

# Improvement to the turnaround time to supply blood for routine requests

## 1. Background

The Hospital Blood Bank has good strategies to supply blood in an emergency – The Massive Haemorrhage Protocol. This is a risk based assessment that a possible transfusion reaction is preferable over the risk of death due to lack of blood.

When it comes to planned blood transfusions the focus is on the need to avoid any possible transfusion reaction and preparation of compatible blood requires complex testing procedures and pre-transfusion checks prior to the issue of blood. The laboratory was in the process of implementing a new Laboratory Information Management System (LIMS) that had many new and safe algorithms to permit the electronic issue of blood (EI) with automated testing. It also had the facility to permit longer sample retention periods allowing patients to be bled further in advance of their transfusion date, or possibly removing the need for repeat sampling.

The turnaround time is a key performance indicator within all pathology laboratories and the aim of this project was to improve the turnaround time to supply blood for non-urgent requests.

## 2. Aim

The project was to use the new LIMS to its full potential and review our processes to enable an improved service for the supply of blood.

## 3. Strategy

Pareto analysis was used to determine the areas that carried out the most transfusions. This identified the Medical Day unit and the haematology oncology ward and day unit. Many patients attending these areas for a blood transfusion are transfusion dependant due to haematological malignancies or the effects of chemotherapy. Their quality of life can be dominated by the need for regular blood transfusions and any extra time spent waiting around for their blood is unsatisfactory. The Haematology and MDU team were also aware of the pressure on these units for patient admissions and treatment and any delays also impact upon service delivery. These problems could be due to multiple factors that included the laboratory turnaround time for crossmatched blood and the restrictions of the 72 hour rule for sample suitability.

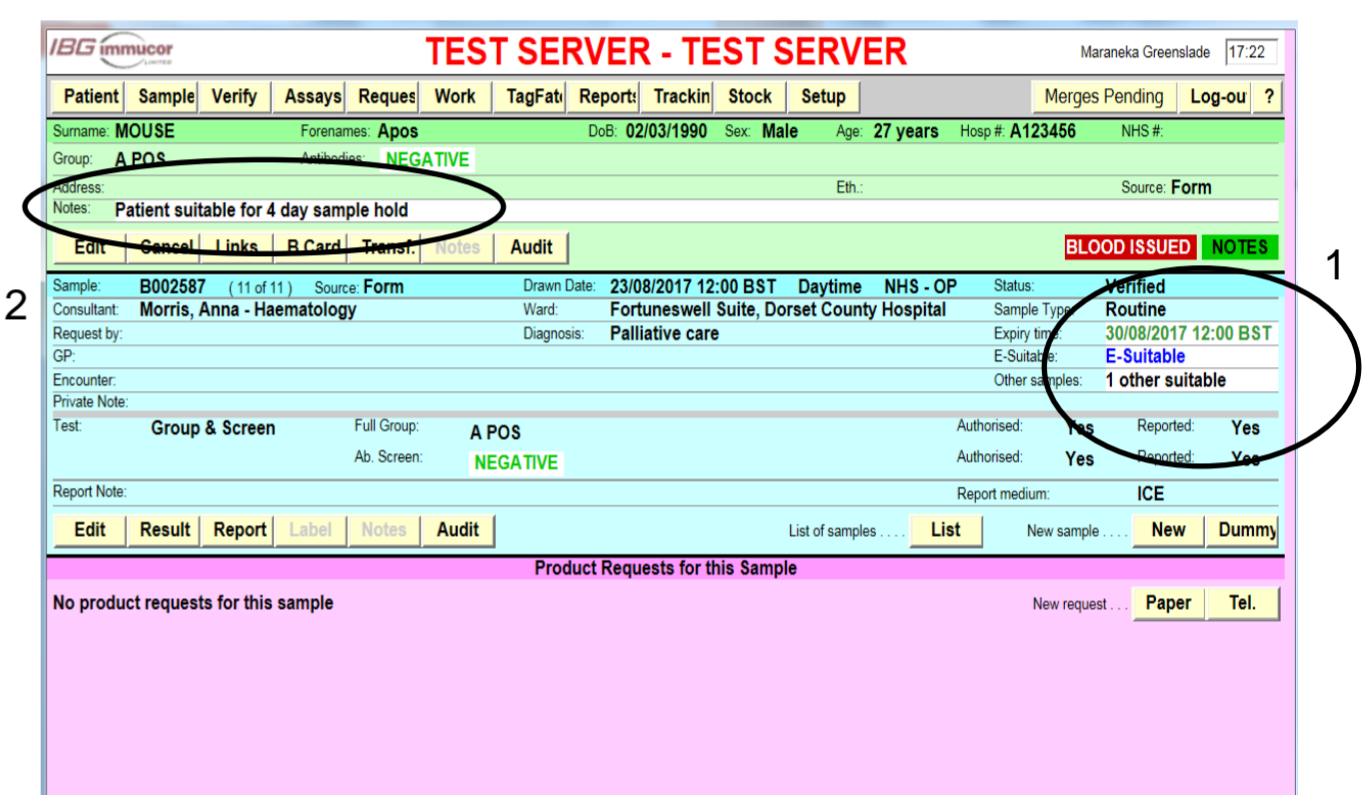
The strategy was to work with the laboratory staff, the Transfusion Practitioner and the Sister from MDU to see what was achievable in providing a better service and turnaround time for this group of patients.

