Serious Transfusion Incident Report (STIR) 2013-14

Blood Matters
Haemovigilance

Definition:

- Haemovigilance is an organised set of surveillance procedures covering the entire transfusion chain from donor to patient, and encompassing products and processes.

- To collect and assess information on unexpected and undesirable effects resulting from the therapeutic use of labile blood components and to prevent their occurrence or recurrence.¹

The Blood Matters program commenced in 2002 as a collaboration between the Victorian Department of Health and the Australian Red Cross Blood Service, with the aim of improving clinical transfusion practice.

STIR commenced in 2006. It now has private and public health services from four states reporting (Victoria, Tasmania, ACT, and NT).

STIR is a voluntary reporting system that aims to capture information on incidents, reactions and near misses relating to transfusion of blood products and provide recommendations to improve the safety of transfusion.
STIR (cont.)

- All data reported is de-identified, with no patient details except for age and gender.

- Health services are identified by a code assigned by the STIR office, and these codes are not used in any expert reviews or reporting.

- Summary reports for health services are available as requested or on a six monthly basis.

- Previously STIR reports were available every two years, this is the first of what is to become an annual report.

- The report includes summary data, case studies and recommendations.
Reporting categories

The system captures two main categories of incidents, clinical and procedural.

**Clinical reporting forms:**

- Acute transfusion reactions – this includes febrile non-haemolytic reactions, allergic or anaphylactic reactions and acute haemolytic reactions
- Transfusion related acute lung injury (TRALI) / transfusion associated circulatory overload (TACO)
- Delayed reactions
- Transfusion associated graft versus host disease (TAGVHD)
- Post transfusion purpura (PTP)
- Transfusion transmitted infection (both bacterial and other)

**Procedural reporting forms:**

- Incorrect blood component transfused (IBCT)
- Wrong blood in tube (WBIT)
- Other near miss
Reports to STIR by year

Reporting to STIR has remained steady after several years of increasing reports. This may be due to changes in the reporting criteria, that has reduced the number of minor reactions being reported.

There were 190 notifications reported for the period July 1, 2013- June 30, 2014, resulting in 193 adverse events.
Types of events reported 2013-14

Acute transfusion reactions includes
- Febrile non-haemolytic reactions (24)
- Allergic reactions (40)
- Acute haemolytic reactions (2)

There were no reports of post-transfusion purpura, TRALI or viral infection in this period.
Blood products implicated

<table>
<thead>
<tr>
<th>Product</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Cells</td>
<td>79</td>
<td>41</td>
</tr>
<tr>
<td>Platelets</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Fresh Frozen Plasma</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Cryoprecipitate</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Multiple products</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Other*</td>
<td>65</td>
<td>34</td>
</tr>
</tbody>
</table>

*Events involving pre-transfusion specimens
Recommendations

Recommendation 1:

• Allergic/anaphylactic reactions are the most common acute reaction reported to STIR

• Investigation of severe allergic reactions should include testing for IgA deficiency on a pre-transfusion specimen

Recommendation 2:

• TACO is under-reported and under-recognised, but associated with potentially high mortality for transfusion recipients. STIR recommends transfusing health services must ensure there is improved monitoring and assessment of at risk-individuals, especially those with pre-existing cardiac failure prior to transfusion.

• STIR recommends health services should investigate and implement the use of a single-unit guideline for high-risk clinical areas to help prevent TACO.

• Information on a single-unit guideline, including tools and resources is available through the National Blood Authority website <www.blood.gov.au/single-unit-transfusion>. 
TACO case study

A 92-year-old woman with anaemia related to ongoing gastrointestinal bleeding (Hb 77 g/L) and a history of congestive cardiac failure was admitted by her GP to a day ward for transfusion of three units of red cells.

Each unit was administered over three hours successively without medical review.

At the end of the third unit the patient developed dyspnoea, restlessness and reduced oxygen saturation. She was treated with oxygen therapy, diuretics and salbutamol.

