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.

<table>
<thead>
<tr>
<th>1(a). Hand Hygiene</th>
<th>1(b). Hospital-Acquired Infections (HAIs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intervention:</strong> JH H WPS campaign</td>
<td><strong>Intervention:</strong> Checklist(s), Surveillance, Education, Public Reporting?</td>
</tr>
<tr>
<td><strong>Impact:</strong> Increase in Hand Hygiene Compliance by 30% (outcomes for avoided HAIs still under evaluation).</td>
<td><strong>Impact:</strong></td>
</tr>
<tr>
<td><strong>Cost:</strong> Literature demonstrates that operating costs + 1% of cost savings due to avoided HAIs</td>
<td><strong>Cost:</strong></td>
</tr>
<tr>
<td><strong>Ease of Implementation:</strong></td>
<td><strong>Ease of Implementation:</strong></td>
</tr>
</tbody>
</table>

**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:**

### Catheter-Related Blood Stream Infection

**Impact:**
- Additional cost per case: $35-60K
- 10-24 days additional LOS
- 15-35% attributable mortality

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

### Surgical Site Infection

**Impact:**
- Additional cost per case: $10K
- 7-20 days additional LOS
- 9% attributable mortality

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

### Methicillin-Resistant Staphylococcus Aureus (MRSA)

**Impact:**
- Additional cost per case: $5K
- Additional LOS
- 0% attributable mortality

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

### Health Care Worker (HCW) Influenza Vaccination

**Impact:**
- Literature shows 30% reduction in all-cause mortality among patients treated by HCWs compliant with influenza vaccination

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

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**Time to Impact**

1-3 Months | 3-6 Months | 6-9 Months | 9-12 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.

<table>
<thead>
<tr>
<th>Reason</th>
<th>0-10%</th>
<th>11-25%</th>
<th>26-50%</th>
<th>51-75%</th>
<th>76-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autologous red cells collected and not transfused</td>
<td>23.3% (4)</td>
<td>12.5% (2)</td>
<td>29.4% (5)</td>
<td>18.8% (3)</td>
<td>6.3% (1)</td>
</tr>
<tr>
<td>Blood products returned after 30 minutes or at temperature &gt;10°C</td>
<td>87.5% (14)</td>
<td>12.5% (2)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
</tr>
<tr>
<td>Plasma products thawed and not transfused</td>
<td>37.5% (6)</td>
<td>43.8% (7)</td>
<td>12.5% (2)</td>
<td>6.3% (1)</td>
<td>0.0% (0)</td>
</tr>
<tr>
<td>Allogeneic red cells expiring on the shelf (not eligible for credit)</td>
<td>93.8% (15)</td>
<td>6.3% (1)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
</tr>
<tr>
<td>Platelets expiring on the shelf (not eligible for credit)</td>
<td>50.0% (8)</td>
<td>43.8% (7)</td>
<td>12.5% (2)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
</tr>
<tr>
<td>Blood products returned unusable after being &quot;spiked&quot; on floor</td>
<td>100.0%</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
</tr>
</tbody>
</table>
Project Charters
# Project Charter

## Reducing Discarded Plasma Units

**Champion:** Barb Epke/Bill Minogue/Chip Davis  
**Revised:** 08/26/2009  
**Project Leader:** Page Gambill/Donna Marquess

### Problem Statement

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.

### Measurement Methodology

Unit = one unit of plasma  
% Waste = \( \frac{\text{# plasma units wasted}}{\text{Total # of plasma units thawed}} \)  
(Do not include partial units as wasted.)

### Participating Organizations

- 47 Hospitals in Maryland  
- Blood suppliers

### Project Goal

Reduce plasma wastage by a minimum of _____% by July 2010 across the 47 participating hospitals in Maryland

### Scope

- 47 Hospitals in Maryland  
- Blood suppliers

### Benefits

- Increased blood inventory available for patient care  
- Reduction in cost to acquire additional plasma products  
- Shorter turn around time for product when appropriate ABO group of Thawed Plasma is already available

### Milestones

<table>
<thead>
<tr>
<th>Phase</th>
<th>Date Comp</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define</td>
<td>07/22</td>
<td>Pre work completed - prior to 07/22</td>
</tr>
<tr>
<td>Measure</td>
<td>07/22</td>
<td>Sign off on project charters - 07/22</td>
</tr>
<tr>
<td>Analyze</td>
<td>07/22</td>
<td>Conference call follow-up - Mid August</td>
</tr>
<tr>
<td>Improve</td>
<td>07/22</td>
<td>Kickoff - Mid-September</td>
</tr>
<tr>
<td>Control</td>
<td>07/22</td>
<td>Collect baseline data and launch interventions - Mid-October</td>
</tr>
</tbody>
</table>
Problem Statement
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.

Measurement Methodology
Unit = one unit of apheresis platelets (6 EU)

\[
\% \text{ Waste} = \frac{\# \text{ platelet units wasted}}{\text{Total } \# \text{ of platelet units purchased}}
\]

(Do not include partial units as wasted.)

