

# Maryland Statewide Reduction of Blood Wastage Collaborative

September 22, 2009



# Agenda

- Background on MD Council
- Introductions
- Survey Results
- Project Charters
- Data Collection Process
  - Data Collection Tool
- Best Practices
- Pledge of Participation
- Timeline
- Scorecard
- Next Steps

# Maryland Health Quality & Cost Council – Time to Impact for Proposed Recommendations

Goal: Implement Evidence-Based Practices and Quality Improvement Initiatives with known cost-savings results State-Wide.

**KEY**

Time:

Resources (FTE):

Expense:

Impact:

Political:

## 1(a). Hand Hygiene

**Intervention:** JHH WIPES campaign

**Impact:** Increase in Hand Hygiene Compliance by 300% (outcomes for avoided HAIs still under evaluation).

**Cost:** Literature demonstrates that operating costs = 1% of cost savings due to avoided HAIs

**Ease of Implementation:**

## 1(b). Hospital-Acquired Infections (HAIs)

Checklist

CR-BSI      SSI      MRSA

**Intervention:** Checklist(s), Surveillance, Education, Public Reporting?

**Ease of Implementation:**

**Catheter-Related Blood Stream Infection**

**Impact:** \$35-56K additional cost per case; +10-24 days additional LOS; +15-35% attributable mortality

**Approach:** NHSN definitions / methodology for ICUs (except NICU)

**Surgical Site Infection**

**Impact:** \$34K additional cost per case; +7-20 days additional LOS; +9% attributable mortality

**Approach:** NHSN definitions / methodology for specific procedures (Colon surgery, Hysterectomy, Laminectomy, Hip/Knee, CABG)

**Methicillin-Resistant Staphylococcus Aureus (MRSA)**

**Impact:** \$32K additional cost per case; +additional LOS; + attributable mortality

**Approach:** Active Surveillance Testing (AST) by nasal culture w/in 48 hrs of admission for all ICUs (except NICU)

**Health Care Worker (HCW) Influenza Vaccination**

**Impact:** Literature shows 50% reduction in all-cause mortality among patients treated by HCWs compliant with Influenza vaccination

**Approach:** Compliance tracking for acute care facility HCWs

## 3. Blood Wastage

**Intervention:** Application of Lean Sigma Methodology to improve usage and storage of blood products

**Impact:** Within first two years of project, JHH resulted in a savings of over 4,700 units of blood, which corresponds to a savings of \$900,000 for the hospital.

**Cost:** Purchase of coolers and temperature readers

**Ease of Implementation:**



**KEY**

Time: 1-3 Months, 3-6 Months  
 Resources (FTE): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10  
 Expense: \$100,000, \$200,000, \$300,000, \$400,000, \$500,000  
 Impact: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10  
 Ease of Implementation: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

**1. Infection Prevention**

**1A. Hand Hygiene / Infection Prevention Program**

Intervention: 100% Infection Prevention program  
 Impact: 5 stars  
 Expense: \$100,000  
 Resources: 10 FTE  
 Time: 1-3 Months  
 Ease of Implementation: 10

**1B. Hospital-Acquired Infection (HAI) Intervention**

Intervention: Checklists, Seminars, Education, Public Reporting  
 Impact: 5 stars  
 Expense: \$100,000  
 Resources: 10 FTE  
 Time: 1-3 Months  
 Ease of Implementation: 10

**2. Door-to-Balloon Time (D2B)**

Intervention: Review your methodology of care of STEMI patient to ensure compliance with national standard  
 Impact: 5 stars  
 Expense: \$100,000  
 Resources: 10 FTE  
 Time: 1-3 Months  
 Ease of Implementation: 10

**3. Blood Wastage**

Intervention: Review your methodology of care of STEMI patient to ensure compliance with national standard  
 Impact: 5 stars  
 Expense: \$100,000  
 Resources: 10 FTE  
 Time: 1-3 Months  
 Ease of Implementation: 10

