



Blood Supply and Wastage

Alister Jones
Patient Blood Management Practitioner
NHS Blood and Transplant

Lab Matters study day
Oake Manor, Taunton, 8th July 2015

Blood supply

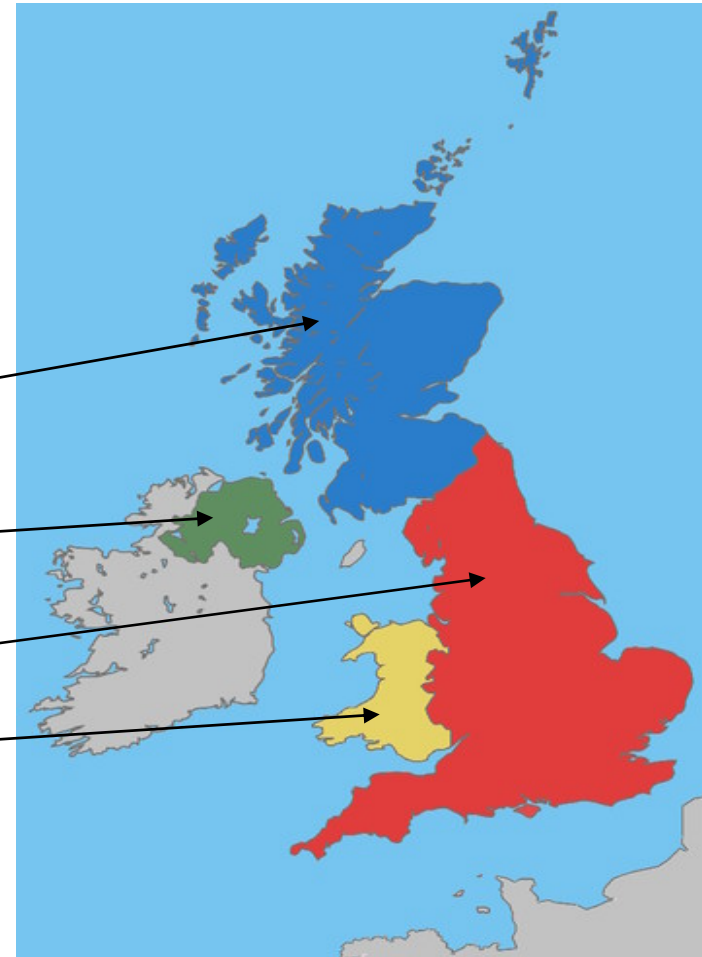
- UK supplied by 4 blood services:

SNBTS

NIBTS

NHSBT (NBS)

WBS



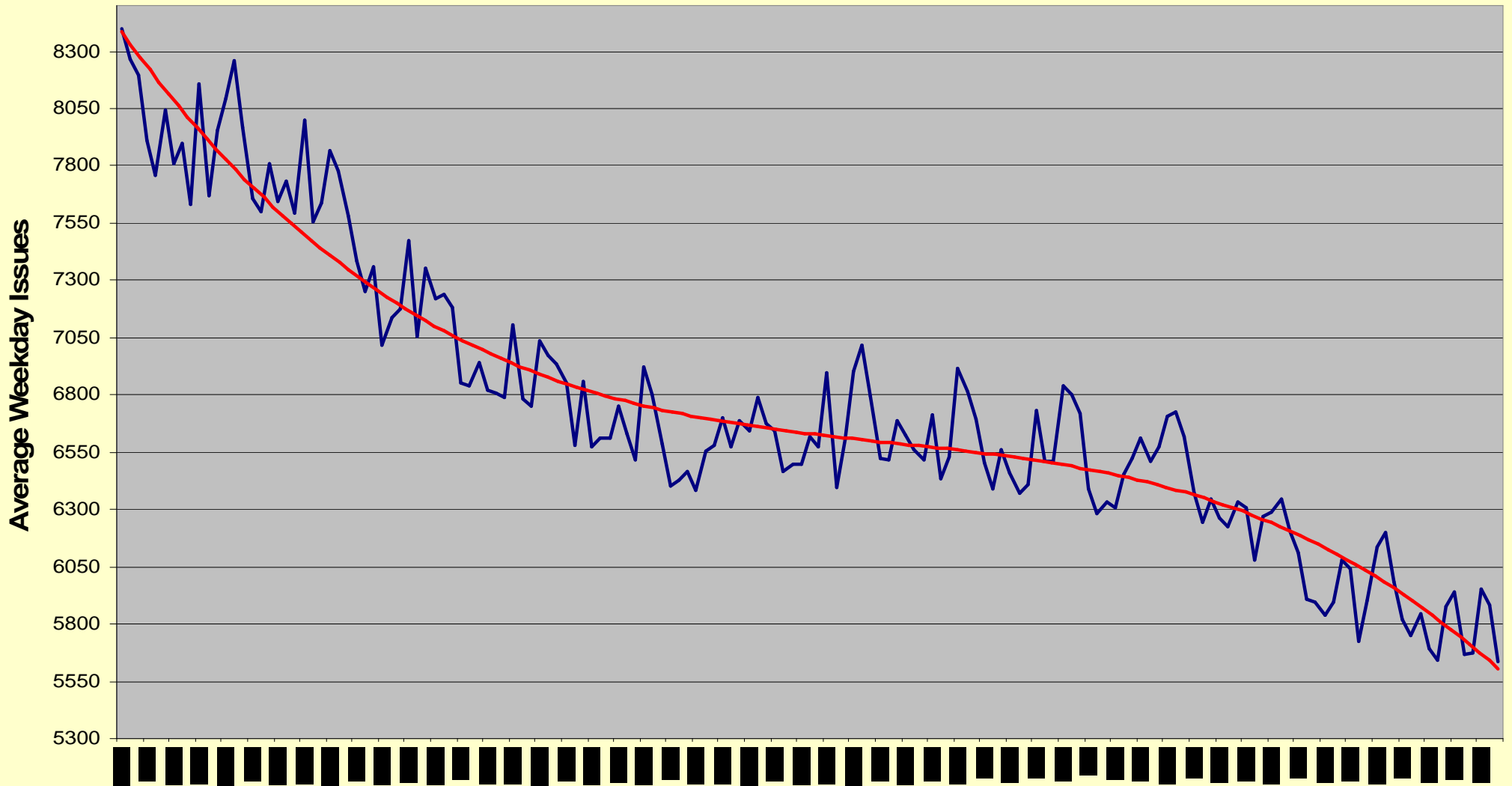
http://commons.wikimedia.org/wiki/File:Uk_map_home_nations.png

