SOCIETY FOR THE ADVANCEMENT OF BLOOD MANAGEMENT®
Patient Blood Management in Surgery – Get on Board!

Sherri Ozawa, RN
Executive Director, Society for the Advancement of Blood Management
Clinical Director, Patient Blood Management
Englewood Hospital and Medical Canter
April, 2015
Objectives of Today’s Talk

• Discuss the changing paradigm in Transfusion and Patient Blood Management
• Examine evidence related to Transfusion related outcomes
• Review data from organized PBM efforts
• List progress in governmental, clinical, public awareness of PBM
EVERYTHING HAPPENS FOR A REASON. SOMETIMES THE REASON IS YOU’RE STUPID AND MAKE BAD DECISIONS.
SABM’s definition of Patient Blood Management (PBM)

The timely application of evidence-based medical and surgical concepts designed to maintain hemoglobin concentration, optimize hemostasis and minimize blood loss in an effort to improve patient outcome.
Patient Blood Management

- Optimizing Coagulation
- Interdisciplinary Blood Conservation Modalities
- Patient-Centered Decision Making
- Managing Anemia

IMPROVED PATIENT OUTCOMES

SABM © 2013
Definitions and Terminology

• **Blood Management** broadly applied
  – Product-focused
  – Transfusion is default decision

• **Patient Blood Management** - new paradigm
  – Preventative
  – Patient-centered
  – Perioperative
  – Multidisciplinary
  – Multi-modal
  – Outcome-focused
Underlying Principles of PBM

• Patient Blood Management is NOT about transfusion, it is about managing patients’ modifiable risks with the goal of improving outcomes

• Discussion begins and ends with transfusion ONLY because it is still the default position – changing

• Clinically not just laboratory focused

• The use of Blood Components is one of many modalities, each should be used in an evidence based fashion, and transfusion therapy is NO MORE OR LESS IMPORTANT than any other
Who gets transfused?

• 94% of transfusions in surgical patients can be attributed to:
  – low preoperative hemoglobin levels
  – excessive (uncontrolled) surgical blood loss, and/or
  – inappropriate transfusion practices

ALL MODIFIABLE RISKS BUT PARADIGM SHIFT IS REQUIRED

Defining the Dual Paradigm Shift in PBM

• **First** – From product centered viewpoint to patient and disease centered viewpoint

• **Second** – From transfusion as the default position to more complex decision making skills
Kotter's 8 step change model

1. Create a climate for change
2. Create urgency
3. Form a powerful coalition
4. Create a vision for change
5. Communicate the vision
6. Empower action
7. Create quick wins
8. Build on change
9. Make it part of the culture

Additional steps:
- Engaging & enabling the organisation
- Implementing & sustaining for change
A paradigm shift happens when there is no way to “correct” something without restructuring the underlying principles – Thomas S. Kuhn
TRANSFUSION

- New Technology
- Patients consenting with limited information
- Rise of PBM
- Emerging evidence of adverse donor outcomes
- More and better educated patients
- Extensive practice variability
- New and unresolved ethical issues
- Escalating Cost of Tx
- Poor cost effectiveness ratios
- Blood component shortages
- Limited evidence of benefit
- Product liability issues
- Emerging and reemerging pathogens
- Abundant evidence of poor outcome
Kuhn Cycle – Why is change so slow in PBM?

• People and systems change only when
  – They are forced to change and/or
  – Change offers a large advantage

• People are biased to the present paradigm

• New Paradigm is seen as INFERIOR even if evidence says it is better
Current – Transfusion Medicine

• Clinical:
  – Outcome – poor
  – Survival – poor
  – Well-being – poor

• Administrative:
  – Cost – high
  – Poor efficacy
  – Regulation – out of step with current reality
  – Payment – out of step with current reality

Current Paradigm Isn’t Sustainable
Prior to the 1600s, scurvy was the greatest killer of seafarers—more than battle deaths, storms, accidents, and all others combined.