Chest X-ray supported the diagnosis of TACO. The patient recovered after an extended stay.

This case triggered a review of the governance of patients attending the day unit within the health service.
# Clinical reports

<table>
<thead>
<tr>
<th>Type of Report</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Transfusion Reactions</td>
<td>80</td>
</tr>
<tr>
<td>• FNHTR</td>
<td>24</td>
</tr>
<tr>
<td>• Allergic</td>
<td>40</td>
</tr>
<tr>
<td>• Acute haemolytic</td>
<td>2</td>
</tr>
<tr>
<td>Transfusion associated circulatory overload</td>
<td>12</td>
</tr>
<tr>
<td>Delayed haemolytic</td>
<td>2</td>
</tr>
<tr>
<td>Bacterial sepsis</td>
<td>2</td>
</tr>
</tbody>
</table>

There were no reports of TRALI, TA-GVHD, PTP or viral infections in this period.
Wrong blood in tube (WBIT)

- WBIT remains the most common procedural event reported (72% of procedural events)
- Failure of the patient identity check is the most frequently reported contributing factor to these events
- Many health services are working on methods to address this issue, including the use of staff reflection tools to address issues of professional accountability
- Self-reflection is used widely in healthcare to consciously and critically analyse one’s own practice
- Two self-reflection tools are included in the report.
Recommendations (cont.)

Recommendation 3:

- All staff involved in the collection of blood specimens should have training, not only in collection technique, but also in the process of patient identification and specimen labelling.

- Zero tolerance policies must be in place regarding acceptance of all pathology specimens to ensure compliance with collection policy at all times, and to reduce the risk of unnecessary transfusions due to incorrect full blood examination (FBE) results.

- Health services should consider the use of technology to assist staff in patient identification and specimen labelling processes.

- Free courses are available through BloodSafe eLearning Australia <www.bloodsafelearning.org.au>
Incorrect blood component transfused (IBCT)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number reported</th>
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</thead>
<tbody>
<tr>
<td>Antigen-antibody issues</td>
<td>1</td>
</tr>
<tr>
<td>Components that did not meet specific requirements for patient</td>
<td>5</td>
</tr>
<tr>
<td>Inappropriate plasma/platelet product</td>
<td>3</td>
</tr>
<tr>
<td>Inappropriate red cell product</td>
<td>3</td>
</tr>
<tr>
<td>Incorrect blood component to incorrect patient</td>
<td>1</td>
</tr>
</tbody>
</table>

- In this reporting period there was no serious harm to patients.
- A health service shared their response to the issue of a number of IBCT episodes in their emergency department by developing a “time out” prior to transfusion.
Recommendation 4

- Education of staff regarding correct checks at the patient side. This must emphasise patient identity checks, and confirmation that the product details match the prescription.
Conclusion

• Errors and incidents can occur at any point in the transfusion chain.

• It is important that all staff involved in this chain are aware of their role and the risk to patients.

• Serious errors are rarely just one mistake or lapse, there are often several steps that have gone wrong.

• The final bedside identity check is the last opportunity to find an error from earlier in the chain, and it is therefore vital to get right every time.
Conclusion

• Some incidents will occur regularly with there is little clinical or laboratory staff can do to prevent them e.g. allergic reactions.

• Some incidents will occur rarely due to the steps taken to prevent them e.g. bacterial contamination of products.

• Some incidents occur regularly, and may have disastrous results for patients. These are generally preventable with good patient/product identification procedures e.g. wrong blood in tube, incorrect blood component transfused.

• All staff should be aware of their role in the transfusion chain and what they can do to prevent incidents.
The report is available at:

References


Acknowledgements

Thank you to the participating Victorian, Tasmanian, Australian Capital Territory public and private health services for their contribution to STIR.

“We would like to acknowledge the Australian Red Cross Blood Service and the Australian governments that fully fund the Blood Service for the provision of blood products and services to the community”.

Blood Matters