

Use of Group O Rh Positive Red Cells as Male Emergency Stock

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Introduction



- Retrospective study over a period of a year looked at use of Trauma stock at Liverpool Hospital
- Study looked at transfused O Pos Emergency units in ED for male trauma patients.
- Study did not include any uncross-matched Group O pos red cells that were transfused.
- Liverpool Blood Bank keeps trauma stock at two sites-ED fridge and Blood Bank fridge
- One set consist of 4X unknown Male- Group O Pos red cells and 2X unknown female-Group O Neg red cells
- If trauma stock is used, Blood Bank replaces it with set kept in the Lab
- Expiry date is monitored through daily reports
- ED Trauma fridge and stock is checked daily

4X O pos
Male stock



2X
Female
Stock

NSWHP South DOCID:267-21

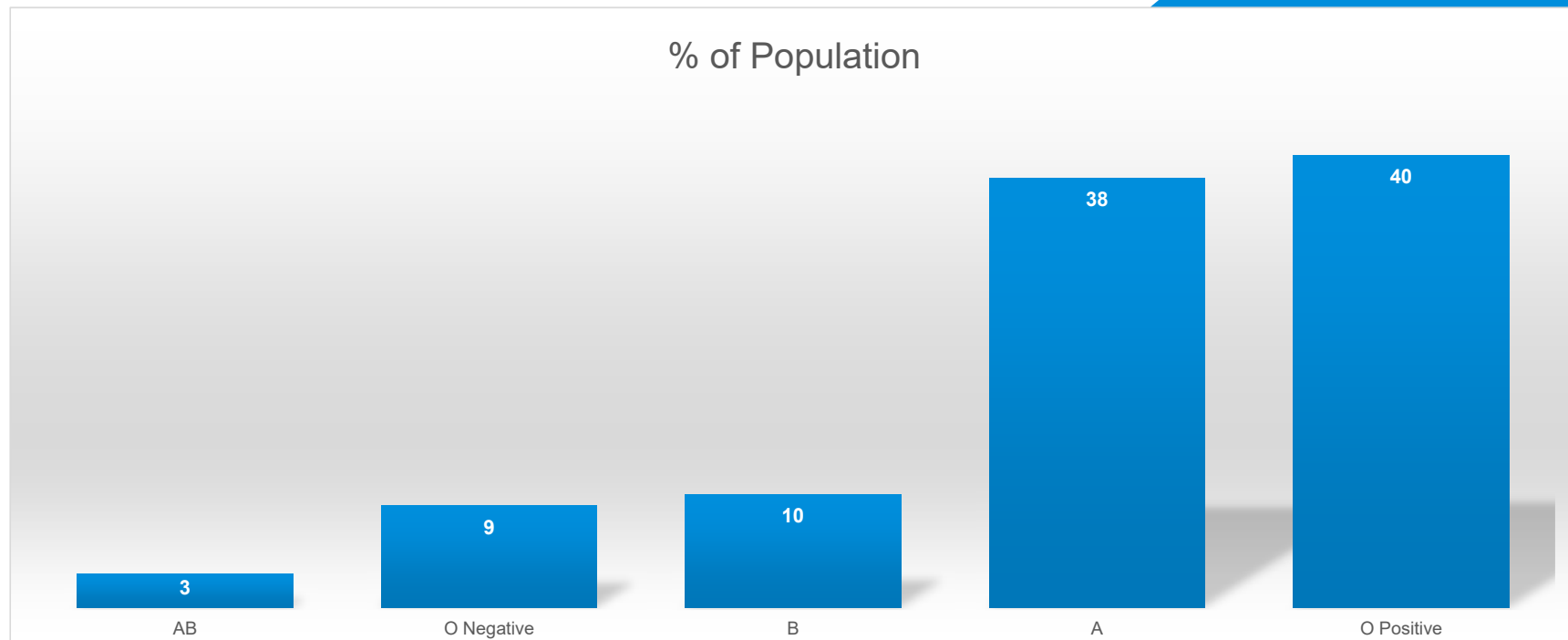
O NEG FEMALE		Red Cell Signout		
Date/Time Removed	Patient Sticker	Pack Number	(BB only) Date/Time In Fridge	(BB only) FATE R/T
17/9/18 2555		6313527	12/9 1230	T
18/9/18 001		5962250	12/9 1230	T

