUTION IN REQUESTS**

BLOOD GROUP	N (%)
A +ve	227
B +ve	262
O +ve	303
AB +ve	64
A Negative	10
B Negative	6
AB Negative	3
O Negative	5
TOTAL	880

**Table 3: BLOOD COMPONENTS DISTRIBUTION REQUESTS**

TYPE OF COMPONENT	N (%)
Whole blood	632
Packed cells	364
FFP	182
Platelet concentrate	10
TOTAL	1188

**Table 4: PRE-TRANSFUSION HAEMOGLOBIN IN THE REQUESTS**

PRE-TRANSFUSION HAEMOGLOBIN	TOTAL
>10	97
8-10	176
6-8	209
4-6	142
<4	53
Not investigated	192

**Table 5: REQUESTS FROM DEPARTMENTS**

DEPARTMENT	N (%)
Medicine	210
Surgery	124
OBG	304
Ortho	110
Pediatrics, ENT, TB chest, skin, others and outside	121
TOTAL	869

**Table 6: TOTAL DONORS AND ISSUES**

TOTAL DONORS	TOTAL ISSUES
554	707

**Table 7: BLOOD GROUP ISSUES ACCORDING TO DEPARTMENTS**

DEPARTMENT	WB	PRC	FFP	PC	PRP	TOTAL
OBG/GYN	98	40	8	-	-	146
ENT	18	-	-	-	-	18
MED	114	100	98	-	-	312
SURG	74	32	16	-	-	122
ORTHO	12	7	-	-	-	19
PAEDS	8	10	60	2	-	80
TB CHEST	-	3	-	-	-	3
OUTSIDE	5	-	-	-	-	5
SKIN	-	2	-	-	-	2
TOTAL	329	194	182	2	-	707

#### 4. Discussion

Due to easy availability of sophisticated blood banking services, indiscriminate use of blood components is on a rise. Internal audits form an integral part of the quality control programme in any blood bank, like in any other organization.<sup>9,10</sup>

Internal audit aims at proper selection of blood components for patients and avoiding their overuse.<sup>11,12</sup> Due heavy population demand for blood and blood components are more and increasing day by day. But the supply of blood and blood components are limited. With limited resources, a high rate of inappropriate use has been reported around the world. It leads to considerable impact on the health care cost, wastage of resources, depriving more needy patients and transmission of infection with unnecessary allergic reaction leading to high mortality and morbidity in patients.<sup>13,14</sup> hence we tried to look into the transfusion practices in patients at a tertiary care hospital by this retrospective study.

As per the staffs in case of emergency patients, blood and blood components were issued without any laboratory data. But it will be wise if laboratory facilities must be available to provide the data quickly.

Denial to issue blood may lead to problem between clinician and laboratory staff and may also lead to medicolegal complications ultimately compromising patient care.

In various studies<sup>10-14</sup> it is revealed that for sustained improvement in practice, prospective monitoring must be continued indefinitely. It is difficult due to lack of staff and more time consuming. But this problem can be overcome by computerised audit programs.

#### 5. Conclusion

Clinical audits of blood component usage is very important to access the blood utilization pattern in any hospital. It helps to make and refine guidelines for requests and issue of blood and blood components. It ultimately helps to reduce its inappropriate use, avoids blood transfusion reaction and avail the deprived patients.

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