SERIOUS HAZARDS OF TRANSFUSION SHOT

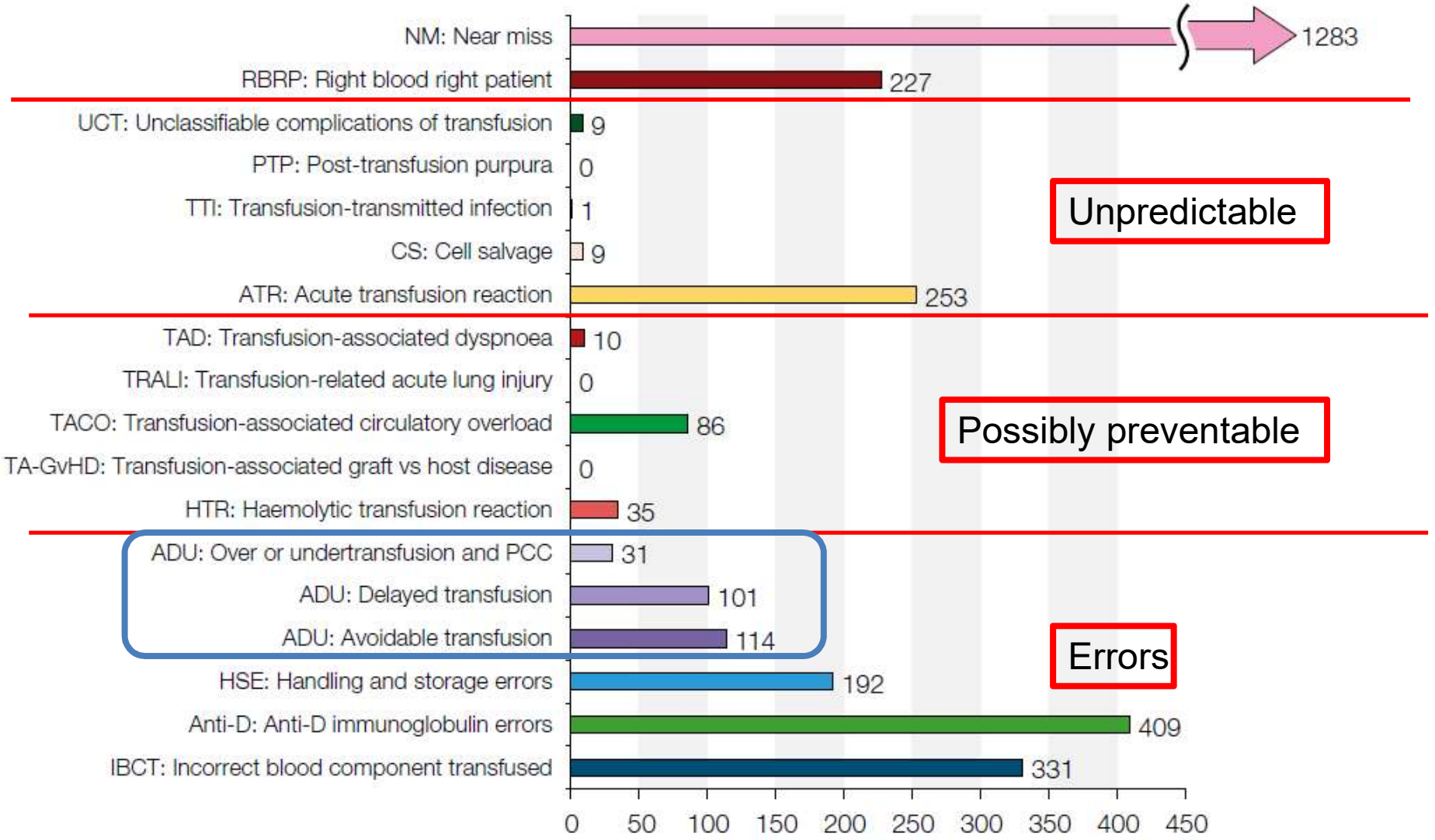
Transfusion in emergencies Lessons from SHOT

East Midlands RTC January 2018

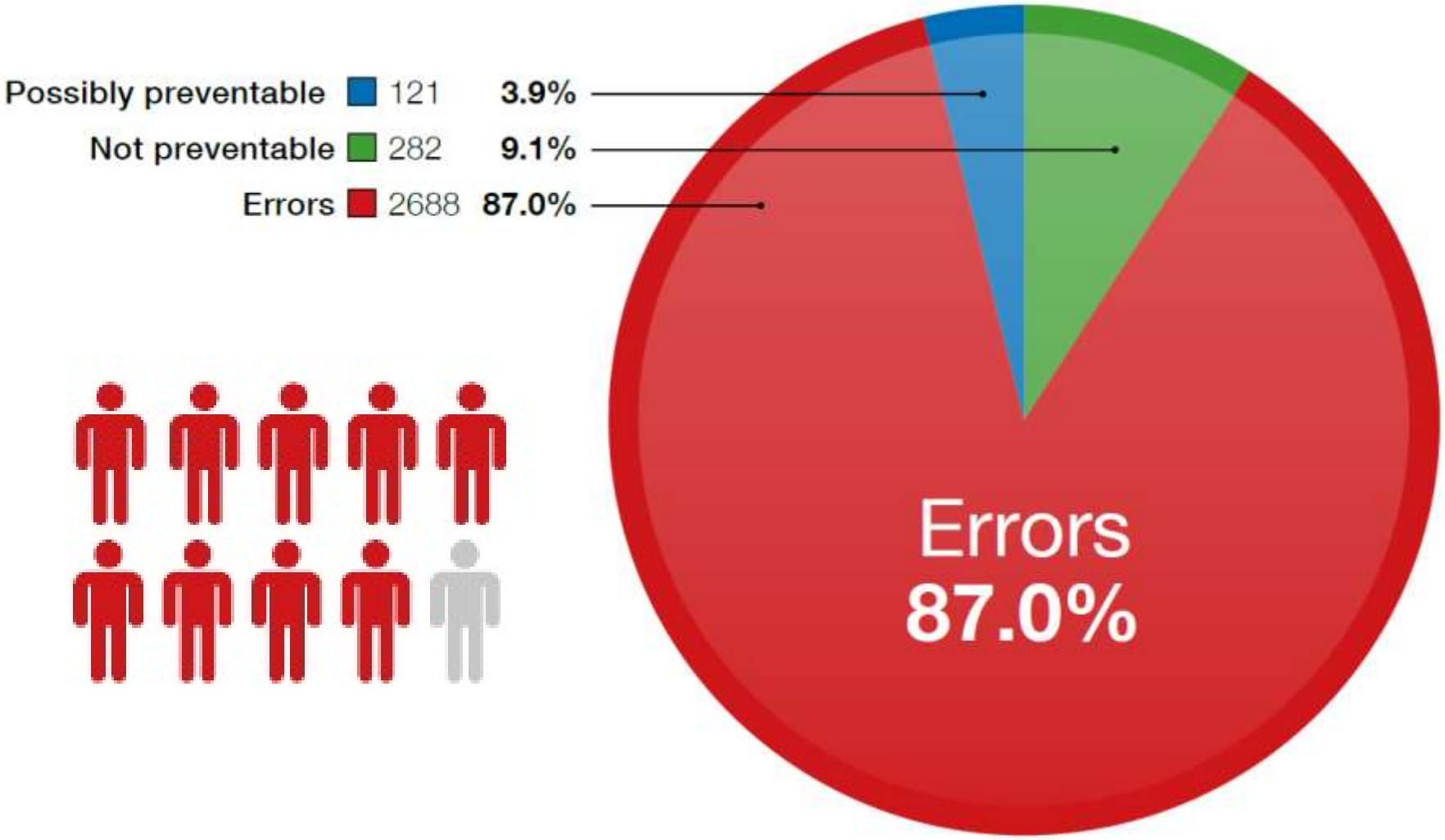
Key messages

- Whatever the emergency, be safe, be sensible
- Identify the patient at blood sampling and at the point of transfusion
- Don’t take short cuts
- Don’t make assumptions
- Communicate effectively

