Laboratory Errors Reported to SHOT

Debbie Asher
Norfolk and Norwich University NHS Trust
SHOT Standing Working Group
# Laboratory Errors

<table>
<thead>
<tr>
<th>Year</th>
<th>No of case reports</th>
<th>No of errors</th>
<th>% of total errors reported</th>
<th>When the errors occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2002</td>
<td>120</td>
<td>157</td>
<td>28.4%</td>
<td>Not known</td>
</tr>
<tr>
<td>2003</td>
<td>155</td>
<td>183</td>
<td>31%</td>
<td>58% core, 41% not core</td>
</tr>
<tr>
<td>2004</td>
<td>180</td>
<td>194</td>
<td>NK</td>
<td>26% no response, 36% core, 38% not core</td>
</tr>
</tbody>
</table>
ABO Errors 2004

18 cases
5 wrong sample selected for test
12 incorrect interpretation or recording of ABO group using MANUAL methods
1 BMS did not perform an ABO group but relied on a historic record which was incorrect
# ABO Errors - Comparison

<table>
<thead>
<tr>
<th>Year</th>
<th>Total no. of cases</th>
<th>Wrong sample tested</th>
<th>Interpretation transcription errors</th>
<th>ABO I/C transfusion</th>
<th>Sequelae</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>14</td>
<td>NK</td>
<td>NK</td>
<td>4</td>
<td>No major morbidity</td>
</tr>
<tr>
<td>2002</td>
<td>14</td>
<td>NK</td>
<td>NK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>17</td>
<td>8</td>
<td>9</td>
<td>7</td>
<td>2 major morbidity</td>
</tr>
<tr>
<td>2004</td>
<td>18</td>
<td>5</td>
<td>12</td>
<td>6</td>
<td>1 death 1 major morbidity</td>
</tr>
</tbody>
</table>
## D Typing Errors

<table>
<thead>
<tr>
<th>Year</th>
<th>No</th>
<th>Error type</th>
<th>Sequelae</th>
</tr>
</thead>
</table>
| 2003 | 26 | 6 ‘not errors’  
1 wrong sample  
19 transcription/interpretation | 16 unnecessary anti-D Ig  
11 tx of D pos blood to D neg recipients  
4/11 female, child bearing potential |
| 2004 | 16 | 6 ‘not errors’  
1 reagent problem  
9 transcription/interpretation | 4 unnecessary anti-D Ig  
6 tx of D pos blood to D neg recipients  
No females of child bearing potential |
## Incorrect Antibody Screen/ID/XM

<table>
<thead>
<tr>
<th>Year</th>
<th>No</th>
<th>Time of tests</th>
<th>Sequelae</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>15</td>
<td>8 ‘in hours’ 7 ‘out of hours’</td>
<td>2 HTR</td>
</tr>
<tr>
<td>2004</td>
<td>23</td>
<td>14 ‘in hours’ 9 ‘out of hours’</td>
<td>3 HTR</td>
</tr>
</tbody>
</table>
Errors that Continue to be Made

- Failure to provide the correct components for patients with special requirements ie irradiation, CMV negative, methylene blue FFP

- Transposition of compatibility labels
SHOT Learning Points

• Transfusion laboratory IT systems should provide effective ‘flagging’ of special requirements and alert staff to select appropriate components

• Laboratory IT systems should be updated with new rules when special requirements are introduced
Errors on the Increase

• Selection of incompatible FFP

• Selection of components of wrong blood group for transfusion to ABO or D mismatched bone marrow transplant patients
SHOT Learning Points

- A table of FFP compatibility should be included in laboratory procedures for component selection

- Discrepant ABO grouping results must be fully investigated and resolved, taking into account relevant clinical information
Errors of Non-Compliance

• Antibody screen positive, no antibody identification out of hours

• Known antibody, antibody screen positive, no antibody identification
SHOT Learning Points

• The same standards should apply to pre-transfusion testing in and outside of laboratory ‘core’ hours

• BCSH guidelines for pre-transfusion testing should be adhered to
Commentary

- There has been an increase in reports of failure to provide for special transfusion requirements

- Laboratory errors are a cause for concern and in some cases reflect poor standards of practice
Laboratory Activity Survey 2003

- 262/386 (68%) returned data
- 210 (80%) provided workload data
- Ratio of workload done in:
  - ‘core’ v ‘non-core’ hours is 80:20
- Ratio of lab errors made in:
  - ‘core’ v ‘non-core’ hours is 60:40
Laboratory Activity Survey 2003

- Total number of Group and Screen tests 3,634,911

- 17 ABO errors

- Error rate for ABO is 1:200,000
Laboratory Activity Survey 2003

- 249/262 respondents provided info on staff
- Appears to be little correlation between staffing levels and workload

Outside ‘core hours’:
- 8 labs entirely transfusion
- 150 labs combined with haematology
- 81 labs multi-disciplinary
Recommendations

• The EU Directive requires that hospital transfusion laboratories implement a quality system. Elements of this include:
  – Ensuring adequate staffing levels
  – Systematic and documented training
  – Validation of methods
  – Change control