

Where Does Blood Go?

Dr Megan Rowley

CONSULTANT HAEMATOLOGIST - NHSBT and Imperial

Patient Blood Management 2015!

- Better Blood Transfusion (BBT) HSCs in1998, 2002, 2007 recommended that blood was used **safely** and **appropriately**
- Over 15 years the use of red cells has fallen by 25%
- Audits continue to show a wide variation in transfusion rates for the same surgical procedure in different hospitals and for different surgical teams
- Patient Blood Management was launched in June 2012 and recommendations published June 2014.

PBM is an evidence-based multi-disciplinary approach to optimising the care of patients who might need a transfusion



How do we know where blood goes?





Why does it matter where blood goes?

Blood Services: So that supply can match demand

Changes in usage (up or down) can be planned for and supported

Hospitals: So that the right blood is available for the right blood at the right time

Changes in usage can be budgeted for and wastage is minimised

<u>Patients</u>: So that transfusion benefits, risks and alternatives can be evaluated for every patient

=PATIENT BLOOD MANAGEMENT



National and Regional Transfusion Data



25% Reduction in Red Cell Issues 1999-2014



Blood Supply (http://www.blood.co.uk)



Current total stock

Blood stocks data from Tuesday 20.01.2015



National Use of Red Cells Per 1000 Population

European Country in 2007*	RBC use	International 2008/2009**	RBC use	UK in 2008/2009***	RBC use	
Holland	33.8	Canada	35.2	Northern	31.3	
Ireland	35.3			Ireland		
UK	35.8	USA	48.8	England	35.9	
Sweden	49.9	• • •				
Germany	55.5	Australia	36.8	Scotland	41.1	
Greece	55.5	UK	36.4	Wales	41.1	
Denmark	64.0					

*The Collection, Testing and Use of Blood and Blood Components in Europe 2007	**Several sources including http://www.blood.gov.au/pubs/2013- haemovigilance/section5.html	***PJ Barr et al Vox Sanguinis (2010) 99, 239–250
In Europe 2007	naemovigiiance/section5.ntml	



Surveys and Audits

London RTC

Summary data from large regional and Blood and Transplant national audits

Audit	Year	Hospitals	Cases	Inappropriate use	Standards
Red cell transfusion	2002	13 (100%) NI hospitals	360	19% inappropriate transfusion 29% over transfused	BCSH 2001
Red cells in hip surgery	2007	139/167 (83%)	7465	48% of transfusions	BOA (2005)
Upper GI bleeding	2007	217/257 (84%)	6750	15% of red cell transfusions 42% of platelets and 27% of FFP	BSG (2002)
Red cell transfusion	2008	26/56 (46%) in two RTCs	1113	19.5% of transfusions	BCSH (2001)
Fresh Frozen Plasma	2009	186/248 (75%)	5023	43% of transfusions to adults, 48% to children and 62% to infants	BCSH (2004)
Platelets in haematology patients	2011	139/153 (91%)	3296	27% of transfusions	BCSH (2003)
Cryoprecipitate	2012	43/82 (52%) in three RTCs	449	25% of transfusions	BCSH (2004)

Slide reproduced from PBM Seminar June 2012, Wike Murphy and John Grant-Casey

NHS

Audit of blood in hip replacement







2011 NCA of Cardiac Surgery

Each line represents the transfusion rate for each component at one hospital





Clinical Leads: Prof Mike Murphy and Dr Shubha Allard



Clinical Benchmarking

ORIGINAL ARTICLE

The EASTR study: a new approach to determine the reasons for transfusion in epidemiological studies

C. A. Llewelyn, * A. W. Wells, † M. Amin, * A. Casbard, ‡ A. J. Johnson, § S. Ballard, * J. Buck, * M. Malfroy, * M. F. Murphy & L. M. Williamson ** *National Blood Service (NBS)/Medical Research Council Clinical Studies Unit, NHS Blood and Transplant (NHSBT), Cambridge, †NHS Blood and Transplant, Newcastle upon Tyne, ‡Medical Research Council Clinical Trials Unit, London, §Medical Research Council Biostatistics Unit, Cambridge, ¶University of Oxford/NHS Blood and Transplant, Oxford, and **Department of Haematology, University of Cambridge/NHS Blood and Transplant, Cambridge, UK

- Laboratory and PAS coding (ICD-10) data on transfused patients in 4 hospitals (DGHx2, Teaching x2)
- 2468 recipients, 4351 transfusion episodes
- 10,961 RBC, 1038 PI, 1966 FFP

Case-Mix Groups	% transfused
Haematology	15
Musculoskeletal	14
Digestive system	12
Cardiac	10



Ten-year pattern of red blood cell use in the North of England

Period under study	199/2000	2004	2009
Total units	9774	9003	8025
Transfusion rate per 1000 inhabitants	42.7		36
Mean age (years)	62.7	63.7	63.2
% Medical Use	52	62	64
% Surgical Use	41	33	30
& Obs & Gynae Use	6	5	6
Not known	1	<1	<1

