Service Check: Developing Performance Measures for Hospital Transfusion Services

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I have no conflict of interest with this event because I have no affiliations, sponsorships, honoraria, monetary support or conflict of interest from any commercial source.
Learning objectives

• How can a Transfusion Committee measure the performance of their Transfusion Service?
• Setting appropriate quality indicators, seek quality improvement opportunities and measure performance

Objectives
1. Identify quality indicators that encompass all facets of a hospital transfusion service
2. Explain a Transfusion Committee’s role in a performance management system
3. Develop strategies to link transfusion performance measures to the hospital and National goals and monitoring systems
WHERE DO I COME FROM?
1420 beds
102,000 admissions / year
18,000 transfusion episodes / year
Red cells: 22,198 / year
Platelets: 5868 / year
FFP: 5630 / year

Royal Manchester Childrens Hospital
St Mary’s Hospital (Obstetrics and gynae)
Manchester Royal Infirmary
Eye and Dental Hospitals
Major Trauma Centre
Regional Centre for haematology, transplant surgery, cardiac surgery, vascular surgery, hepatobiliary surgery
Hospital Transfusion Committee

Regional Transfusion Committee

National Blood Transfusion Committee

Manchester Blood Centre
### Survey of Implementation of Better Blood Transfusion 2010

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2006</th>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTC met at least three times/year</td>
<td>98%</td>
<td>99%</td>
<td>97%</td>
<td>97%</td>
<td>94%</td>
</tr>
<tr>
<td>Transfusion practitioner employed</td>
<td>50%</td>
<td>68%</td>
<td>92%</td>
<td>97%</td>
<td>99%</td>
</tr>
<tr>
<td>Consultant with dedicated transfusion sessions</td>
<td></td>
<td></td>
<td></td>
<td>56%</td>
<td>69%</td>
</tr>
</tbody>
</table>
Drivers for Quality Improvement

Challenge #3: Sub-optimal Red Blood Cell Transfusion
"If you cannot measure it, you cannot manage it."
Don Berwick, President and CEO,
Institute for Health Care Improvement
The characteristics of KPIs

SMART

- Specific
- Measurable
- Achievable
- Realistic
- Time
QUALITY INDICATORS FOR BLOOD TRANSFUSION
Quality Indicators for Blood Transfusion – Key Areas

- Management of the Clinical Transfusion Process
- Patient Blood Management
- Inventory Management

- Single institution
- Between institutions
Quality Indicators for Blood Transfusion

- **Structural Indicators**: How well have we organised the process? Eg: presence of policies and guidelines / HTC
- **Process Indicators**: Are we doing well?
- **Outcome indicators**: Do we reach the result required?

- **Audit**: snapshot of performance rather than continuous
Critical Steps in the clinical transfusion process
Quality Indicators for the clinical transfusion process
Pre Transfusion Compatibility testing

• The transfusion request
  – Documented reason for transfusion on request form?
  – Timeliness of request
  – Appropriateness of request according to local guideline
  – Special requirement requesting

• Sample labelling
  – Positive patient ID / labelled at bedside?
  – Specimen rejection rate (zero tolerance)
  – Wrong blood in tube events
  – Ability to identify phlebotomist?

• Laboratory process
  – Turn round times for emergency, urgent, routine
  – Laboratory errors and incidents
SOME EXAMPLES FROM CENTRAL MANCHESTER
Specimen Rejection Rate

median

target

[Graph showing the specimen rejection rate from January 2013 to December 2013 with a median line and a target line.]
Wrong Blood in Tube

Wrong Blood in Tube Incidents
April 2012-June 2013

- Apr-12
- May-12
- Jun-12
- Jul-12
- Aug-12
- Sep-12
- Oct-12
- Nov-12
- Dec-12
- Jan-13
- Feb-13
- Mar-13
- Apr-13
- May-13
- Jun-13
An audit of blood sampling procedures against guidelines for safe practice in blood transfusion

June 2013
Blood Delivery Times (Sodexo)