O POS MALE		Red Cell Signout		
Date/Time Removed	Patient Sticker	Pack Number	(BB only) Date/Time In Fridge	(BB only) FATE R/T
		5939183	12/9 1230	
		6304037	12/9 1230	
		6310158	12/9 1230	
		6318414	12/9 1230	

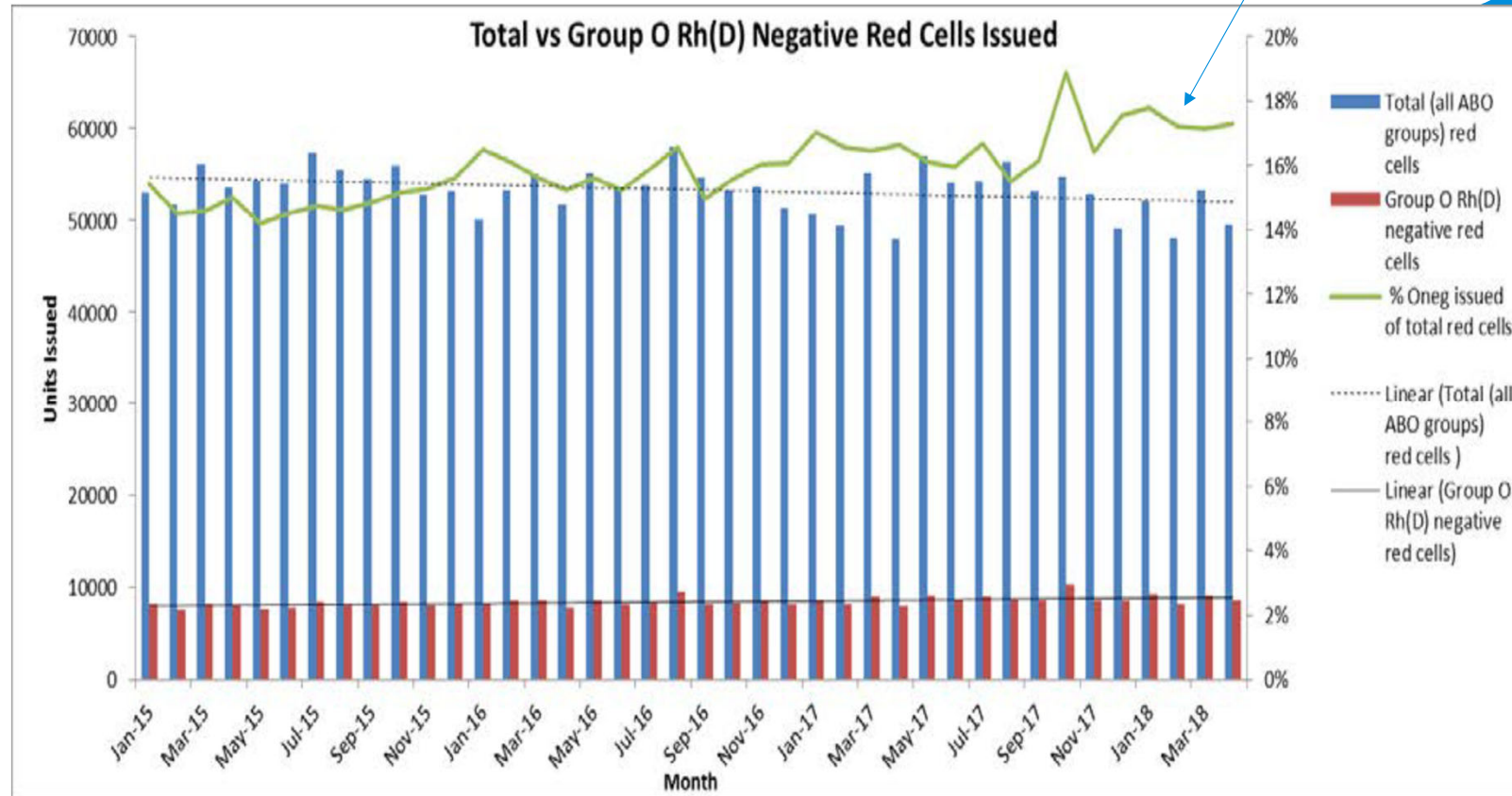
PROTHROMBINEX		Signout		
Date/Time Removed	Patient Sticker	Batch Number	(BB only) Date/Time In Fridge	(BB only) FATE R/T
		358092047	12/9 1230	

