



3RD EDITION

SABM EXECUTIVE GUIDE

FOR PATIENT BLOOD MANAGEMENT PROGRAMS

Aligning Patient Blood Management with
Hospital Quality, Safety and Operational Performance



THIRD EDITION

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PROGRAMS

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Executive Overview

Patient Blood Management (PBM): A Strategic Imperative for Healthcare Leadership

Patient Blood Management (PBM) is a high-value, system-wide strategy that strengthens both clinical and financial performance. PBM improves patient outcomes and operational reliability while enabling the development of evidence-based, revenue-generating clinical services (e.g., preoperative anemia services, inpatient consultation services, IV iron therapy) alongside meaningful reductions in transfusion-related costs and complications.

Across diverse health systems, PBM programs consistently achieve:

- **20–40% reductions in transfusion use**
- **Shorter hospital length of stay**
- **Lower rates of major complications and infections**
- **Improved surgical readiness and recovery**
- **Returns on investment reported up to 7:1**

Unlike many healthcare initiatives, PBM improves **quality, financial performance, and operational reliability simultaneously** without new beds or major capital investment.

The Strategic Foundation of PBM

PBM is supported by three reinforcing drivers that align clinical practice with modern health system priorities.

Evidence

Reduced complications, infections, and transfusion-related harm **leads to** improvements in survival, recovery, and patient quality of life.

Economics

Waste reduction, cost optimization, and sustainable value creation **leads to** predictable savings and revenue growth with measurable ROI across the full patient episode.

Ethics

Prioritizing patient blood health **leads to** safe, appropriate care and patient autonomy.



Adapted from: Hofmann A. et al. (2022) (4)

The World Health Organization recognizes PBM as a global standard for improving the safety, quality, and sustainability of healthcare systems.

PBM is not only clinically effective, it is economically responsible and ethically essential.

PBM Strengthens the Entire Healthcare Ecosystem

Patients

PBM focuses on improving patients' blood health by treating anemia and avoiding unnecessary blood loss. This results in fewer complications, shorter hospital stays, reduced infection rates, fewer readmissions, and avoidance of life-threatening transfusion-related risks such as transfusion-related acute lung injury (TRALI), transfusion-associated circulatory overload (TACO), and hemolytic reactions.

Hospitals & Clinicians

PBM enhances quality while reducing avoidable costs and performance variability. It improves surgical readiness, decreases unwarranted variation in transfusion practice, shortens length of stay, and strengthens operational reliability. **By reducing complications and stabilizing care delivery, PBM protects margin, frees clinical capacity, and enables hospitals to sustain high-quality care using existing infrastructure in an increasingly constrained reimbursement environment.**

Community & Trust

PBM reinforces community trust by demonstrating that patient blood health is proactively managed as a core component of high-quality, evidence-based care. By emphasizing prevention, optimization, and safety, PBM signals a modern approach to medicine that prioritizes patient well-being and responsible clinical decision-making every day, not only during times of scarcity.

This Executive Guide provides the complete blueprint for building and sustaining a high-performing PBM program including governance, metrics, pathways, standards, and practical tools aligned with the strategic pillars that drive healthcare system success.

Executive Guide Sponsor

This project was made possible through the generous support of Johnson & Johnson MedTech.

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PBM BENEFITS ENTIRE HEALTH SYSTEM



PBM GLOBAL DEFINITION

Patient Blood Management is a patient-centered, systematic, evidence-based approach to improve patient outcomes by managing and preserving a patient's own blood, while promoting patient safety and empowerment.



1.0

PBM Value Proposition

1.1 PBM Alignment with Competitive Strategy

PBM strengthens the core performance domains of health-system performance. Rather than functioning as a siloed clinical initiative, PBM improves quality, financial performance, operational reliability, workforce alignment, and data-driven decision-making across the organization.

For executive leadership, PBM becomes a system-level performance strategy that aligns directly with the strategic pillars that drive healthcare organization success.

Each pillar below reflects a distinct dimension of system impact supported by contemporary evidence and real-world experience.

1. Quality & Patient Safety

PBM consistently improves patient outcomes by reducing preventable harm and supporting standardized, evidence-based decision-making. Through proactive anemia management, reduction of iatrogenic anemia, and optimized control of surgical bleeding, PBM helps organizations deliver more consistent and predictable care.

