2018 Rejected Sample / Wrong Blood in Tube Survey Results

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Wrong Blood In Tube Events- what everybody already knows …….

- WBIT events occur at the bedside & frequently involve human error
- Failure to properly identify the patient at the bedside when collecting blood samples can cause fatal ABO incompatible transfusion .
- WBIT is an avoidable mistake, but rates have remained unchanged over years, despite multiple interventions including education &, training , guidelines & introduction of electronic end to end systems

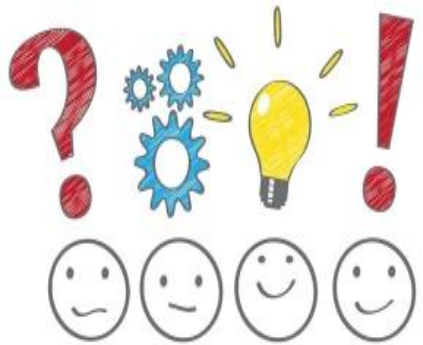
Purpose of Initial Survey in 2017 *(2016 data)*

- Initial purpose was to establish Irish data on Rejection & WBIT rates
- To allow us to benchmark Irish rates, nationally & internationally
- To compare Irish rejection & WBIT rates with rates from previous survey carried out in 2011
- To establish if the use of electronic systems for bedside transfusion practice (e.g. blood track phase 3) reduces WBIT rates / error

Main Finding of 2017 Survey

- Hospitals where blood track phase 3 had been introduced , had higher rates of rejected samples & WBIT events, than hospitals where Blood track phase 3 had not been introduced

Questions Raised



- How are electronic systems- designed to prevent error, still allowing WBIT events to occur?
- What types of events were occurring while using blood track phase 3?
- Was an electronic system such as blood track phase 3 used when the WBIT events occurred, or was the system down / broken /not being used for some reason?
- Expert review of the results of the 2017 survey – NHO , IBTS, Haematologists
- Further survey needed to be done to answer these questions?

Revised Survey 2018 *(using 2017 data)*

- Purpose- to establish current Irish rates of WBIT tube and rejected samples
- To compare current rates with rates from 2011 survey
- To establish if the introduction of electronic systems for bedside identification & labelling (such as blood track phase 3) & BSH second sample rule, have helped reduce WBIT rates
- **To establish how WBIT events are occurring in sites where blood track phase 3 is in use**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Educational Presentation

Methods

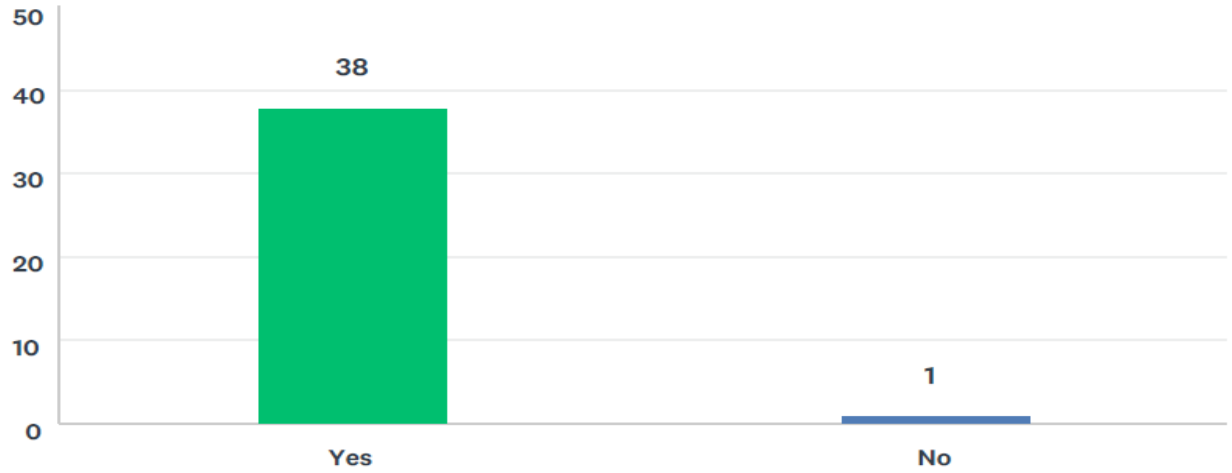
- Survey monkey questionnaire was sent out to 76 sites (both HVOs & medical scientists) for completion
- 10 Questions -based on 2017 data
- Survey remained open for 2 week period from 3rd -14th Sept
- 39 replies – response rate = 51%

Question 1

Rejected & WBIT Samples 2018 SurveyMonkey

Q1 Does your hospital transfusion laboratory have a specific SOP on sample acceptance / rejection criteria ?

