

# Configuration of an Electronic Blood Sample Labelling System - Maximising Safety Benefits

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## Background / Introduction

Blood transfusion is a complex process comprising of many discreet but interlinked stages. The Serious Hazards of Transfusion (SHOT) annual reports continue to highlight errors occurring at every stage, thereby presenting the potential for risk and/or harm to patient. Over recent years, the use of electronic transfusion management systems has been widely promoted by several respected organisations (NICE, SHOT, Health Technology Wales) due to perceived benefits for enhanced patient safety, clinical documentation, and regulatory compliance. While the use of these systems is increasing, individual Trust configurations can be very different and will have a huge impact on the actual safety benefits.

In-depth analysis of transfusion-related wrong blood in tube (WBIT) incidents within North Bristol NHS Trust (NBT) over the last 10+ years has provided an excellent insight into and understanding of the vulnerable steps within the sample labelling process. Multiple modifications have been made to our paper-based and hand-labelling processes with marginal success rates. However, WBIT incidents continue to occur at a relatively stable rate year on year.

To minimise WBIT events within NBT, electronic blood sample labelling (EBSL) has long been deemed the ultimate solution. The Haemonetics BloodTrack Tx® sample labelling solution was recently implemented into all inpatient areas. During configuration and set-up, much consideration was given to address and protect against our identified vulnerable steps within the process to ensure maximal safety benefits.

## Methods / Study Design

A review of over 300 WBIT incident reports from 10+ years of NBT WBIT data was carried out. Of these, 80 reports were classed as 'red' and resulted from blood in tube belonging to a patient different from the one identified on the sample and request. The remainder were classed as 'amber' and involved key patient identifiers belonging to more than one patient on the sample and/or request.

Recurring factors were identified during the review and these were used to determine the vulnerable steps within the sample labelling process. When configuring the EBSL pathway, each vulnerability was considered and the BloodTrack Tx® system was set up to reduce or eliminate their occurrence.

## Results

### Recurring problems identified in WBIT investigations:

#### Person (Staff)

- Excluded from task (i.e job role / agency staff etc)
- Not trained / assessed in task
- Expired training / assessment
- Multiple staff involved in sample taking process
- Staff interrupted during sample taking process

#### Process

- Request form not available or reviewed pre-sampling
- Request form / wristband / verbal patient ID not included in pre-sampling positive patient ID (PPID) checking triangle
- Sample not labelled from information taken from wristband
- Two samples taken together at same time

#### Paperwork

- Unable to identify staff who took sample
- Time sample taken not known / accurate
- Location sample taken not known / correct
- Handwriting on sample illegible
- Wristband handwritten / not legible

### Requirements of EBSL to address identified problems:

#### Person (Staff)

- PDA access controlled by individual staff ID barcodes
- Access restricted to those with in date competency
- Rescan of ID required for each new transaction
- PDA times out if inactive for any given time

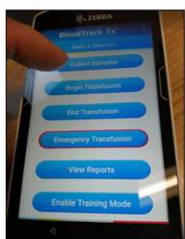
#### Process

- Pre-sampling checklist on PDA prior to taking blood sample
- Checklist contains all elements of PPID checking triangle
- Only wristband scan accepted for patient ID (prefix used)
- Wristband re-scan after sampling but prior to printing label
- Only one label printed per transaction (in version update)

#### Paperwork

- User identity logged each time system used
- All activity electronically date and time-stamped
- Sample location to be printed on sample label
- Zero tolerance for hand-labelled inpatient samples
- Wristband to be reprinted if illegible / unable to scan

### BloodTrack EBSL configuration in NBT :



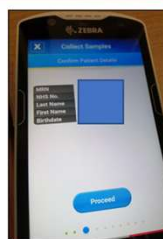
Select 'collect samples'



Scan staff ID



Scan wristband



Confirm ID correct



Complete checklist



Scan printer



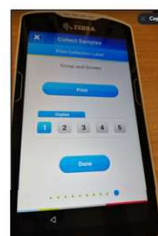
Select one print



Rescan wristband



Label generated



Select 'done'

## Conclusion

EBSL systems are being promoted nationally and many healthcare organisations are in the process of introducing such systems. However, careful planning and configuration is required to ensure maximal safety benefits and to encourage users to follow the right process rather than allowing capacity for a wrong process to occur.

Nationally agreed minimum standards for the use of blood transfusion EBSL systems (along with other stages of the blood transfusion process that can be managed electronically) are required to ensure optimal patient safety and to reduce the potential for error and near miss events.