

O Rh D negative update

Dr Matthew Lumley A-



What do Guy Fawkes and I have in common?



History of recommendations for O negative use

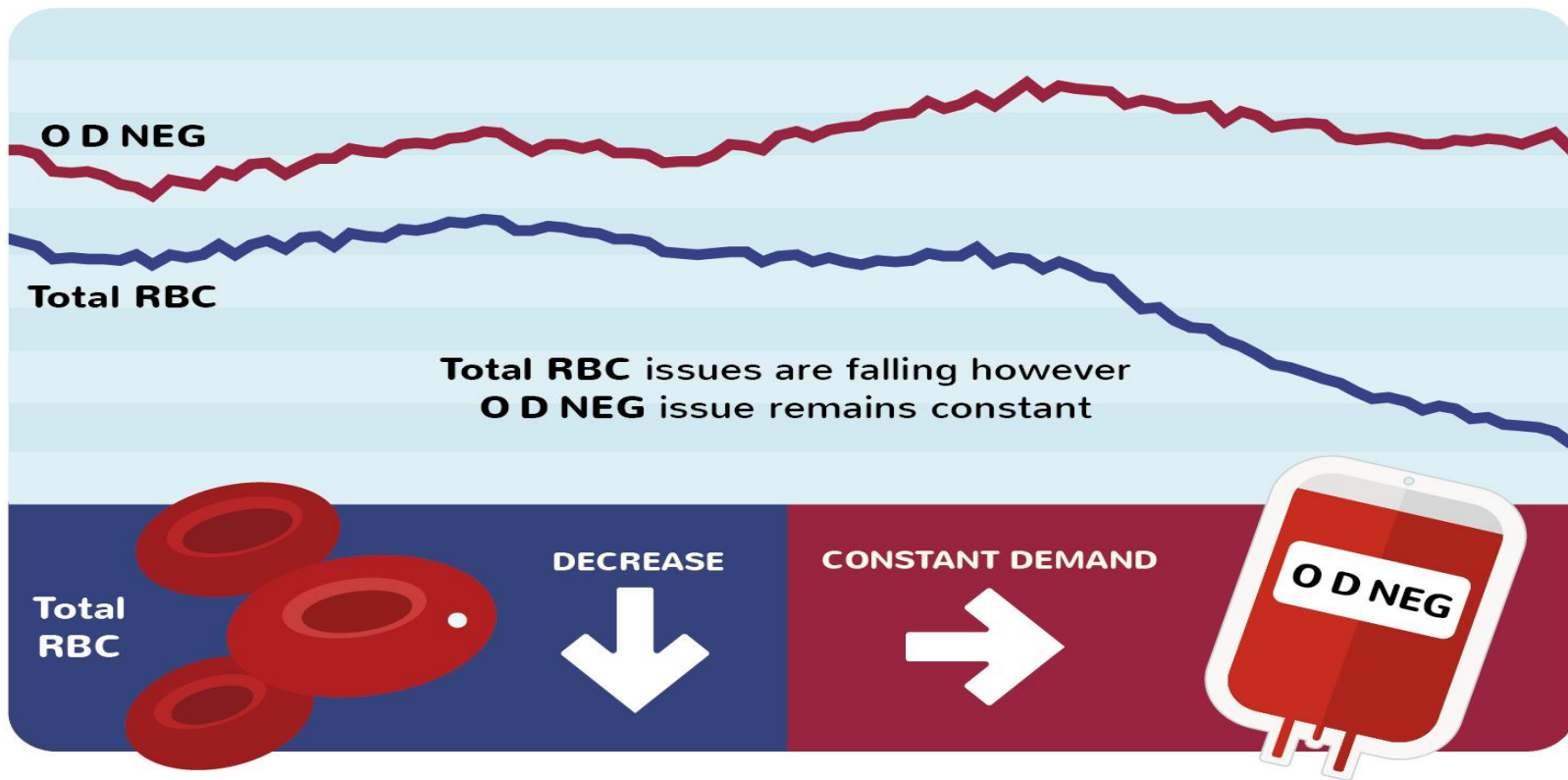
Guideline review and status:

- First approved by the Transfusion Medicine Clinical Policies Group in September 1999, and published in Blood Matters, Issue 2, September 1999.
- Reviewed January 2009 by H Doughty and M Rowley for the Patients Clinical Team following the National Blood Transfusion Committee Audit of the Usage of Group O RhD negative red cells.