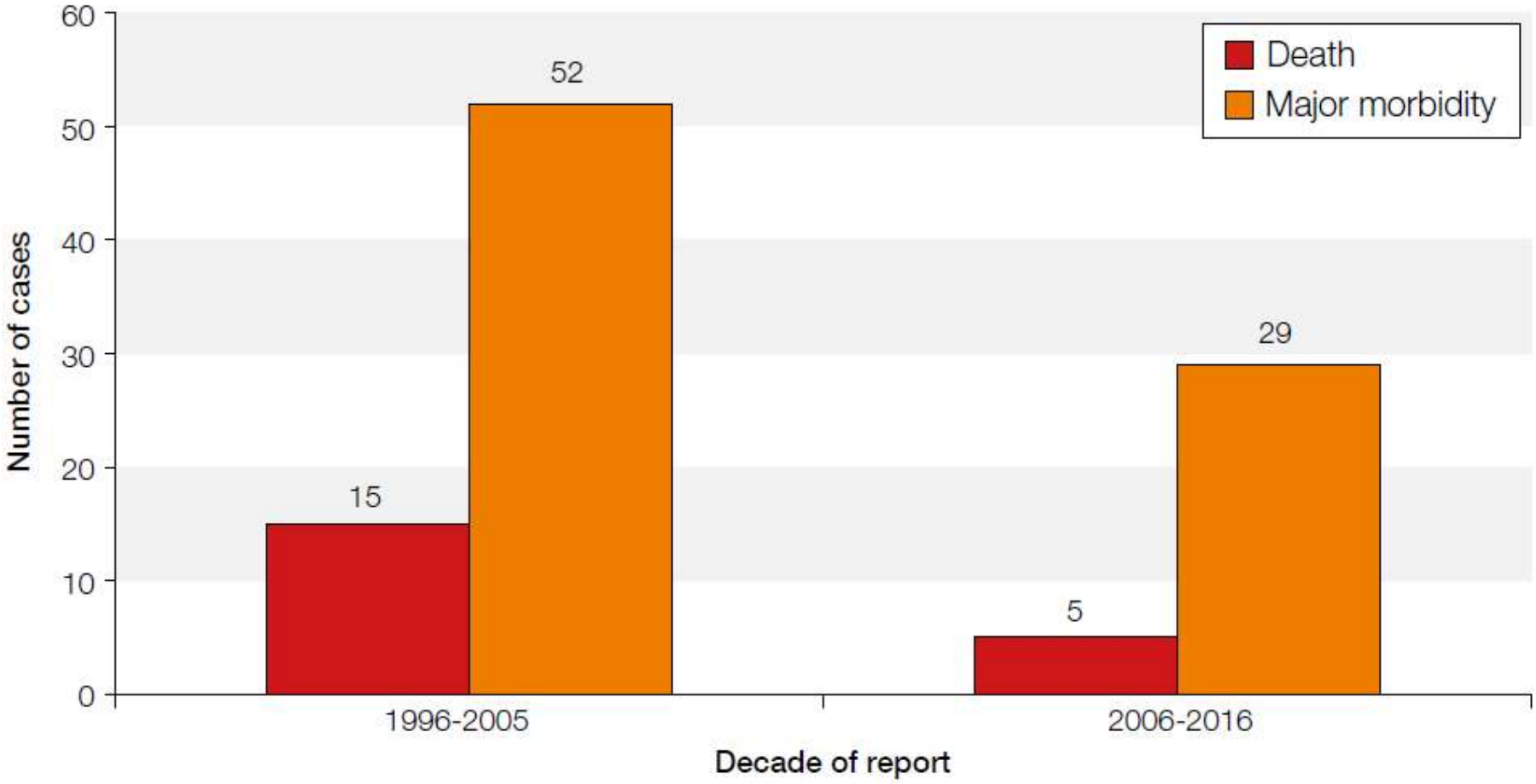
All incidents reported in 2016 n=3091



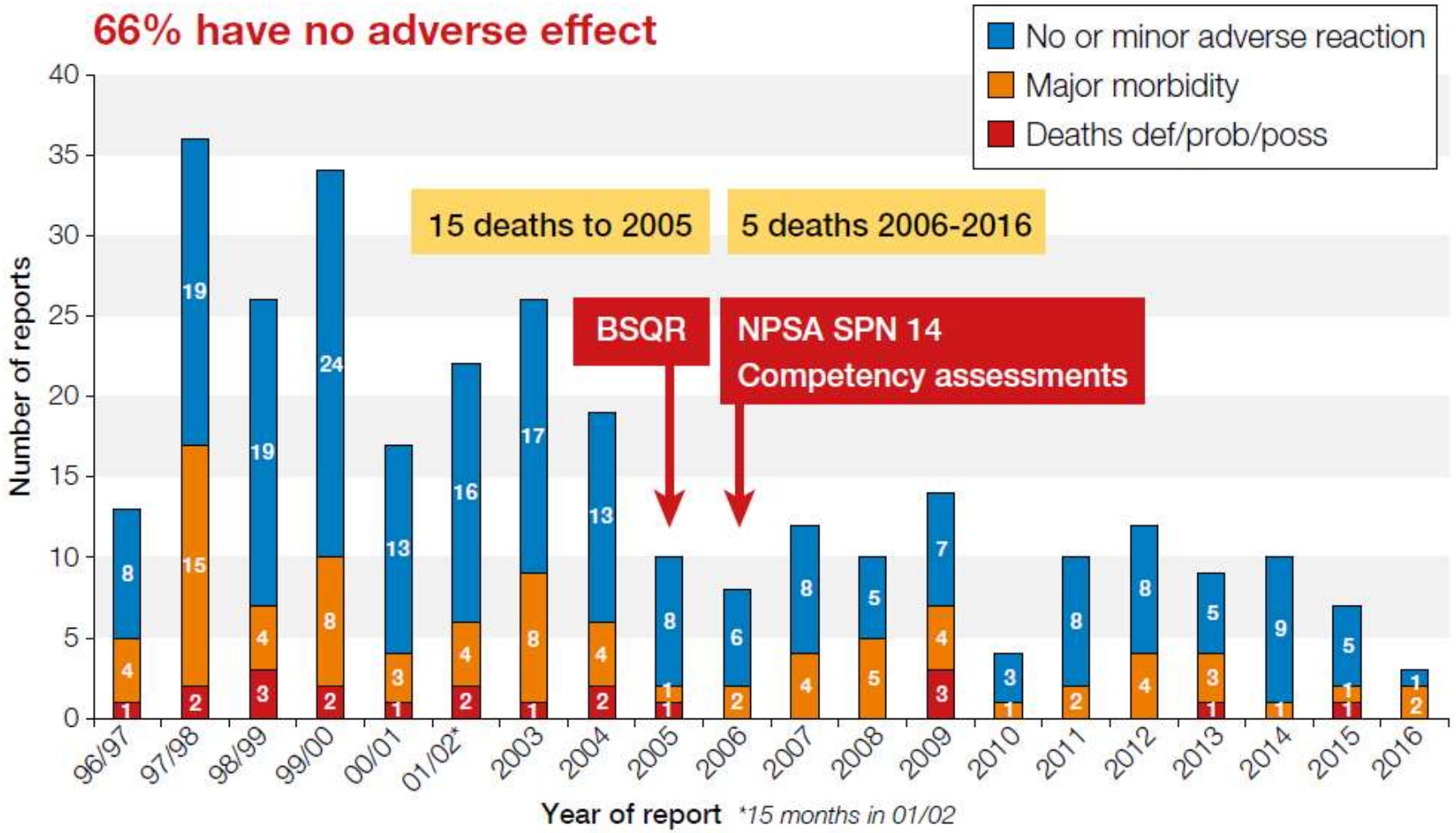
SHOT reports for 2016 n=3091



2016 Good news: reduction in ABO-incompatible transfusions



Outcome of ABO-incompatible transfusions



Death in 2014 from ABO-incompatible transfusion

Filipina nurse who killed a pensioner when she mixed up his name with another patient and gave him the wrong blood during a transfusion is facing jail

