Health and Social Care Board

Public Health Agency

SAFETY AND QUALITY
REMINDER OF BEST PRACTICE GUIDANCE

Subject	Blood Transfusion and the risk of Transfusion-Associated Circulatory Overload (TACO)
HSCB reference number	SQR-SAI-2017-028 (Acute)
Programme of care	Acute Services

LEARNING SOURCE			
SAI	✓	Complaint	
Audit or other review		Coroner's inquest	
Other (Please specify)			

SUMMARY OF EVENT

In a serious adverse incident (SAI), a patient died with symptoms and signs consistent with severe pulmonary oedema after a blood transfusion was completed approximately 7 hours before death.

On a detailed investigation of the patient's medical history, it was noted that the patient had been admitted one month previously with a suspected 'post transfusion type reaction'. The mechanism to report such a reaction to the Blood Bank was not followed and no blood samples for investigation of a transfusion reaction were taken. When this patient was admitted one month later for a planned blood transfusion, the admitting team and the laboratory staff were therefore unaware of the previously suspected transfusion reaction. Post mortem examination revealed previously undiagnosed cirrhosis of the liver which could have increased the patient's susceptability to fluid overload, pulmonary oedema or Transfusion Associated Circulatory Overload (TACO).

Similarly, in an another SAI, a patient died after blood transfusion and it was noted from the investigation report that the patient had concomitant medical conditions predisposing the patient to the risk of Transfusion Associated Circulatory Overload (TACO). The patient was monitored closely during the blood transfusion, but nonetheless developed signs that were consistent with TACO. The patient's condition did not improve despite clinical intervention.

The key learning identified in the investigations of these SAIs were:

- In the first SAI, Blood Bank staff, Haemovigilance staff and the clinical Haematologist were not informed when clinical staff considered that the patient's symptoms could have been in keeping with a transfusion reaction;

- Both SAIs highlighted firstly, the need to carefully **assess** a patient's risk of developing TACO, particularly their existing circulation capacity and cardiac status, and secondly, the need to **manage** transfusion with extreme care in patients at risk of TACO.

REQUIREMENTS UNDER CURRENT GUIDANCE

In 2012, the British Society for Haematology (BSH), formally known as British Committee for Standards in Haematology (BCSH), published guidelines on the investigation and management of Acute Transfusion Reactions. This document provides clear guidance on the recognition, investigation and management of acute adverse reactions to blood components. It is clinically focused and recognises that the precise nature and severity of reactions may not be apparent at presentation. It is intended to provide a framework for the development of institutional policies. The emphasis is on the immediate management of potentially life-threatening reactions, but it also makes recommendations about the appropriate investigation and reporting of transfusion reactions. This guidance states:

> "The recognition and the immediate management of the ATR (Acute Transfusion Reaction) should be incorporated into local transfusion policies and there should be mandatory transfusion training requirements for all clinical and laboratory staff involved in the transfusion process."
>
> "All transfusion reactions except mild febrile and/or allergic reactions must be reported to the appropriate regulatory and Haemovigilance organisations (MHRA and SHOT) and should be reviewed within the hospital."
>
> The full guidance is available online at:
>
> http://www.b-s-h.org.uk/guidelines/guidelines/investigation-and-management-of-acute-transfusion-reactions/

Trusts may also wish to refer to the ***Serious Hazards of Transfusion (SHOT) Annual (2015) Report published in July 2016. This report states:***

> "A formal pre-transfusion risk assessment for transfusion-associated circulatory overload (TACO) should be performed whenever possible as TACO is the most commonly reported cause of death and major morbidity."

The SHOT report recommendations (2015) also highlighted that if a patient is at high risk of TACO then the clinical staff should:

1. Consider reviewing the need for transfusion taking into account the risk and benefits of transfusion;
2. Consider if transfusion can be deferred safely until any potential issues can be investigated, treated or resolved;
3. Consider body weight dosing for red cells (especially if low body weight), review

of symptoms of anaemia after transfusion of one unit, consideration of prophylactic diuretic where indicated, and close monitoring of vital signs including oxygen saturation.

The detailed SHOT annual report (2015) is available online at: http://www.shotuk.org/wp-content/uploads/SHOT-2015-Annual-Report-Web-Edition-Final-bookmarked.pdf

ACTION REQUIRED

HSC Trusts

1. All Trusts should ensure that healthcare staff are made aware of this transfusion related complication. Please share this Reminder of Best Practice Letter with all relevant staff and highlight it at relevant frontline multidisciplinary team meetings. In particular, please reinforce:
    a. The requirement to document and report all transfusion related adverse incidents, including TACO and other pulmonary complications secondary to blood transfusion, to the Trust Haemovigilance team for investigation and appropriate reporting;
    b. The importance of using a TACO checklist, such as that developed by SHOT, to identify patients at risk, and of seeking advice from an experienced healthcare professional if in doubt.

2. Trusts should support the Northern Ireland Transfusion Committee (NITC) to develop and implement a single standardised Northern Ireland Transfusion Record to include pre-transfusion risk assessment for Transfusion Associated Circulatory Overload (TACO), and management of transfusion in patients who are at risk of TACO. NITC will take this work forward with Trusts.

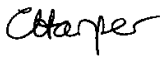
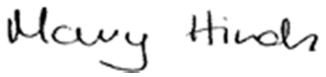
3. Confirm by **15 July 2017** to alerts.hscb@hscni.net that action 1 has been completed.

NIMDTA

1. Please disseminate this letter to all doctors in training in relevant specialties.

RQIA

1. Please disseminate this letter to all relevant independent sector providers.

Date issued	7 June 2017	
Signed:		
Issued by	Dr Carolyn Harper Medical Director/Director of Public Health	Mrs Mary Hinds Director of Nursing, Midwifery & Allied Health Professionals

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RE: Blood Transfusion and the risk of Transfusion-Associated Circulatory Overload (TACO)

	To – for Action	Copy		To – for Action	Copy
HSC Trusts			**PHA**		
CEXs	√		CEX		√
Medical Director		√	Medical Director/Director of Public Health		√
Directors of Nursing		√	Director of Nursing/AHPs		√
Directors of Social Services		√	PHA Duty Room		
Governance Leads		√	AD Health Protection		
Directors of Acute Services		√	AD Service Development/Screening		√
Directors of Community/Elderly Services		√	AD Health Improvement		
Heads of Pharmacy			AD Nursing		√
Allied Health Professional Leads			AD Allied Health Professionals		
NIAS			Clinical Director Safety Forum		√
CEX		√	**HSCB**		
Medical Director		√	CEX		√
RQIA			Director of Integrated Care		
CEX	√		Director of Social Services		
Medical Director		√	Director of Commissioning		
Director of Nursing		√	Alerts Office		√
Director for Social Care			Dir PMSI & Corporate Services		√
NIMDTA			**Primary Care (through Integrated Care)**		
CEX / PG Dean	√		GPs		
QUB			Community Pharmacists		
Dean of Medical School		√	Dentists		
Head of Nursing School		√	**Open University**		
Head of Social Work School			Head of Nursing Branch		√
Head of Pharmacy School			**DoH**		
Head of Dentistry School			CMO office		√
UU			CNO office		√
Head of Nursing School		√	CPO office		
Head of Social Work School			CSSO office		
Head of Pharmacy School			CDO office		
Head of School of Health Sciences (AHP Lead)			Safety, Quality & Standards Office		√
Clinical Education Centre		√	**NI Social Care Council**		
NIPEC		√	**Safeguarding Board NI**		
GAIN Office		√	**NICE Implementation Facilitator**		√
NICPLD			**Coroners Service for Northern Ireland**		√