Blood supply

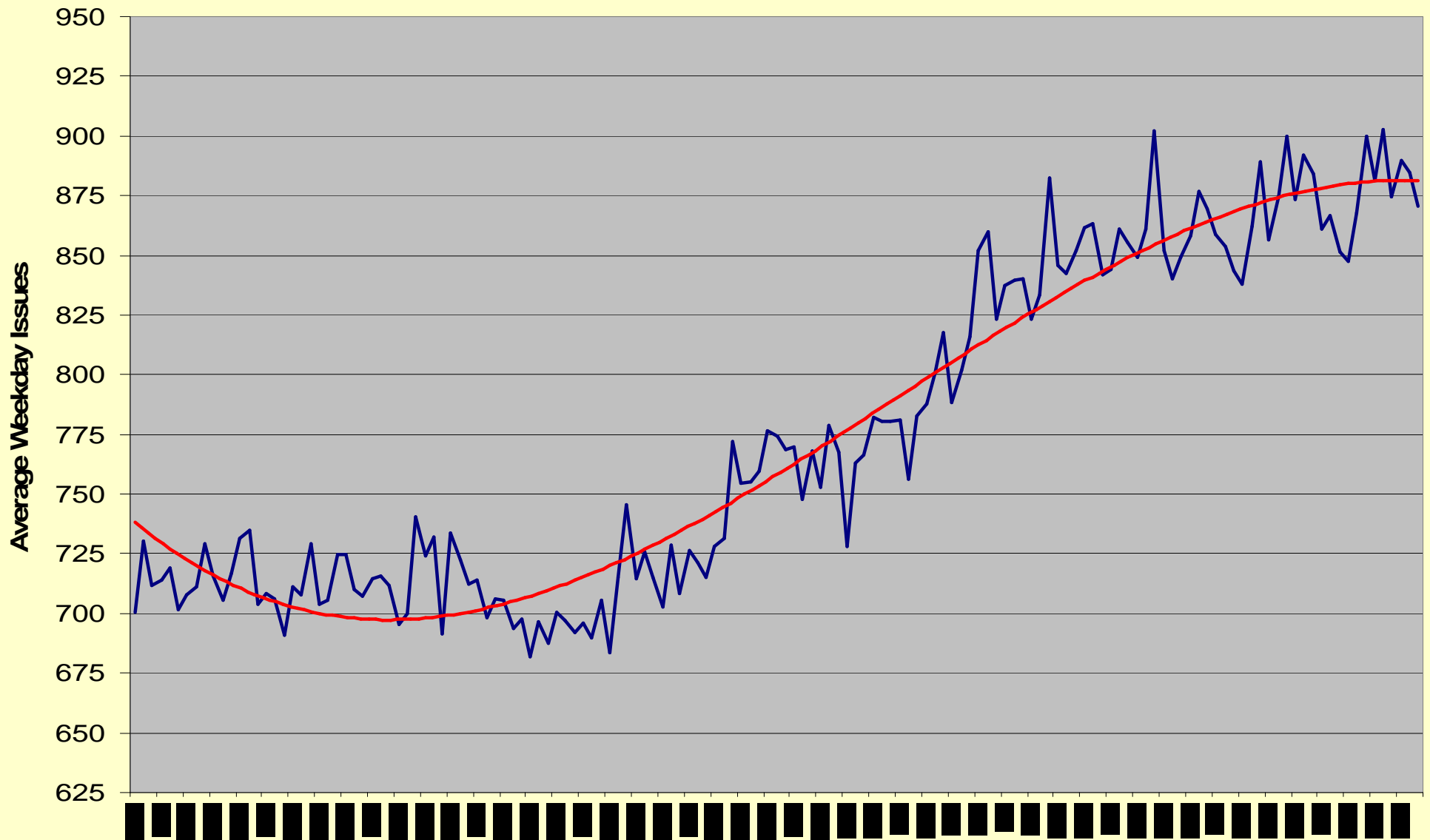
- NHSBT supply to England & North Wales (and MOD)
- 2014/15 NHSBT issued (adult):

