Highlights from the 2005 SHOT Report

SHOT/NBTC Annual Update Meeting
20th November 2006
A decade of haemovigilance

• 9 Annual Reports
• 10 years of cumulative data
• Blood Safety and Quality Regulations
• SABRE
• Collaboration with NPSA
• Review of progress
Continued increase in reports

- 609 cases
  - +1 vCJD transmission
  - 9% increase in IBCT
- Reported by 54% of hospitals
- 69% reported an event or near miss
- Is there still under-reporting?
Participation

- 95% of NHS Trusts ‘participate’
  - BBT2 survey
- 69% of hospitals reported in 2005
  - event or near miss
- 124 non-reporters
  - 8 high or moderate users
  - 67 low users
  - 49 no BSMS data
Benchmarking

- Feedback on 3 years participation data
- Comparison with BSMS data
- Benchmark against similar hospitals
- Look at factors affecting reporting

Incidents reported by hospitals

<table>
<thead>
<tr>
<th>x1</th>
<th>x2</th>
<th>x3</th>
<th>x4</th>
<th>x5</th>
<th>x6</th>
<th>x7</th>
<th>x8</th>
<th>x10</th>
<th>x13</th>
<th>x15</th>
<th>x16</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>50</td>
<td>34</td>
<td>24</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Mortality and morbidity 2005

- 5 transfusion related deaths
  - 1 ABO incompatible red cell transfusion
  - 1 over-transfusion
  - 1 anaphylactic reaction to FFP
  - 2 TRALI
- 30 major morbidity (all categories)
- 574 minor or no morbidity
  - includes 481 ‘no harm’ IBCT events
Breakdown of reports 2005

- ATR: 68
- DTR: 28
- PTP: 2
- TRALI: 23
- TTI: 3
- IBCT: 485
Incorrect blood component transfused (n=485)

<table>
<thead>
<tr>
<th>Type of event</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Wrong blood’ events</td>
<td>87 (18%)</td>
</tr>
<tr>
<td>Other pre-transfusion testing errors</td>
<td>22 (4.5%)</td>
</tr>
<tr>
<td>Blood of wrong group to recipients of ABO mismatched stem cell transplant</td>
<td>2 (0.5%)</td>
</tr>
<tr>
<td>Failure to meet special requirements</td>
<td>141 (29%)</td>
</tr>
<tr>
<td>Inappropriate or unnecessary transfusions</td>
<td>67 (14)</td>
</tr>
<tr>
<td>‘Unsafe’ transfusions (handling/storage errors)</td>
<td>79 (16%)</td>
</tr>
<tr>
<td>Events relating to anti-D Ig</td>
<td>87 (18%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>485</strong></td>
</tr>
</tbody>
</table>
‘Wrong blood’ events (n = 87)

- Highest risk group
- 115 separate errors
  - 4 (5%) sampling errors
  - 38 (43%) laboratory errors
  - 23 (26%) blood collection errors
  - 50 (53%) bedside errors
ABO incompatible transfusions

The columns show numbers of IBCT cases reported each year.
The line shows numbers of these cases which were ABO incompatible red cell transfusions.
Failure to provide special requirements (n=141)

<table>
<thead>
<tr>
<th>Special requirement</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irradiated components</td>
<td>89</td>
</tr>
<tr>
<td>CMV seronegative components</td>
<td>6</td>
</tr>
<tr>
<td>CMV seronegative + irradiated components</td>
<td>16</td>
</tr>
<tr>
<td>Antigen negative red cells</td>
<td>20</td>
</tr>
<tr>
<td>Antigen negative + irradiated red cells</td>
<td>1</td>
</tr>
<tr>
<td>HPA or HLA selected platelets</td>
<td>3</td>
</tr>
<tr>
<td>Red cells suitable for exchange transfusion</td>
<td>4</td>
</tr>
<tr>
<td>Viral inactivated non-UK FFP</td>
<td>1</td>
</tr>
<tr>
<td>Pre-deposit autologous red cells</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>141</strong></td>
</tr>
</tbody>
</table>

106 patients at risk of TA-GvHD
# Inappropriate/unnecessary transfusions (n=67)

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable FBC sample (e.g. dilute, wrong patient)</td>
<td>27</td>
</tr>
<tr>
<td>Analytical error (laboratory)</td>
<td>10</td>
</tr>
<tr>
<td>NPT error</td>
<td>5</td>
</tr>
<tr>
<td>FBC result misinterpreted/wrongly transcribed</td>
<td>5</td>
</tr>
<tr>
<td>Wrong component selected by transfusion lab</td>
<td>4</td>
</tr>
<tr>
<td>Wrong component collected by clinical staff</td>
<td>9</td>
</tr>
<tr>
<td>Overtransfusion due to clinical misjudgement</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total cases</strong></td>
<td><strong>67</strong></td>
</tr>
<tr>
<td><strong>(Total errors)</strong></td>
<td><strong>95</strong></td>
</tr>
</tbody>
</table>