Answered: 39 Skipped: 0



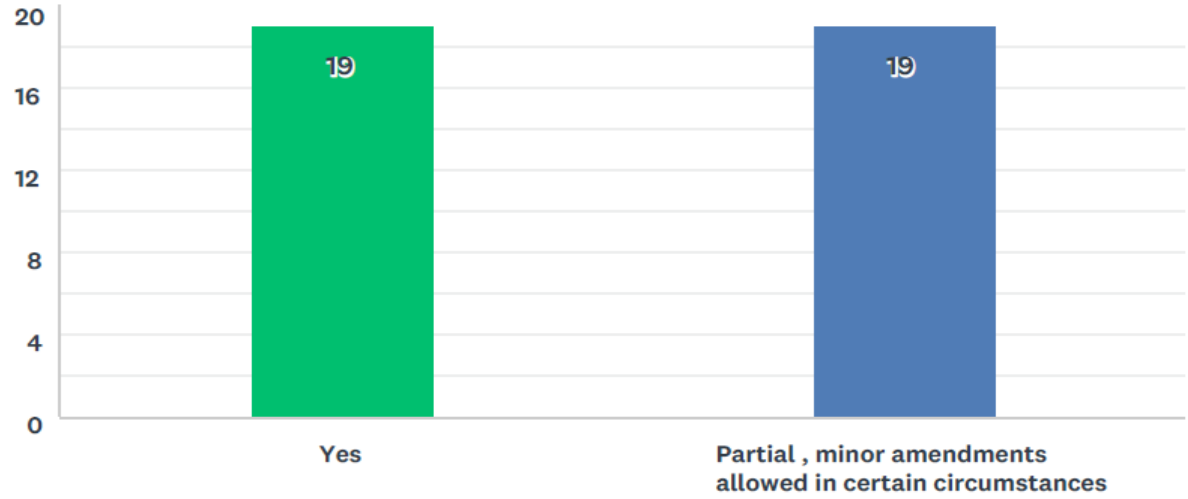
ANSWER CHOICES	RESPONSES	
Yes	97.44%	38
No	2.56%	1
Total Respondents: 39		

Question 2

Rejected & WBIT Samples 2018 SurveyMonkey

Q2 Does your transfusion laboratory reject all samples with errors (zero tolerance policy)?

Answered: 38 Skipped: 1



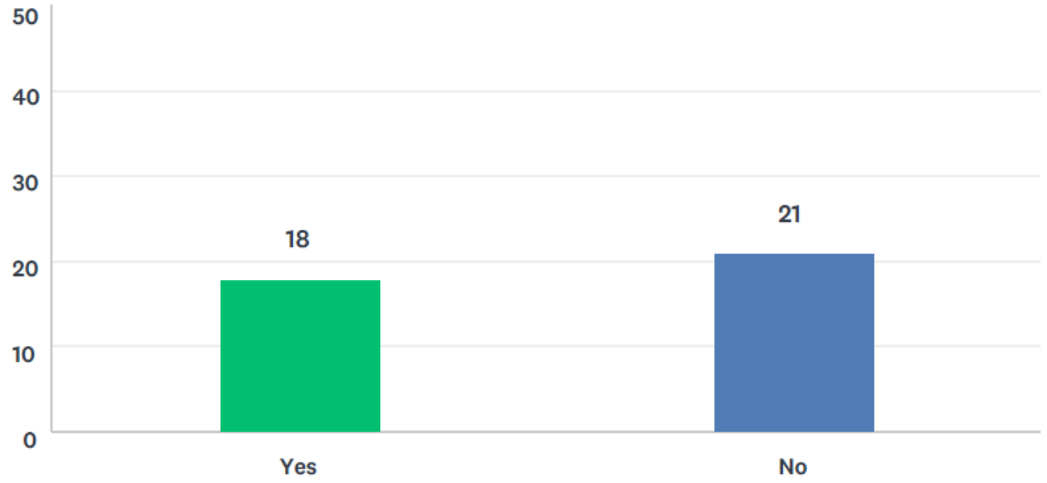
ANSWER CHOICES	RESPONSES	
Yes	50.00%	19
Partial , minor amendments allowed in certain circumstances	50.00%	19
Total Respondents: 38		

Question 3

Rejected & WBIT Samples 2018 SurveyMonkey

Q3 Was the 2012 BSH 2nd sample recommendation implemented in your transfusion laboratory prior to 1st Jan 2017

Answered: 39 Skipped: 0



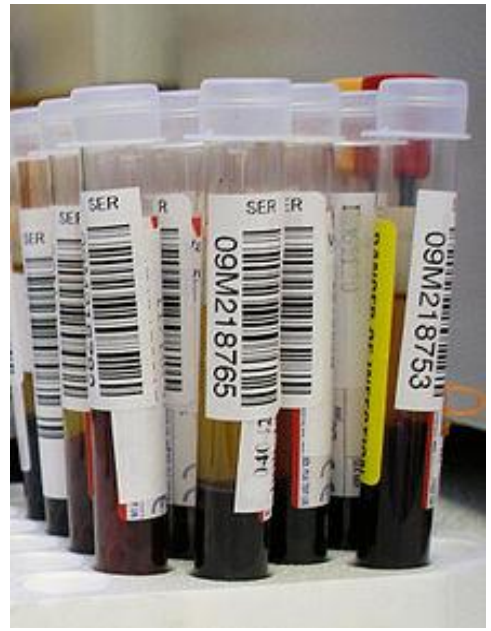
ANSWER CHOICES	RESPONSES	
Yes	46.15%	18
No	53.85%	21
Total Respondents: 39		

