Effective Patient Blood Management – Door to Door

Sherri Ozawa, RN
Executive Director, SABM
Clinical Director of PBM
Englewood Hospital and Medical Center, Englewood, NJ
Jehovah’s Witness training center
PBM from Door to door – Which Doors?

This door

To this door
Objectives

• Define Scope of PBM
• Examine motivators to culture change
• Outline definition of “effective” as it relates to PBM
• Analyze possible metrics of efficacy
• Review examples of “effective” PBM programs
PBM DEFINITION

Patient Blood Management is the *timely* application of evidence based medical and surgical concepts designed to manage anemia, optimize hemostasis and minimize blood loss *in an effort to improve* patient outcomes.
What is TIMELY in PBM?
Effective PBM begins long before the hospital

- Pre admission anemia prevalence reportedly close to 40% in a number of studies in various populations
- Increasing rates of patients on pharmaceuticals that impact coagulation
- PBM starts in the Outpatient setting
  - Primary care
  - Informed patient choice and decision making
  - Patient education

If your physician has prescribed oral iron, please consider these reminders:

- Take iron supplement on an empty stomach with citrus juices which may increase iron absorption
- Iron can be taken with food but food will decrease absorption of iron by 50%
- Take 250 mg of Vitamin C every day which may increase iron absorption
- Do not drink coffee and tea within one hour of taking iron
- Taking iron with meals along with fiber and roughage and 6-8oz water will help reduce constipation and cramping
- Iron can cause dark stools
- Allergic reactions are more likely to occur after IV administration
- Notify your physician if you experience bright red blood, vomiting diarrhea, tarry stools, weak and rapid pulse or lethargy
- Keep all iron medications out of reach of children at all times

Speak with your doctor about the treatment plan that is right for you. If you are anticipating surgery, discuss ways you can build your strength and blood counts before the operation. Discuss any medication(s) you are using, such as:

- Prescription and over-the-counter medications— including steroids or anti-inflammatory drugs such as aspirin
- Dietary supplements
- Herbal products

Ask your doctor if you should stop using blood-thinning medication before or after surgery.

Anemia
Treatment Strategies You Should Know

SOCIETY FOR THE ADVANCEMENT OF BLOOD MANAGEMENT®
350 Engle Street
Englewood, New Jersey 07631
info@sabm.org
Visit us online at www.sabm.org
Culture Change – Creating Sense of Urgency

**Senior Leadership – the C Suite**
- Patient Outcomes
  - LOS
  - Adverse Outcomes
  - Utilization/Budget
  - Regulatory Requirements
- Cost of Inappropriate and AVOIDABLE Blood Transfusions
- Revenue Generating Opportunities

**Clinical Staff**
- Patient Outcomes
  - LOS
  - Risks
    - Infections
    - Adverse Outcomes
    - Utilization
- Support
PBM and Changing Behavior
Physician Motivation

• Analysis by Blood Utilization Committee
• Corrective action for repeated inappropriate transfusion practice or failure to use competing strategies
• Communication of Transfusion rates/practice to:
  – Chair/Chief of Service/CMO/Administration
  – Peers
PBM - Physician Motivation

- Education to current PBM practice
- Interest in improved patient outcomes
- Voluntary Staff – Patient Volumes
- Research and related publication
- Enhancement of reputation amongst peers/patients
- Recognition in media- professional or mainstream
Nurses Cultural Change Motivators

• Role in Patient Safety
• Patient Advocacy
• Empowerment in decision making and using clinical judgment
  – Role of ESA’s
  – Patient advocacy
  – Administration of Iron
  – Anemia Management
  – Use of PCCs
  – Actual need for RBC transfusion
  – Oversight of diagnostic phlebotomy
Other Vital Providers

• Perfusionists – storehouse of knowledge
• Blood Bank/Laboratory professionals
  – Not simply well trained order fillers
  – Must be empowered with knowledge
  – Must be supported
Education

– Presentations tailored to specific audience and presented to:
  • Service and section meetings
  • Online Education
  • Medical Executive Committee
  • Board and Board Committees
  • Nurses and nurse management
  • Pharmacy
  • Executive leadership
  • Lab
  • Community
  • Whoever will listen: change the hospital culture
How Do we Measure EFFICACY in Patient Blood Management?

