Possibilities of error during the transfusion process & Case report

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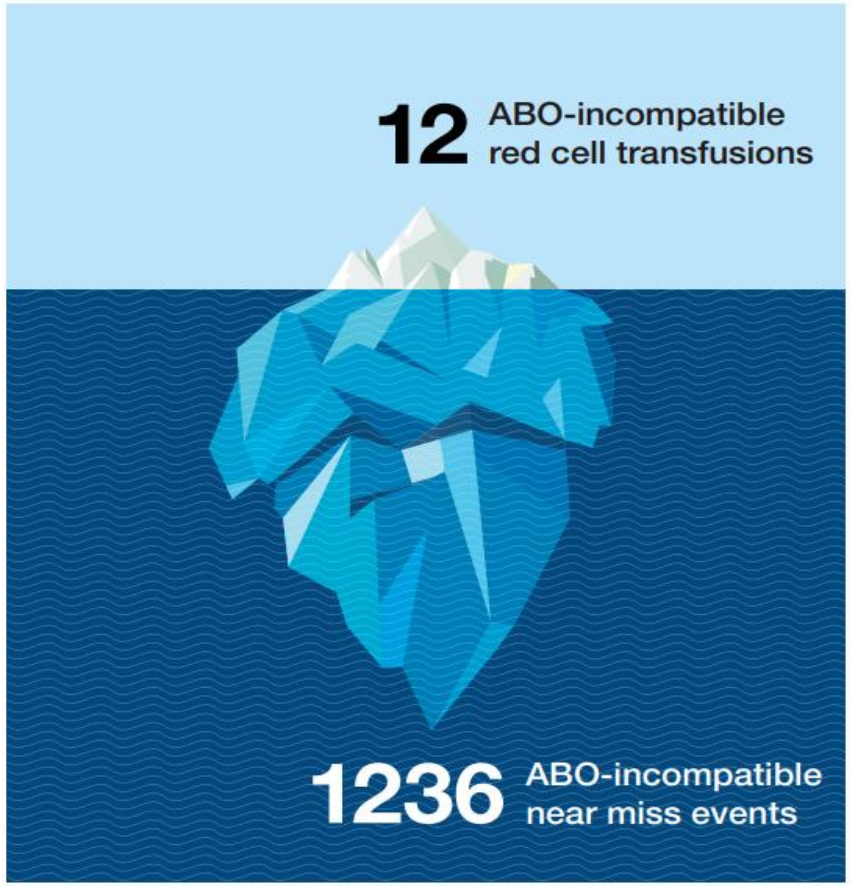
SHOT= Serious hazard of transfusion