Question 4 – Total no. of Samples Processed

- *Please enter the total number of transfusion samples processed in your transfusion Laboratory during 2017.*

- Answers ranged from 50 samples - 33,965 samples

- Total samples processed between all 39 sites = 430,336



Question 5 – Rejected Samples

- *Please enter the total number of samples that were rejected in your transfusion lab during 2017*

- Answers ranged from 0 - 2,034 samples rejected (0-45% rejection rates)
- One site does not collect data on rejected samples
- Total Samples Rejected between all 39 sites = 18,460 (Denominator = 430,336)
- Current Irish Rejection rate = 4.3%
- 1: 23 samples are rejected *(higher than reported international rates)*
- Largely unchanged from 2011 survey (1:24 samples rejected)
- Overall Rejection rates were slightly higher in sites using blood track labels (range 1.1% - 20.5%) (average rate = 3.8%)
- Overall Rejection rate in sites hand labelling samples - ranged from 2.2% - 7.4% (average rate = 3.7%)

Question 6 – WBIT Events

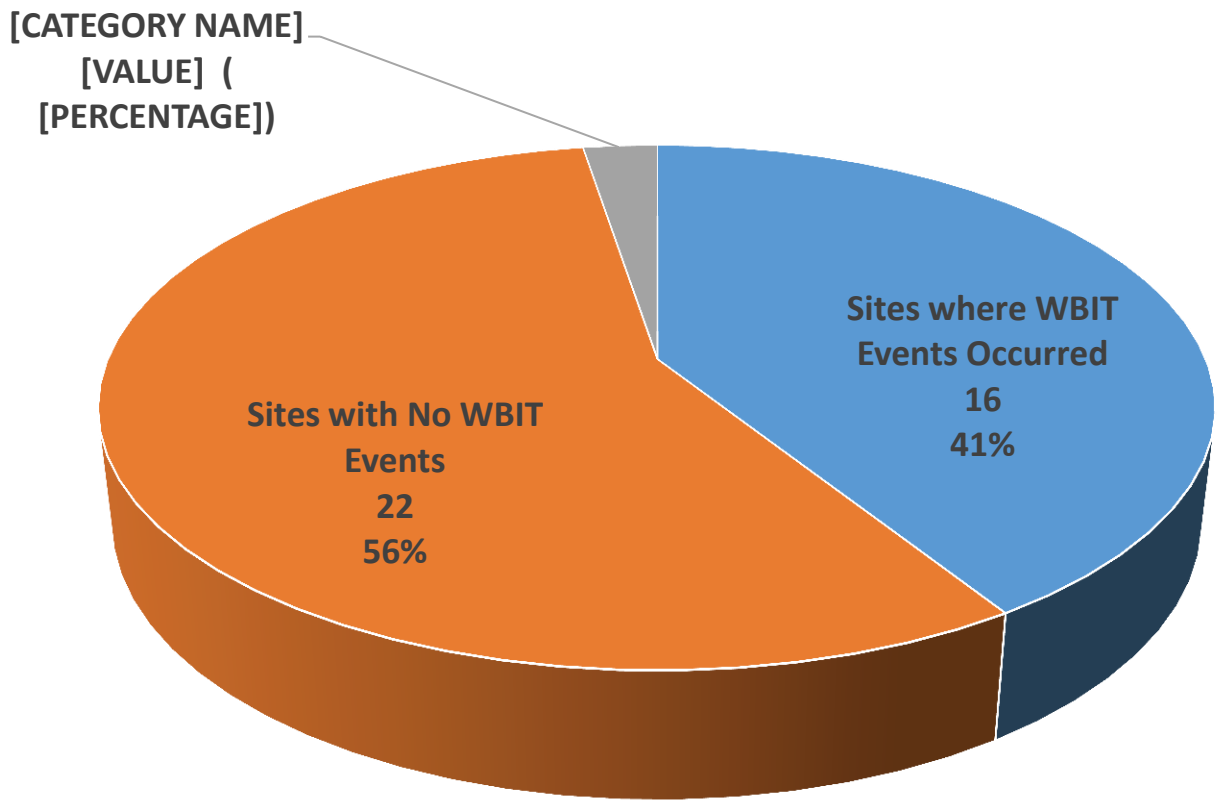
- *Out of the samples rejected – were any of these 'Wrong Blood in Tube' (WBIT) events ?*

- WBIT defined as ;