TIME TO IMPACT: 1-3 MONTHS, 3-6 MONTHS

# 3. Blood Wastage

**Intervention:** Application of Lean Sigma Methodology to improve usage and storage of blood products

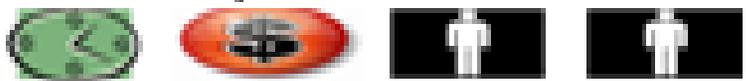
**Impact:**

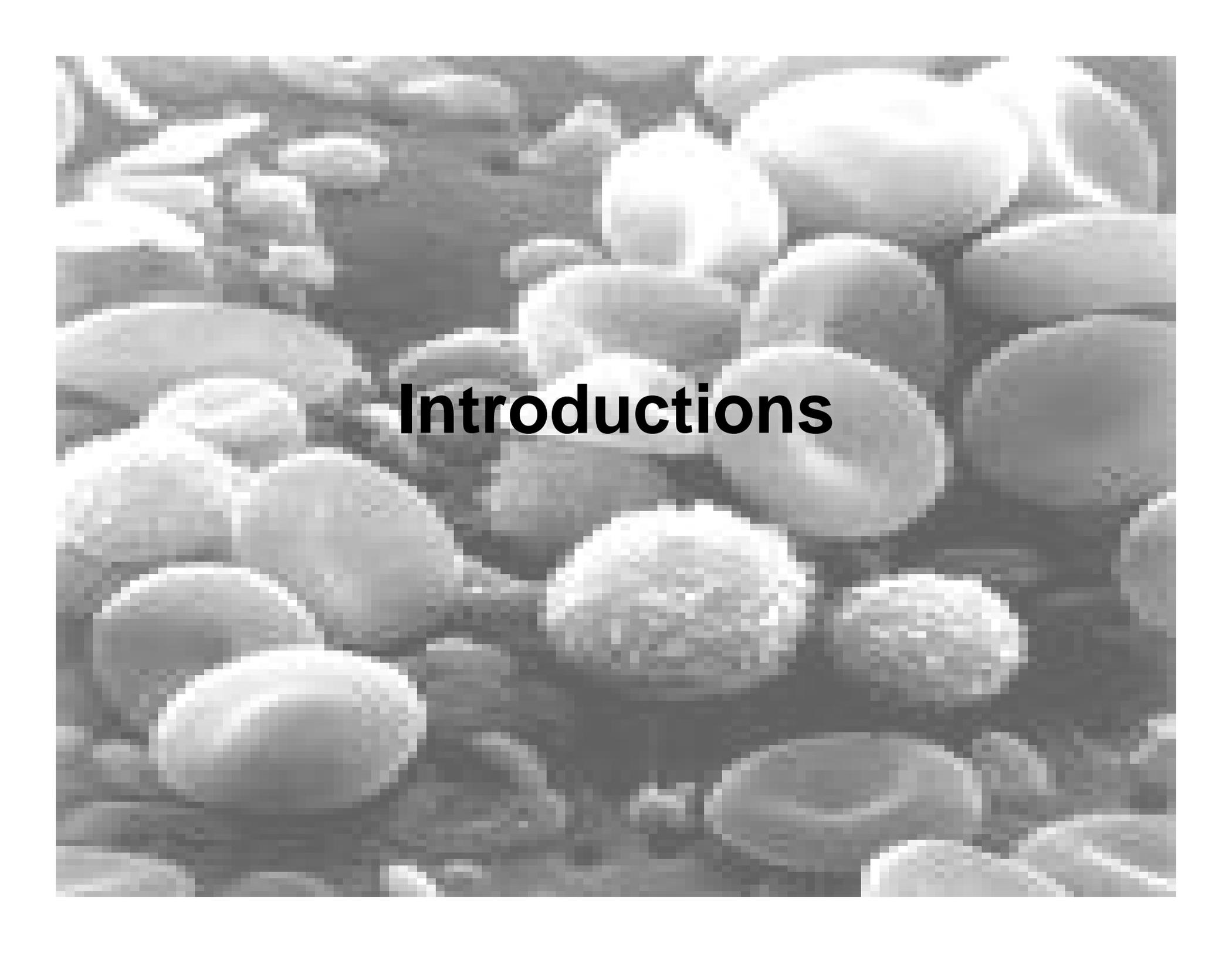


Within first two years of project, JHH resulted in a savings of over 4,700 units of blood, which corresponds to a savings of \$900,000 for the hospital.

