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## Background:

- 'Delay in appropriate transfusion contributes to death and morbidity in sick patients and is often caused by poor communication between clinicians and laboratory staff' (Key Message in the 2015 Annual SHOT Report).
- The number of reports of delays causing harm has increased each year (2010-2015).
- There were 94 cases of delays in the 2015 Annual SHOT Report; some patients suffered cardiac arrest. Many delays, 67%, were emergency or urgent requests. There were 6 deaths in which delay contributed and 5 cases of major morbidity, 2 in major obstetric haemorrhages.

## Common Reasons:

**Communication Failure** contributed in 25% of delays reported (SHOT 2015-16):

- Delay due to single letter discrepancy in name, noted during elective abdominal aortic aneurysm (AAA) repair, resulting in coagulopathy and death. The delay involved poor communication between clinicians and laboratory staff.
- Delay due to 2<sup>nd</sup> group check sample requested unnecessarily for issue of platelets and failure to inform lab that request was urgent (for head injury). Blue light delivery not requested for platelets.
- Delay in an emergency AAA due to poor communication with multiple calls from clinicians after massive haemorrhage (MH) call was put out, resulting in delay in providing red cells. Surgeon declined O negative red cells.
- Delay during major obstetric haemorrhage: antepartum haemorrhage occurred, caesarean section was undertaken, but the MH call was not activated promptly.

The 2014 Annual SHOT Report noted that many delays were due to misunderstandings in the operation of major haemorrhage protocols – and it is disappointing that ignorance of MH protocols is still recorded 5 years after the publication of the Rapid Response Report by the National Patient Safety Agency (NPSA, 2010). Recommendations included that 'local protocols should enable release of blood and components without the initial approval of a haematologist' and that the 'MH protocol is supported by training and regular drills'.

**Key Point 1:** in a MH, establish 'how long until blood / components are needed at the bedside'



### Failure by junior doctors to recognise shock due to MH:

Due to internal bleeding - 2 cases in the 2014 Annual SHOT Report: one post-spinal surgery; one with retroperitoneal bleeding.

**Note of caution:** This may be compounded by 'downplaying' of MH calls by laboratory staff, due to misunderstandings leading to beliefs that 'as only 2 units were used in a MH, the MH call must have been a false alarm.....don't know what they are doing/confused'. (See Box 1).

There is a risk that laboratory staff doubt that all MH calls are genuine emergencies.

(Picture with kind permission from Miss Sara Paterson-Brown, Consultant Obstetrician Imperial College Healthcare NHS Trust)

### Delayed platelet issue – where blood group not known

There were 2 cases of delays in 2013 and 2014 Annual SHOT Reports, due to no G&S sample or no 2<sup>nd</sup> group check sample. A group check sample is only necessary where red cells are also required.

**Key Point 2:** Treat all MH calls as emergencies until proven otherwise

▪ **Internal Bleeding:**

- Only signs may be ↓BP & ↑HR (cannot always see swelling due to blood accumulation e.g. in abdomen)
- +/- faint
- Must assume bleeding, until diagnosis made by surgery, scans etc. Cannot wait for these before transfusion required for resuscitation.

▪ **Pregnancy:**

- Large increase in blood volume even early in pregnancy
- ↓BP & ↑HR occur **LATE** – only after proportionately greater volume of blood has been lost and patient is in danger
- Bleeding may be visible or internal
- Must assume bleeding and transfuse to resuscitate, while investigating

- Failure to use blood in some MH calls should not be interpreted as a wasted effort or false alarm

**Box 1**

**Key Point 3:** in a genuine emergency, platelets should be given without waiting for results, where the risk of harm to the patient outweighs the risk of either mild haemolysis of red cells by anti-A or -B present in the platelets, or shortened platelet survival due to A or B antigens on the platelets, to which the patient has anti-A or -B. This may require urgent discussion with a haematologist or be incorporated into the laboratory protocols, according to local trust policy.

**Patient identification errors** cause delay in blood provision – either delaying group and screen sample testing or administration of blood collected

**Key Point 4:** In a genuine emergency, if further delays risk patient harm, group O D- blood (consider O D+ in males and females >50 years) should be given until alternative blood can be given safely. Whilst unnecessary use of O D- blood should be avoided, in genuine clinical MH emergencies, blood should not be withheld if the patient is at risk of clinical harm: in such cases, use of O D- blood is entirely justified.

**Red cell antibodies** – can cause delay while investigations are undertaken

**Key Point 5:** In MH, where the antibody screen is positive or the patient has known antibodies for which compatible blood is not readily available, ABO, full Rh & K matched blood may be given, with IV methylprednisolone 1g +/- or IVIg cover if required. 80% of patient antibodies are within the Rh & K systems. Discuss with a clinical haematologist regarding the need for methylprednisolone +/- or IVIg and monitoring (including urine output) for delayed haemolytic transfusion reactions, in light of alloantibodies and any incompatible blood transfused.

**Key Messages:**

Desire to follow good transfusion practice in some areas, if taken out of context, may risk patient death or morbidity due to delays in transfusion in MH scenarios.

Examples include:

- avoidance of unnecessary use of O D- at all
- giving 2 units of O D- only and no more permitted while a patient's sample is tested for ABO group, or a 2<sup>nd</sup> group check is awaited, or a discrepancy in patient identification means that a repeat sample is needed
- withholding any blood as the antibody screen is positive but antibody identification is not yet known
- avoiding wastage

In all these scenarios, there are safety concerns, but if clinical harm to patients from withholding blood outweighs these, then emergency blood is essential and should be offered (e.g.: O D-, O D+, group specific, or ABO full Rh & K matched, depending on the scenario).

- Treat all MH calls as emergencies until proven otherwise