



# An audit -the utilization of O RhD negative blood group



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## Background

➤ **Current problem:** Stocks of Universal Donor Blood Group, O RhD Negative (O NEG) red blood cells (RBC) have continued to be in short supply despite the overall reduction on the usage of red cells.

➤ The demand (12% O Neg issues) is greater than supply (7% O Neg donors). On average each O Negative blood donor donates 20% more blood than other donor groups (source: NHSBT).

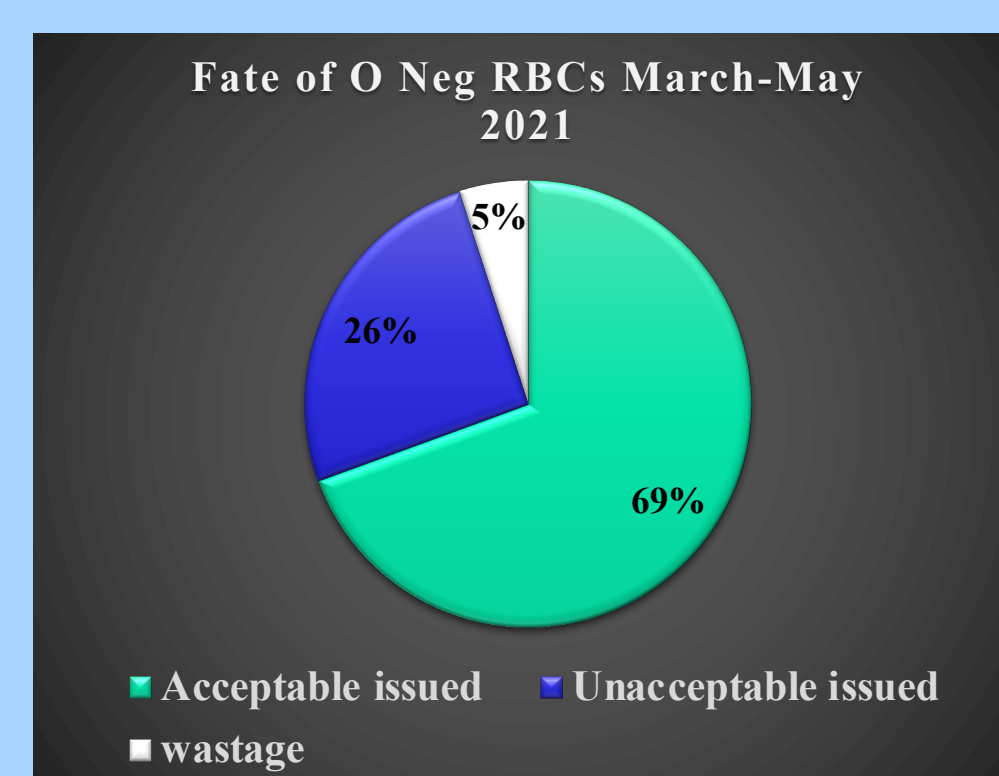
➤ The development of Massive Transfusion Protocols (MTPs) has led to the increase demand in O Neg RBCs.

➤ The growing gap between blood demand and blood donation could have implications for future medical care.

➤ It is vital to conserve the O Neg stocks for those patients for whom there is no alternative.

➤ Performing audit on usages of O Neg RBCs against NBTC guidelines at our major trauma led transfusion laboratory could provide valuable information and seek out ways to improve the usage of this limited resource.

## Data on group O Neg RBC usage



**Figure 1.** The Pie chart for the fate of total 386 O Neg RBCs units. 268 units (69%) were transfused in line with national guidelines. Surprisingly, 99 units (26%) were not consistent with NBTC recommendations. The remaining 5% (19 units) of O Neg RBCs were wasted.