1,651,000 units blood [red cells]	<i>SW 141,800</i>
272,000 units platelets	<i>SW 18,800</i>
215,000 units FFP	<i>SW 14,200</i>
32,700 units Cryoprecipitate (pooled)	<i>SW 1,320</i>

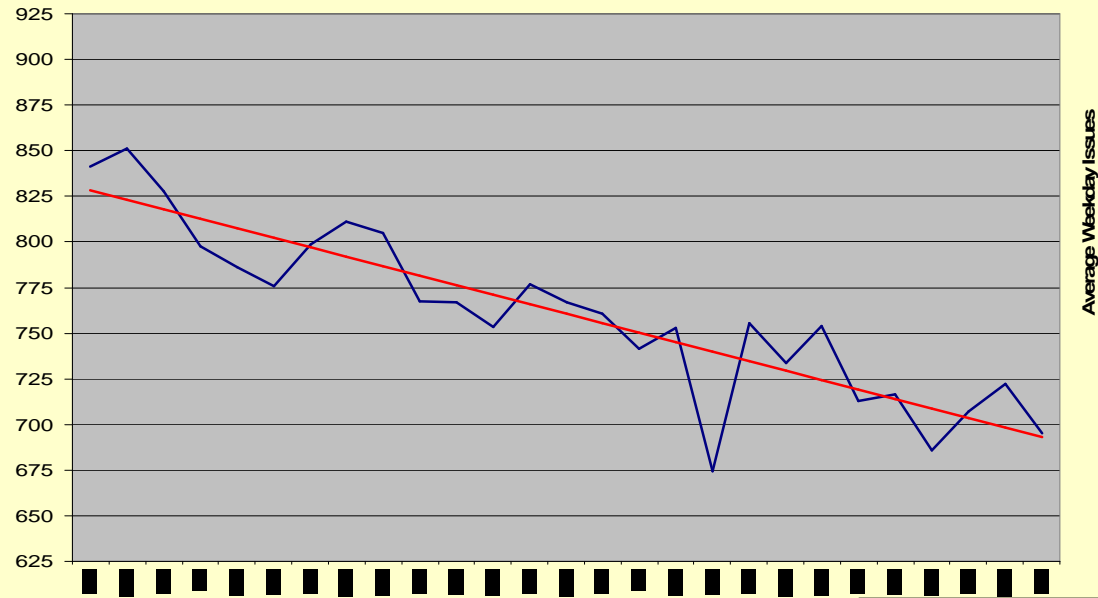
Average Weekday Red Cell Issues By Month, with Trendline (order 3)



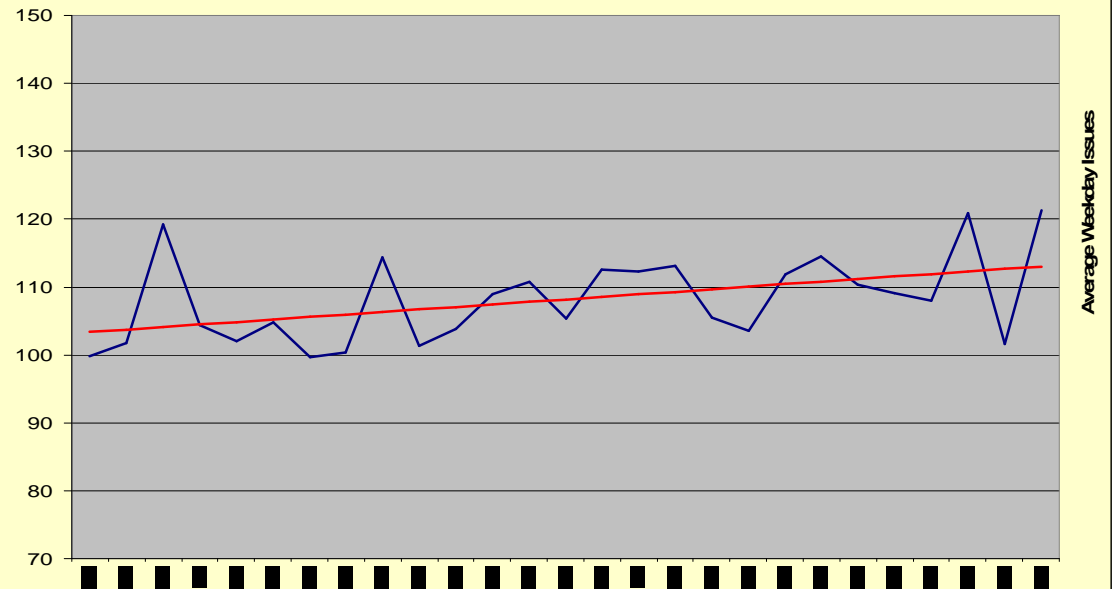
Average Weekday Platelet Issues By Month, with Trendline (order 3)