**Cost:** Purchase of coolers and temperature readers

**Ease of Implementation:**





# **Introductions**

# Maryland Blood Wastage Work Group ("BWWG")

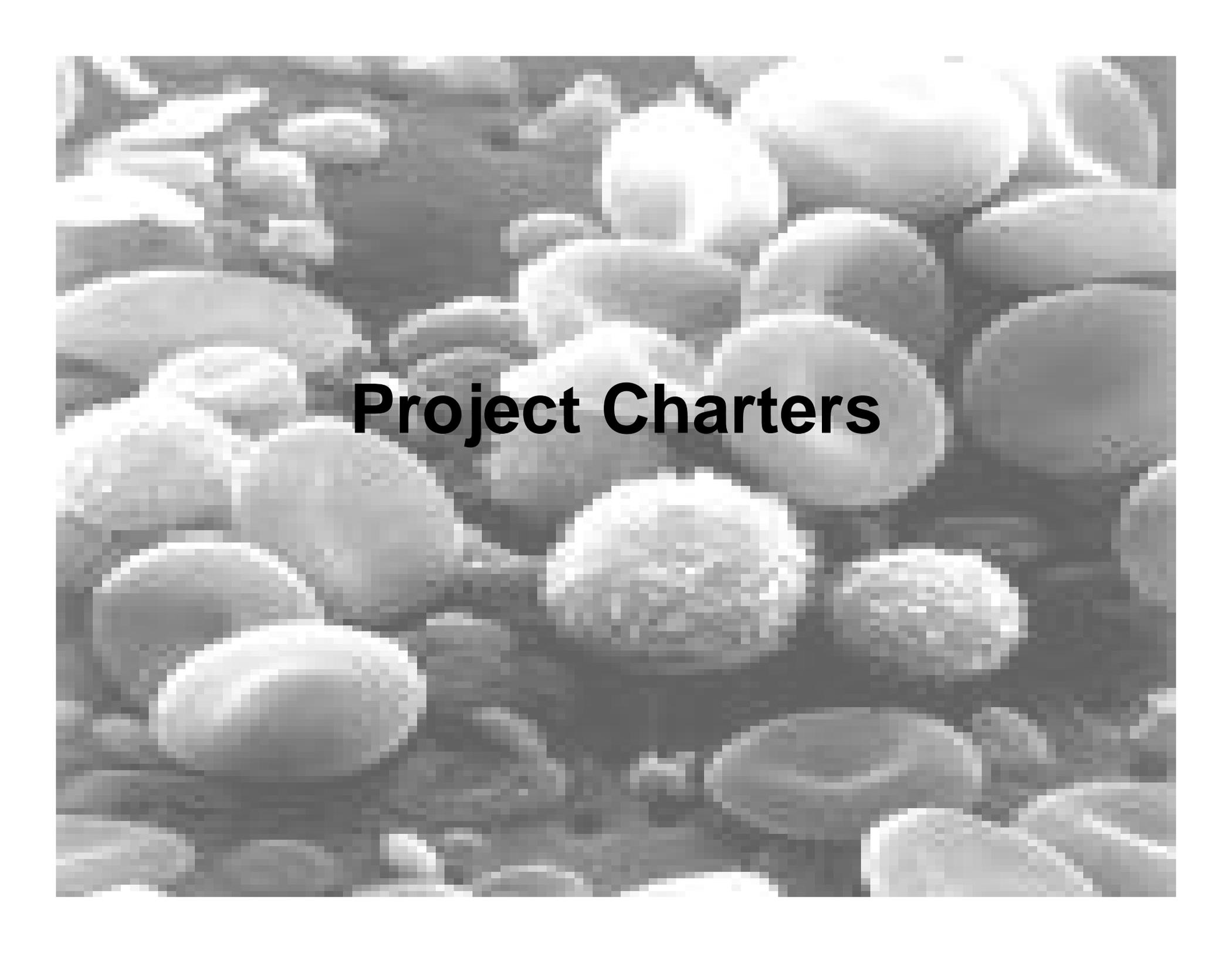
- Co-Chairs: Page Gambill and Donna Marquess
- Members: Joan Boyd  
Tracy Chang  
Richard Hill  
Janice Hunt  
William Minogue  
Mary Mussman  
Lisa Shifflett
- Facilitator: I-Fong Sun



# Survey Results

# Estimate the percentage of blood waste at your institution that can be accounted for by each of the reasons listed below.