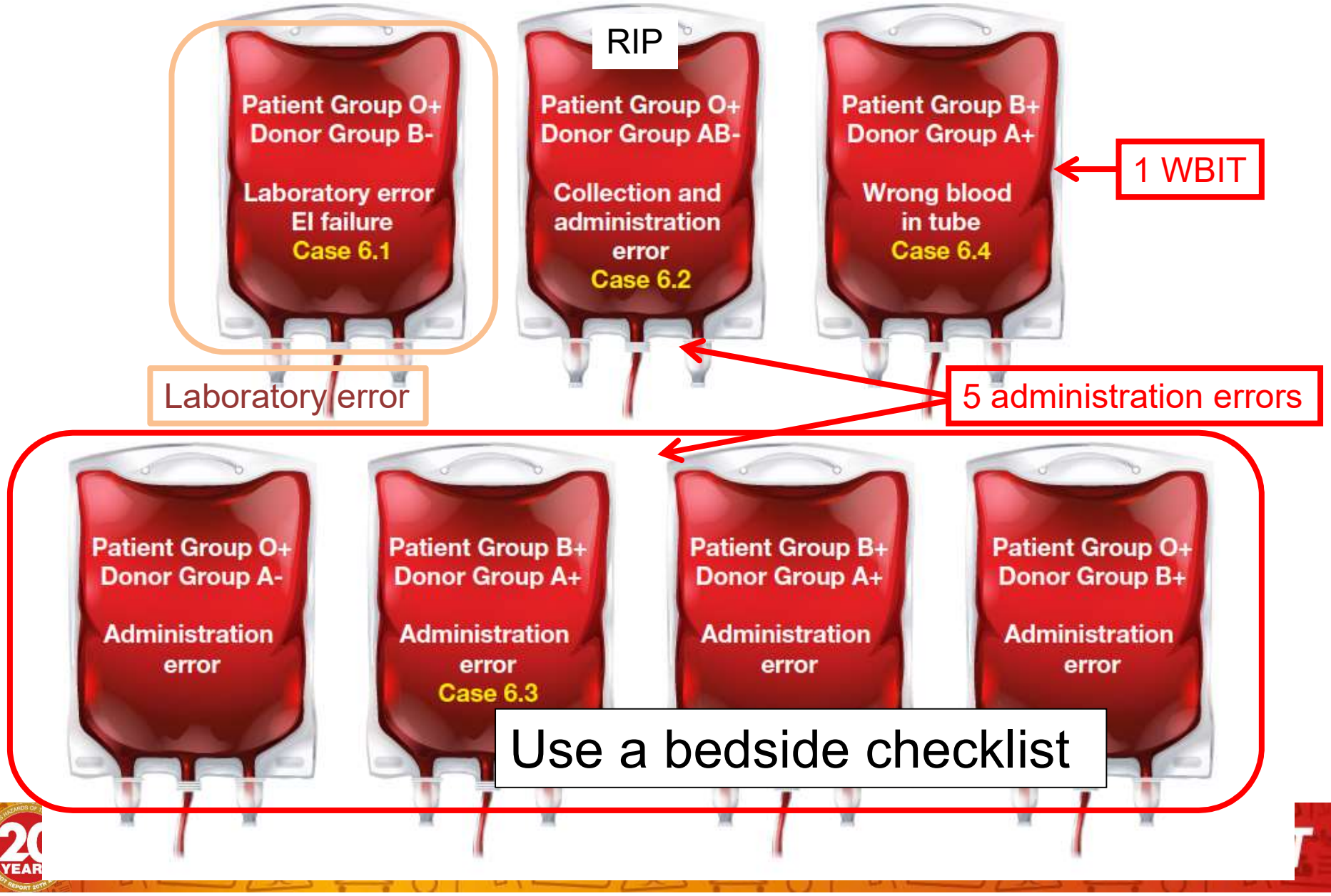
- Lea Ledesma was working at London Heart Hospital as a nurse
- She injected Ali Huseyin, 76, with blood meant for Irfan Hussain
- Her blunder caused Mr Huseyin to have a heart attack and die
- She was today found guilty of manslaughter and cried at verdict

By ANTHONY JOSEPH FOR MAILONLINE
PUBLISHED: 21:53, 14 December 2016 | **UPDATED:** 07:42, 15 December 2016

Emergency
Rushing
Name confusion

She was respected and experienced and known as ‘the mother’ of the intensive care unit. She received a suspended sentence

ABO-incompatible red cell transfusions 2015 n=7



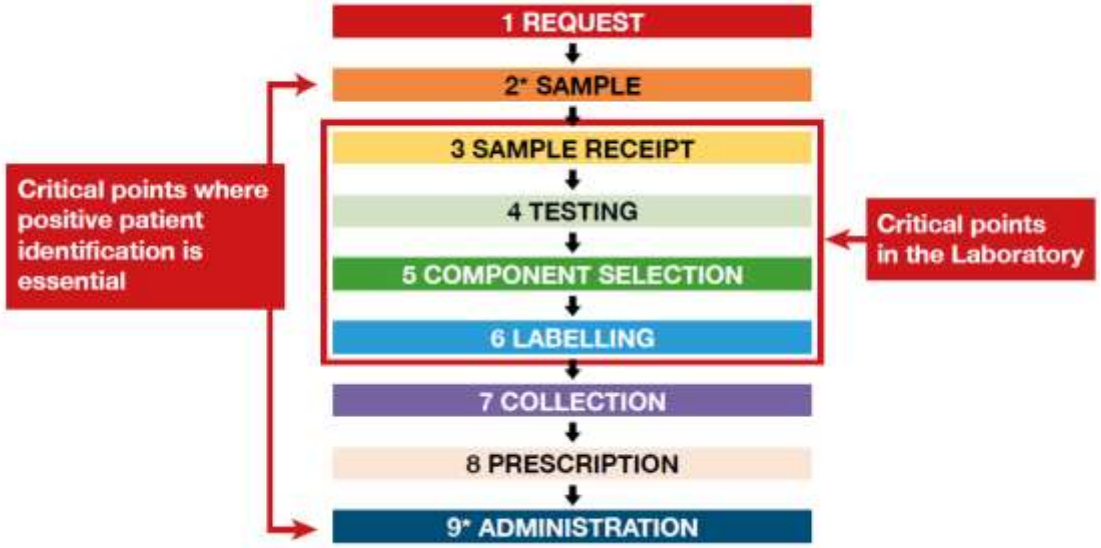
Key recommendation 2017

be like a pilot – **use a bedside checklist** as standard of care. It will prevent administration errors and is the final opportunity to detect errors made earlier

No amount of experience or years of practice will remove the risk of misidentification if you are interrupted or distracted

The bedside check **will not detect a wrong blood in tube** at sampling

(idea courtesy of Joy Murphy)



CMO/CNO alert

Department of Health

CAS Alert

Safe Transfusion Practice: Use a bedside checklist

09 November 2017

Alert reference number: **CEM/CMO/2017/005**

Since the first report in 1997 the UK national haemovigilance surveillance programme, Serious Hazards of Transfusion (SHOT), has repeatedly identified that patients are harmed, and some die, as a result of being given the incorrect type of blood.