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Why not use O NEG?



National red cells issued – total and group O Rh (D) negative



Using O Pos for Unknown Male Trauma

Criteria

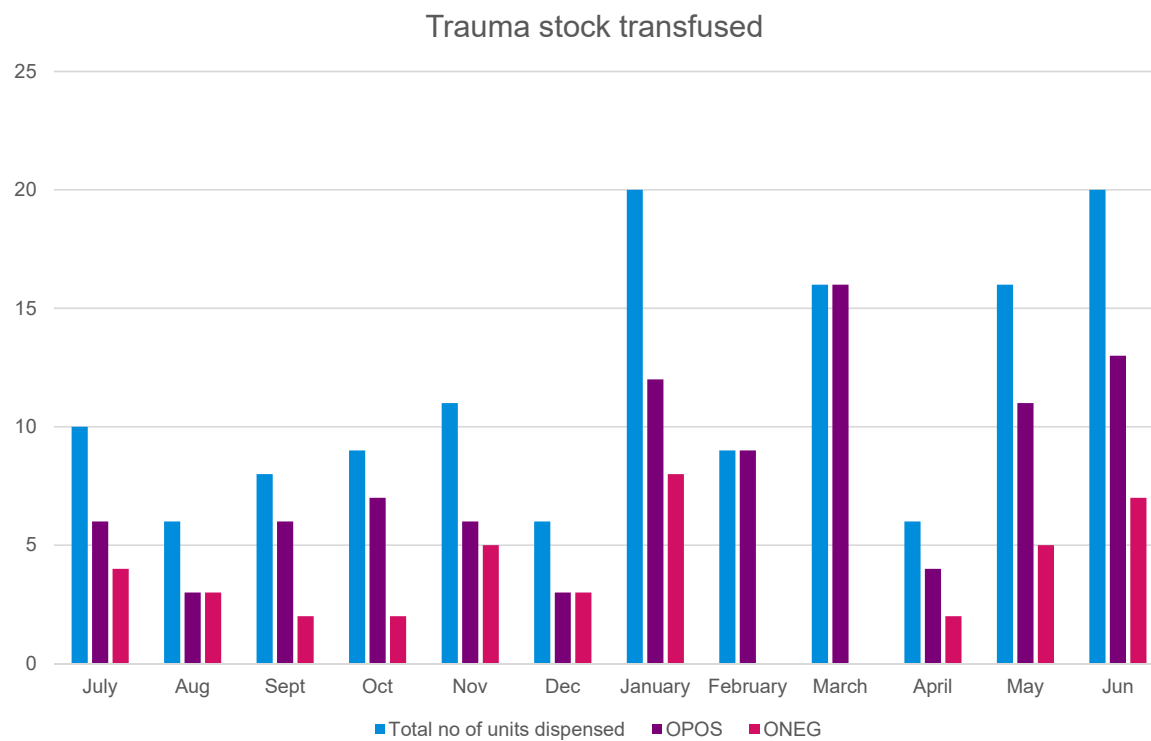
- Male
- If Known-No History of Anti-D
- If Known-No History of previous transfusion with Rh positive units
- In Trauma scenarios most of the history remains unknown
- O Negative Trauma units are reserved for Female of Child bearing age, Patients with Anti-D and Neonates

