

# Blood Supply and Wastage

**Alister Jones**  
**Patient Blood Management Practitioner**  
**NHS Blood and Transplant**

*Lab Matters study day*  
**Oake Manor, Taunton, 15<sup>th</sup> December 2014**

# Blood supply

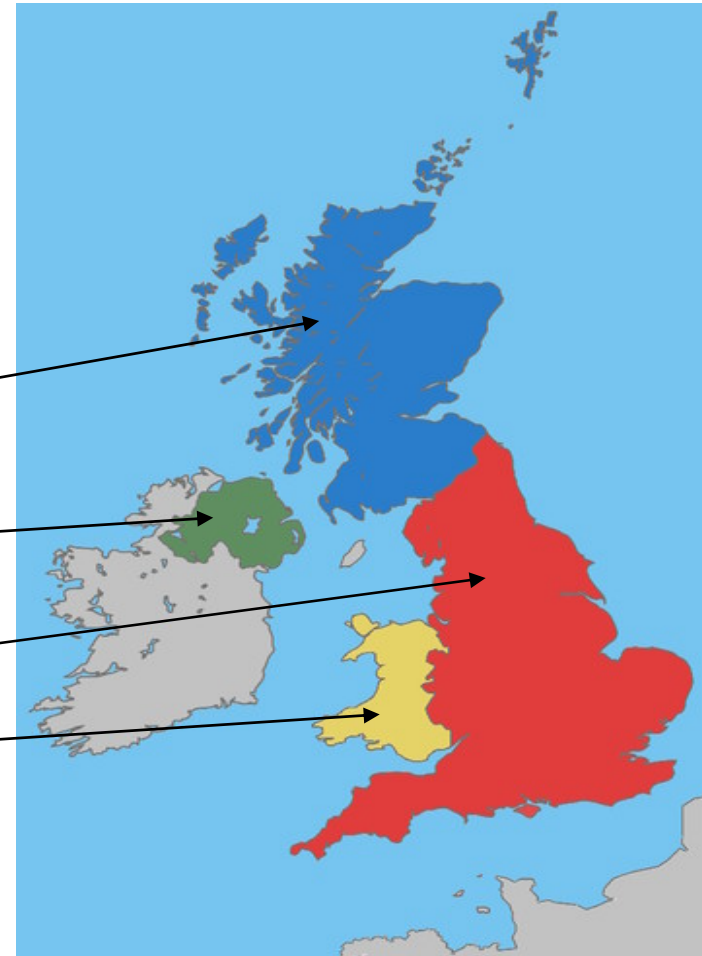
- UK supplied by 4 blood services:

SNBTS

NIBTS

NHSBT (NBS)