NBTC indications for appropriate use of O Neg	Fate of O Neg consistent with guidelines
<b>1. Mandatory indications</b>	
1.1 O Neg patients with immune anti-D	1
1.2 O Neg females with child bearing potential(<50 years)	6
1.3 Children(<18 years) of unknown blood group in an emergency	8
1.4 Females patients of unknown blood group during emergency	32
<b>2. Recommended indication</b>	
2.1 O Neg patients who received repeated transfusions	15
<b>3. Acceptable indications</b>	
3.1 O Neg males where less/equal to 8 units are transfused	66
3.2 O Neg females (>60 years) where less/equal to 8 units transfused	32
3.3 Patients with ABO incompatible bone marrow transplantation	53
3.4 Non-O Neg requiring special phenotype	55
	<b>268</b>

**Table 1:** explains the fate of O Neg consistent with NBTC guidelines for the appropriate use of O Neg RBCs over the period (March to May 2021) at St. Mary's Transfusion laboratory.

## Key Findings of this Audit:

➤ Interestingly, our data collated between March to May 2021 shows 69% of O Neg RBCs are transfused in accordance with the recommended guidelines.

➤ Almost 11% were used as “emergency” units. It is worth noting that our lab do not have a policy to provide O Pos red cells in an emergency to unknown females aged over 50 years.

➤ 14.2% of O Neg RBCs were used as a substitution to meet phenotype requirements. Approximately half of those needs could have been met by suitable O Pos red cells.

➤ NHS survey (2018) recommended that O Neg red cell wastage should be less than 4%. This audit also found that 5% of O Neg RBCs were wasted.

➤ 10.6 % of O Neg RBCs were transfused to non-O Neg patients to avoid wastage due to time expiry and 7.5 % of units were transfused to manage K+ stocks which could be correlated with stock levels.

➤ The number of O Neg stockholding is greater than 12.5% (NHS survey 2018) during the audit period. Major trauma led centre, maternity unit or the provision of emergency vascular surgery may increase the use of O Neg RBCs in our hospital, ultimately O Neg stock level.

➤ Stocks of other groups need to be maintained by our laboratory to avoid the use of group O Neg blood for patients of other groups.

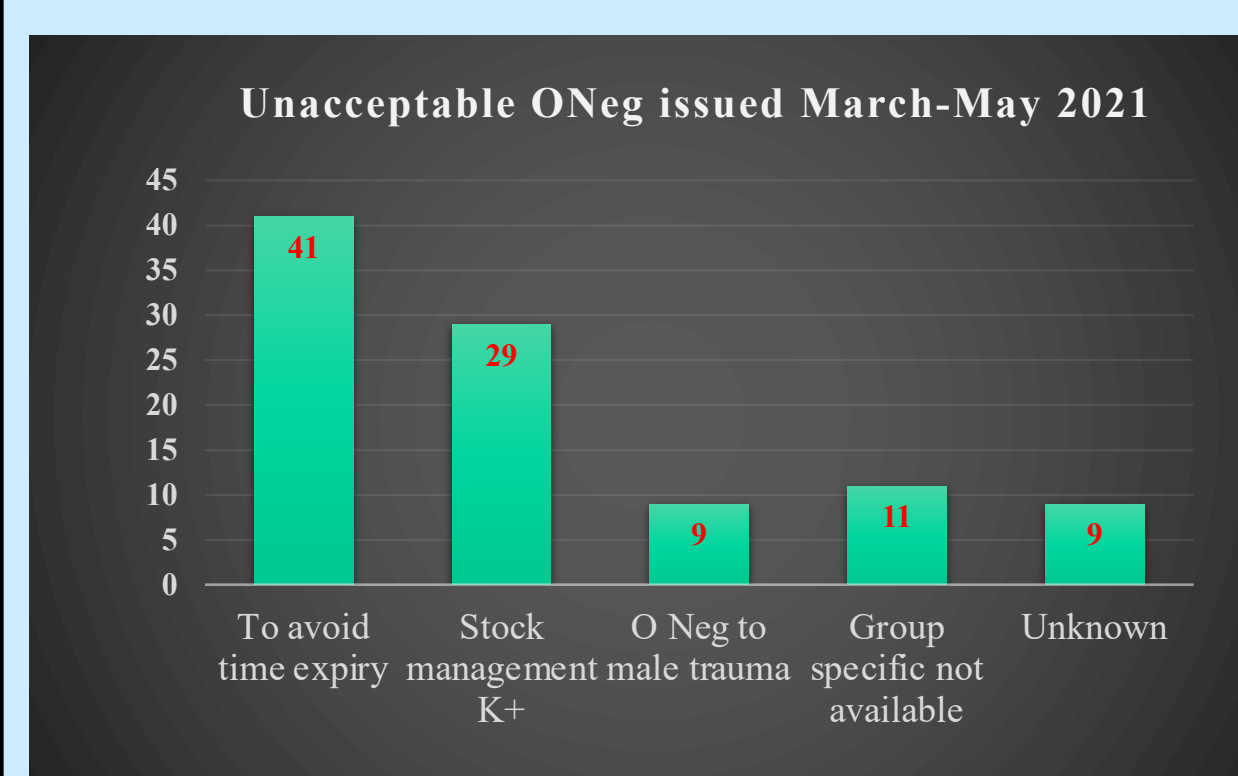
## Aim:

To examine whether our laboratory practices for using of O Neg red cells are consistent with the national guidelines.

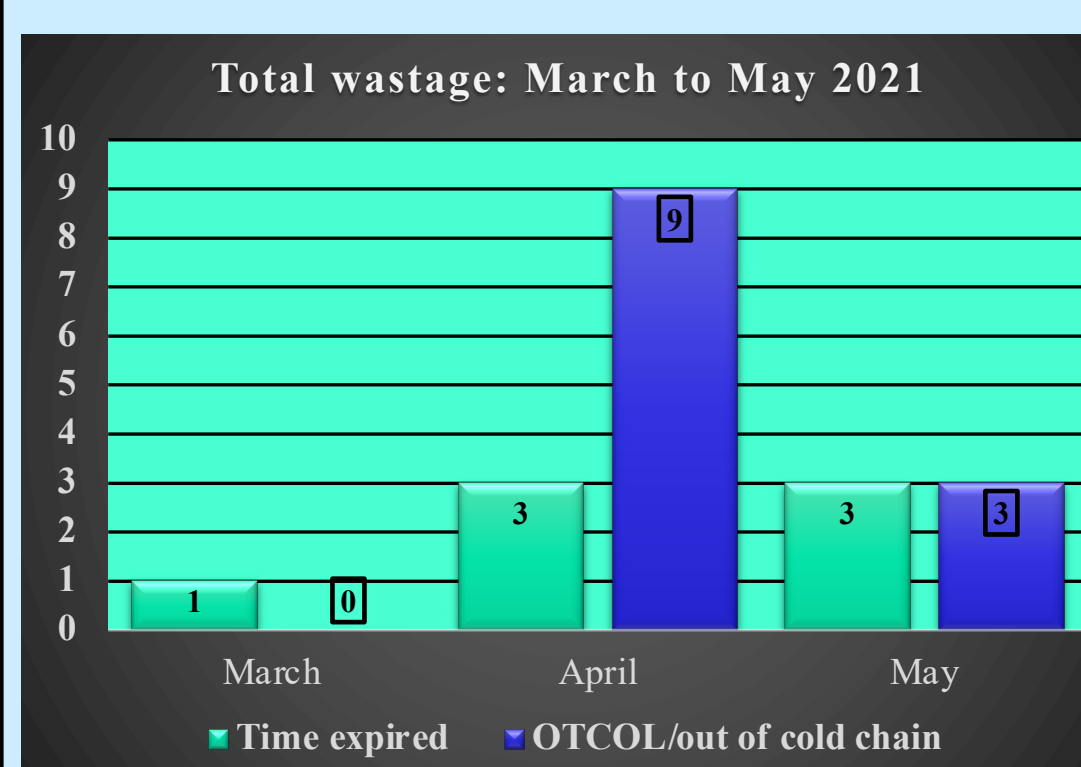
## Objectives:

1. To compare the fate of O Neg red cells against the National Blood Transfusion Committee Guidelines (NBTC, 2010).
2. To determine the proportion of O Neg RBCs that are transfused to non-O Neg patients and the reasons for these transfusions.
3. To investigate how efficient we maintain stock level and wastages of O Neg RBCs in our laboratory.