Average Weekday FFP Issues By Month, with Linear Trendline



Average Weekday Cryo Pool Issues By Month, with Linear Trendline



Donor selection and care

- ♥ Guidelines for the Blood Transfusion Services in the UK (8th Edition):
 - * Donor Selection:
 - > age, weight, Hb, medical history, sex, life style, recent travel
 - * Microbiology testing:
 - > mandatory (HIV, HepB, HepC, Syphilis, HTLV)
 - > discretionary (Malaria, HepB core, T-Cruzi, West Nile Virus)
 - > bacterial monitoring of platelets
 - * Minimise bacterial/viral contamination:
 - > B: arm cleansing, diversion pouch, closed collection system
 - > V: universal leucodepletion, irradiation

Donor selection and care

- ♥ Blood Safety and Quality Regulations (BSQR) [2005]
- ♥ Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) recommendations
- ♥ Clinical Support Teams ~ medical eligibility, 'hold' processing / 'recall' issue of components
- ♥ Donor recognition/awards

<http://www.transfusionguidelines.org.uk/red-book>

<http://www.transfusionguidelines.org.uk/dsg>

Donations

- ♥ Volunteer unpaid donors (WHO 2020 goal)
- ♥ Donor – recipient unrelated (directed donations are only used in specific situations, such as rare antibodies)
- ♥ No restrictions/caveats on patients receiving the blood components....
- ♥but certain donors are selected to provide specific products (e.g. neonatal components)

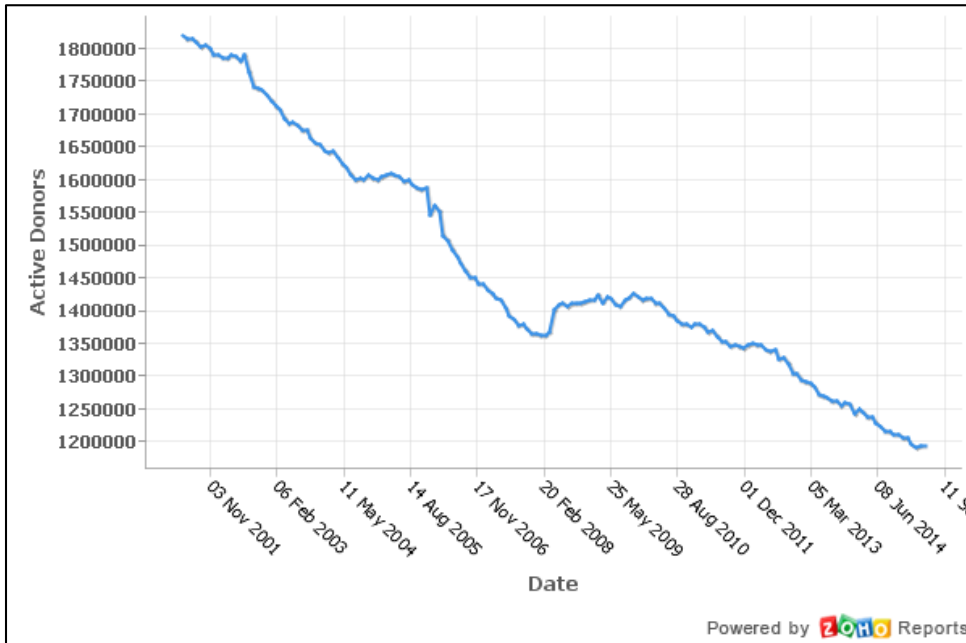
Disruption to donation

- ♥ Adverse weather
- ♥ Seasonal illness
- ♥ Events – Olympics
- ♥ Bank holidays
- ♥ Declining donor pool – fewer younger donors?