WBS



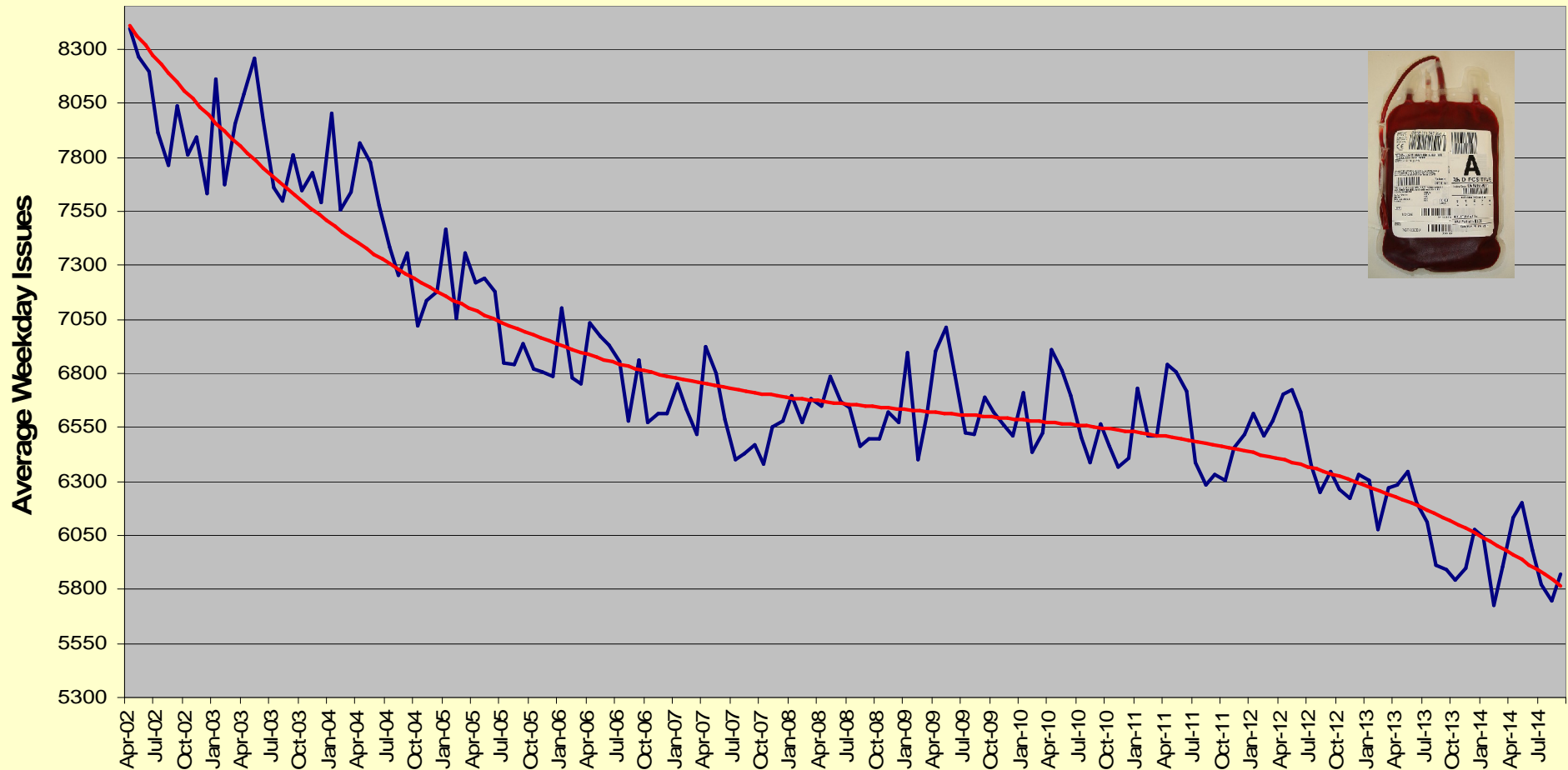
[http://commons.wikimedia.org/wiki/File:Uk\\_map\\_home\\_nations.png](http://commons.wikimedia.org/wiki/File:Uk_map_home_nations.png)