1601: Lancaster conducts a controlled experiment during an East India Company voyage. The crew on one ship received 3 tsp. of lemon juice daily; the crew on the other ships did not. Results: At the Cape of Good Hope 110 out of 278 sailors had died, most from scurvy. The crew receiving the lemon juice treatment remained healthy.

1747: Dr. James Lind conducts a controlled experiment in which scurvy patients were treated with a variety of elixirs. Those receiving citrus were cured in a few days. None of the other treatments worked.

1795: The British Royal Navy begins using citrus on a regular basis. Scurvy wiped out. [Just in the navy]

1865: The British Board of Trade mandates citrus use. Scurvy wiped out in the merchant marine.
The New England Journal of Medicine

Volume 215  SEPTEMBER 3, 1936  Number 10

The Massachusetts Medical Society

SECTION OF MEDICINE

Lower Section Room, Municipal Auditorium, Springfield, Tuesday, June 9, 1936, 2 p.m.

PRESIDING:
Dr. William D. Smith, Boston, Chairman.
Dr. Laurence B. Ellis, Boston, Secretary.

CHAIRMAN SMITH: Will the meeting please come to order.

The first duty of the Section is the selection of the Chairman and the Secretary for the coming year, and, in accordance with the usual custom, the Chair will appoint as the Nominating Committee to suggest names Dr. Dwight O'Hara, Chairman, Dr. George R. Minot and Dr. Chester M. Jones. They will report later and abide the pleasure of the Section.

I do not see Dr. Hamilton here. Apparently she is delayed, so we will pass on to the second paper. To those of us who have had our moments of indecision whether to transfuse or not to transfuse in some of our medical problems, Dr. Bock's paper should be of interest. His subject is "The Use and Abuse of Blood Transfusions."

THE USE AND ABUSE OF BLOOD TRANSFUSIONS*

BY ARNIE V. BOCK, M.D.†

The mass of literature on the subject of blood transfusions accumulated during the past twenty-five years is so great and most of it so conflicting that it is impossible to present in any brief statement all of the pertinent facts. However, the following summary may be of some service.

Blood transfusions are used for two purposes: to replace blood volume and to elevate low blood pressure. Blood volume may be reduced by hemorrhage, burns, trauma, severe anemia, and other causes. Blood pressure may be lowered by hemorrhage, shock, and other conditions. Blood transfusions may be used to correct these conditions.
The answer is 17 years, what is the question: understanding time lags in translational research

Zoë Slote Morris¹ • Steven Wooding² • Jonathan Grant²

¹Institute of Public Health, University of Cambridge, Cambridge CB
²RAND Europe, Cambridge CB4 1YG, UK
Correspondence to: Jonathan Grant. Email: jgrant@rand.org

Summary
This study aimed to review the literature describing and quantifying time lags in the health research translation process. Papers were included in the review if they quantified time lags in the development of health interventions. The study identified 23 papers. Few were comparable as different studies use different measures, of different things, at different
“A change towards a higher level of group performance is frequently short lived, after a ‘shot in the arm’, group life soon returns to the previous level” – Kurt Lewin
Let’s look at the evidence
Original Investigation

Health Care–Associated Infection After Red Blood Cell Transfusion
A Systematic Review and Meta-analysis

Jeffrey M. Rohde, MD; Derek E. Dimcheff, MD, PhD; Neil Blumberg, MD; Sanjay Saint, MD, MPH; Kenneth M. Langa, MD, PhD; Latoya Kuhn, MPH; Andrew Hickner, MSI; Mary A. M. Rogers, PhD

EDITORIAL

Editorials represent the opinions of the authors and JAMA and not those of the American Medical Association.