Background

The laws of Supply and Demand

- Only 4% of the eligible population give blood
- 7% of the population are O neg
and demand for O negs is not going down: >12%
- So if you need data to inform practice, do an audit



NCA O neg audit in 2018

Looking at the fate of all O neg units supplied to NHS hospitals in a 2 week period

6287 O neg units issued

5343 O neg units fated

NBTC Recommendations 2019

The recommendations are based on the previous NBTC Guidelines on the Appropriate use of O D negative red cells, national audits for the usage of O D negative red cells, and practical considerations.

Why do we need a guideline?

- This guidance is designed to ensure that hospitals and NHS Blood and Transplant (NHSBT) can work within a consistent framework to ensure equal access for patients to available group O D negative and K negative (K-) red cells based on need.
- It also aims to prevent significant shortages of O D negative and K- blood.
- This guidance covers both clinical and laboratory management and is endorsed by the National Blood Transfusion Committee (NBTC).

NHSBT News

- The final report of the **National Comparative Audit of Group O D negative red cell** use is now available on the NHSBT Hospitals and Science website.
- The **National Blood Transfusion Committee** has published updated guidance regarding the use of **O D negative red cells**. The guidance document is at <https://www.transfusionguidelines.org/uk-transfusion-committees/national-blood-transfusion-committee/responses-and-recommendations>
- **O D Neg Toolkit.** Help us to preserve stocks of O D neg blood this summer. Visit <https://hospital.blood.co.uk/patient-services/patient-blood-management/o-d-negative-red-cell-toolkit/> for resources to use in your Hospitals and support your work on O D neg management.

Transfusion News

- **Blooducation** is a series of podcasts delivering up to date knowledge on a series of haematology topics. Follow on Twitter @blooducation or at <https://blooducation.co.uk/podcasts>
- **Brilliant** Blooducation podcast on the challenges of O D negative supply challenges. Listen at <https://blooducation.co.uk/portfolio/o-d-neg-blood>

Indications for usage of Group O red cells

A. Major haemorrhage

All emergencies may require urgent transfusion of red cells. Major haemorrhage where group O red cells may be required generally involves the following scenarios:

- Patients with unknown blood group.
- Patients with known blood group without a current valid blood group sample.
- Patients with only one ABO group result at the time when blood is required.
- Non group O patients with a current valid blood group and a negative antibody screen where group specific red cells are not readily available.



Indications for usage of Group O red cells

B. Other clinical conditions

- Patients with a discrepancy between the ABO group on the current blood grouping sample and a historical result in an emergency setting. For routine transfusions, the blood group should be confirmed with a repeat sample.
- Patients with mixed field ABO reactions in the absence of a previously confirmed blood group.
- Patients undergoing ABO incompatible stem cell transplantation (prior to engraftment).
- When ABO compatible blood is not available due to stock shortages (either locally or nationally) or due to complex phenotypic requirements.

Indications for usage of Group O red cells

What was missing from the two previous slides?

K negative and K positive red cells:

9% of Caucasians are positive for the K antigen (K+), but the K antigen is rarer in other ethnic groups. Anti-K can cause severe haemolytic transfusion reactions and haemolytic disease of the fetus and newborn (HDFN). It is therefore important that certain patients are offered only K-red cells in order to avoid sensitisation, transfusion reactions and risk for development of HDFN. However, K+ red cells can be safely transfused in various other settings and appropriate stockholding offers stability to the supply chain.



