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SHOT Serious Hazards of Transfusion

Is that your final answer? SHOT laboratory testing errors 2018-2022

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Introduction

The cornerstone of laboratory work is testing blood samples, interpretation and provision of accurate results. Testing errors can lead to patient harm, particularly in transfusion where results influence the safe provision of blood components/products.

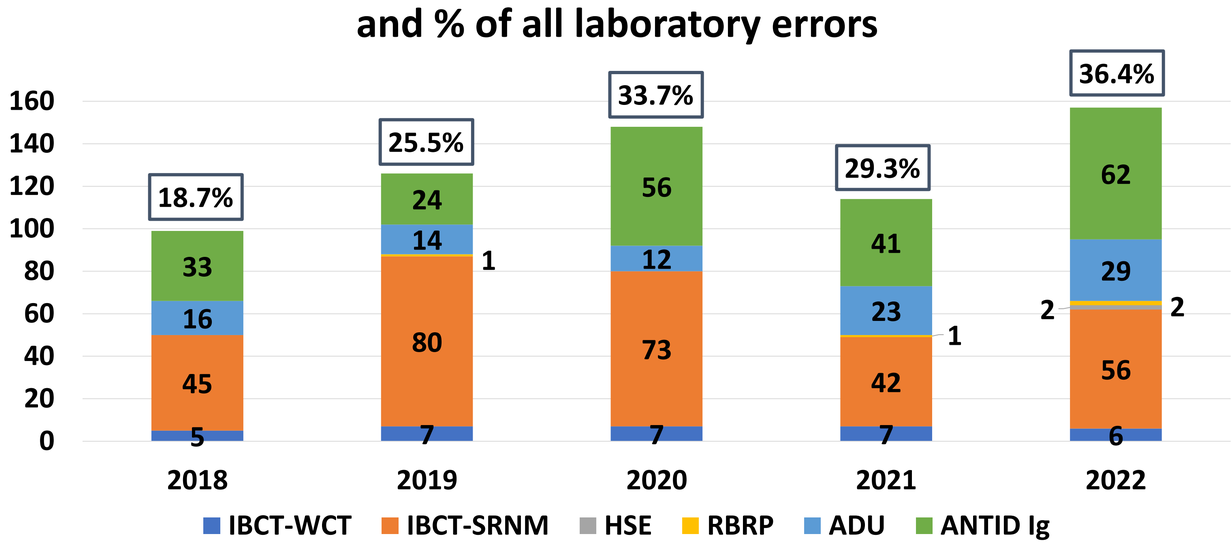
Methods

Laboratory errors reported to Serious Hazards of Transfusion UK haemovigilance scheme between 2018-2022, where the primary error occurred during testing, were reviewed.

Results

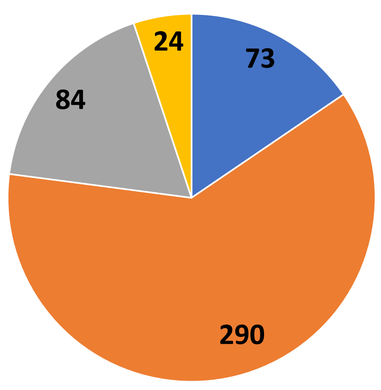
- Overall, **644**/2284 (28.2%) laboratory errors occurred at testing
- **One death** possibly related to transfusion occurred due to testing procedures not being followed, causing a **delay**
- Errors reported were (Figure 1):
  - Incorrect blood component transfused-specific requirements not met (**IBCT-SRNM**) **296/644 (46.0%)**
  - Anti-D Immunoglobulin (Ig) errors 216/644 (33.5%)
  - Avoidable, delayed and under/overtransfusion (ADU) 94/644 (14.6%)
  - IBCT-wrong component transfused (IBCT-WCT) 32/644 (5.0%) errors

Figure 1: Testing errors 2018-2022 by SHOT category and % of all laboratory errors

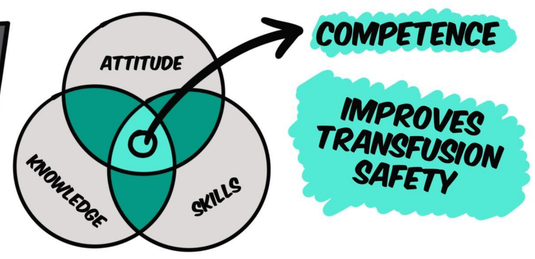


IBCT-WCT= Incorrect Blood Component Transfused – Wrong Component transfused, IBCT-SRNM= IBCT-Specific Requirements Not Met, HSE = Handling and Storage Errors, RBRP = Right Blood Right Patient, ADU= Avoidable Delayed and Under/overtransfusion, Anti-D Ig = Anti-D Immunoglobulin errors

Figure 2: Types of testing error



Most errors were due to staff members **not following procedure 290/644 (45.0%)** though there may have been systemic reasons for this. Errors also occurred due to technical problems 84/644 (13.0%),issues with interpretation 73/644 (11.3%) and transcription 24/644 (3.7%) (Figure 2). Information was not available in 173 cases.