These improvements directly support accreditation readiness, reduce unwarranted clinical variability, and enhance the reliability of care across all service lines.



2. Financial Performance

PBM reduces avoidable costs by reducing complication-driven resource utilization, and improving consistency in the cost of care. Organizations see substantial savings through:

- Fewer resource-intensive complications
- Lower blood component usage
- Reduced case-cost variability
- Improved margin stability across DRGs
- New revenue opportunities

PBM is one of the few strategies that strengthens both quality and financial sustainability.

3. Operational Excellence

PBM improves patient throughput and surgical readiness, reduces OR delays, hospital readmissions and strengthens system reliability.

- Surgical cases experience fewer delays or cancellations
- Postoperative recoveries are smoother and more predictable
- ICU and inpatient capacity is used more efficiently
- Variation in transfusion practice minimized
- OR resilience is enhanced during blood shortages, remaining open and avoiding schedule disruptions caused by supply constraints

These gains free up operational capacity without requiring new beds.



4. Workforce & Culture

PBM provides clinical teams with clear, evidence-based pathways that reduce cognitive burden and decrease the frequency of crisis-driven decisions. PBM helps:

- Align teams around consistent thresholds
- Reduce clinician disagreement and moral distress
- Strengthen interdepartmental coordination
- Promote a culture of safety and evidence-driven care

By reducing cognitive burden and moral distress through reliable, evidence-based processes, PBM supports clinician well-being and stronger team performance.



5. Digital & Data-Driven Care

PBM leverages existing digital and data infrastructure and promotes more consistent, evidence-based use of clinical data across the system. Key elements include:

- EMR-integrated transfusion alerts and clinical decision support
- Dashboards that support review of utilization, variation, and outcomes
- Standardized data definitions and audit processes
- Improved visibility into anemia management and preoperative readiness

This pillar supports alignment with the organization's broader digital and analytics strategy by encouraging consistent data use, transparency, and informed clinical oversight.





6. Reputation, Trust & Patient Experience - Stronger trust. Stronger community.

PBM improves patient readiness for surgery, reduces delays, supports more pervasive anemia detection and treatment, and enhances the overall care experience. Systems that adopt PBM benefit from:

- Improved patient experience driven by safer, more predictable care
- More reliable scheduling and reduced delays, improving throughput
- Greater adoption of anemia screening and treatment, reducing gaps across populations and service lines
- Enhanced reputation among patients, communities, and referring providers
- Stronger trust through transparent, evidence-based practices and consistent outcomes

PBM becomes both a community-strengthening strategy and a competitive differentiator, supporting patient loyalty, provider confidence, and long-term system reputation.

Measuring Strategic Performance

For executive leaders, the value of PBM must be measurable. Each strategic pillar is supported by operational, clinical, and financial metrics that allow organizations to monitor progress, identify variation, and demonstrate enterprise impact. These metrics provide transparency to clinical teams and leadership while ensuring accountability for performance improvement.



RELATED METRICS

- | | | | | | |
|--|--|---|---|---|--|
| <ul style="list-style-type: none"> • Complications • Mortality • Transfusion Appropriateness • ICU utilization • Hospital-Acquired Anemia | <ul style="list-style-type: none"> • Savings • Cost avoidance • Cost per episode • ROI • Revenue generation | <ul style="list-style-type: none"> • LOS • OR delays and continuity • Patient throughput | <ul style="list-style-type: none"> • Variation reduction • Compliance • Adherence to clinical guidelines | <ul style="list-style-type: none"> • Dashboards • Decision-support alerts | <ul style="list-style-type: none"> • Anemia care consistency • Surgical readiness • Patient experience • Community trust |
|--|--|---|---|---|--|

More detailed information is presented in [2.2 Data, Metrics & Analytics](#).

1.2 The Financial Imperative: Quantifying the ROI

Financial sustainability requires strategies that reliably reduce avoidable cost while improving quality and operational performance. PBM meets this need by optimizing patients' blood health before major procedures and during all aspects of care delivery, reducing clinical variation, and minimizing high-acuity complications that drive excess cost. The financial gains arise from a set of reinforcing mechanisms across the care continuum.