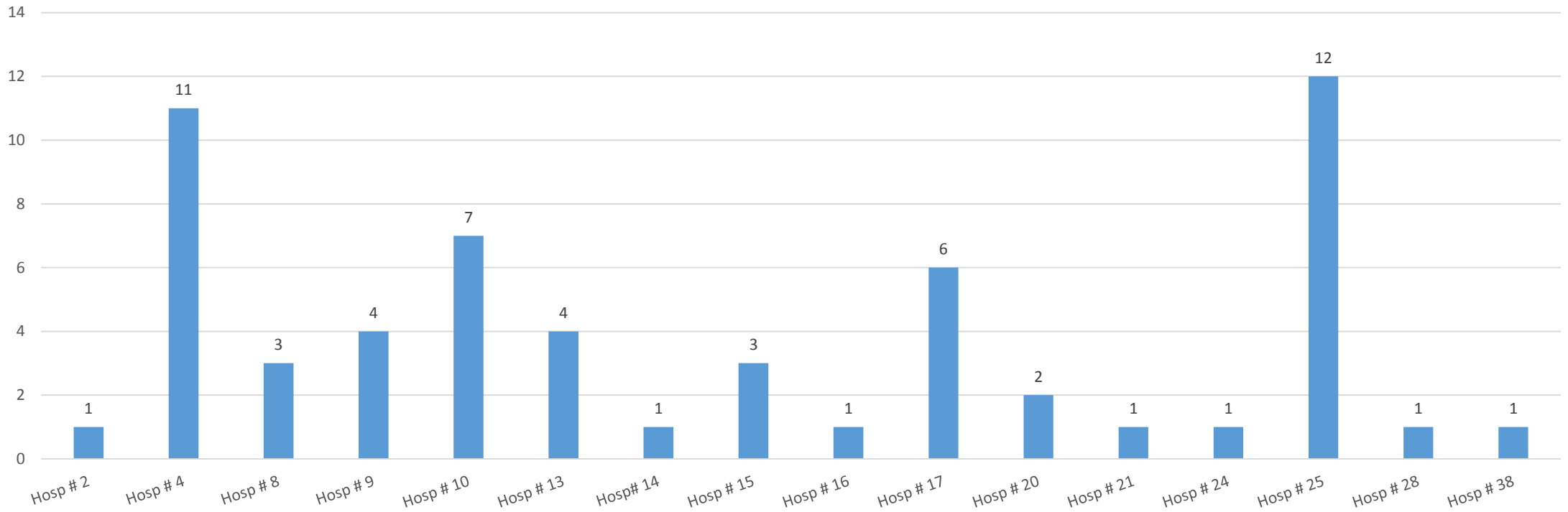
  'the blood in the tube was not from the patient identified on the label'

- WBIT events did not include rejected samples due to discrepancies between request form and sample - unless WBIT has been confirmed

WBIT vs No WBIT (39 sites)



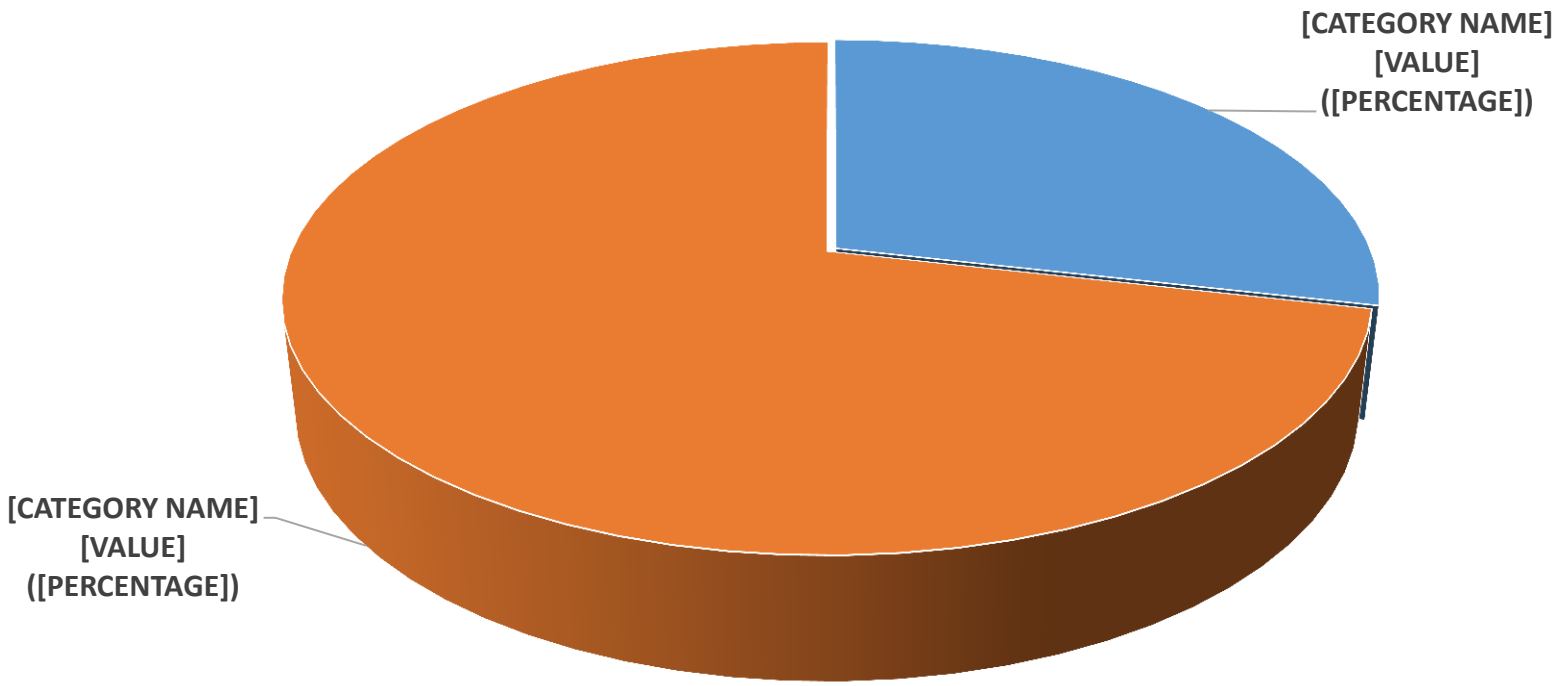
WBIT Events per Hospital 2017- 59 WBIT Events Between 16 Sites