- Measures of success differ if you are:
  - C Suite
  - Community based physician
  - Institution /Academic Based physician
  - Perfusionist
  - Nurse
  - Laboratory professional
  - Pharmacist
Metrics

• Must Be Relevant
  – Measure What Is Intended
  – Clear
• Accurate
• Timely
• Reliable
• Complete
Metrics
Patient Blood Management Committee Reports

• Blood Utilization
  – Campus
  – Service Line
  – Individual Physician Reports
  – Turn Around Times
  – Wastage

• New Technology

• Clinical data
  – LOS
  – Mortality
  – Infection Rates
  – Transfusion Reaction
  – Quality Variance
  – Anemia

• Pharmaceuticals
  – EPO
  – IV iron
  – Albumin
  – Factor Products

• Revenue
  – Anemia Clinic
  – Bloodless Program Patients
Short PBM Survey

• 100 institutions with reported Patient Blood Management Programs were surveyed via online tool
• Response rate – 21 %
Q2 To whom does your program leadership report directly?

Answered: 21  Skipped: 0

- Laboratory
- Surgical Services
- Nursing
- Administration (C-Suite)
- Quality
- Anesthesiology
- Medicine
- Other
Q1 Rate on a scale or 1 to 5 (1 least important, 5 most important) how your hospital rates these metrics:

Answered: 21  Skipped: 0

- Increased income (e.g.)
- Academic enhancement
- Market leadership
- Financial expenditure
- Patient satisfaction
- Physician participation
- Improved clinical/operational
- Other
Q3 What is the professional description of the person who has administrative oversight of your program?

Answered: 21  Skipped: 0

- Advanced Practice Nurse
- Other nurse
- Perfusionist
- Administrator/Business
- Laboratory professional
- Physician
- Other
On which (if Any) of the following metrics does your PBM program report data or get measured by the Quality Department of your Institution?
Guidance Statement:

- **The effectiveness of a program is determined by measurable improvement in the clinical care of patients**
- **Use of competing strategies to allogeneic transfusions must be systematically evaluated**
- **Data should not be restricted to transfusion**
Review and Evaluation of the Patient Blood Management Program: Standard 4

- **4.1 Committee** reviews and evaluated all aspects of PBM. Membership is multidisciplinary.

- **4.2** Review the ability of the PBM program to meet the need of the patient community.

- **4.3** Blood use is monitored by clinical service, case type or procedure as well as hospital-wide. The data are analysed to identify potential areas for improvement due to over- or under-utilization.

- **4.4** Blood component transfusion is evaluated using metrics defined by the institution that allow comparison of blood utilization and transfusion practices with other institutions and published literature.

- **4.5** Quality measures defined by the hospital are used to assess the clinical efficacy and cost effectiveness of other treatment modalities in reducing blood utilization and managing anemia.

- **4.6** Monitor compliance with PBM clinical protocols.

- **4.7** Monitor quality clinical outcomes; LOS, Infection rates, Ischemic c?o and mortality.
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Evidence of Compliance/Elements of Performance</th>
<th>Potential Assessment Questions</th>
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<tbody>
<tr>
<td>4.1 There is a committee structure that reviews and evaluates all aspects of the patient blood management program. Membership includes nursing, pharmacy, physician, representation of all major medical and surgical services, and administrative leadership.</td>
<td>Documentation in committee minutes that the patient blood management program is evaluated on a regular basis. Appropriate representation on the committee as defined. Evidence of meeting with community representatives.</td>
<td>1) What committee is charged with reviewing the effectiveness of the patient blood management program at your hospital? 2) How are committee members selected? 3) Does your committee include representation from quality assurance, nursing, pharmacy, medical, surgical, obstetrics, pediatrics, anesthesiology, orthopedics, transfusion service, perioperative services, as well as administrative and executive leadership?</td>
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<tr>
<td>4.2 The ability of the patient blood management program to meet the needs of the patient community is evaluated.</td>
<td>Evidence of community needs assessment in committee or other meeting minutes. Evidence of meeting with community representatives.</td>
<td>1) How are the needs of the general patient community as well as the Jehovah’s Witness community and others with religious or cultural objections to some or all blood</td>
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</table>
| 4.3 | Blood use is monitored by clinical service, case type or procedure as well as hospital-wide. The data are analyzed to identify potential areas for improvement due to over- or under-utilization. | Reports showing blood utilization over time across all clinical services and stratified by clinical service, case type or procedure. Evidence of review and analysis with action steps for identified over or under-utilization. Blood utilization data includes utilization of red cells, platelets, plasma and cryoprecipitate. | 1) How are data collected for analysis?  
2) Who is responsible for data collection and creation of reports?  
3) What criteria are used to determine if there is over or under-utilization? |
| 4.4 | Blood and blood component transfusion is evaluated using metrics defined by the hospital that allow comparison of blood utilization and transfusion practices with other institutions and the published literature. | There are defined criteria for evaluating utilization data relative to the number of admissions, discharges, or patient days. Utilization data are adjusted for patient acuity, complexity and case mix in order to allow comparison with other hospitals. Minutes or quality reports showing comparison of blood use with other hospitals or published data. | 1) How do you adjust your utilization data for red cells, platelets, plasma and cryoprecipitate for changes in patient volume, length of stay, acuity and case mix?  
2) What has happened to your blood utilization over the past year? The past 3 years? The past 5-10 years?  
3) How does your blood utilization compare to hospitals of similar size and scope of service? |
How do we measure efficacy?

