

Introduction

To prevent ABO incompatible transfusion reactions (Never Event), emergency patients with an unknown blood group, receive group O red blood cells (RBC) until their ABO group is known. This is because group O red blood cells are considered a universal donor for the majority of the population, due to the absence of ABO antigens on the red cell surface.



Image 1: Image of group O D Negative and O D positive red blood cells.

Approximately 7% of the UK population is O D Negative, while average Hospital stock level demand is around 12-13%, due to the reliance on O D Negative RBC in emergency issue. To safeguard national stock levels the NHSBT have asked all Transfusion laboratories to limit stock levels of O D Negative RBC to less than 12.5% and to keep overall wastage to a minimum, with a target value of <4%.

Change management

To reduce Oxford Road Campus (ORC) reliance on O D Negative RBC and support the NHSBT and regional efforts our Transfusion team implemented a key recommendation from the National Blood Transfusion Committee (NBTC) appropriate use of O D Negative red cells (2019) in 2020 by implementing O D Positive emergency units into our emergency issue procedures.

Initial project scoping included a change control, risk assessment and a proposal to the Executive Hospital Transfusion Committee (EHTC). This proposal was accepted due to the strong affiliations to guidelines and need to support national stock levels during the COVID-19 pandemic.

Implementation of this change included update of local policy and procedures, validation of the Laboratory Information Management System (LIMS) and blood tracking system, and training of both laboratory and ward staff.



Image 4: Images of the A&E satellite KIOSK screens used to log in and place units in or take units out.

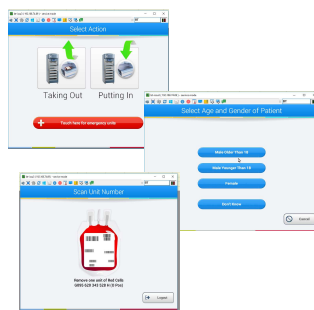


Image 2: Blood-Track screenshots for taking Emergency Units out

New bags were introduced as a safety measure to differentiate between O D positive and O D negative RBC and ensure they were reserved for the correct patient population.

Note: O D Positive units were also issued for Females over the age of 50 directly from the Transfusion Laboratory.

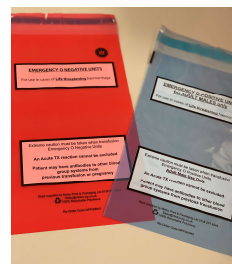


Image 2: Red and blue emergency bags used at satellite location.

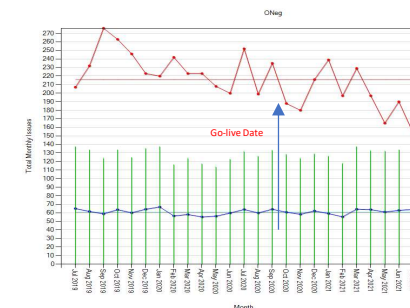
Rules were set in the blood tracking system to trigger a set of questions to determine which emergency unit was suitable, depending on the age and sex of the patient.

- Male older than 18 (O D Positive)
- Male younger than 18 (O D negative)
- Female (O D negative)
- Don't know (O D negative)

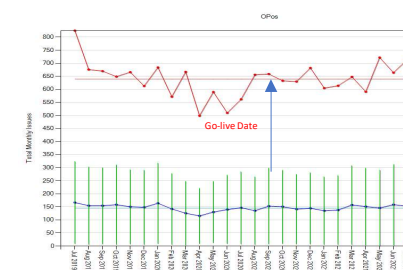
This safety measure was implemented to ensure the right blood group was taken out in an emergency situation.

If the user were to scan the incorrect unit an alert would be generated to ask the user to return the unit to the storage location and call the Transfusion Laboratory.

This service improvement was monitored and audited to ensure that the decisions made were reducing our reliance on O D negative, and strengthening our resilience in regards to emergency issue procedures.

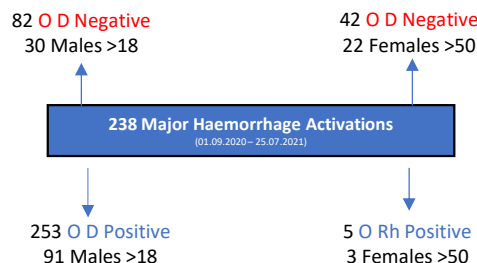


Graph 1: Total monthly Issue of O D negative RBC. Post go-live there has been a marked reduction on the number of units ordered from the NHSBT (Graph & Data collected from Blood Stock Management Scheme).



Graph 2: Total monthly Issue of O D positive RBC. Post go-live there has been a marker increase in the number of units ordered from the NHSBT (Graph & Data collected from Blood Stock Management Scheme).

Audit



Oxford Road Campus (ORC) issued a total of 2,835 O D Negative RBC, or 12.56% of total issues and had a wastage as percentage issued (WAPI) of 18.27% in 2019. In 2020 a total of 2,586 O D Negative RBC was issued which is 12.79% of the total issued, however the WAPI in 2020 was only 11.76%.

Comparing this to 2021 we have been live with the implementation we are currently running at 11.03% of O D Negative RBC issued and a WAPI of O D Negative at 8.10%. Of course the full year is not over yet, and a good comparison audit would be done 12 months post implementation.

Conclusion

Since the 21st of September 2020, 253 O D Positive emergency units have been issued to Males over the age of 18, and 5 units to Females over the age of 50.

This project has improved O D negative stock management and reduced the number of units both ordered and wasted at ORC.

The next phase in this project is to implement the Emergency O D positive into adult Theatres at ORC, Trafford General Hospital and Wythenshawe Hospital.

References

- <https://www.blood.co.uk/why-give-blood/blood-types/>
- Blood Stock Management Scheme: <https://www.bloodstocks.co.uk/>
- Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee <https://www.transfusionguidelines.org/>
- National Blood Transfusion Committee Annual Report (2019/20)



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