ZEBRA

Strategies to Reduce Wrong Blood in Tube Incidents

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Wrong Blood in Tube (WBIT) is a nightmare scenario for healthcare workers. And, despite efforts to share best practice, it's difficult to fully eradicate. Data from the UK's Serious Hazards of Transfusion organisation reveals that in 2010 there were three Incorrect Blood Component Transfused (IBCT) incidents and five in 2011. There were also near misses totalling 386 (2010) and 469 (2011) indicating that, for every incident, there are 100 near misses.[1] I've no reason to believe that these results will differ greatly across European countries.

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[1] FIGURES FROM THE ANNUAL SHOT REPORT 2014, http://www.shotuk.org/wp-content/uploads/Figures-From-Annual-SHOT-Report-2014.pdf

What are the reasons for WBIT?

The two main reasons behind WBIT are down to a failure to correctly identify patients and not labelling samples at the bedside.[2] While these are the 'process causes', operational reasons lie behind them. Before I get on to these I should mention that there's no blame to apportion here, mistakes happen – it's a fact of life in busy hospitals.

Indeed, wards are very busy places and the pressure on staff is high. So it's easy to see how, when taking blood, attention can be diverted by a crisis in an adjacent bed. Some hospitals are also using handwritten labelling procedures. Labelling tubes this way increases the scope for error and we're all aware of the problems that illegible handwriting can cause.

In addition, while, by common consent, one of the best ways to prevent WBIT is to label samples at the bedside, the supporting technology may not allow this. For example, the label printer may be on one side of the ward. The clinician drawing the blood may get diverted on the way to the printer and, if other clinicians are using it, there's a chance that the wrong label will be picked up and fixed to a tube.

With these issues in mind, what can be done to address them?

Adopt best practice

Key features of best practice that we've seen in our customers' hospitals to prevent WBIT include:

- Establishing a standard way to both check patient identification and label samples

- Always identifying patients and labelling samples contemporaneously (at the bedside)

- Double checking details provided against medical records/the patient's wristband – and validating that these checks have taken place

- Ensuring that clinicians taking blood are competently trained to do so

- Ensuring that any failure to adhere to labelling standards results in the lab rejecting samples

- Testing and amending processes to ensure that they are fit for purpose in different clinical areas

One thing that's often missing in the discussion of WBIT mitigation is technology. And, given the pressures on staff, I strongly believe that technology – which can help create robust processes, simplify data collection and improve its accuracy – has to play a central role in helping staff collect and correctly label samples.

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[2] Wrong Blood In Tube – The Tip of the Iceberg, Dr Paula Bolton-Maggs, SHOT Medical Director, presentation, 14th IHS Montréal, 26.4.2012

Automating data capture

It's possible with technology to create a closed-loop electronic process to capture samples, process them and distribute test data. This can be achieved through this five-step process:

1. Identify Patients: On admitting patients, barcode wristbands can be printed for them. Using handheld computers, standard forms are presented to clinicians to enter the data. This process is far quicker than using handwriting, all the records are consistent and, of course, they're legible. The wristbands can be printed using a printer on wheels that's easily moved around the ward.

2. Validate Patients: When a sample is required, the nurse will scan the barcode job number on the patient's healthcare record to confirm what's needed. They can ask the patient, or their carer, for the patient's details. The data provided can then be checked using a handheld computer by scanning the wristband.

3. Capture Data: A form on the computer can guide the nurse through the process. And, when all data is captured, the computer will confirm that the sample can be taken.

4. Label the Sample: Using compact mobile printers that can be attached to nurses' belts, barcode labels can be printed from the sample collection software. The labels will include all data required by the lab.

5. Lab Tests the Sample: When the sample arrives at the lab, its barcode is scanned to confirm receipt. If it's to be tested using a machine, this will scan the barcode again. The results will be automatically sent to the patient's Electronic Health Record (EHR), with clinicians notified that they are ready to view. If the sample is to be manually checked, the technician will scan the barcode when processing the sample and key in the results to the EHR.

If samples need to be sent to labs they can be packaged and labelled using barcodes to ensure traceability – the packaging can be scanned when it leaves the hospital and when it arrives at the lab. The lab will use the barcodes at the point of testing – as described above ¬–to validate that all required data is present, confirm the required test and update the test system of the results.

Correctly identifying patients

Improving patient identification is the easiest way to reduce WBIT incidents. The best way to do this is to capture patients' details on printed wristbands. The wristbands can be scanned using handheld computers to verify the information provided by patients when prompted by staff. We suggest using the four standard identifiers for patient details: surname (in capitals), first name, date of birth and the code of the hospital. The reason we recommend surname first, using capitals, is that, in some regions, first and surnames are easily mixed up.

Reducing Risk

The risk industry is fond of saying there's no such thing as 'zero risk'. And, given the high pressure environment of the hospital, there will always be scope for error. But technology can help reduce it. Dedicated sample collection software on handheld computers can guide clinicians through standard processes and ensure that the data the lab needs to accept the sample is always present. The steps outlined above also ensure that the nurse does not need to leave the patient – with data verified and captured and labels printed using mobile technology. This approach addresses the main reasons for WBIT incidents – the failure to capture identification properly and samples not being taken at bedsides. What's more, technology can help ease the responsibility placed on staff by double-checking data and computers visually or audibly confirming when samples can be taken.

Indeed, from what we've seen in our customers' hospitals, technology offers the clearest proven opportunity to reduce WBIT incidents. And, with the cost of technology falling, I'm convinced that it has a lead role to play in best-in-class blood sample systems.