Better Use of Data:
AIM II

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Overview

- Setting the scene:
  - using benchmarking data to support Patient Blood Management

- Potential benefits
  - Both theoretical and some real evidence

- AIMII
  - What is it and what's required

- Where are we with the trial

Patient Blood Management

- Patient blood management (PBM) a strategy that looks to reduce the number of allogeneic transfusions and improve the quality of care to patients
  (Lori Alexander – AABB)

- A multi-threaded approach of which one key step is to understand and measure where blood and products are going

Setting the Scene

Benchmarking

'To improve one's own performance by comparing yourself with and learning from others who have achieved high standards of care' Should be structured, continuous and collaborative with the aim of continuous quality improvement

Apelseth et al 2012 Benchmarking: Applications to Transfusion Medicine ***Transfusion Medicine Reviews*** *in press*

Benchmarking

- Is comparative

  Local level – hospitals within a trust

  Regional level – hospitals within an RTC

  National level

  International level

- Seeks to improve practice

How can we find out how blood is being used?

- By time consuming retrospective studies or prospective audits

ORIGINAL ARTICLE

Changing indications for red cell transfusion from 2000 to 2004
in the North of England

J. P. Wallis,* A. W. Wells† & C. E. Chapman† on behalf of the Northern Regional Transfusion
Committee *Department of Haematology, Freeman Hospital, and †National Blood Service, Barrack Road, Newcastle upo

Received 3 May 2006; accepted for publication 21 July 2006

ORIGINAL ARTICLE

The EASTR Study: indications for transfusion and estim
transfusion recipient numbers in hospitals supplied by th
National Blood Service

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

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Royal College of Physicians
National Comparative Audit
of Blood Transfusion
NHS *Blood and Transplant*

**National Comparative
Audit of the Use of
Fresh Frozen Plasma**

Full Report

February 2009

Royal College of Physicians
National Comparative Audit
of Blood Transfusion
NHS *Blood and Transplant*

**2010 Re-audit of the Use of
Platelets in Haematology**

April 2011

- Or by asking transfusion teams for anecdotal information
- Or by using information produced for recharging cost of blood transfusion to clinical areas