# Blood supply

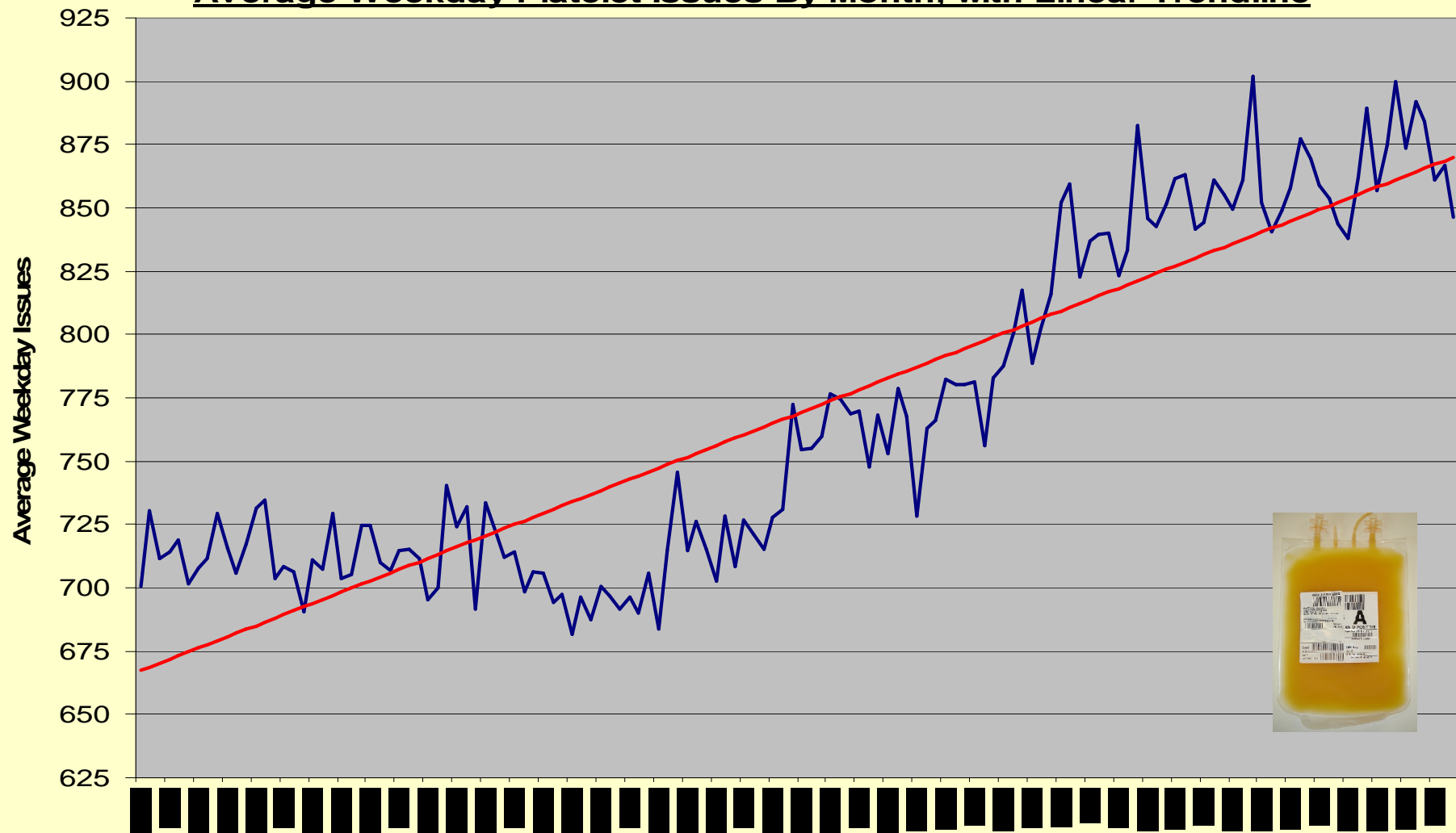
- NHSBT supply to England & North Wales (and MOD)
- 2013/14 NHSBT issued (adult):

