National Comparative Audit
of Blood Transfusion

NHS
Blood and Transplant

2022 Audit of Blood Sample Collection & Labelling

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Background

This was a repeat of a national comparative audit performed in 2012. The 2012 audit found that 2.99% of blood samples for transfusion were rejected as a result of labelling errors and there were 99 'Wrong blood in tube' (WBIT) samples reported over a 3-month period.

In the last 10 years there have been a number of safety recommendations and initiatives around sample labelling, most notably the drive for increased uptake of electronic bedside identification systems, where a sample label is printed at the bedside after scanning the patient's wristband. These have been recommended in national guidelines. However, these systems are costly and logistically challenging to implement. Over the same period, healthcare teams have faced mounting workloads and pressures, potentially leading to increased rates of errors and adoption of workarounds perceived to save time. Changes in working practices since the COVID-19 pandemic may have impacted staff training. This seemed an appropriate time to repeat the audit to reassess the extent of sample mislabelling, and to evaluate whether electronic systems are associated with a reduction in sample rejection.

British Society for Haematology (BSH) guidelines require that all blood samples and requests for transfusion carry four points of identification: first and last names, date of birth and unique identifying number. They must also include the date and time of sampling and the identification of the staff member taking the sample.

Errors can occur because a blood sample is mis-collected (from the wrong patient) or mislabelled (with one of the four core identifiers missing, incorrectly written or illegible).

Factors suggested to contribute to incorrect sample taking or labelling include:

- Lack of knowledge / understanding of the process
- Failure to properly identify the patient
- Being distracted while taking and labelling the sample
- Labelling the sample away from the vicinity of the patient
- Environmental factors
- Inadequate process (for the environment)
- Inadequate teaching
- Workarounds

Samples may be rejected for reasons other than errors in core identifiers, including discrepancies in other details on the form and sample haemolysis. In the absence of firm national guidelines, individual laboratories adopt their own policies for these scenarios, and this audit seeks to gain insight into this variation.

Participation

191 hospitals/trusts enrolled in the organisational audit

21511 rejected samples were analysed

Key findings of 2022 audit

23584 rejected samples were reported by 179 sites in 1 month.	Sample rejection rate of 4.4% represents a 50% increase compared to 2012 audit (2.99%).
Reported number of wrong blood in tube (WBIT) incidents increased almost 3 fold compared to 2012 (92 in 1 month compared to 99 in 3 months).	WBITs may be underreported to SHOT
Sites with electronic sample labelling systems reported 50% fewer mislabelled samples, but no fewer (and based on few sites, potentially more) WBIT incidents.	Electronic systems are not a substitute for positive patient identification.
Staff at sites with electronic systems still need training in appropriate hand labelling for areas or scenarios where the electronic system is not available.	It is often impossible to identify the individual taking a rejected sample – which represents a missed opportunity for feedback.
14.9% of samples were rejected for missing signatures on sample or form. Unless this represents a reliable way to identify the blood-taker, it may be questioned whether this adds to patient safety.	Sites commonly collect data on reasons for mislabelling but not in a format readily enabling automated analysis.

Standards and Results

Audit Standard	Audit Findings
Samples taken for transfusion bear all core patient identifiers (first name, last name, date of birth and unique identification number)	99.42% (525887/528935)
The transfusion request form is completed with all core patient identifiers (first name, last name, date of birth and unique identification number)	99.82% (527998/528935)
All core information on sample tubes and request forms is legible.	99.92% (528516/528935)
All core information on sample tubes and request forms matches.	98.81% (522619/528935)

Recommendations

All hospital transfusion teams should ensure that induction and refresher training on sample labelling and requests is made available and is appropriate to Trust guidelines and policies. It is suggested that this training should be targeted to the areas where rejection rates are highest, as indicated by the results from this audit or from local reporting/knowledge.

Transfusion teams should assess environmental and human factors in clinical areas with high mislabelling rates, to identify systemic factors contributing to poor practice and understand any workarounds.

The identity of staff responsible for taking samples/completing request forms should be readily identifiable both from the request/sample itself and from any electronic or audit records held. Electronic systems and processes should be designed to collect sufficient information to be able to confirm the identity and job role of the sample taker.

Data collected routinely about mislabelled and rejected samples should be sufficient to allow meaningful reports to be easily generated. The systems used should be capable of producing summary reports automatically. We recommend that hospitals use these data to regularly measure their mislabelling/WBIT rates in order to benchmark their progress.

The number of WBITs reported during the audit period is at odds with the annual number reported in recent SHOT reports. Transfusion teams should report all cases of WBIT to SHOT to support safety initiatives nationally

While electronic requesting and labelling cannot eliminate all problems, the improvement in sample labelling quality is clearly demonstrable. This is recommended as the gold standard that should be aimed for. However, transfusion teams need to continually review how these systems are being used in practice to ensure workarounds and corner-cutting measures are not being taken. Paper request forms and hand labelling should still form part of mandatory training to cover system downtime, particularly where electronic systems are the only method in regular use and staff do not normally complete manual/paper requests.

Positive patient identification remains fundamental at all stages in the transfusion process and its importance must continue to be emphasised, particularly when electronic bedside identification systems are implemented. Patients themselves should be encouraged to check the labelling of their samples, where appropriate.

We recommend that sites review their local policies on sample rejection, particularly in relation to discrepancies in fields such as signatures on both sample and form (eg. in fields other than the core identifiers), to ensure that they benefit patient safety.