SHOT 2015

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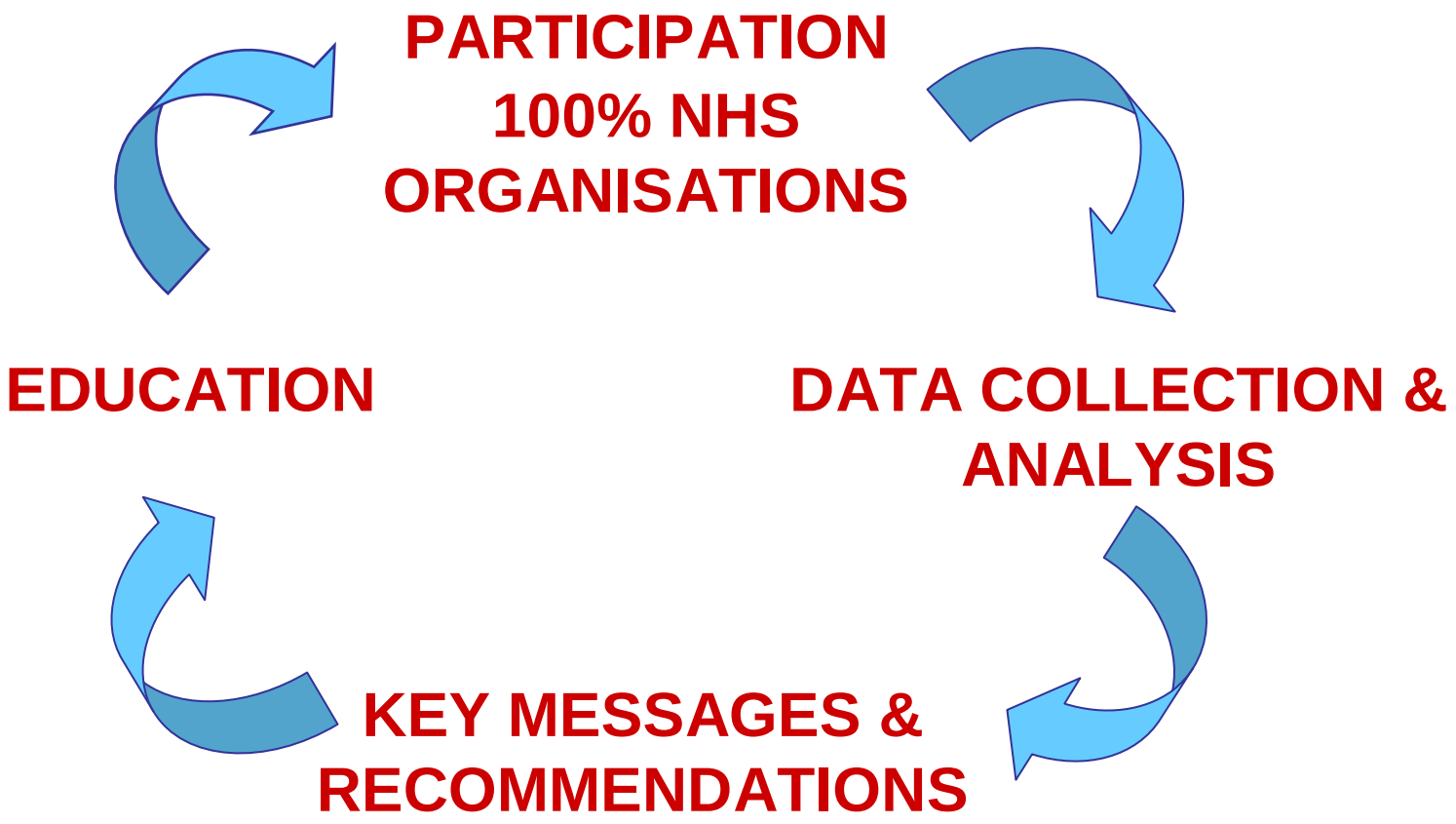
Haemovigilance definition

- Surveillance procedures from the collection of blood and its components to the follow up of the recipients
- To collect and assess information on unexpected and undesirable effects resulting from the therapeutic use of labile blood components
- To prevent their occurrence or recurrence

SHOT aims

- **IMPROVE** standards of transfusion practice by **EDUCATING** users on transfusion hazards and their prevention
- **INFLUENCE** clinical guidelines for the use of blood components
- **INFORM** policy within transfusion services