	0-10%	11-25%	26-50%	51-75%	76-100%
Autologous red cells collected and not transfused	<b>23.3% (4)</b>	<b>12.5% (2)</b>	<b>29.4% (5)</b>	<b>18.8% (3)</b>	<b>6.3% (1)</b>
Blood products returned after 30 minutes or at temperature >10C	<b>87.5% (14)</b>	12.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)
Plasma products thawed and not transfused	<b>37.5% (6)</b>	<b>43.8% (7)</b>	<b>12.5% (2)</b>	<b>6.3% (1)</b>	0.0% (0)
Allogeneic red cells expiring on the shelf (not eligible for credit)	<b>93.8% (15)</b>	6.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Platelets expiring on the shelf (not eligible for credit)	<b>50.0% (8)</b>	<b>43.8% (7)</b>	<b>12.5% (2)</b>	0.0% (0)	0.0% (0)
Blood products returned unusable after being "spiked" on floor	<b>100.0%</b>	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)



# **Project Charters**

# Project Charter

<b>Reducing Discarded Plasma Units</b>		<b>Champion:</b> Barb Epke/Bill Minogue/Chip Davis
<b>Revised: 08/26/2009</b>		<b>Project Leader:</b> Page Gambill/Donna Marquess
<b>Problem Statement</b>		<b>Project Goal</b>
<p>A significant number of frozen plasma units are thawed per physician request and then not transfused. After thawing there is a short shelf life and the units are often discarded. The result is fewer units available for patients which compromises patient safety. There is also a financial impact due to the product cost and processing fees.</p>		<p>Reduce plasma wastage by a minimum of _____% by July 2010 across the 47 participating hospitals in Maryland</p>
<b>Measurement Methodology</b>		<b>Scope</b>
<p>Unit = one unit of plasma</p> <p><math display="block">\% \text{ Waste} = \frac{\# \text{ plasma units wasted}}{\text{Total \# of plasma units thawed}}</math></p> <p>(Do not include partial units as wasted.)</p>		<ul style="list-style-type: none"> <li>▪ 47 Hospitals in Maryland</li> <li>▪ Blood suppliers</li> </ul>
<b>Participating Organizations</b>		<b>Benefits</b>
<ul style="list-style-type: none"> <li>▪ 47 Hospitals in Maryland</li> <li>▪ Blood suppliers</li> </ul>		<ul style="list-style-type: none"> <li>▪ Increased blood inventory available for patient care</li> <li>▪ Reduction in cost to acquire additional plasma products</li> <li>▪ Shorter turn around time for product when appropriate ABO group of Thawed Plasma is already available</li> </ul>
<b>Phase</b>	<b>Date Comp</b>	<b>Milestones</b>
Define Measure Analyze Improve Control	07/22/09	<ul style="list-style-type: none"> <li>• Pre work completed - prior to 07/22</li> <li>• Sign off on project charters - 07/22</li> <li>• Conference call follow-up - Mid August</li> <li>• Kickoff - Mid-September</li> <li>• Collect baseline data and launch interventions - Mid-October</li> </ul>

# Project Charter

<b>Reducing Discarded Platelet Units</b>		<b>Champion:</b> Barb Epke/Bill Minogue/Chip Davis
<b>Revised: 08/26/2009</b>		<b>Project Leader:</b> Page Gambill/Donna Marquess
<b>Problem Statement</b>		<b>Project Goal</b>
<p>A significant number of apheresis platelet units are prepared per physician request and then not transfused. There is a short shelf life and the units are often discarded. The result is fewer units available for patients which compromises patient safety. There is also a financial impact due to the high product cost.</p>		<p>Reduce platelet wastage by a minimum of _____% by July 2010 across the 47 participating hospitals in Maryland</p>
<b>Measurement Methodology</b>		<b>Scope</b>
<p>Unit = one unit of apheresis platelets (6 EU)</p> <p><math>\% \text{ Waste} = \frac{\# \text{ platelet units wasted}}{\text{Total \# of platelet units purchased}}</math></p> <p>(Do not include partial units as wasted.)</p>		<ul style="list-style-type: none"> <li>▪ 47 Hospitals in Maryland</li> <li>▪ Blood suppliers</li> </ul>
<b>Participating Organizations</b>		<b>Benefits</b>
<ul style="list-style-type: none"> <li>▪ 47 Hospitals in Maryland</li> <li>▪ Blood suppliers</li> </ul>		<ul style="list-style-type: none"> <li>▪ Increased blood inventory available for patient care</li> <li>▪ Cost credit for transferring out short dated platelets</li> <li>▪ Reduction in costs to acquire additional platelet products</li> </ul>
<b>Phase</b>	<b>Date Comp</b>	<b>Milestones</b>
Define Measure Analyze Improve Control	07/22/09	<ul style="list-style-type: none"> <li>• Pre work completed - prior to 07/22</li> <li>• Sign off on project charters - 07/22</li> <li>• Conference call follow-up - Mid August</li> <li>• Kickoff - Mid-September</li> <li>• Collect baseline data and launch interventions - Mid-October</li> </ul>



