

# Sticking to the Basics – Providing Cost-effective Venipuncture without Compromising Patient Care



## Laboratory Services, York Hospital

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### Abstract

Overuse of butterfly collection devices was identified as problematic within the laboratory, and a team was formed to address the problem. The goal to reduce usage to less than 20% was established. Venipuncture processes were evaluated; failure modes identified, and action plans developed.

Data showed usage at 31% in 2007, and 30.2% through May 2008. Post-implementation, usage reduced to 13.7% June 08-Jan 09, and has remained lower than 20% to date. Cost savings averaged \$6,585 monthly, and per-venipuncture cost decreased (\$0.53 to \$0.34).

Awareness was the key to improvement. Each phlebotomist initiating a small change added to the project success.

### Understanding the Problem

Most patients can have their blood collected with conventional blood collection devices. Poor venous access or the need to draw blood cultures, necessitates the use of a butterfly collection device. Overuse of butterfly collection devices can lead to employee dependency, deterioration of skills, and patient misconceptions regarding venous access.

Butterfly collection devices cost the laboratory over \$229,000 in 2007. Nearly 31% of all phlebotomies during this time period were performed with butterfly collection devices. Newly hired employees were also expressing concern that a community-based phlebotomy training program was teaching phlebotomy with a heavy emphasis on the utilization of butterfly collection devices. Because the cost of butterfly devices is seven times that of conventional devices (\$1.31 vs. \$0.19), reducing use will produce cost savings.

CY 2007	Volume	Dollars
Butterfly Device	175,261	229,591.91
Conventional Device	329,007	62,511.33
<b>Total</b>	<b>504,268</b>	<b>292,103.24</b>
<b>Average Cost per Venipuncture</b>		<b>\$ 0.58</b>

### Action Plan

The team used LEAN strategies and FMEA to develop an action plan. A temporary rationing program was the first step in the implementation. During this three month period, staff completed a request form and documented butterfly usage in order to replenish their supply. Additionally during the rationing program, phlebotomists were given the opportunity to attend skills retraining days with the Laboratory Phlebotomy Program Instructor.

The Laboratory Buyer established new reorder levels with the lab collection areas during the rationing period. After the rationing program was lifted, order levels were closely monitored. Phlebotomy competency was performed, and technical skill using both conventional and butterfly devices was assessed.

**Butterfly Usage Form**

Phlebotomist: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Patient: \_\_\_\_\_

Butterfly Used:

Circle:      21g                  23g

Reason for using a Butterfly:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Project Goal

Reduce butterfly collection device usage to less than 20% by July 2008 without increasing venipuncture complications.

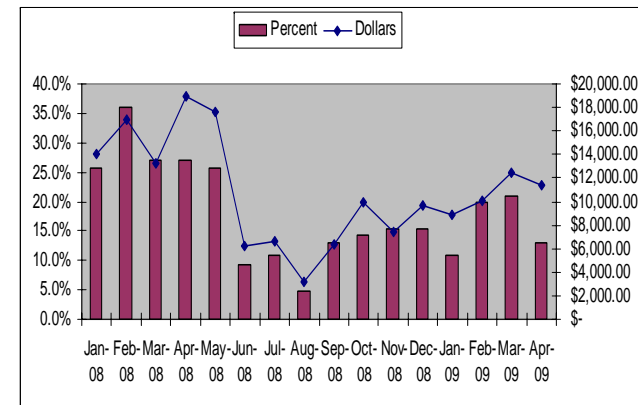
CY 2008	Pre-Implementation (Jan-May)		Post Implementation (Jun-Jan 09)	
	Volume	Dollars	Volume	Dollars
Butterfly Device	66,725	\$ 87,409.75	53,114	\$ 69,579.34
Conventional Device	154,000	\$ 29,260.00	339,000	\$ 64,410.00
<b>Total</b>	<b>220,725</b>	<b>\$ 116,669.75</b>	<b>392,114</b>	<b>\$ 133,989.34</b>
Average Cost per Venipuncture		\$ 0.53		\$ 0.34

### Results

The average monthly butterfly usage was reduced from 30.2% (Jan 08-May 08) to 13.7% (Jun 08-Jan 09). The pre-implementation sigma was at 1.89. Post-implementation, sigma increased to 2.62. Venipuncture complications were also monitored, and no increases were noted (average 4 per month).

Actual cost savings averaged \$6,585 per month in the 6 months post implementation, accounting for the increased use of conventional collection devices along with the decrease in butterfly collection devices. (from \$17,485 to \$8,700 per month). The cost per venipuncture was reduced from \$0.53 to \$0.34.

Additionally, phlebotomist competency with conventional devices increased, and awareness of butterfly use was heightened. Sustaining improvement will require continued monitoring with the current data collection methods, reorder levels, and staff compliance with proper butterfly device use.



### Lessons Learned

Patient requests for butterfly devices were greater than originally anticipated. Scripting was developed so that phlebotomists could confidently explain when and why a butterfly device was not appropriate for use.

Phlebotomists were encouraged to be accountable to each other with butterfly device use. Spot checks were put in place after the rationing program ended to discourage hoarding of supplies.

### Resources

CLSI. Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; approved Standard-Sixth Edition. CLSI document H3-A6. Wayne, PA: Clinical and Laboratory Standards Institute; 2007