In 2014 a patient died as a result of an ABO-incompatible transfusion in a high profile case. The nurse collected, then administered a unit intended for another patient with a similar name. This would have been prevented if the final bedside check had been undertaken correctly.

There were seven ABO-incompatible transfusions reported to SHOT in 2015, and three in 2016. All of these were preventable. In addition to the risk of ABO-incompatible transfusion, patients may have other specific, and sometimes critical, transfusion requirements such as irradiated blood, CMV negative serology blood and extended phenotype blood.

Two critical points occur in preparation for transfusion; the first is to correctly identify the patient and label the sample when taking blood for a pre-transfusion blood sample, and the second is to check the details on the unit of blood and the patient's identity at the point of transfusion.

Evidence from SHOT shows that the bedside check performed at the point of transfusion is not always undertaken correctly and that this puts patients at risk of serious complications or death. SHOT therefore recommends a structured process with a **bedside checklist** which must confirm the following:

- Positive patient identification including first name, family name and date of birth; unless impossible, this should be done by asking the patient to state their names and date of birth
- Unique identification number (hospital number, NHS number or equivalent)
- Check that it is the correct and compatible component (against the prescription and label on the component) for this patient at this time
- Check that the component meets any specific requirements for that patient

This alert encourages organisations to review their blood transfusion processes. There is an appendix of additional information which has been circulated with this alert, and is available at the link provided in the resources section, below.

Professor Dame Sally Davies
Chief Medical Officer, England

Professor Jane Cummings
Chief Nursing Officer, England

Actions

Who: All organisations providing NHS funded care which involves the provision of blood transfusions.

When: Immediate

1. Organisations should assess their bedside systems (including electronic systems) to ensure a confirmatory step is in place where the individual performing the checks must sign to say all steps have been followed.

2. This alert (and supporting information) should be circulated to all relevant staff, including to community nursing staff and midwives who may be involved in the transfusion of blood products in the community.

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SERIOUS HAZARDS OF TRANSFUSION SHOT

Be safe! Use the bedside checklist

○ Check positive patient identification

- ask the patient to state first name, last name and date of birth
- these must match exactly those on patient identification band

○ Check patient identification details on component pack

- against patient identification band and prescription

○ Check the prescription

- has this component been prescribed?

○ Check the component

- is this the correct component? Is the group compatible with the patient?
- check the expiry date
- donation number and blood group must match attached laboratory produced label
- check for any signs of leakage or damage to packaging and inspect for any defects

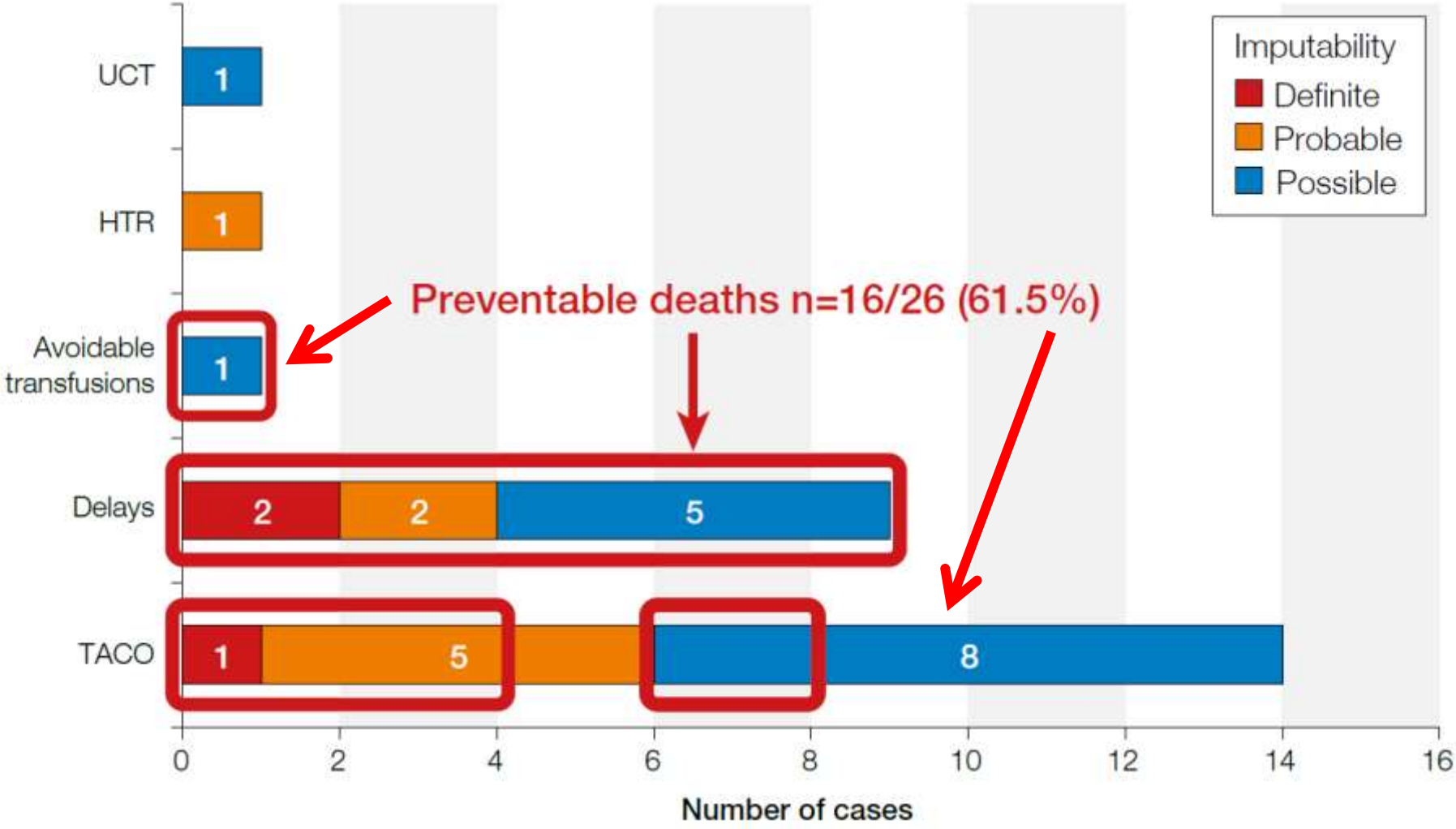
○ Check for specific requirements

- does the patient need irradiated components or other specially selected units?