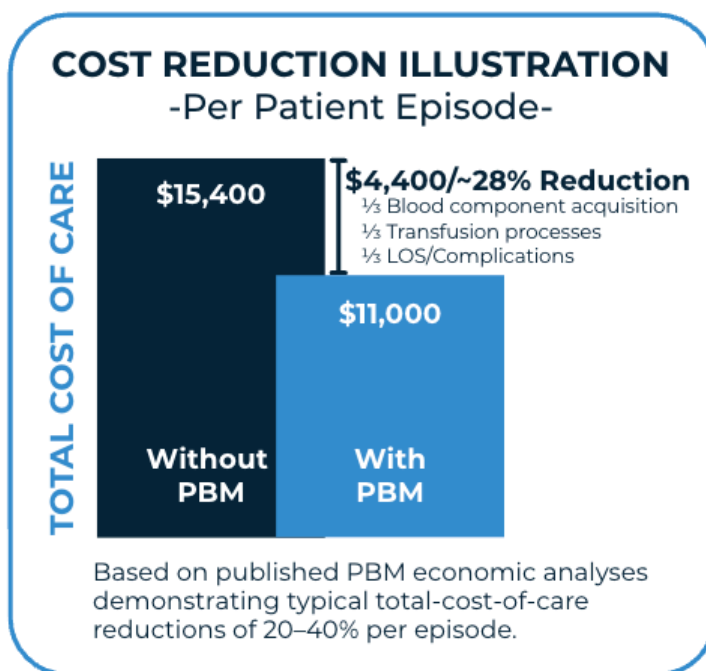
PBM's financial impact is driven by multiple reinforcing mechanisms:

1. Reduced Blood Component Usage

PBM reduces **high-cost resource use** by decreasing reliance on blood components. For example, activity-based platelet transfusion costs can average USD \$1,360 per unit.

Additionally, PBM programs consistently demonstrate **22–39% reductions in red blood cell (RBC) utilization**. This reduction is financially meaningful. The true total cost of a single RBC unit far exceeds the acquisition cost and can reach more than USD \$1,200 when accounting for acquisition, processing, crossmatching, storage, transport, administration, and monitoring.

These costs accumulate rapidly in high-volume service lines such as cardiac surgery, orthopedics, and oncology. Even modest reductions in transfusion volume translate into significant, recurring savings.



2. Lower Total Cost of Care

By reducing complications and stabilizing recoveries, PBM decreases downstream resource utilization:

- Fewer high-acuity complications
- Reduced ICU admissions and shorter ICU stays
- Less postoperative instability and fewer rescue events
- More successful recovery trajectories
- Reimbursement gains from shifting anemia treatment to outpatient settings rather than inpatient care

These improvements reduce total episode costs and limit the number of outlier cases that disproportionately affect margins.

3. Improved Operational Efficiency and Capacity

PBM improves flow and reliability across perioperative and inpatient care:

- Fewer delays and cancellations due to untreated anemia
- Shorter overall length of stay
- Reduced postoperative rescue interventions
- More predictable surgical and procedural readiness

These gains create usable capacity without increasing beds, supporting access and revenue growth.

4. Downstream Cost Avoidance from Preventing Harm

Transfusion-related complications carry substantial financial impact. Even a small reduction in unnecessary transfusions yields meaningful cost avoidance by reducing:

- Infection-related costs
- Acute Kidney Injury (AKI)-related expenditures
- Extended ICU resource use
- Readmissions
- Organ dysfunction and associated costs

Reductions in avoidable harm is a major contributor to PBM's overall financial performance.

5. High Return on Investment

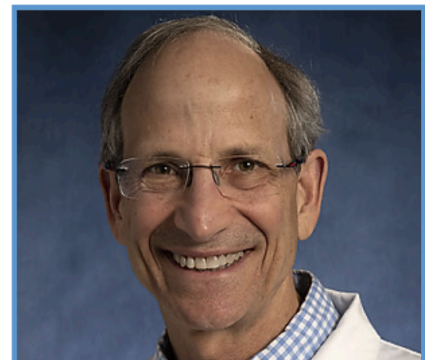
PBM not only reduces cost, it generates new revenue and improves the reliability of clinical and operational processes.