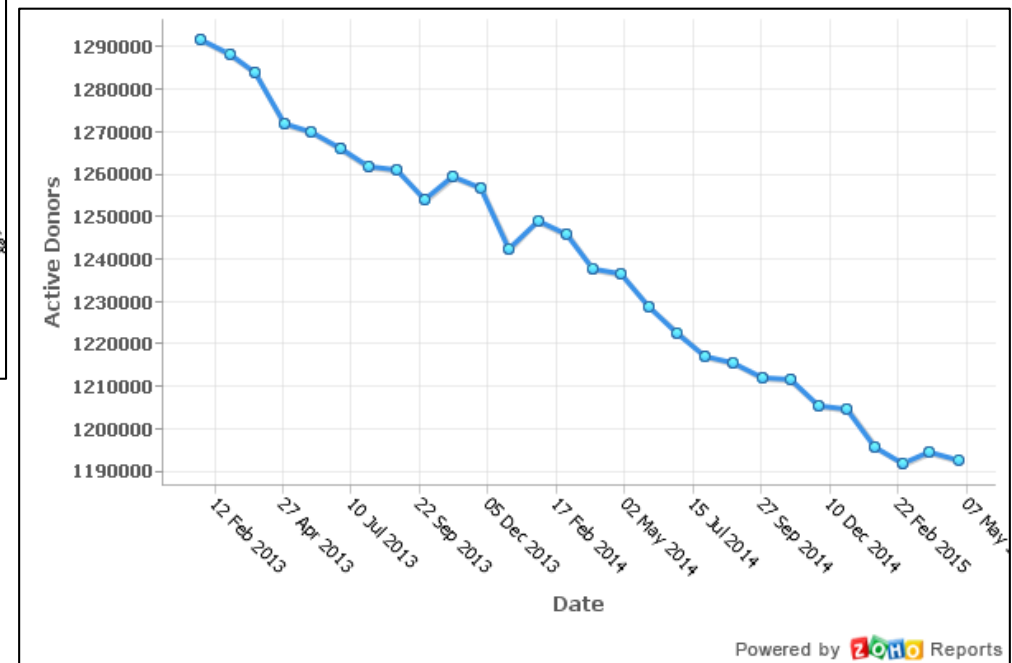
Donating population

www.bbc.co.uk

Long Term Trend in Number of Active Donors:

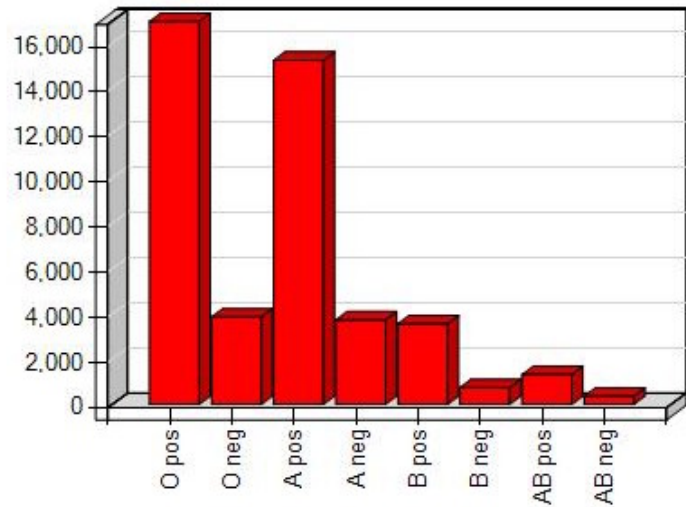


Recent Trend in Number of Active Donors:

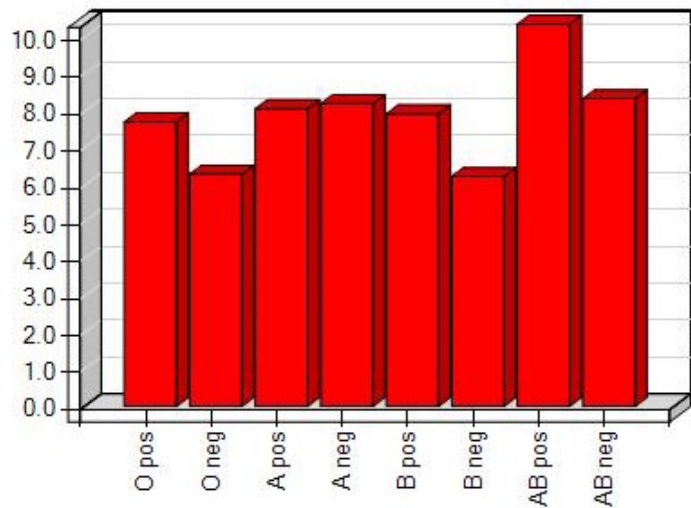


Only 4% of adults are currently blood donors (www.blood.co.uk)

Blood stocks (6th July 2015) [Red Cells]

