

# Reducing Number of Extra Blood Tubes Drawn in the ED: Our Hospital is Over the Rainbow

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## Background

Urban emergency department with 37 beds and over 70,000 annual patient visits. Chest Pain Cycle III and CHF Accredited Center.

When ED nurses and technicians draw blood sample, a "full rainbow" consisting of 7 different color blood tubes were filled majority of the time from each patient. The collection of unnecessary blood tubes resulted in high usage of raw materials, delays, over-production, and increased ED and lab personnel workload.

## Objective

The goal of the project is to reduce the number of blood tubes collected by ED staff by using the patient's presenting chief complaint as the basis for the color blood tube to be collected.

## Unplanned Benefits

- Improved specimen integrity leading to a decreased hemolysis rate
- Decreased quantity—not-sufficient (QNS) and clotted specimen rates

## Badge Buddy

Condition	Tubes
Drug Overdose	1 red / 1 green 1 lavender
G.I. Bleed	1 green 1 lavender 1 pink(BB)
Kidney Stone	1 green 1 lavender
Pneumonia	2 green 1 lavender
**special cleansing prep	2 blood cult
Pregnant with Vaginal Bleed	1 red 1 green 1 lavender 1 pink(BB)
Sepsis (Overt infection)	2 green 1 lavender
**special cleansing prep	2 blood cult
Condition Not Listed	1 green 1 lavender

**Baylor Medical Center at Irving Emergency Dept**  
 1. Ask patient: "Have you taken blood thinning meds within the past two weeks?" If on Warfarin/Coumadin, also collect 1 blue.  
 2. Refer to Blood Collection Guide and collect tubes as indicated.  
 3. If patient condition is not listed on this guide and blood draw is needed, collect 1 green and 1 lavender.  
 \*\*2 Sets Blood Cult- Skin prep, 30sec chloro prep scrub, let dry, fill BC bottles first

Condition	Tubes
Abdominal Pain	1 green 1 lavender
Altered Mental Status (Stroke)	1 blue 1 green 1 lavender
Anemia or Significant Bleed	1 green 1 lavender 1 pink(BB)
Chest Pain / SOB	1 blue 2 green 1 lavender
History of CHF	1 blue 1 red 2 green 1 lavender 1 pink(BB)
Critical or Complex	1 red 2 green 1 lavender 1 pink(BB)
**special cleansing prep	2 blood cult
Diabetic	1 red / 1 green
Ketoacidosis	1 lavender

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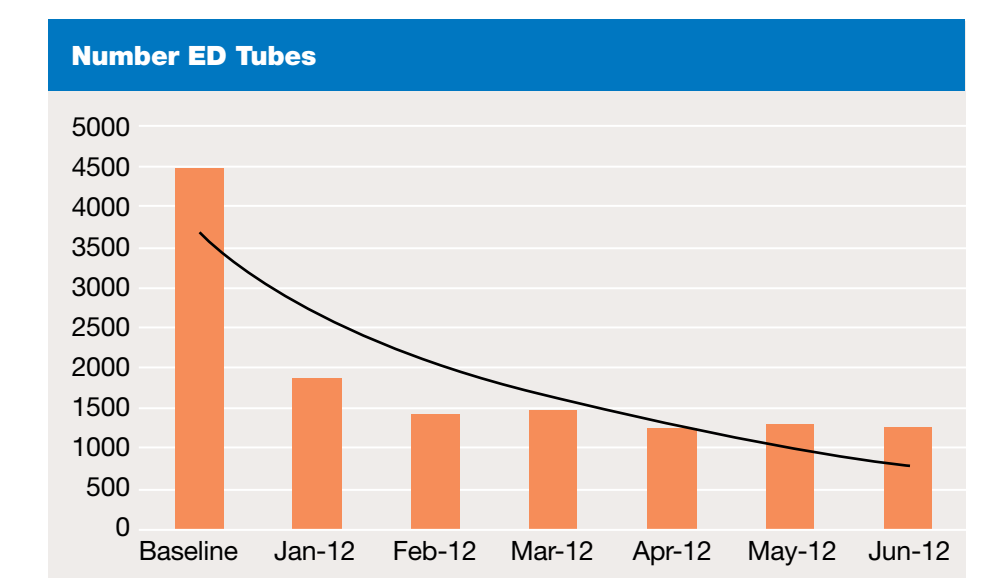
## Results/Outcomes

