NHS
Blood and Transplant

Board Meeting in Public

Tuesday, 22 July 2025

Title of Paper	Patient Story - Dried Plasma	**Agenda No.**	2.1
Nature of Paper	☒ Official	☐ Official Sensitive	
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Presented for	☐ Approval ☐ Assurance	☒ Information ☐ Update	

Executive Summary

This story is about the availability of plasma to resuscitate patients who have lost a large volume of their own blood due to injury from trauma. Being able to resuscitate patients with blood improves their chances of survival. Early administration of plasma is known to be important.

Previously Considered by

N/A

Recommendation	For information

Risk(s) identified (Link to Board Assurance Framework Risks)

Risk managed by Programme Board

Strategic Objective(s) this paper relates to: [Click on all that apply]

☒ Collaborate with partners	☐ Invest in people and culture	☒ Drive innovation
☐ Modernise our operations	☐ Grow and diversify our donor base	

Appendices:	-

Patient perspective – dried plasma.

This story is about the availability of plasma to resuscitate patients who have lost a large volume of their own blood due to injury from trauma. Being able to resuscitate patients with blood improves their chances of survival. Early administration of plasma is known to be important.

NHSBT supply hospitals with plasma in a frozen form, which has to then be thawed before it can be transfused, a process that takes 20-30 minutes. In order to get plasma to those who need it quickly, hospitals who treat trauma patients often keep a stock of pre-thawed plasma available, although this can result in quite a lot of plasma wastage as it can only be stored for 5 days.

In the military context, major bleeding from traumatic injury is a leading cause of death, and one that is potentially preventable with the right and timely treatment. The ministry of defence (MoD) has a Blood Far Forward programme that aims to get blood to those who need it within 30 minutes of wounding.

Our standard frozen plasma product is not easy to use on the battlefield – it requires freezers, thawers and trained biomedical scientists to be able to provide it. It does not lend itself to being transfused as close to the scene of injury as possible. For this reason, MoD currently sources a form of dried plasma – stored in glass bottles, that can be reconstituted in a few minutes by adding 200mL of sterile water. This sort of product can be taken in backpacks and transfused by non-medical staff at point of injury. Currently NHSBT do not produce dried plasma, and these are sourced from the German Red Cross and the French Military Blood Bank.

The NATO Blood Panel have expressed concern regarding the global sufficiency and resilience in dried plasma supply chains, which has been made worse by current geopolitical fragility. If supply is not sufficient or breaks down, the issue is one of equity of treatment – leaving military personnel to make impossible decisions regarding those who get plasma, and an increased chance of survival, and those that don't. As a result, MoD has asked NHSBT to assess the feasibility of producing a UK manufactured dried plasma product.

Experience in Afghanistan

In 2011 a combat photographer was on patrol with an army unit in Afghanistan. Unfortunately, his patrol was hit by an improvised explosive device resulting in a casualty who suffered traumatic amputations of both his legs. The following images, used with permission of the photographer who owns the copyright, depict the story.

Patrolling in a conflict zone is dirty, dangerous and can be a long way from help. In Ukraine currently, a casualty will get treatment by a medic in the first hour but may take 24 hours or more to reach a surgical facility. For all that time the patient only gets treated with what the medic can carry, often in a single backpack with all the medical equipment and their own food, water and ammunition.

Unit on Patrol In Afghanistan just before IED contact

Size of backpack carried by army medics

Amputee casualty was moved a few hundred metres to administer immediate first aid to try to stem the bleeding, conditions are dirty and cramped

Evacuation out of 'hot zone' to safer place is difficult, arduous and labour intensive

Once in area of greater safety medic treats casualty with only fluid available - saline

The goal of the dried plasma project is to swap the saline for dried plasma and improve wounded soldiers' chances of survival.

In Afghanistan helicopter evacuation was possible due to safe air routes. When casualties occurred the focus of the patrol pivoted towards saving the life of the casualty who was flown by helicopter to a modern, well equipped trauma centre with unlimited blood provision. The patient above survived.

Future wars, and even that currently happening in Ukraine, do not look like this. Timelines to surgery will be extended, and surgical facilities will be small, logistically constrained, underground and a long way away. Future battlefield care will look like that given in World War II and will rely heavily on dried plasma to resuscitate patients in order to give them the best chance of survival to get to surgery and access to blood.

NHSBT's Component Development Laboratory have established a programme of activity to assess the feasibility of producing a dried plasma product that would be suitable for MoD use, but that may also have wider application in the NHS. The project is a collaboration between NHSBT, MoD and the commercial company Velico Medical, who make the equipment that NHSBT will use to produce dried plasma. The equipment in now installed in a dedicated lab in the Cambridge Blood Centre. We are undertaking laboratory studies to ensure the quality of plasma and working out suitable manufacturing methods ahead of a clinical trial in patients in 2026. The goal is to develop a product that is suitable to use and has gained all the relevant approvals to use in the UK. The product is a single unit of plasma in a plastic bag that can be reconstituted with water in a few minutes. If successful, there may be a use case in the civilian setting as well.

The first unit of dried plasma produced in NHSBT earlier this year

Private Austin Punnoose demonstrating the reconstitution and transfusion of NHSBT dried plasma

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