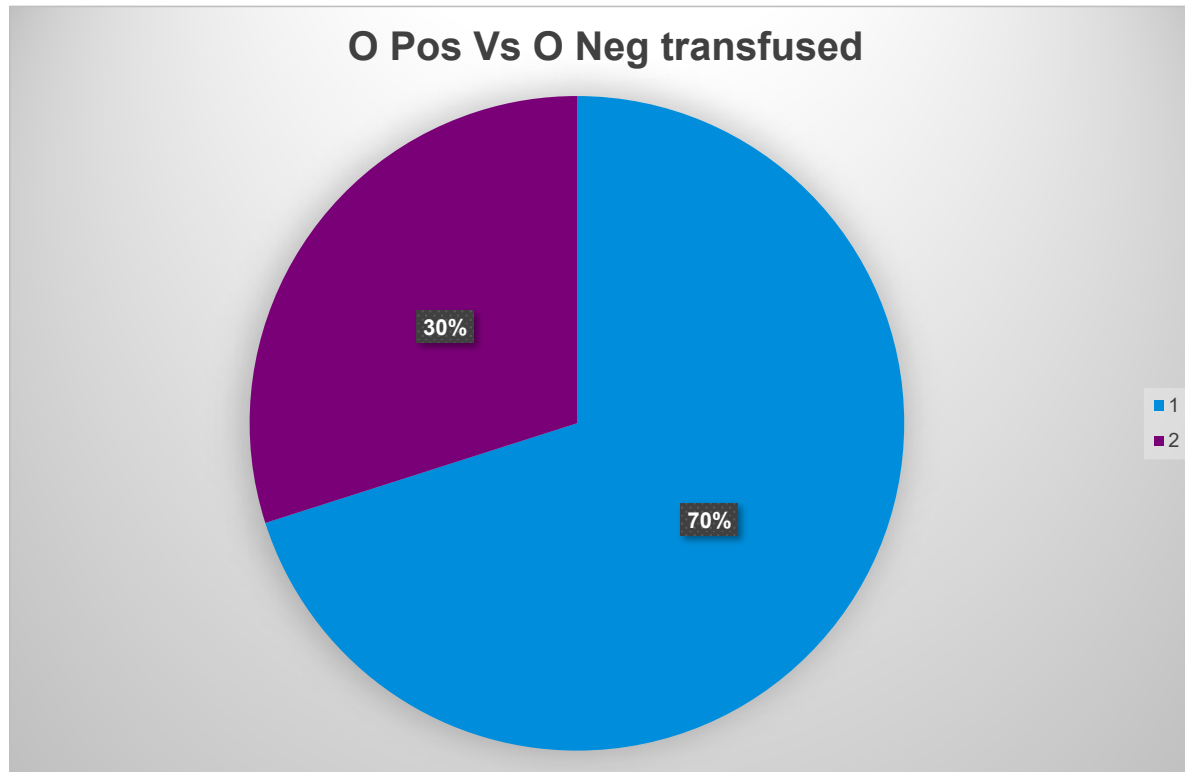
Benefits

- Preserving O Neg stock and ensuring availability in O Neg female patients who have no other alternative
- Early switching to Rh Positive if patient ends up with MTP