Published PBM programs report:

- **ROI ranging from 120% to over 560%** across diverse patient populations
- **ROI exceeding 700%** in mature, comprehensive programs
- **Up to a 7:1 return on investment** when downstream cost avoidance is included
- **Revenue generation** from the creation of new clinical services lines and evidence-based treatment delivery

These results reflect a combination of reduced transfusion, lower complication burden, improved case-cost predictability, fewer outliers, and increased operational capacity. Revenue generation comes from the creation of new clinical service lines (preoperative anemia clinics, inpatient consultation services) and evidence-based treatment delivery (e.g., IV iron therapy for anemia).

Most health systems report **annual savings of USD \$2M–\$10M**, depending on patient volume and program maturity.



Real Cost Savings

“With proper preop anemia management, cell salvage, tranexamic acid, normothermia, controlled hypotension, and smaller phlebotomy tubes, that's where we saw we could just reduce transfusions to zero on most of those cases.”

Steve Frank, MD
Johns Hopkins
Medical Institutions

6. Financial Reliability and Predictability

PBM stabilizes performance across service lines by supporting:

- More consistent case costs across DRGs
- Reduction in high-cost outlier events
- Better alignment with value-based care models
- Improved stewardship during periods of blood-supply volatility
- Lower variability in perioperative and inpatient spend

PBM becomes a stabilizing force for both service-line and enterprise-level financial performance.

Executive Guide Takeaway

PBM is a margin-positive, quality-positive strategy.

By improving patient readiness and recovery, lowering the cost of avoidable complications, and reducing unnecessary transfusions, PBM strengthens financial performance while simultaneously improving patient outcomes and operational reliability.

Few health system initiatives offer this combination of proven clinical benefit, strong economic return, and low implementation barrier.

1.3 PBM Clinical Care Bundle: How PBM Works in Practice

Patient Blood Management translates evidence into practice across four core scientific domains that span the entire patient journey. These domains work together to improve patient resilience and reduce preventable blood loss.

MANAGING ANEMIA

Early detection and treatment of anemia improves patient resilience across the care continuum.

OPTIMIZING COAGULATION

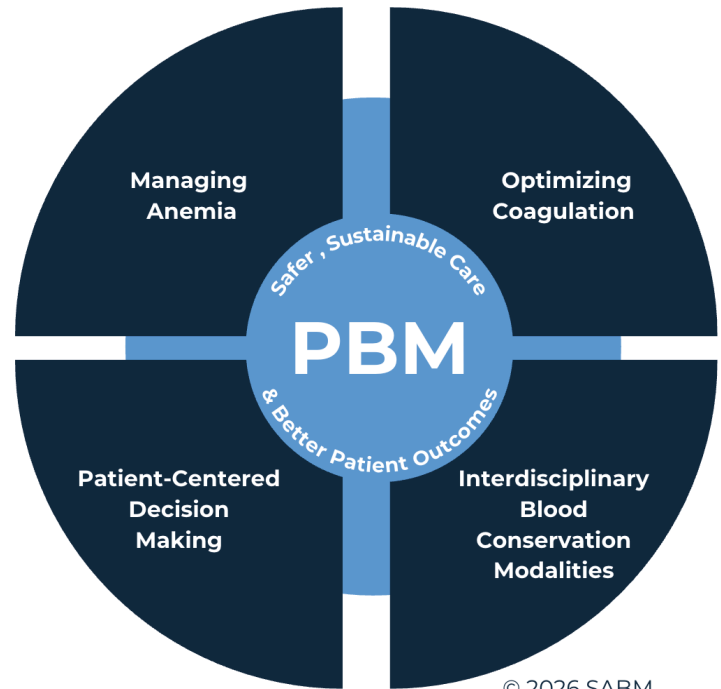
Targeted evaluation and management of bleeding and clotting abnormalities improves surgical safety and reduces unnecessary blood component use.

INTERDISCIPLINARY BLOOD CONSERVATION MODALITIES

Surgical and diagnostic practices minimize avoidable blood loss through meticulous technique, antifibrinolytics, and conservation technologies.

PATIENT-CENTERED DECISION MAKING

PBM emphasizes education and shared decision-making so patients understand their blood health, treatment options, and the steps they can take to support recovery.



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1.4 Proven Outcomes and Case Studies

PBM's effectiveness is demonstrated not only through peer-reviewed literature but through real-world implementation across health systems of various size, geography, and complexity.

"Patient Blood Management is a true team sport. When clinicians understand that PBM improves both outcomes and resource utilization, it fundamentally reshapes how care is delivered."