Proportion of Blood Deliveries completed within target time

- Routine
- Urgent

% < 40 mins
% < 20 mins

Graph shows the proportion of blood deliveries completed within target times from November 2011 to October 2013.
Crossmatch turnaround time (TRT) audit

Grade 1 Major life threatening haemorrhage (target time 45 minutes)
Grade 2 Emergency Theatre / severe anaemia (target time 60 minutes)
Grade 3 Moderate haemorrhage /Anaemia (target time 120 minutes)
Grade 4 Planned procedure / planned transfusion (next day /time on request if noted)
Urgent / routine requests according to grading classification
XM duration

Grade 1 XM

Grade 2 XM

Grade 3 XM
TRT for Major Haemorrhage Activations 2012

<table>
<thead>
<tr>
<th></th>
<th>Group Specific RBC</th>
<th>FFP allocated</th>
<th>Plts allocated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Specific red cells</td>
<td>Median (IQR)</td>
<td>Median time (mins)</td>
<td>Median time (mins)</td>
</tr>
<tr>
<td></td>
<td>Median time (mins)</td>
<td>7 mins (5-14)</td>
<td>31 mins (24-41)</td>
</tr>
<tr>
<td></td>
<td>(mins)</td>
<td>10 mins (5-20)</td>
<td>31 mins (24-41)</td>
</tr>
</tbody>
</table>
Quality Indicators for the clinical transfusion process

Blood component collection and administration

- Positive patient ID at collection and administration
- Correct transfusion rate
- Correct observations and monitoring
- Traceability
- Major haemorrhage management
Bedside audit
Dear colleague,

The Blood Safety and Conservation Team have made an assessment of your recorded activity and training records against minimum requirements set out in the National Patient Safety Agency’s Safer Practice Notice No. 14 ‘Right Patient, Right Blood,’ and the OUH trust’s mandatory training and competency framework.

<table>
<thead>
<tr>
<th>Minimum Standard</th>
<th>Activity Recorded</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SafeTx ‘Begin Transfusion’ function successfully completed in the assessment period</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>2 Observation of the patient within 30 minutes (best practice = 15 minutes)</td>
<td>12</td>
<td>100%</td>
</tr>
<tr>
<td>3 SafeTx ‘End Transfusion’ function successfully completed within 4.5 hours</td>
<td>11</td>
<td>92%</td>
</tr>
<tr>
<td>4 Module 1 ‘Safe Transfusion Practice’ (E learning course) passed within the last three years</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>5 Module 2 ‘Blood Components and Indications for Use’ (E learning course) passed within the last three years</td>
<td>Yes</td>
<td>Date Passed: 24/01/2012</td>
</tr>
</tbody>
</table>

Next steps:
- If standards 4 or 5 are not met, please complete the required assessments within the next 30 days (type ‘learnbloodtransfusion’ into Google for the eLearning site or follow the link in the eLMS site).
- Standards 2 and 3 should become part of routine practice. If your score is low, remember—every transfusion you do counts towards these assessments.
- Repeat the eLearning assessments every three years.
- Never perform checks away from the patient’s side.

If you have any queries, please contact us via phone, email or internal post using the details above. You can also visit our intranet site on OUHi for more Information (A-Z of sites / Blood Transfusion).

Yours Sincerely

Edward Fraser, Advanced Nurse Practitioner – Blood Transfusion
Blood Transfusion Assessment of Competency

Ward Report

Dear colleague,

The Blood Safety and Conservation Team have assessed your ward’s recorded activity and training records against minimum requirements set out in the National Patient Safety Agency’s Safer Practice Notice No. 14 ‘Right Patient, Right Blood,’ and the OUH trust’s mandatory training and competency framework.

We have created an individual record of achievement for each individual staff member, which has been mailed directly. Below is a summary of results for your area.