# **Data Collection Process**

# Baseline Blood Utilization Template

Hospital:

Enter in Blue shade only!

	Plasma		Platelets		Allo Red Cells		Auto/Dir Red Cells	
ASP	Cost per Unit \$54.91		Cost per Unit \$507.44		Cost per Unit \$239.85		Cost per Unit \$253.85	
Month	# Units Thawed	# Units Wasted	# Units Collected/ Purchased	# Units Wasted	# Units Collected/ Purchased	# Units Wasted	# Units Collected/ Purchased	# Units Wasted
September-08								
October-08								
November-08								
December-08								
January-09								
February-09								
March-09								
April-09								
May-09								
June-09								
July-09								
August-09								
September-09								
Total	0	0	0	0	0	0	0	0

Plasma	Platelets	Allo Red Cells	Auto/Dir Red Cells
% Wasted	0.0%	% Wasted	0.0%
\$ Wasted	\$0.00	\$ Wasted	\$0.00

ASP = Average Selling Price for product in Maryland. For consistency of data, **please do NOT** modify to actual price paid by your institution.

UNIT of platelets = 6 EU apheresis unit

**WASTED** = discarded and not transfused for any reason, includes units for which you receive credit. Do NOT include partial units.



# **Best Practices**

# Best Practices to Reduce Discards – Summary by Category

	Collection/Purchasing	Preparation/Distribution	Storage	Transportation	Regulatory/Compliance
<b>Plasma</b>		<ol style="list-style-type: none"> <li>1. Thaw product in increments</li> <li>2. Transfer within systems</li> </ol>	<ol style="list-style-type: none"> <li>1. Move to 5 day plasma</li> </ol>		
<b>Platelets</b>	<ol style="list-style-type: none"> <li>1. Senior staff only order products for inventory</li> </ol>	<ol style="list-style-type: none"> <li>1. Call Red Cross to help transfer short dated products</li> <li>2. Implement group to review all platelet orders</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-label shelves to increase visibility of short dated products</li> </ol>		
<b>Red Cells</b>	<ol style="list-style-type: none"> <li>1. Special committee formed to assess auto unit collections</li> <li>2. Discontinued collection of auto red cells</li> </ol>			<ol style="list-style-type: none"> <li>1. Issue in ice packed coolers to OR, etc.</li> </ol>	
<b>All Products</b>	<ol style="list-style-type: none"> <li>1. Review all par levels</li> <li>2. Adjust number of standing orders received each week</li> <li>3. Request Ad Hoc reports from Blood Supplier</li> <li>4. Review Ad Hoc product orders for trends</li> <li>5. Forward wastage reports to Finance</li> </ol>	<ol style="list-style-type: none"> <li>1. Review signed consent and product orders prior to dispense</li> <li>2. Review transfusion criteria prior to dispense</li> <li>3. Post short date list and assign technologist to re-crossmatching when needed to move products</li> <li>4. Develop service specific protocols (OB/Gyn, Cardiac, etc.) and audit those protocols</li> </ol>		<ol style="list-style-type: none"> <li>1. Implement courier service to transfer products within hospital system</li> </ol>	<ol style="list-style-type: none"> <li>1. Monitor utilization by physician and service</li> <li>2. Publicly post utilization data-on intranet, etc.</li> <li>3. Revitalize the Transfusion Practices Committee</li> <li>4. Incident reports on wastage to Risk Management and Nurse Managers</li> <li>5. Letters to physicians who overuse products</li> </ol>

A black and white photograph showing a large group of people, likely a community or a group of students, sitting on the ground in a circle. They are all looking towards the center of the circle, suggesting a collective activity or a shared focus. The text "Pledge of Participation" is overlaid in the center of the image.

