The incongruity between juniors doctors' understanding of the two sample rule and their routine practice: a survey of knowledge and actions

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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*).

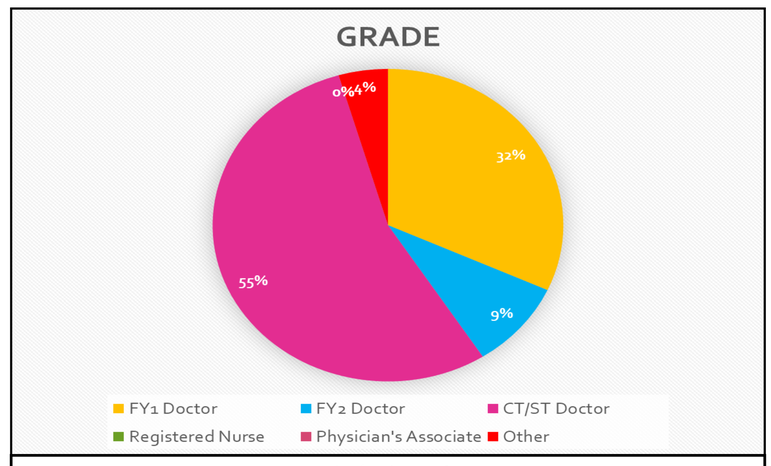

Figure 1: Grade/roles of participants.

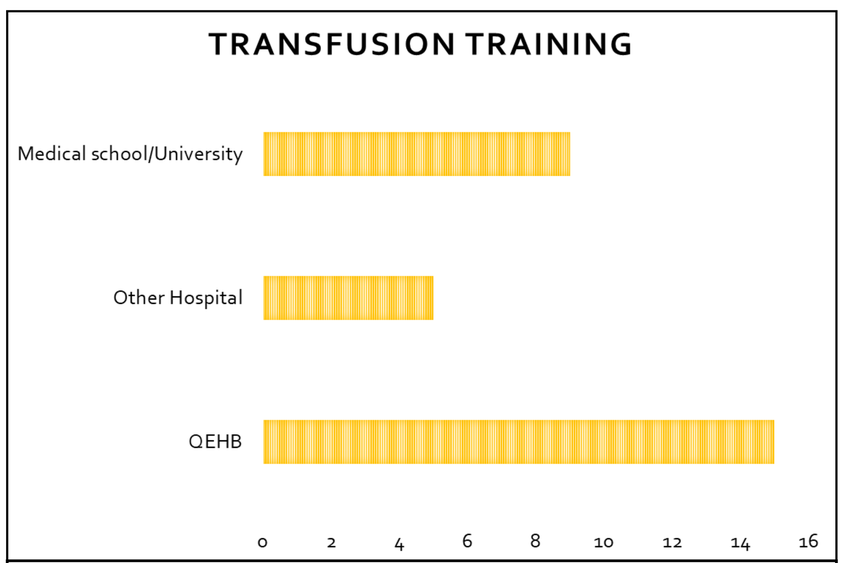

Figure 2: Places where transfusion training was undertaken.

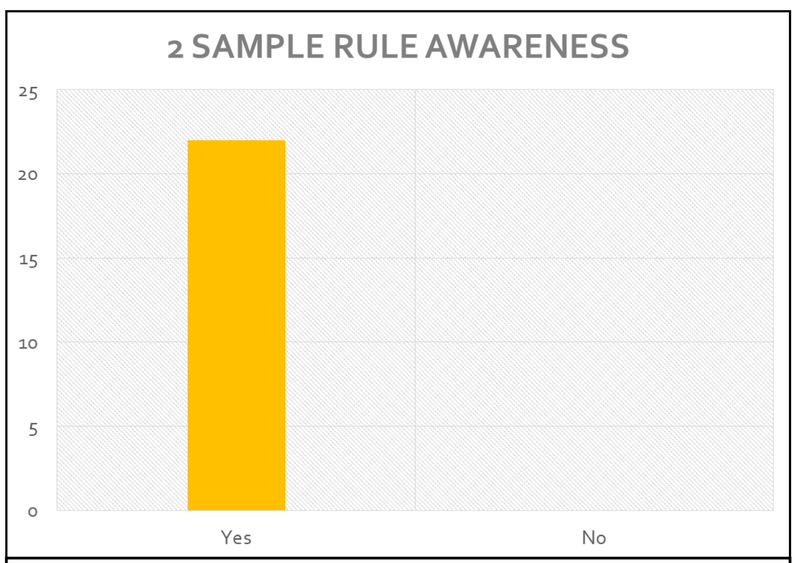

Figure 3: Awareness of the 2 sample rule.