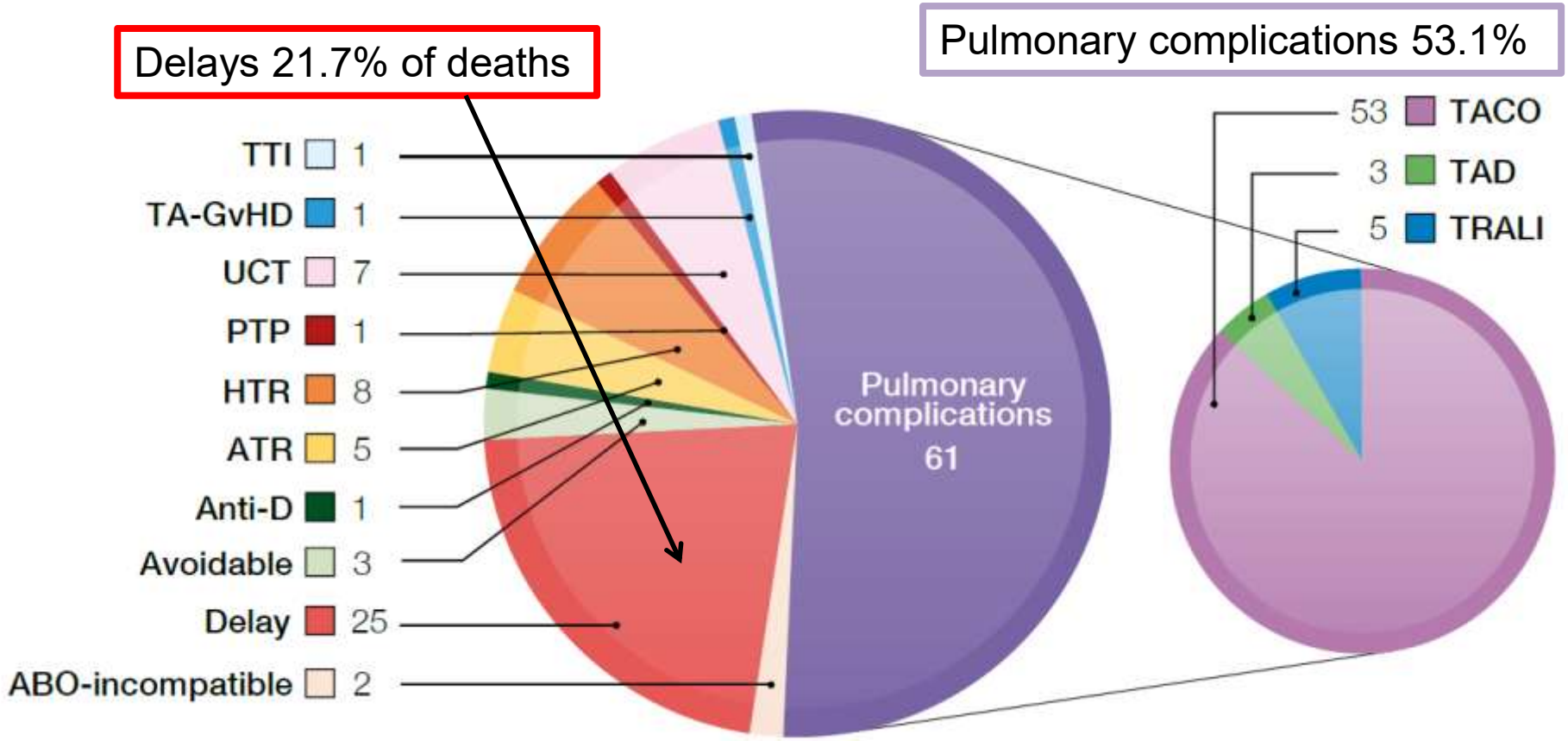
Signature:

What about delayed transfusion?

2016 Bad news: 26 patients died where transfusion was implicated 9 related to delay



Transfusion-related deaths 2010 to 2016 n=115



Delays the background

- The UK national patient safety agency (NPSA) was set up in 2001 to identify trends and patterns in patient safety problems through a national reporting and learning system (NRLS)
- Between 2006 and 2010
  - **11 deaths** reported
  - **83 incidents** in which patients were harmed as a result of delayed provision of blood in an emergency

NPSA 'Rapid Response Report' October 2010

NHS
National Patient Safety Agency

Rapid Response Report

NPSA/2010/RRR017

From reporting to learning

21 October 2010

The transfusion of blood and blood components in an emergency

Issue

The urgent provision of blood for life threatening haemorrhages requires a rapid, focused approach as excessive blood loss can jeopardise the survival of patients. Early recognition of major blood loss and immediate effective interventions are vital to avoid hypovolaemic shock and its consequences. One such action is the rapid provision of blood and blood components, for which effective communication between all personnel involved in the provision and transportation of blood is key.

For IMMEDIATE ACTION by the NHS and independent (acute) sector. Actions should be led by an executive director nominated by the Chief Executive, working with the Chair of the Hospital Transfusion Committee. Deadline for ACTION COMPLETE is 26 April 2011.

Actions

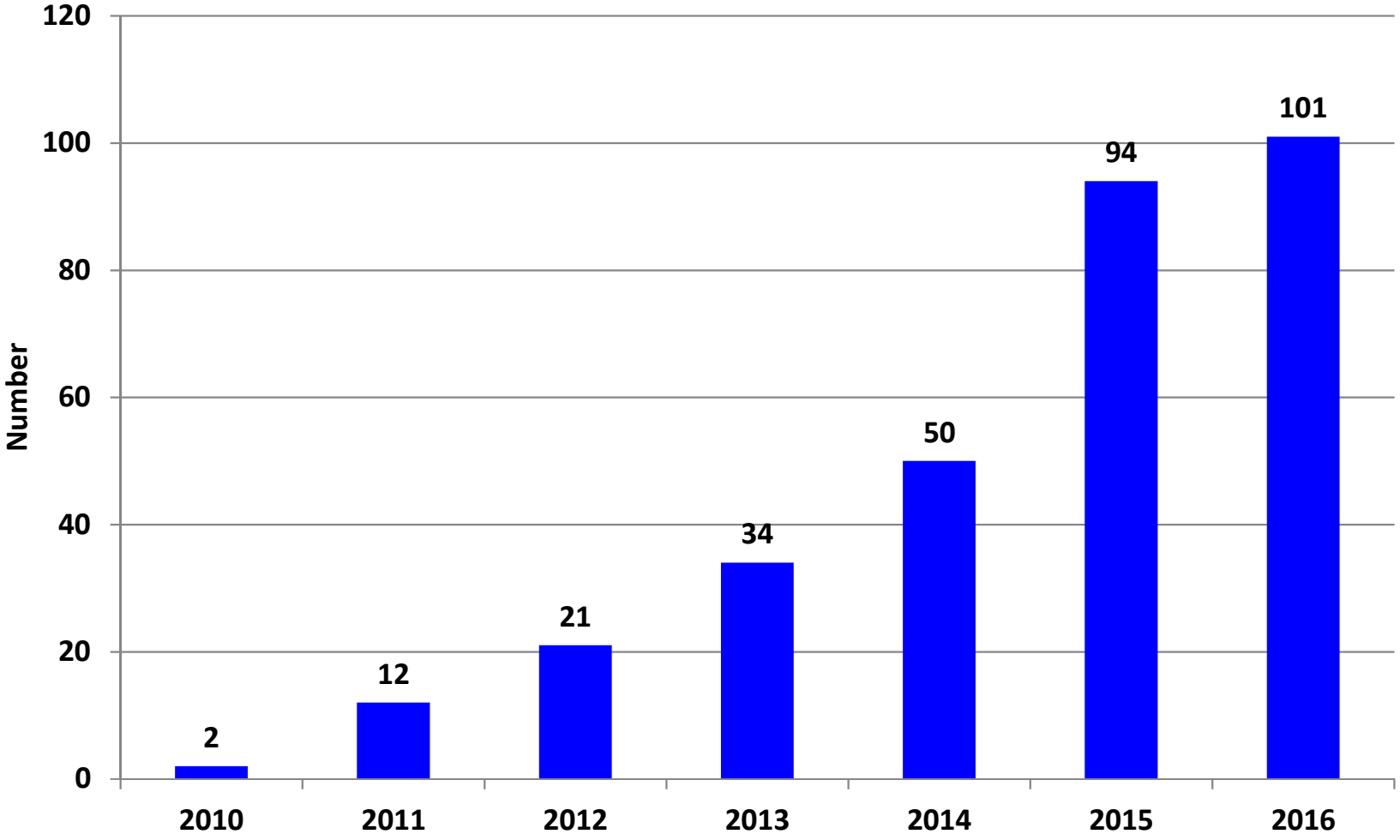
- **HTCs** to review local practices/protocols for requesting and obtaining blood in an emergency
- **Release** of blood and components without authorisation by a haematologist
- **Everyone** knows where to find the major haemorrhage protocol (MHP) and have practice drills
- **Trigger** phrase
- Transfusion laboratory are **informed**
- Clinical teams to appoint a **co-ordinator**
- **Review** all incidents where the MHP has been activated
- All instances of delay to be **reported** to SHOT and **investigated** locally

