Better Blood Transfusion - Continuing Education Programme

Level 1 - Safe Transfusion Practice Generic Programme
Learning Outcomes

By the end of this session you will be able to:

- Understand the hazards of transfusion
- Understand the principles of the UK Blood Safety & Quality Regulations (2005)
- Understand the National Patient Safety Agency’s Safer Blood Transfusion work
- Understand basic ABO serology
- Take a blood sample for pre-transfusion testing correctly
- Store blood components correctly
- Collect blood components safely
- Administer a blood transfusion safely
- Take initial action to manage a transfusion adverse event
Further Information

- Hospital Blood Transfusion Policy/ Procedure Manual-
- The Handbook of Transfusion Medicine [3rd Ed] (2001)
  www.transfusionguidelines.org.uk
- BCSH Guidelines: www.bcshguidelines.com
- Serious Hazards of Transfusion Annual Report www.shotuk.org
- Local Transfusion Practitioner
- Hospital Transfusion Laboratory
- Safer Blood Transfusion www.npsa.nhs.uk
- Effective Use of Blood Group: www.learnbloodtransfusion.org.uk
Serious Hazards of Transfusion Reporting Scheme

Overview of cases from 2004 Report (n=541)

- IBCT (81%)
- ATR (6%)
- DTR (8%)
- PTP (0%)
- TA-GVHD (0%)
- TRALI (4%)
- TTI (0.4%)
Serious Hazards of Transfusion Reporting Scheme

Distribution of Errors in IBCT Category (2004 Report)

- 33% Inappropriate Transfusion
- 20% Pre-transfusion Testing Errors
- 13% Wrong Blood Events
- 12% Inappropriate Specification
- 7% Handling Errors
UK Blood Safety & Quality Regulations

- Designed to improve the Safety of Blood Transfusion
- Relates to all aspects of transfusion practice
- Requirement for a quality management system and to be able to verify the storage conditions of all components
- All components must be traceable from donor through to recipient, and records must be kept for 30 years
- Legal requirement to report any adverse reactions and events to the competent authority
- Reporting to SHOT remains voluntary but should continue
Safer blood transfusion, NPSA, 2006

- Five competencies:
  - BDS17 Organise the receipt of blood/blood products for transfusion
  - BDS18 Collect blood/blood components for transfusion
  - BDS19 Prepare to administer transfusion of blood/blood products to patients
  - BDS20 Administer a transfusion of blood/blood products
  - Obtaining a venous blood sample

- NPSA Safer Practice Notice issued November, 2006

- One requirement is to formally assess staff on competencies every three years
**ABO Serology – the essential facts**

- Four ABO blood groups

<table>
<thead>
<tr>
<th>Blood Group</th>
<th>Patient's Cells</th>
<th>Patient's Plasma</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>red cell</td>
<td>anti - B</td>
</tr>
<tr>
<td>B</td>
<td>red cell</td>
<td>anti - A</td>
</tr>
<tr>
<td>AB</td>
<td>red cell</td>
<td>None</td>
</tr>
<tr>
<td>O</td>
<td>red cell</td>
<td>anti A and anti B</td>
</tr>
</tbody>
</table>
ABO Serology – the essential facts

• Each patient can receive blood of their **own** ABO Group or Group O
Rh – the essential facts

1. Red cells which carry the Rh D antigen are ‘RhD-positive’
2. RhD-positive patients can receive any RhD type blood
3. RhD-negative patients will occasionally be issued with RhD-positive blood
4. RhD-negative patients can make anti-D if they are exposed to RhD positive cells through transfusion or pregnancy

RhD-negative female patients of child bearing potential SHOULD NEVER be transfused with RhD-positive cells
Decision to Transfuse

- Communicate with patient
- Patient information leaflet
- Document in patient notes
Requesting Procedure

- Check the patient’s case note
  - Transfusion history
  - Special requirements
    - e.g., irradiated, CMV negative
- Complete request form or order com
Sampling Procedure

Step 1: Ask the patient to tell you their:

Full Name + Date of Birth

Check this information against the patient’s ID wristband

Be extra vigilant when checking the identity of the unconscious / compromised patient
Sampling Procedure

**Step 2:** Check the patient’s ID wristband against documentation e.g., case notes or request form for:

- First name
- Surname
- Date of birth
- Hospital number
Sampling Procedure

- Only bleed one patient at a time
- Do NOT use pre-labelled tube
- Hand write the sample tube beside the patient
- Send the sample to the laboratory in the most appropriate way for the clinical situation, i.e. routine / emergency
Labelling the venous blood sample

- Hand written label to include:-
  - Full name
  - Date of birth
  - Hospital number
  - Gender
  - Date
  - Signature of person who has taken the sample
- At the bedside
- By the person taking the sample
Sampling - SHOT Incident

- Patient X bled into a pre-labelled sample tube with patient Y’s details
- Patient Y (23 year old) experienced a post-op haemorrhage
- Patient Y was Group O and received a unit of group A red cells
- Patient complained of loin pain - transfusion reaction queried but transfusion continued
- Patient developed renal failure
- Patient died as a direct result of incompatible transfusion
Storage