## Unacceptable & Wastage of O Neg RBCs



**Figure 2:** shows the possible reasons for unacceptable of O Neg RBCs units.



**Figure 3:** The Graph shows the total Wastages of O Neg RBCs units during audit period. It reveals that the blood wastage mainly occurs time expiry and out of cold chain.

## How can we improve our practices?

➤ In an emergency, move to group specific RBCs as soon as a second group & save for ABO compatibility has been performed. Therefore, there is a need to be more vigilant to process the trauma samples to ensure timely release of group specific RBC.

➤ Retrieve unused Group O Neg RBCs from the clinical area following release of group specific blood.

➤ Investigate incidents when O Neg use was inappropriate.

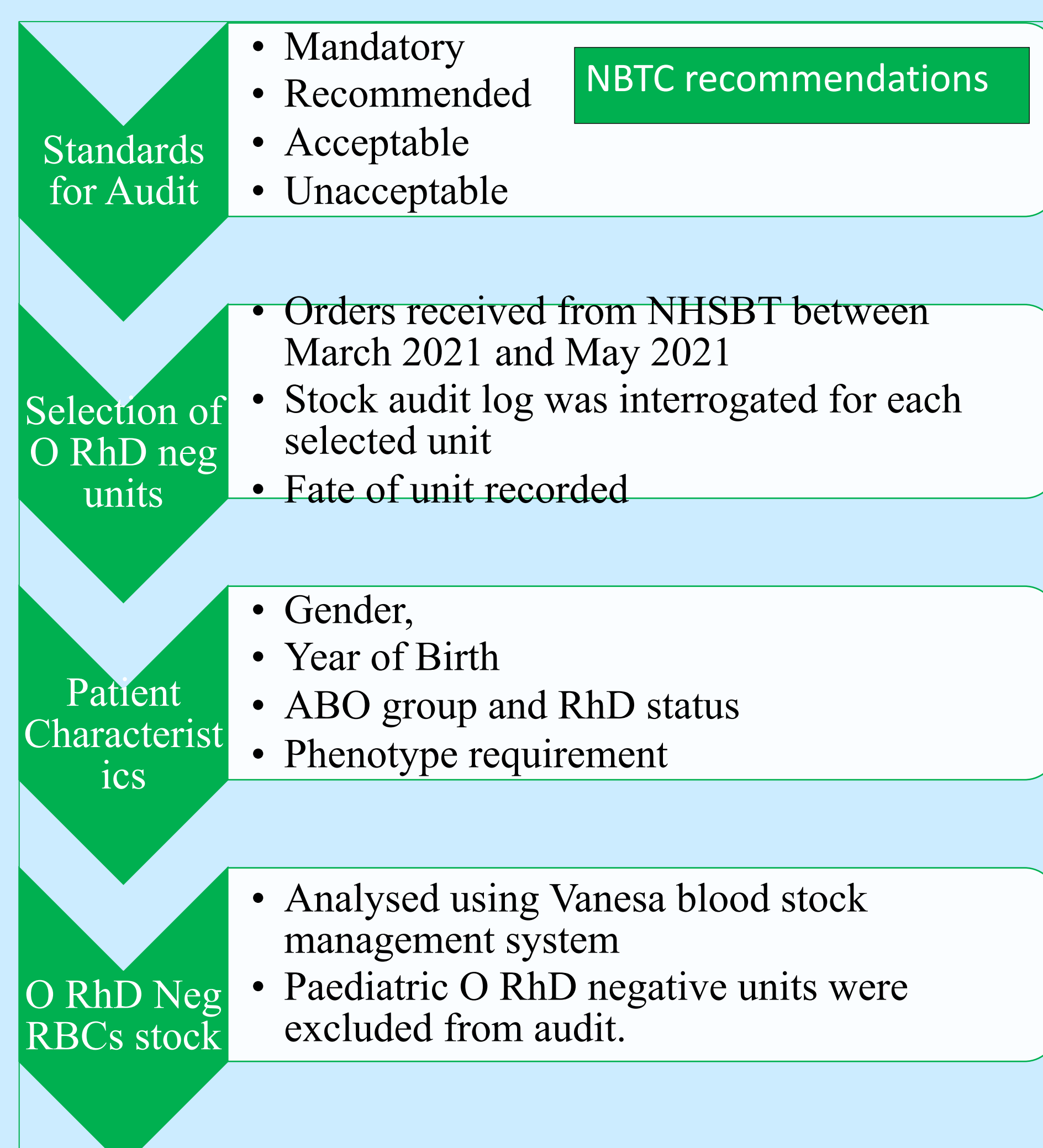
➤ To raise staff awareness for issuing K+ units to male and female (>50 years) instead of K Neg.