SHOT: Delayed transfusion

(reports from 2010 onwards)

- Where a transfusion of a blood component was clinically indicated but was not undertaken or was significantly delayed
- Delays in provision of blood components in an emergency
- Cases where a delay in transfusion affected the patient's health/wellbeing, for example:
  - An out-patient who has to return to hospital the next day as components were not available at the planned time
  - Delayed surgery
  - Delayed red cell exchange

Delayed transfusions n=314



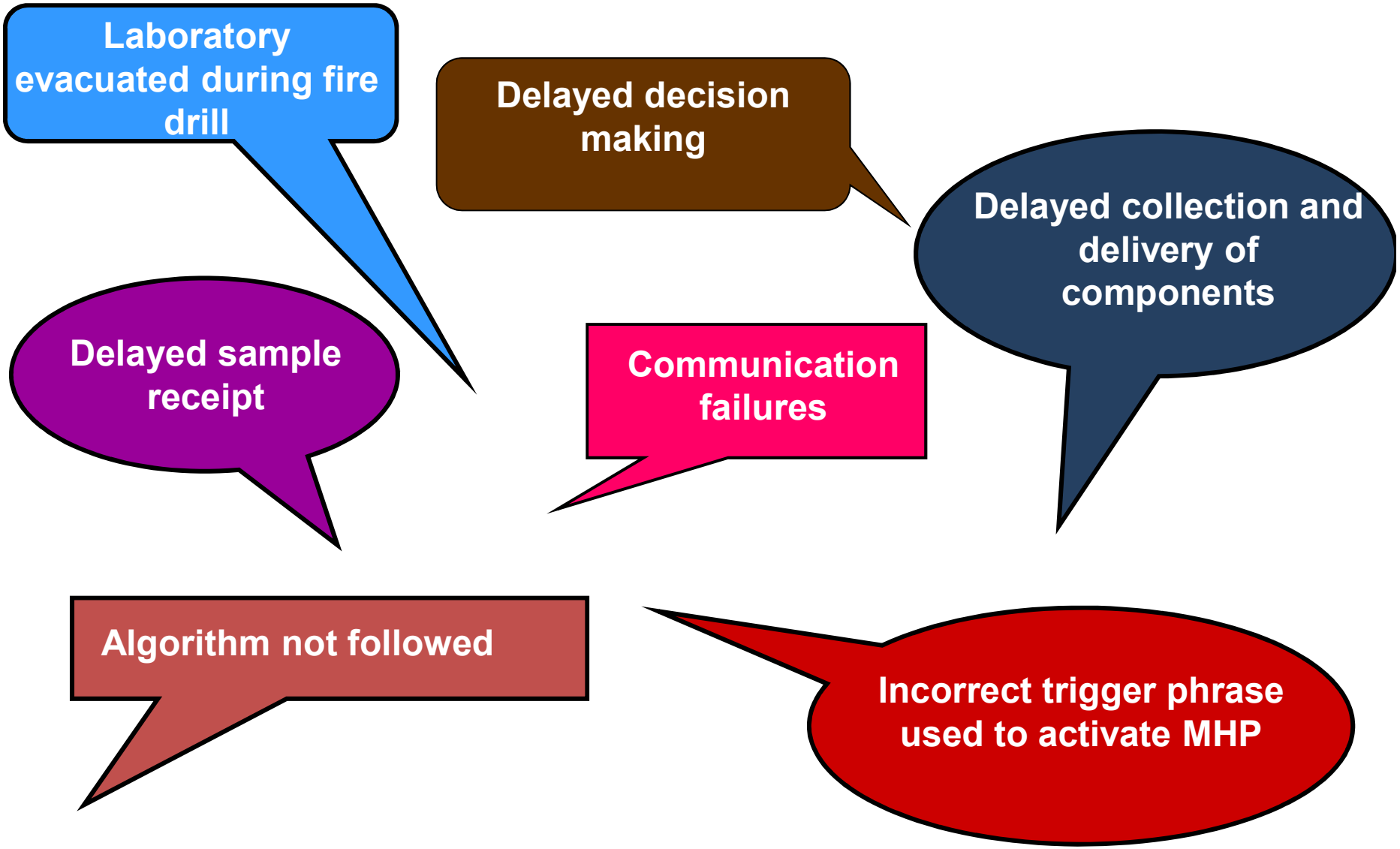
Delayed transfusion 2010-2016

- 314 reports of delayed transfusion
- 25 deaths where delayed transfusion was causal or contributory
- Urgent or emergency transfusions 222/314 (71%)
- 139/314 (44%) ED, theatres or ICU
- 18 cases of obstetric haemorrhage, 2 deaths
- 42/314 associated with massive haemorrhage protocols

Massive haemorrhage n=42

Divided into 4 broad categories:

- Failed activations
- MHP not followed
- Delayed activation of MHP
- Problems during MHP



Death from obstetric haemorrhage

- *A 34 yr old woman had an unexpected severe post-delivery bleed (vaginal)*
- *MHP activated, 6 units arrived within 5 minutes*
- *Transferred from labour ward to theatre, bleeding from cervical tear controlled within 30 minutes*
- *MHP stood down, 2 units transfused*
- *2 hours later developed shock and could not be resuscitated despite 12 units of blood and 3 FFP*

Causes: 2 locations, shift change, two teams

Death after haematemesis due to delay in transfusion

- *A 76-year-old man admitted with haematemesis and on anticoagulants for atrial fibrillation died associated with failure to activate the MHP and 5-hour delay in transfusion*
- *His haemoglobin (Hb) was 69g/L at 00:15. The biomedical scientist (BMS) was lone working and had attempted to contact the emergency department (ED) to inform them of abnormal blood result, but did not get an answer*

Causes –
Failure in communication,
Assumptions, MHP not followed

Major morbidity in relation to delayed access to O D-negative units

- *At 19:15hrs a porter attempted to collect a unit of emergency O D- negative blood from the ED refrigerator for a 39-year-old woman who was bleeding complicated by cardiac arrest, but was informed he was not allowed to take the blood because it was for ED patients only*

- *The porter then proceeded to the main theatre blood refrigerator and collected an emergency unit there*

- *This patient was admitted to intensive care and made a full recovery*

- *She received 5 units of red cells and 2 FFP*

SHOT Bite No.8
Massive haemorrhage - delays

SHOT Bites No 8 Massive haemorrhage - delays

Email: shot@nhsbt.nhs.uk **Telephone:** 0161 423 4208 **Website:** www.shotuk.org

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):

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'