# **Pledge of Participation**



Maryland Reduction of Blood Wastage Work Group (“BWVG”)
and [insert hospital name]
Blood Wastage Collaborative Memorandum of Understanding

This memorandum confirms the intent to participate in the
Maryland Statewide Reduction of Blood Wastage Collaborative

[insert hospital name], the Collaborative participant,
will:

- Designate the hospital’s Blood Bank Leader as the primary
point of contact for the Collaborative
• Designate an alternate team point of contact
• Agree to the Project Charters
• Commit to submit one year of baseline blood wastage data
(Sep 2008—Aug 2009) and monthly blood wastage data
using the Data Metric Template by the 15th of the following
month.
• Actively participate in collaborative activities and share
information and ideas with other collaborative participants
• By signing below, provider consents that their identity, as a
participant in the Blood Wastage Collaborative, may be
released to other participating hospitals and for promotion of
the progress made by the collaborative participants. Data that
is submitted in support of this program will be de-
identified.
• By signing below, participant agrees not to release Blood
Wastage Collaborative aggregated data without expressed
permission

The Maryland Reduction of Blood Wastage Work
Group, the Collaborative sponsor, will:

- Plan, implement and support the Blood Wastage
Collaborative by providing expert faculty, learning
materials and meeting facilities
• Support participants by providing teleconferences and
communication
• Disseminate information to collaborative participants about
best practices in blood utilization.
• Provide communication venues for shared learning
including a collaborative website
• Provide summary information on the status of the
Collaborative’s progress to the Maryland Health Quality
and Cost Council
• Be available to teams for technical assistance and support
as needed

[insert hospital name] is pleased to join the Maryland Reduction of Blood Wastage Collaborative. We agree with the
expectations as described above.