Number of staff assessed for safe administration of blood components: 16

<table>
<thead>
<tr>
<th>Standard</th>
<th>Activity Recorded</th>
<th>Further Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SafeTx ‘Begin Transfusion’ function successfully completed in the assessment period</td>
<td>107</td>
<td>Date of Assessment: 22/10/2013</td>
</tr>
<tr>
<td>2 Observation of the patient recorded on SafeTx within 30 minutes (best practice = 15 minutes)</td>
<td>61</td>
<td>57%</td>
</tr>
<tr>
<td>3 SafeTx ‘End Transfusion’ function successfully completed within 4.5 hours</td>
<td>97</td>
<td>91%</td>
</tr>
<tr>
<td>4 Module 1 ‘Safe Transfusion Practice’ (eLearning course) passed within the last three years</td>
<td>18</td>
<td>100% of staff who administer transfusions</td>
</tr>
<tr>
<td>5 Module 2 ‘Blood Components and Indications for Use’ (eLearning course) passed within the last three years</td>
<td>16</td>
<td>100% of staff who administer transfusions</td>
</tr>
</tbody>
</table>

Risk Profile – Additional Data (Jan-Oct 2013):

Blood components transfused in your area with no SafeTx checks: none

Wrong blood near miss incidents: none
Key performance indicators in the management of major haemorrhage
Transfusion Incidents and errors

- Serious adverse events
- Serious adverse reactions
- Trust incident management system
  - Reporting
  - Investigation
  - CAPA
- Central reporting to SHOT and MHRA

Gran dies after being given wrong blood type
A great-grandmother died after being given the wrong type of blood during a hospital transfusion. Margaret Davies, 67, was given type A instead of type O when her case notes are believed to have been mixed up with those of another patient with the same name.

Killed by a needless blood transfusion
Judy Kenny, whose husband was the first to die from vCJD contracted via a blood transfusion, is campaigning for tighter controls over the procedure.
Transfusion Incidents Reported 2013

- NHSBT - Incorrect Blood Supplied
- NHSBT - Recall Service
- Incorrect Blood/Component
- Missed Special Blood Requirements
- Failure To Complete BT Prescription
- Incorrect Transportation (Internal)
- Blood Traceability
- Inappropriate Transfusion
- Incorrect Storage Blood/components
- Anti-D Missed Administration
- Transfusion Labelling Error
- Delays In Availability
- Reaction To Blood Component
Types of Incident

Level 4 incidents (major)

- Transfusion sampling error: 89
- Transfusion labelling error: 26
- Missed special requirement: 14
- Inappropriate transfusion: 0
- Delay in administration: 0
- Missed anti D: 85
Reporting to SHOT and MHRA

15 incidents reported to SHOT in 2013
- 8 anti D errors
- 4 Wrong Blood in Tube
- 1 wrong dose prescribed to baby
- 1 labels transposed by lab (right patient)
- 1 wrong infusion rate
- 1 transfusion reaction
- 1 previously uncategorised complication
- 2 of these were reported as an SAE to MHRA
Anti D Incident run chart

Number of anti D incidents per 1000 anti D issues

Each Incident undergoes root cause analysis

**CAPA:**
- Survey of knowledge
- Introduction of e-learning
- Introduction of check list

PATIENT BLOOD MANAGEMENT
Blood Component issues by month
Dec 2012-Dec 2013
Red cell use by specialty Apr 2012- Dec 2013
Patient Blood Management in orthopaedic surgery

Orthopaedic procedures Aug 2012-July 2013

30% anaemic

% transfused
% anaemic patients transfused
# PBM in orthopaedic surgery- QI project

<table>
<thead>
<tr>
<th>Aim: To reduce transfusion rates in elective orthopaedic surgery at CMFT by 30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>By December 2014</td>
</tr>
</tbody>
</table>

### Preoperative anaemia identification and management
- Cell salvage where appropriate
- Use of tranexamic acid where appropriate
- Restrictive post operative transfusion trigger

### Data收集
- Cases where cell salvage undertaken/cases where cell salvage appropriate
- Cases where tranexamic acid given/ cases where tranexamic acid appropriate
- Hb at clinic, Hb on day of surgery, Hb pre transfusion, Hb on day 1 postop
- Number of cases with reversible anaemia pre op
- Number of cases with reversible anaemia on day of surgery
- Amount of blood transfused (number of units & % transfusion rate for each type of procedure / by sex)
- Length of stay
- Complications
- Hb at discharge
- Drug costs / cell salvage costs
- Anaesthetist / surgeon for each case
- Type of procedure and estimated blood loss
North West RTC
Audit of Platelet Use
Information collected on 452 platelet transfusion episodes Sept 2013
Inventory management