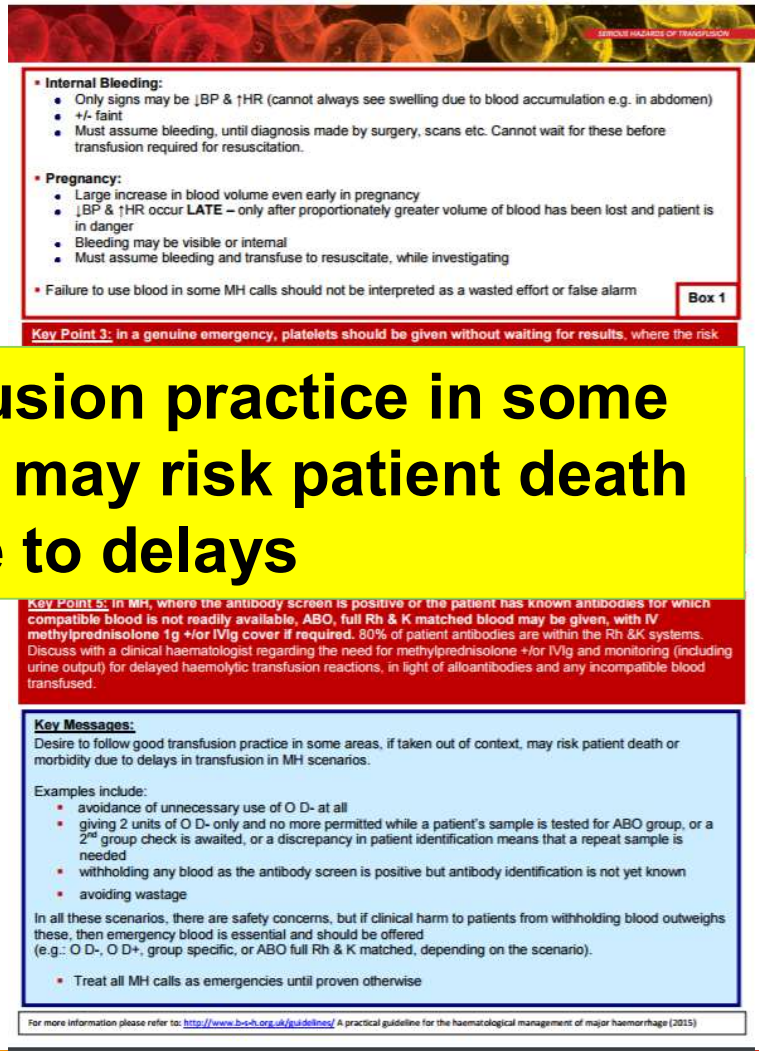
Failure by junior doctors to recognise shock due to MH:
Due to internal bleeding - 2 cases in the 2014 Annual SHOT Report: one post-spinal surgery; one with retroperitoneal bleeding.
Note of caution: This may be compounded by 'downplaying' of MH calls by laboratory staff, due to misunderstandings leading 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 2nd 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

November 2016



- **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

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 2nd 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

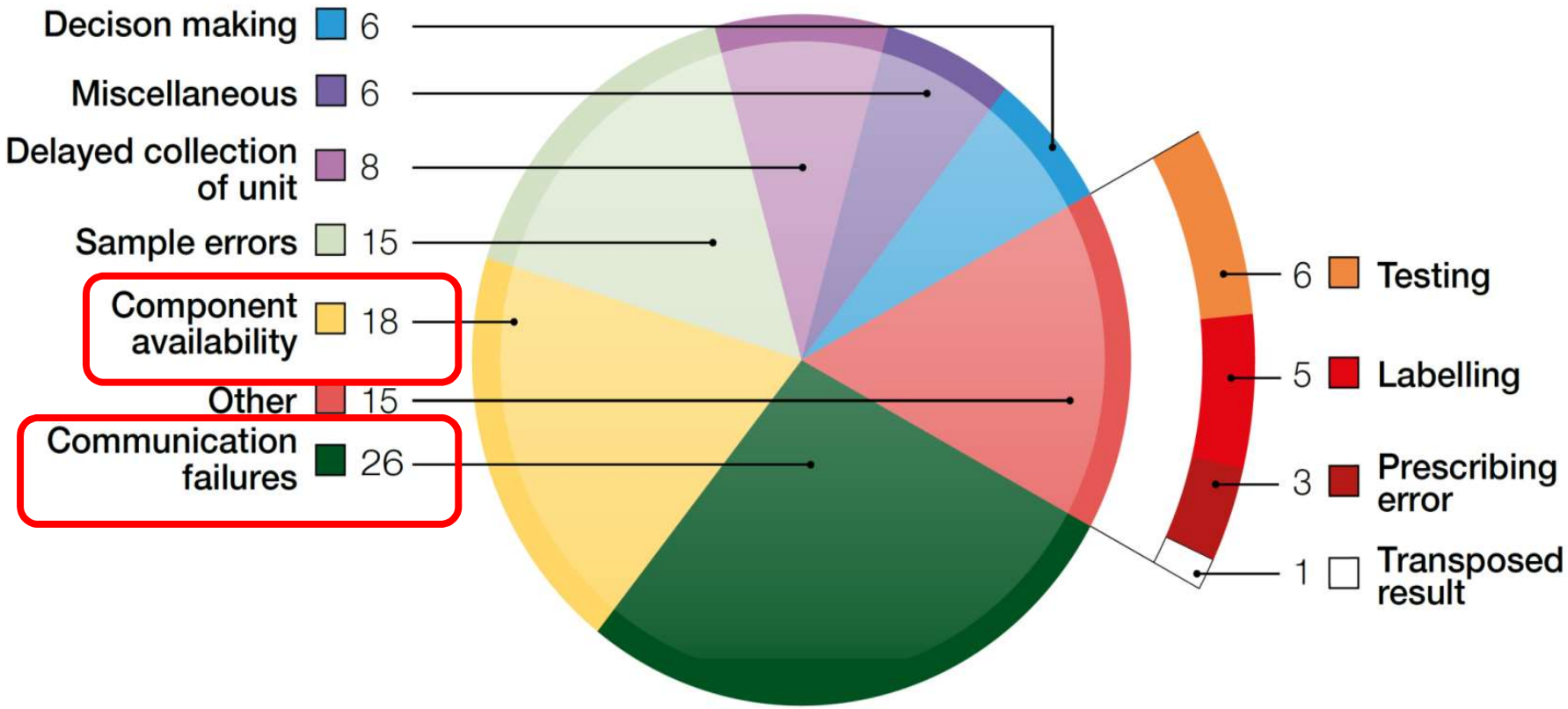
In all these scenarios, there are safety concerns, but if clinical harm to patients from withholding blood outweighs these, then emergency blood is essential and should be offered
(e.g.: O D-, O D+, group specific, or ABO full Rh & K matched, depending on the scenario).

- Treat all MH calls as emergencies until proven otherwise

For more information please refer to: http://www.b-s-h.org.uk/guidelines/ A practical guideline for the haematological management of major haemorrhage (2015)

