NHS
Blood and Transplant

Blood Supply and Wastage

Inga Willett

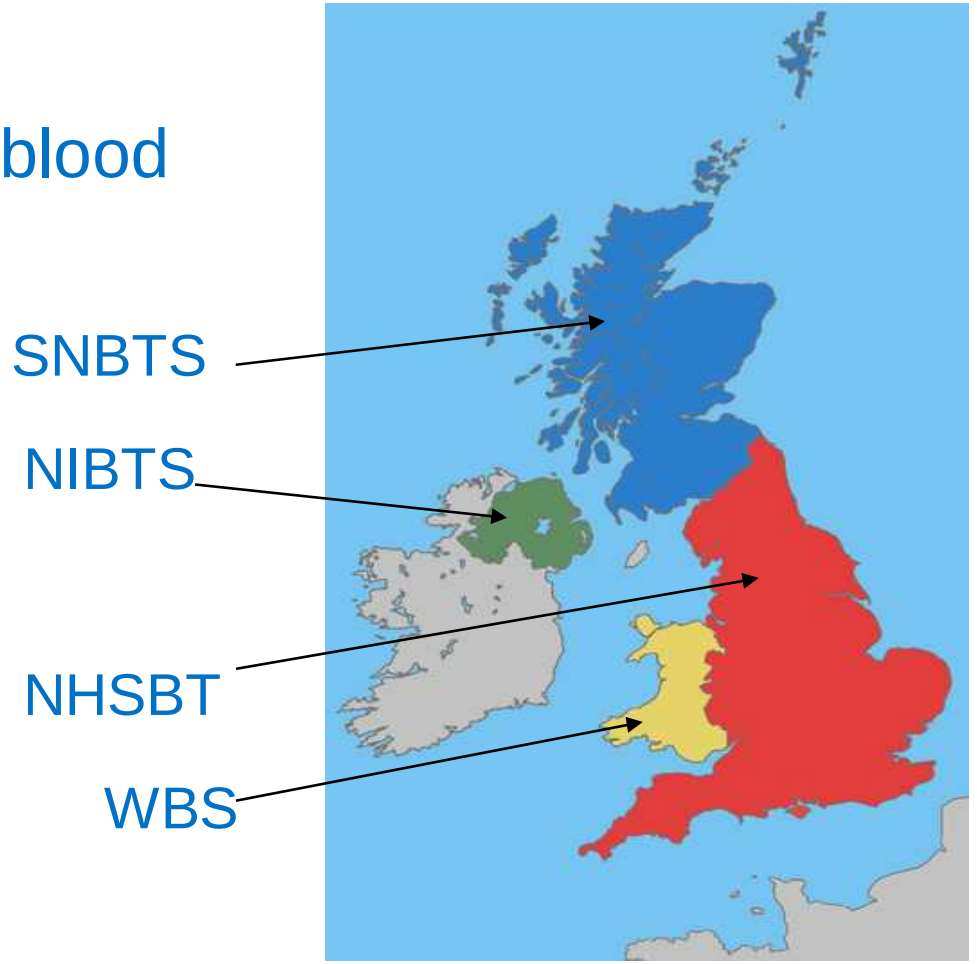
Lab Matters, Oake Manor, 5th December 2016

Caring Expert Quality

NHS Blood and Transplant

Blood supply

- UK supplied by 4 blood services:



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

Blood supply

- NHSBT supply 300 NHS and private hospitals in England
- Additionally supplies MOD, research, universities & international organisations
- Also assists SNBTS, WBS, and NIBTS when required
- 2015/16 NHSBT issued to hospitals:

1,594,000 units Red Cells	SW 107,000
271,000 units Platelets	SW 15,000
203,000 units FFP	SW 11,000
33,000 units Cryoprecipitate (pooled)	SW 1,000

Between April-Oct 2016, Filton and Plymouth have issued a total of almost 80,000 blood components to hospitals.

Average Weekday Red Cell Issues

8350 8100 7850 7600 7350 7100 6850 6600 6350 6100 5850 5600 5350 5100

Apr-02 Jul-02 Oct-02 Jan-03 Apr-03 Jul-03 Oct-03 Jan-04 Apr-04 Jul-04 Oct-04 Jan-05 Apr-05 Jul-05 Oct-05 Jan-06 Apr-06 Jul-06 Oct-06 Jan-07 Apr-07 Jul-07 Oct-07 Jan-08 Apr-08 Jul-08 Oct-08 Jan-09 Apr-09 Jul-09 Oct-09 Jan-10 Apr-10 Jul-10 Oct-10 Jan-11 Apr-11 Jul-11 Oct-11 Jan-12 Apr-12 Jul-12 Oct-12 Jan-13 Apr-13 Jul-13 Oct-13 Jan-14 Apr-14 Jul-14 Oct-14 Jan-15 Apr-15 Jul-15 Oct-15