Hospital Executive or Officer Signature

Date

Co-Chair of BWVG Signature

Date

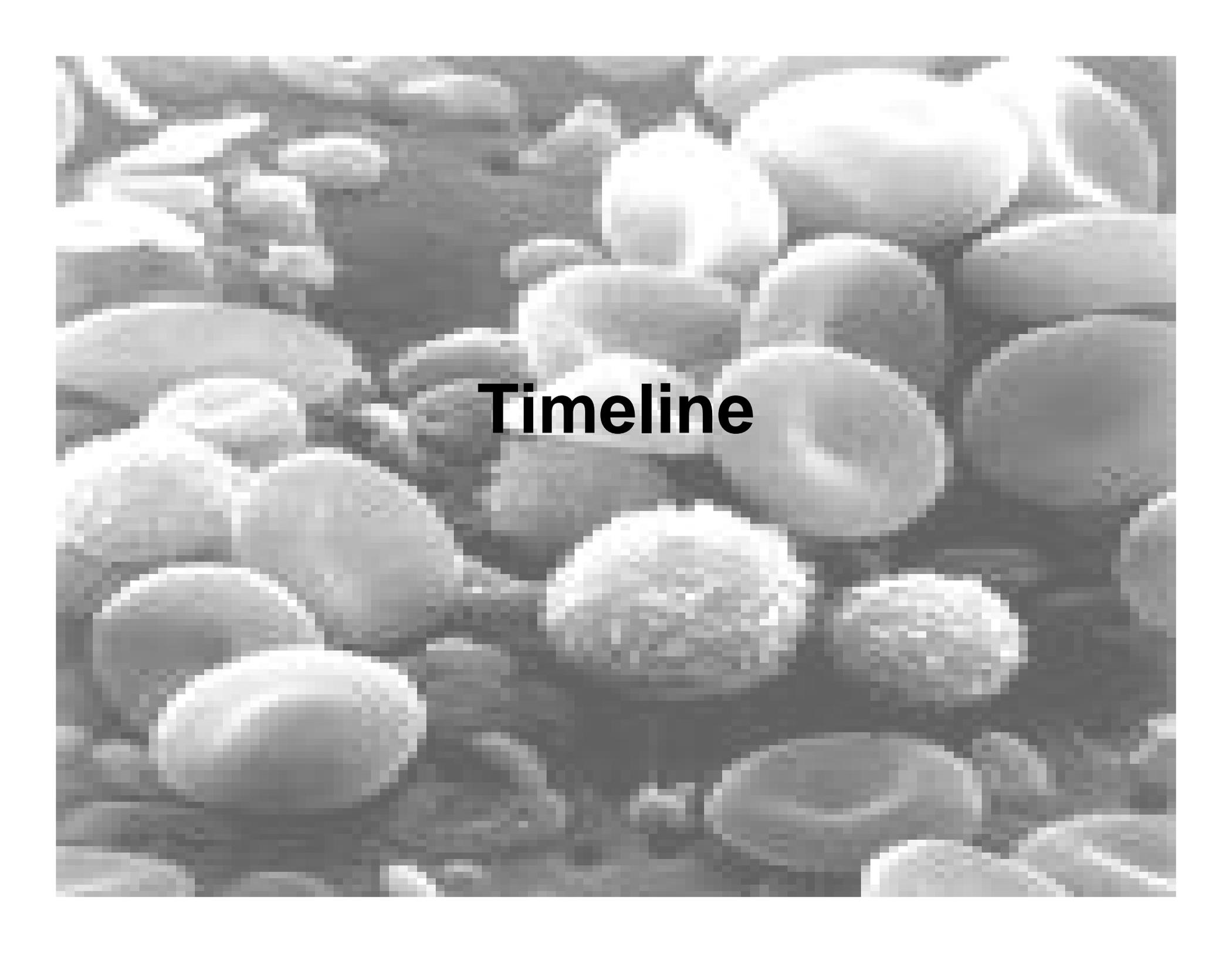
Blood Bank Leader Signature

Date

Co-Chair of BWVG Signature

Date

Please return a signed hard copy to Page Gambill, (4700 Mt. Hope Drive; Baltimore, MD 21215) by October 16, 2009.



# Timeline

# MARYLAND HEALTH QUALITY & COST ROADMAP

June 10, 2009

Fall 2009

Winter 2009

Spring 2010

Summer 2010

*Support to move forward from State Council?*

*Maryland Health Quality & Cost Scorecard*

1. Hand Hygiene (HH) and Hospital Acquired Infections (HAIs)



2. Blood Wastage

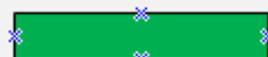


## KEY

Program Development



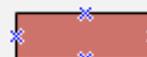
Education / PR



Baseline / Implementation



Results: Q1



Q2



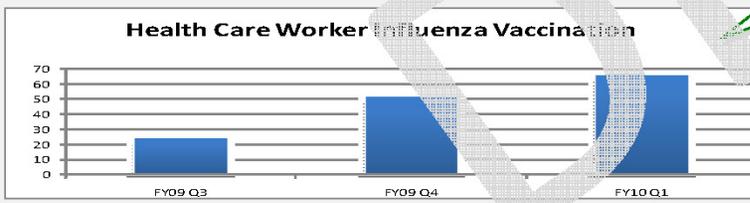
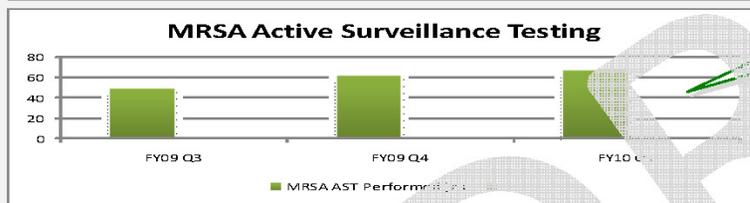
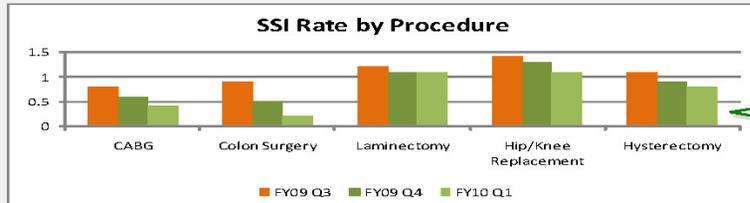
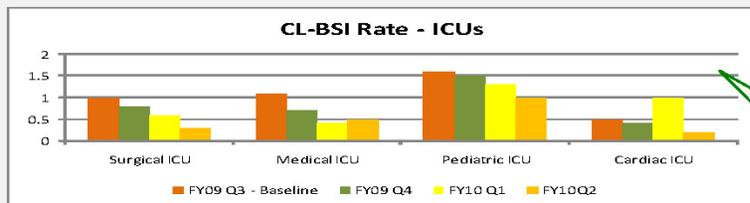
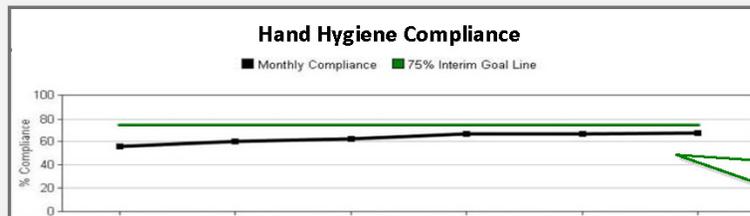
Q3