Participating Organizations
- 47 Hospitals in Maryland
- Blood suppliers

Project Goal
Reduce platelet wastage by a minimum of _____% by July 2010 across the 47 participating hospitals in Maryland

Scope
- 47 Hospitals in Maryland
- Blood suppliers

Benefits
- Increased blood inventory available for patient care
- Cost credit for transferring out short dated platelets
- Reduction in costs to acquire additional platelet products

<table>
<thead>
<tr>
<th>Phase</th>
<th>Date Comp</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define</td>
<td>07/22/09</td>
<td>• Pre work completed - prior to 07/22</td>
</tr>
<tr>
<td>Measure</td>
<td></td>
<td>• Sign off on project charters - 07/22</td>
</tr>
<tr>
<td>Analyze</td>
<td></td>
<td>• Conference call follow-up - Mid August</td>
</tr>
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<td></td>
<td>• Kickoff - Mid-September</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>• Collect baseline data and launch interventions - Mid-October</td>
</tr>
</tbody>
</table>
Data Collection Process
**Baseline Blood Utilization Template**

Enter in Blue shade only!

<table>
<thead>
<tr>
<th>Month</th>
<th>Plasma</th>
<th>Platelets</th>
<th>Allo Red Cells</th>
<th>Auto/Dir Red Cells</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ASP</td>
<td>Cost per Unit</td>
<td>$54.91</td>
<td>Cost per Unit</td>
</tr>
<tr>
<td></td>
<td># Units Thawed</td>
<td># Units Purchased</td>
<td># Units Collected</td>
<td># Units Wasted</td>
</tr>
<tr>
<td>September-08</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>October-08</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>November-08</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>December-08</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>January-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>February-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>March-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>April-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>May-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>June-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>July-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>August-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>September-09</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Plasma**

- **% Wasted**: 0.0%
- **$ Wasted**: $0.00

**Platelets**

- **% Wasted**: 0.0%
- **$ Wasted**: $0.00

**Allo Red Cells**

- **% Wasted**: 0.0%
- **$ Wasted**: $0.00

**Auto/Dir Red Cells**

- **% Wasted**: 0.0%
- **$ 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

<table>
<thead>
<tr>
<th>Category</th>
<th>Collection/Purchasing</th>
<th>Preparation/Distribution</th>
<th>Storage</th>
<th>Transportation</th>
<th>Regulatory/Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plasma</strong></td>
<td></td>
<td>1. Thaw product in increments</td>
<td>1. Move to 5 day plasma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Transfer within systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Platelets</strong></td>
<td>1. Senior staff only order products for inventory</td>
<td>1. Call Red Cross to help transfer short dated products</td>
<td>1. Re-label shelves to increase visibility of short dated products</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Implement group to review all platelet orders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Red Cells</strong></td>
<td>1. Special committee formed to assess auto unit collections</td>
<td>1. Review all par levels</td>
<td>1. Issue in ice packed coolers to OR, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Discontinued collection of auto red cells</td>
<td>2. Adjust number of standing orders received each week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Request Ad Hoc reports from Blood Supplier</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Review Ad Hoc product orders for trends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Forward wastage reports to Finance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>All Products</strong></td>
<td>1. Review signed consent and product orders prior to dispense</td>
<td>1. Review signed consent and product orders prior to dispense</td>
<td>1. Implement courier service to transfer products within hospital system</td>
<td></td>
<td>1. Monitor utilization by physician and service</td>
</tr>
<tr>
<td></td>
<td>2. Review transfusion criteria prior to dispense</td>
<td>2. Review transfusion criteria prior to dispense</td>
<td></td>
<td></td>
<td>2. Publicly post utilization data-on intranet, etc.</td>
</tr>
<tr>
<td></td>
<td>3. Post short date list and assign technologist to re-crossmatching when needed to move products</td>
<td>3. Post short date list and assign technologist to re-crossmatching when needed to move products</td>
<td></td>
<td></td>
<td>3. Revitalize the Transfusion Practices Committee</td>
</tr>
<tr>
<td></td>
<td>4. Develop service specific protocols (OB/Gyn, Cardiac, etc.) and audit those protocols</td>
<td>4. Develop service specific protocols (OB/Gyn, Cardiac, etc.) and audit those protocols</td>
<td></td>
<td></td>
<td>4. Incident reports on wastage to Risk Management and Nurse Managers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Forward wastage reports to Finance</td>
<td></td>
<td></td>
<td>5. Letters to physicians who overuse products</td>
</tr>
</tbody>
</table>
Pledge of Participation
Maryland Reduction of Blood Wastage Work Group ("BWWG")

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.

<table>
<thead>
<tr>
<th>Hospital Executive or Officer Signature</th>
<th>Date</th>
<th>Co-Chair of BWWG Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blood Bank Leader Signature</th>
<th>Date</th>
<th>Co-Chair of BWWG Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Please return a signed copy to Patsy F. Cantwell (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

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

1. Hand Hygiene & Hospital Acquired Infections

Hand Hygiene Compliance
- Monthly Compliance
- 75% Interim Goal Line

CL-BSI Rate - ICUs
- Surgical ICU
- Medical ICU
- Pediatric ICU
- Cardiac ICU

SSI Rate by Procedure
- CABG
- Colon Surgery
- Luminection
- Hip/Knee Replacement
- Hysterectomy

MRSA Active Surveillance Testing
- FY09 Q3
- FY09 Q4
- FY10 Q1

Health Care Worker Influenza Vaccination
- FY09 Q3
- FY09 Q4
- FY10 Q1

2. Door-to-Balloon (D2B) Time

- 1590 additional PCI cases w/ JCAHO 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 Q2 compared to baseline
- 11% Reduction
- Projected savings in P lives and $X

- 1653 more ASIs 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

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 15th of the following month
• BWWG 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