Blood Transfusion and Risk of Infection
New Convincing Evidence

Jeffrey L. Carson, MD
Transfusions are Risky

- Blood transfusions increases the risk for:
  - Pneumonia
  - ICU stay
  - Ventilator Time
  - Hospital acquired infections
  - Mortality

Transfusions are Risky

Safety Issues: Transfusion and Hospital Acquired Infections

Carson et al, Transfusion 1999;39
Transfusion & Serious Morbidity in 4,445 Cardiac Surgical Patients

Serious morbidity and mortality increase with the amount transfused.

Ferraris, Intl J Angiol, 2006
Blood Transfusion in General Surgical Population

Intraoperative Blood Transfusion and NSQIP Surgical Outcomes in 941,496 Patients

Percent morbidity or mortality

Intraoperative PRBC units transfused

Percent mortality
Percent morbidity

No PRBC
1-2 U PRBC
3-4 U PRBC
5-6 U PRBC
7-8 U PRBC
9-10 U PRBC
> 10 U PRBC
# The Overlooked Risk: Effect On Patient Outcome

N=70462

<table>
<thead>
<tr>
<th>Author</th>
<th>Type of Study</th>
<th>No. of patients</th>
<th>Type of Surgery</th>
<th>Endpoint</th>
<th>Transfusion Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chau JK et al (2010)</td>
<td>Retrospective</td>
<td>520</td>
<td>Head and Neck CA</td>
<td>Mortality</td>
<td>Negative</td>
</tr>
<tr>
<td>Mann CD et al (2010)</td>
<td>Meta-analysis of 63 and 68 papers</td>
<td>24,609 and 63,654</td>
<td>Hepatic or pancreatic resection for malignancy</td>
<td>Mortality</td>
<td>Negative</td>
</tr>
<tr>
<td>Long TR et al (2010)</td>
<td>Retrospective</td>
<td>600</td>
<td>AAA repair</td>
<td>Mortality</td>
<td>No significant difference observed in groups</td>
</tr>
<tr>
<td>Surgenor SD et al (2009)</td>
<td>Retrospective</td>
<td>9079</td>
<td>CABG, valve or combined procedures</td>
<td>Mortality; 16% higher long-term mortality risk</td>
<td>Negative; 16% higher long-term mortality risk</td>
</tr>
<tr>
<td>O’ Keeffe SD et al (2010)</td>
<td>Retrospective</td>
<td>8799</td>
<td>Vascular</td>
<td>Mortality; return to OR</td>
<td>Negative</td>
</tr>
<tr>
<td>D’ Ayala M et al (2010)</td>
<td>Retrospective</td>
<td>300</td>
<td>Major Amputation</td>
<td>Prolonged ICU &amp; Hospital Stay</td>
<td>Negative*</td>
</tr>
<tr>
<td>Cywinski JB et al (2009)</td>
<td>Observation</td>
<td>2,068</td>
<td>Lung Surgery</td>
<td>Increased Risk of Intubation</td>
<td>Negative*</td>
</tr>
</tbody>
</table>
N = 2016 patients enrolled [ n = 1007 liberal transfusion vs. n = 1009 restrictive transfusion]

Follow-up was 3.1 years (IQR 2.4-4.1 years)

841 (42%) patients died

Long-term mortality did not differ significantly between the liberal (432 deaths) and restrictive transfusion strategies (409 deaths)

— HR 1.09 [95% CI 0.95-1.25]; p=0.21)

Liberal blood transfusion did not affect mortality in high-risk elderly patients with underlying cardiovascular disease or risk factors

The underlying causes of death did not differ between the trial groups
Activity Based Cost of Transfusion from a Provider’s Perspective

Liberal or Restrictive Transfusion after Cardiac Surgery

Gavin J. Murphy, F.R.C.S., Katie Pike, M.Sc., Chris A. Rogers, Ph.D., Sarah Wordsworth, Ph.D., Elizabeth A. Stokes, M.Sc., Gianni D. Angelini, F.R.C.S., and Barnaby C. Reeves, D.Phil., for the TITRe2 Investigators*