Matt Warner, MD
Mayo Clinic



"PBM is a win-win-win: saving blood, saving money, and improving outcomes at the same time."

Steven Frank, MD
Johns Hopkins Medical Institutions



To watch the full interviews, scan the QR codes or go to sabm.org/exec-corner.

Case Study: Keck Medical Center of USC

At Keck Medical Center of USC, Patient Blood Management evolved from an early, purpose-built initiative into a defining institutional capability. Originally launched as a transfusion-free services program to meet the needs of patients for whom blood was not an option, the program helped establish the center as a national pioneer in complex, bloodless care.

More than two decades later, Keck Medical Center is recognized as an academic leader in **delivering tertiary and quaternary surgical care without routine blood component support**, most notably in hepatobiliary, pancreatic, cardiac, and urology surgery and in liver transplantation and resection. This work has been validated through numerous peer-reviewed publications and has influenced practice well beyond the institution.

In recent years, under the leadership of CMO Stephanie Hall, MD, PBM has been further integrated into clinical decision-making across the organization. These efforts have supported lower transfusion thresholds, more consistent evidence-based practice, and meaningful reductions in blood utilization and associated costs, demonstrating how **PBM can deliver both academic distinction and measurable operational value in a teaching hospital setting.**



2.0

Implementation Playbook

2.1 Governance & Leadership Structure

Sustainable PBM programs require clear governance, clinical authority, and C-Suite accountability.

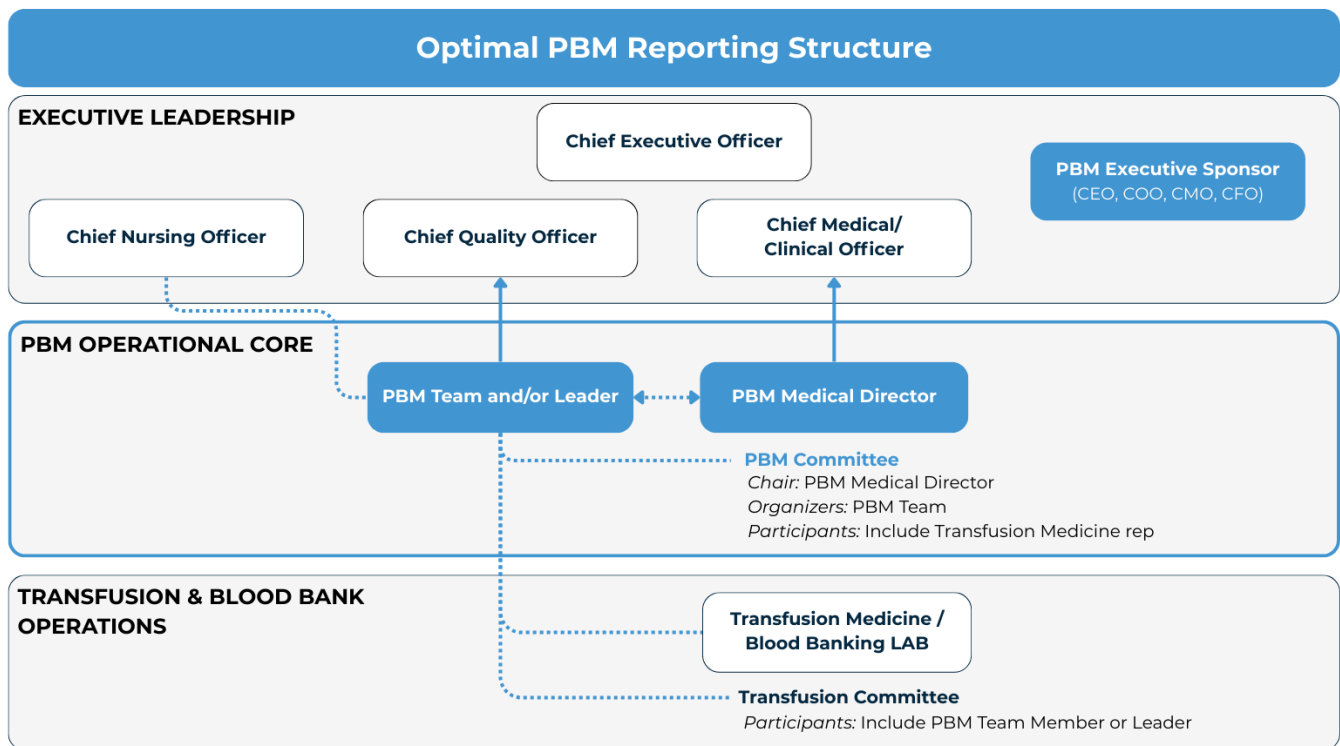
PBM is a hospital-wide clinical strategy focused on quality and patient safety, not a blood bank function. Hospitals that embed PBM within clinical practice and align it closely with Quality and executive leadership consistently demonstrate improved outcomes, reduced length of stay, optimized resource utilization, and lower total cost of care.