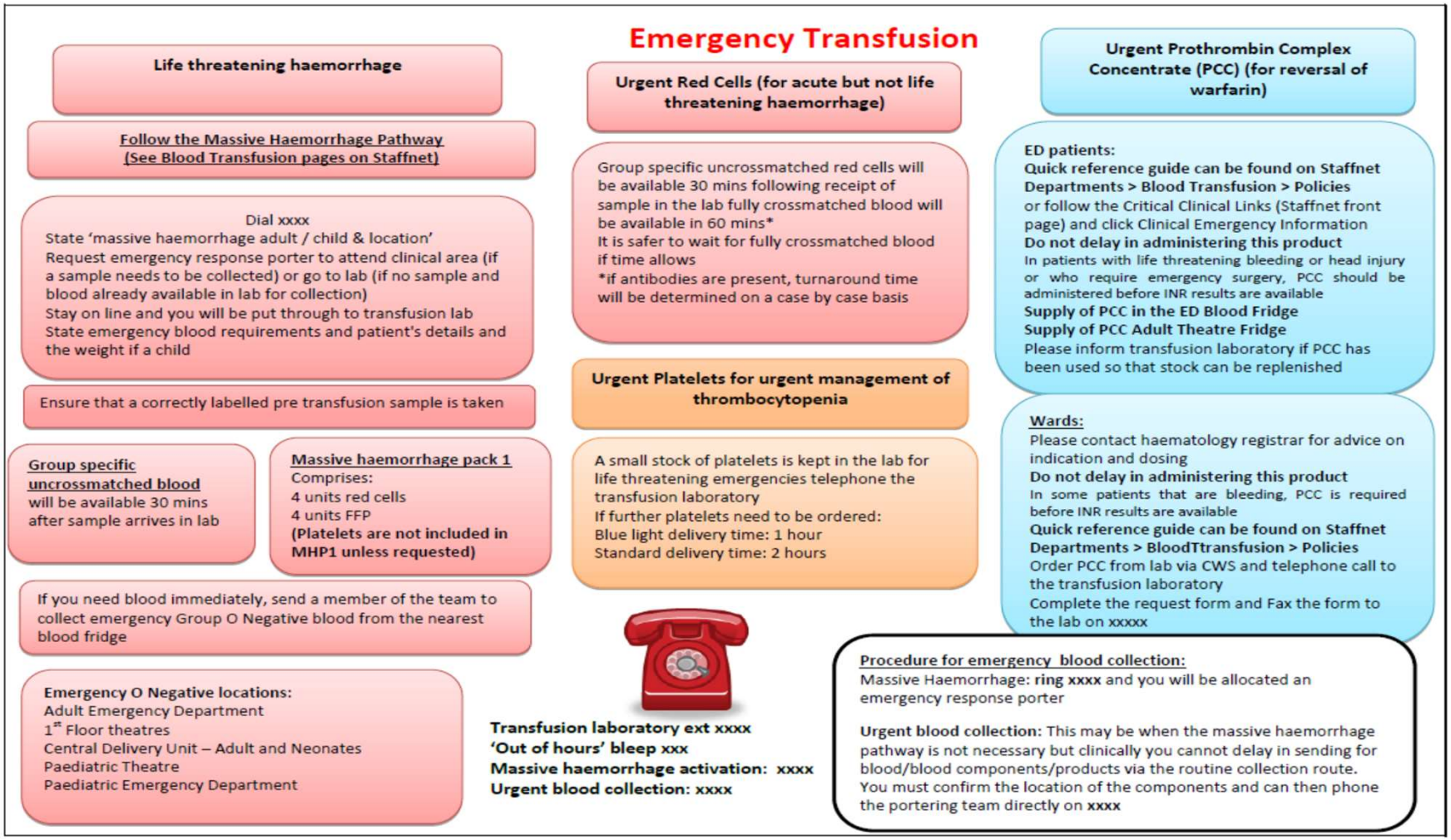
Desire to follow good transfusion practice in some areas, if taken out of context, may risk patient death or morbidity due to delays

Reasons for delay 2015 (n=94)



Key SHOT message

- Delays most often result from failures in communication and poor handovers
- Clinicians need to ensure the urgency of component requirements is clearly transmitted to laboratory staff
- Ensure that staff know how rapidly components can be made available



Courtesy of Manchester Foundation Trust

Delayed provision of red cells as a result of poor labelling and communication confusion

- *An elderly man required an emergency transfusion during massive gastrointestinal haemorrhage (Hb fell from 88 to 47g/L) complicated by a warfarin-related high INR of 11.5*
- *Group-specific red cells were issued but were unlabelled for the patient and could not be transfused Error 1*
- *The samples were sent by the incorrect route (pneumatic tube rather than hand-delivered),Error 2 there were communication failures between the clinical area and the laboratory Error 3*
- *The patient arrested and died, and the delay in transfusion may have contributed*

More haste less speed – wrong date of birth

- *A 66 year old man with a ruptured aortic aneurysm had delayed provision of major haemorrhage packs as the ambulance staff transferring him from one hospital to another gave the wrong date of birth to the emergency department*
- *This was entered into the Trust information technology (IT) system. In addition, the blood sample was delayed reaching the laboratory and had not been marked as urgent*

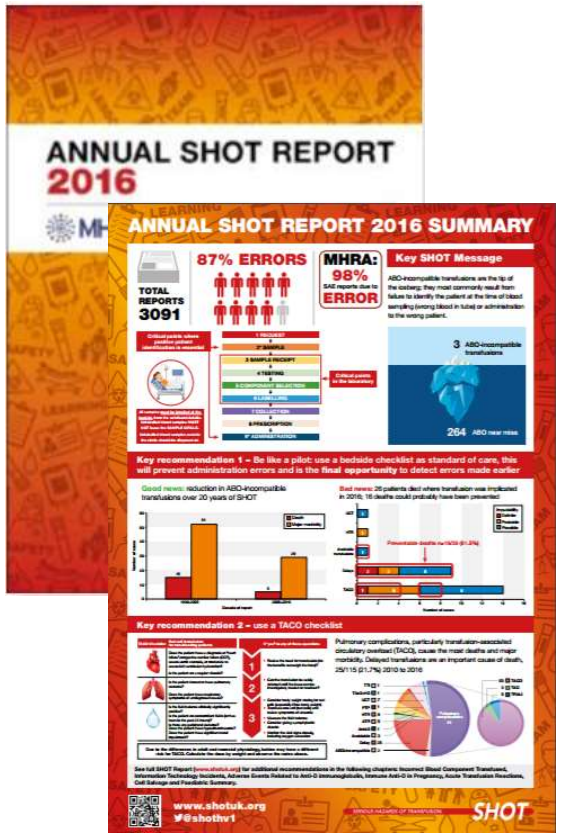
Confusion about the trigger phrase for massive haemorrhage

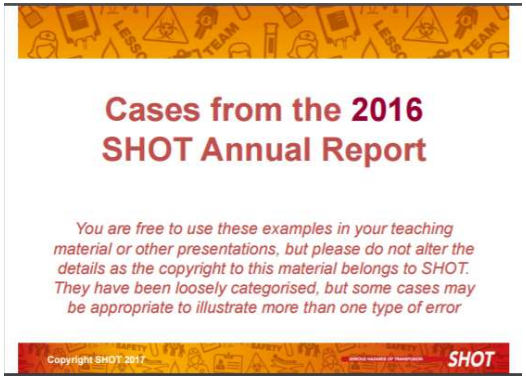
- *A patient was admitted to a maternity hospital collapsed due to hypovolaemia from a ruptured uterus. The MHP was triggered by the clinical staff at 23:40 using an incorrect trigger phrase. This was not recognised by the hospital switchboard who consequently activated only the cardiac arrest team in error*
- *The caller from the clinical area did not realise he had not been connected to the transfusion laboratory to discuss the requirements for the patient. At 00:55 the clinical area called the transfusion laboratory to ask where the platelets were*
- *The laboratory had not been advised of the activation of the MHP, but was able to prepare and rapidly issue appropriate components. Three emergency O RhD negative units were transfused before group specific blood became available. The patient required admission to ITU*

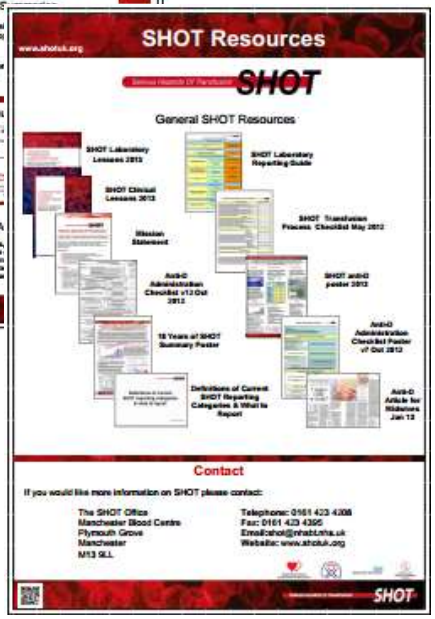
Reduce the risks

- Whatever the emergency, be safe, be sensible
- Identify the patient at blood sampling and at the point of transfusion
- Don’t take short cuts
- Don’t make assumptions
- Communicate

SHOT resources







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SHOT Symposium 2018

The Lowry Centre, Salford Quays

Thursday 12th July 2018

Registration is open

Abstract deadline April 27th 2018