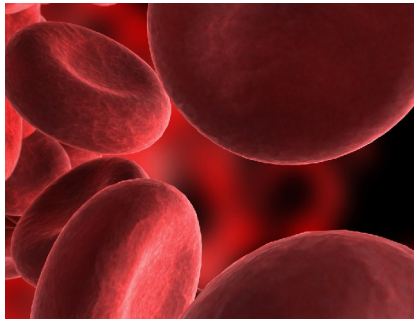
Back to basics

Why knowing about blood testing, labelling and antibodies is important



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Why this talk?

- Patient experience
- Reduce need to re-bleed
- Reduce stress to patients (and parents)
- Understand antibodies (obstetrics) (clinical relevance and time to crossmatch)
- Reduce delay to transfusion

Why is sample labelling so important?

- Incorrect or inadequate patient identification, leading to a sample for blood grouping being taken from, or labelled for, the wrong patient may result in fatal ABO-incompatible transfusions (SHOT annual reports 1996-2007).
- **Inadequately or mislabelled samples are up to 40 times more likely to contain blood from the wrong patient (Lumadue et al 1997)**

What are the requirements?

- NPSA core identifiers
  - last name
  - first name
  - date of birth
  - NHS number/hospital number (if the NHS number is not immediately available, a temporary unique identification number should be used until it is)
- Also
  - Date and time taken
  - Signature

Remember

- Positive patient identification is essential at all stages of the blood transfusion process:
  - Blood sampling
  - Collection of blood from storage and delivery to the clinical area
  - Administration to the patient
- Information on the patient's identification band, request card and sample must match **exactly**
- This is the only link between lab and clinical area

How can we improve?

- 3.5% – cost implication
- Electronic labelling systems
- Training and competency review
- Improve practice (label at bedside, do not pre-label tubes)
- Physical factors (smudgy pens – use biro, clear and legible)
- Addressographs on request cards
- Valid clinical details on request card

Purpose of laboratory testing in obstetrics

- **ABO and D typing** to identify D negative women who require anti-D prophylaxis

- **Screening and identification of red cell alloantibodies**
  - to detect clinically significant antibodies which might affect the fetus and/or newborn
  - to highlight possible transfusion problems

Antibody monitoring

- **Anti-D, anti-c and anti-K** are the antibodies most often implicated in causing haemolytic disease severe enough to warrant antenatal intervention
- Second most common: anti-C, -E, -Fya, and -Jka

Antibody monitoring continued

- Cases of anti-D, anti-c and anti-K (unless the father is confirmed K negative)
  1. Assess at monthly intervals to 28 weeks gestation
  2. Fortnightly intervals thereafter (unless antibody level over cut-off level)
  3. Refer to a specialist fetal medicine unit if the antibody reaches the critical level and/or the level is rising significantly

"BCSH GUIDELINE FOR BLOOD GROUPING AND ANTIBODY TESTING IN PREGNANCY" 2008

Other antibodies

1. Retest at 28 weeks
2. Medical decision for frequency of testing

Considerations

- Once the referral to the feto-maternal unit has been made the value of subsequent samples for quantification is doubtful
- 28 week check for further abs
- Prophylactic anti-D not required if patient has allo anti-D
- New set of BCSH guidelines in draft

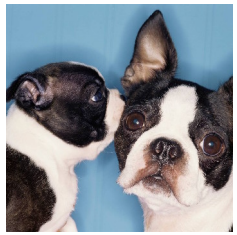
Antibodies and provision of blood

- Many clinically relevant antibodies (not all associated with HDN)
- Delay to provision of blood for mother or baby
- Use of emergency O negative supplies may not be suitable

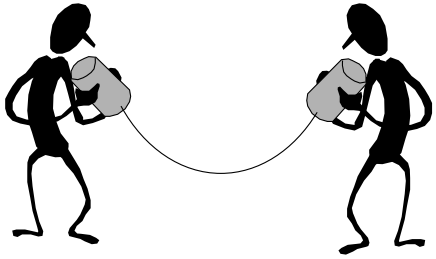
How long will the blood be?

