# SHOT
# What is it? Why participate?

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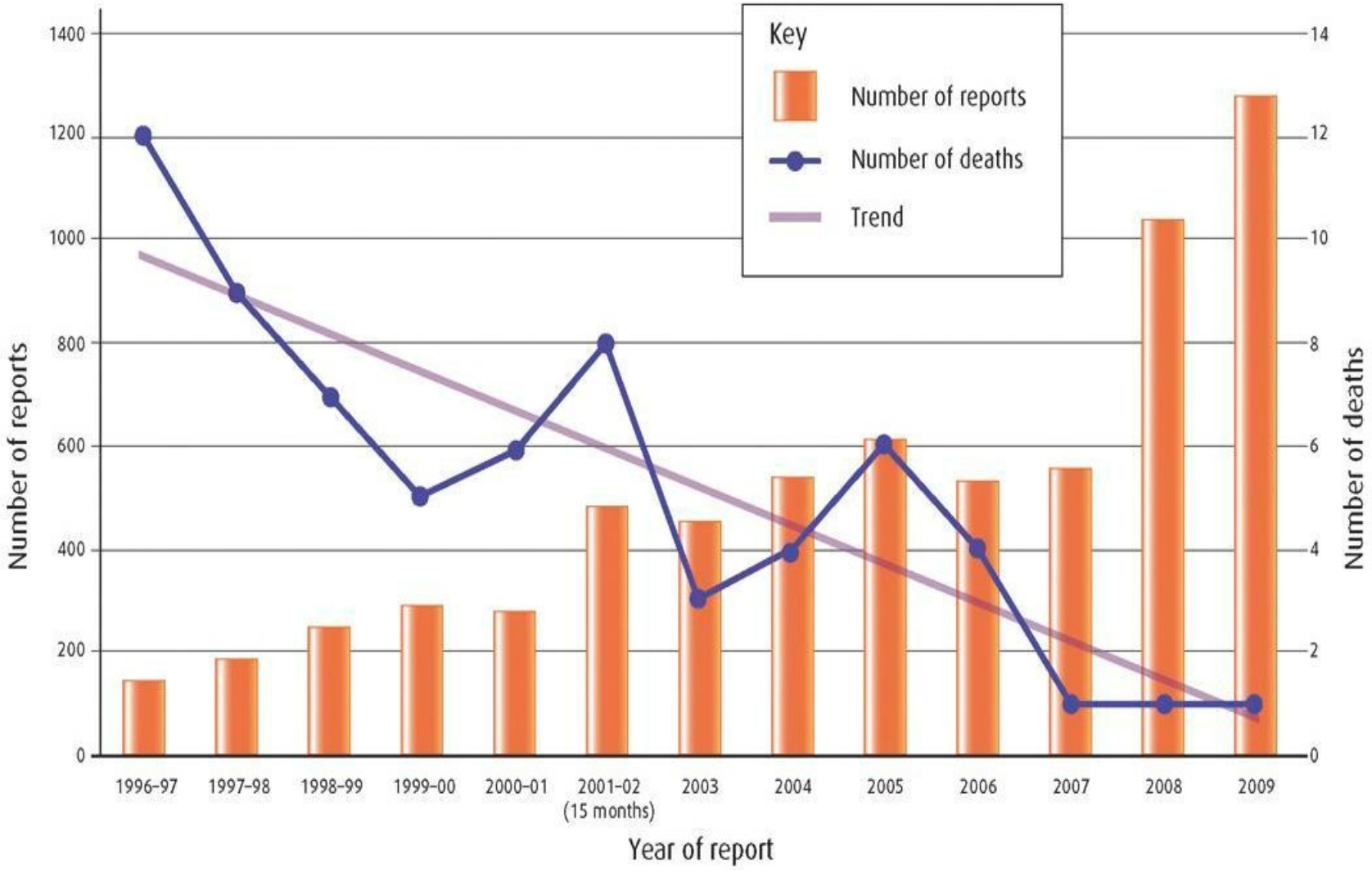
# Aims of SHOT

- Improve patient safety through the improvement of standards of hospital transfusion practice
- Aid in the production of clinical guidelines for the use of blood components
- Educate users on transfusion hazards and their prevention
- Identify new trends or patterns in adverse incidents

# Total reports and total deaths definitely due to transfusion 1996 - 2009



# What has changed?

NHSBT:

- Improved donor arm cleansing
- Male only donors for plasma rich components

Clinical areas:

- Role of the transfusion practitioners: education in blood transfusion and improved awareness of transfusion issues

Laboratory:

- UK Transfusion Laboratory Collaborative: set minimum standards for staffing, equipment and IT

# Key Message

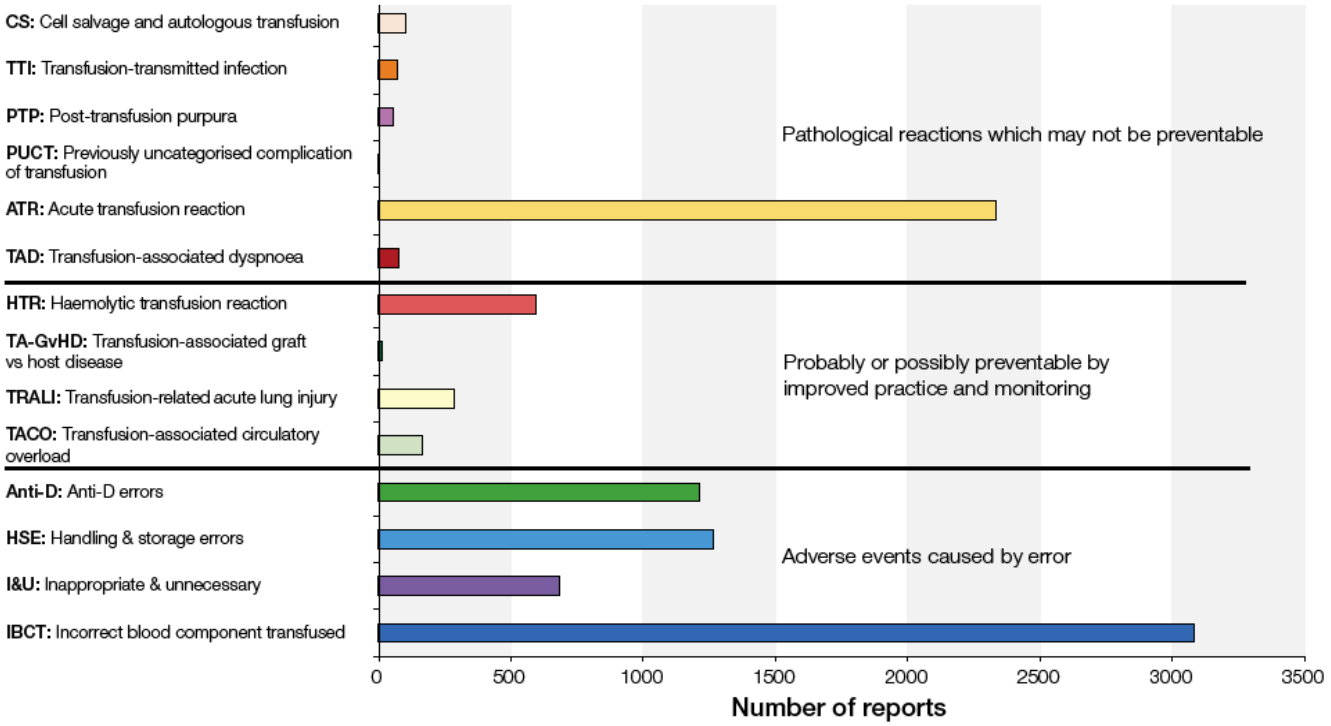
- Overall transfusion is very safe. Just under 3 million blood components were issued across the UK in 2011. There were 8 deaths in which transfusion, or lack of it, played a role and 117 instances of major morbidity:
  - the risk of death is 0.0027 per 1000 components issued
  - the risk of major morbidity 0.0399 per 1000 components issued

# However, transfusion is not risk free:

**Figure 4.2**

**Cumulative data for SHOT categories 1996/7-2011**

**n=9925**



# Incorrect Blood Component Transfused (IBCT)

Definition:

Includes all reported episodes where a patient was transfused with a blood component that was intended for another patient or which was of inappropriate specification and did not meet the particular requirements of the patient.