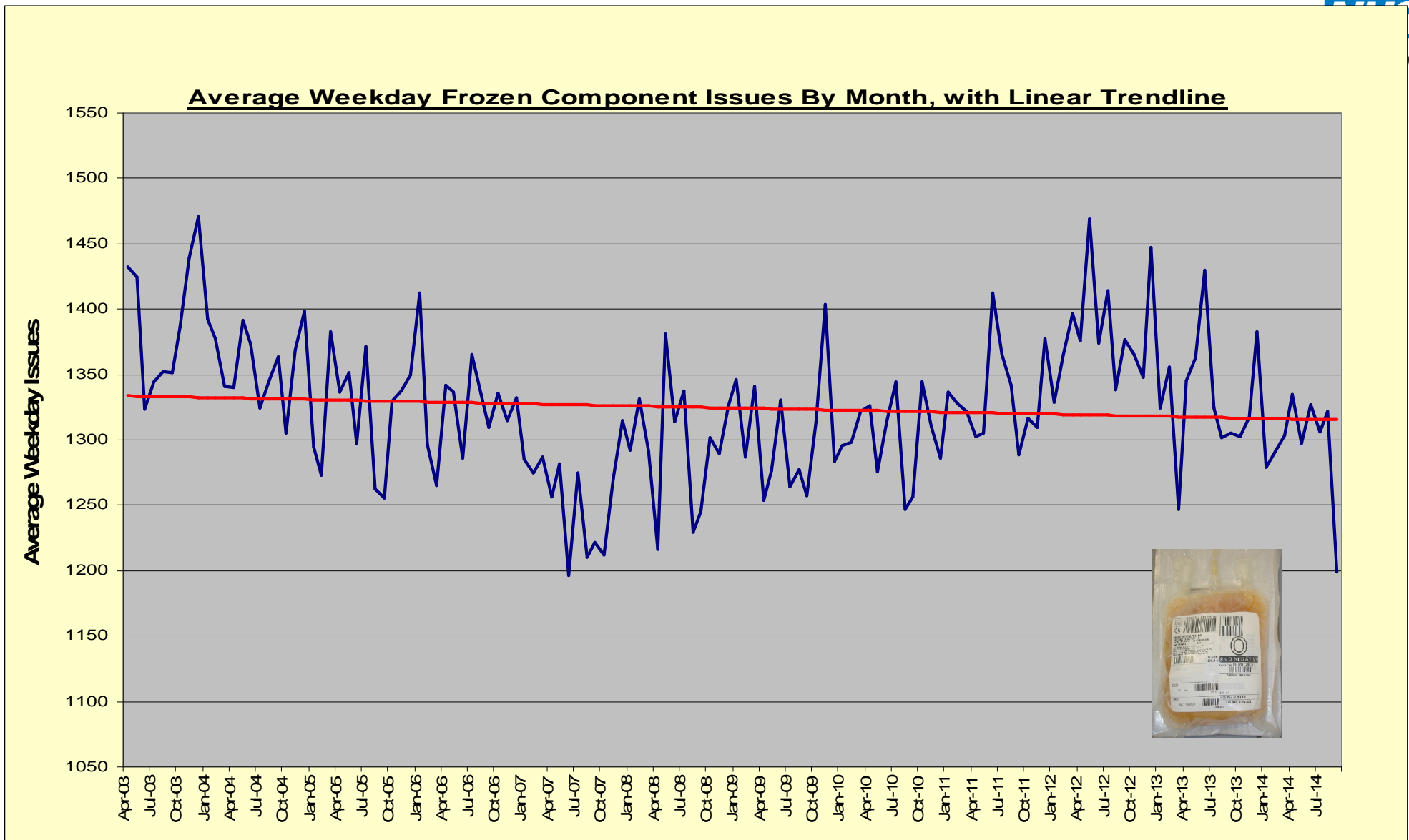
1,694,000 units blood [red cells]	SW 145,900
269,000 units platelets	SW 17,900
225,000 units FFP	SW 14,300
29,900 units Cryoprecipitate (pooled)	SW 1,300