ANNUAL SHOT REPORT 2018

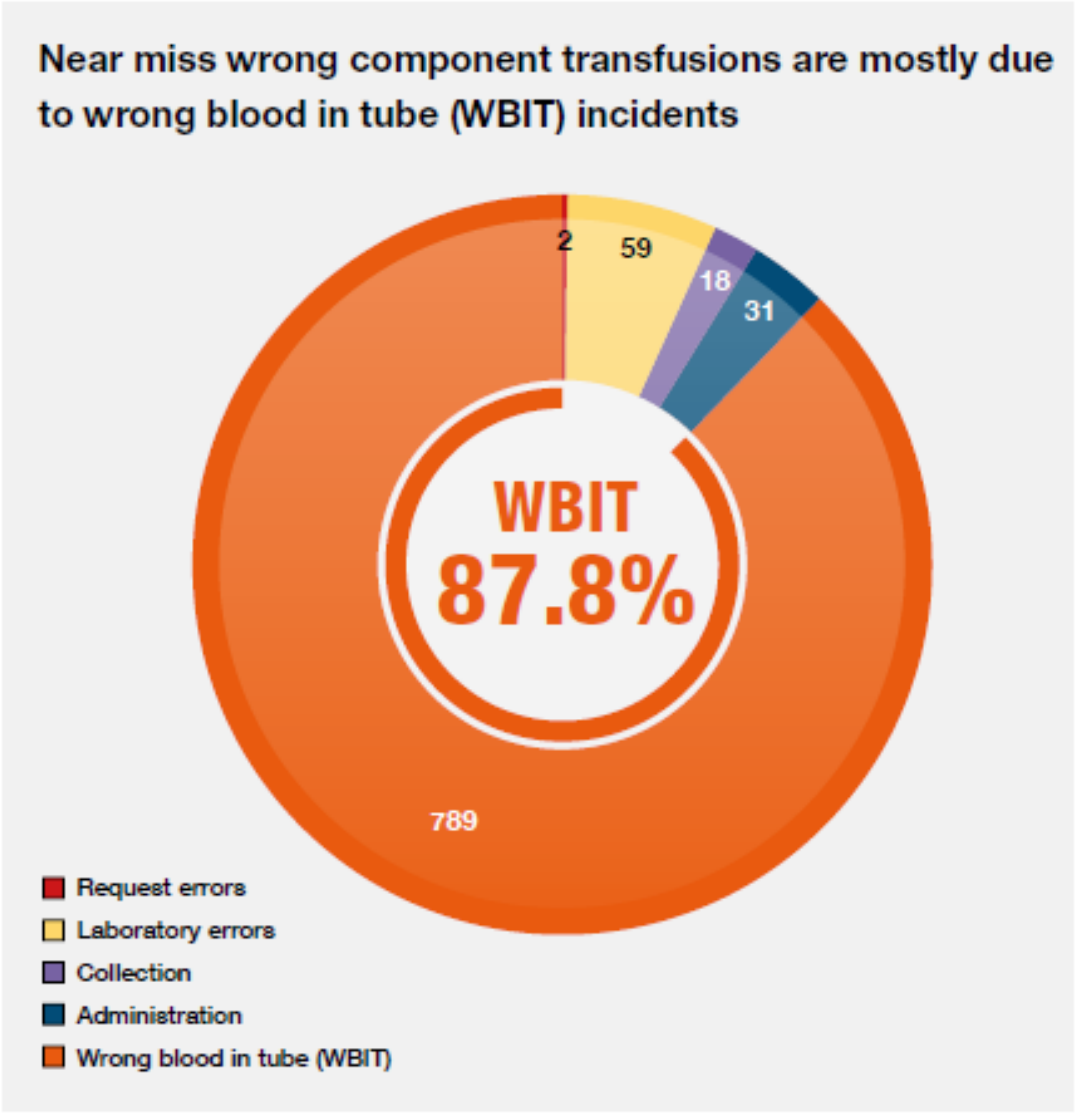
ABO incompatible transfusions (SHOT report 2016-2019)

Figure 3.8: ABO-incompatible transfusions 2016-2019: few events (n=12) but many near misses (n=1236)



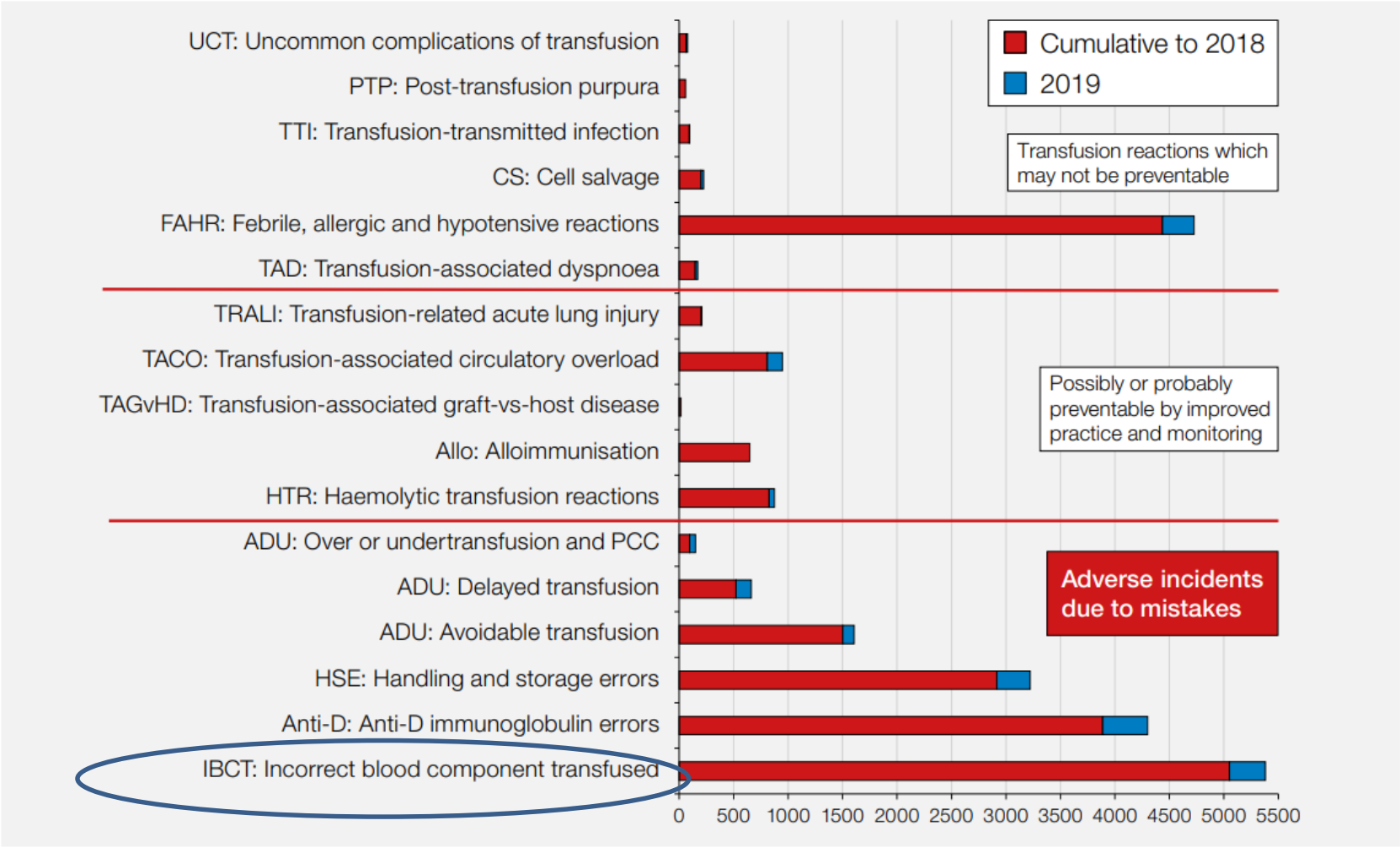
A near miss is an error or deviation from standard procedures or policies that is discovered before the start of the transfusion and that could have led to a wrong transfusion or a reaction in a recipient if transfusion had taken place