Average Weekday Platelet Issues

950 925 900 875 850 825 800 775 750 725 700 675 650 625

Apr-03 Jul-03 Oct-03 Jan-04 Apr-04 Jul-04 Oct-04 Jan-05 Apr-05 Jul-05 Oct-05 Jan-06 Apr-06 Jul-06 Oct-06 Jan-07 Apr-07 Jul-07 Oct-07 Jan-08 Apr-08 Jul-08 Oct-08 Jan-09 Apr-09 Jul-09 Oct-09 Jan-10 Apr-10 Jul-10 Oct-10 Jan-11 Apr-11 Jul-11 Oct-11 Jan-12 Apr-12 Jul-12 Oct-12 Jan-13 Apr-13 Jul-13 Oct-13 Jan-14 Apr-14 Jul-14 Oct-14 Jan-15 Apr-15 Jul-15 Oct-15

Average Weekday FFP Issues

900 875 850 825 800 775 750 725 700 675 650 625 600

Apr-13 May-13 Jun-13 Jul-13 Aug-13 Sep-13 Oct-13 Nov-13 Dec-13 Jan-14 Feb-14 Mar-14 Apr-14 May-14 Jun-14 Jul-14 Aug-14 Sep-14 Oct-14 Nov-14 Dec-14 Jan-15 Feb-15 Mar-15 Apr-15 May-15 Jun-15 Jul-15 Aug-15 Sep-15 Oct-15 Nov-15

Average Weekday Cryo Pooled Issues

150 140 130 120 110 100 90 80 70

Apr-13 May-13 Jun-13 Jul-13 Aug-13 Sep-13 Oct-13 Nov-13 Dec-13 Jan-14 Feb-14 Mar-14 Apr-14 May-14 Jun-14 Jul-14 Aug-14 Sep-14 Oct-14 Nov-14 Dec-14 Jan-15 Feb-15 Mar-15 Apr-15 May-15 Jun-15 Jul-15 Aug-15 Sep-15 Oct-15 Nov-15

Donating population

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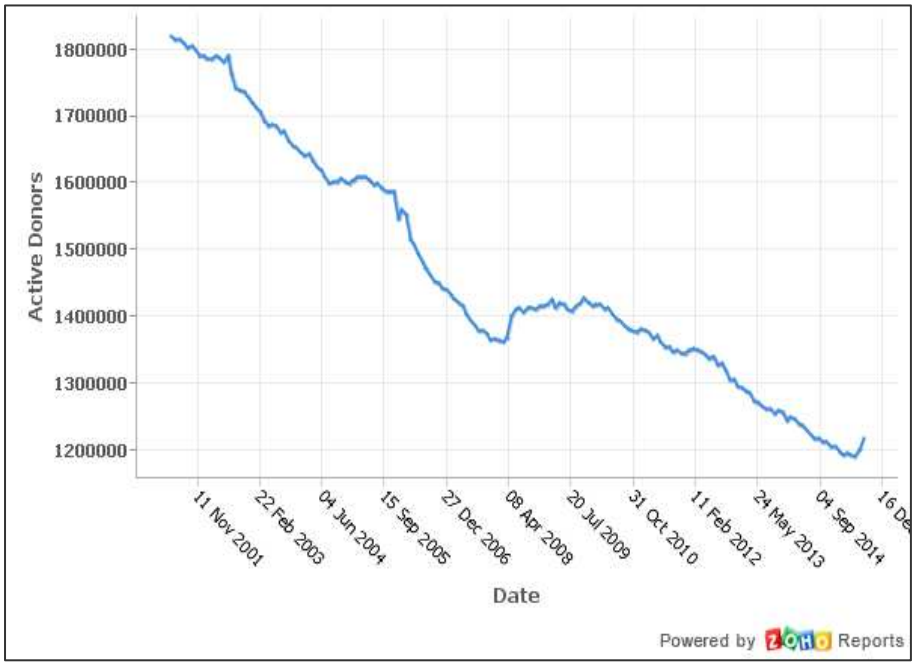
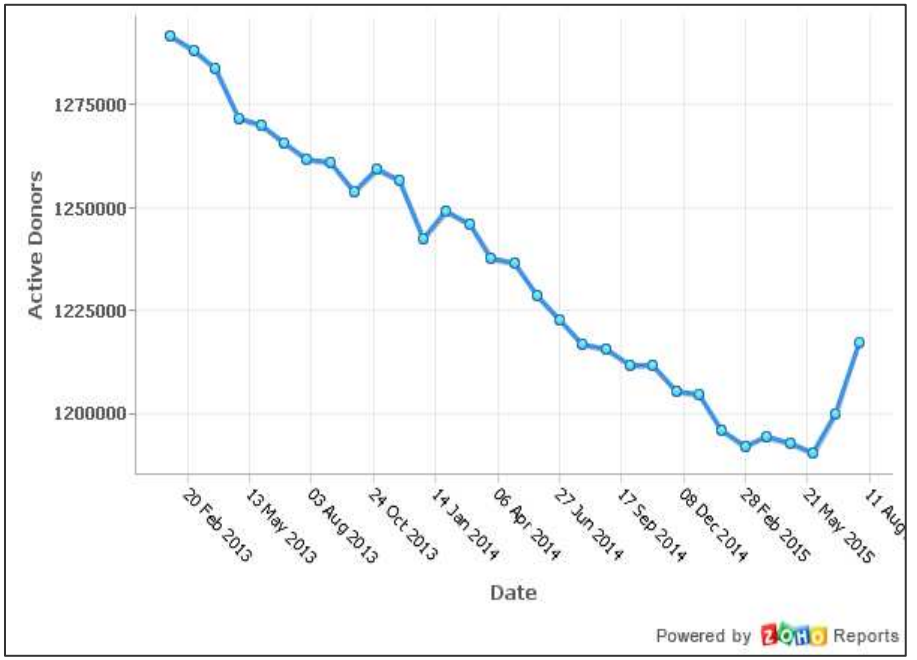
www.bbc.co.uk

