Errors and incidents

ISBT Haemovigilance Working Party

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Strategy for incident definitions – to focus on a small number of sentinel events and develop definitions for these.
**Sentinel events approach**

1. **Overarching concepts**
   - Adverse event
   - Incident
   - Near miss

2. **Adopted in 2011**
   - Incorrect blood component transfused
   - ABO incompatible transfusion
   - Wrong blood in tube

3. **Adopted in 2013**
   - Distribution of inappropriate/unsafe blood component(s)

4. **2014 New Draft: Hospital Blood Bank laboratory sentinel events**
Overarching concepts

• An **adverse event** is an undesirable and unintended occurrence before, during or after transfusion of blood or blood component which may be related to the administration of the blood or component. It may be the result of an error or an incident and it may or not result in a reaction in a recipient.

• An **incident** is a case where the patient is transfused with a blood component which did not meet all the requirements for a suitable transfusion for that patient, or that was intended for another patient. It thus comprises transfusion errors and deviations from standard operating procedures or hospital policies that have led to mistransfusions. It may or may not lead to an adverse reaction.

• A **near miss** is an error or deviation from standard procedures or policies that is discovered before the start of the transfusion and that could have led to a wrongful transfusion or to a reaction in a recipient.
Sentinel Events adopted in 2011

- Incorrect blood component transfused
  - ABO incompatible transfusion
- Wrong name on tube (WNOT)
Incorrect blood component transfused (IBCT)

All reported episodes where a patient was transfused with a blood component that did not meet the appropriate requirements or that was intended for another patient. Include even if

- the component was ABO compatible and/or
- even if only a small quantity of blood was transfused and/or
- there was no adverse reaction.
ABO incompatible transfusion

All cases where a blood component was transfused which was (unintentionally) ABO incompatible. Include all such events
• even if only a small quantity of blood was transfused, and/or
• if no adverse reaction occurred.
All cases are to be included, whether the first error occurred in the blood establishment, in the blood transfusion laboratory or in clinical areas.

These are a subgroup of the IBCT category.
Wrong name on tube (WNOT)

All cases where it was found that a blood sample submitted for blood group determination, irregular antibody screen and/or compatibility testing was labelled with the identification details of a different patient. Include all such events,

- even if the error was detected by routine checks such as repeat blood group determination;
- even if the error did not lead to an incorrect transfusion (for whatever reason);
- even if the patient sampled was not (imminently) scheduled for transfusion.

Note that there can be overlap between WNOT and ABO incompatible transfusion or other IBCT subgroups, as well as near miss.
• Distribution of inappropriate/unsafe blood component(s)

All events where a blood component is distributed that at that time did not fulfil the release requirements for a suitable transfusion.
Distribution of inappropriate/unsafe blood component(s)

Examples of this are

- Distribution of a component from a donor deferred, or who should have been deferred, for reasons related to patient safety.
- Distribution of a rejected component
- Distribution of an expired component, a non-released component, or a component showing signs of deterioration.
- Distribution of a component after detection of a safety risk or serious quality deviation (not destroyed or recalled)
- Transport under inappropriate conditions
- Distribution of a special requirements blood component to the wrong hospital
- Failure to recall after post-donation information
New Draft: Hospital Blood Bank laboratory sentinel events
• Hospital Blood Bank Laboratory errors
  – 135 errors were reported to the PoHS from 2010 to 2013,
  – 40 (30%) were originated in HBB laboratory,
  – 0.3/10 000 components transfused

• Consequences to the patient

<table>
<thead>
<tr>
<th>Consequences to the Patient</th>
<th>n</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>No Harm</td>
<td>30</td>
<td>75</td>
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<tr>
<td>Non severe reaction</td>
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<td>12.5</td>
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<tr>
<td>Severe reaction</td>
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<td>7.5</td>
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<tr>
<td>Life Threatening reaction</td>
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<td>2.5</td>
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<tr>
<td>Death</td>
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<td>2.5</td>
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</tbody>
</table>
PoHS 2010 - 2013

Distribution of HBB Laboratory errors type

- Component labelling: 45
- Component selection: 35
- Transcription errors: 15
- Testing errors: 0.05

Component labelling:
- Labels transposed

Component selection:
- Incorrect blood group selected
- Incorrect component type selected
- Specific requirements not met
- Available time expired component

Testing errors:
- Grouping results do not match with historic patient record
## Causal factors to HBB Laboratory errors

<table>
<thead>
<tr>
<th>Human Error</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tbody>
<tr>
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<td>7</td>
<td>3</td>
<td>4</td>
<td>18</td>
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<td>Genuine Errors</td>
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<td>3</td>
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<td>1</td>
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<td>Misperceptions</td>
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<td>0</td>
<td>0</td>
<td>2</td>
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<tr>
<td>Information Technology Failure</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>8</td>
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<tr>
<td><strong>Total</strong></td>
<td>11</td>
<td>17</td>
<td>7</td>
<td>5</td>
<td>40</td>
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</table>
## Causal Contributory Factors to HBB Laboratory errors