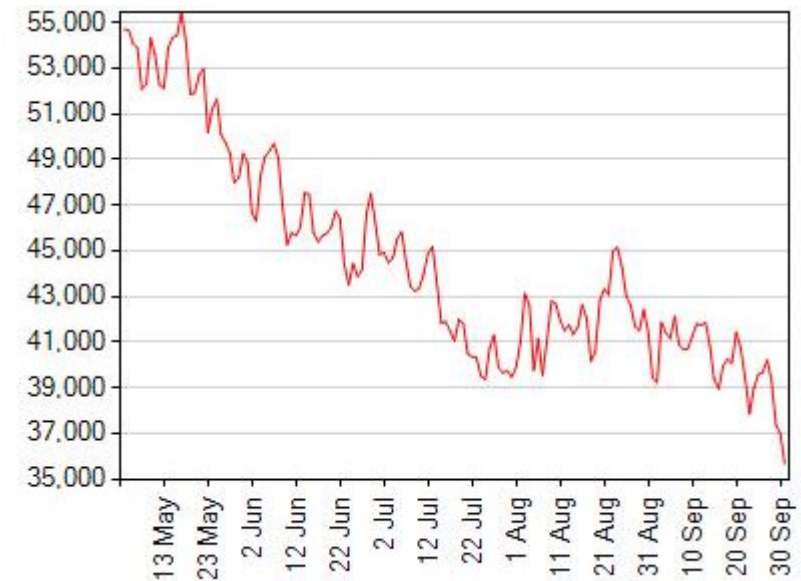


Number of units
(by ABO group)



Number of days
(by ABO group)

Number of units
(all ABO groups)



Source: www.blood.co.uk

URGENT COMMUNICATION - ACTION REQUIRED

An electronic copy of this fax can be found on the Hospitals & Science "Home Page" via the urgent area highlighted in red - <http://hospital.blood.co.uk/>.

Date: Thursday, 03 January 2013

To: All Transfusion Laboratory Managers in hospitals served by NHS Blood and Transplant (NHSBT)

Dear Colleague,

Stocks of O RhD Negative Red Cells - Action Required

NHSBT has been very successful over the last two months in increasing overall stocks to protect the blood supply against winter viruses. We are however now starting to see a reduction in the number of donors attending pre-booked appointments due to illness which is affecting our O RhD negative stocks. Our Blood Supply team has already taken a series of actions to make personal contact with additional O RhD negative donors and you will also see an escalated level of activity in the media to ensure that stocks of this group do not fall any further.

Demand for Group O RhD negative over the last 12 months has increased as a percentage of total issues by over 1% to 11.5% with hospitals citing several reasons for this change. We now need your support to avoid a shortage and to help protect this group in the longer term.

It is important that all hospitals review their O negative usage data regularly and initiate actions to keep this group below the recommended level of 10.5% of total stock. There are some hospitals that are still consistently holding a much higher percentage of their stock as O RhD negative, and this is now increasing the pressure on supply.

Action required

We are taking the precautionary measure of asking hospitals to conserve stocks of group O negative red cells for group O negative patients in line with established guidelines.

Hospitals taking >10.5% of their red cells should review stock holding levels of this group and initiate actions to reduce inappropriate use as a priority with members of your transfusion team. Data to support this review outlined below is available via the Blood Stocks Management Scheme.



Blood groups in the South West

- O+ 36.9%

- O- 7.9%

- A+ 34.8%

- A- 7.7%

- B+ 7.7%

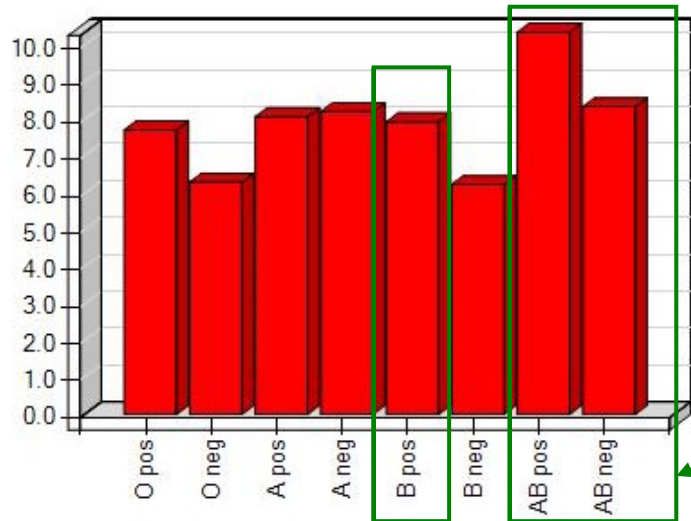
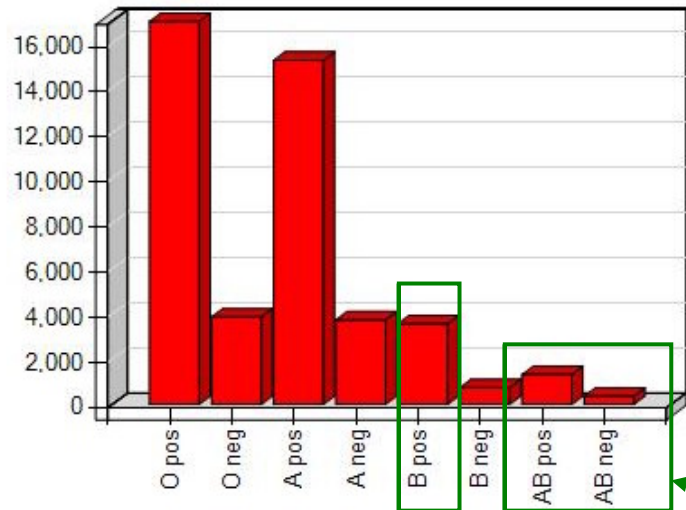
- B- 1.5%