WBIT = wrong blood in tube



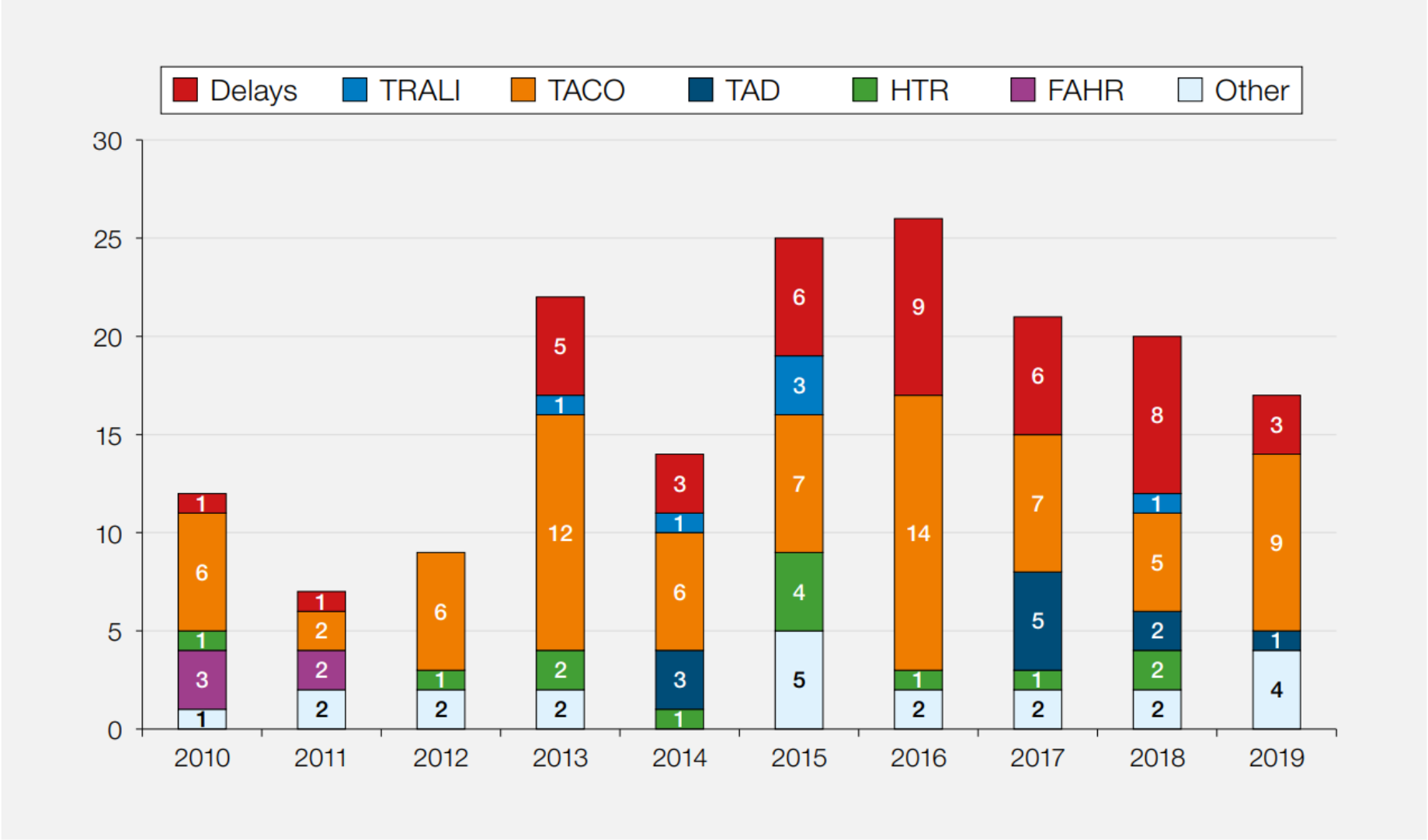
ANNUAL SHOT REPORT 2017

Cumulative data for SHOT categories 1996-2019 n=23341



*Data on alloimmunisation has not been collected since 2015

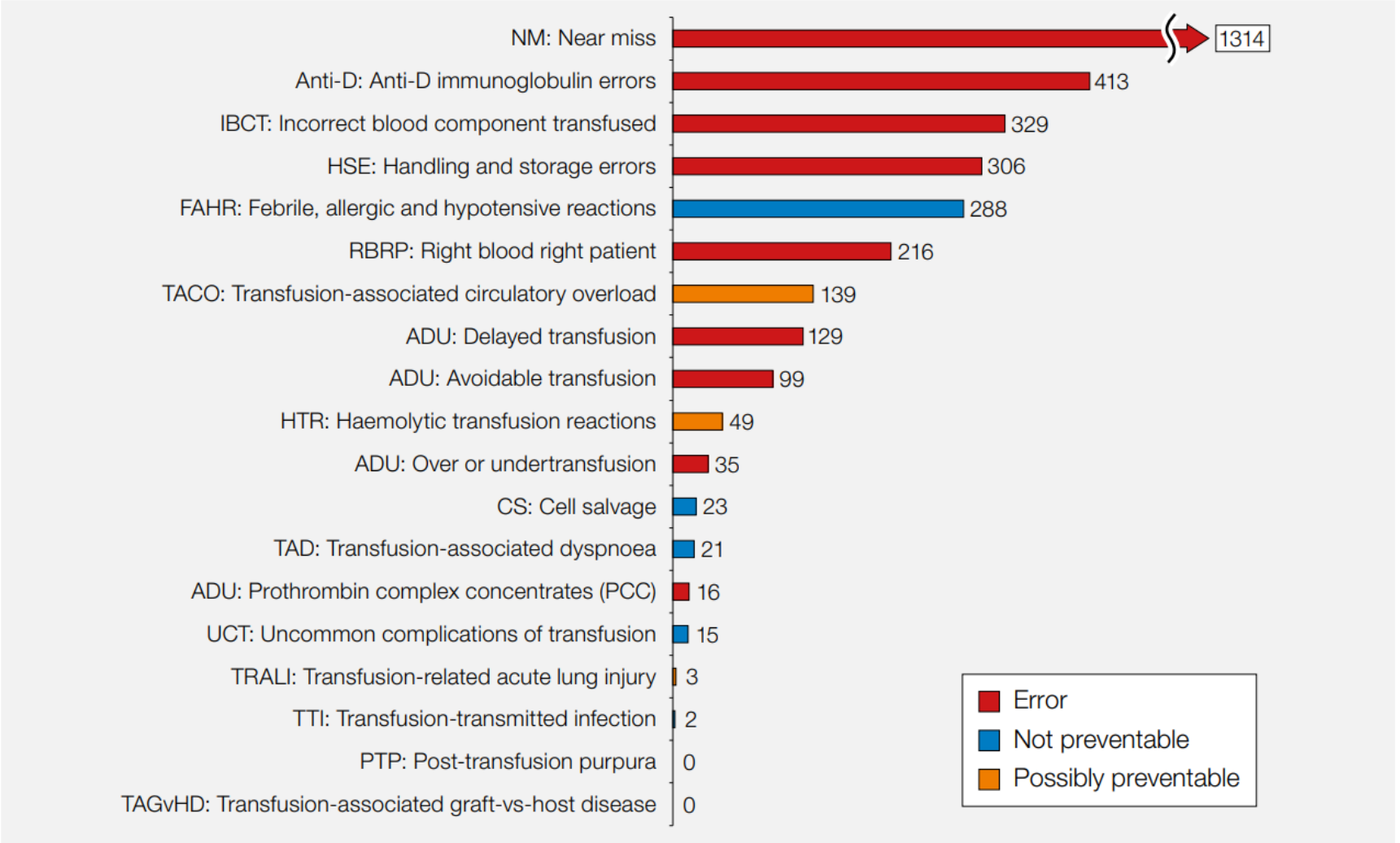
Transfusion-related deaths 2010 to 2019 n=173



