**Think you’re Immune to Trauma?**

**Taking Trauma Research to the Classroom**

Thank you for visiting our exhibit ‘Think you’re immune to trauma?’.

Our aims were:

1. To ensure people understand what trauma is – physical injury
2. To demonstrate the process of blood clotting and how this make change after injury
3. To discuss the role of immune cell activation after trauma; how it is both crucial to survival but that it can also become detrimental to recovery if homeostasis is lost/over stimulated
4. To highlight the importance of research and clinical trials in pushing forward our understanding of these processes.

Visitors were introduced to the role of platelets and proteins in blood clotting, and the role of blood transfusion in supporting this process was also discussed. The role of white blood cells in health and disease were introduced, as well as the innate and adaptive arms of the immune system being mentioned. How white blood cells work to fight infection and remove damaged cells from the body was highlighted, and the concept that their activation can start to damage the body itself was introduced. In addition, our touchscreen computers gave visitors the chance to explore the function of different organs and how they might respond to physical injury. These activities allowed discussion of the importance of clinical trials to test new medicines and treatment regimes, providing insight to ensure we are providing the best possible care for trauma patients.

By running clinical trials and conducting research our team has broadened the understanding of how the body reacts to trauma. This has led to the introduction of novel treatments for trauma patients. Our exhibit aimed to give visitors the chance to discuss these clinical trials and research projects, their findings and discuss their impact on the treatment of trauma patients.

**Our three key messages were;**

1. Trauma is a disease;
2. The immune response plays an important role in body’s response to injury and a trauma patients subsequent recovery;
3. Clinical trials and scientific research help us to develop our understanding of the body’s response to injury and to test new treatments to improve patient recovery after trauma.

We hope that our exhibit brought to life the numerous ways the body responds to trauma, the importance of clinical trials and research and all that our team is doing to combat this disease.

These exercises and work sheets provide activities linked to our exhibit that may be used for teaching back in the classroom.

**Curriculum Relevance**

GCSE

Know, Identify and say how the following are adapted to function:

* Plasma, red cells, white cells, platelets
* Blood as a transport system
* Understand that disease stops parts of the body working properly; diseases cause symptoms which are experienced by patients

AS/A Level

* Maintenance of homeostasis
* Role of haemoglobin
* Proteins in blood clotting, release of thromboplastin, prothrombin, fibrinogen and fibrin
* Blood donation and storage of different types of blood products
* Definition of antigen and antibody and their structure
* The essential difference between cellular and humoral immune response
* Bacteria causing disease
* Phagocytosis and destruction of ingested pathogens, the role of B and T cells
* Describe the body’s primary and non-specific defenses against infection