- AB+ 2.8%

- AB- 0.6%

Blood stocks (6th July 2015)

[Red Cells]



Group AB+/- and B+ red cells are issued to hospitals on a 'charge on use' basis

Blood groups in the South West

- O+ 36.9%
- A+ 34.8%
- B+ 7.7%
- AB+ 2.8%
- O- 7.9%
- A- 7.7%
- B- 1.5%
- AB- 0.6%

O- red cell issues (as % of total red cell issues)

Issuing Site	2013/14	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
Leeds	10.8%	10.8%	11.4%	10.9%	10.8%	11.0%
Sheffield	11.0%	11.5%	11.1%	11.3%	11.5%	11.3%
Birmingham	12.6%	12.6%	11.7%	12.0%	12.0%	12.1%
Brentwood	12.7%	12.5%	11.5%	11.7%	11.0%	11.7%
Cambridge	10.2%	10.7%	10.1%	10.8%	10.8%	10.6%
Manchester	10.7%	10.8%	11.3%	10.9%	12.5%	11.4%
Lancaster	11.2%	11.7%	10.1%	12.5%	11.9%	11.5%
Liverpool	11.3%	11.5%	11.0%	12.0%	11.4%	11.5%
Newcastle	12.1%	12.5%	13.5%	13.4%	12.5%	13.0%
Tooting	13.3%	14.1%	14.1%	14.1%	13.8%	14.0%
Southampton	12.2%	12.2%	12.2%	12.5%	12.3%	12.3%
Plymouth	12.7%	13.6%	13.6%	12.7%	13.1%	13.2%
Oxford	12.0%	12.1%	12.2%	12.5%	12.7%	12.4%
Filton	10.8%	11.3%	11.5%	10.7%	11.5%	11.3%
Colindale	10.5%	10.2%	11.9%	11.9%	11.5%	11.4%
National Average	11.8%	12.0%	12.0%	12.2%	12.1%	12.1%

Cost of blood components

- NHSBT price list 2015/16:

Red cells.....£120.00*

Platelets.....£193.15

FFP.....£28.46

MB FFP.....£178.03

Cryoprecipitate.....£177.57

MB Cryoprecipitate.....£1,080.48

Granulocytes.....£1,064.67 *(2 usually required for adults)*

www.123rf.com

- Additional component charges are applied for further testing (e.g. CMV) or processing (e.g. irradiation)
- Other costs include RCI and H&I sample testing services, and non-routine delivery.

<http://hospital.blood.co.uk/products/>

Blood components – spec.

Expiry (shelf-life)

- Red cells – 35 days
14 days (irradiated)
- Platelets – 7 days*
- FFP/Cryo. – 36 months

Component name	Red Cells in Additive Solution Leucocyte Depleted		
Red Book reference	8 th Edition Section 7.6		
Parameter	NHSBT mean	NHSBT/UK Specification	Note
Volume (mL)	274	220-340	
Haemoglobin (g/unit)	52.43	>40	
Haematocrit (L/L)	0.59	N/A	
WBC count (x10 ⁹ /unit)	0.30	<1	
Granulocytes (x 10 ⁹ /unit)	N/A	N/A	
Platelet concentration (x10 ⁹ /L)	N/A	N/A	
Platelet yield (x10 ⁹ /unit)	N/A	N/A	
Factor VIIIc (IU/mL)	N/A	N/A	
Factor VIIIc (IU/unit)	N/A	N/A	
Fibrinogen (mg/unit)	N/A	N/A	
Supernatant Hb	N/A	<0.8%	Of red cell mass at the end of shelf life
pH at expiry	N/A	N/A	