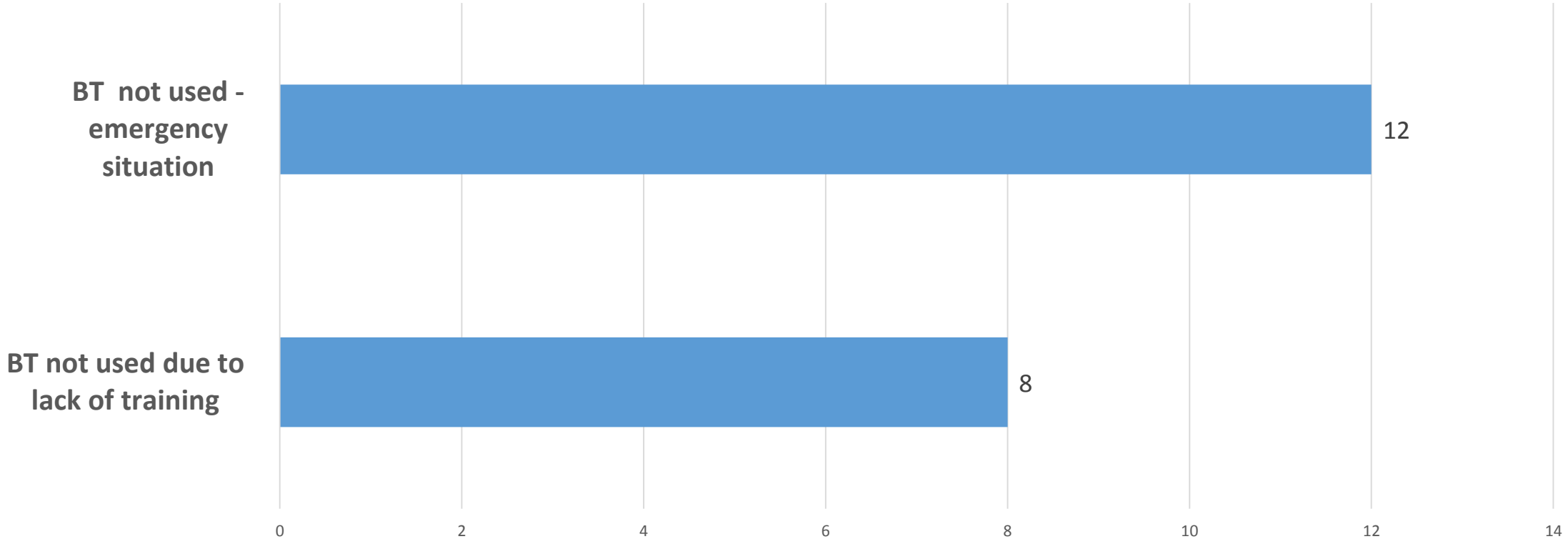
28 (47%) WBIT events occurred in sites where blood track phase 3 was available for use

31 (53%) WBIT events occurred in sites where blood track phase 3 had not been implemented at the time of sampling