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)
Less likely to be BAME donors

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

  > anyone who has received a transfusion since 1980 cannot donate

* Microbiology testing:

    > mandatory (HIV, HepB, HepC, Syphillis, HTLV)

    > discretionary (Malaria, HepB core, T-Cruzi, West Nile Virus, HEV)

    > bacterial monitoring of platelets

*Minimise bacterial/viral contamination:

    > B: arm cleansing, diversion pouch, closed collection system

    > V: universal leucodepletion, irradiation

Donor selection and care

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- 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

Donor selection and care

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- No test for vCJD in use at present
- Patients born after 01/01/96 should ideally receive imported plasma components* and apheresis platelets (*SaBTO recommendation)
- Male only plasma used to make FFP and Cryoprecipitate
- HepE testing started March 2016 (discretionary)

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

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

Donations

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- Voluntary non-renumerated (WHO 2020 goal)
- Donor – recipient unrelated
- Some donors can donate platelets on a more regular basis
- Some units processed to be suitable for neonatal transfusions

Disruption to donation

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- Adverse weather
- Seasonal illness
- Bank holidays/events
- Decreasing donor pool – fewer younger donors?

Thinking of donating?

http://www.blood.co.uk ☎ 0300 123 23 23

@GiveBloodNHS NHSBlood

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Blood stocks at NHSBT (May 2016) [Red Cells]

	Red Cells			Platelets
	STOCK	**ISI**	**TARGET**	**STOCK**
O Pos	11575	6.9	16154	403
O Neg	2979	5.1	5590	106
A Pos	10833	7.6	13676	501
A Neg	5083	13.1	3512	225
B Pos	2998	8	3617	81
B Neg	606	5.3	1087	16
AB Pos	1032	10.2	1012	16
AB Neg	412	11.1	352	8
Total	35518	8.4	45000	1356

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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.

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Blood groups in the South West

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

However demand for O- blood in the SW for April 2016 was 12%

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Cost of blood components

Adult Dose Red Cells	£120.00
Adult Dose Platelet	£193.15
Fresh Frozen Plasma	£28.46
Methylene Blue-treated FFP	£178.03
Adult Dose Pooled Cryoprecipitate	£177.57
Optimised Pooled Granulocytes	£1,104.65

Neonatal Dose Red Cells	£51.68
Red Cell for Exchange transfusion	£199.00
Red Cell for Large Volume transfusion	£158.80
Neonatal Dose Platelets	£90.16
Neonatal MB-FFP	£50.02
Neonatal MB-Cryo	£187.50

Premium for Irradiation	£8.78
Premium for CMV-negative products	£8.80
Premium for HEV-negative products	£17.18
Premium for washed RBC	£121.75
Premium for HLA-matched platelets	£239.90

- Other costs include RCI and H&I sample testing, and non-routine deliveries
- All information on ***www.hospital.blood.co.uk***

Blood components – spec.