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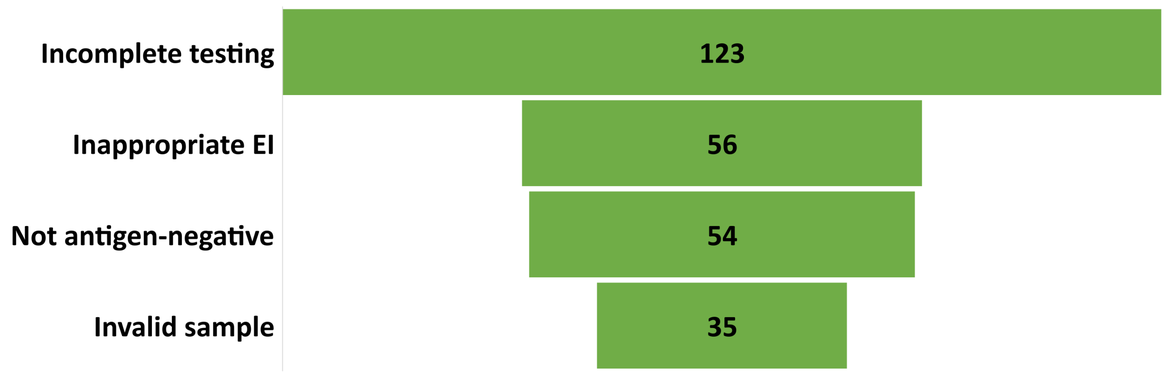
IBCT-SRNM errors included (Figure3):

- **Incomplete testing 123/296 (41.6%)** (antibody identification incomplete in 24/123 (19.5%))
- Inappropriate use of electronic issue (EI) 56/296 (18.9%),
- Failure to provide antigen-negative blood 54/296 (18.2%)
- Testing performed on samples outside of validity period 35/296 (11.8%)

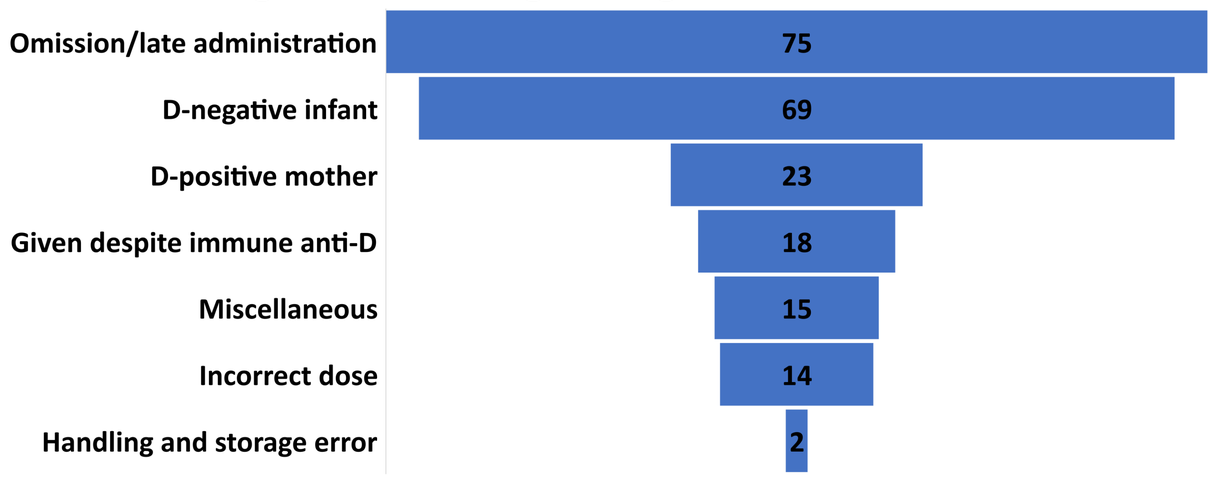
Figure 3: IBCT-SRNM testing errors 2018-2022



Anti-D Ig testing errors resulted in (Figure 4):

- **Omission/late administration of anti-D Ig 75/216 (34.7%)**
- Administration to an individual carrying a D-negative baby 69/216 (31.9%)
- Administration to a D-positive individual 23/216 (10.6%)
- Administration to an individual with immune anti-D 18/216 (8.3%) or others 31/216 (14.4%)

Figure 4: Anti-D Ig testing errors 2018-2022



Conclusions

- Testing errors cannot always be identified during pre-administration checks and clinical staff trust that results and blood components/products issued from the transfusion laboratories are correct
- These errors have the potential to cause significant harm (e.g., by antigen-positive components prompting a transfusion reaction, or sensitisation to the D antigen causing complications in future pregnancies)
- Laboratories should have clear procedures for patient groups requiring specific testing and information technology should prevent release of components where appropriate testing has not yet been completed or authorised