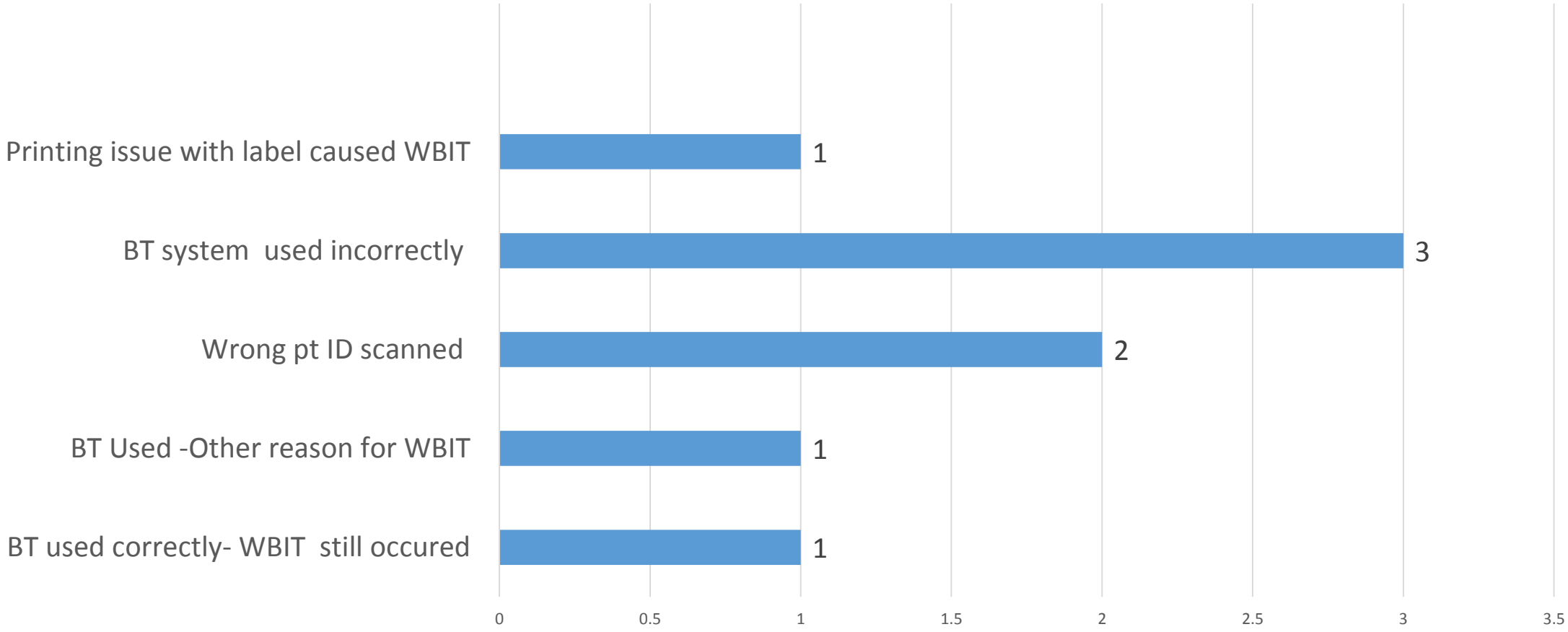
Breakdown of WBIT Events in Sites Where BT Phase 3 was Available for use (n=28)



Why WBIT Events Occurred where Blood Track was Available, but Not Used (n=20)



How WBIT Events occurred while using Blood Track Phase 3 (n=8)