TRALI=transfusion-related acute lung injury; TACO=transfusion-associated circulatory overload; TAD=transfusion-associated dyspnoea; HTR=haemolytic transfusion reaction; FAHR=febrile, allergic and hypotensive reaction

Delays include 1 delay due to PCC in 2019; HTR includes 2 deaths due to ABO-incompatibility; 'Other' includes 1 each for post-transfusion purpura, transfusion-associated graft-versus-host disease (2012) and anti-D related; there were 7 in the avoidable, over or undertransfusion category, 3 transfusion-transmitted infections, and 9 deaths related to other unclassified reactions

SHOT riport 2019



ANNUAL SHOT REPORT 2019

Preventing patient misidentification

DO's

- ✓ DO read all related local policies
- ✓ DO identify the patient as soon as they are admitted by asking the patient to state their full name and date of birth and other demographic details
- ✓ DO always place a wristband on the patient's wrist as soon as you have established their identity and explain the need to wear this
- ✓ DO regularly check the wristband details are legible. If not, replace it
- ✓ DO access communication support services as outlined in policy
- ✓ **DO ask the patient for their full name and date of birth at every intervention**
- ✓ **DO check the details against the wristband before carrying out any procedure or administration of medicines or blood**
- ✓ DO label any specimens after they have been taken before leaving the bedside, with the details from the identification wristband

DON'Ts

- × **DON'T read the patient details and ask them to confirm them**
- × DON'T accept a patient pointing to a name above the bed
- × DON'T rely on friends or family members for communication as there is a risk that this may not be accurate
- × DON'T label sample tubes and bottles before taking the specimen
- × DON'T take samples from more than one person at a time, ensure one patient, one sample, one request at any one time
- × DON'T label samples/check medications or blood away from the bedside. Remember the patient's identity is the most important part of the checking procedure
- × DON'T print off spare addressograph labels or use them for patient identification
- × DON'T label samples for someone else
- × DON'T expect phlebotomists to take samples when there is no wristband on the patient

The Royal College of Pathologists
Pathology: the science behind the cure
NHS National Blood Transfusion Committee
SHOT Serious Hazards of Transfusion

Essentials for bedside transfusions for health care professionals

This document is an aide memoire and not designed to be a training document. Individuals not trained in transfusion should not be performing transfusion related tasks.

- ✓ **Blood transfusions help improve and save lives**
- ✓ **Transfusions can result in reactions in recipients and errors along any of the steps in blood transfusion can result in significant patient impact**
- ✓ **It is important that all staff involved in blood transfusions are familiar with the processes, risks and benefits and those involved in administration must be trained, competent, regulated and registered healthcare professionals**

The nine steps in transfusion and key points to remember

1. REQUEST
2. SAMPLE TAKING
3. SAMPLE RECEIPT
4. TESTING
5. COMPONENT SELECTION
6. COMPONENT LABELLING
7. COMPONENT COLLECTION
8. PRESCRIPTION
9. ADMINISTRATION

Critical points in the laboratory

Critical points where positive patient identification is essential

Note: Once a decision to transfuse is made, the authorisation or prescription may be written at variable times during this sequence, but ***must be checked at the final stage.***