- Blood issues
- Wastage rates
- Reasons for wastage
- Benchmarking against other similar sites
### M103  Central Manchester Foundation Trust

<table>
<thead>
<tr>
<th>Current Quarter</th>
<th>Total Issues</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14 Q2</td>
<td>1,390</td>
<td>-1.7%</td>
</tr>
</tbody>
</table>

For more report information and explanation visit our website: [www.bloodstocks.co.uk/Report Surveys/Top Level Reports](http://www.bloodstocks.co.uk/Report Surveys/Top Level Reports)

### Issues for Average Hospital - PLT Usage - Very High

<table>
<thead>
<tr>
<th>Current Quarter</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14 Q2</td>
<td>-2.2%</td>
</tr>
</tbody>
</table>

### Wastage Quartiles for Hospitals PLT Usage - Very High

<table>
<thead>
<tr>
<th>Total Limits</th>
<th>Total WAPI</th>
<th>Number of Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 13</td>
<td>&lt;= 1.81%</td>
<td>38 % Entering Data</td>
</tr>
<tr>
<td>&gt; 13 &lt;= 40</td>
<td>&gt; 1.81% &lt;= 4.56%</td>
<td>92.1%</td>
</tr>
<tr>
<td>&gt; 40</td>
<td>&gt; 4.56%</td>
<td></td>
</tr>
</tbody>
</table>

### Wastage for Average Hospital: PLT Usage - Very High

<table>
<thead>
<tr>
<th>Current Quarter</th>
<th>Wastage Reason</th>
<th>All PLT's</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14 Q2</td>
<td>Medically Ordered NOT Used</td>
<td>16</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>Surgically Ordered NOT Used</td>
<td>6</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>STOCK Platelet Time Expiry</td>
<td>7</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>Wasted Outside of Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>Wasted Import</td>
<td>0</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>Miscellaneous</td>
<td>1</td>
</tr>
<tr>
<td>Current Quarter Total Wastage</td>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

Only wastage data entered before 30/12/2013 is included in this report

<table>
<thead>
<tr>
<th>Current Quarter</th>
<th>Wastage Reason</th>
<th>All PLT's</th>
<th>Wastage Entries</th>
<th>All PLT WAPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14 Q2</td>
<td>Medically Ordered NOT Used</td>
<td>52</td>
<td>92</td>
<td>3.74%</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>Surgically Ordered NOT Used</td>
<td>1</td>
<td>92</td>
<td>0.07%</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>STOCK Platelet Time Expiry</td>
<td>25</td>
<td>92</td>
<td>1.89%</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>Wasted Outside of Laboratory</td>
<td>9</td>
<td>92</td>
<td>0.65%</td>
</tr>
<tr>
<td>Current Quarter Total Wastage</td>
<td></td>
<td>88</td>
<td>Total % WAPI</td>
<td>6.33%</td>
</tr>
</tbody>
</table>

### Issues Quarter

<table>
<thead>
<tr>
<th>Issues Quarter</th>
<th>Total Units Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/13 Q2</td>
<td>1,400</td>
</tr>
<tr>
<td>2012/13 Q3</td>
<td>1,450</td>
</tr>
<tr>
<td>2012/13 Q4</td>
<td>1,400</td>
</tr>
<tr>
<td>2013/14 Q1</td>
<td>1,400</td>
</tr>
<tr>
<td>2013/14 Q2</td>
<td>1,400</td>
</tr>
</tbody>
</table>

### Wastage Quarter

<table>
<thead>
<tr>
<th>Wastage Reason</th>
<th>Total Units Wasted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wt</td>
<td>20</td>
</tr>
<tr>
<td>WOL</td>
<td>2</td>
</tr>
<tr>
<td>SONU</td>
<td>3</td>
</tr>
<tr>
<td>MONU</td>
<td>5</td>
</tr>
<tr>
<td>MISC</td>
<td>1</td>
</tr>
<tr>
<td>Timex</td>
<td>2</td>
</tr>
</tbody>
</table>
International Quality Management

- Scotland
- USA
- Australia
Scotland: Account for Blood

The ISD data mart ACaDMe (Acute Cancer Deaths and Mental Health) contains the linked inpatient and day case, mental health, cancer registration and death records.