<table>
<thead>
<tr>
<th>Category</th>
<th>Factors</th>
<th>Count</th>
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<tbody>
<tr>
<td><strong>Patient Factors</strong></td>
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<td>5</td>
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<td>Psychological factors</td>
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<tr>
<td><strong>Individual Staff Factors</strong></td>
<td>Psychological/Cognitive/Personality</td>
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<td>8</td>
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<tr>
<td></td>
<td>Social/Domestic</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Physical issues</td>
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<tr>
<td><strong>Task Factors</strong></td>
<td>Procedures/guidelines</td>
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<td>10</td>
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<td></td>
<td>Task design</td>
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<tr>
<td><strong>Education and Training Factors</strong></td>
<td>Out-of-date education/training</td>
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<td>13</td>
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<tr>
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<td>Out-of-date competency assessment</td>
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<td></td>
<td>Supervision</td>
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<td><strong>Working conditions</strong></td>
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<td>Administrative</td>
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<td></td>
<td>Physical environment design</td>
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<td></td>
<td>Safety culture</td>
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</table>
1168/1787 (65.4%) of all cases reported to SHOT in 2012 were adverse events caused by error and of these, 430/1168 (36.8%) originated in the laboratory.

No deaths, 3 cases of Major morbidity.

**Laboratory incidents 2011-2012**

- Component labelling, availability, handling and storage: 383 incidents
- Component selection: 111 incidents
- Testing: 87 incidents
- Sample receipt and registration: 66 incidents

<table>
<thead>
<tr>
<th></th>
<th>IBCT</th>
<th>SRNM</th>
<th>HSE</th>
<th>Anti-D Ig</th>
<th>ADU</th>
<th>RBRP</th>
<th>Total</th>
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<td>Sample receipt and registration</td>
<td>9</td>
<td>29</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>25</td>
<td>66</td>
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<tr>
<td>Testing</td>
<td>29</td>
<td>27</td>
<td>0</td>
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<td>2</td>
<td>1</td>
<td>87</td>
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<tr>
<td>Component selection</td>
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<td>63</td>
<td>0</td>
<td>25</td>
<td>1</td>
<td>0</td>
<td>111</td>
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<tr>
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<td>240</td>
<td>23</td>
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<td>115</td>
<td>383</td>
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<tr>
<td>Miscellaneous</td>
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<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

**IBCT** - Incorrect Blood Component Transfused  
**SRNM** – Specific Requirements Not Met  
**HSE** – Handling and Storage Errors  
**ADU** – Avoidable, Delayed or Under Transfusion  
**RBRP** – Right Blood Right Person

• **Sample receipt & registration**

Discrepant details on bottle and request form
- 43% missed request for specific requirements
- 38% Failed to notice patient identification errors. These mistakes should have been detected at booking in of the sample; nevertheless the outcome was transfusion of the right blood to the right patient.

• **Testing**

Grouping results do not match with historic patient record
- 22% All the reported ABO and RhD typing errors occurred as a result of manual interventions.
- 37% RhD testing errors resulted in late administration or omission of Anti-D Ig
- Blood components with an incorrect phenotype/specific requirement were transfused in 21% and all of these occurred as a result of failure to follow SOPs during testing.

Component selection

Incorrect blood group or incorrect component type selected specific transfusion requirements not met for the patient (including failure to provide irradiated/CMV – negative units, incorrect phenotype or inappropriate use of electronic issue)

- 33% were an incorrect phenotype
- 18% were not irradiated cellular components
- 16% were not CMV negative cellular components
- 11% were failures to issue K negative red cells to women of childbearing potential
- 4% were instances where the patient required both CMV negative and irradiated components.
• **Component labelling, availability & handling and storage errors**

Blood components after expiry of compatibility, after expiry of component or become otherwise unsuitable for transfusion still available in the issue refrigerator.

Component labelled incorrectly – patient details incorrect or labels transposed

- 63% poor handling and/or storage
  - Cold chain errors
  - Expired units transfused
  - The sample age exceeded the recommended time intervals between sampling and pre-transfusion compatibility testing

- 12% IBCT
  - transposed labels
  - Patient ID errors

• Draft definition - All events where a blood component is issued for transfusion that, at that time, did not fulfil the issuing requirements and might lead to the provision of inappropriate blood component

  – Component labelling, handling and storage errors
  – Component selection errors (including specific requirements not met)
  – Testing errors (including transcription, interpretations errors and specific requirements not met)
Multiple Dimensions

1. Incident Type
2. Patient outcome
3. Patient characteristics
4. Incident characteristics
5. Contributing factors/Hazards
6. Organizational outcomes
7. Detection
8. Mitigating factors
9. Ameliorating actions
10. Actions taken to reduce risk

World Alliance for patient safety, 2009