

All Wales Guidance for the Management and Use of Group O D Negative Red Cells

Produced on behalf of the Blood Health National Oversight Group (BHNOG): O D Neg Work Stream

Overview

Although overall issues of red cells have reduced in recent years the demand for group O D negative (O D Neg) red cells as a percentage of total red cells issued remains consistently high. This puts significant pressure on the supply of O D Neg red cells and increases the necessity to ensure active management and appropriate use of this precious resource.

This guidance has been developed to provide hospitals in Wales and the Welsh Blood Service (WBS) with information and assistance to help them proactively manage supplies of O D Neg red cells within a clear and consistent framework. The management of these units should be seen as a collaborative venture with both the hospitals and WBS undertaking specific responsibilities to optimise supply.

By applying and working to these principles it will ensure that there is sufficient supply of O D Neg red cells within the blood supply chain for the patients who need them and mitigate against significant shortages.

The guidance has been developed in collaboration with Hospital Transfusion Committees (HTCs) across Wales and considers all factors in the effective management of blood stocks within the hospital transfusion laboratory, clinical area and blood establishment setting. The guidance is consistent with British Committee for Standards in Haematology (BCSH) *Guidelines for Pre-Transfusion compatibility procedures (2013)*¹ and *Haematological management of major haemorrhage: a BSH guideline (2022)*²

Note: the title BCSH has been superseded by British Society for Haematology (BSH).

The guidance will focus on three main areas for the management of O D Neg red cells:

- I. Stock management, including issues and wastage both from a hospital perspective and WBS position
- II. Emergency use of O D Neg red cells for major haemorrhage
- III. Clinical information and communication to support the appropriate use of O D Neg red cells

The guidance also identifies a number of key actions and measures that can be used as audit tools to demonstrate compliance to good practice.

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Stock Management

Effective and active stock management is essential to minimise wastage and inappropriate use of O D Neg red cells.

Hospital Transfusion Laboratories should:

- Aim for O D Neg issues to be $\leq 12\%$ of total red cells issued
- Aim for O D Neg wastage of $\leq 10\%$ of total O D Neg issued
- Determine the optimum stock level for O D Neg red cells, and monitor all excursions above and below this
- Undertake a formal review of O D Neg stock level on a six-monthly timetable utilising the Blood Stocks Management Scheme (BSMS) Issuable Stock Index (ISI) calculator as guidance. This will be completed in collaboration with the Blood Health Team (BHT) based at WBS. Stock level reviews should consider:
 - Distance from supplying WBS site and number of routine deliveries weekly
 - Storage locations of emergency O D Neg across the health board/hospital, which may include remote issue and satellite fridges
 - Patient demographic and clinical specialities on hospital site
 - Onward supply to third party services e.g. Emergency Retrieval & Transfer Service (EMRTS), private hospitals and hospices

NB: it would be good practice to review the stock levels of all other groups at the same time to ensure local demand is being appropriately accounted for.

- Engage transfusion laboratory staff with the outcomes of these reviews to develop a clear understanding of stock management principles at all levels
- Enter wastage data into Blood Stocks Management Scheme (BSMS) *Vanesa* database in a timely manner to facilitate effective audit and monitoring
- Review BHNOG KPI dashboard data at the Health Board / Hospital Transfusion Committee (HTC) and where appropriate action any non-compliance, to actively manage issues and wastage figures
- Work in collaboration with other Health Boards to support and promote good practice
- Work in collaboration with WBS Hospital Services/ BHT to discuss issues or areas of concern and promote good practice
- Ensure stock is stored in expiry date order and rotated to use shortest dated unit first.
N.B. to assist staff in this process consider the development of a list of short dated stock, which is updated regularly.

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Stock Management (continued)

Effective and active stock management is essential to minimise wastage and inappropriate use of O D Neg red cells.

Additionally, Hospital Transfusion Laboratories should consider the following:

- Repatriate O D Neg red cells to routine issue stock with a minimum of 7*, but ideally 10* days, to expiry to reduce wastage; this may be where remote issue is in use or stock is identified for emergency use [*where units issued were not already 'short-dated']
- Monitor the number of units of O D Neg red cells issued to non-O D Neg patients to prevent time expiry/wastage. Consider current stock holding if level is above 10%
- Hold an appropriate stock of non-O D Neg groups of red cells which are irradiated and have extended phenotyping, so as not to be dependent upon O D Neg red cells to meet these specific transfusion requirements for all other ABO/D group patients
- Where appropriate for patient group hold a stock of Ro red cells so management of sickle cell disorder (SCD) and thalassaemia patients is not dependent on O D Neg red cells
- Annually review emergency O D Neg red cells in remote issue and satellite fridges: the number of units held, and the number of units used from each
- Stock share within Health Board to avoid wastage. Ensure a minimum of 5 – 7 days shelf life is left on units sent for stock sharing
- Participate in the annual O D Neg audit coordinated by WBS and regularly audit issues, wastage and returns for third party services e.g. EMRTS, private hospitals and hospices

N.B. there is no requirement to order cde/Kell Neg units for O D Neg stocks. BSH guidelines² recommend that O D Neg, Kell neg units should be prioritised for individuals of childbearing potential (≤ 50 years of age) and patients whose sex is unknown. There should be sufficient to meet the needs of this group of patients in the stock population without ordering specifically.