## 4. Changes made

Electronic issue (EI) of blood was implemented at the end of April 2017, this permitted the rapid issue of blood using computer algorithms rather than manual serological matching of patient blood against donor red cells.

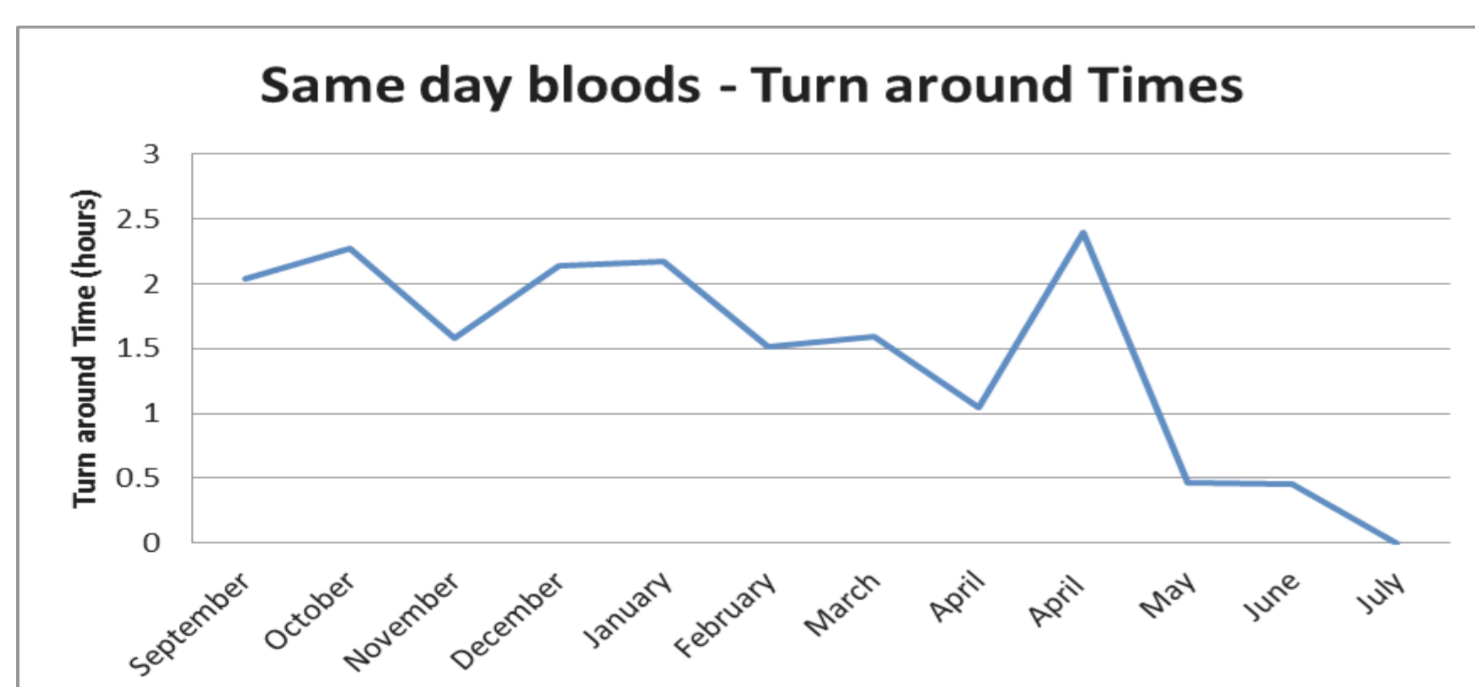
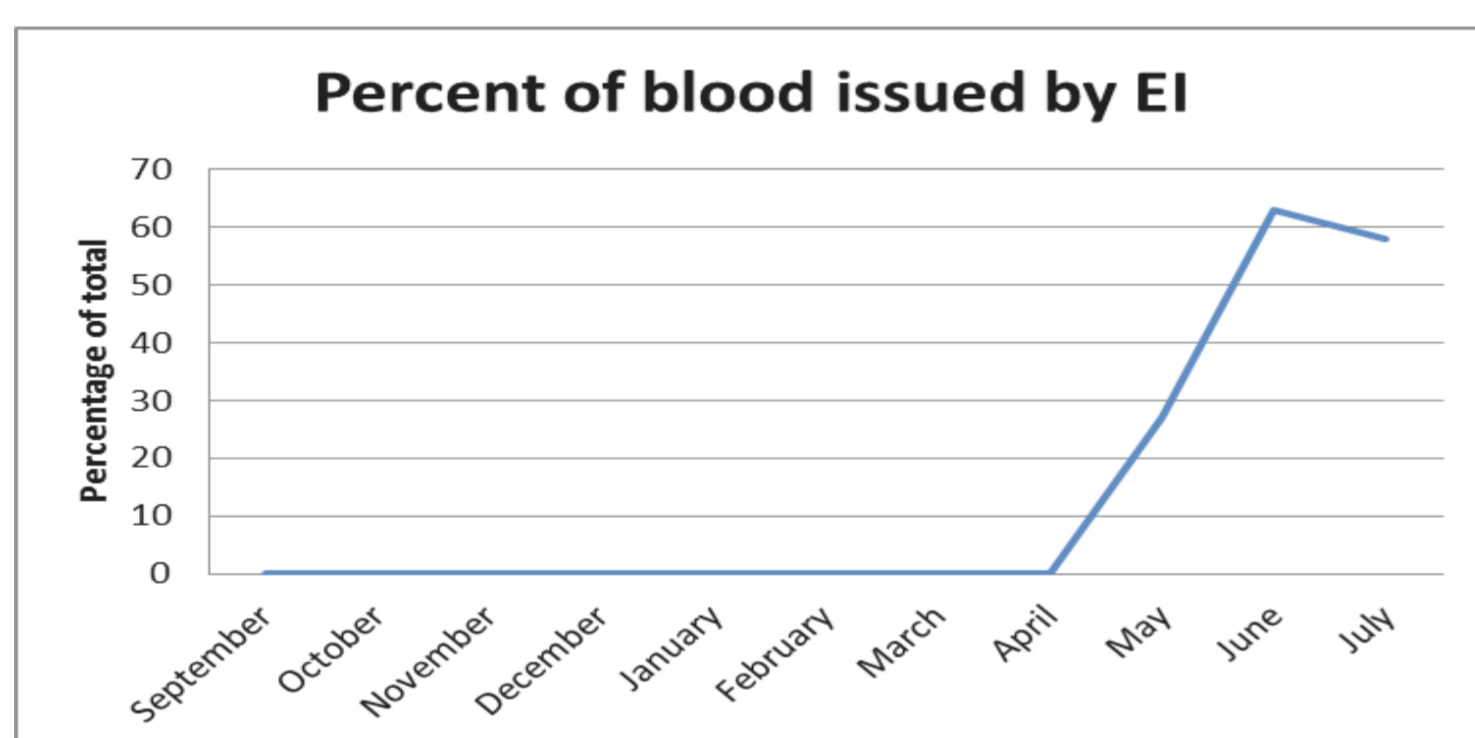
The new LIMS also enabled us to look at sample timing and instead of the previous strict 72 hour rule we were able to risk assess the regular patients to see if they were suitable for extension to this rule, thus negating the need for repeat samples on admission, and less waiting time. Extension to the 72 hour rule also enabled patients to have their transfusion on a Monday, this was previously impossible due to the restrictions of not having a routine service over the weekend. With the ability to flag up on the LIMS these 4 day 'special' patients, it meant they could have a sample taken on Friday and come in for a blood transfusion a Monday.