## Average Weekday Red Cell Issues By Month, with Trendline



**Average Weekday Platelet 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?

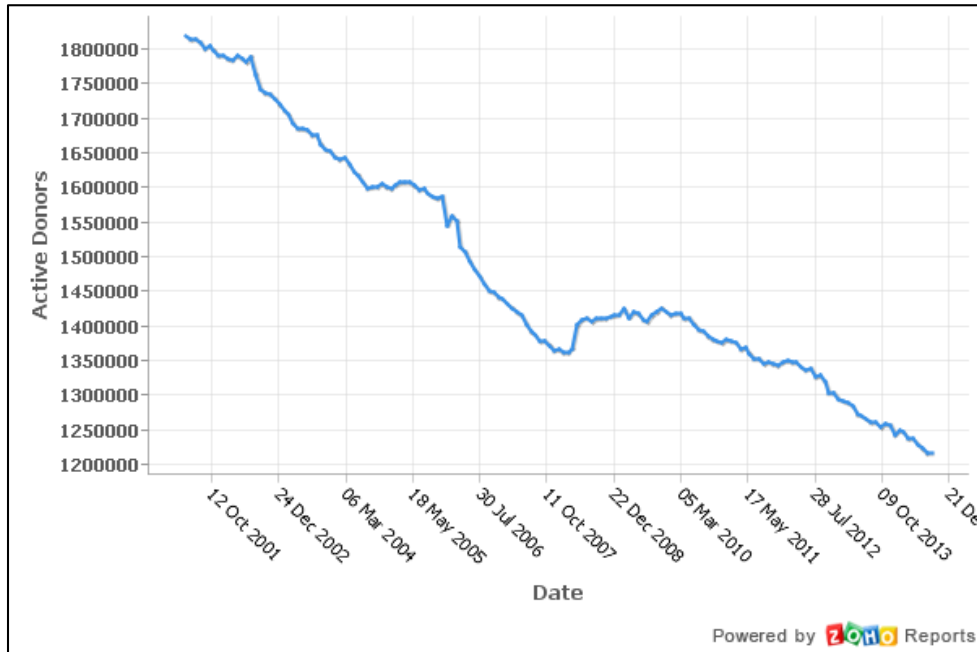
# Donating population



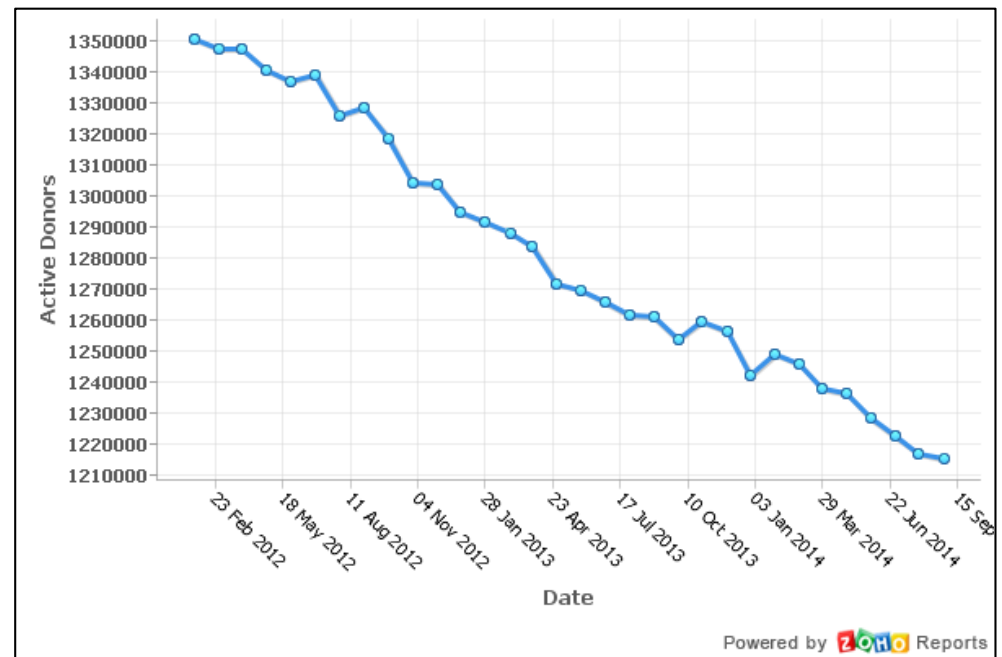
*Blood and Transplant*

[www.bbc.co.uk](http://www.bbc.co.uk)