How to access the data

- We know where the data is – Notes,LIMs,PAS

- Patient level transfusion data is needed to determine meaningful and appropriate use.
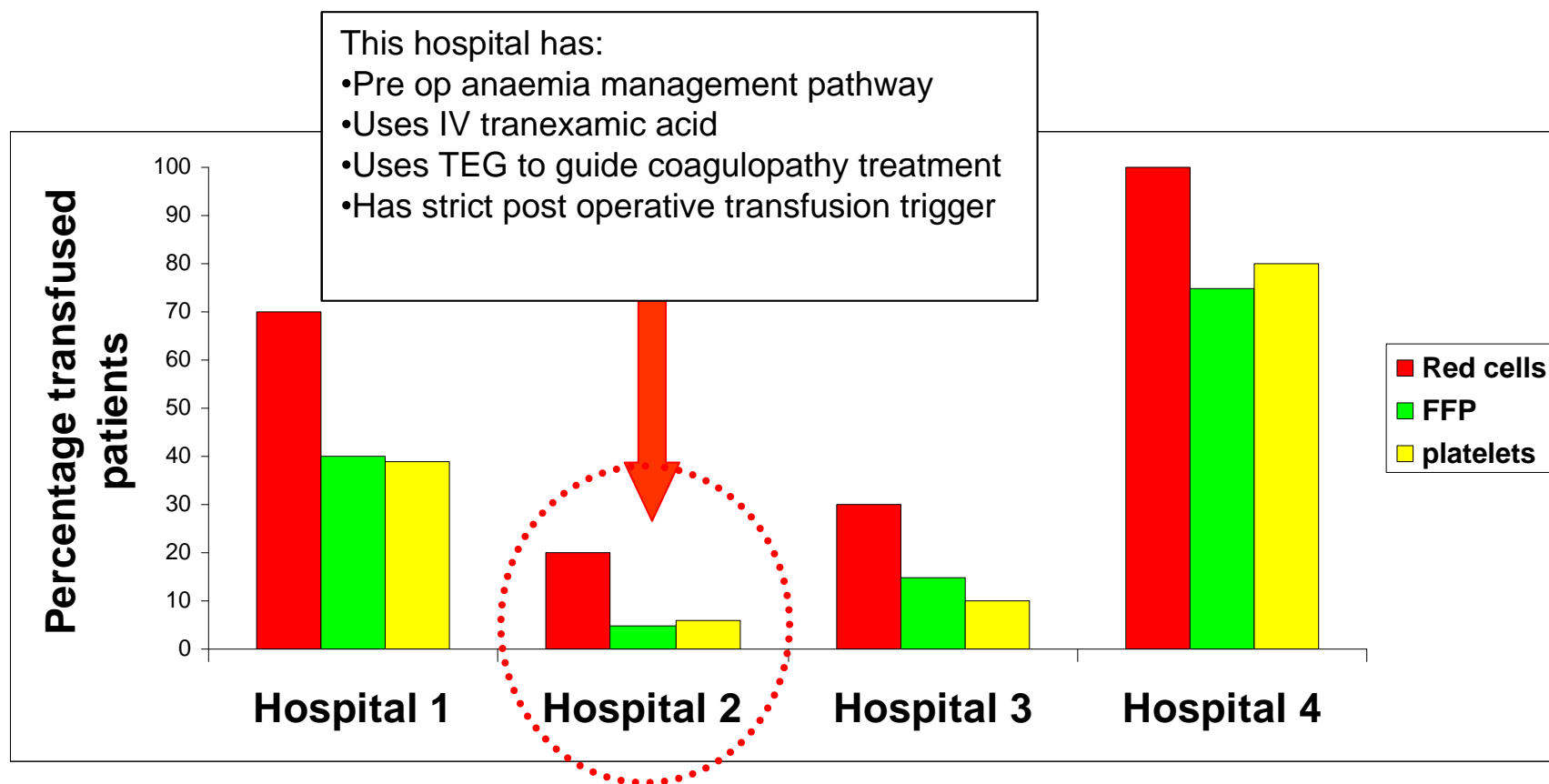
- How to we get at it

It's in there somewhere…

Potentially - What will it Achieve

- Would enable easy comparisons between sites undertaking the same / similar procedures

