

Request for Blood Components Packed Red Cell at UDD PMI Sukoharjo in Quarter I of 2021

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Abstract:

Packed Red Cell (PRC) is the most requested at the Blood Donation Unit (BDU) of Indonesia Red Cross (IRC) Sukoharjo Regency. PRC requests are usually transfused to patients of varying sex, ages, and blood types that vary according to need. PRC is widely used in the treatment of anemia, thalassemia, leukemia, aplastic anemia, and the consequences of other malignancies. This study aims to get an overview of PRC demand at BDU of IRC Sukoharjo Regency. This study used a quantitative descriptive design with a cross-sectional approach, the population was 2,693 and the sample was 348 patients at the BDU of IRC Sukoharjo Regency from January to March 2021. Sampling with purposive sampling technique, then the secondary data was analyzed by univariate analysis using Microsoft Excel 2010. The sample of PRC requests was 348 patients. With female gender 184 (53%) patients and male 164 (47%) patients. There is a request for PRC with blood type A positive 93 (27%) patients, B positive 105 (30%) patients, O positive 118 (34%) patients, AB positive 32 (9%) patients. Based on age with a range of <1 year 3 (1%) patients, 1-20 years 76 (22%) patients, 21-40 years 102 (29%) patients, 41-60 years 116 (33%) patients, 61-80 years 49 (14%) patients, and >81 years 2 (1%) patients. There is a majority demand for PRC in female patients, age range 41-60 years, with O positive blood type at BDU of IRC Sukoharjo Regency.

Keywords:

Blood demand, Packed Red Cell (PRC)

JEL: I10, I14, I18

INTRODUCTION

Packed Red Cells (PRC) blood components come from *Whole Blood (WB)* which is precipitated by high-speed centrifugation at 4°C. *Packed Red Cell (PRC)* blood components are usually given to anemic patients who are not accompanied by a decrease in blood volume, for example patients with acute leukemia, hemolytic anemia, chronic leukemia, malignancy, thalassemia, chronic kidney failure (Fauzi, 2019). The use of *Packed Red Cell (PRC)* blood components can minimize the possibility of disease transmission, the volume of blood given is less so that the possibility of *overload* in the transfusion process is reduced, and other blood components can be given to other patients (Indrawati, 2011).

Packed Red Cells (PRC) is the most requested type of blood component by patients. In 2014, the demand for blood in Indonesia was approximately 5 million blood bags. This is inversely proportional to the availability of blood which only amounted to (50.1%) blood bags. Especially in Central Java, blood requests reached 600,000 bags. However, the UTD in Central Java Province were only able to meet the demand (74.5%). This shows that the UTD in Central Java Province were still unable to meet the demand (25.5%) of the number of blood bags requested (Infodatin, 2014). In the last 5 years, around 60 thousand requests for blood have come in at UDD PMI Sukoharjo district, *Packed Red Cell (PRC)* requests have reached 50 thousand bags. Within 1 month, the average *Packed Red Cell (PRC)* request was 898 bags (PMI Sukoharjo Regency, 2021) .

METHODOLOGY

The method used in this research is descriptive research *with a cross sectional approach*. The population used in this research was all requests for *Packed Red Cell (PRC) blood components* in the first quarter of 2021 at UDD PMI, Sukoharjo Regency, namely 2,693 patients. The sampling technique in this study was *purposive sampling* using the Slovin formula. The sample of this study was a request for *Packed Red Cell (PRC) blood components* in the first quarter of 2021 at PMI UDD, Sukoharjo Regency, namely 348 patients. The variable in this study is a single variable. In this study using data collection techniques in the form of secondary data. Secondary data in this study is in the form of blood component request data *Packed Red Cell (PRC)* at UDD PMI Sukoharjo Regency in the first quarter of 2021. The instrument used in this study was the *log book* or annual report book for blood component requests *Packed Red Cell (PRC)* in Quarter I of 2021 at UDD PMI, Sukoharjo Regency.

The data obtained from secondary data collection is then processed using a statistical program. Data processing techniques in this study are: *data editing, data coding, data entry, data cleaning, and tabulating data*. The research data uses *univariate analysis* which is presented in the form of a frequency distribution table. This research was conducted at UDD PMI, Sukoharjo Regency. This research was conducted from December 2021 to May 2022.

RESULT & DISCUSSION

This research was carried out using secondary data samples taken from the log book of requests for *Packed Red Cell (PRC) blood components* at PMI UDD, Sukoharjo Regency. The data is then grouped based on several categories including: gender, age range, and blood type.