K negative and K positive red cells:

A. Transfusing K+ red cells

The following patients can safely receive K+ red cells:

- Male patients, not regularly transfused and with no known anti-K, regardless of their K status.
- Female patients >50 years, not regularly transfused and with no known anti-K, regardless of their K status.

K negative and K positive red cells:

B. Transfusing K- red cells

The following patients should be offered K- red cells:

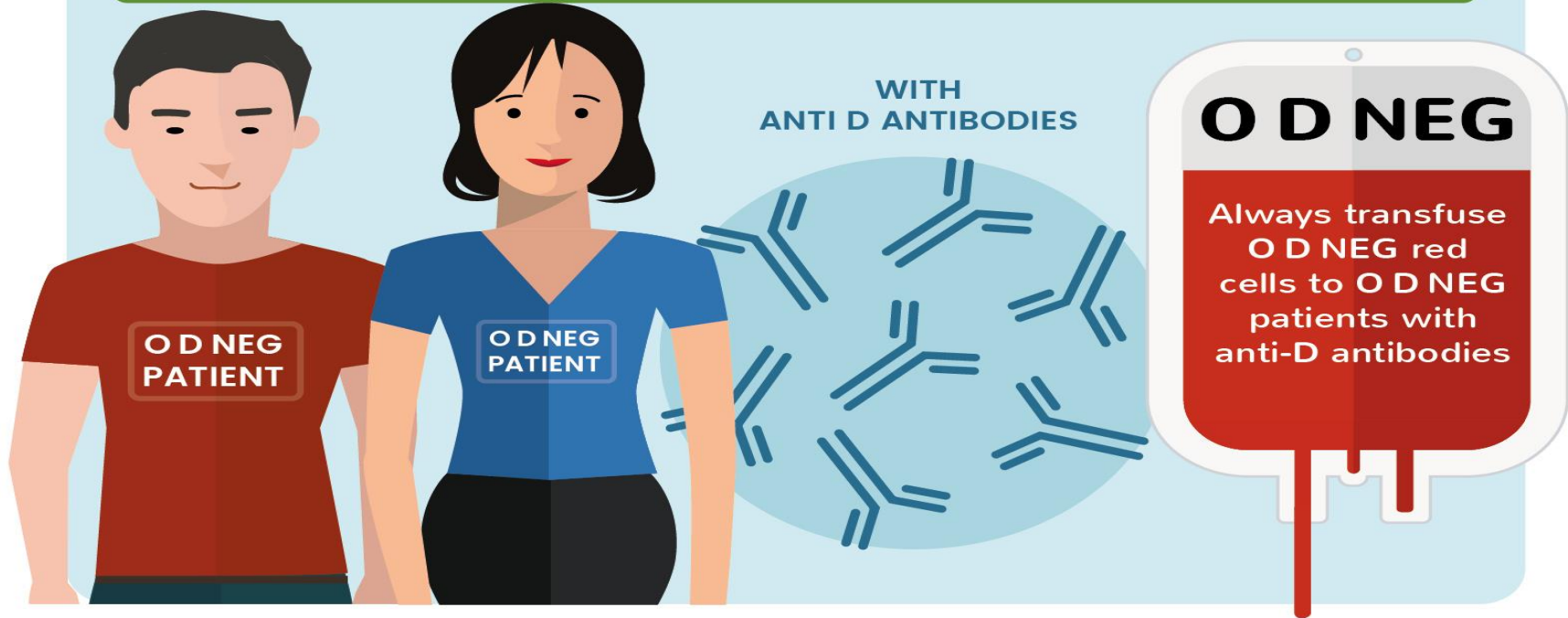
- All patients with detectable or historical anti-K
- All K- and K unknown female patients of childbearing potential (<50 years old)
- Regularly transfused K- patients requiring Rh and K matched red cells
- Bone marrow transplant patients where the donor or the recipient has anti-K, until engraftment. After engraftment red cells matching the patient's post-graft K phenotype should be transfused