SHOT
Serious Hazards of Transfusion

- **Blood transfusion is a complex multistep process involving several different healthcare professionals**
- **Correct patient identification is crucial, both at the time of blood sampling and at the time of transfusion**
- **Staff need to be vigilant and verify every step they perform in the process. An example of a transfusion checklist can be found here:** https://www.shotuk.org/wp-content/uploads/myimages/Safe-Transfusion-Practice-Transfusion-Checklist-July-2020.pdf
- **Transfusion errors can result in major harm or patient death**

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SHOT Serious Hazards of Transfusion

Management of transfusion reactions

- **Transfusion reactions can occur very soon after the start of transfusion, during the transfusion or several hours later**
- **Some are life-threatening, others are minor**
- **Signs and symptoms may include fever, breathlessness, hypotension, itching, stridor, facial swelling, a feeling of doom**
- **Be particularly alert for transfusion-associated circulatory overload (increased risk with age and underlying diseases)**

Immediate Actions

- ✓ **Inform medical staff immediately**
- ✓ **Stop** the transfusion but maintain venous access
- ✓ Assess and maintain airway, breathing and circulation
- ✓ Treat the symptoms
- ✓ Confirm patient identification and compatibility of component

Depending on the type and severity of the reaction, it may be appropriate to continue the transfusion (slow rate if required). Guidance will be available from your local transfusion team. The patient will require close monitoring for any further deterioration.

Additional Actions:

- ✓ **Monitor patient observations:** Check temperature, pulse & respiration, blood pressure, urine output, Oxygen saturations.
- ✓ Review & monitor fluid balance
- ✓ Retain component bag & administration set
- ✓ Inform your transfusion practitioner and/or transfusion laboratory
- ✓ Document in patient notes
- ✓ Report as an incident
- ✓ Escalate to senior clinical team as needed and get additional help promptly

Investigations in severe reactions

- Full Blood Count (FBC)
- Coagulation Screen (including fibrinogen)
- Urea and Electrolytes
- Repeat Group and Screen and DAT

Others (to consider depending on symptoms and reaction type) Liver function tests (including bilirubin), LDH, haptoglobin, blood cultures for the patient, urine test for presence of haemoglobin, blood glucose, blood gases and Chest X-Ray.

Send the blood bag and giving set sealed back to the transfusion laboratory for further investigations. For management of transfusion reactions, see the flowchart at the end of this document and follow local protocols

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Case reports

Case 1

Collection error and failure to carry out positive patient identification (ID) (1)

- *A patient in their 70s was admitted with abdominal pain following a road traffic collision*
- *The patient had a past medical history of abdominal aortic aneurysm (AAA)*
- *The following morning the patient deteriorated and lost a massive amount of blood per rectum*
- *This was subsequently identified as secondary to aorta-enteric fistula. Urgent blood transfusion was prescribed*
- *Less than a minute after starting the transfusion it was noticed that the name on the blood bag didn't match the patient and the transfusion was immediately stopped*

(continued)

Case 1 Collection error and failure to carry out positive patient identification (ID) (2)

- *The blood collected from the satellite refrigerator had a different patient name on it*
- *The nurse who collected the blood from the satellite refrigerator did not follow the correct procedure*
- *Pre-administration checks were not fully completed as the blood pack was not checked against the patient ID band*
- *Of the four staff that were involved in the incident only one had their blood transfusion collection competency and theory learning up to date*

Case 2

Bed number used as sole patient identifier

- *A man in his 50s had recently received a liver transplant*
- *Two units of blood were prescribed due to his low haemoglobin (Hb)*
- *The blood transfusion was not considered to be urgent*
- *Blood was ordered via the electronic ordering system, at the request of the nurse looking after the patient to the nurse in charge*
- *The only information shared between the two nurses was the patient's bed number*
- *The two nurses did not have any discussion to verify the patient's identity*
- *One nurse then went alone to administer the blood but did not positively identify the patient as she believed that as she knew the patient well this was not necessary*

Case 3

Failure to carry out positive patient identification

- *A female patient in her 50s was admitted due to a declining Hb level of less than 70g/L and chronic obstructive pulmonary disease (COPD)*
- *Red cells were prescribed*
- *Two nurses checked the red cells at the nurse's station and one of them took the unit to the wrong patient, did not carry out positive patient identification, and started the transfusion*
- *A healthcare assistant noticed the transfusion was being given to the wrong patient, sought immediate advice and the transfusion was stopped two minutes after it started*

Macroscopic examination

- If fibrin fibers and clots are visible
- if the boundary between plasma and erythrocyte layer is reddish, blurred
- if the plasma is reddish discolored
- if plaque or mold colonies appear on the surface of the product
- if the color of the plasma shows a the nail polish –like discolouration indicating hemolysis
- if the blood product is beyond the expiration date

It is forbidden to store or use the blood product

+ if the bag or closure is damaged
+ or the information given on the label, on the accompanying sheet or on the connector assembly is not identical or incomplete.