1. Presentation of Data Based on Gender Category

Packed Red Cell (PRC) requests amounted to 348, 164 or 47% of whom were male patients. Meanwhile, patients with female gender were 184 or 53% of patients. From the results of the study it was found that many of the patients who needed *Packed Red Cell (PRC) blood components* were female, namely 184 patients. This is supported by population data from the Sukoharjo Regency Government in 2021, the population is more female than male. This research is also in line with the research of Fatmasari & Laili which stated that the results of their research on the demand for blood component *Packed Red Cell (PRC)* were mostly women. This is because women are more at risk of disease, especially anemia. In addition, women are more at risk of bleeding, especially in childbirth. According to information from Pusdatin, the majority of people with heart disease are female, which is around 83.6% of people. So, the demand for *Packed Red Cell (PRC) components* based on female patients is greater, because *Packed Red Cell (PRC) components* are usually given to patients with a diagnosis of slow bleeding, patients with anemia, heart disorders and thalassemia.

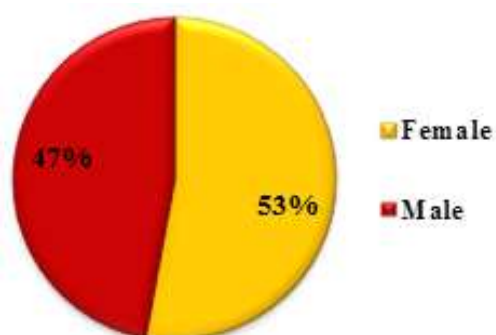


Figure 1
Gender

Table 1
Gender Category

Gender	Amount	Percentage
Man	164	47%
Woman	184	53%
Total	348	100%

2. Presentation of Data Based on Age Range Categories

There were 3 patients with an age range of less than 1 year, 76 patients aged 1-20 years, 102 patients aged 21-40 years, 116 patients aged 41-60 years, 49 patients aged 61-80 years, and patients with the age of 81 years and over as many as 2 patients. The results of the study revealed that the 348 patients who requested blood components (PRC) in the highest number came from the age range of 41-60 years. This is because, at the age of 41 and over, the immune system decreases so that the body is susceptible to various diseases. Based on data from Infodatin Ministry of Health of the Republic of Indonesia, out of 500 thousands of people who suffer from heart disease, 54.1% of them come from the age range of 41-60 years. In addition, there are other factors that cause demand (PRC) to increase, namely transfusions (PRC) can lighten the burden on the heart compared to transfusions with *Whole Blood* (WB) components.

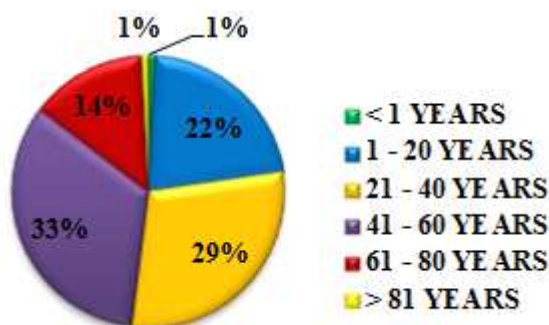


Figure 2
Age

Table 2
Age Category

No.	Age Range (Year)	Amount	Percentage
1.	< 1	3	1%
2.	1 – 20	76	22%
3.	21–40	102	29%
4.	41–60	116	33%
5.	61–80	49	14%
6.	> 81	2	1%
	Total	348	100%

3. Presentation of Data Based on Blood Group Categories

There were 93 patients with blood type A positive rhesus, 105 patients with B rhesus positive, 118 patients with O rhesus positive, and 32 patients with AB rhesus positive. Based on the data, the results show that the O Rh positive blood group dominates the demand for blood components (PRC) with a frequency of 118 patients, while the AB Rhesus Positive blood group is the least requested, namely 32 requests. Internationally,

blood type O reaches 40% of the world's population, blood type A is around 25%, blood group B is 26%, and blood type AB is only 10%. Blood type O is also the most common blood type in Asia, this is also supported by population data from the Sukoharjo District Government. From the data obtained, the majority of blood groups in the Sukoharjo Regency area are blood type O as many as 54,774 people, and a minority are blood type AB as many as 11,484 people. Referring to the theory above, the demand for blood components (PRC) must be fulfilled by the same blood type to reduce the risk of transfusion reactions.

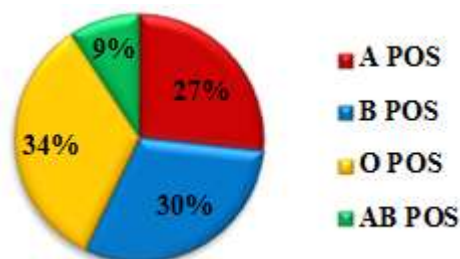


Figure 3
Blood Group

Table 3
Blood Group Category

Blood group	Amount	Percentage
A Rhesus Positive	93	27%
B Rhesus Positive	105	30%
O Rhesus Positive	118	34%
AB Rhesus Positive	32	9%
Total	348	100%

CONCLUSION

Based on research that has been done by researchers it can be concluded that demand for *Packed Red Cell (PRC)* blood components at UDD PMI Sukoharjo Regency in the first quarter of 2021 demand based on gender, namely women by 53%, there is a significant difference in blood type, namely more blood group O Rhesus positive 34% and the age range that dominates 41-60 years by 33%.

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