- Easy availability of such data in a timely fashion should hopefully led to improvements in blood utilisation
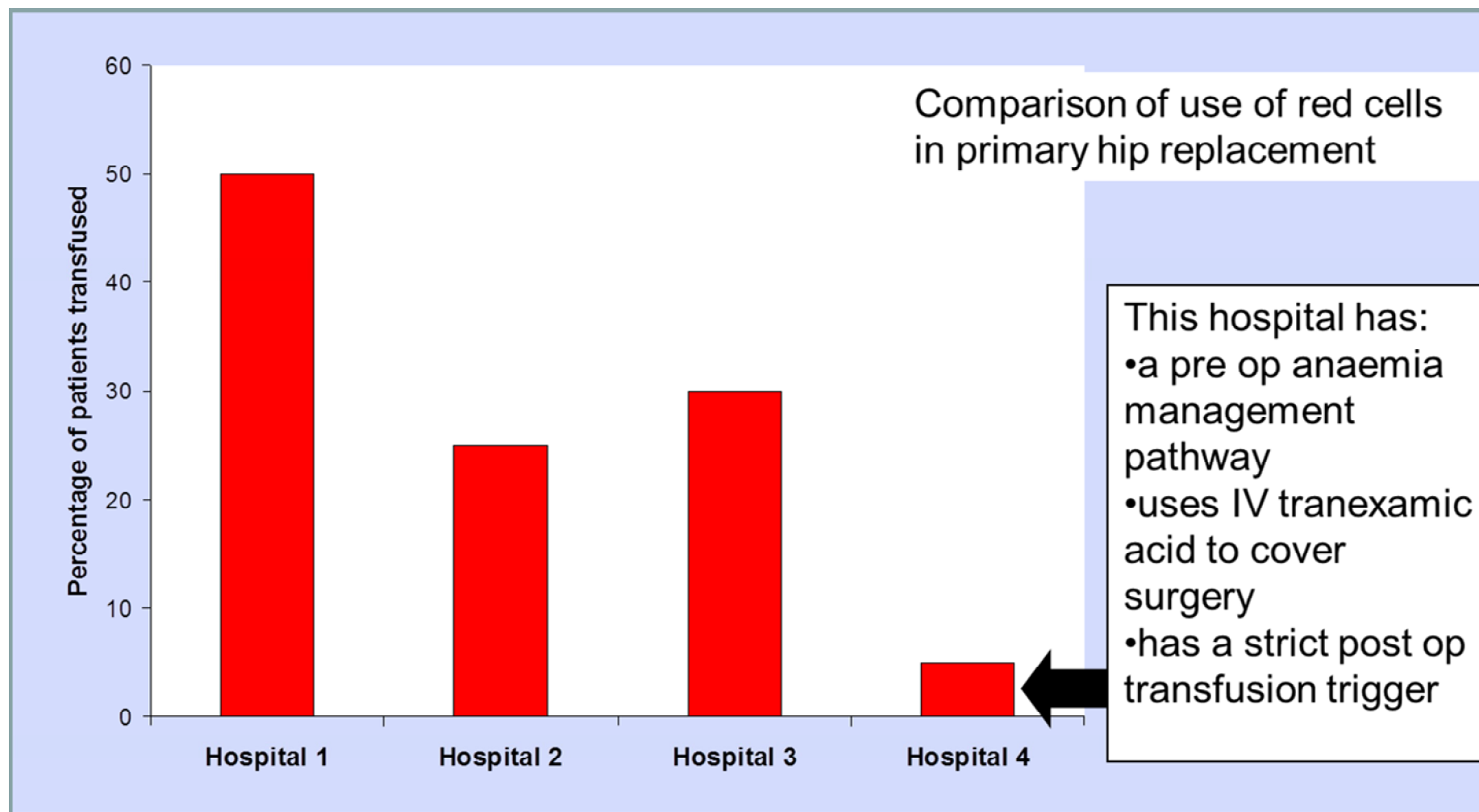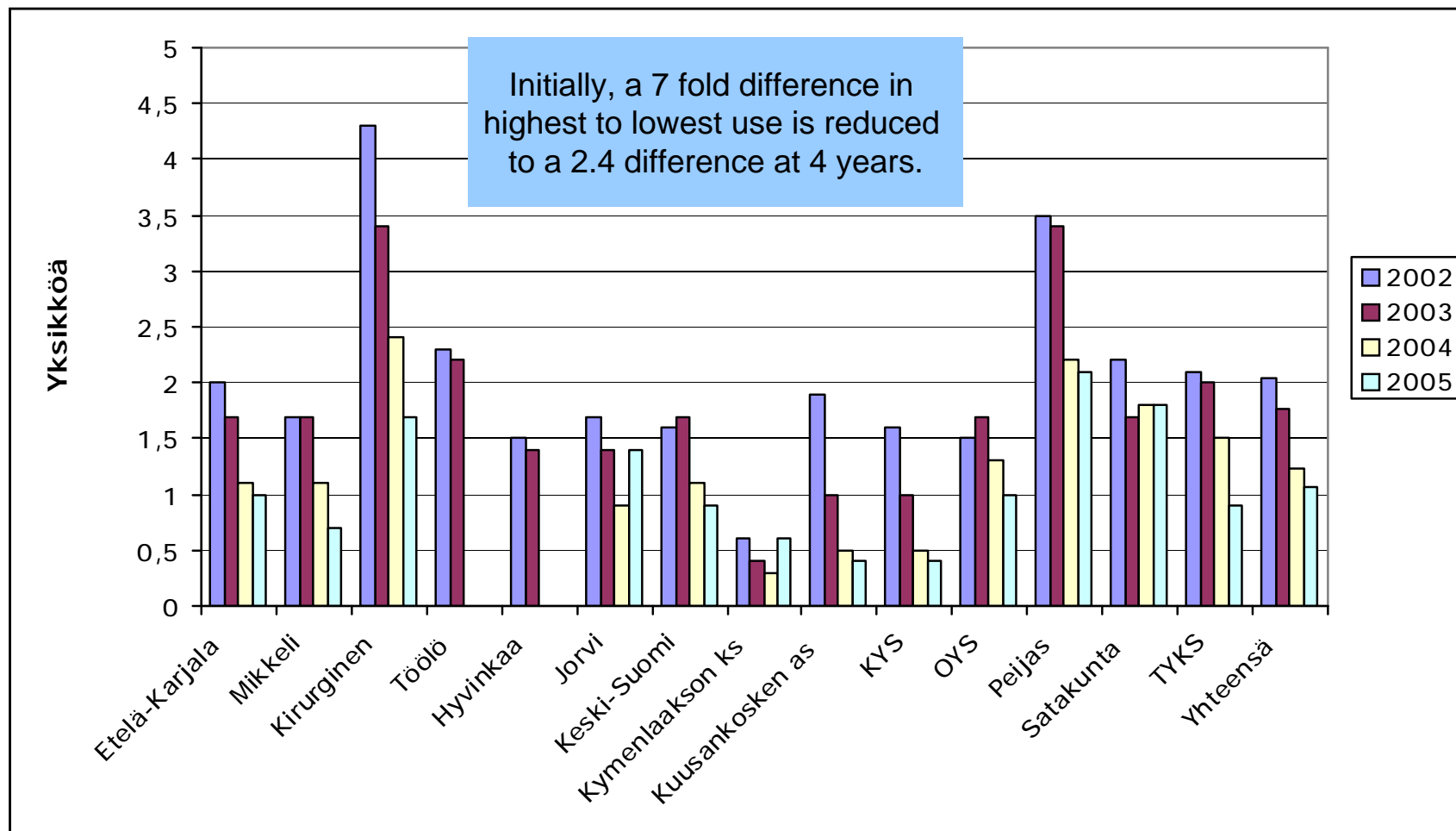
Hypothetical benchmarking