Acknowledgements:
Dr Karen Baillie Clinical lead karen.bailie@nhs.net and Sandra Gray Programme lead Alexandra.gray@nhs.net
Account for Blood

Hospital Blood Bank Inventory
• What, where, when?
• Components booked into stock
• Characteristics of those components
• Transactions between components and patients
• Stock levels
• Fate of components

Clinical context of transfusion
• Who, what, where, when?
• The transfused population
• Demographics, blood group
• Clinical groups
• Procedures, Diagnoses
• Survival
• Practice variation
• By location, Over time
Example of annual Surgical overview report

B. % Procedures transfused for SOUTHERN GENERAL HOSPITAL top 10 red cell-using procedures compared to Hospital Type

2010/2011

2011/2012
Scotland

Scottish Clinical Transfusion Advisory Committee will review the scores for each Board on a quarterly basis. The aim is to share practices where Boards are showing strong performance and to support Boards where performance is poor or below the average score for NHS Scotland.

<table>
<thead>
<tr>
<th>Indicators*</th>
<th>Low Score</th>
<th>Mid Score</th>
<th>High Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 - 14</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Wrong Blood in Tube (Near Miss) Events per 10,000 Samples processed</td>
<td>&gt;1.2</td>
<td>0.7 – 1.2</td>
<td>&lt;0.7</td>
</tr>
<tr>
<td>% Samples Rejected (Zero tolerance)</td>
<td>&gt;4%</td>
<td>2.5-4%</td>
<td>&lt;2.5%</td>
</tr>
<tr>
<td>Components Losses: Platelets</td>
<td>&gt;20%</td>
<td>12 – 20%</td>
<td>&lt;12%</td>
</tr>
<tr>
<td>% of O negative RBCs Cross Grouped</td>
<td>&gt;35%</td>
<td>25-35%</td>
<td>&lt;25%</td>
</tr>
<tr>
<td>Competent Practitioner</td>
<td>&lt;69% of staff completed Module 1</td>
<td>70-89% of staff completed Module 1</td>
<td>&gt;90% of staff completed Module 1</td>
</tr>
</tbody>
</table>

For each indicator*:
0 should correspond to the worst or lowest level performance; 2 should correspond with the desired or optimal level performance; 1 should correspond to the midpoint.
USA

The Joint Commission Patient Blood Management Performance Measures (USA)

- **PBM-01** Transfusion Consent
- **PBM-02** RBC Transfusion Indication
- **PBM-03** Plasma Transfusion Indication
- **PBM-04** Platelet Transfusion Indication
- **PBM-05** Blood Administration Documentation
- **PBM-06** Preoperative Anemia Screening
- **PBM-07** Preoperative Blood Type Testing and Antibody Screening
Standard 7 Blood and Blood Products

• Governance and systems for prescribing and clinical use
• Documenting patient information
• Managing blood and blood product safely
PROGRESS WITH CLINICAL BENCHMARKING IN ENGLAND
Resources for Transfusion QI

Survey of 150 Trusts in England and North Wales Sept 2013
Capturing the data

Survey of 150 Trusts in England and North Wales Sept 2013
KPIs in development in England

• Measure of single unit transfusions

• Proportion of red cell, platelet and plasma units with pre transfusion lab tests and clinical indication documented

• Proportion of patients undergoing major blood loss surgery where pre operative anaemia screening was performed at least 2 weeks before surgery

• Transfusion rates for key operations eg: primary CABG, primary hip replacement, AAA repair (red cells, FFP, plts)

• Proportion of patients undergoing surgery (eg: AAA, CABG) where intra operative cell salvage and tranexamic acid were used

• Timely supply of component (massive haemorrhage)