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Restrictive Transfusion Threshold (N = 1000)</th>
<th>Liberal Transfusion Threshold (N = 1003)</th>
<th>Estimated Treatment Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Odds Ratio or Hazard Ratio (95% CI)</td>
</tr>
<tr>
<td>Secondary outcomes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of hours in ICU or high-dependency unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>49.5</td>
<td>45.9</td>
<td>0.97 (0.89–1.06)§</td>
</tr>
<tr>
<td>Interquartile range</td>
<td>21.9–99.7</td>
<td>20.1–94.8</td>
<td></td>
</tr>
<tr>
<td>No. of days in hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>7.0</td>
<td>7.0</td>
<td>1.00 (0.92–1.10)§</td>
</tr>
<tr>
<td>Interquartile range</td>
<td>5.0–10.0</td>
<td>5.0–10.0</td>
<td></td>
</tr>
<tr>
<td>All-cause mortality at 90 days</td>
<td>42/1000 (4.2)</td>
<td>26/1000 (2.6)</td>
<td>1.64 (1.00–2.67)§</td>
</tr>
<tr>
<td>Clinically significant pulmonary complications</td>
<td>127/979 (13.0)</td>
<td>116/982 (11.8)</td>
<td>1.11 (0.85–1.45)*</td>
</tr>
<tr>
<td>All-cause mortality at 30 days</td>
<td>26/1000 (2.6)</td>
<td>19/1003 (1.9)</td>
<td></td>
</tr>
</tbody>
</table>
• What has changed?
• Are we living what we preach?
• Where is it going?
A great start for addressing the disease and not just the product
N = 2662 pts (387 pre-PBM & 2275 post-PBM)

RBC transfusion rate decreased from 39.3% to 20.8% (p < 0.001)

Hospital mortality and CVA remained unchanged

Reduced postop kidney injury (p = 0.039), LOHS & total adjusted direct costs (p < 0.001)
Perioperative Blood Transfusion and Blood Conservation in Cardiac Surgery: The Society of Thoracic Surgeons and The Society of Cardiovascular Anesthesiologists Clinical Practice Guideline*

The Society of Thoracic Surgeons Blood Conservation Guideline Task Force: Victor A. Ferraris, MD, PhD (Chair), Suellen P. Ferraris, PhD, Sibu P. Saha, MD, Everest A. Howard II, MD, Carriere, K. Henry, MD, MS, B. David Raff, MD

Summary. Routine use of a cell-saving device, and implementation of appropriate transfusion indications. An important intervention is application of a multimodality blood conservation program that is institution based, accepted by all care providers, and that involves well thought out transfusion algorithms to guide transfusion decisions.

Conclusions. Based on available evidence, institution-specific protocols should screen for high-risk patients, as conservation interventions are likely to be most effective for this high-risk subset. Available evidence-based blood conservation techniques include (1) drugs to decrease preoperative blood volume (e.g., erythropoietin) or decrease postoperative bleeding (e.g., antifibrinolytics), (2) devices that conserve blood (e.g., intraoperative blood salvage and blood sparing interventions), (3) interventions that protect the patient's own blood from stress of operation (e.g., autologous predonation and normovolemic hemodilution), (4) consensus, institution-specific blood transfusion algorithms supplemented with point-of-care testing, and most importantly, (5) a multimodality approach to blood conservation combining elements of the above.

Patient-Centered Blood Management

Benjamin Hohmuth, MD, MPH1*, Sherri Ozawa, RN2, Maria Ashton, MS, RPh, MBA3, Richard L. Melseth4

1Department of Hospital Medicine, Geisinger Medical Center, Danville, Pennsylvania; 2The Institute for Patient Blood Management and Bloodless Medicine and Surgery, Englewood Hospital and Medical Center, Englewood, New Jersey; 3Ashton Medica, Mason, Ohio; 4Society for the Advancement of Blood Management Inc., Englewood, New Jersey.