	BAS	BMCC	GPV	WAX	BUMC	IRV	PLANO	BHCS
Sep-11	\$ 236							\$ 236
Oct-11	\$ 254							\$ 254
Nov-11	\$ 290							\$ 290
Dec-11	\$ 347			\$ 18	\$ 1,171	Project Implementation		\$ 1,536
Jan-12	\$ 356	\$ 501		\$191	\$ 1,552	\$1,177	\$ 273	\$ 4,050
Feb-12	\$ 387	\$ 503	\$ (7)	\$121	\$ 2,259	\$1,177	\$ 772	\$ 5,212
Mar-12	\$ 436	\$ 500	\$197	\$203	\$ 2,899	\$1,537	\$ 786	\$ 6,558
Apr-12	\$ 429	\$ 433	\$135	\$142	\$ 2,051	\$1,505	\$ 752	\$ 5,447
May-12	\$ 420	\$ 510	\$ 78	\$215	\$ 2,333	\$1,565	\$ 764	\$ 5,885
Jun-12	\$ 405	\$ 324	\$ (84)		\$ 1,780	\$1,476		\$ 3,901
Total	\$3,560	\$2,771	\$319	\$890	\$14,045	\$8,437	\$3,347	\$33,369

## Sustainability

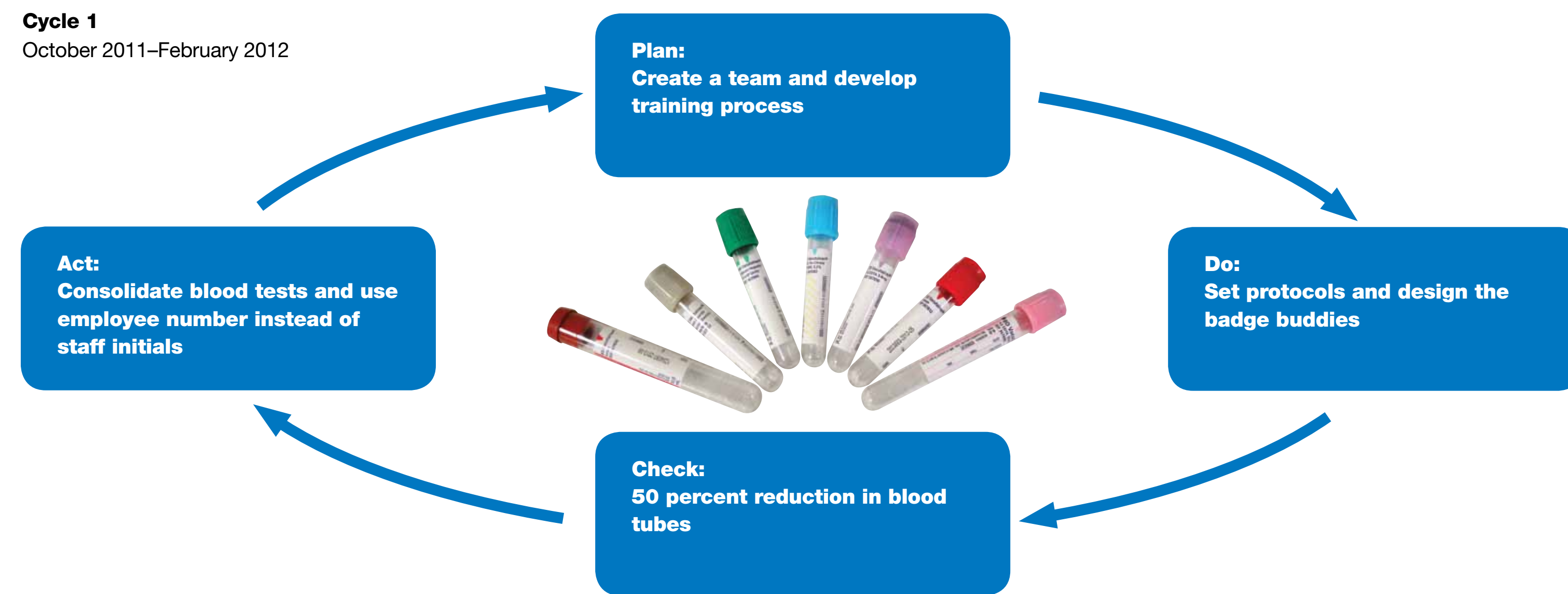
- Monthly reporting of data by lab to ED
- ED supervisor monitors data and coaches staff as needed
- Initiative included in new staff orientation and training