## Long Term Trend in Number of Active Donors:

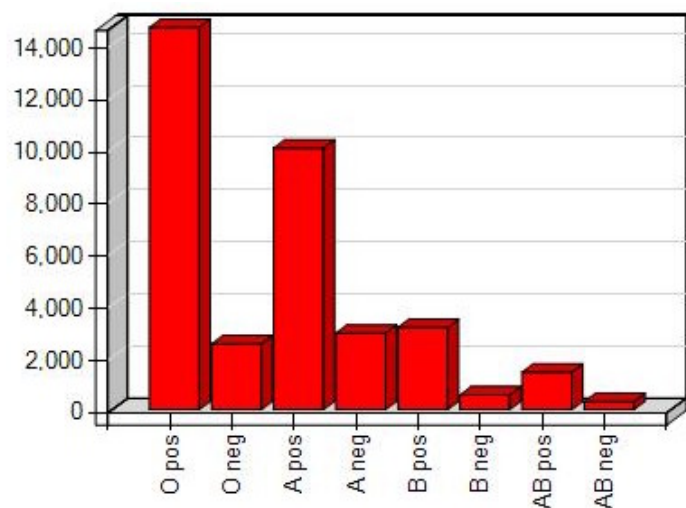


## Recent Trend in Number of Active Donors:

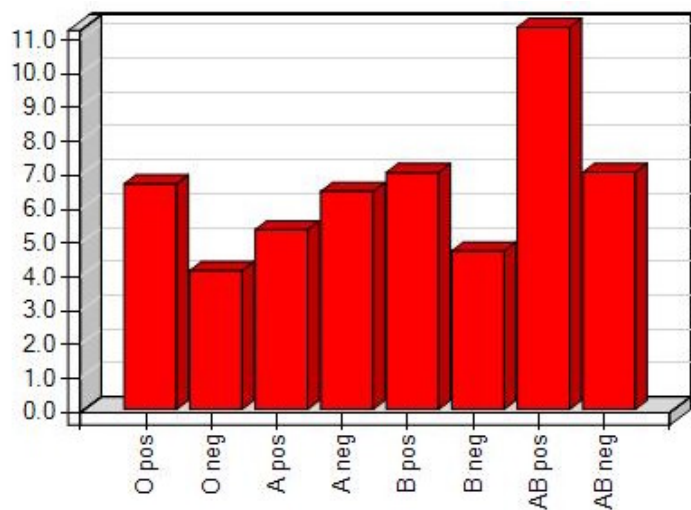


Only 4% of adults are currently blood donors ([www.blood.co.uk](http://www.blood.co.uk))

# Blood stocks (1<sup>st</sup> Oct. 2014) [Red Cells]

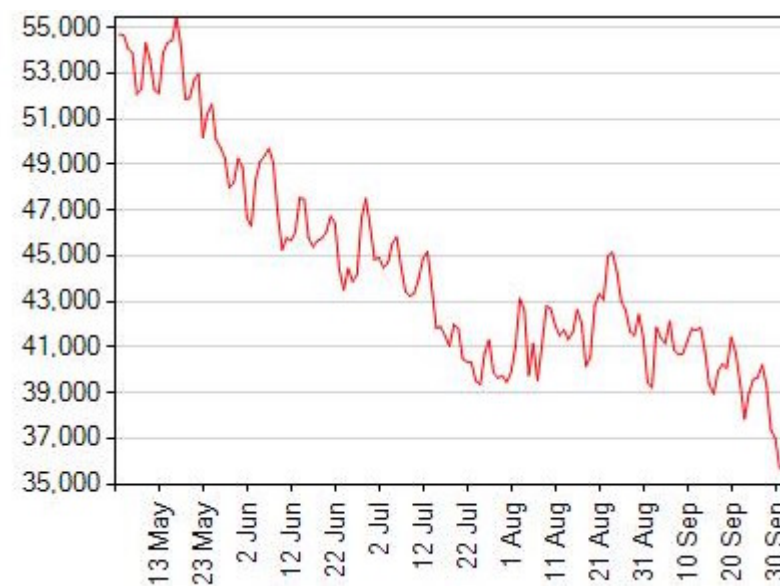


Number of units  
(by ABO group)



Number of days  
(by ABO group)

Number of units  
(all ABO groups)



Source: [www.blood.co.uk](http://www.blood.co.uk)