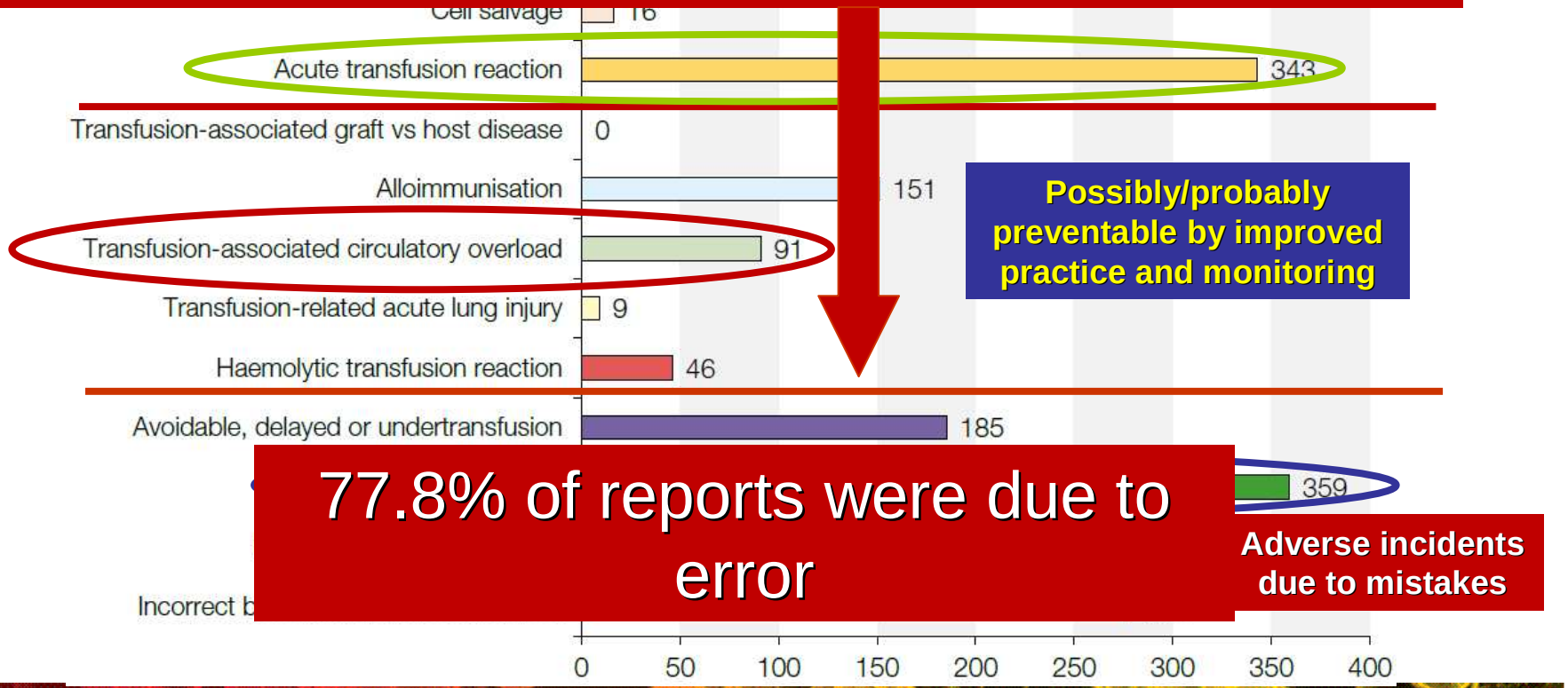
Serious Hazards Of Transfusion



What is SHOT reportable?

Total number of error reports n=2346

(including NM (n=1167)& RBRP n=169)



Possibly/probably preventable by improved practice and monitoring

77.8% of reports were due to error

Adverse incidents due to mistakes

SHOT Headlines 2014

- **Deaths where transfusion was causal or contributory n=15**
  - 2 definitely related to the transfusion
  (1 haemolytic transfusion reaction,1 TACO)
  - 3 deaths as a result of delayed transfusion (possibly related)

- **Major morbidity n=169**
  - Mainly acute transfusion reactions (allergic/febrile)

- **TACO** was associated with **36 cases of major morbidity** and contributed to **6 deaths**
  (1 definitely related, 3 probably related, 2 possibly related)

- In 42/91 (46.2%) cases of TACO the patient had a poor outcome

- **ABO incompatible red cell transfusions n=10**
  - 1 major morbidity
  - all due to clinical errors in collection and administration or administration alone