PBMP Standards

Quality Guide to the SABM Standards
There is an outpatient setting or suitable venue, with input from the patient blood management program medical director that provides evaluation and treatment of anemia in non-surgical patients. This may be incorporated into a preoperative anemia program or made part of another existing program in the organization.

Are outpatients treated for anemia in a clinic setting at your hospital?

If so, where are they treated?

Who provides medical oversight for the program if one exists?
12.2 There is a mechanism for notifying the primary care provider that their patient has been treated for anemia while hospitalized and requires follow up to help ensure completion or continuation of treatment initiated in the hospital.

Is there a process for referring inpatients to a program for management of anemia after discharge?

How does the attending physician communicate with the patient blood management program or outpatient anemia program to arrange for post-discharge anemia treatment?

How is the primary care provider notified?
There is an outreach program to educate the primary care provider community and specialists who care for patients at risk for anemia about its identification, evaluation and management.

How has your organization made your provider community aware of the existence of your anemia management program?

Have you seen an increase in the number of patients seen in your anemia management program?
There is a mechanism for providers in the community to refer outpatients to the treatment program for anemia evaluation and treatment.

What is the mechanism for providers in your community to refer patients to your clinic?

Have you made the referral process easy for providers to access and use?
The program has defined treatment guidelines and protocols for managing iron deficiency anemia, anemia of chronic inflammation and anemia associated with chronic kidney disease. These protocols are evidence-based and reviewed and accepted by the patient blood management committee or other suitable committee.

Describe your treatment strategy for iron deficiency anemia? For anemia of chronic inflammation? For chronic kidney disease?

What process was followed in developing your treatment guidelines and protocols?
The patient blood management medical director works with various clinical specialties such as obstetrics and gynecology, cardiology, rheumatology, gastroenterology and others to identify at-risk patient populations in the community that might benefit from anemia management.

In the past two years, what have you done to make the specialist provider community aware of the need to identify and treat anemic patients within their specialty?
The program is designed to augment the management of anemia by the hematology and oncology service within an organization. Cancer and chemotherapy associated anemia is considered outside the scope of this standard.

What is the relationship between your outpatient anemia clinic and the hematology/oncology services in your community?

Is there a mechanism for referring patients seen in the anemia clinic who are found to have primary bone marrow pathology including malignancy, to the hematology/oncology clinic?
Utilization and outcome measures are reported to the patient blood management medical director and program coordinator at least annually and used to evaluate the clinical efficacy and economic impact of the anemia management program.

What metrics are used to follow and evaluate your anemia management program?

How do you know patients are benefiting from anemia management?
Standard # 7 - PERIOPERATIVE AUTOLOGOUS BLOOD COLLECTION FOR ADMINISTRATION

The hospital has the ability to collect, process, and reinfuse shed autologous blood. The hospital may also choose to collect blood from patients in the immediate preoperative period (acute normovolemic hemodilution) for reinfusion in the perioperative period.