Evidence for Benchmarking

- In practice is there any evidence that benchmarking such as described brings about increased optimisation of blood.

- Work began in Finland in 2002 on a collaboration between the Finnish Red Cross Blood Service and the major Finnish hospitals.

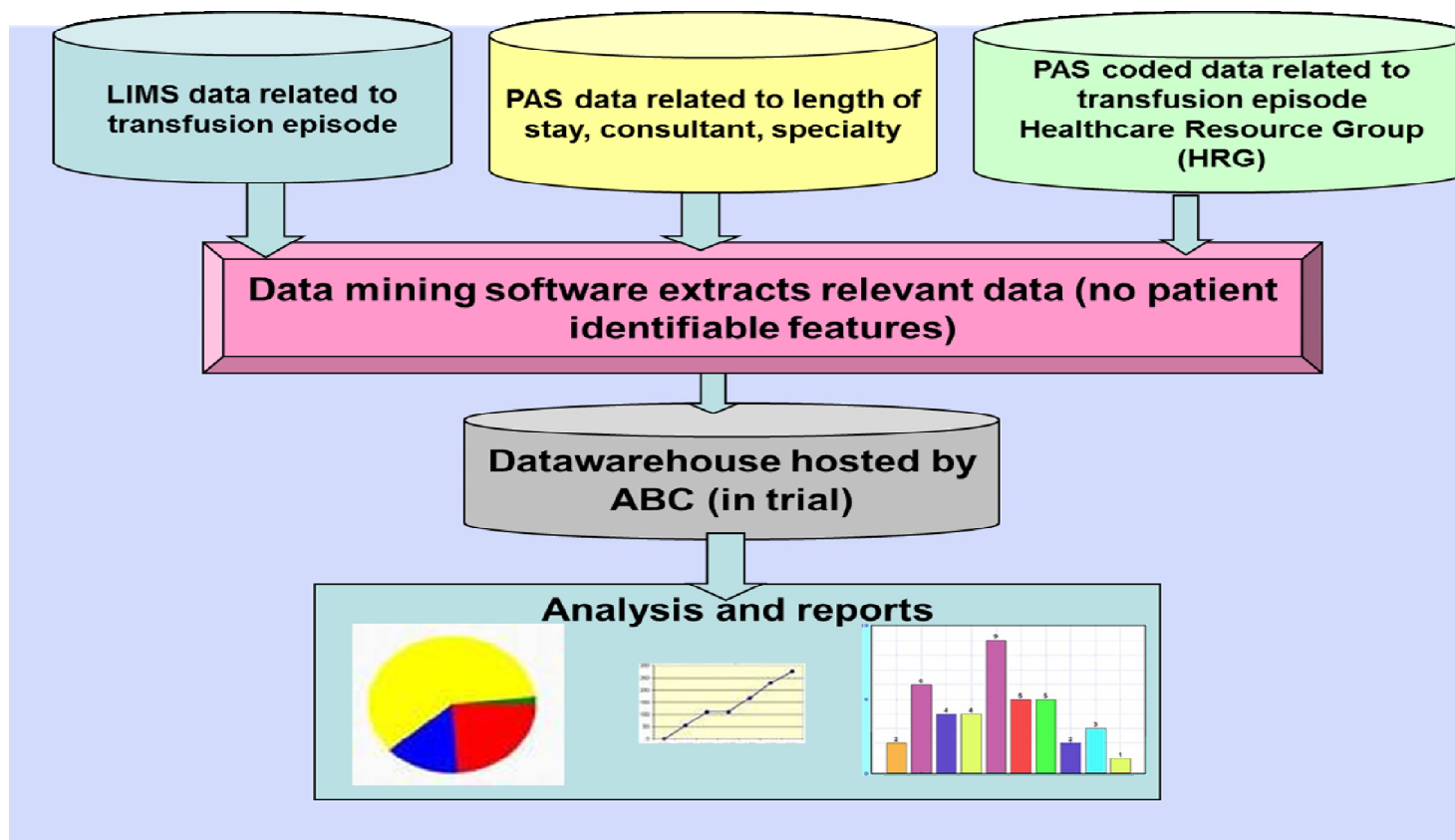- Next slide shows data on RBC usage during primary hip replacement.

Finnish Red Cross
Red cell usage in hip replacement

Initially, a 7 fold difference in highest to lowest use is reduced to a 2.4 difference at 4 years.

Theory into practice

- So how do we get the benefits demonstrated from the experience in Finland.

- AIMII could provide a possible solution (Appropriate Inventory Management module 2) has been developed by ABC to look at the detail of blood utilisation including benchmarking between hospitals

AIM II – Data Mining

Data Elements for Blood Utilization Analysis

- Patient ID (encrypted)
- Date of admission and discharge
- Year of birth
- Gender
- Healthcare Resource Group (HRG)
- Ordering physician
- Directorate
- Mortality Flag
- Transfusion yes or no?

- Date and time of transfusion
- Transfused component
- Donation number
- Product code
- Expiry date

- Pre and post transfusion results

- Adverse events

HRG – Healthcare Resource Group – grouping consisting of patient events that have been judged to consume a similar level of resource

Data Elements - AIMII

- The data will be downloaded and analysed by month, the most recent data will be about 45 days old, since this is the time that Trusts require to complete the coding information recorded in PAS.

- The expiry date will allow for analysis of age of blood at time of transfusion.

- For the trial, the HRG code has been selected since this is the format most similar to the US equivalent used in AIM II: the MS-DRG (Diagnosis – related group).

