

Fate of Group O D Negative Red Cells and Prevalence of the O D Negative Blood Group in the North East of England and North Cumbria

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On behalf of the North East Regional Transfusion Committee (NE RTC)

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INTRODUCTION

- Group O D negative red cells are a valuable resource as they can be transfused to non-immunised patients of any blood group.
- The future supply of these red cells remains a national concern given the recurrent shortages, including stocks falling to below three days' supply.
- Although total red cell usage is decreasing the usage of O D negative red cells remains constant and is even increasing in some regions.
- There is known to be inappropriate use of O D negative blood and significant variation of practice within England despite national recommendations.

OBJECTIVES

- To determine the usage of O D negative blood within the NE RTC region.
- To establish the regional prevalence of O D negative patients.

METHODS

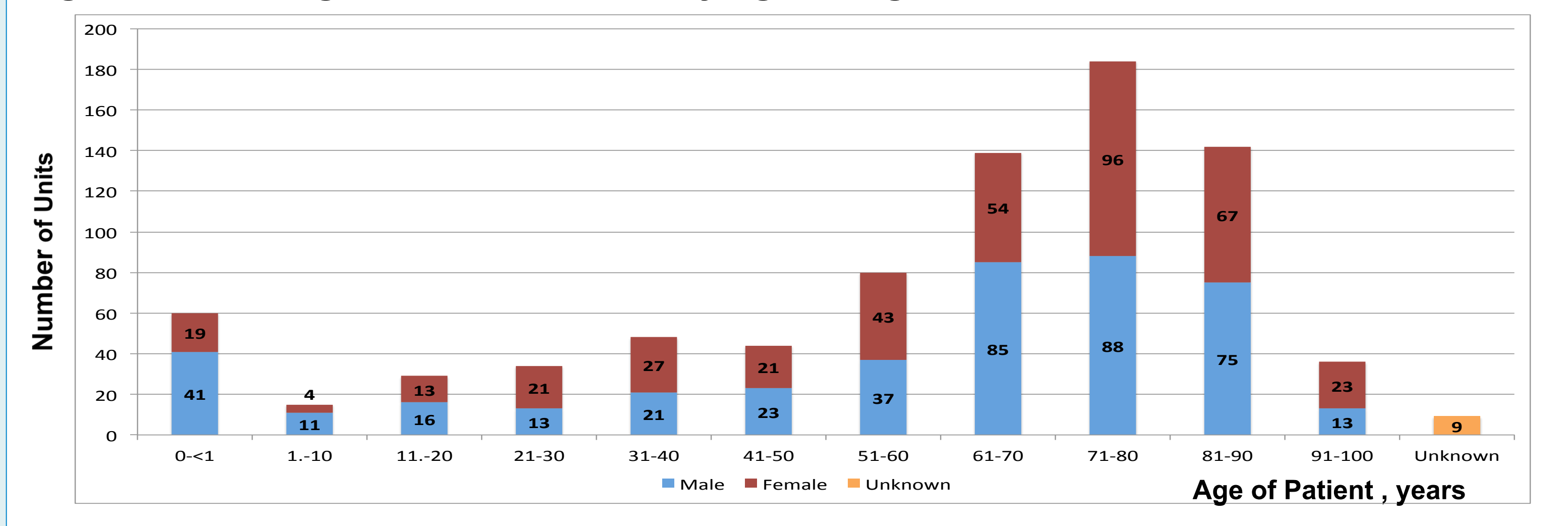
- All Trusts within the NE RTC were invited to prospectively record the fate of all O D negative red cell units within two two-week periods in 2017.
- Distribution of blood groups was identified from all group and screen requests during these time periods.

RESULTS

DEMOGRAPHICS

- All nine Trusts responded incorporating high, medium and low O D negative red cell users.
- The fate of 820 O D negative red cells were recorded.
- 47% of all O D negative units were transfused to female recipients (388 units); 53% were transfused to male recipients (432 units).