**Blood and Transplant**



**Blood and Transplant**

**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



*Blood and Transplant*

• O+ 36.9%

• O- 7.9%

• A+ 34.8%

• A- 7.7%

• B+ 7.7%

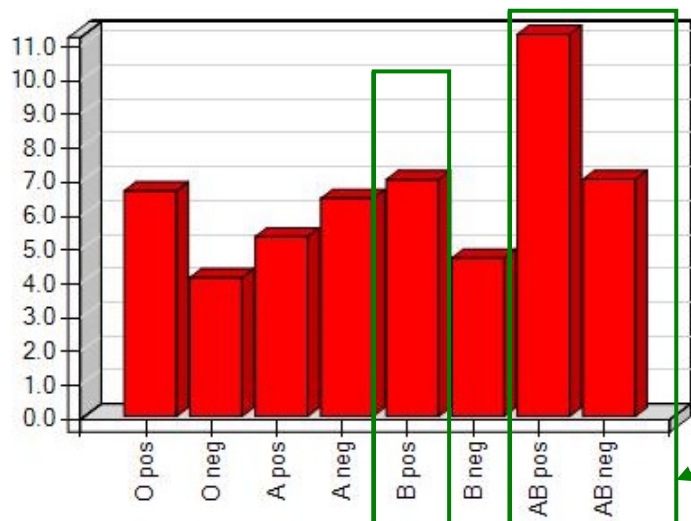
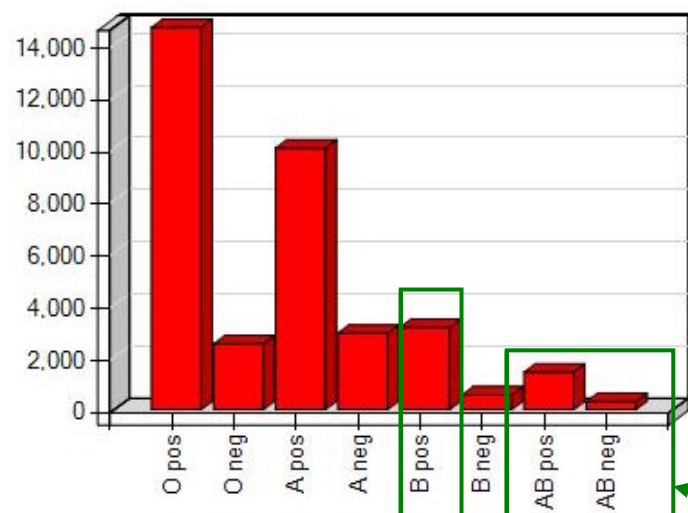
• B- 1.5%

• AB+ 2.8%

• AB- 0.6%

# Blood stocks (1<sup>st</sup> Oct. 2014)

## [Red Cells]



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

# Blood groups in the South West



*Blood and Transplant*

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

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

Issuing Site	2013/14	Quarter 1	Quarter 2	YTD
Leeds	10.8%	10.8%	11.4%	11.1%
Sheffield	11.0%	11.5%	11.1%	11.3%
Birmingham	12.6%	12.6%	11.7%	12.1%
Brentwood	12.7%	12.5%	11.5%	12.1%
Cambridge	10.2%	10.7%	10.1%	10.4%
Manchester	10.7%	10.8%	11.3%	11.0%
Lancaster	11.2%	11.7%	10.1%	10.9%
Liverpool	11.3%	11.5%	11.0%	11.3%
Newcastle	12.1%	12.5%	13.5%	13.0%
Tooting	13.3%	14.1%	14.1%	14.1%
Southampton	12.2%	12.2%	12.2%	12.2%
Plymouth	12.7%	13.6%	13.6%	13.6%
Oxford	12.0%	12.1%	12.2%	12.1%
Filton	10.8%	11.3%	11.5%	11.4%
Colindale	10.5%	10.2%	11.9%	11.1%
<b>National Average</b>	<b>11.8%</b>	<b>12.0%</b>	<b>12.0%</b>	<b>12.0%</b>

# Cost of blood components

- NHSBT price list 2014/15:

Red cells.....£121.85

Platelets.....£196.96

FFP.....£28.46

MB FFP.....£178.03

Cryoprecipitate.....£180.54

MB Cryoprecipitate.....£1,080.48

Granulocytes.....£1,044.89 *(2 usually required for adults)*

[www.123rf.com](http://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	<b>Red Cells in Additive Solution Leucocyte Depleted</b>		
Red Book reference	8 <sup>th</sup> 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 <sup>9</sup> /unit)	0.30	<1	
Granulocytes (x 10 <sup>9</sup> /unit)	N/A	N/A	
Platelet concentration (x10 <sup>9</sup> /L)	N/A	N/A	
Platelet yield (x10 <sup>9</sup> /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)