- Adverse events are not currently recorded in LIMS or PAS systems in UK

Progress with the Trial…(12 months in)

- A one month dataset has been extracted and uploaded by ABC from all four trial sites
- Validation of that uploaded dataset has been done by one site only
  - Two sites are still in talks
  - One site has stalled
- The follow on 24 month dataset collation has yet to be completed.

Challenges

- Time and resource from Blood bank manager, Laboratory and LIMS IT specialists

- Matching the data between LIMS and PAS (easier if there is a data warehousing facility)

- HRG coding is not ideal

Next Steps

- Benchmarking of data between trial sites and internationally (USA, Sanguin)
- Incorporate coded reason for clinical use chosen at time of request by clinician
- Future roll out will depend on the success of the trial and the size of the hurdles to be overcome

Benchmarking List for the AIM II Trial

Primary hip replacement **Revision hip replacement** **Repair fractured hip**	**Variceal upper GI haemorrhage** **Non-variceal upper GI haemorrhage** **Anterior resection** **Oesophagectomy** **Gastrectomy** **Whipples / pancreatectomy** **Nephrectomy** **Cystectomy** **Radical prostatectomy** **Caesarean section elective** **Abdominal aortic aneurysm (open)**
Primary coronary artery bypass grafting **Redo coronary artery bypass grafting** **Coronary artery bypass grafting plus other procedure**	
Paediatrics **Neonatal disorders**	**Haematological malignancy** **Non-malignant haematology**

Transfused Product: 9, Apheresis per HRG Chapter
Platelets, Month of Discharge: Total

America's Blood Centers
It's About Life.

One month data
Platelet Use in 1 UK hospital by HRG Chapter
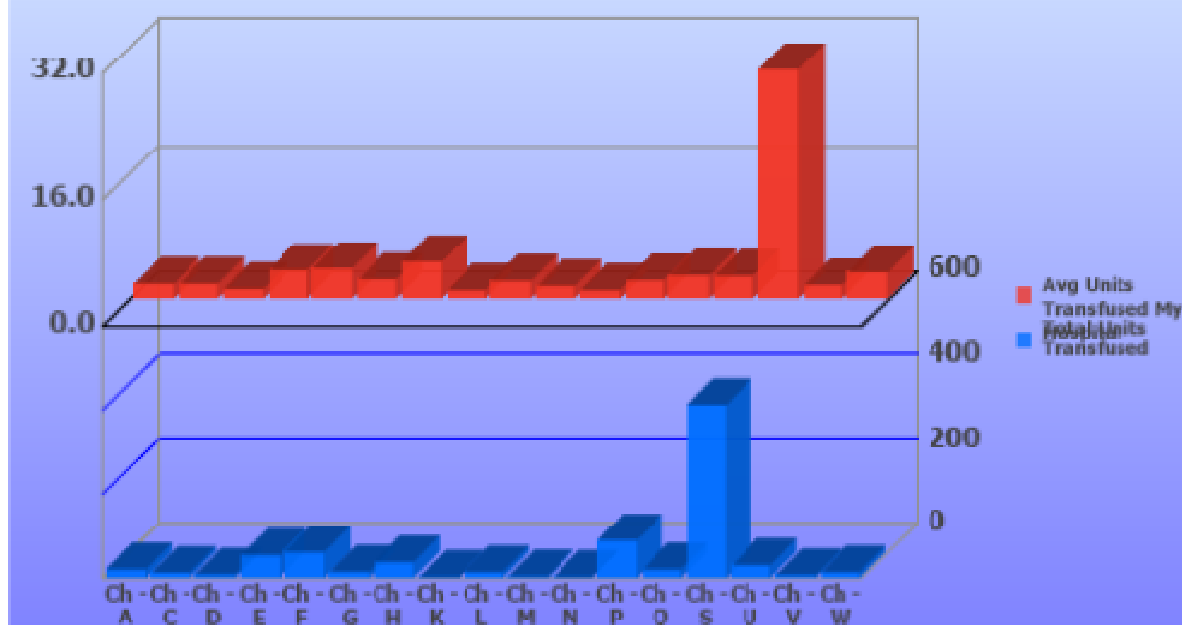
HRG Chapter	Metrics	Avg Units Transfused My Hospital	Total Units Transfused
Ch - A		1.8	20
Ch - C		1.8	11
Ch - D		1.2	7
Ch - E		3.5	53
Ch - F		3.8	61
Ch - G		2.3	14
Ch - H		4.6	37
Ch - K		1.0	1
Ch - L		2.2	13
Ch - M		1.5	3
Ch - N		1.0	1
Ch - P		2.3	89
Ch - Q		2.9	20
Ch - S		2.8	411
Ch - U		29.0	29
Ch - V		1.7	5
Ch - W		3.3	13