# Inappropriate Transfusion
## (unnecessary, delayed or under-transfused)

Definition

- Transfusions given on the basis of erroneous, spurious or incorrectly documented laboratory results for Hb, platelets and coagulation tests
- Transfusions given as a result of poor understanding and knowledge of transfusion medicine such that the decision to transfuse either puts the patient at significant risk, or was actually harmful
- Under-transfusion or delayed transfusion resulting in morbidity

# Handling and Storage Errors

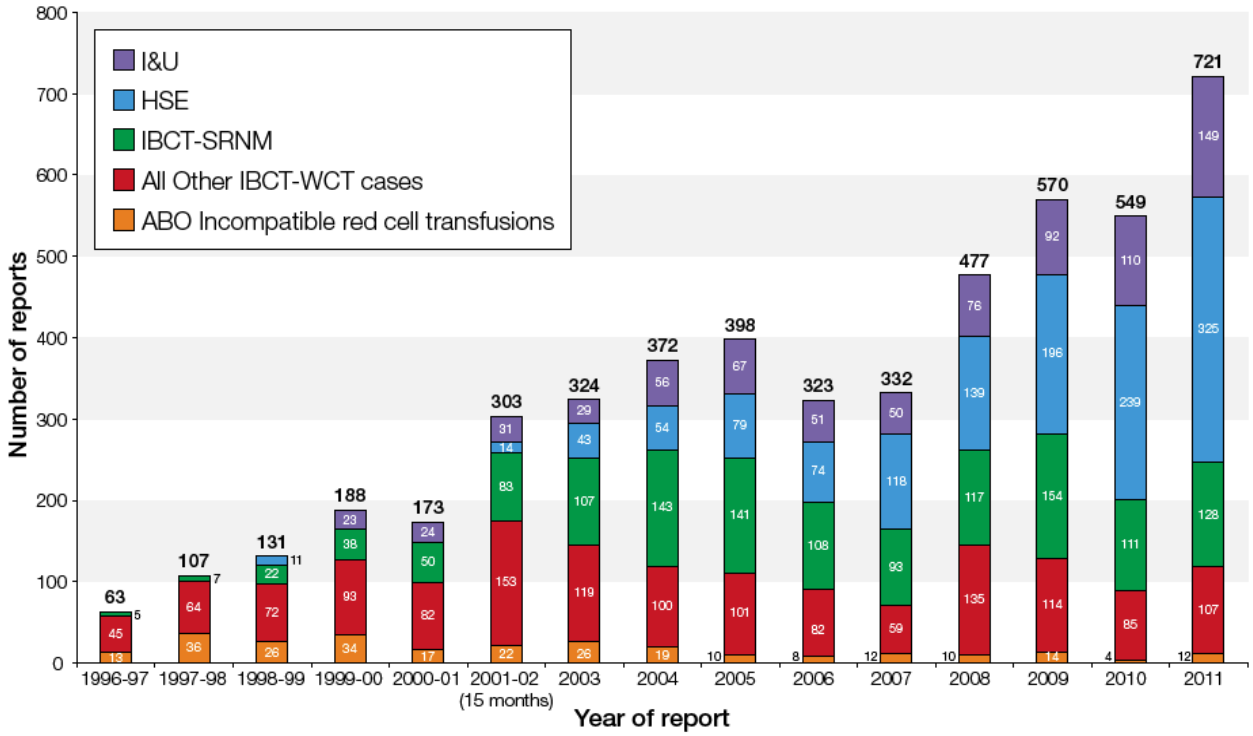
Definition

- All reported episodes in which a patient was transfused with a blood component intended for the patient, but in which, during the transfusion process, the handling and storage may have rendered the component less safe for transfusion

# Haemovigilance

**Figure 4.3**

**Incorrect blood components transfused (IBCT) either due to wrong component (WCT) or where special requirements were not met (SRNM), handling and storage errors (HSE), showing the number that resulted in ABO-incompatible transfusions**