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<tr>
<th>INDICATOR</th>
<th>EVIDENCE OF COMPLIANCE/ELEMENTS OF PERFORMANCE</th>
<th>POTENTIAL ASSESSMENT QUESTIONS</th>
<th>COMPLIANCE</th>
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<tr>
<td>7.1 Written policies and procedures address all perioperative autologous blood collection/recovery modalities offered at the hospital.</td>
<td>List of all devices and procedures used in the perioperative setting for autologous blood collection, processing, reinfusion, or production of product. Documentation of approval by chair of anesthesia and patient blood management director.</td>
<td>1. What perioperative autologous blood collection or delivery procedures do you offer at your hospital? 2. What products derived from blood are produced at your hospital?</td>
<td>YES [CITE POLICY/PROCEDURE] NO [TASK ASSIGNED TO:]</td>
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<td>7.2 Available methods for autologous blood collection/recovery are described in detail.</td>
<td>Policy or procedure for the use of the devices and products including but not restricted to inclusion and exclusion criteria for appropriate use.</td>
<td>1. How do you choose which technique(s) is most appropriate?</td>
<td>YES [CITE POLICY/PROCEDURE] NO</td>
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<td>7.3 Indications and contraindications for the use of perioperative autologous blood collection/recovery are described.</td>
<td>Policy includes indications and contraindications for the use of each modality. List of procedures for which perioperative autologous blood collection/recovery and reinfusion may be indicated.</td>
<td>1. How do your practitioners decide which technique(s) is most appropriate?</td>
<td>YES [CITE POLICY/PROCEDURE] NO</td>
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<td>7.4 There are written exclusion criteria for patients who are not candidates for acute normovolemic hemodilution.</td>
<td>Policy includes relative and absolute contraindications for acute normovolemic hemodilution.</td>
<td>1. How do your practitioners decide if the patient is a candidate for ANH?</td>
<td>YES [CITE POLICY/PROCEDURE] NO</td>
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Impact on Blood Bank Workload and Staffing

- Decreased blood bank staff by 3 FTE
58% reduction in red cell transfusion
Plasma Transfusions: 1994 -2012

Annual Plasma Transfusions

71 % reduction in plasma transfusion

Number of Plasmas

FY94  FY95  FY96  FY97  FY98  FY99  FY00  FY01  FY02  FY03  FY04  FY05  FY06  FY07  FY08  FY09  FY10  FY11  FY12

1258  920  1619  1429  2192  4789  3509  2275  2577  4049  3040  3689  1451  1524  1747  1225  886
Platelet Transfusions: 1994 - 2012

Annual Platelet Transfusions

- 53% reduction in platelet transfusion

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<td>712</td>
<td>759</td>
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Cost Savings – All Blood and Blood Components
2007-2012

• **Total blood acquisition costs** in FY ‘06 were $3,200,000
• Cost savings compared to base year, FY ’06*

  – FY ’07  $ 850,000
  – FY ’08  $ 1,400,000
  – FY ’09  $ 1,600,000
  – FY ’10  $ 1,550,000
  – FY ’11  $ 1,600,000
  – FY ’12  $ 1,500,000
  – **Total (Acquisition)**  $ 8,400,000
  – **Total (ABC)**  $ 26,880,000 **

* No change in per unit cost from blood supplier from 2007 – 2010
* Using ABC 3.2 times acquisition cost
CABG Outcomes
PBMP vs Non-PBMP

PBMP cohort (n=586)
Non-PBMP cohort (n=586)

N=586

- % Transfused: 10.6% (PBMP) vs 0.0% (Non-PBMP)
- Mortality: 0.8% (PBMP) vs 2.5% (Non-PBMP)
- Serious complication: 11.1% (PBMP) vs 18.7% (Non-PBMP)

Moskowitz et al Ann Thorac Surg 2010
Effective Patient Blood Management

- Focuses on Providing Improved Patient Care And Outcomes by addressing modifiable risks
- Avoids Inappropriate Blood Use
- Respects Patient Choice
- True Informed Consent
- Assesses Each Patient’s Need For Blood Transfusion on Clinical Criteria
- Recognizes/Promotes Sound Economic Practices
- Preserves A Precious Resource
- Best Practice

First, Do No Harm