SHOT headlines 2014

- NO bacterial transmissions in 2014 (none since 2009) but 2 detected on visual inspection
- Paediatrics (n=122 reports, 20% of total reports)

Refer to the SHOT summary for additional messages and information

- ABO-incompatible transfusions are now reportable as ‘never events’ – NHS England
- Audit of the implementation of SHOT recommendations – pilot questionnaire
- Plans for donor adverse event reporting in the UK

anti-D 2015 n=359

Type of event	Cases	Staff primarily involved		
		Nurse / midwife	Laboratory	Doctor
Omission or late administration of anti-D Ig	273	239	21	13
Anti-D Ig given to D-positive woman	24	18	5	1
Anti-D Ig given to woman with immune anti-D	16	7	7	2
Anti-D Ig given to mother of D-negative infant	14	0	14	0
Anti-D Ig given to wrong woman	12	11	1	0
Wrong dose of anti-D Ig given	16	7	8	1
Anti-D Ig handling & storage errors	4	3	1	0
Total	**359**	**285**	**57**	**17**

*There were a further 43 near miss anti-D errors

84.1%

Case 1

- A pregnant woman had a routine group and screen performed
- The laboratory were unsure whether a weak positive antibody screen was due to anti-D Ig prophylaxis
- Repeat samples were requested but were not received
- As a result, anti-D Ig was issued (correct according to guidelines), the pregnancy was not closely monitored
- Mother was reported as having strong immune anti-D at delivery
- The baby was born suffering from haemolytic disease of the fetus and newborn and required exchange transfusion
- The baby died 3 days later

Case 2

- A woman in her mid-thirties had a ventouse-assisted vaginal delivery for fetal distress at term
- It was then complicated by massive haemorrhage from cervical lacerations
- The major haemorrhage protocol was activated, six units of blood were delivered within 5 minutes and one was started immediately
- She was transferred from the delivery room to theatre and the bleeding was controlled within 30 min
- The blood loss was unclear with losses recorded in both the delivery suite and theatre
- A second unit was commenced

Case 2 (2)

- About 2 hours later, she suffered cardiac arrest from which she could not be resuscitated despite transfusion of 12 units of blood and 3 units of Fresh Frozen Plasma (FFP)
- The coroner confirmed cause of death to be cerebral hypoxia secondary to haemorrhage

Root cause analysis

Several learning points identified:

- The estimated blood loss may not have been fully appreciated because she had been managed 1st in delivery suite and then in theatre
- Point of care testing provided Hb results which gave a false sense of security
- Two teams were involved in the management of the patient and it was not clear who was the leader; there was poor communication with difference of opinion
- There were shift changes during the interval between delivery and the arrest so the full picture was perhaps not fully appreciated
- Although the MHP was activated
- Haemorrhage was controlled but the red cell and fluid replacement was inadequate

Case study 3

- Two patients in adjacent beds required blood transfusion
- A collection slip was completed and handed to the porter
- Patient 1 (O D-positive) was the intended recipient however; the collection slip was incorrectly completed with Patient 2 details (A D-positive)
- The error was not detected at the bedside as staff failed to complete bedside checks

Case study 3 (2)

- Three minutes into the transfusion, the patient became breathless, the transfusion was stopped and the medical team were called.
- The doctor noted that the blood unit was labelled with different patient details
- Patient 1 had received 15mL of an ABO-incompatible transfusion (group A red cells transfused to a group O recipient)
- The patient was admitted to HDU as a result of their co-morbidities but had no long term complications from the incident

Case 4

- A baby needed an urgent blood transfusion following delivery at 27 weeks for placental abruption
- The nurse collected the adult emergency O negative blood from the delivery ward satellite refrigerator instead of the available neonatal specification emergency O negative units
- The error was detected by the transfusion laboratory staff when the associated completed form was returned to the laboratory