Component

- Red blood cells
- Platelets
- Fresh Frozen Plasma
- Cryoprecipitate
Collection Procedure

Step 1: Complete the Blood Collection Form (or follow your local collection procedure) with the following information:

- First name
- Surname
- Date of birth
- Hospital number

Follow procedure for each blood component collected
Collection Procedure

Step 2: Check the patient’s ID details against compatibility/traceability label attached to the blood bag

Step 3: Document removal of unit on blood fridge register or electronic release system

Ensure prompt delivery of the blood component to the clinical area
Collection - SHOT Incident

- Health Support Worker sent to fridge to collect blood with blank collection form
- Selected the wrong blood, wrong name, date of birth, ID number
- Copied the details from the UNIT onto the BLOOD COLLECTION FORM
- Two further units collected using the compatibility report and administered before the error detected
Pre-administration Procedure

Step 1: Check the blood component has been prescribed
Step 2: Undertake baseline observations

Step 3: Undertake visual inspection

If there is **ANY** discrepancy - **DO NOT** transfuse
Pre-administration checks

- **Personal checks:**
  - clean your hands
  - wear personal protective equipment

- **Equipment checks:**
  - Personal protective equipment is available and is clean and sterile
  - A correctly completed prescription chart
  - Observation chart
  - Giving set
  - Disposable bags
  - Trolley
Administration Process

Equipment

- Venous access devices
- Blood administration sets
- Infusion fluids
- Infusion devices
Administration Procedure

Step 1: Ask the patient to tell you their:

Full Name + Date of Birth

Check this information against the patient’s ID wristband

Be extra vigilant when checking the identity of the unconscious / compromised patient
Administration Procedure

**Step 2:** Check the patient’s

– First name
– Surname
– Date of birth
– Hospital number

on the compatibility/traceability label against the patient’s ID wristband
Administration Procedure

Step 3: Check the compatibility/traceability label with the blood bag label.

If there is ANY discrepancy - DO NOT transfuse.
Administration - SHOT Incident

• Operating department assistant collected one unit of red cells from the satellite fridge
• Incorrect component collected: wrong name; date of birth; hospital number
• Final patient identification check not undertaken by anaesthetist / ODA
• Group O patient received 1 unit Group B red cells
• Patient admitted to ICU - but died as a result of ABO incompatible transfusion
Documentation Procedure

**COMPLETE DOCUMENTATION**

Ensure that you sign the transfusion documentation to say you have checked the blood component against the patient’s wristband.

Ensure donor component number is recorded on the transfusion documentation.

Complete documentation for every blood component transfused.
Monitoring Procedure

• Communicate with patient
• Record vital signs
  *Early Check*
• Each unit must be infused within four hours
• Complete documentation
Monitoring Procedure- SHOT Incident

- Two patients with same surname in the same ward
- Both having a blood transfusion
- Patient identification check not undertaken
- Group O patient transfused with Group A RBCs
- Patient complained of generalised pain
- Transfusion continued
- Patient became very ill and **died 6 hours later**
## Signs & Symptoms of a Transfusion Reaction

<table>
<thead>
<tr>
<th>Mild Reaction</th>
<th>Severe Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>Pyrexia, rigors</td>
</tr>
<tr>
<td>Urticaria</td>
<td>Hypotension</td>
</tr>
<tr>
<td>Rash</td>
<td>Loin/Back Pain</td>
</tr>
<tr>
<td>Pruritis</td>
<td>Increasing anxiety</td>
</tr>
<tr>
<td></td>
<td>Pain at infusion site</td>
</tr>
<tr>
<td></td>
<td>Respiratory Distress</td>
</tr>
<tr>
<td></td>
<td>Dark urine</td>
</tr>
<tr>
<td></td>
<td>Severe Tachycardia</td>
</tr>
<tr>
<td></td>
<td>Unexpected bleeding (DIC)</td>
</tr>
</tbody>
</table>

*A mild reaction may be the early stages of a severe reaction  
- DON’T IGNORE IT!*
Management of a Mild Acute Transfusion Reaction

1. **Stop** the transfusion
   (check patient and component compatibility)
2. Seek medical advice
3. Assess patient
4. Commence appropriate treatment

*If signs & symptoms worsen within 15 minutes treat as a severe reaction*
Management of a Severe Transfusion Reaction

1. **Stop the transfusion**
   - Replace the administration set
   - IV access should be maintained with normal saline
   - (check patient and component compatibility)

2. **Call the doctor to see the patient urgently**

3. **Assess patient - resuscitate as required**

4. **Inform the HTL and return the component**

5. **Document event in patient case notes**
Safer Practice Takes Seconds

A consistent, professional approach to safe transfusion practice can save lives

I’d like to know who I can blame … I still feel hate.
I am furious and angry … someone couldn’t be bothered to treat my child in a professional and safe manner.

Mrs Green 15/12/98