NHSBT Portfolio of Blood Components - <http://hospital.blood.co.uk/products/>

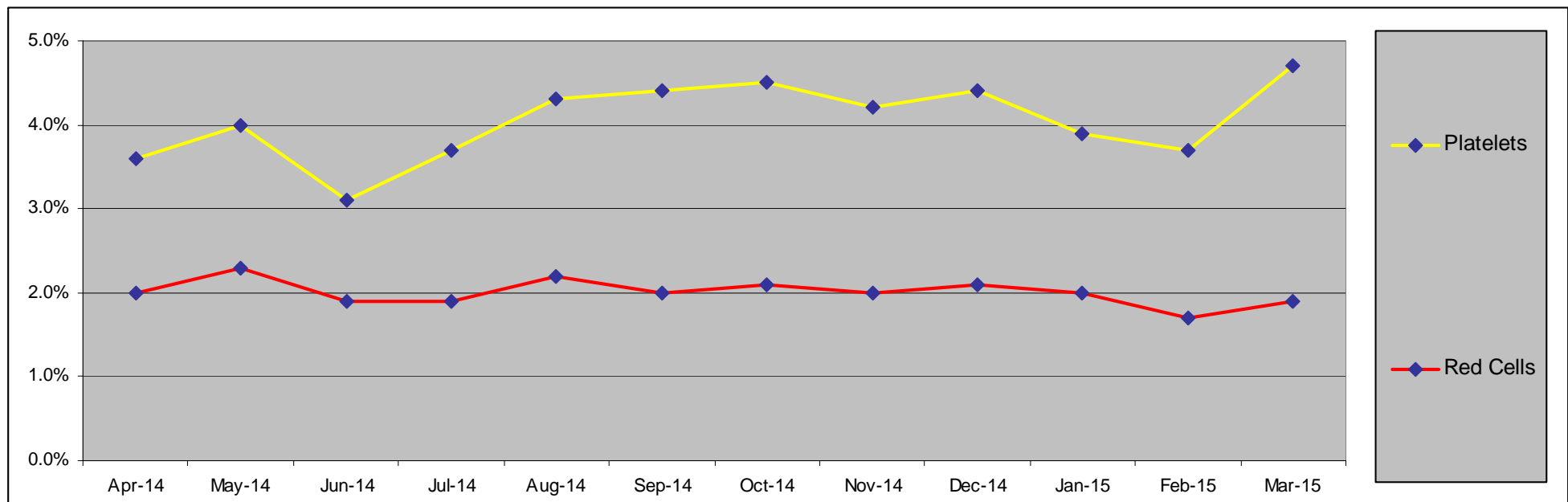
Days to expiry at issue (Red Cells)

NHSBT Centre	2013/14	Quarter 1	Quarter 2	YTD
Leeds	14.7	15.7	13.7	14.7
Sheffield	13.6	14.7	12.4	13.6
Birmingham	12.9	13.8	12.7	13.2
Brentwood	13.0	12.3	11.0	11.6
Cambridge	15.0	15.9	13.7	14.8
Manchester	13.1	15.0	12.4	13.7
Lancaster	13.7	14.4	12.5	13.4
Liverpool	13.7	14.3	12.5	13.4
Newcastle	13.2	13.6	11.9	12.7
Tooting	14.7	15.4	13.5	14.5
Southampton	13.7	15.7	13.5	14.6
Filton	14.0	14.9	12.0	13.4
Plymouth	13.3	14.4	12.1	13.3
Oxford	12.9	15.0	12.8	13.9
Colindale	12.2	12.2	10.8	11.5
National Average	13.6	14.3	12.5	13.4

Wastage - monitoring

- Entered in to Blood Stocks Management Scheme (via Vanesa)
- Measured in whole numbers and Wastage As a Percentage of Issues (WAPI)
- WAPI target for hospitals ~ red cells <2.5% ; platelets <4%

National wastage figures:



Wastage - reason

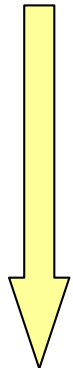


Red cells:

- Time expired
- Out of temperature control outside lab.*
- Miscellaneous
- Fridge failure

*< * In 2013/14 almost 10,000 units were taken to the clinical area but not used, and had to be wasted >*

www.recyclereminders.com



Platelets:

- Medically ordered not used
- Stock time expired**
- Surgically ordered not used
- Miscellaneous
- Wasted outside of lab.

**** Only applies to hospitals that hold a stock of platelets**

National O- survey 2015

Findings

- 66% of organisations (who responded to the questionnaire): stockholding continues to be above the recommended maximum 10.5%
- 18% said they did not have a policy of transfusing O- units to non O- patients to avoid time expiry
- 92% said they did **not** monitor transfusion of O- units to non O- recipients to avoid time expiry, as a KPI
- 42% did **not** have a policy for transfusing O+ to adult males of unknown blood group
- 34% did not investigate > 2 units O- use in emergencies
- 59% are able to switch to group specific red cells within 15 minutes
- 94% reviewed their O- stock levels, 30% at least annually
- 81% have a lab stock holding policy to transfuse O RhD negative blood to non O- patients

NBTC survey:

www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/working-groups

National O- survey 2015

Recommendations

- *Collect data on the percentage of O- units transfused to non O- recipients to prevent time expiry, and present at local Transfusion Laboratory Meetings for benchmarking levels*
- *Review use of O- red cells in an emergency and investigate incidents where its use is considered inappropriate*
- *Review processes for the release of ABO compatible red cells to ensure timely issue of group specific blood*
- *Consider increasing the frequency (i.e. weekly) of emergency O- stock rotation*

NBTC Appropriate Use of O- recommendations:

www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/responses-and-recommendations

Summary

- ~ 1.65 million units 'blood' issued by NHSBT in 2014/15
- Red Cells issues decreasing; Platelet issues increasing
- All sourced from volunteer unpaid donors
- Donor Health Check, mandatory testing, infection control & leucodepletion = safe 'product'
- Critical balance between stock and issues
- Hospital wastage monitoring is important (BSMS/Vanesa)
- Some wastage is avoidable
- O- demand

Blood cannot be made – it must be donated

*The cost and the value of blood
are more than just financial*

Thank You