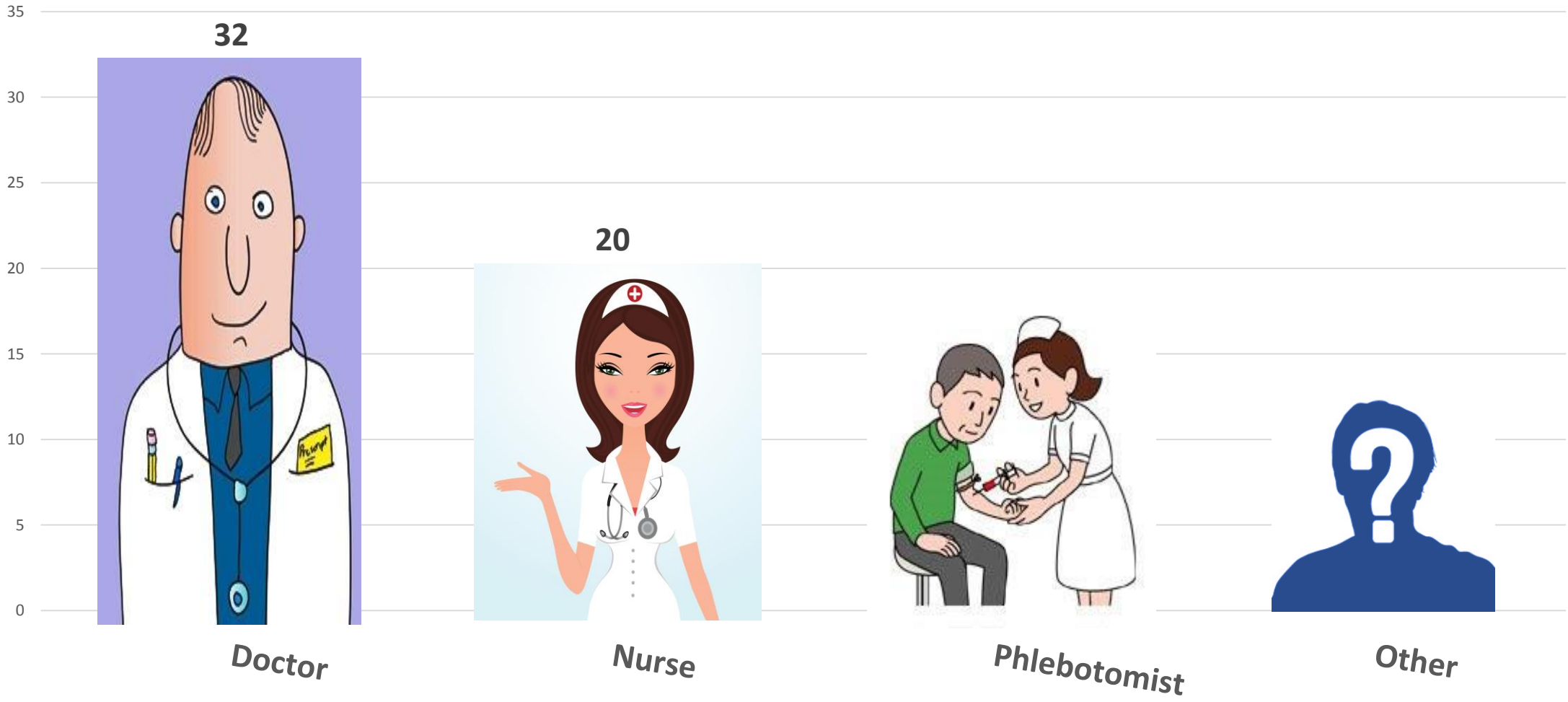


Question 9

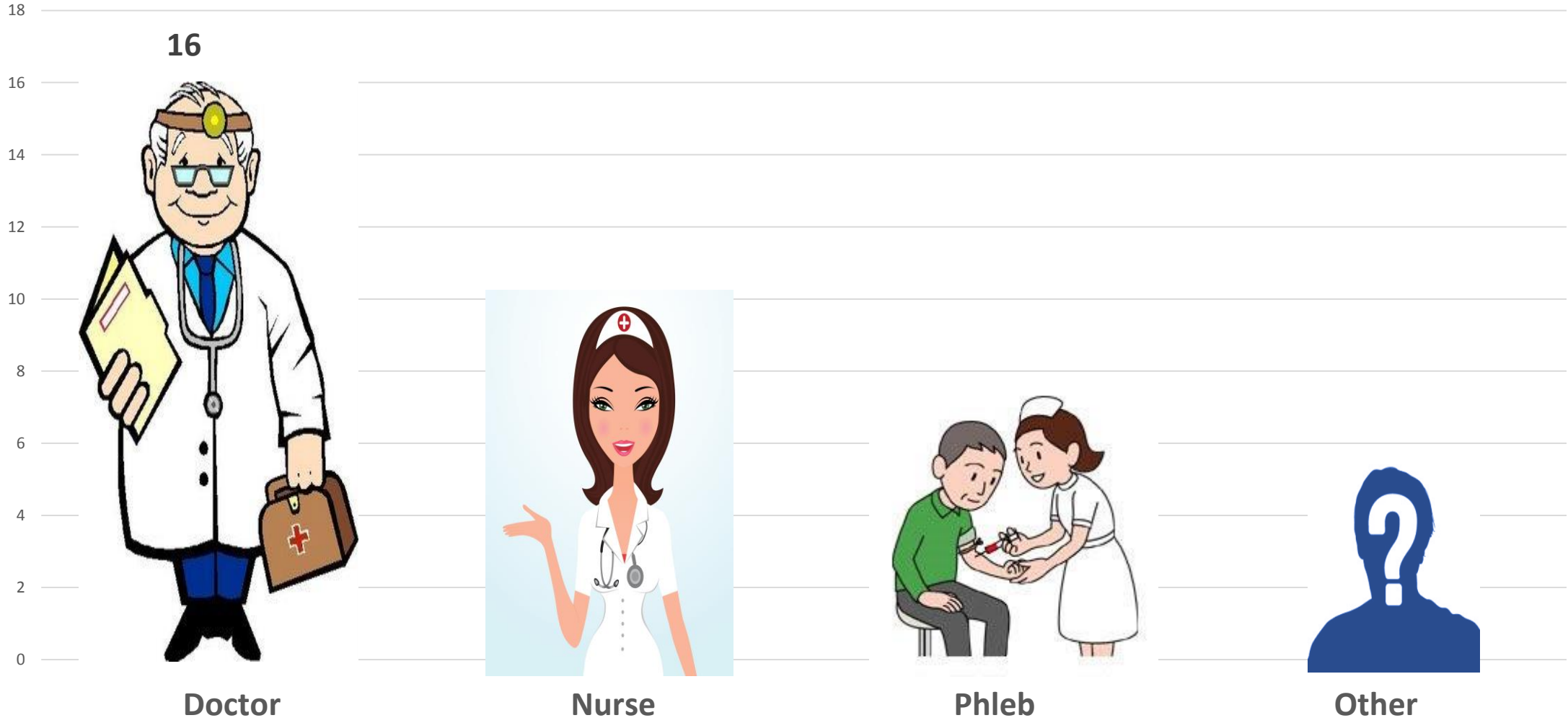
- *Considering the groups of the patients involved, how many of the WBIT events would have led to an ABO incompatible transfusion, if the error had not been detected?*