1 death due to over-transfusion
‘Unsafe’ transfusions

<table>
<thead>
<tr>
<th>Type of error</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood out of temperature control</td>
<td>43</td>
</tr>
<tr>
<td>Component past expiry/suitability date</td>
<td>24</td>
</tr>
<tr>
<td>Transfused over excessive time period</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>79</strong></td>
</tr>
</tbody>
</table>
## Anti-D Ig (n=87)

<table>
<thead>
<tr>
<th>Type of event</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omission or late administration</td>
<td>27</td>
</tr>
<tr>
<td>Given to D positive patient</td>
<td>23</td>
</tr>
<tr>
<td>Given to patient with immune anti-D</td>
<td>7</td>
</tr>
<tr>
<td>Given to patient with weak D</td>
<td>6</td>
</tr>
<tr>
<td>Given to mother with D neg infant</td>
<td>7</td>
</tr>
<tr>
<td>Given to wrong patient</td>
<td>6</td>
</tr>
<tr>
<td>Expired</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total cases</strong></td>
<td><strong>87</strong></td>
</tr>
</tbody>
</table>

2 cases of severe HDN - 1 fatal +1 exchange tx
Near miss

- 1358 reports (26% increase from 2004)
- 55% of hospitals report
- Highlight sample errors
- 40% errors detected by checking historical record
- 57% sampling errors involve doctors
Immune reactions

- 68 Acute reactions
- 28 Delayed reactions (all haemolytic)
- 23 TRALI
  - of which 6 were ‘highly likely’ or ‘probable’
- 2 Post-transfusion purpura
- 0 TA-GvHD
## Acute reactions

<table>
<thead>
<tr>
<th>Reaction type</th>
<th>RBCs</th>
<th>Plts</th>
<th>FFP/cry</th>
<th>Grans</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemolytic</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Anaphylactic</td>
<td>5</td>
<td>5</td>
<td>14</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Severe allergic</td>
<td>8</td>
<td>11</td>
<td>9</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>23</td>
<td>20</td>
<td>24</td>
<td>1</td>
<td>68</td>
</tr>
</tbody>
</table>

**Components issued**  
- 2.5m  
- 0.25m  
- 0.4m
Acute reactions

• 1 death
• 7 major morbidity

• 24 Reactions to FFP
  • in 8 FFP appeared not clinically indicated
  • included 1 fatal reaction
Delayed reactions (n=28)

- All haemolytic reactions
- Red cell alloantibodies undetectable pre-tx
- 25/28 >72 hrs post transfusion
- 11/28 (39%) Kidd
- Investigations
  - 50% included eluate
  - 46% retrospective testing of pre-tx sample
  - 54% referred to reference laboratory
- No deaths, 1 was life-threatening.
TRALI

- 23 cases analysed
  - 6 highly likely or probable
  - None related to FFP
  - 2 deaths
    - none in ‘highly likely/probable’ group
Post-transfusion purpura

Number of cases

- 1996-1997: 11 cases
- 1997-1998: 9 cases
- 1998-1999: 10 cases
- 1999-2000: 5 cases
- 2000-2001: 3 cases
- 2001-2002: 2 cases
- 2003: 1 case
- 2004: 0 cases
- 2005: 2 cases
TA-GvHD

Number of cases

- 1996-1997: 4 cases
- 1997-1998: 4 cases
- 1998-1999: 4 cases
- 1999-2000: 0 cases
- 2000-2001: 1 case
- 2001-2002: 0 cases
- 2003: 0 cases
- 2004: 0 cases
- 2005: 0 cases

Monday, December 11, 2006
Highlights of SHOT 2005 Report
Transfusion transmitted infections

• 46 cases referred for investigation
• 3 confirmed reports
  • 1 Hepatitis B (early acute phase of infection in regular donor)
  • 2 bacterial contamination of platelets
    • both were pooled platelets
    • both patients recovered
• + 1 report of vCJD received via surveillance scheme
• 2 cases of ‘predicted’ HAV
SHOT recommendations 2005

• ‘Right patient - right blood’
• Appropriate use of blood components
• Better laboratory practice
• Avoid transfusion out of core hours
• Investigation of serious reactions
• Communication of complex requirements
• Increase safety of RAADP
• Evaluation of further measures to reduce TRALI and bacterial contamination
For further development

- Blood transfusion outside the hospital setting
- Need for clinical studies
- Future development of haemovigilance
Acknowledgements

- Writing group
- Dr Hannah Cohen, Steering Group Chair
- SHOT Steering Group and Standing Working Group
- Hilary Jones and SHOT office staff
- NBS for hosting SHOT
- UK Blood Services for funding
- Hospital transfusion teams for reports