Month	# ED Tubes	# ED Visits	# ED Tubes per ED Visit	Difference from Baseline	Weighted Cost/Tube	Normalized Savings \$
Baseline	4491	4954	0.9065			
Jan-12	1888	5230	0.3610	0.5455	0.41	1177
Feb-12	1430	4703	0.3041	0.6024	0.42	1177
Mar-12	1473	5716	0.2577	0.6488	0.41	1537
Apr-12	1270	5417	0.2345	0.6720	0.41	1505
May-12	1308	5630	0.2323	0.6742	0.41	1565
Jun-12	1256	5339	0.2352	0.6713	0.41	1476

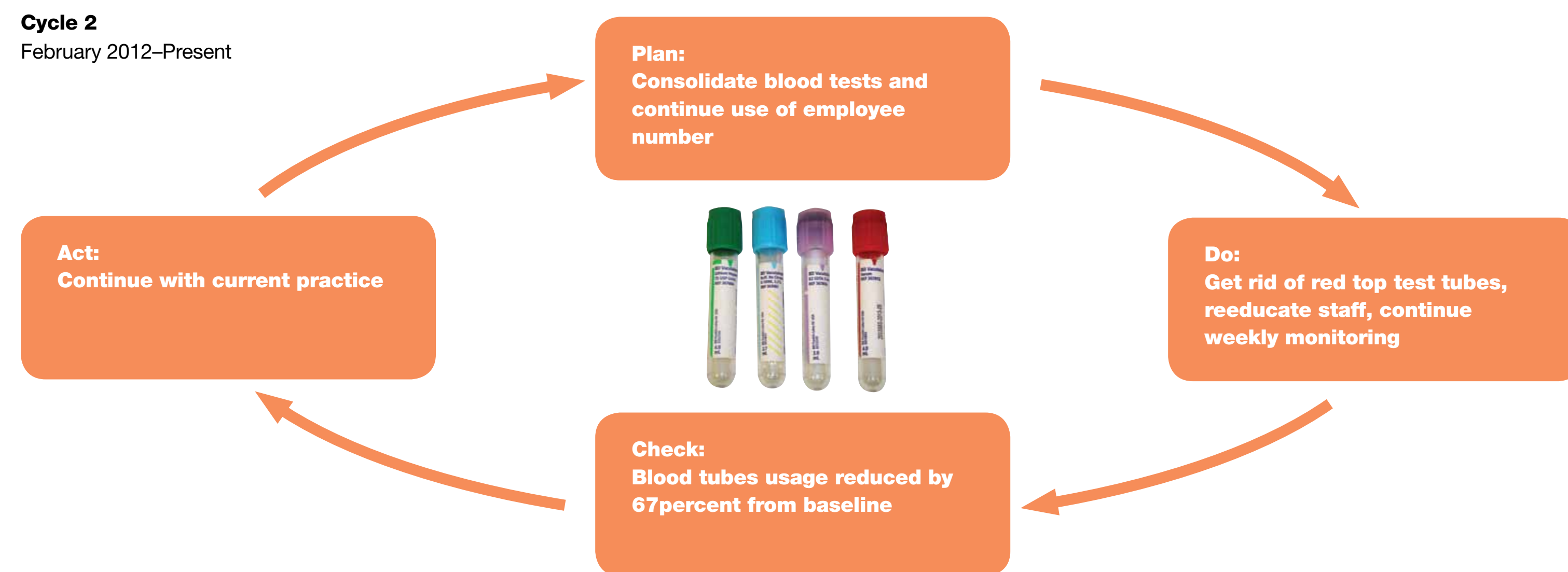


## PDCA Cycles

**Cycle 1**  
October 2011–February 2012



**Cycle 2**  
February 2012–Present



## Lessons Learned

- Partnership between ED and lab was essential for success
- Staff understanding of initiative increased buy-in and accountability
- Consistent monitoring and communication of results to team improved compliance

## Reference

McGrath, J., Rankin, P., & Schendel, M. Let the data speak: Decreasing hemolysis rates through education, practice, and disclosure. *Journal of Emergency Nursing* (38)3, 239-244.