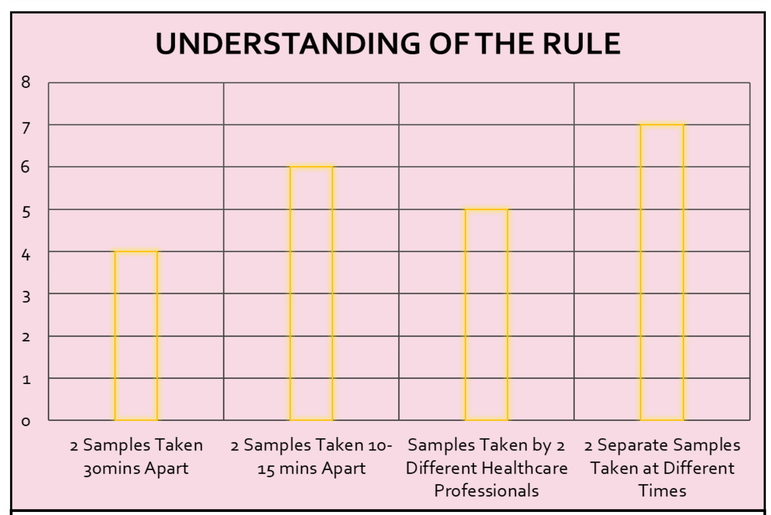

Figure 4: The understanding of the group and save sample rule.

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.

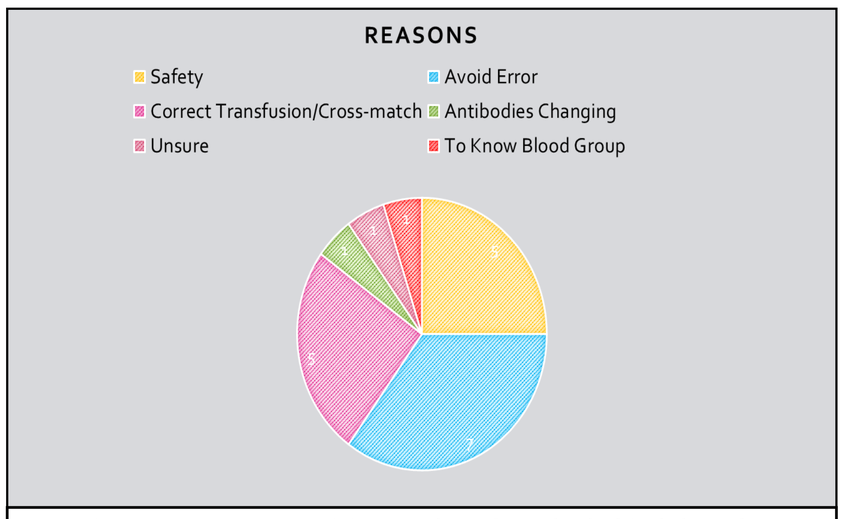

Figure 5: Reasons participants thought to be behind the rule.

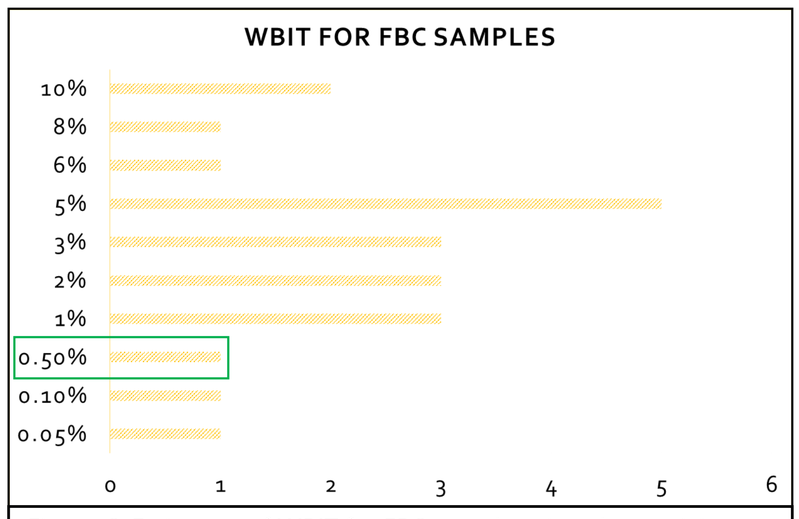

Figure 6: Estimates of WBIT for FBC samples given by participants.

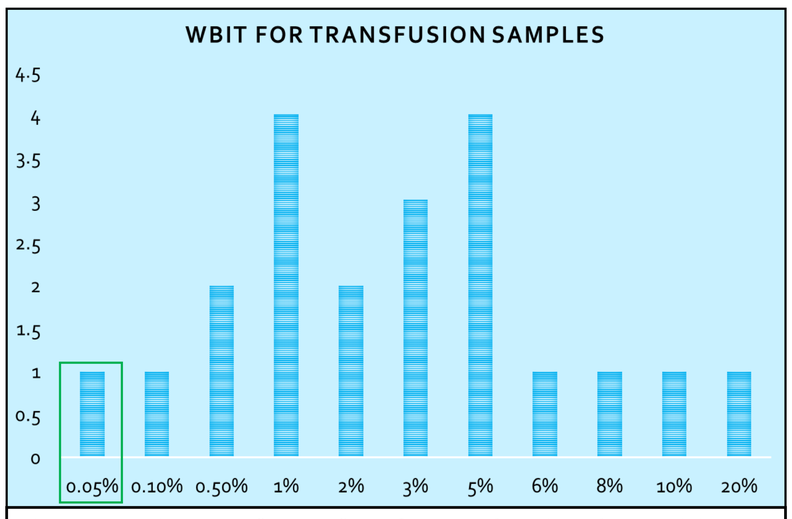

Figure 7: Estimates of WBIT for G&S samples given by participants.