BACKGROUND: Transfusions are common in hospitalized patients but carry significant risk, with associated morbidity and mortality that increases with each unit of blood received. Clinical trials consistently support a conservative over a liberal approach to transfusion. Yet there remains wide variation in practice, and more than half of red cell transfusions may be inappropriate. Adopting a more comprehensive approach to the bleeding, coagulopathic, or anemic patient has the potential to improve patient care.

METHODS: We present a patient-centered blood management (PBM) paradigm. The 4 guiding principles of effective PBM that we present include anemia management, coagulation optimization, blood conservation, and patient-centered decision making.

RESULTS: PBM has the potential to decrease transfusion rates, decrease practice variation, and improve patient outcomes.

CONCLUSION: PBM’s value proposition is highly aligned with that of hospital medicine. Hospitalists’ dual role as front-line care providers and quality improvement leaders make them the ideal candidates to develop, implement, and practice PBM.
Blood product conservation is associated with improved outcomes and reduced costs after cardiac surgery

Damien J. LaPar, MD, MSc, a Ivan K. Crosby, MD, a Gorav Ailawadi, MD, a Niv Ad, MD, b Elmer Choi, MD, b Bruce D. Spiess, MD, c Jeffery B. Rich, MD, d Vigneshwar Kasirajan, MD, c Edwin Fonner, Jr, DrPH, c Irving L. Kron, MD, a and Alan M. Speir, MD, b Investigators for the Virginia Cardiac Surgery Quality Initiative

• N = 14,259 patients - nonemergency, primary, isolated CABG operations [2 Groups - pre-guideline (n = 7059) vs. post-guideline (n = 7200,)]

• Overall intraop (24% vs 18%) and postop (39% vs 33%) (P < .001) blood product transfusion were significantly reduced in the post-guideline era

• Post-guideline era - reduced morbidity with decreased pneumonia, prolonged ventilation, renal failure, new-onset hemodialysis and major complications

• Operative mortality (P < .001) and postop ventilation time (P < .001) were reduced in the post-guideline era

• Post-guideline era were associated with a 47% reduction in the odds of death

• Intra & post-op transfusions - associated with increased costs ($4408 and $10,479, respectively)

J Thorac Cardiovasc Surg. 2013
DHHS Selected Recommendation on PBM

• Support demonstration projects on PBM
• PBM programs at some hospitals, have demonstrated a significant reduction in blood use without an increase in patient harm
• Identify mechanisms to obtain data on PBM, utilization of transfusion and clinical outcomes
• Support development and promulgation of national standards recognizing the value of patient blood management
• Promote education of medical students and practitioners on optimizing PBM
Western Australia
Patient Blood Management Project
Improving Patient Outcomes While Reducing Costs

Steering Committee:
Dr Simon Towler
Dr Audrey Koay
Mr Shannon Farmer
Mr Axel Hofmann
Prof Michael Leahy
Dr Roger Browning
Dr Joanna Dewar
Mr Michael Wren
Dr Jennifer Bruce
Prof Jeff Hamdorff
Patient Blood Management Guidelines
The National Blood Authority (NBA) is funding and managing the development of the following six modules as part of a comprehensive, evidence-based, Patient Blood Management (PBM) Guidelines.
A provincial program of blood conservation: The Ontario Transfusion Coordinators (ONTraC)


St. Michael’s Hospital and The University of Toronto, 30 Bond Street, Toronto, Ont., Canada M5B 1W8

Received 28 July 2005; accepted 30 July 2005
URGES Member States:
... to establish or strengthen systems for the safe and rational use of blood products and to provide training for all staff involved in clinical transfusion, to implement potential solutions in order to minimize transfusion errors and promote patient safety, to promote the availability of transfusion alternatives including, where appropriate, autologous transfusion and patient blood management; ...

REQUESTS the Director-General:
... to provide guidance, training and support to Member States on safe and rational use of blood products to support the introduction of transfusion alternatives including, where appropriate, autologous transfusion, safe transfusion practices and patient blood management; ...