Summary of recommendations

Mandatory Indications for use of O D Negative Red Cells

- O D negative patients with anti-D
- O D negative *females* with child-bearing potential (<50 years)
- O D negative patients <18 years old
- In an emergency to children and *females* <50 years old of unknown blood group

WHEN TO USE O D NEG



WHEN TO USE O D NEG



Recommended Indications for the use of O D Negative Red Cells

- O D negative patients who will receive repeated transfusions, or are likely to become transfusion-dependent, e.g. haemoglobinopathy, aplastic anaemia, myelodysplasia.

Acceptable Indications for use of O D Negative Red Cells

- If suitable group specific red cells are unavailable use O D negative red cells only for D negative neonates or neonates with known maternal anti-D.
- For patients with ABO incompatible bone marrow transplantation where there is a discrepancy on the D antigen between donor and recipient and until engraftment.

Acceptable indications continued

- For ABO incompatible solid organ transplantation, O D negative red cells may be temporarily required in the event of passenger lymphocyte syndrome with active haemolysis (from D negative graft to D positive recipient).
- For patients with complex phenotypic requirements, every effort should be made to order blood in advance to identify blood within the patient's own ABO/ D blood group. O D negative red cells may be used to help with complex phenotypic matching.

Patients requiring O D negative and K- red cells

- O D negative patients with detectable or historical anti-K.
- O D negative K- and K unknown *female* patients of childbearing potential (<50 years old)
- *Female* patients <50 years old of unknown blood group receiving blood as an emergency

Patients requiring O D negative and K- red cells continued

- Regularly transfused O D negative and K- patients requiring Rh and K matched red cells
- Bone marrow transplant patients (with the appropriate indication to receive O D negative red cells) where the donor or the recipient has anti-K, until engraftment. Post engraftment transfuse red cells matching the patient's K phenotype.

Use of O D negative K+ red cells

- O D negative male patients and female patients >50 years old with no historical or detectable anti-K.
- Male patients and female patients > 50 years old in an emergency (blood group unknown).

Use of O D Positive Red Cells

- O D negative patients receiving large volume blood replacement (>8 units) except in children, females of child bearing potential (<50 years) and patients with immune anti-D.
- Adult males and women >50 years old who are D negative or whose D status is unknown in emergency situations.
- For patients with mixed field reactions after receiving O D negative red cells, group specific blood can be used provided appropriate grouping results are available. Local protocols should be developed and risk assessed.



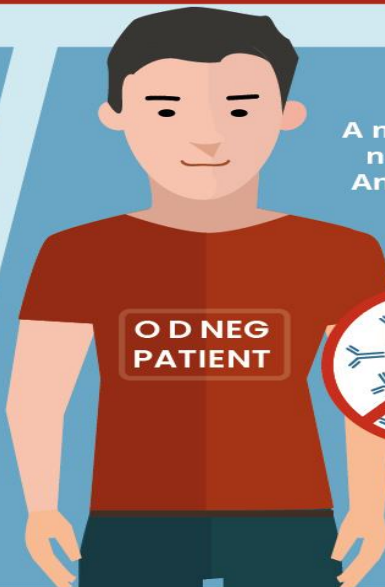
CONSIDER USING O D POS



If you will require more than 8 units of O D NEG consider using O D POS for the patients below



A female who is more than 50 years old



A male with no Anti-D Antibodies



O D POS

In these situations use O D POS instead

Guidance on stock management

- 12 points in that list

Guidance on stock management

- Stock less O negs – aim for $\leq 12.5\%$
- Waste less than 4% of the O negs
- Have an ISI of 3-4 days
- Monitor O negs given to non O neg patients to avoid time expiry
- Monitor O negs given due to unavailability of other groups