1 month's data RBC in hips and knees

Month of Discharge: October 2010
Hospital: XXXX Hospital

Utilization for Knee and Hip HRGs

Legend:
- % Patients My Hospital Not Transfused
- % Patients My Hospital Transfused
- Count of Patients My Hospital - Not Transfused
- Count of Patients My Hospital - Transfused

International Diagnosis	Metrics	Count of Patients My Hospital - Transfused	Count of Patients My Hospital - Not Transfused	% Patients My Hospital Transfused	% Patients My Hospital Not Transfused
HA12B		1	1	50.00%	50.00%
HA12C		0	1	0.00%	100.00%
HA13A		8	14	36.36%	63.64%
HA13B		1	10	9.09%	90.91%
HA13C		0	1	0.00%	100.00%
HB21A		0	3	0.00%	100.00%
HB21B		2	33	5.71%	94.29%
HB21C		0	14	0.00%	100.00%

HA12B:Major Hip Procedures Category 1 for Trauma with CC,

HA12C:Major Hip Procedures Category 1 for Trauma without CC,

HA13A:Intermediate Hip Procedures for Trauma with Major CC

HA13B:Intermediate Hip Procedures for Trauma with Intermediate CC,

HA13C:Intermediate Hip Procedures for Trauma without CC)

HB21A:Major Knee Procedures for non Trauma Category 2 with Major CC,

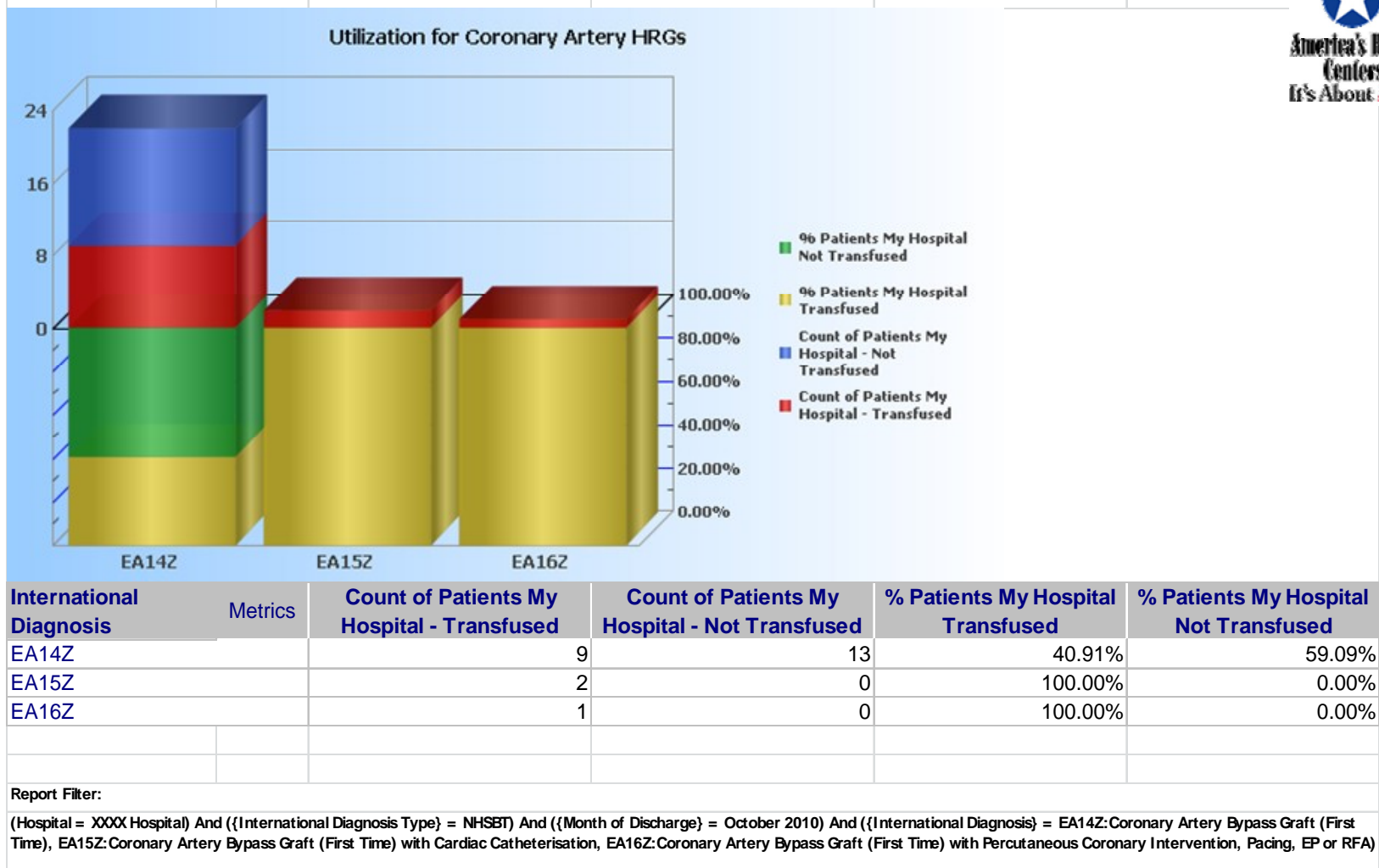HB21B:Major Knee Procedures for non Trauma Category 2 with CC

HB21C:Major Knee Procedures for non Trauma Category 2 without CC

1 month data
RBC Tx CABG in 1 UK hospital

Month of Discharge: October 2010
Hospital: XXXX Hospital