*The Washington Times Dec 1, 2013*

- U.S. Dept of Health/Human Services reporting decline in demand and supply
- Blood banks laying off staff, reducing size, holding fewer blood drives
- Reasons for fewer transfusions:
  - Modern surgical techniques e.g., keyhole incisions
  - Patients reuse of their own blood
  - Cost-saving patient blood management strategies
SEPTEMBER 2013 VOL. 15 NO. 9
INSIDE THIS ISSUE
• Facilities Implement Patient Blood Management Practices
• Early-Career Physicians Learn Ways to Minimize the Need for Transfusions
PBM Impact
EMMC Experience 2006-2012

60% reduction in transfused products
67% reduction in transfusion reactions
Spine Surgery – 3% Tx rate!

Adjusted for CMI, age and gender

IOL, 2013-2014
Outcomes in CABG: PBM vs. “Standard Care”
EHMC Experience

• Bloodless, n = 294 & control, n = 1157
• Mortality lower in the bloodless group (0.7%) vs. control group (2.7%; \( p = 0.046 \))
• After risk adjustment, bloodless care was not an independent predictor of the composite adverse outcome
• Total and direct hospital costs were 12% (\( p = 0.02 \)) and 18% (\( p = 0.02 \)) less, respectively, in the bloodless patients
• Blood conservation measures results in similar or better outcomes and is associated with equivalent or lower costs
Outcomes

Frank SM et al. Transfusion. 2014

Bloodless

Transfused

- Inhospital death
- LOS (days)
- Infection
- Thrombotic
- Renal
- Respiratory
- Myocardial infarction
- Any morbid outcome
- Any morbid outcome or death

166
178
• 221,498 laboratory tests were performed, averaging 115 tests per patient

• Phlebotomy volume differed between ICU and hospital floors

• Cumulative median volume for the entire hospital stay was 454 mL

• More complex procedures associated with higher overall phlebotomy volume than isolated procedures
Evidence-based medicine: Save blood, save lives

Transfusions are one of the most overused treatments in modern medicine, at a cost of billions of dollars. Researchers are working out how to cut back.

Emily Anthes

31 March 2015
5. Patient Blood Management

In 2011, a new section on patient blood management (PBM) was added to the National Blood Collection and Utilization Survey (NBCUS) questionnaire. PBM is an evidence-based, multidisciplinary approach to optimizing the care of patients who might need a blood transfusion. It encompasses all aspects of patient evaluation and clinical management surrounding the transfusion decision-making process, including the application of appropriate indications, the minimization of blood loss, and the optimization of patient red cell mass. The questions, designed by a team of experts in the field of PBM, were intended to assess the degree to which this evidence-based, patient-oriented initiative has gained traction in United States (US) hospitals and blood centers.

Of the facilities that responded to the PBM section entry question, 30% responded that they have a PBM program. Of these, 98% were hospitals. Of all respondents, 31% of hospitals and 11% of responding blood centers reported providing some elements of a PBM program. These programs were coordinated by many different combinations of medical professionals. Fifty-one percent of hospital PBM programs were coordinated by a combination of medical and other staff, while 34% were coordinated by a medical director only.

Other hospital staff who were reported to coordinate or share coordination of PBM programs included nurses, blood bank staff, anesthesiologists, cardiologists, hematologists/oncologists, risk management staff, healthcare improvement staff, transfusion committee, and patient safety officers.

There were 201 hospitals (15%) that reported having Transfusion Safety Officers (TSOs). Of the hospitals reporting established programs for patients who refuse blood, 19% had a TSO. Of the hospitals reporting that they did not have such a program, 10% reported having a TSO. 25% reported having part-time TSOs, and 61% reported full-time TSOs. In the hospitals having a TSO, 81% of the TSOs were hospital employees, and 14% were blood center employees. Approximately 43% of the blood center employees were reported to be full-time, and 80% of the hospital employees were full-time.