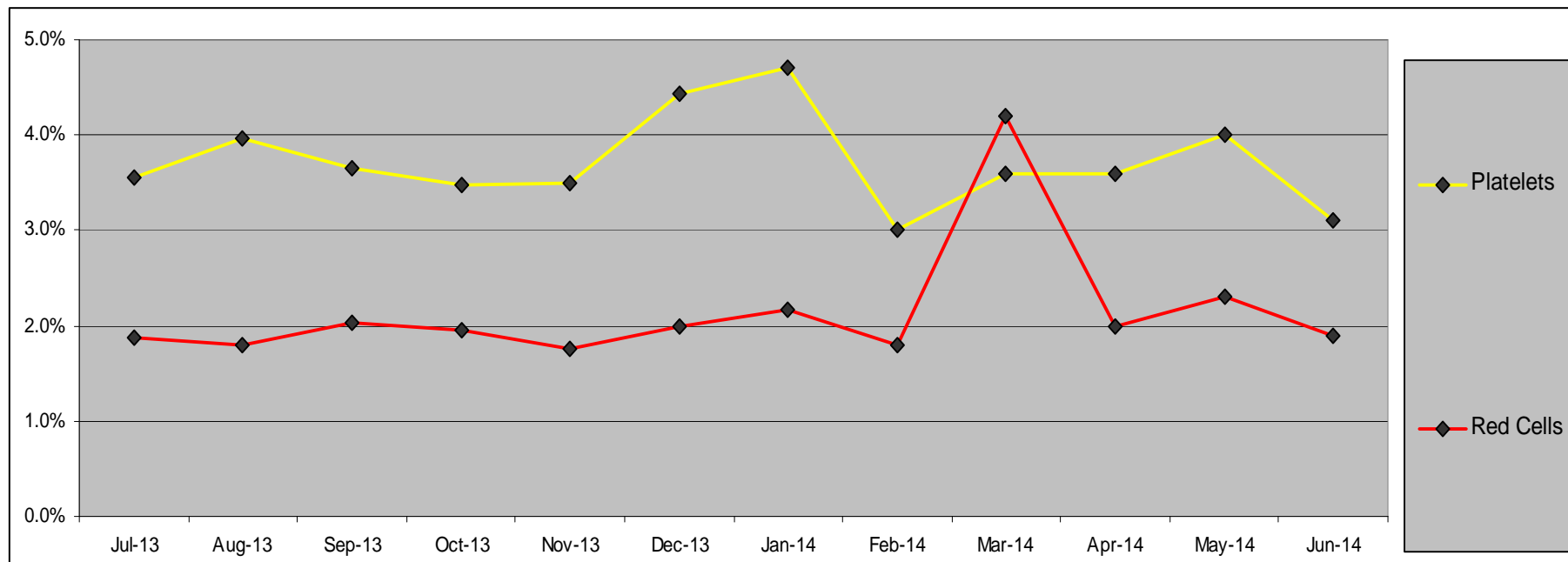
*Blood and Transplant*

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
<b>National Average</b>	<b>13.6</b>	<b>14.3</b>	<b>12.5</b>	<b>13.4</b>

# 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

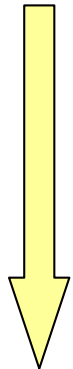


## *Red cells:*

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

[www.recyclereminders.com](http://www.recyclereminders.com)

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



## *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**

# Summary

- ~ 1.7 million units 'blood' issued by NHSBT in 2013/14
- Red Cells issues decreasing/plateau-ing
- Platelet issues increasing dramatically
- All sourced from volunteer unpaid donors
- Donor Health Check, mandatory testing, infection control & leucodepletion = safe 'product'
- Critical balance between stock and issues
- Hospital wastage entered in to BSMS (Vanesa)
- Some wastage is avoidable

*Blood cannot be made – it must be donated*

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

*Thank You*