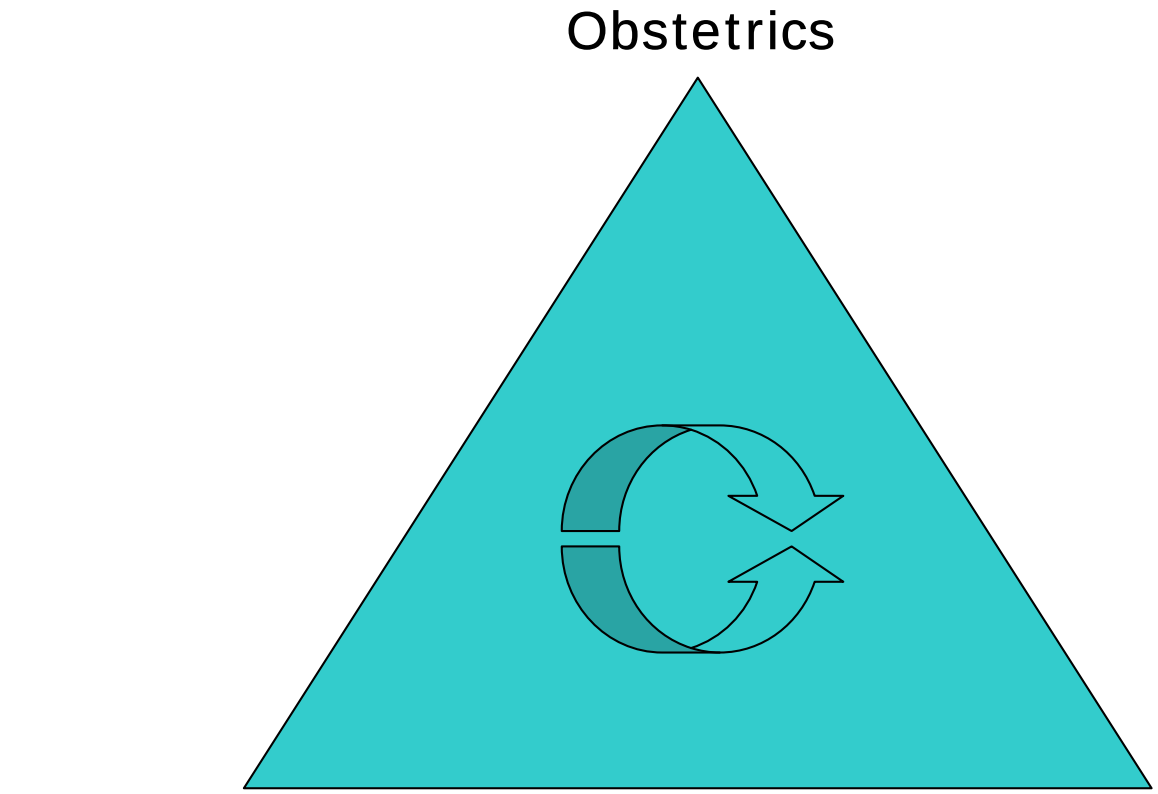
- Anti–D, C, c, E, e, K = 1 to 2 hours
- Anti-Jka and Jka = 4 to 6 hours
- Anti-M, N, S, s = 6 to 8 hours
- Auto antibodies 24 – 48 hours (UHS timescales)

- Crossmatch in advance of delivery for pregnant ladies with antibodies



Communication





Postnatal testing - Baby

- At birth
  1. Cord sample – Infants blood group
  2. DAT?????

     YES if mother has antibodies
- Cause of positive DAT (ABO, maternal alloantibody, prophylactic anti-D)
- DAT not diagnostic of HDN – but if positive monitor Hb and bilirubin levels in the baby

Postnatal testing - Mother

- Perform lab procedure to estimate volume of fetal cells present and calculate FMH
- To provide sufficient anti-D
- Assessment techniques vary
  - Acid elution
  - Flow cytometry