Forty-one percent of hospitals participated in performance benchmarking programs relating to transfusion medicine. Sixty-four percent of facilities (80/1250) provide formal transfusion training to their staff. Hospitals were most likely to provide formal transfusion training to nurses (94.6%; Table 5-1). While hospitals did not report whether they have residents on staff, only approximately one in four facilities offer formal transfusion training to pathology residents (24%), to hematology/
PBM and NBCUS 2011

- In 2011, a new section on PBM was added to NBCUS questionnaire
- Of the facilities - 30% responded that they have a PBM program
- 51% vs. 34% of hospital PBM programs coordinated by a combination of medical and other staff vs. medical director respectively
- 201 hospitals (15%) reported having Transfusion Safety Officers (TSOs)
- 41% hospitals relating to transfusion medicine
- 64% of facilities provide formal transfusion training to their staff
PBM and NBCUS 2011

- 92% reported the use of transfusion guidelines
- Established program to treat patients who refuse transfusion:
  - 57% (2011) vs. 15% (2008)
- Evaluation of pre and post operative anemia for high blood loss elective procedures:
  - 35.2% of all hospitals vs. 54.0% of hospitals reporting PBM programs
## Formal Provider Training

<table>
<thead>
<tr>
<th></th>
<th>Transfusion Training (%)</th>
<th>PBM Training in Facilities with PBM Programs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians and mid-level providers new to medical staff</td>
<td>23.6</td>
<td>57.5</td>
</tr>
<tr>
<td>Nurses</td>
<td>94.6</td>
<td>73.0</td>
</tr>
<tr>
<td>Internal Medicine Residents</td>
<td>18.0</td>
<td>35.6</td>
</tr>
<tr>
<td>Family Practice Residents</td>
<td>15.1</td>
<td>25.8</td>
</tr>
<tr>
<td>Surgical Residents</td>
<td>16.5</td>
<td>30.3</td>
</tr>
<tr>
<td>Anesthesia Residents</td>
<td>17.4</td>
<td>28.8</td>
</tr>
<tr>
<td>Ob-Gyn Residents</td>
<td>12.7</td>
<td>27.1</td>
</tr>
<tr>
<td>Pediatrics Residents</td>
<td>13.6</td>
<td>14.7</td>
</tr>
<tr>
<td>Hematology/Oncology Residents</td>
<td>22.3</td>
<td>32.2</td>
</tr>
<tr>
<td>Pathology Residents</td>
<td>24.0</td>
<td>34.5</td>
</tr>
<tr>
<td>Other</td>
<td>13.7</td>
<td>18.3</td>
</tr>
</tbody>
</table>
Use of national transfusion guidelines

- AABB: 50.0%
- College of American Pathologists: 25.3%
- Other: 14.8%
- American Red Cross: 8.6%
- American Society of Anesthesiologists: 1.3%
Pre-operative PBM interventions implemented

- Clinical Assessment for Anemia: 578 Yes, 457 No
- Clinical Assessment for Bleeding Risk: 575 Yes, 421 No
- Laboratory Assessment for Enteral Iron Supplementation: 572 Yes, 509 No
- Enteral Iron Supplementation: 586 Yes, 146 No
- Parenteral Iron Supplementation: 585 Yes, 163 No
- Erythropoietin: 586 Yes, 331 No
- Pre-op Autologous Donation: 563 Yes, 331 No
Intra-operative PBM interventions implemented

*Numbers of hospitals reporting Yes or No listed within each bar; totals will differ due to "don't know" and "not applicable" options.
Post-operative PBM interventions implemented

THE 2011 NATIONAL BLOOD COLLECTION AND UTILIZATION SURVEY REPORT
PBMP Standards

Quality Guide to the SABM Standards

Standard #44 – REVIEW AND EVALUATION OF THE PATIENT BLOOD MANAGEMENT PROGRAM

There is a process for evaluating the effectiveness of the patient blood management program that is integrated into appropriate quality review activities within each institution. The information is used to improve assessment, minimize blood loss, and improve transfusion practice. This evaluation is based on metrics defined by the hospital.

