

The Atreus System Vs. Whole Blood In-Line Filtration: A Financial Comparison of Two Methods

Heather Vaught, BS MT (ASCP)^{CM}; Jennifer Brown, BS; Rebekah Greenough, BS; Dan Waxman, MD; Julie Cruz, MD
Indiana Blood Center, Indianapolis, IN

Background: Space and staff time are at a premium in our blood center, which collects 142,000 units of whole blood annually. Applying lean principles is of particular interest in our component manufacturing. The Atreus system, manufactured by Gambro BCT, is a new (not FDA approved) device that automates the production of blood products using single-piece flow manufacturing techniques. We compared the work flow and space requirements of our current manual component process with the proposed Atreus system.

Methods: The Atreus system was evaluated by a components manager and two senior component technicians, who participated in an Atreus system simulation lab. The two-day evaluation consisted of materials training, evaluation of standard operating procedures, hands-on training and a two hour simulation event. The process encompassed sterile docking a single whole blood collection bag to a processing set that contains a RBC filter that would yield a LR RBC, LR plasma and a leukocyte byproduct. Team members were asked to identify potential advantages of the Atreus process versus WB in-line filtration. The difference in cost of the bag lost to short draws and the potential “rescue” of plasma for fractionation (i.e. plasma not lost in the in-line filter) were identified as potential cost-savings opportunities. We examined our annual rate of short draws, as well as the cost per bag of the WB in-line bag versus the appropriate bag for the Atreus system.

Results: Our current short rate is 4.0% (5680 units). Approximately 25mL of plasma which could be used for further manufacturing is lost in the in-line filter, and approximately 110,000 units of plasma are sent for fractionation. The financial impact of these two factors was calculated:

Item	Cost	Number per Year	Amount Saved Annually with Atreus System
Bag Cost	\$15.00/Unit	5,700 Units	\$85,500
Fractionator Plasma	\$92.837/L	2,750 L	\$255,300
TOTAL:			\$340,800

Conclusions: If approved, employing the Gambro BCT Atreus system for the production of blood products may provide cost savings opportunities when compared to WB in-line filtration. According to our projections, financial losses due to short units may be cut as much as 70%, while a substantial additional profit may be realized by “rescuing” plasma for fractionation that is otherwise “lost” in the in-line filter kit. These savings and capital investment would need to be evaluated with other savings and costs impacted for the entire process to complete the business analysis for an informed decision.