The incoherency between junior doctors’ understanding of the two sample rule and their routine practice: a survey of knowledge and actions

Dr Dharshinee Priya Gopee, MD, Junior Specialist Doctor, University Hospitals Birmingham NHS Foundation Trust
Dr Suzy Morton, MBBCh MRCP FRCPath, Haematology Consultant, University Hospitals Birmingham NHS Foundation Trust and NHS Blood and Transplant, Birmingham

The two sample, or “group check”, rule has been widely implemented and increases the chances of identifying a Wrong Blood in Tube (WBIT) and thus ABO incompatible transfusion. Following multiple WBITs where two samples were taken at once, but labelled with different times, by junior doctors in our hospital we undertook a survey to ascertain understanding of the two sample rule and the implications of taking two samples at the same time but labelling them differently.

An online survey was distributed to junior doctors working on the acute medicine unit which looked at different grade/roles of staff required to take blood samples for FBC and transfusion (see figure 1).

Twenty-two doctors (foundation 41%, core training 55%) responded (figure 1). All had received transfusion training, 15/22 (68.2%) in our hospital (figure 2). All were aware of the two sample rule with 17/22 identifying the reason behind the rule was to do with “safety” or “to avoid error” (as freetext responses) as mentioned in figure 3 & 4. 81.8% and 90.9% overestimated WBIT rates for blood counts and transfusion samples. Please note the correct WBIT rate for FBC is 1/200 and for G&S is 1/2000 - as highlighted below in green.

When posed a scenario of a patient with a historic sample taken 5 years ago, now requiring transfusion, 13/22 (59.1%) incorrectly stated two new samples were required (please note only 1 sample would be needed in this case) - see figure 8 as highlighted in green.

In response to being asked what the correct procedure was if the doctor was the only person available to perform phlebotomy, only 7/22 selected the correct answer which is to take 2 samples as long as you identify the patient twice and perform venepuncture twice (as highlighted in green in figure 9). 82% doctors confessed to having taken two samples at the same time and labelled them with different times. 41% did this frequently and a further 27% whenever the patient needed a second sample (figure 10). Five doctors (22.7%) reported taking two samples themselves and asking someone else to sign the second tube (see figure 11).

We demonstrated a lack of understanding among junior doctors of the reason for the two sample rule as well as the requirements of the two samples. Almost all overestimated the WBIT rate. Despite this a significant majority admitted to undertaking unsafe practice by circumventing processes designed to reduce harm due to error (figure 12).