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>EVIDENCE OF COMPLIANCE/ELEMENTS OF PERFORMANCE</th>
<th>POTENTIAL ASSESSMENT QUESTIONS</th>
<th>COMPLIANCE</th>
</tr>
</thead>
<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>Document in committee meetings that the patient blood management program is evaluated on a regular basis.</td>
<td>Does the committee have representatives from all relevant departments and levels?</td>
<td>YES</td>
</tr>
<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.</td>
<td>Is there evidence of meeting with community representatives?</td>
<td>YES</td>
</tr>
<tr>
<td>4.3 Blood use is monitored by clinical service, case type, or procedure as notified in hospital-wide. The data are analyzed to identify potential areas for improvement due to over- or under-utilization.</td>
<td>Report showing blood utilization review process and clarity of monitoring clinical service, case type, or procedure.</td>
<td>Are there defined processes for analyzing blood use or under-utilization?</td>
<td>YES</td>
</tr>
</tbody>
</table>

Administrative and Clinical Standards for Patient Blood Management Programs

2nd EDITION

standard 1 Leadership and Program Structure

There is an effective organization-wide patient-centered patient blood management program. The program has a physician medical director to provide clinical leadership and oversight and a program manager to provide operational leadership. The program has a defined scope of service, mission, vision and values, policies and procedures, clinical protocols, educational programs for health care providers, and review of patient outcomes.

Guidelines

This standard defines the program. The Patient Blood Management Program is supported by a defined management structure. The program is appropriately positioned within the organizational structure to reflect strong administrative support for the program.

Clinical leadership includes a physician who has knowledge and experience in the use of blood components and other treatments that can be used to manage hemostatic, infectious disease, and disorders of the hematopoietic system. The physician provides leadership in establishing clinical protocols for blood management. In addition, the physician medical director consults with, assist, educates, and stimulates leadership by hospital physicians. The program manager may be someone with training as a nurse, pharmacist, medical technologist, or individuals with prior knowledge and experience in transfusion medicine and blood management. The program manager should be able to navigate the healthcare system, fundraise in clinical operations, and provide guidance and education to staff as needed. This person should have a working knowledge of the indications and contraindications of blood and blood component use and other treatment modalities. The program manager should have a defined position and role, and responsibilities, together with a comprehensive understanding of the program and who is responsible for quality review and oversight of the program. The program has adequate staffing and resources provided by the medical director and program coordinators.

Policies and procedures describe the structure of the program and demonstrate commitment to the program by senior administrative leadership. Clinical protocols provide tools for the healthcare team to assist in caring for patients. An educational program, designed to provide knowledge of the program, is necessary to ensure that staff members understand their individual roles, where to obtain support as necessary, and how to use the tools provided. In addition, provide education on the risks and benefits of physician management of blood.
Electronic Patient Blood Management Performance Measures - Call for Public Comment

March 19, 2015

Background:
From 2007 to 2010, The Joint Commission developed a set of Blood Management Performance Measures. In 2014, funded by an unrestricted educational grant from the Masimo Corporation, work began on a set of Patient Blood Management performance measures that build on and update the previous measure set and are derived exclusively from electronic health records (ePBM).

Current Activity:
The work of this project is being done under the guidance of a Technical Advisory Panel (TAP). A set of 6 draft candidate performance measures was identified, which includes:
PBM - SUMMARY

- **Transfusion**: reduction by 10 - 95%
- **Mortality**: reduction up to 68%
- **Average LOS**: reduction by 16-33%
- **Reoperation**: reduction up to 43%
- **Readmissions**: reduction up to 43%
- **Complications**: reduction of composite morbidity up to 41%, and infection rate up to 80%
- **Costs**: reduction by 10-24%

We are asking: Was the transfusion appropriate?
The correct question is:
Was it avoidable?
With PBM it is!
www.SABM.org

Thank you!