

Promoting ergonomics and human factors to improve transfusion safety in the UK

Nicola Swarbrick, Jennifer Davies, Emma Milser, Alison Watt, Debbi Poles & Shruthi Narayan

Serious Hazards of Transfusion, United Kingdom

SUMMARY

Effective incident investigation is an integral part of the provision of a safe blood transfusion service, with the aim to prevent recurrence of adverse events and harm to patients. Determining how an incident has taken place allows understanding of the gaps or failures within the system and identification of effective corrective and preventive measures that can be implemented to reduce risk of recurrence. Consideration of human factors supports a more sophisticated understanding of the factors that cause incidents, optimising human performance through better understanding of human behaviour and the factors that influence this behaviour, thus improving patient safety.

KEYWORDS

Incident investigation, healthcare, transfusion, patient safety

Introduction

Serious Hazards of Transfusion (SHOT) is the UK's haemovigilance system, collecting and analysing anonymised information on adverse events and reactions in blood transfusion. Where risks and problems are identified, SHOT produces annual recommendations to improve patient safety. The 2020 Annual SHOT Report (Annual SHOT Report, 2016 – 2020) outlined that the number of errors in transfusion practice are not reducing, with preventable errors accounting for over 80% of reports submitted each year. By analysing reports SHOT noted a tendency to blame individuals for errors, resulting in a focus on re-training individuals, without reviewing the wider system or the impact of human factors (HF). Where staff are highlighted as the sole cause of error, this is likely to have a negative effect on healthcare organisations, with no improvement in patient safety. Incidents rarely occur due to a single event but are often due to cumulative errors resulting in patient harm. Complex processes have multiple possible points of weakness where an error or omission could occur, but also provide numerous opportunities for checkpoints to detect the error before the adverse event occurs.

Human factors

The introduction of the SHOT Human Factor Investigation Tool (HFIT) in 2016 (SHOT HFIT tool, 2016), supported by educational material, has enabled analysis of organisational attitudes to HF principles in incident investigation. This investigation tool allocates scoring to evaluate to what extent incident cause was attributable to environment, organisation, and government/regulatory factors.

SHOT began incorporating a chapter dedicated to HF in its 2017 annual report and have used this to promote HF based learning points, key messages and recommendations for transfusion laboratories to improve practice. SHOT recommendations promote the understanding of HF principles to foster

a strong and effective safety culture. 2018 SHOT recommendations included robust root cause analysis using ergonomics/human factors approach in quality management systems (QMS) improvements to mitigate errors, expanding in 2019 to recommend clinical and laboratory staff receive training in fundamentals of transfusion, human factors, cognitive biases, investigating incidents and patient safety principles. The 2020 SHOT HF webinar had over 300 attendees with an interest in blood transfusion from the UK and internationally with a range of staff groups attending from transfusion practitioners, transfusion laboratory managers, and quality and risk managers.

In 2021 SHOT HFIT questions were restructured to encourage more focus on the system and organisational elements of incident, with scoring simplified, incorporating the evidence based system outlined by Yorkshire Contributory Factors Framework (YCFF) (Improvement Academy, 2021) to evolve and drive human factors and identifying all causal factors. SHOT prepared supporting self-learning material to aid reporters in understanding HF and how they influence processes and systems. To aid incident investigators, SHOT produced a range of additional resources including short videos, podcasts, webinars and quick guides, which are available on the SHOT website.

To support HF incorporation into routine practice SHOT undertook two HF training events in 2021 with the UK devolved countries, with more planned for 2022, which included a HF presentation, investigation master class incorporating HF principles and case study workshop discussions using the HFIT tool. Feedback was extremely positive with 83% of attendees scoring the sessions either good or very good, particularly in highlighting the variations in hierarchy intervention for corrective and preventative actions, with all feedback responders stating they would be able to apply the session content to assist in their role and improve their practice.

Learning from Near Miss events (NM)

NM reporting to SHOT began in 1997, and account for more than 35% events/reactions of reports. SHOT promote and encourage the investigation of near miss events (NM) allowing us to benefit from these ‘free lessons’, which occur more frequently than actual adverse events, and improve systems before any harm occurs. If NM are not identified and investigated, then opportunities to prevent actual harm events occurring are missed.

Learning from excellence

Learning from excellence in healthcare is an essential step towards a safety focused working environment and as part of this refocussing in 2021 SHOT introduced the ACE report category with the dual aim of recognising exceptional practice by teams or departments and innovative solutions to previous adverse events, for a shared approach to collective learning.

Next steps

SHOT will continue to promote effective investigation of all incidents and near miss events to optimise learning from incidents. To foster an organisational-wide culture of learning from patient safety incidents we should embed a holistic approach to ensure safe, high-quality, patient-centred care.

References

Annual SHOT Report (2016 – 2020) <https://www.shotuk.org/shot-reports/>

SHOT HFIT tool <https://www.shotuk.org/human-factors-tuition-package/>

Improvement Academy (2021) Yorkshire Contributory Factors Framework
<https://improvementacademy.org/tools-and-resources/the-yorkshire-contributory-factors-framework.html>