Guidance on stock management

- Phenotyped and special requirement units should be ordered as group specific
- Audit use by the (air) ambulance service
- Rotate stock from satellite & remote fridges

Guidance on stock management

- Consider stocking O pos/K+ for emergency use for males and females >50 years
- Share stocks between hospitals
- Aim for stock level of 10-20% O neg/K+

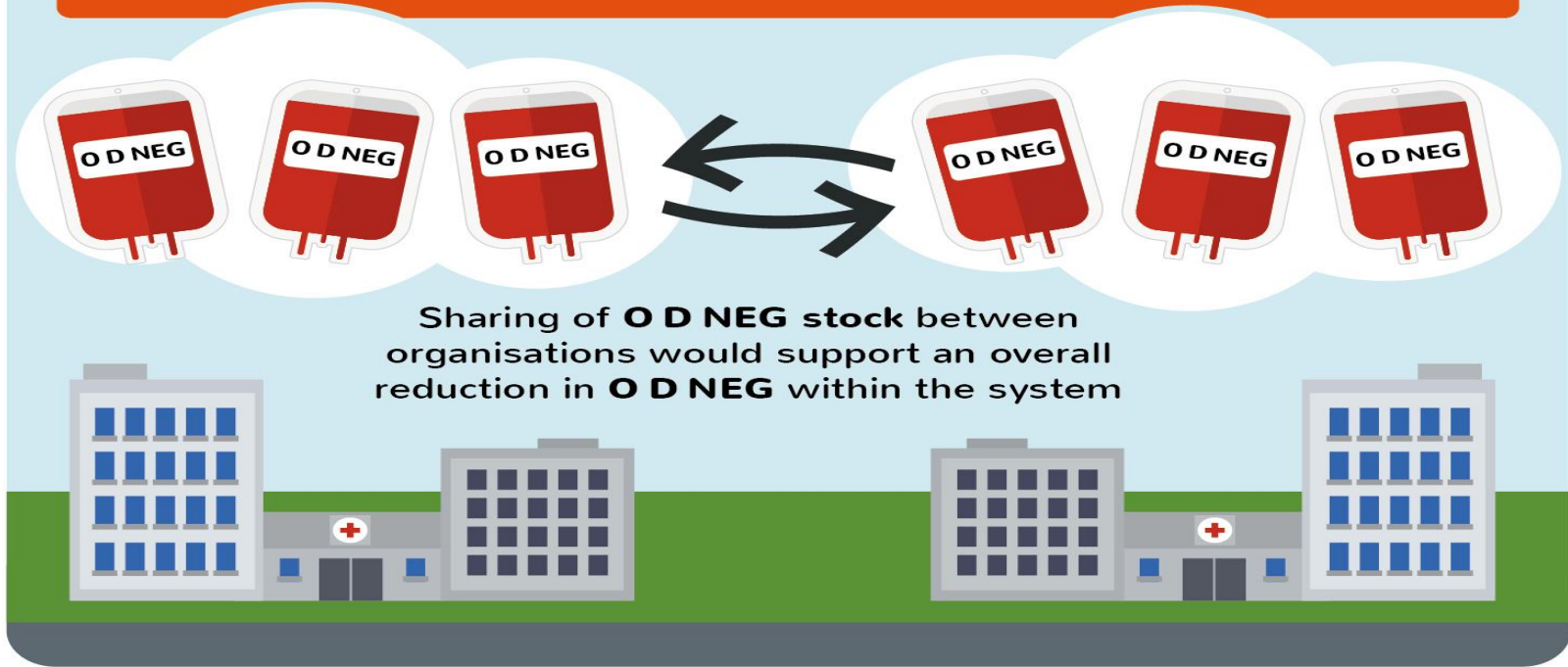
CONSIDER USING O D POS



O D POS

Transfusing O D POS to unknown male patients can conserve use of O D NEG for patients who have no alternative.

STOCK SHARING





That's all Folks!