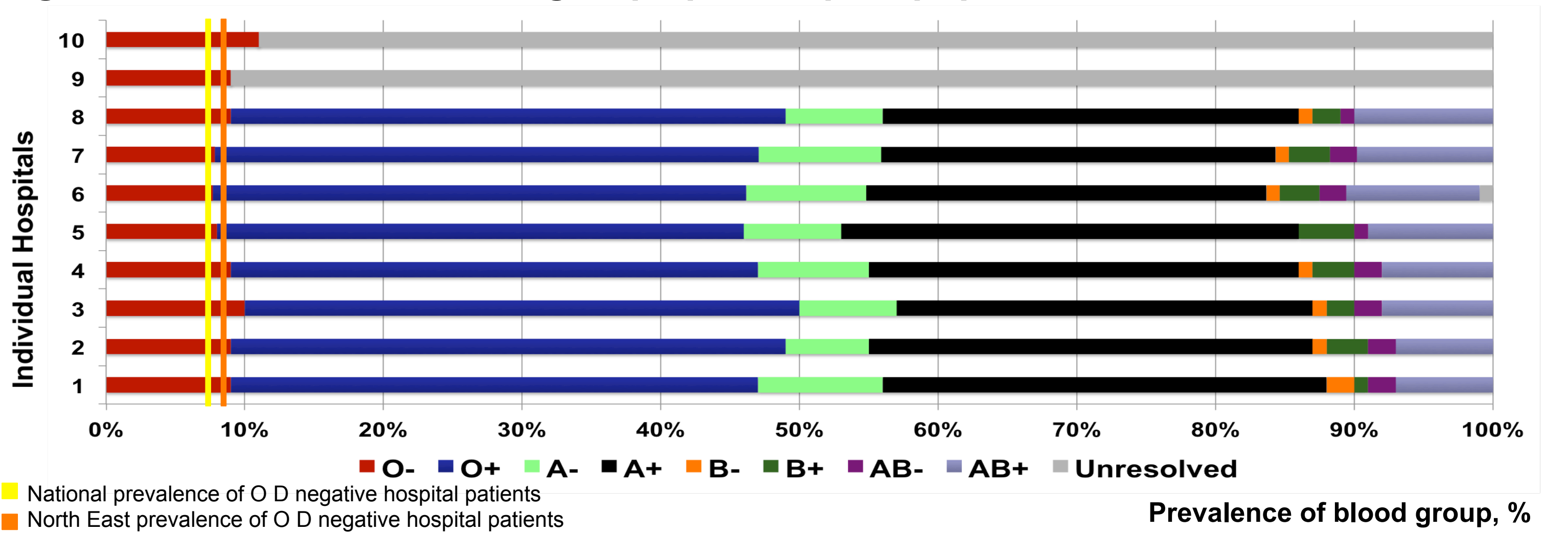
Figure 1: O D negative red cell units by age and gender



REGIONAL PREVALENCE of O D NEGATIVE PATIENTS

- 20457 group and screen samples were analysed by 7/9 Trusts.
- The regional prevalence of O D negative patients was 8.8% (1810/20457).
- However there was variation between individual hospitals with prevalence ranging from 7.5% - 10.7%. Figure 2.

Figure 2: Prevalence of blood groups per hospital population



FATE of O D NEGATIVE RED CELL UNITS

- 57.4% (471/820) of the red cell units were transfused to O D negative recipients. Figure 3.
- 38.5% (316/820) were transfused to non-O D negative recipients and the recipient blood group was unknown in 0.9% (8/820). 3.0% (25/820) were wasted. Figure 4.
- Of the 25 units wasted 60% (15/25) had time expired and 40% (10/25) had been out of temperature control.
- 10% of the red cell units (83/820 units) were transfused to avoid time expiry but this was highly variable between hospitals (0% to 37.5%).
- 11% of the units (90/820) were transfused as part of the massive haemorrhage pack. 15% of these units (14/90 units) were transfused to female recipients aged <60 years. At least 8% (7/90) units were transfused to recipients with O D negative blood group, 37% (33/90 units) to O D positive patients. The D alloantibody status and the number of O D negative units received by individual patients was outside the scope of this review.