➤ To raise awareness among the Clinical Team, not to issue O Neg RBCs for the male patient from satellite fridges during emergency.

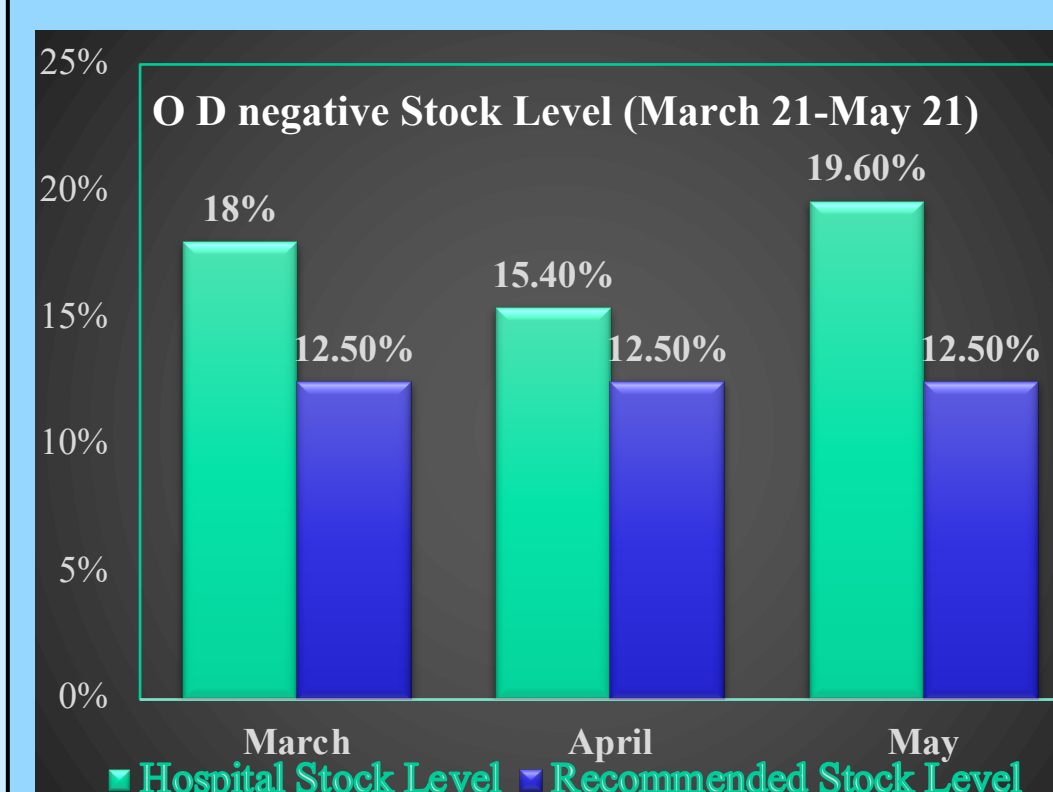
➤ Efforts must be made to consider reducing Group O Neg RBCs stock.

