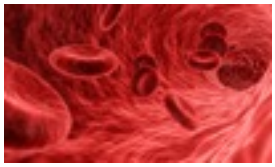
CENTRE FOR TRAUMA SCIENCES



ROTEM

Blood testing tech

ECMO

SUPPORTING THE HEART AND LUNGS

the PAIR *bulletin*

Transform Trauma

In the UK, 46 people lose their lives from serious injury every day.

Traumatic injury is the biggest killer of people under at the age of 40 and the greatest cause of permanent disability. Recent research has led to huge improvements in the care of seriously injured people but still around 20% will not survive

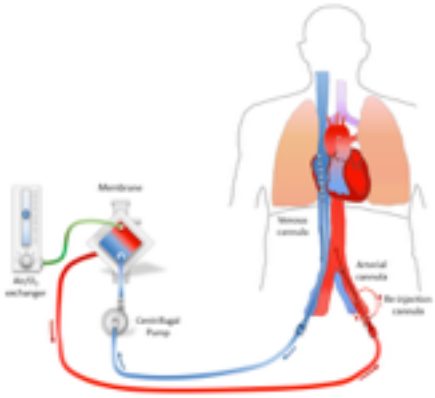
Transform Trauma is a new research programme exploring ways to improve these figures further. Increasing our understanding of blood and bleeding and using technologies to direct treatments and support patients in the immediate aftermath of injury

ROTEM

People who suffer a major haemorrhage often develop problems with the way that their blood clots. In order to give the right treatments it is important to understand how a patient's blood is reacting to the trauma and if clotting problems are developing. Rotational Thromboelastometry (ROTEM) is a way of testing blood and can give a result within 5 minutes. The machine takes a small sample of blood and measures its viscosity, how sticky it is, and how strong it is, to see how well clots can form and be maintained. This information can tell doctors what blood products to give the patient to stabilise their condition. As part of the Transform Trauma project ROTEM machines will be introduced throughout the hospital rather than just in the research laboratory or in the operating theatre. Machines will be positioned on the helipad, so a sample can be taken immediately the patient arrives at the Royal London Major Trauma Centre with results relayed in real time to the waiting trauma team in the Emergency Department. Further machines will then be positioned in the resuscitation room and intensive care to have near patient testing throughout the clinical journey for the patient rather than sending samples to lab elsewhere in the hospital.

ECMO

Extracorporeal Membrane Oxygenation is the use of a machine to take over the role of the heart and lungs in seriously ill people. Blood is drawn from a large artery in the patient's leg, pumped though a chamber to be oxygenated then returned to a vein. The machine ensures that a good supply of oxygen reaches the brain and other body tissues and gives the heart time to rest and recover.



ECMO is already widely used to help patients with breathing difficulties but is not currently used to support trauma patients who have heart problems after major bleeding or cardiac arrest. Once bleeding has been controlled the assistance of ECMO to support the heart and lungs promises to give some people a much better chance of recovery.

Selecting the right people to use ECMO with is a priority and Transform Trauma will use a Shock Call system bringing together experts from different clinical areas to identify the right patients. Specialist training will be given to enable the use of the technology in new areas of medicine.

Meet the researcher

Henry Schofield

I'm a junior doctor with a background in Intensive Care & Emergency Medicine. I hail from New Zealand originally but have taken a year out from my clinical career to explore research opportunities in London.

My current project is exploring the impact that a person's blood group has on how their body responds to trauma. We know from recent research that your blood group can have a significant influence on disease - from how well we form blood clots, to fighting off infection, and even cancer risk.
As bleeding is one of the major consequences of trauma, we want to see if the different blood groups have different outcomes. Although we can't change our blood groups, we may be able to change what treatments we give in response to this.