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*).

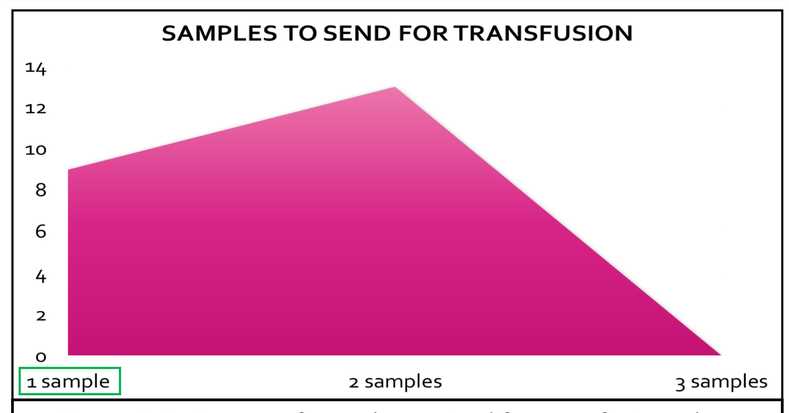

Figure 8: Estimates of sample required for transfusion when patient has a historic sample from 5 years ago.

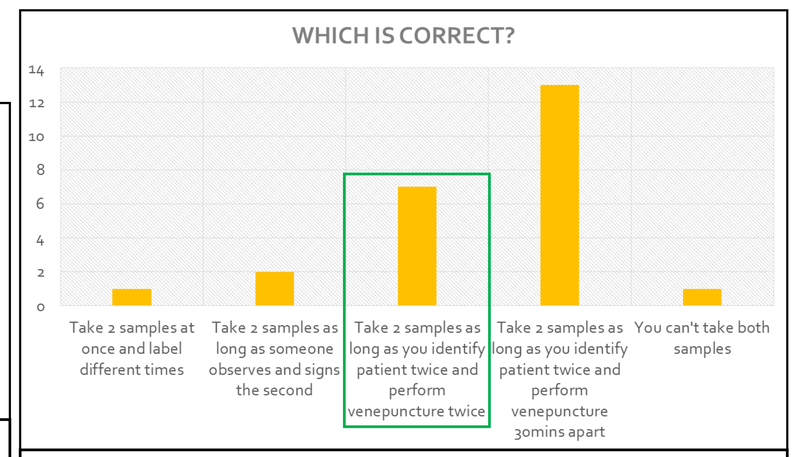

Figure 9: Correct method when you're the only person available and patient needs 2 samples urgently.

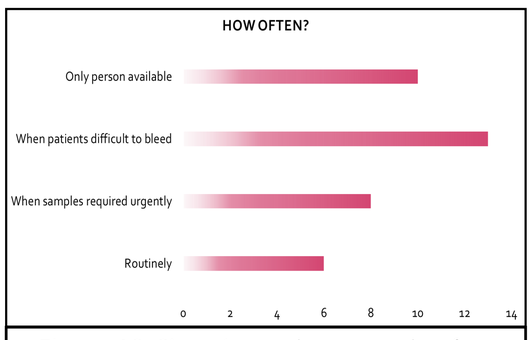

Figure 10: Situations where people often take 2 samples at once.

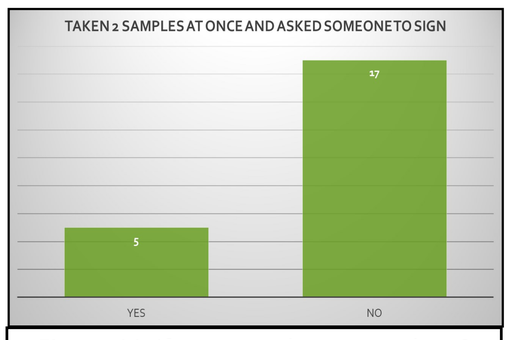

Figure 11: If someone has ever taken 2 samples at once and asked someone else to sign the second tube.

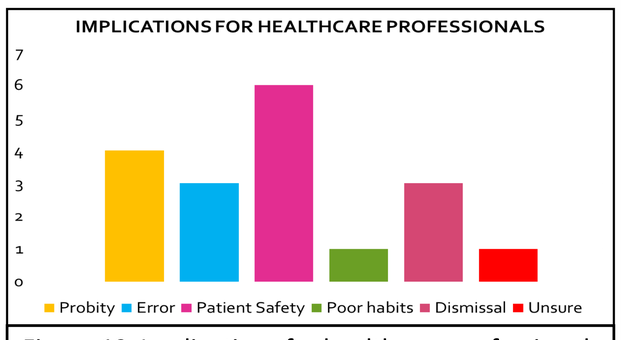

Figure 12: Implications for healthcare professionals if they don't adhere to the 2 sample rule.

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*).