➤ To perform audit of the usage O Neg RBCs on a regular basis.

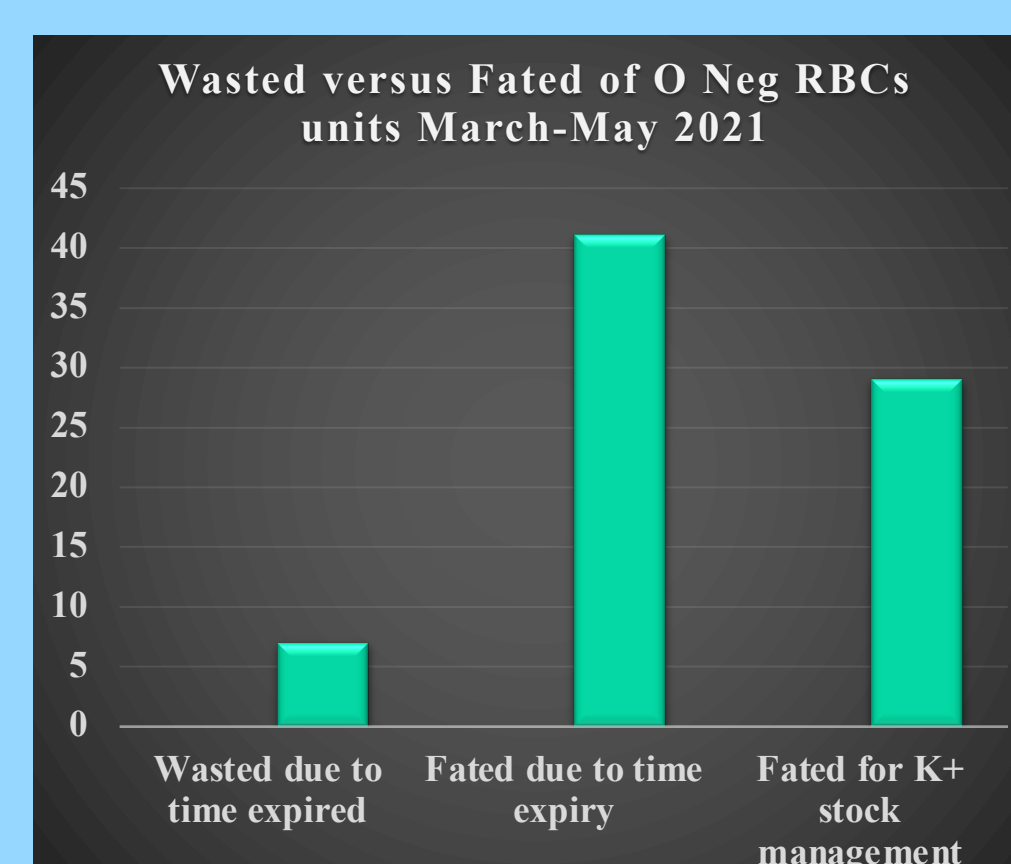
## Methodology



## Stock Management of O Neg RBCs



**Figure 4:** reveals that the average O Neg stockholding as percentage of all units. The blue column means monthly average stock level whereas the orange column indicates recommended stock level (NHS survey 2018).



**Figure 5:** shows the number wasted versus fated of O Neg RBCs units from March to May 2021. Hospitals transfuse O Neg RBCs to non- O Neg patients to avoid wastage due to time expiry and K+ stock management.

## References

- National Blood Transfusion Committee: appropriate use of O D negative red cells 2010.
- NHS undated, National survey on the use of O RhD negative blood 2018.