# MARYLAND HEALTH QUALITY & COST SCORECARD

## STATE IMPACT

### 1. Hand Hygiene & Hospital Acquired Infections



- 1590 additional PCI cases w/ JCHAO recommended response
- 15% Increase
- Projected savings in P lives and \$X

- 17% increase in HH Rates per Q for 2 straight quarters
- Potential savings in lives and dollars ranging from P1 Lives and \$X1 to P2 Lives and \$X2

- 1021 fewer BSIs from FY10 Q2 compared to baseline (example)
- 29% Reduction (example)
- Projected \$31-51 million in avoided costs, with an expected reduced mortality of 204 lives.

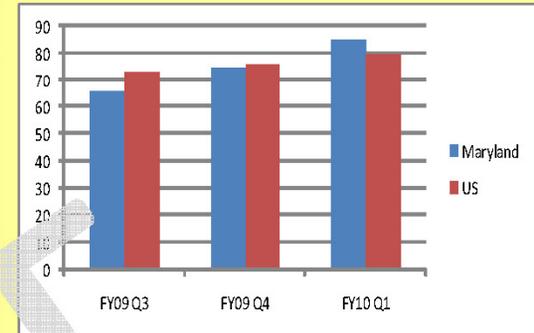
- 1321 fewer SSIs from FY10 Q1 compared to baseline
- 15% Reduction
- Projected savings in P lives and \$X

- 1653 more AST performed compared to baseline
- 22% Improvement

- 11% increase in HH Rates per Q for 3 straight quarters
- Potential savings in lives and dollars ranging from P1 Lives and \$X1 to P2 Lives and \$X2

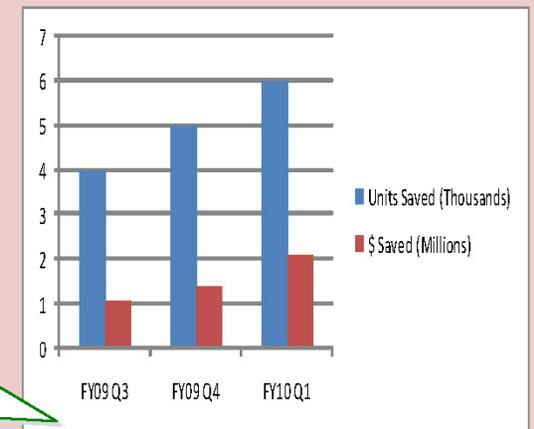
- 2321 units of blood saved from FY10 Q1 compared to baseline
- 40% Wastage Reduction
- Projected savings in \$X

### 2. Door-to-Balloon (D2B) Time



Percent of total pPCI Patients Treated within 90 Minutes

### 3. Blood Wastage



Note: ALL data shown are "Dummy" numbers

☆☆ = Example of Calculation of Savings



**Next Steps**

# Next Steps

- Sign and return the Pledge of Participation by 10/16/09
- Submit baseline data by 10/16/09
- Attend the Database Training conference call on 11/03/09 1-2PM
- Submit second month data by 11/15/09
  - Continue to submit monthly data by the 15<sup>th</sup> of the following month
- BWVG will
  - make quarterly reports on the state aggregate blood wastage data to MHQCC
  - Coordinate quarterly follow-up calls with all participants to discuss best practices and data submitted



# Discussion