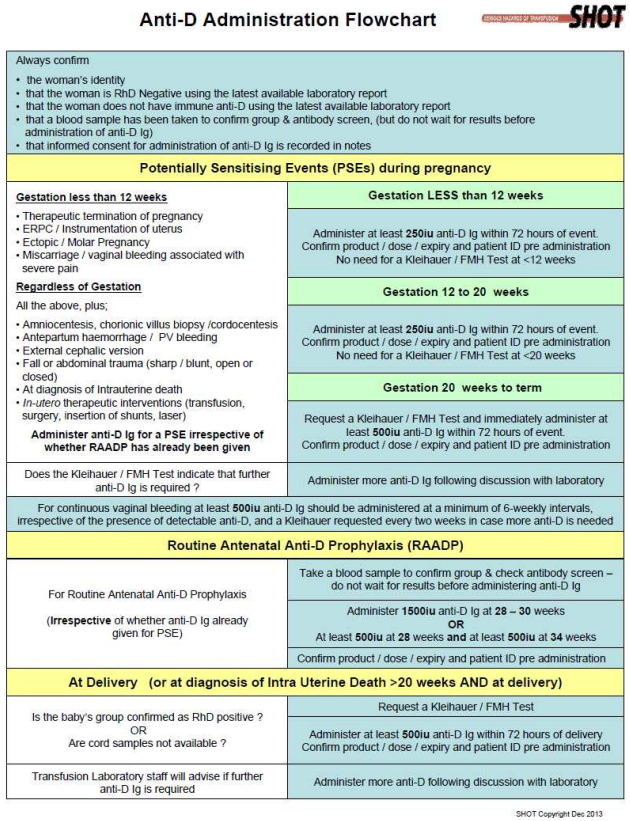
Additional Information

Following documents available on website as education resources and to help with reporting : www.shotuk.org

- SHOT reporting definitions
- SHOT annual reports
- SHOT annual summaries
- SHOT clinical lessons
- SHOT laboratory lessons

Also available:

- Supplemental data
- SHOT participation data
- Presentations, posters and publications



Anti-D Administration Flowchart SHOT

Always confirm
- the woman's identity
- that the woman is RhD Negative using the latest available laboratory report
- that the woman does not have immune anti-D using the latest available laboratory report
- that a blood sample has been taken to confirm group & antibody screen, (but do not wait for results before administration of anti-D Ig)
- that informed consent for administration of anti-D Ig is recorded in notes

Potentially Sensitising Events (PSEs) during pregnancy

Gestation less than 12 weeks • Therapeutic termination of pregnancy • ERPC / Instrumentation of uterus • Ectopic / Molar Pregnancy • Miscarriage / vaginal bleeding associated with severe pain	**Gestation LESS than 12 weeks** Administer at least **250iu** anti-D Ig within 72 hours of event. Confirm product / dose / expiry and patient ID pre administration No need for a Kleihauer / FMH Test at <12 weeks
Regardless of Gestation All the above, plus; • Amniocentesis, chorionic villus biopsy /cordocentesis • Antepartum haemorrhage / PV bleeding • External cephalic version • Fall or abdominal trauma (sharp / blunt, open or closed) • At diagnosis of Intrauterine death • *In-utero* therapeutic interventions (transfusion, surgery, insertion of shunts, laser) **Administer anti-D Ig for a PSE irrespective of whether RAADP has already been given**	**Gestation 12 to 20 weeks** Administer at least **250iu** anti-D Ig within 72 hours of event. Confirm product / dose / expiry and patient ID pre administration No need for a Kleihauer / FMH Test at <20 weeks **Gestation 20 weeks to term** Request a Kleihauer / FMH Test and immediately administer at least **500iu** anti-D Ig within 72 hours of event. Confirm product / dose / expiry and patient ID pre administration
Does the Kleihauer / FMH Test indicate that further anti-D Ig is required ?	Administer more anti-D Ig following discussion with laboratory
For continuous vaginal bleeding at least **500iu** anti-D Ig should be administered at a minimum of 6-weekly intervals, irrespective of the presence of detectable anti-D, and a Kleihauer requested every two weeks in case more anti-D is needed	

Routine Antenatal Anti-D Prophylaxis (RAADP)

For Routine Antenatal Anti-D Prophylaxis (**Irrespective** of whether anti-D Ig already given for PSE)	Take a blood sample to confirm group & check antibody screen – do not wait for results before administering anti-D Ig Administer **1500iu** anti-D Ig at **28 – 30** weeks **OR** At least **500iu** at **28** weeks **and** at least **500iu** at **34** weeks Confirm product / dose / expiry and patient ID pre administration

At Delivery (or at diagnosis of Intra Uterine Death >20 weeks AND at delivery)

Is the baby's group confirmed as RhD positive ? OR Are cord samples not available ?	Request a Kleihauer / FMH Test Administer at least **500iu** anti-D Ig within 72 hours of delivery Confirm product / dose / expiry and patient ID pre administration
Transfusion Laboratory staff will advise if further anti-D Ig is required	Administer more anti-D following discussion with laboratory

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