This section outlines:

1. The Optimal PBM Reporting Structure (Best Practice)
2. A Minimal Viable Implementation (MVI) model for hospitals initiating PBM
3. A pragmatic migration pathway from MVI to Best Practice

1. Optimal PBM Reporting Structure

(Best Practice)



PBM TEAM

The PBM program may be led by a single designated PBM Leader or supported by a multidisciplinary team, depending on organizational size, scope, and maturity. Roles commonly represented within a PBM program include:

**Administrative Leadership | Advanced Practice Provider(s) | Anemia Management Coordinator | Patient Navigator/Coordinator
Data & Analytics Support | Admin Support | Clinical or Scientific Expertise**

Strategic Intent

The optimal PBM reporting structure positions PBM as a **hospital-wide clinical practice and quality program**, fully distinct from blood bank operations, while remaining aligned with medical, nursing, and executive leadership.

Core Design Principles

- PBM is **about the blood in the patient**, not the blood in the refrigerator.
- PBM must be **embedded in clinical practice** and **aligned with Quality**, rather than owned by the laboratory.
- PBM must have **clinical authority without operational dependency** on blood bank operations.
- Governance must ensure **bidirectional transparency** and shared accountability, not command-and-control oversight.

Structural elements (Executive View)

1. **Dedicated PBM Team / Leader**

- PBM Program Leader (physician, non-physician or APP acceptable)
- Possible team members (scaled by size):
 - PBM Administrator / Program Manager
 - Advanced Practice Provider(s) (APP)
 - Anemia Management Coordinator
 - Patient Navigator / Care Coordinator
 - Data / Quality Analyst (part-time is sufficient in most cases)

2. **Direct Reporting**

- PBM Team/Leader reports directly to the Chief Quality Officer (CQO)

3. **Medical Leadership (Dotted-Line Authority Model)**

- Assigned PBM Medical Director
- PBM Medical Director reports to the CMO / CCO
- PBM Team/Leader has a dotted line to the CMO via the PBM Medical Director

4. **Nursing Alignment**

- PBM Team/Leader maintains a dotted-line relationship with the CNO

5. **PBM Committee**

- Organized and operationally supported by the PBM Team
- Chaired by the PBM Medical Director

- Multidisciplinary (surgery, anesthesia, medicine, nursing, pharmacy, quality, finance)

6. **Clear Separation of Committees**

- PBM Committee ≠ Transfusion Committee
- PBM Committee → Patient blood health, outcomes, pathways
- Transfusion Committee → Blood product safety, compliance, utilization oversight

7. **Cross-Committee Representation (Non-Hierarchical)**

- PBM Leader or designee sits on the Transfusion Committee
- TM/BB/Lab representative sits on the PBM Committee
- No cross-leadership to preserve independence

