

Why are two samples needed?

The blood sample is the only link between a patient and the blood component they may eventually receive. Both checkpoints are completely dependent on correct identification of the patient. Mistakes have been reported at both steps, and can result in death or major harm. Safety is assured by checking the blood group on two separate, independent samples for all first-time routine transfusions, **the group-check sample**, unless there is a secure bedside electronic patient identification system in place.

Why am I being asked to take a second sample on my patient?

If the laboratory does not have a previous record for a patient, a second sample will be requested and blood components should only be issued if the results of the 2 samples match, unless it is an emergency situation.

Why not take two samples from the patient at the same time?

DO NOT take two samples at the same time and send one of the samples to the laboratory a few minutes later as, if from the wrong patient, this will duplicate the error. If you have bled the wrong patient or labelled the sample from the correct patient with someone else's details both samples will group identically but **WRONG** i.e. 'wrong blood in tube' (WBIT). The patient could receive an ABO-incompatible transfusion, which may lead to patient harm or death. The two sampling episodes **must** be separated in time and ideally each taken by a different person, with two completely separate requests to the laboratory.

What is a 'wrong blood in tube' error (WBIT)

Blood is taken from the wrong patient and is labelled with the intended patient's details

← OR →

Blood is taken from the intended patient, but labelled with another patient's details

4 ABO-incompatible red cell transfusions



606 ABO-incompatible near miss events

Taking two samples at the same time will result in a duplicate error. The intention of taking the second group-check sample is to confirm that the first sample was taken from the same patient where there is no detected historical grouping record. Although many of these errors are detected before transfusion (near misses), if not detected some patients will receive an incorrect blood component transfusion (IBCT), which could be ABO- and/or D-incompatible or otherwise unsuitable and possibly dangerous for that patient.

Will the requirement for a second sample cause a delay in provision of blood/blood components?

Laboratory staff will not let this affect issue of blood in an emergency. BSH guidelines* state 'a second sample should be requested for confirmation of the ABO group of a first-time patient prior to transfusion, **where this does not impede the delivery of urgent red cells or other components**', so blood may be issued on a single sample in an emergency. Some local policies will only allow the issue of group O red cells until a group-check sample is received.

How often am I likely to be asked to bleed my patient a second time?

Not often. The frequency may vary, but a study (Thomas et al. 2014) has shown there could be a historical blood group on record as much as 86% of the time. For some Trusts/Health Boards this would mean only 1 patient a day would require a second sample to be taken. A second sample is only required if blood or blood components are to be issued.

Should I take a second sample if I am fairly sure that my patient will not have a historic group?

You should not routinely take a second sample, because many patients will have a group recorded. Your organisation should have a procedure in place to alert you if a second sample is needed. If two samples are required, **the sampling episodes must be separated in time** and ideally taken by two different people, with two completely separate requests to the laboratory.

Almost all WBIT errors are due to poor practice leading to misidentification. No amount of experience or years of practice will remove the risk of misidentification if you are interrupted or distracted

Poor practice

- Patient not identified
- Sample not labelled at bedside
- Sample not labelled by person taking blood
- Prelabelled bottle
- Other



I only require FFP/platelets/cryoprecipitate for my patient. Do I need two samples to order these?

Yes. All patients should have two independent groups done before receiving any blood components.

Will all ABO mismatches result in an incompatible blood transfusion?

No. For example the patient may be group A and receive (erroneously) group O blood. This is ABO-compatible, but it is possible that your patient may have red cell antibodies and/or other specific requirements that have not been detected because the sample tested was not theirs. ABO mismatches may cause delays due to grouping problems the next time the patient requires blood.

I'm a fully trained clinician, so I'm not likely to make an error when taking a blood sample

No-one is protected from distraction and interruption. Annual comparison of the numbers of samples taken by different staff groups at a large representative healthcare organisation (Oxford University Trust) show that doctors and midwives may be more likely than other staff groups to make errors.

CASE STUDY: a patient in his 60s (Patient 1) was admitted for coronary artery bypass graft. He received four units of group A D-positive red cells, had an uneventful stay in hospital and was discharged home.

Fourteen days later he was admitted to critical care via the emergency department with renal impairment and a falling haemoglobin. On this 2nd admission Patient 1 grouped as O D-positive. The sample used for the crossmatch 14 days previous had been taken from the wrong patient (Patient 2) and labelled with Patient 1's details. A 2nd sample was not obtained to confirm the ABO group although it was hospital policy.

My colleagues suggest that to save time, I should take two samples at the same time, but send one sample to the laboratory a few minutes after the first sample

YOU MUST NEVER DO THIS

If you have bled the wrong patient or labelled the sample with the wrong details you will do this on both samples and both groups **will** be identical but WRONG.

REMEMBER

The group-check policy (or two-sample rule) is an essential tool for ensuring patient safety. It is crucial that the two samples are independent of each other. Correct patient identification is critical for safe transfusion.

References: Thomas W et al. **Two samples for blood transfusion: single centre experience** *Transfusion Medicine* 2014; 24(4):209-212

* Milkins C et al. **Guidelines for pre-transfusion compatibility procedures in blood transfusion laboratories.** *Transfusion Medicine* 2013; 23(1):3-35.