Welsh Blood Service (WBS) should:

- Maintain a dashboard of hospital stock levels of O D Neg red cells
- Aim for a stock holding of 6 – 7 days for O D Neg red cells this is defined as stock available for issue
- Using the above levels ensure sufficient stock is available at all times and that procedures are in place to support a sustainable blood supply. Should levels fall below levels defined trigger points then this will be managed through the NHS Wales Red Cell Shortage Plan³

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- Maintain a sufficient stock of irradiated and extended phenotyped non-O D Neg red cells to ensure availability for hospitals to stock these as required
- Maintain a sufficient stock of Ro red cells to support the management of SCD and thalassaemia patients
- Monitor WBS wastage of O D Neg to maintain a KPI of <1% (*N.B. this will apply to all red cells not just O D Neg*)
- Collaboratively share information with hospitals via regular update meetings

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Emergency and Major Haemorrhage Protocol (MHP)

O D Neg red cells have historically been viewed as the optimum group for use in an emergency. Hospital Transfusion Labs should ensure measures are in place to support switching to another group where appropriate as soon as it is safe to do so:

Hospital clinical areas & Hospital Transfusion Laboratories should:

- Be able to issue O D Pos in emergencies for adults not of childbearing potential whose blood group is unknown. This is in accordance with BSH Guidance²
- Have a policy to determine whether to provide O D Pos red cells for these patients which includes a risk assessment and a structured implementation plan
- Have clear guidance in place for the management of adults not of childbearing potential who are O D Neg. The multidisciplinary team (scientific and clinical) should consider switching to O D Pos after transfusion of 8 units of O D Neg, to conserve O D Neg stock¹
- Have technologies/validated laboratory processes to allow urgent issue of group specific blood to minimise inappropriate use of O D Neg red cells
- Ensure that access to emergency red cells via remote issue is governed by these recommendations where the technology/functionality allows this
- Ensure that pre-transfusion samples are obtained prior to the administration of the first unit of emergency red cells
- Inform clinicians as to what units they will receive/issue in an emergency, i.e. clinicians should be aware that they may receive O D Neg, O D Pos or group specific red cell units
- Ensure that adjuncts to support haemostasis in the bleeding patient are used as per guidelines², to reduce the need for red cell transfusion
- Continuously audit management of adult MHPs to better understand usage of emergency O D Neg and O D Pos red cells
- Engage in regular MHP drills, supported by relevant transfusion training and education, to improve patient care during a major haemorrhage
- Incorporate these recommendations into MHP activations and make all staff involved in MHP aware of them

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Effective Clinical Information & Communication Systems

The dissemination of information and effective communication to clinical users of O D Neg red cells, especially those in the emergency setting, is essential to support the recommendations identified in this guidance document.

- Hospital Transfusion committee (HTC) meetings should be used to engage with clinical colleagues on issues such as blood usage/wastage, changes in practice, blood conservation measures etc.
- Clinical teams should receive clear and effective messaging on the inappropriate use of red cells, with particular emphasis on O D Neg stocks
- Clinical teams should receive clear and effective messaging on when transfusion of O D Neg red cells is appropriate:
 - O D Neg **should** be given in:
 - non- emergency transfusion of patients who are O D Neg
 - emergency transfusion of individuals of childbearing potential in accordance with guidelines^{1,2} whose ABO group is unknown or who are O D Neg
 - O D Neg red cells **may** be considered in **emergency** transfusion:
 - for individuals **not** of childbearing potential who are O D Neg, or D Neg on historic grouping
 - where no other blood group is available
- Ensure that hospital transfusion laboratories are informed of the ‘stand down’ of a MHP activation in a timely manner, to support prudent stock management of emergency red cells
- This information may be communicated as follows:
 - disseminated through networks already established by transfusion teams, explaining the rationale to inform clinical colleagues about provision of emergency blood
 - Using these recommendations to empower laboratory staff if they are challenged about blood supplied in an emergency

References

1. Milkins, C., Berryman, J., Cantwell, C., Elliott, C., Haqqas, R., Jones, J., Rowley, M., Williams, M., Win, N. (2013). *Guidelines for pre-transfusion compatibility procedures in blood transfusion laboratories*. *Transfusion Medicine*, **23**, 1-71
2. Stanworth, S.J., Dowling, K., Curry, N., Doughty, H., Hunt, B.J., Fraser, L., Narayan, S., Smith, J., Sullivan, I., Green, L. (2022). *Haematological management of major haemorrhage: a BSH guideline*. <https://onlinelibrary.wiley.com/doi/10.1111/bjh.18275>
3. NHS Wales Red Cell Shortage Plan <https://bhnoq.wales.nhs.uk/>