Figure 3: Fate of O D negative red cell units by recipient blood group

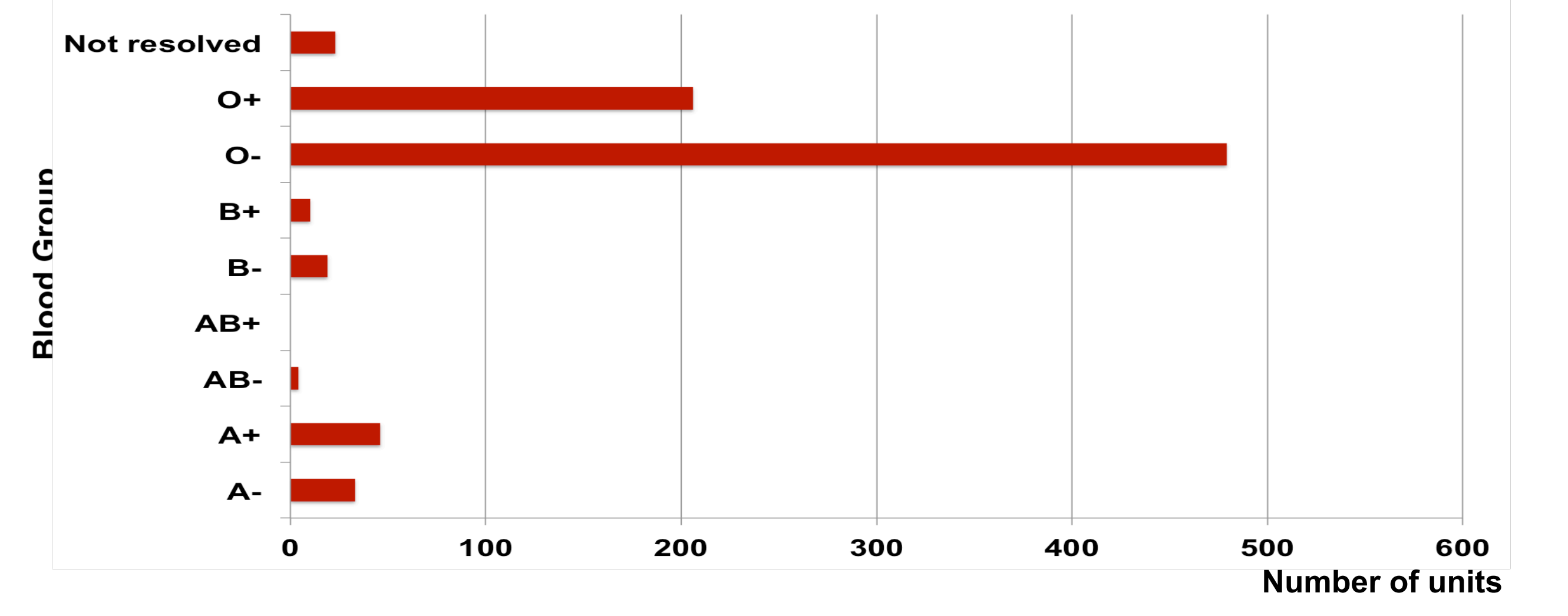
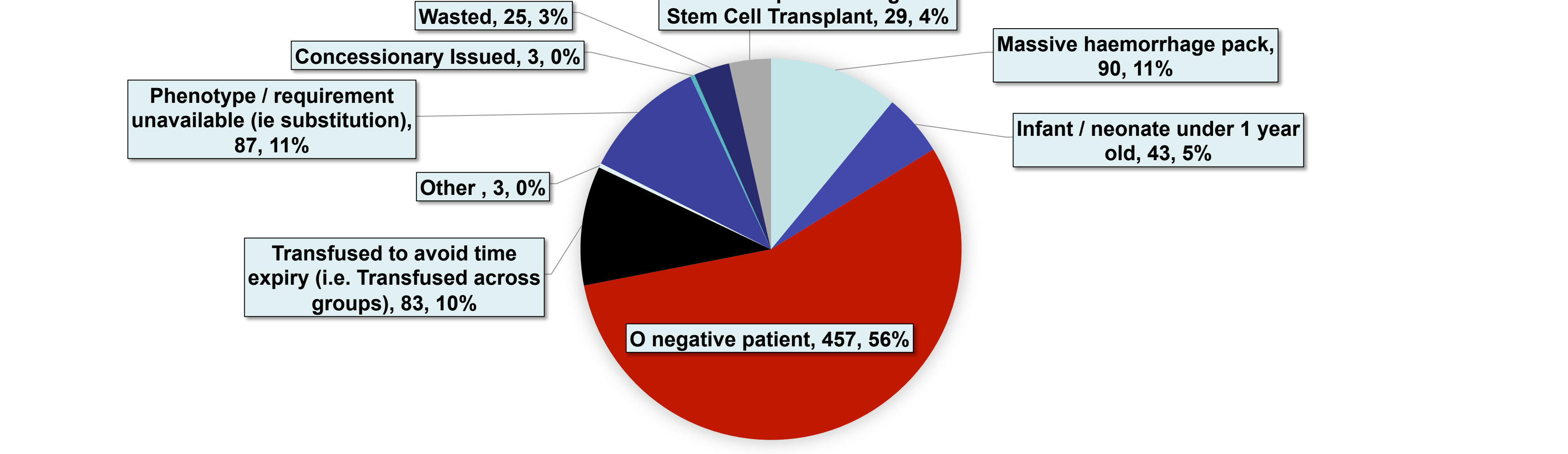


Figure 4: Fate of O D negative units



CONCLUSION

- The North East's population of O D negative patients is higher than the quoted national average of 7.81% and is even as high as 10.7% within one area in this large region. This may account for a slightly increased regional usage of O D negative units.
- However, there is some inappropriate use of this component and overdependence on O D negative red cells with 1 in 10 units being transfused to avoid time expiry. This is equivalent to the 10% national transfusion rate to avoid time expiry but there is wide variation within the North East with rates peaking at 37.5%. All hospitals should aim to optimise their blood stock management to reduce this unsuitable utilisation of this component.
- Hospital Trusts should have policies regarding the emergency use of O D negative red cells to ensure non-O D negative patients are not being transfused multiple O D negative units.
- To ensure future availability of this finite resource, improvements in blood stock management and clinical use are essential.

REFERENCES

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