Tinegate et al. Transfusion 2013 53 483-489

Changes in Surgical RBC Use Blood and Transplant



Tinegate et al. Transfusion 2013 53 483-489



2014 National Survey of Red Cell Use

- Enable hospitals to identify their current use and compare with national data
- Explain continued fall in red cell use
- Identify target specialties, and provide a baseline for Patient Blood Management initiatives
- Provide denominator data for SHOT



2014 National Survey of Red Cell Use

- NHS and private hospitals supplied by NHSBT (n=160)
- Record clinical indication for each unit of red cells transfused for two 7-day periods (24.02.14 and12.05.14)
- Returns could be checked against national red cell issue figures
- Wastage data from Blood Stocks Management Scheme

No of units:	ea	Male Fema		Link no. (for your ref)	-
				OI Wand	
Cardiothoracic Surgery		Vascular Surgery		43. Upper acute	٢
1 CABG (first)		23. Emergency AAA repair		44.Lower acute	Ī
2 CABG (redo)		24. Elective open AAA		45. Upper chronic	Ī
3 Valve replacement (+/- CABG)		repair		46.Lower chronic	[
4 ECMO		25_Qther (please state)		47 Site of bleeding not know	l
5 Congenital Heart Disease					
6 Other (please state)		Orthopaedics		Anaemia due to:	
		26THR (first)		48. Renal failure	
7 ENT		27 THR (redo)		49 Cancer (non haem)	
Gestrointectinal Surgery		28 TKR (first)		50 Iron deficiency.	
Gastrointestinal Surgery	_	29TKR. (redo)		51_B12/folate def	
9. Cestric	님	30 Other (please state)		52 Chronic disorders eg.	
10 Paparantia				52 Critical care not related to	
11 Colorectal				surgery, trauma or	
12 Liver		Plastic surgery		GI blood loss	
13 Other (please state)		31 Maxillo-Facial		54Qther (please state)	
13 Other (please state)		32_Qther, including burns			_
				Haematological	
14. Neurosurgery		Other surgery	_	55.MDS	
(including head injury)		(please state)		56_AML (including APML)	
1 rauma				57 ALL	
15 Biunt	H			58. Myeloma	
10 Penetrating		Obs & Gyn		59 Hodgkins/NHL/CLL	
12 Fractured territor		34Gypae (non malignant)			
19 Other fracture		35Gypae oncology		60. Acquired Haemolytic ana	e
20 Other (please state)		36.Obstetric.anaemia.		61Thalassaemia	
excenter (please state)		37 Obstetric baemorrhage.		62 Sickle cell disease	
21 Urology		Neonatal/fetal		63 Other inherited anaemia	
22 Solid Organ Transplant		38Neonatal top up		64 Myeloproliferative_diseas	R
(State organ)		39. Neonatal exchange		65GML	
(40 Neonatal large volume		bb.Aplastic.anaemia	
		transtusion	_	67 Other (please state)	
		41 Intrauterine transtusion			
		42 Other (please state)	_		
		1			

- Data collection form
- Year of birth and gender
- Number of RBC units
- Medical, Surgical and Obs & Gynae categories
- 67 Disease- or Procedure-Specific subcategories

Participation

- Week 1 (Feb 2014) = 21,683 units
 - 73% usage* for that week
- Week 2 (May 2014) = 24,428units
 - 75% usage* for that week

Total - 46,111 units

Transfusion rate is 31.5 red cells per 1000 individuals (compared to 43 per 1000 in 1999/2000)

*Allowing for 1.5% wastage



Age and gender distribution





Red Cell Usage by Category



Medical Use of Blood

Category	% of total RBCs
Haematology	27.1
GI Bleed	11.7
Non-haematological anaemia	27.4
Neonatal/fetal	1.2
Total Medical	67.4

Highest Use by Surgical Specialty

Procedure	% total RBCs
Fractured femur	2.8
Colorectal	1.8
Valve replacement & CABG	1.7
Primary THR	1.6
Primary CABG	1.5

		C
Specialty	% of total RBCs	5 nt
Cardiothoracic	6.0	
Trauma	4.8	
Orthopaedics	3.9	
Gastrointestinal surgery	3.8	
Vascular surgery	2.4	
Urology	2.0	
Solid organ transplant	1.1	
Neurosurgery	0.6	
ENT	0.4	
Plastic surgery	0.4	
Other	1.3	



Patient Blood Management Initiatives

- Several areas of high blood use are now the subject of Surgical Patient Blood Management initiatives
- •Pre-operative anaemia screening performed in timely manner
- •Application of restrictive transfusion thresholds (where appropriate)
- •Blood conservation methods in surgery
- •Transfuse one unit and reassess in non-bleeding patients

PBM Initiatives: Next Steps

- NHSBT and NBTC Target : Red cell issues 27 per 1000
 population by 2020
- Development of a national clinical benchmarking programme
- Implementation of electronic order comms with decision support
- Introduction of key performance indicators

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