• Proportion of clinical staff trained in blood ordering

• Proportion of transfusion requests where patient has given valid consent
The Transfusion Dataset 1 - data from the transfusion request (Fields to collect these data need to be present in the lab system (LIMS))

<table>
<thead>
<tr>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordering physician (or consultant responsible for care) &amp; directorate</td>
</tr>
<tr>
<td>Patient identifier (NHS number)</td>
</tr>
<tr>
<td>Year of birth and gender</td>
</tr>
<tr>
<td>Clinical reason for blood use:</td>
</tr>
<tr>
<td>National Indication Code</td>
</tr>
<tr>
<td>Patient consent documented?</td>
</tr>
</tbody>
</table>

Should there be a standardised request form (paper/electronic)?
The Transfusion Dataset 2
Data held in the laboratory system

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfusion: yes or no</td>
</tr>
<tr>
<td>Date and time of transfusion</td>
</tr>
<tr>
<td>Transfused component (ISBT 128)</td>
</tr>
<tr>
<td>Donation number, blood group and expiry date blood group</td>
</tr>
<tr>
<td>Number of units transfused</td>
</tr>
<tr>
<td>Pre and post transfusion lab test (Hb, Plt count, fibrinogen, PT, APTT)</td>
</tr>
<tr>
<td>Pre op Hb, discharge Hb</td>
</tr>
</tbody>
</table>
## The Transfusion Dataset 3
Data held in the PAS system

<table>
<thead>
<tr>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of admission and discharge / death</td>
</tr>
<tr>
<td>ICD10 code (diagnostic code):</td>
</tr>
<tr>
<td>OPCS 4 (procedure) code:</td>
</tr>
<tr>
<td>Mortality Flag</td>
</tr>
<tr>
<td>Date of procedure (surgical)</td>
</tr>
</tbody>
</table>
The Transfusion Dataset 4
Desirable data – may be difficult to find

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse event?</td>
</tr>
<tr>
<td>What about near patient tests? : TEG/ROTEM, Hb etc</td>
</tr>
<tr>
<td>Cell salvage used?</td>
</tr>
<tr>
<td>Volume of salvaged red cells returned</td>
</tr>
<tr>
<td>Tranexamic prescription in surgery?</td>
</tr>
<tr>
<td>Was the prescriber trained in appropriate blood ordering?</td>
</tr>
<tr>
<td>Was the patient consented?</td>
</tr>
</tbody>
</table>
LIMS data related to transfusion episode

PAS data related to length of stay, consultant, specialty

PAS coded data related to transfusion episode Healthcare Resource Group (HRG)

Data mining software extracts relevant data: data linkage (HSCIC)

Data warehouse hosted by blood service

Analysis and reports
Using the data to achieve improvement

• Benchmarking of data
• Comparison within Trusts at clinician level / by indication
• Comparison between trusts at specialty / by procedure / by indication
• The development of run charts to show achievement of goals
3 models of benchmarking

Model I
National / Regional
- Collect and link data from existing electronic sources
- Identify indicators if interest
- Central coordinator
  - Communication between organisations
- Controls information flow
- Workshops to explore practice variation
- Gold standard
- Examples; Finland, Scotland (Account for Blood), Australia

Model 2
Sentinel Site
- Limited number of sites
- Indicators identified in cooperation
- Each site report data into central database
- Central Coordinator analyses data and produces reports
- Workshops to explore practice variation
- Reduced cost compared to model 1

Model 3
Single Institution
- Individual institution identifies indicators of interest
- Institution collects and analyses data
- Participants meet to identify reasons for differences
- Allows for local improvements

Implement changes and reevaluate

Apelseth et al 2012 Benchmarking: Applications to Transfusion Medicine Transfusion Medicine Reviews
EXAMPLES FROM THE LITERATURE – SINGLE INSTITUTION BENCHMARKING
A data driven approach to patient blood management

Claudia Cohn et al Transfusion 2014 Volume 54 316-322

Two-unit RBC orders by providers in a selected service.
A novel method of data analysis for utilization of red blood cell transfusion