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Summary of Measure & Actions

Stock Management – Hospital Transfusion Laboratories	
Measure	Action
O D Neg issues \leq 12% of total red cells issues	Monitor monthly via BHN OG KPI dashboard
O D Neg wastage \leq 10% of total O D Neg issues	Monitor monthly via BHN OG KPI dashboard
Undertake formal review of O D Neg stock level on a six-monthly basis	Utilise BSMS ISI data to inform decision making process
Define the optimum stock level of O D Neg & monitor excursions	Agree at HTT/HTC
Monitor O D Neg issued to non-O D Neg patients to prevent time expiry wastage	Audit of O D Neg use annually
Enter wastage data into Blood Stocks Management Scheme (BSMS) database	Monitor data entry monthly
O D Neg stock is stored in expiry date order and rotated to use shortest dated first	Implement as local practice, update policy to implement
Repatriate O D Neg to main issue stock with a minimum of 7, but ideally 10 days, to expiry	Implement as local practice, update policy to implement
Discuss and where appropriate action at HTT/HTC BHN OG KPI dashboard data to actively monitor issues and wastage figures	Manage via HTC addressing outlying practice and commending good practice
Minimise use of O D Neg red cells for irradiated and extended phenotype specific transfusion requirements	Ensure appropriate stocks of non-O D Neg irradiated and extended phenotyped red cells are held
Minimise use of O D Neg red cells for management of sickle cell disorder and thalassaemia patients	Consider appropriately typed Ro red cells for the management of these patients be stocked, or requested as required
Stock share within Health Boards to avoid wastage	Implement as local practice where applicable, and ensure good communication between sites

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Summary of Measure & Actions

Stock Management – Welsh Blood Service (WBS)	
Measure	Action
Maintain a dashboard of hospital O D Neg stock levels	Review daily at WBS Resilience meeting
Aim for 6 – 7 days O D Neg stock holding	Review WBS demand planning tool daily
Ensure sufficient stock is available at all times and that procedures are in place to maintain blood supply (using the above data)	Agree via WBS Capacity/Demand planning meeting & Daily Resilience meeting
Aim to maintain a sufficient stock of irradiated, extended phenotyped, or both, non-O D Neg red cells to be available to meet hospital stockholding needs	Monitor the number of times request for non-O D Neg irradiated and/or extended phenotyped red cells are not met
Aim to maintain a sufficient stock of Ro red cell units for the management of sickle cell disorder (SCD) and thalassaemia patients when required	Monitor the number of times request for Ro red cell units not met
Monitor WBS wastage of O D Neg to maintain KPI of <1%	Monitor as part of the WBS Performance Management Framework (PMF)

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Summary of Measures & Actions

Emergency & Major Haemorrhage	
Measure	Action
Use O D Pos red cells for adults not of childbearing potential in emergencies	Review MHP policy and amend in accordance with clinical practice guidelines ² Audit use of O D Pos for these patients, using BHN OG MHP audit tool
Guidance for MHP management of known O D Neg patients	Review MHP policy: consider switching to O D Pos after transfusion of 8 units of O D Neg in accordance with clinical consensus
Laboratory processes allow urgent issue of group specific red cells	Evidence that laboratory procedures are in place to meet this measure; if not consider suitable actions that may be required to rectify
Pre-transfusion samples are taken prior to administration of the first unit of emergency red cells	Audit using BHN OG MHP audit tool; review consistent outliers at HTC
Remote issue should be compliant with these recommendations	Ensure that any remote issue facility where emergency red cells may be accessed can issue emergency O D Neg and O D Pos red cells
Adjuncts to support haemostasis in the bleeding patient are used to reduce the need for red cell transfusion	Review MHP policy: include use of Tranexamic Acid in trauma and obstetric major haemorrhage management
All MHP activations should be audited	Ensure there is a fit for purpose audit tool capturing relevant data on every MHP. As a minimum use the BHN OG MHP audit tool
Regular MHP drills	Conduct MHP drill every 12 months in clinical areas where MHP is predictable
Effective Clinical Information & Communication Systems	
Hospital Transfusion Committee (HTC) to engage with clinical colleagues	All clinical groups using blood conservation techniques to participate in HTC
Clinical teams should receive clear and effective messaging to reinforce the importance of inappropriate use of O D Neg	Promote educational material on issues and wastage data at relevant clinical meetings
Clinical teams should receive clear and effective messaging to reinforce their understanding of when transfusion of O D Neg red cells is appropriate	Promote awareness and understanding of these O D Neg recommendations and local MHP policy