## 2011 Summary of laboratory related errors n = 217

| Type of error | Number of cases in 2010 | Number of cases in 2011 |
|---|---|---|
| **Wrong blood** | **21** | **33** |
| Wrong sample selected | 2 | 1 |
| ABO grouping error | 2 | 7 |
| D grouping error | 4 | 8 |
| Incorrect component selected | 11 | 15 |
| Incorrect labelling | 2 | 2 |
| **Wrong group selected for SCT Patient** | **15** | **9** |
| Wrong ABO group selected | 9 | 5 |
| Wrong D group selected | 2 | 2 |
| Procedural errors | 4 | 2 |
| **Other Pre-transfusion testing errors** | **34** | **42** |
| Testing errors | 8 | 8 |
| Procedural errors | 26 | 34 |
| **Special requirements not met (SRNM)** | **37** | **51** |
| Due to failure to consult patient records thoroughly | 18 | 28 |
| Due to poor serological knowledge/ failure to recognise the special needs of a specific patient group | 19 | 23 |
| **TOTAL** | **107** | **135** |
| **Anti-D related laboratory errors** | **45** | **20** |
| **Handling and storage laboratory errors** | **53** | **60** |
| **I&U laboratory errors** | | **2** |
| **GRAND TOTAL LABORATORY ERRORS** | **205** | **217** |

# Errors - slips

- Heavy workload and distractions cited as mitigating circumstances
- Warnings/flags/alerts on the LIMS are helpful but:
  - Keep them clear, accurate and unambiguous
  - Avoid unnecessary messages that lead to ‘warning overload’
  - Need to positively confirm the requirement highlighted in the warning

# Errors – lack of knowledge

- Requirement for identification panels following positive antibody screens when there was a known antibody ie failure to appreciate that a second antibody may have developed
- Need for antigen negative red cells when there were historic antibodies on file but none detectable in the current sample ie failure to realise the risks of a delayed haemolytic transfusion reaction from a possible anamnestic response

# Learning points:

- Competency assessment must include understanding and knowledge as well as simply the ability to perform a SOP. A SOP cannot cover every scenario and the ability to apply knowledge and recognise personal limitations are essential requirements of a qualified BMS

# Case Study 1 – Emergency!

Patient has frank haematemesis and 4 units of red cells are required urgently.

There are records on the LIMS for this patient who was transfused one week previously.

A new sample was requested. The doctor sent the sample and request, recording the blood group as A positive on the request form.

There was a delay in the sample reaching the laboratory and before testing was begun the ward rang again stating that red cells were required immediately.

# What should the BMS do next?

A. Issue group A positive red cells, as group specific, as the doctor has written the group clearly on the request form.
B. Check the LIMS records and issue red cells of that group, as group specific. The patient is known and was only transfused a week ago.
C. Issue emergency group O red cells as there is no time for any pre-transfusion testing.
D. Insist that full pre-transfusion testing is carried out, before blood is issued, as the patient may have produced red cell antibodies to the red cells transfused last week.

## BCSH Guidelines for Compatibility Procedures in Blood Transfusion Laboratories state:

- The ABO and D group must, wherever possible, be verified against previous results for the patient
- Emergency groups performed in these circumstances MUST include a test against anti-A, anti-B and anti-D with appropriate controls or a reverse group
- If there is insufficient time to complete this level of testing group O red cells MUST be issued.

# Case Study 2 – D Positive or Negative?

- A paediatric sample (from an 11 year old girl) was placed on the automated analyser in the transfusion laboratory but was too small to allow complete testing. The partial grouping results obtained from the analyser gave the D type as D negative.
- The sample was then tested manually. D typing results of +1 and +2 were obtained.
- One unit of D positive red cells were issued and transfused.

# Did BMS staff do the right thing?

A. No, the sample should have been rejected as ‘insufficient’, a new sample obtained and testing performed on the automated analyser before any blood was issued.

B. No, although the sample should have been accepted and tested manually the results obtained were equivocal and therefore D negative red cells should have been given until the RhD status was confirmed.

C. Yes, there is a constant shortage of RhD negative red cells, positive results were obtained therefore RhD positive red cells should have been issued in this case.

# Case Study 3 – emergency and antibodies!

A patient was brought to A+E late in the evening with a two day history of melaena, fatigue, jaundice and increased shortness of breath.

Her haemoglobin was 5.4g/dl and four units of blood were requested but the clinician was willing to wait for fully tested units.

The lone BMS on call was busy. He looked up the patient history and found a historic record of anti-c+E+S.

# What should the BMS do next?

A. Get the sample on to the analyser for group and antibody screen and order some c-E-S- blood from the local centre
B. Start crossmatching and hope to find some compatible units
C. Request advice from local support staff eg Haematologist, senior BMS
D. Request samples for despatch to the local RCI laboratory

# www.shotuk.org

- More Case Studies
- More Learning Points
- Full Report
- Report Summary