



Implementation of the Haemobank™ in University Maternity Hospital, Limerick (UMHL)



Ms. Loretta O'Brien¹, Ms. Norma O'Brien², Ms. Margaux Murphy², Ms. Sheila Joyce¹, Dr. Hilary O'Leary¹, Ms. Cliona Cleary¹, Ms. Maureen Millman¹, Ms. Marianne Flannery¹, Ms. Susan Quane¹, Ms. Marie Carr¹, Ms. Mary Deasy¹, Ms. Eileen Ronan³, Ms. Bernadette Toolan³, Dr Mendinara Imcha³
¹Blood Transfusion Laboratory, University Hospital Limerick, ² Haemovigilance, University Hospital Limerick, ³ University Maternity Hospital Limerick

INTRODUCTION

The Haemobank™ remote release blood fridge was introduced in UMHL in July 2021. It allows the remote assignment of blood by the Blood Transfusion Laboratory at UHL (5km away). UMHL recorded 4290 births and transfused 182 adult red cells in 2021. UMHL is a stand alone maternity hospital with no on-site pathology laboratories. The Haemobank™ can be used for patients who are suitable for electronic issue and allows blood to be available 24/7. The criteria for electronic issue is a current sample < 72hrs old and a second group and screen sample on record with a negative antibody screen.

The Haemobank™ can facilitate storage of up to 80 units of red cells. Currently, approximately 20 units of blood of different blood groups are stored in the Haemobank. Previous practice involved having crossmatched blood on site for high-risk patients (e.g placenta praevia patients). Only patients that are *not* suitable for electronic issue are issued crossmatched blood since the introduction of the Haemobank™. Serologically crossmatched blood is stored in a separate issue fridge in the labour ward. This fridge is also used to store the emergency O Rh (D) Negative blood and fibrinogen.

OBJECTIVES

- Improve turnaround times for blood availability, as blood stock available on site 24/7 and more critically, at the point of care.
- Improve safety: Only authorized staff can access the system. Computerised control of release of red cells with electronic checks makes Haemobank a safe system.
- Decrease Crossmatch: Transfusion Ratio (C:T ratio).
- Cost saving- reduce transport costs, as red cells available on site.
- Testing- reduce unnecessary crossmatch costs.
- Decrease time assigned to fridge checks for maternity staff.

HOW DOES IT WORK?

The release of blood is remotely controlled by the Blood Transfusion Medical Scientist, in UHL. When a patient requires a blood transfusion and they fulfil the criteria for remote assignment, a unit in the Haemobank is assigned remotely.



The midwife scans the patient's wristband and prints a "Pick Up" label using a PDA. This label is scanned at the Haemobank and the drawer which contains the assigned unit is illuminated. A compatibility label is printed and the midwife labels the unit. The unit can then be transfused using the PDA.

STAFF TRAINING

- Haemovigilance developed a Haemobank training video and procedure to facilitate training of midwifery staff (n=160). COVID-19 restrictions made training challenging.
- Prophylactic anti-D is also stored in the Haemobank to increase midwives confidence using the Haemobank.
- Medical scientists (n=15) trained on site in UMHL in addition to training on laboratory processes

RESULTS

- A Haemobank Red Cell usage audit was performed for a timeframe of between 14th July and 27th Sept 2021. Turnaround time (from unit being assigned to beginning the transfusion) shown to be as efficient as < 8 mins. See Table 2
- Significant reduction in the number of red cells issued to UMHL. For example, 280 units in February pre Haemobank, compared to 84 in December. See Table 1.
- Cost savings of €115,000. Reduction of 770 RCC crossmatched during a six month period (July – Dec 2020 v's 2021).
- Transport cost savings calculated to be approximately €230 per month

RESULTS CONTINUED

- The C:T ratio has reduced from **24:1** in June to **5:1** in December 2021. See Figure 1.
- Time savings for maternity and laboratory staff due to the reduction in the movement of blood between the two sites.
- Positive feedback from laboratory and midwifery staff to date
- The number of midwifery and laboratory staff who used the Haemobank was also audited.

Table 1: Number of red cells crossmatched and transfused from January to December 2021, including no. transfused using Haemobank

Month	Crossmatched	Total RCC Transfused	C:T Ratio	Haemobank	Taxi
January	198	14	14	0	63
February	280	17	16	0	91
March	245	10	24	0	83
April	214	8	27	0	71
May	261	24	10	0	80
June	193	8	24	0	66
July	157	22 (13 HB)	7	13	71
August	145	21 (12 HB)	7	12	48
September	98	10 (5 HB)	10	5	34
October	120	14 (4 HB)	8	4	47
November	92	22 (9 HB)	4	9	35
December	84	18 (13HB)	5	13	34

Figure 1: Crossmatch: Transfusion ratio (orange) and taxi trips (yellow) for January to December 2021

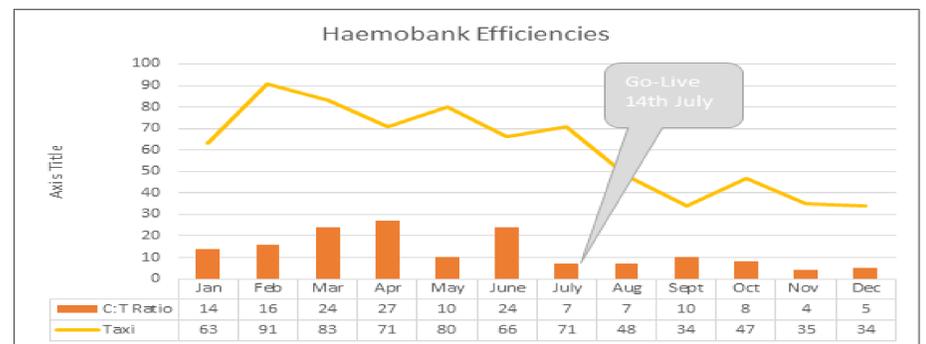


Table 2: Haemobank Red cell usage audit from 14th July to 27th September 2021

Haemobank Red cell Usage Audit July to September 2021		
Total no. of patients transfused	19	
Total no. of RCC units transfused	53	
No. of units issued and transfused from Haemobank	30 (30/53 - 57%)	
Turnaround time (from unit assigned to begin transfusion)	Average time = 24 mins	Turnaround time of < 8mins in 3 cases where major haemorrhage declared
Pre transfusion Haemoglobin	Average = 8.5g/dl	
Other blood products transfused	7/19	<ul style="list-style-type: none"> • 6/19 received Fibrinogen concentrate in addition to RCC • 1/19 received Fibrinogen concentrate and SD Plasma in addition to RCC
No. of midwives who used Haemobank for RCC	21	
No. of scientists who used Haemobank	12	

CONCLUSIONS

The Haemobank allows faster delivery of blood for maternity patients in emergencies where delays in blood provision may affect patient outcome. This system supports the Blood Transfusion laboratory in UHL and provides a safe and efficient blood transfusion service for patients. With the planned introduction of tRAADP in Q2 of 2022 this will increase the number of maternity patients who will be suitable for remote assignment.