Trauma stock transfused per month

- 137 units of Trauma units were transfused

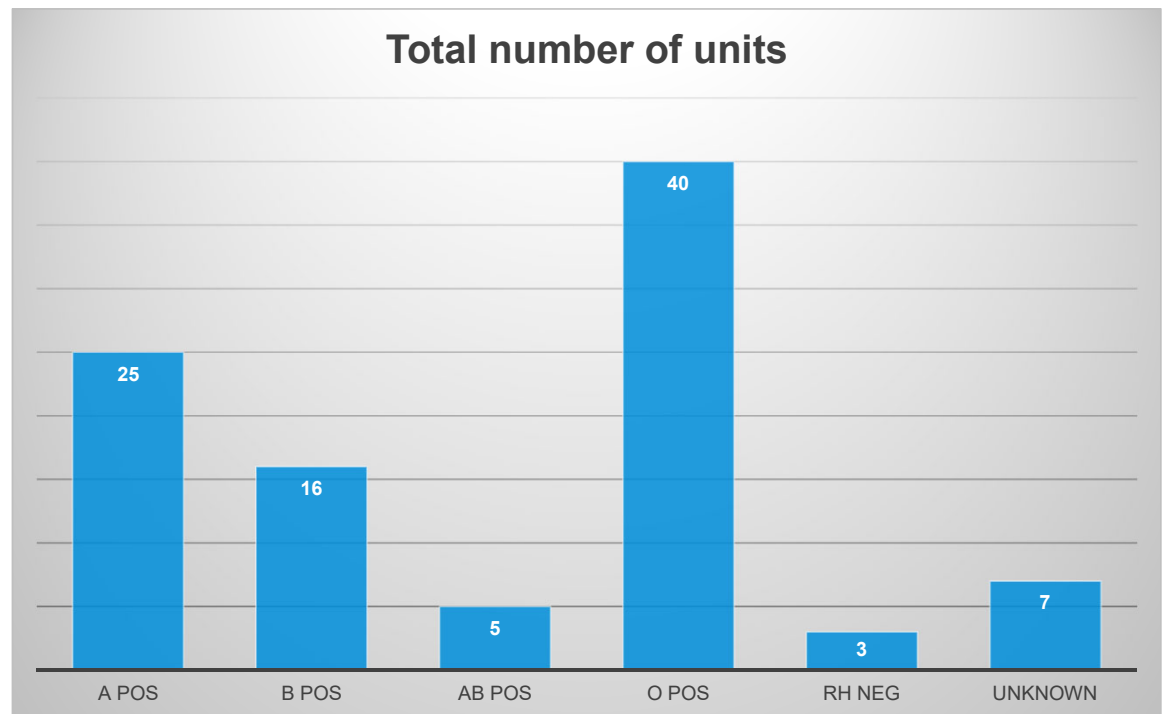




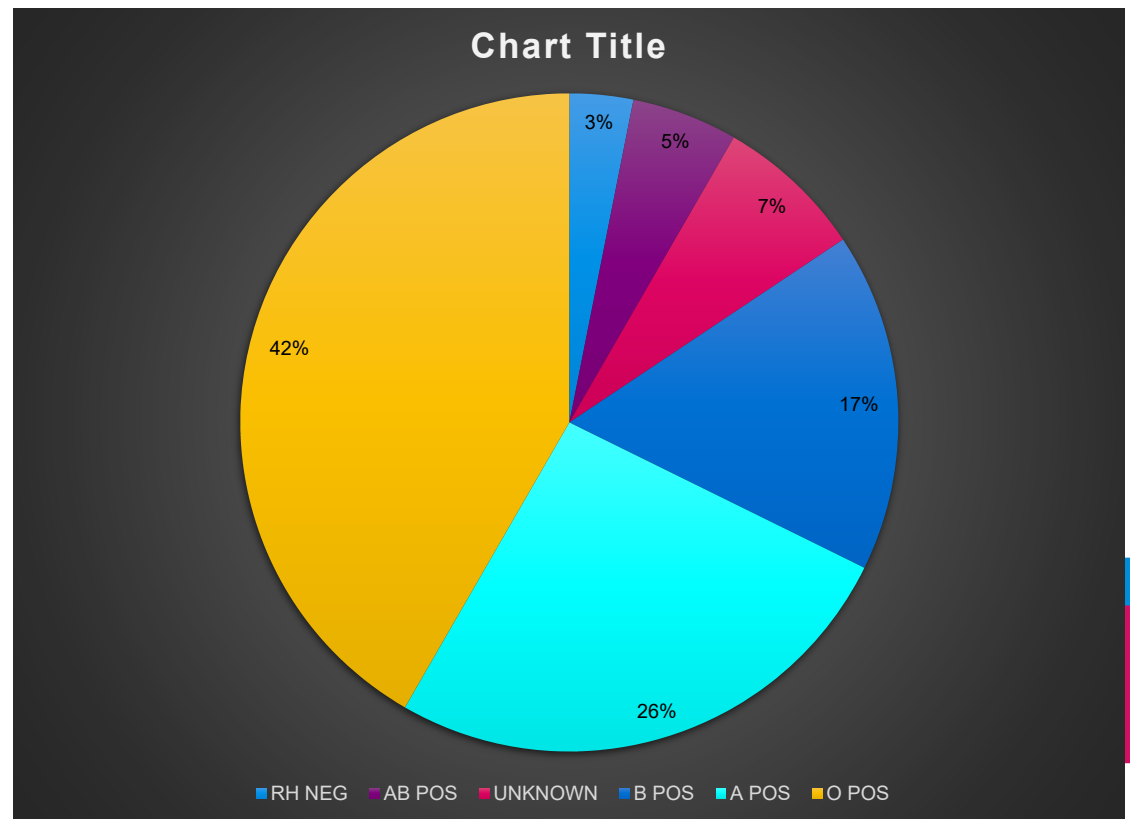
- 96 units were used by male trauma
- 41 units were used by Female trauma.

Who got transfused?

O Pos Male Emergency units
given to specific groups.



- 42% given to O Pos
- 26% given to A pos
- 17% given to B pos
- 7% remained unknown
- 5% given to AB Pos
- 3% given to Rh Neg patients (2 patients)



Case study: Patient1

- 56 yr. old Male involved in MVA
- No Historical Group/Transfusion Hx
- Hb 83g/dl transfused 1 unit of uncross-matched O Pos trauma unit given at 1700 hrs
- Group and hold collected at 1900hrs (A Neg)
- Further transfusion with 1X O Neg plts and 1x FFP at 2350hrs
- Received transfusion post surgery- 5x cross-match A Neg units
- Retested 9 days later- Antibody screen remained Negative

Case Study 2

- 36 yr. old Male involved in Motorcycle accident
- Received 2x O Pos trauma units on arrival 1415hrs
- MTP activated 1417hrs
- Group and Hold Collected at 1445 hrs (A Negative)
- Received 37 units of Group O pos units in total over 5 days
- Antibody screen repeated after 32 days-Negative

Risks

- Necessary: exposure to and recognition of non-self, donor RBC antigens
- Possible: immune activation through illness, autoimmunity, free heme or other
- Possible: past exposure to pathogens with peptide sequences similar to RBC antigens, with resultant additional T-cell help

Responders
(2-6%+)

- Necessary: No detectable alloantibody after RBC exposure
- Possible: inability to recognize the donor RBC antigens as foreign
- Possible: inability to process and present the donor RBC antigens
- Possible: antibody formed and evanesced
- Possible: RBC antigen recognition with subsequent tolerance induction

Non-
responders
(>90%)

Conclusion

- Current practise is supporting the preservation of O Neg stock
- There is a relatively low Risk-3%
- Supports patient through MTP
- Are able to better manage our inventory
- Provision of Trauma units at two locations provides rapid response to Trauma patients
- If O Neg red cells are used for all trauma it will create overdependence on O Negative inventory putting unnecessary pressure to meet demands



THM

- Every unit of O Pos that is or can be used as Male emergency unit makes a O Neg unit available for a Rh negative patient.
- Currently Red Cross is meeting demand but practise need to be changed if O Neg inventory is to be sustained.