Indications on the blood bags

- **AB0- and Rh-D blood group labeling, Rh- phenotype and Kell-antigen.**
- **Prescribed storing temperature.**
- **The date and time of the taking of the sample and its expiration.**
- **The species of the blood product:**

  Red blood cell;

  thrombocyta;

  White blood cell;

  plasma.
- **Method of production:**
- § from a whole blood sample;
  § produced by apheresis.
- **The type of the blood product:**

  § poor boundary layer;
  § resuspended (with addition of additive solution);
  § washed / changed / restored;
  § white blood cell depleted(=leukoreduced) ;
  § pooled;
  § divided;
  § irradiated

Bed side ABO, Rh typing

- Preparation before transfusion- *competence of nurse*

1. For the patient's blood typing
2. For the blood typing of the RBC product to be administered (donor RBC)

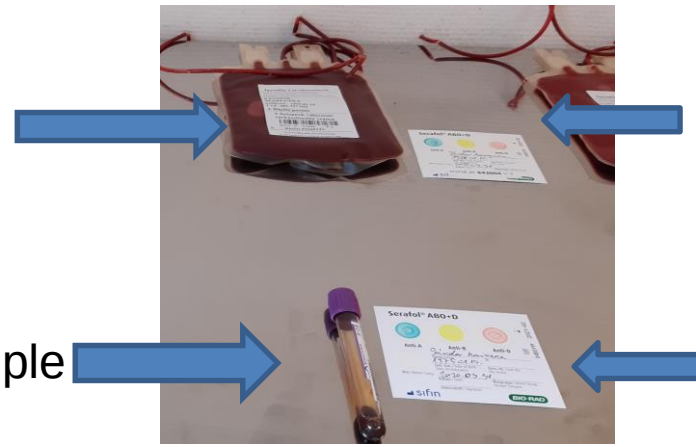
We need:

- Donor blood sample
- Serafol (labeled)
- Watch glass
- Pipette
- Blood sample taken from the patient immediately before transfusion
- Scissors

Patient information, written consent - doctor
Bed side blood typing - doctor

Clinical, bedside, “one-sided” blood typing

- Blood typing of donor erythrocytes to be administered AND patient's blood typing with test serum dried on a Serafol card
- the patient's current bedside blood typing result and the laboratory blood typing result in the medical record MUST MATCH (if they do not match, a new blood sample must be taken from the patient and the bedside test must be repeated!)
- the donor blood typing must be COMPATIBLE with the patient's blood type!



„Bed side” blood typing - doctor

- Bed side blood typing is not required before platelet, FFP, granulocyte transfusion BUT!!!!
- To order such preparations, we performed bed side blood typing in advance. We need the bedside blood typing and a result of laboratory blood typing , because without it we would not have been able to order these blood products
- (except life-threatening situation: when „AB” type FFP and/or „O” platelet product can be given immediately, but also, the blood sample is sent to the OVSZ in parallel)

Patient identification

In each step, it is crucial that a blood sample is taken from the right patient and that the right patient is given the transfusion to whom we really intended.

- When taking a blood sample: for tests, ordering selected blood, bed side blood typing
  - Positive patient-identification
  - Bed side labelling
  - Only one patient's sampling tubes!