The blood bank LIMS showing the new facilities for Electronic Issue (1) and patient notes (2)



## 5. Outcomes

We went from zero EI to over 60% in 3 months and the turnaround time improved. We were also able to admit patients for a blood transfusion on a Monday, with a sample taken on a Friday

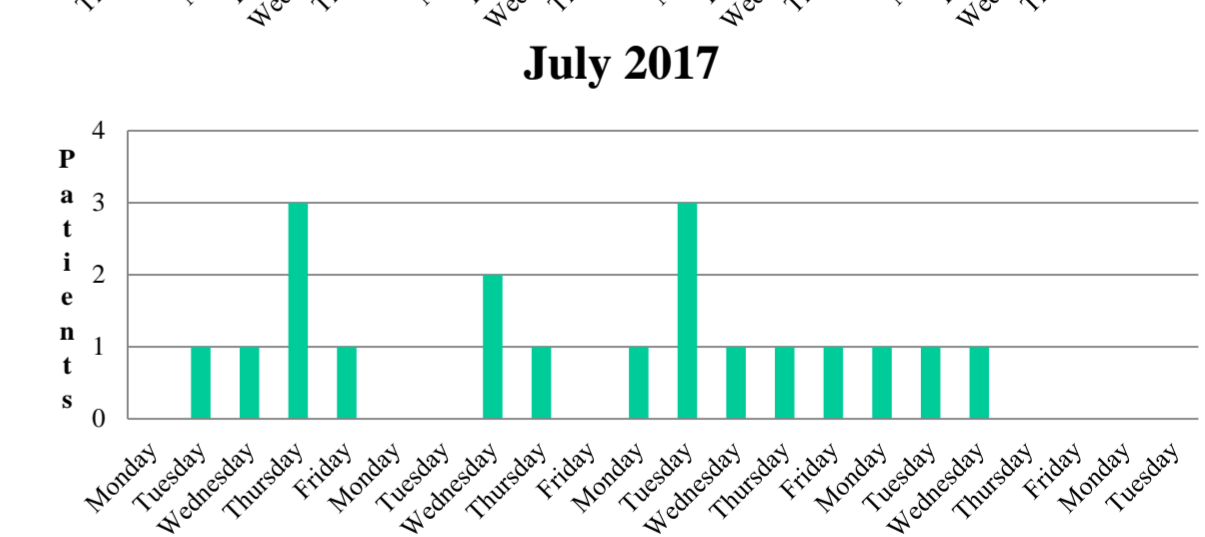
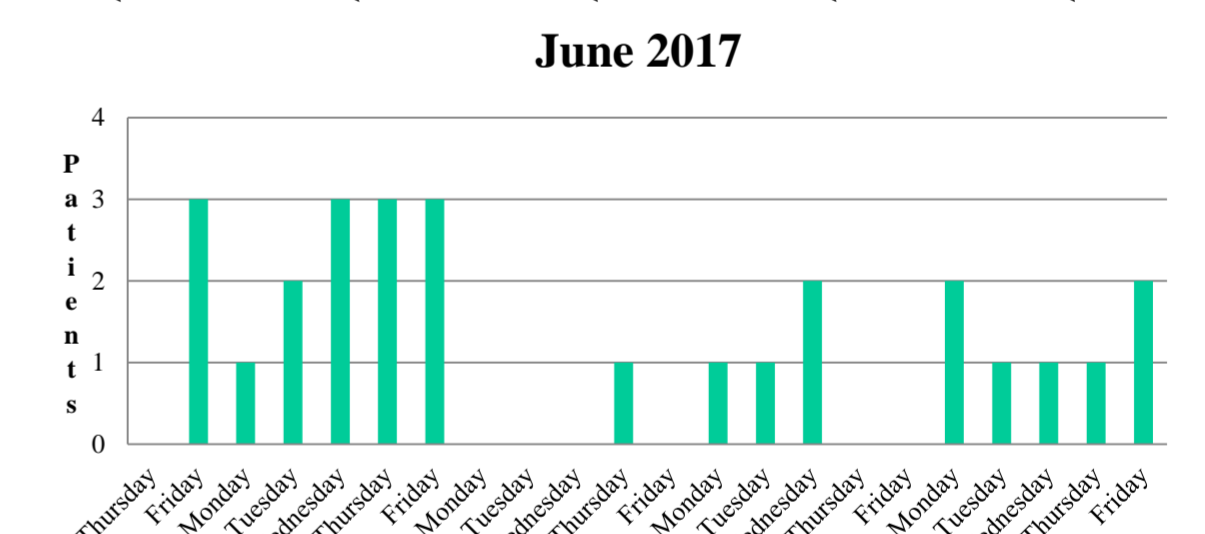
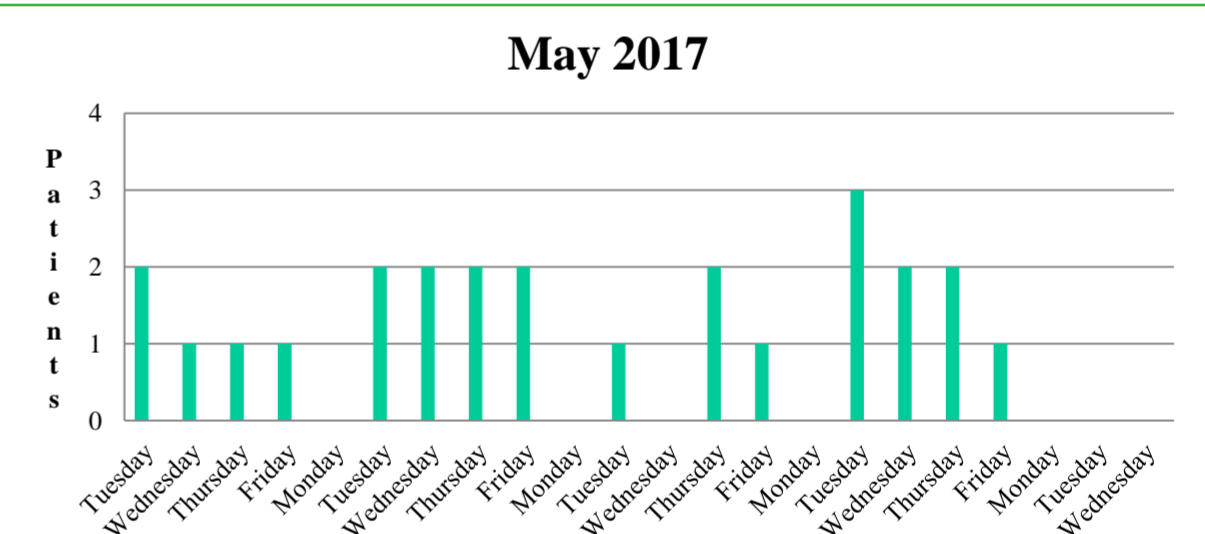


