

**NHSBT Board Meeting**  
26 March 2020

**Status: Official**

**A Patient Story**

Alvin is a 35-year old plumber. On the 14<sup>th</sup> of December 2018 he suffered a stab injury to his right thigh in Hertfordshire. He lost a lot of blood on scene, and a bystander performed initial first aid by putting pressure on the wound and applying a tourniquet made from rope. The paramedic team then applied 3 combat application tourniquets to reduce the bleeding. On the arrival of London's Air Ambulance, 20 minutes after injury, Alvin was unwell and unconscious, because he had lost a lot of blood. Within 2 minutes of arrival to the scene, the London's Air Ambulance team gained intravenous access into a large vein and transfused 3 units of Red Cell and Plasma through this line.

- *The 3 units of Red Cells and Plasma are equivalent to administering 3 bags of red cells and 3 bags of plasma (see figure below).*
- *Having Red Cells and plasma in one bag allowed the emergency team to administer the blood components needed quickly through one intravenous access point, and this helped with resuscitating Alvin quickly and reducing time on scene, which was paramount to his survival.*



**Plasma**

**Red cells**

**Platelets**



**Red cell and Plasma**

Alvin was flown to the Royal London Hospital where he was taken directly to the operating theatre for surgery. During the surgery he required more blood transfusion. After surgery he recovered well and one week later he was discharged home to his family. He is now back at work.

## The Red Cell and Plasma study

In October 2018, Barts Health NHS Trust (London Air Ambulance), NHSBT and Queen Mary University of London launched a landmark study (led by Dr Laura Green, NHSBT consultant) to assess the benefits of transfusing Red Cells and Plasma in one bag, at the roadside to critically injured patients in London.

Approximately 200 people each year in London suffer traumatic injuries that result in such a serious bleeding that they may die before reaching hospital. The Red Cell and Plasma product contains essential clotting ingredients to help form stronger blood clots quickly - this in turn will help this group of patients, by improving their chances of survival to hospital.

The Red Cell and Plasma study is the next step in the journey towards delivering a 'Whole Blood' transfusion at the roadside where red blood cells, plasma and platelets are all in one bag. The aim is to further reduce deaths due to catastrophic bleeding. The results of this study will be extended across the UK to other providers, in order to deliver an outstanding transfusion service to all critically injured patients in the country.

There is more information on the Radio 4 programme Code Red from Barts Health Trust (including the work we have contributed to – start at 10 mins for Laura's interview) available on BBC Sounds. This first aired on the 4<sup>th</sup> February this year but is available on this web address <https://www.bbc.co.uk/programmes/m000dy4y>



Some of the many team members from NHSBT, Barts Health, Queen Mary University of London working on the study at the one-year anniversary meeting

The appointment of Joint Transfusion Consultants between NHSBT and Barts Health NHS Trust has been instrumental to improving the evidence base to promote the appropriate use of blood transfusion for the treatment of bleeding disorders, such as those associated with trauma, cardiac surgery and obstetrics. In 2006 Dr Shubha Allard was appointed who then developed a second joint post specifically to address service developments and research in Transfusion and Haemostasis to which Dr Laura Green was appointed in 2011. The contribution of the collaboration between NHSBT and Barts Health to trauma resuscitation is summarised in a recent paper by Cole et al.

([https://journals.lww.com/annalsofsurgery/Abstract/publishahead/A\\_Decade\\_of\\_Damage\\_Control\\_Resuscitation\\_\\_New.94829.aspx](https://journals.lww.com/annalsofsurgery/Abstract/publishahead/A_Decade_of_Damage_Control_Resuscitation__New.94829.aspx))

Transfusion consultants lead on several multidisciplinary Patient Blood Management groups to deliver an exemplary transfusion service for bleeding patients. For example, in 2012 we introduced for the first time in the UK red cell transfusion at the scene of the accident, which has reduced trauma pre-hospital mortality by 15% (2012 to 2017). Introduction of a new blood component (Red Cell and Plasma) for use in bleeding patients in pre-hospital setting in London has simplified logistics of delivering blood at the scene, quickened patients' transfer to hospitals, and improved patients' resuscitation (**won 'Health Business Award 2018', under Air Ambulance category**).

Through this NHSBT Consultant led research and innovation bringing together other key clinical and laboratory teams, in the last 10 years we have been able to harmonise transfusion practices in major haemorrhage across different hospitals. This has also led to a more targeted approach around teaching/training for scientists and clinicians across disciplines with creating a supportive environment for colleagues and the wider NHS community. The above achievements have raised the profile of the transfusion service in the UK putting NHSBT and Barts Health Trust at the forefront of transfusion research and innovation in the world.

**Dr Laura Green, Consultant Haematologist**  
**Dr Shubha Allard, Consultant Haematologist**

**Responsible Director**  
**Dr Gail Mifflin, Chief Medical Officer and Director, Clinical Services**