8. **Relationship with Transfusion Medicine / Blood Bank**

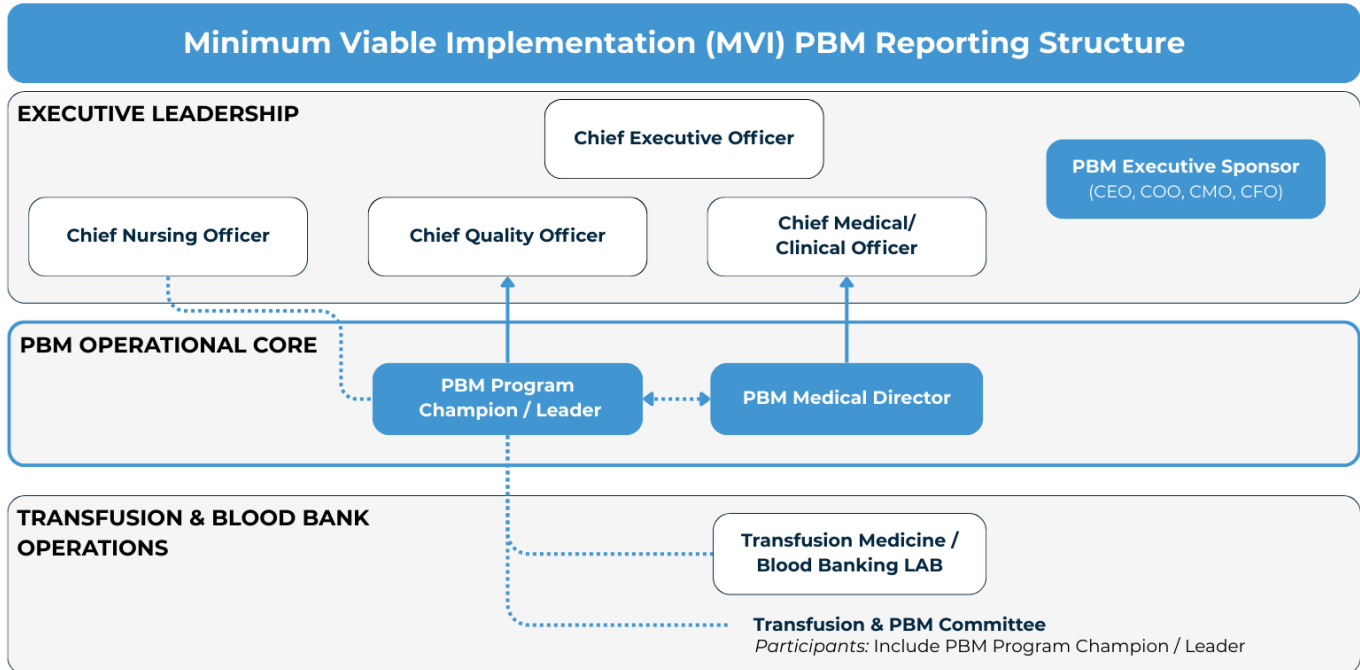
- Dotted-line relationship only
- PBM monitors transfusion practice as an outcome metric, not as an operational owner

9. **Executive Sponsor**

- Senior executive (CEO, COO, CMO, or CFO depending on culture)
- Not in the reporting chain
- Protects:
 - Funding
 - Strategic priority
 - Program continuity across leadership change

2. Minimal Viable Implementation (MVI)

(Mid-Size U.S. Private Hospital – Realistic Starting Point)



PBM CHAMPION / LEADER (0.2-0.4 FTE)

Often: Quality Leader | APP with Perioperative Focus | Nurse Leader with QI background

Administrative home: Quality Department

COMMITTEE MODEL

Existing Transfusion Committee: Formally expanded | Renamed (e.g., "Transfusion & PBM Committee") temporarily

Explicit charter language must: Separate PBM clinical pathway work from blood bank operations | State intent to evolve into two committees

Strategic Intent

The MVI structure enables hospitals to **start PBM without new FTEs**, using existing governance while avoiding the most common structural failure: burying PBM inside the blood bank.

Key assumptions

- 200–400 bed hospital
- Active Transfusion Committee already exists
- Limited ability to hire dedicated PBM staff
- Strong interest in quality, LOS, and cost optimization

MVI Structural Components

1. PBM Program Champion / Leader (0.2–0.4 FTE)

- Often:
 - Quality leader
 - APP with perioperative focus
 - Nurse leader with QI background
- Administrative home: Quality Department

2. Reporting

- PBM Leader reports to CQO (or VP Quality)

3. Medical Director

- One engaged physician (anesthesia, surgery, hematology)
- Often already involved in transfusion oversight
- Reports to the CMO
- Serves as PBM Medical Director in addition to other duties

4. Committee Model (Transitional Reality)

Existing Transfusion Committee is:

- Formally expanded
- Renamed (e.g., “Transfusion & PBM Committee”) *temporarily*
- Explicit charter language must:
 - Separate PBM clinical pathway work from blood bank operations
 - State intent to evolve into two committees

5. Nursing & Operations

Informal or dotted alignment with:

- Perioperative nursing leadership
- Preoperative clinics
- Case management

6. Executive Sponsor

- Identified early (often COO or CMO)
- Visible endorsement even before financial ROI is realized

3. Migration Path: From MVI → Optimal

Think of this as **PBM Maturity Levels**, not a reorganization bomb.