The charts on the right show the patient admission for transfusions, broken down by days of the week. Note that we had no one in on a Monday up to and including May. This gradually started increasing for June and July 2017 and onwards.

### The Team

Thanks to those in the multidisciplinary team that made this possible:  
John Thorne – Senior Biomedical Scientist,  
Lorraine Poole – Transfusion Practitioner,  
Annie Lock – Sister on MDU, Tracey Chapman – Pathology IT Systems Manager,  
Dr Razaq Olufadi – Mentor and support  
Dr Dietmar Hofer – Consultant Haematologist and Chair of the Hospital Transfusion Team  
All at Sussex Biologicals and Bank Manager™

Two graphs on the left showing how the amount of EI increased over time, then the wait for blood on admission decreased. Rapid issue meant the transfusion started a lot earlier and less waiting time for the patient.



## 6. Next Steps

There are still problems with orders not being communicated, especially if the patient is a GP referral. So although the wait if a patient arrives on the unit and there is no blood is much less than it was (minutes rather than hours) we would like it to be as close to zero as possible. We are currently in conversation with MDU and PAS to see if we can get a regular TCI list that we can check off the day before so that we can prepare for patients coming in and aim to have zero delays.

The laboratory is remote from the clinical area and lab staff rarely see a patient, let alone understand what it is like to be transfusion dependant. I would like to bring the lab closer to the patient and am currently looking to have a patient visit the lab, they could see the work we do but also to explain to the staff what life is like living with a condition that requires regular transfusions.

## 7. Lessons learned

The Transfusion Practitioner left post in September 2016 and this seriously affected the project. Their role is key in the liaison between the laboratory and the clinical areas. The new TP took up post in April and since then the project has expanded. I have learnt to never underestimate the difference one person can make and the importance of having the correct staff in the correct roles.

The 4 day extension list needed to be regularly reviewed due to new patients being diagnosed, some patients no longer needing treatment and sadly some no longer being with us. Any extra time we can give these patients, that is not spent waiting for their blood to turn up, is worthwhile.