

Improving Cold Chain Blood supply to theatres

Rebecca McLean and Annette LeViellez

Department of Haematology, Fiona Stanley Hospital, Murdoch, Western Australia

Fiona Stanley Hospital (FSH) is located in Murdoch, approximately 15 kilometres south of the Perth CBD. Our 783 bed hospital is the major tertiary hospital in the South Metropolitan Area and is meeting the ever growing medical needs of the Western Australian population. Each year over 2500 red cells are issued from Transfusion Medicine (TMU) to Theatres.

Aim

To improve cold chain traceability of red cells to theatres at a large tertiary hospital by trialling blood delivery in shippers with aim to decommission the theatre blood fridge and improve safety and traceability of blood stored outside of Transfusion laboratory.

Method

Validated Blood Shippers and temperature data loggers were issued by the Transfusion Laboratory to theatres as a “point of Care” blood fridge during operations where Red Blood Cells (RBC) were requested. The LIS was used for traceability of RBC, shipper and data logger within the institution. A comprehensive education program was developed by Transfusion Medicine for Porters and Theatre staff. Each shipper had visual instructions attached to the outside (Figure 1). The trial was audited against NSQHS Standard 7 criteria 7.7: Ensuring the storage of blood is consistent with best practice. The following data points were collected: Patient details, theatre number, time of issue and return of shipper, average hours in theatre, procedure type, number of units issued and transfused. Non-conformances were raised using the hospital incident management system.

Results

After an 8 week trial, data was reviewed. 142 shippers were issued to theatre over this period (average 18 per week) (Figure 3), with 364 RBC issued (median 2 RBC per shipper). 36% (n=133) of the RBC issued were transfused, and the shippers remained in theatre for 1- 7 hours (Mean = 4 hours). There was 1 non-conformance during the 8 weeks, whereby a shipper was left in theatre after theatre staff vacated. Blood waste was 0 RBC units. All RBC returned to TMU were within acceptable storage temperature (2-6°C).


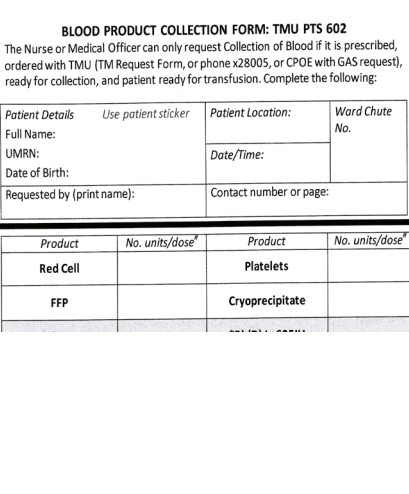
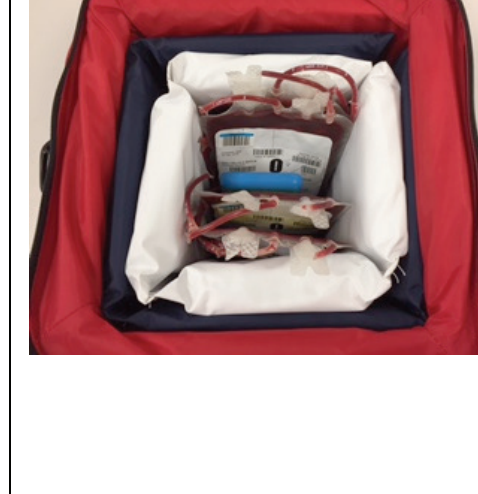

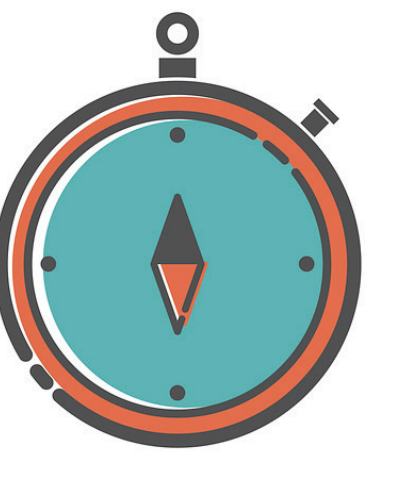
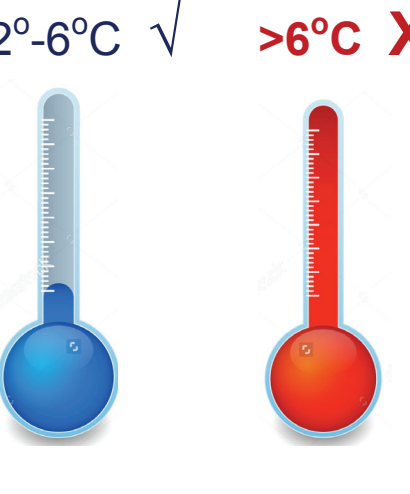
Conclusion

There was no blood wasted due to non-conforming storage. The education program was effective in ensuring process was followed and blood shippers were not relocated to wards with patients. Theatre staff reported the ‘point of care blood fridge’ (shipper) was easier to manage than the requirements of documentation and maintenance of a blood fridge. The number of unused shippers highlighted need to reduce the number of blood requests through education on blood utilisation. A Surgical blood ordering schedule was reintroduced at the site to assist in appropriate ordering of blood. This quality improvement activity was endorsed for routine practice at the end of the trial.

Figure 1: Blood Shipper Guide for Surgical Procedures

This square red blood shipper is for blood availability in Theatre

This shipper must be returned to TMU – do not send with patient to other clinical areas.

1.	2.	3.	4.	5.	6.
Do not open unless for immediate transfusion. Reseal immediately after removing blood unit	The Shipper label has the patient identification and the contents. The date / time is time of issue from TMU	The blood sits inside the white belt with a blue temperature data logger.	This is a temperature data logger. Leave in shipper. Do not remove. Do not tamper. Do not press start/stop button X	TMU may phone periodically to review the ongoing need for blood products. Maximum time is 6 hours.	If blood has been out of shipper for >30 minutes and is not transfused, do not place back in shipper. Phone TMU to determine fate
					

Return to TMU at end of operation or earlier if no longer required, or if empty.

Enquiries: Phone TMU 6152 8005

Figure 2



Figure 3: Number of Shippers to Theatres (142 in 8 weeks)