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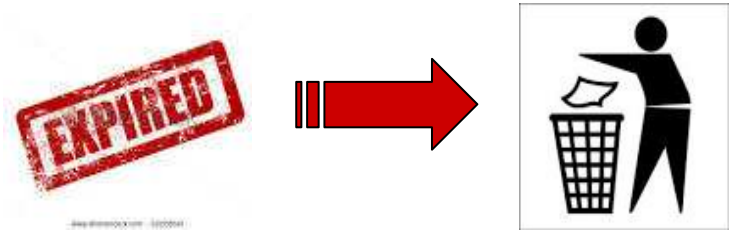
Expiry (shelf-life)

- Red cells – 35 days
  14 days (irradiated)
- Platelets – 7 days
- FFP/Cryo. – 36 months until thawed
- Granulocytes - until midnight on the day of production



Component name	Red Cells in Additive Solution Leucocyte Depleted		
Red Book reference	8th 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 ($x10^6$/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	

Age of Red Cells at issue (days)

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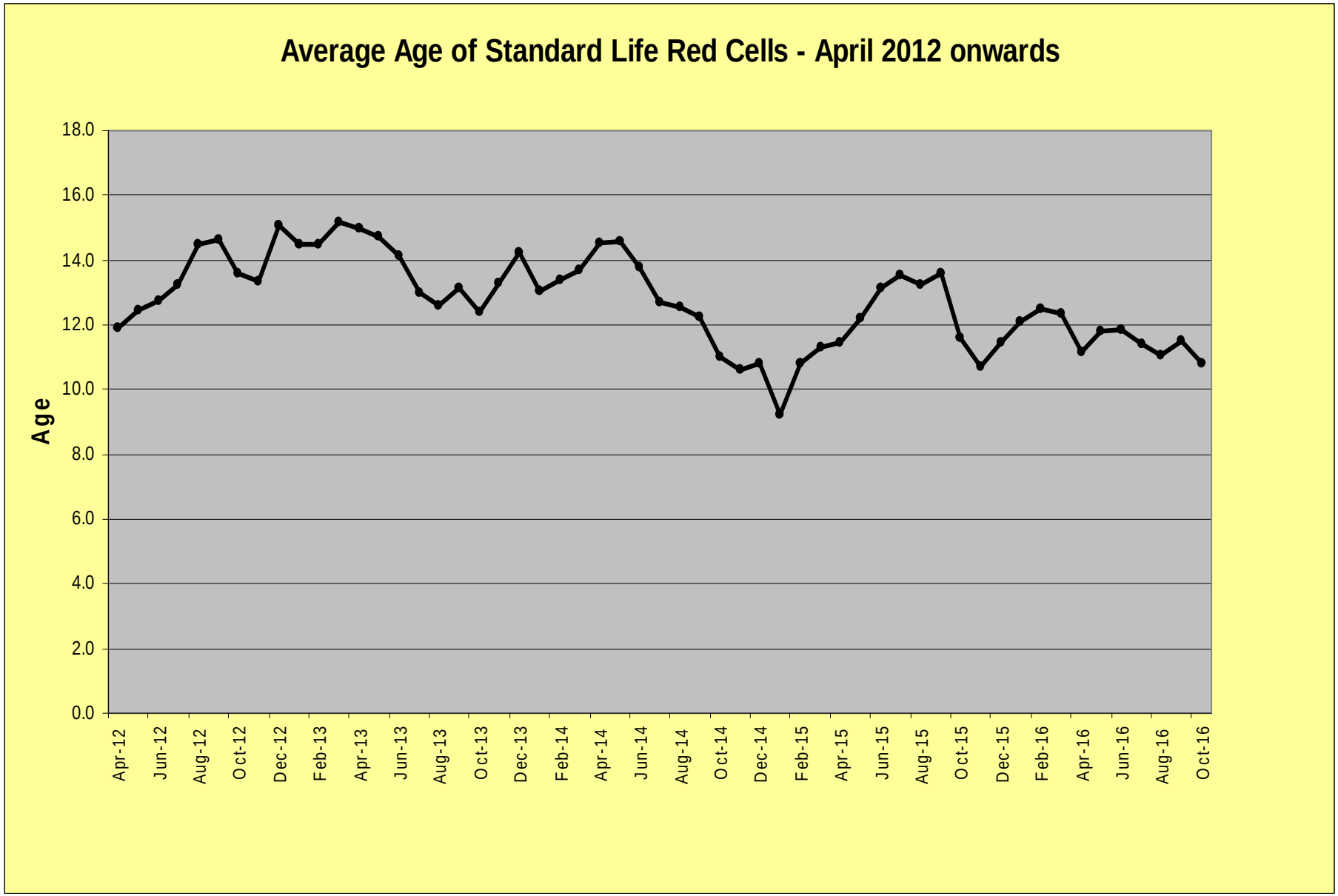

Wastage - reason

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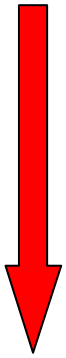
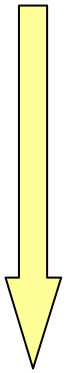


Red cells:

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



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

Summary

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- Over 1.5million units Red Cells alone issued by NHSBT in 2015
- All sourced from volunteer unpaid donors
- Donor Health Check, mandatory testing, infection control & leucodepletion = safe ‘product’
- Critical balance between stock and issues
- Wastage is avoidable and is in your control

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Blood cannot be made – it must be donated

The cost and the value of blood

are more than just financial

Thank You