Utilization for Coronary Artery HRGs

International Diagnosis	Metrics	Count of Patients My Hospital - Transfused	Count of Patients My Hospital - Not Transfused	% Patients My Hospital Transfused	% Patients My Hospital Not Transfused
EA14Z		9	13	40.91%	59.09%
EA15Z		2	0	100.00%	0.00%
EA16Z		1	0	100.00%	0.00%

Report Filter:

(Hospital = XXXX Hospital) And ({International Diagnosis Type} = NHSBT) And ({Month of Discharge} = October 2010) And ({International Diagnosis} = EA14Z:Coronary Artery Bypass Graft (First Time), EA15Z:Coronary Artery Bypass Graft (First Time) with Cardiac Catheterisation, EA16Z:Coronary Artery Bypass Graft (First Time) with Percutaneous Coronary Intervention, Pacing, EP or RFA)

To enable participation in national benchmarking scheme

- Electronic order communications with menu-driven coded reason for transfusion request
- Electronic blood tracking (ideal)
- Trust data warehouse
- LIMS system that supports data retrieval appropriately
- Sufficient IT resource in transfusion, haematology and Trust IT
- Buy in from Trust executive team

Acknowledgements

- Transfusion and IT teams from:
    - Oxford University Hospitals NHS Trust
    - University Hospital South Manchester NHS Foundation Trust
    - Newcastle upon Tyne Hospitals NHS Foundation Trust
    - The Dudley Group NHS Foundation Trust

- NHSBT project team

- America's Blood Centers