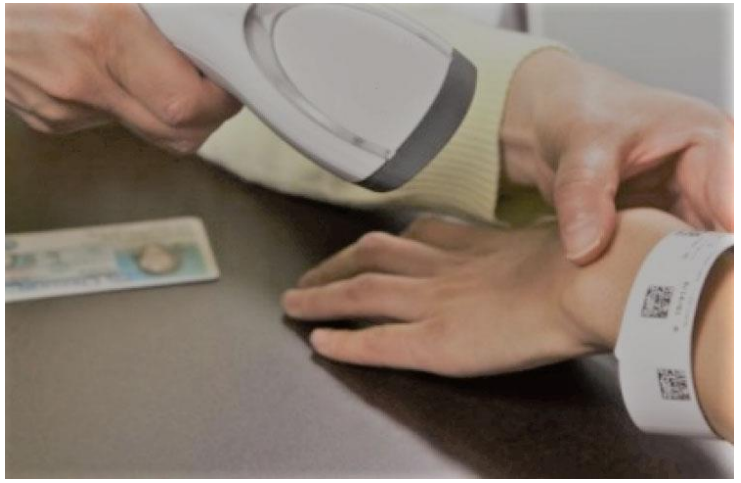
- Before connecting a transfusion
  - Positive patient-identification
  - Reconciliation of blood bag label data and patient names and identifiers

What do we need to check?

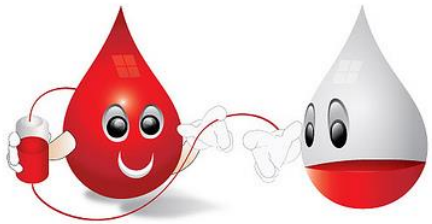
1. Blood sample label + blood group request, blood product request form data
2. When filling in a blood product application in IT system bedside ABO blood typing data reconciling WITH laboratory blood group results
3. Upon arrival of a blood product: label information on the product + cover sheets + did we get what we asked for?
4. Bedside blood type determination :
   a) Does the blood type of the donor blood AND the blood type of the patient match / be compatible?
   b) Donor blood blood group AND preparation label data match?
   c) Do the patient's current, bedside blood type and the patient's laboratory blood typing result in the patient's medical record match?
5. Before connecting a transfusion:
   – Blood bag label data AND reconciling the patient's name and ID with positive patient identification

Connecting a transfusion

- **transfusion should be performed after patient identification, positive patient identification is mandatory** :
- **The patient says his name, he gives birthdate, mother's name to our question and not we say in advance! Alternatively (in case of anesthetized / unconscious patient in particular: electronic identification armband barcode /QR code)**



Biological probe - doctor



- In adults, the first 25 ml should be transfused in a beam, then the transfusion should be adjusted to a slow drop number and the patient should be closely monitored for 15 minutes.
- Blood grouping and biological testing should be performed on each bag of blood products.

Observation during transfusion-

nurse

- Date (day, hour, min) of start,during, end transfusion
- Blood pressure
- Pulse
- Temperature
- Problems, symptoms during transfusion

Transzfúzió kezdete: …….óra……..perc
RR:
O:
TAX:
Egyéb/Szövődmény:

Transzfúzió közben: …….óra……..perc
RR:
O:
TAX:
Egyéb/Szövődmény:

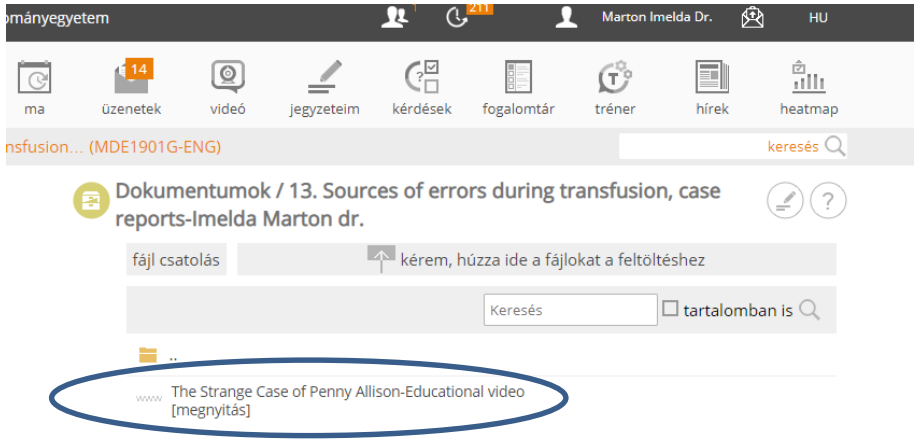
Transzfúzió vége: …….óra……..perc
RR:
O:
TAX:
Egyéb/Szövődmény:

Dátum, aláírás

No separate detection sheet is required, the blood product can be guided on the back of the accompanying sheet (which can be used as a transfusion observation sheet)

NHS Blood and Transplant

blood.co.uk



Video

The Strange Case of Penny Allison (NHS)

Thank you for attention !