Steven Frank et al. Transfusion 2013 53 3052-3059
A pragmatic approach to embedding patient blood management in a tertiary hospital

Michael Leahy et al Transfusion 2013  published on line 8 AUG 2013 DOI: 10.1111/trf.12362
CONCLUSIONS
Implementing performance management

• The gold standard would be to develop a central mechanism for data collection and analysis
• Provide information on blood utilisation / wastage for blood services and adherence to Transfusion KPIs for individual institutions (down to clinician level)
• Support benchmarking of practice between similar institutions
• Other systems need to be developed in the absence of a comprehensive IT solution (quick, easy & cheap)
• Agree a set of KPIs with a standardised score according to performance NB most transfusion teams in UK are not well supported by admin / IT / data analyst staff
DRAFT SCORECARDS FOR DISCUSSION
## Scorecard for discussion

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Low Score</th>
<th>Mid Score</th>
<th>High Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wrong Blood in Tube Event per 10,000 samples processed</strong></td>
<td>&gt;1.2</td>
<td>0.7-1.2</td>
<td>&lt;0.7</td>
</tr>
<tr>
<td><strong>% samples rejected (zero tolerance)</strong></td>
<td>&gt;4%</td>
<td>2.5-4%</td>
<td>&lt;2.5%</td>
</tr>
<tr>
<td><strong>Traceability of blood components (final fate confirmed in LIMS)</strong></td>
<td>&lt;80%</td>
<td>80-95%</td>
<td>&gt;95%</td>
</tr>
<tr>
<td><strong>XM TRT for emergency transfusion (grade 1)</strong></td>
<td>&gt;60 mins</td>
<td>45-60 mins</td>
<td>&lt;45 mins</td>
</tr>
<tr>
<td><strong>Anti D immunoglobulin incidents / 1000 issues anti D</strong></td>
<td>&gt;3</td>
<td>1-3</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Platelet WAPI</strong></td>
<td>&gt;4.6%</td>
<td>1.8%-4.6%</td>
<td>&lt;1.8%</td>
</tr>
<tr>
<td><strong>ABO WAPI</strong></td>
<td>&gt;2.6%</td>
<td>1.1%-2.6%</td>
<td>&lt;1.1%</td>
</tr>
<tr>
<td><strong>O Neg WAPI</strong></td>
<td>&gt;4.6%</td>
<td>1.6%-4.6%</td>
<td>&lt;1.6%</td>
</tr>
<tr>
<td><strong>% O Neg of issues</strong></td>
<td>&gt;12%</td>
<td>10%-12%</td>
<td>&lt;10%</td>
</tr>
</tbody>
</table>

*WAPI  Wastage as percentage of issue  With thanks to SNBTS – K Bailie & A Gray
## PBM scorecard

<table>
<thead>
<tr>
<th>Indicator</th>
<th>High Score</th>
<th>Mid Score</th>
<th>Low Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>% RBC transfusion where pre Tx Hb &gt;100g/L (in stable non-bleeding patient)</td>
<td>&lt;2%</td>
<td>2-3.5%</td>
<td>&gt;3.5%</td>
</tr>
<tr>
<td>% Platelet transfusion where plt count &gt; 10 (for prophylaxis, no procedure)</td>
<td>&lt;5%</td>
<td>5-15%</td>
<td>&gt;15%</td>
</tr>
<tr>
<td>% single unit RBC transfusions</td>
<td>&gt;30%</td>
<td>15-30%</td>
<td>&lt;15%</td>
</tr>
<tr>
<td>% double unit platelet transfusions in haematology patients</td>
<td>&lt;5%</td>
<td>5-8%</td>
<td>&gt;8%</td>
</tr>
<tr>
<td>% transfusions with pre transfusion lab test and clinical indication documented</td>
<td>&gt;98%</td>
<td>90-98%</td>
<td>&lt;90%</td>
</tr>
<tr>
<td>% FFP transfusions given with no documentation of bleeding (TTP excluded)</td>
<td>&lt;5%</td>
<td>5-15%</td>
<td>&gt;15%</td>
</tr>
</tbody>
</table>
ANY QUESTIONS?