- 22 (37%) WBIT events, involving 10 sites, would have led to an ABO incompatible transfusion if the error had not been detected

Question 10- What grade of staff was Involved in WBIT Events (n=59)



Who was involved in WBIT events using blood track? (n=28)



Main Findings – Rejected Samples

- Ireland currently have a high sample rejection rate 4.3%

  (1:23 samples are rejected)

- Largely unchanged from 2011 survey (4.1%) (1:24 samples rejected)
  & higher than reported international rates which range from (0.2% - 3.2%)

- Overall Rejection rates were slightly higher in sites using blood track labels

Main Findings – WBIT Rates

- Sites using 2nd sample policy had lower WBIT rates (rates ranged from 0.002% - 0.042%)
- WBIT rates in sites with no 2nd sample policy ranged from 0 – 0.233%

- WBIT rates were slightly higher in sites where all samples were hand labelled (sites where BT phase 3 had not been introduced)

➢ WBIT range = 0.004% - 0.233% in sites not using blood track phase 3 (average= 0.03%)

➢ WBIT range = 0.002% - 0.122% in sites using blood track phase 3 (average = 0.02%)

- Current Irish WBIT Rate* (not corrected for unidentified WBIT events) = 0.0137%

➢ (1: 7,294 samples)

- National Survey (2011) showed rates of 0.021% (1: 4,743 samples)

- Published International Rates Range (1:1303 samples – 1:3448 samples)

Published International WBIT Rates 2003- 2013

Location	Rate of WBIT	Definition	Correction factor	References
UK, 27 hospitals	1 in 1303	Blood group not matching previous record	1·418	Murphy *et al* (2004)
International, 10 countries, 71 hospitals	1 in 1986	Blood group not matching previous record	1·6	Dzik *et al* (2003)
International, 122 institutions (95·1% USA)	1 in 2500	Blood group not matching previous record	None	Grimm *et al* (2010)
USA Single centre over 5 years	1 in 2283	Blood group not matching previous record, clinical service notification and others	None	Ansari and Szallasi (2011)
North East England, 15 hospitals over 12 months	1 in 2717	Blood group not matching previous record notifications from clinical areas	1·418	Varey *et al* (2013)
France, 5-year study single blood bank for 35 hospitals	1 in 3448	Blood group not matching previous record	None	Chiaroni *et al* (2004)
Spain, single centre study over 6 months	1 in 2243	Detected by comparison with past samples	1·4388	Gonzalez-Porras *et al* (2008)

- Current Irish WBIT Rate* (not corrected for unidentified WBIT events) = 1: 7,294 samples
- Irish Rate Lower than Published International Rates

Some Facts … What have we Learned From the Survey?

- Correctly linking the sample to the patient from whom it was taken remains fundamental - whether using electronic systems for labelling, or hand labelling
- Human factors can be reduced by removing human interventions as far as possible from a process, but the use of an automated system does not guarantee an error-proof process.
- Further audit of the use of Electronic systems such as blood track in emergency settings needs to be carried out
- Ongoing training (with particular emphasis on medical staff) in the correct use of blood track, is vital in preventing error
- Irish WBIT rates have decreased since last Irish survey done in 2011
- The current incidence of WBIT events in Ireland is (1:7,294 samples) - lower than published International rates
- The current rate of rejected samples is 4.3% (1:23 samples are rejected) - higher than international rates ……why?
- The introduction of the 2nd sample policy seems to be effective in reducing WBIT rates (yet, 53% sites who replied, have not yet implemented this policy)

Conclusions ……

- Failure to properly identify the patient at the bedside when collecting blood samples is a recurring problem, even in sites using electronic systems .
- Introduction of an electronic system alone, such as blood track , is not sufficient to significantly reduce sampling errors / WBIT events - Multiple interventions are required.
- The use of a 2nd group-check sample, plus electronic end-to-end systems, plus ongoing education & training offer the best chances to improve transfusion safety.
- Audit & Feedback of results of interventions will continue to highlight problems / causes of error, allow us to develop standards and suggest possible solutions .