Phase 1 – Activation (0–6 months)

- Name PBM Leader and Medical Director
- Anchor PBM with clinical practice or Quality, with explicit executive sponsorship
- Define PBM charter and metrics
- Launch anemia pathway or surgical pilot
- Use existing Transfusion Committee with PBM agenda items

Phase 2 – Differentiation (6–18 months)

- Separate PBM agenda from transfusion safety agenda
- Add:
 - Anemia coordinator (often nursing)
 - Data support (part-time)
- Establish formal PBM Committee
- Create bidirectional committee representation

Phase 3 – Optimization (18–36 months)

- Fully independent PBM Committee
- Dedicated PBM FTE(s)
- Formal dotted-line governance to CMO and CNO
- Stable executive sponsorship and budget
- PBM embedded across:
 - Pre-operative clinics
 - Service line dashboards
 - Value-based care strategies

Executive Guide Takeaway

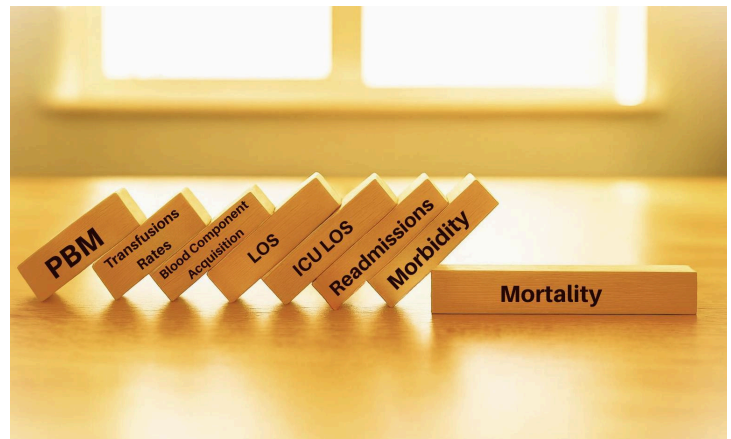
PBM succeeds when it is embedded in clinical practice, governed through Quality, and protected like a strategic asset.

The optimal structure is the destination, but the MVI is the on-ramp. Hospitals that define the path early reach maturity faster, with less resistance and greater clinical impact.

2.2 Data, Metrics & Analytics

Reliable, transparent data is the foundation of a high-performing Patient Blood Management (PBM) program.

PBM succeeds when organizations measure what matters, minimize unwarranted variation, and use data to drive clinical practice, operational reliability, and executive decision-making. This section outlines the PBM measurement framework, core metrics, data infrastructure, governance model, and reporting processes that support consistent, sustainable PBM implementation across the enterprise.



1. Why Measurement Matters

PBM is inherently multidisciplinary, touches multiple service lines, and relies on coordinated decision-making. Data allows leaders to:

- Identify variation in transfusion practice
- Track patient outcomes and safety signals
- Demonstrate financial impact and ROI
- Support clinician feedback, education, and accountability
- Align practice with evidence-based guidelines
- Report progress to leadership, boards, and external stakeholders

A PBM program achieves reliability when its measurement strategy is standardized, transparent, and tied to accountability.

2. PBM Measurement Framework

To create consistency and reduce redundancy, PBM metrics should be organized into five domains that reflect how PBM influences clinical, operational, and financial performance across the system:

Domain 1 — Appropriate Utilization (Corollary Domain)

Appropriate transfusion utilization is not a primary PBM intervention, but a downstream indicator of effective PBM implementation. Improvements in transfusion thresholds, single-unit compliance, and guideline adherence reflect the cumulative impact of upstream PBM strategies.

Domain 2 — Anemia Optimization & Perioperative Readiness

Preoperative screening and treatment, hospital-acquired anemia, antifibrinolytic use, cell salvage, anemia-related delays

Domain 3 — Clinical Outcomes

Complications, mortality, infection, AKI, stroke/MI, LOS, readmissions, ICU days

Domain 4 — Operational Efficiency & Reliability

OR delays/cancellations, blood availability, bed utilization, autologous donation waste, throughput indicators

Domain 5 — Financial Stewardship

Cost per episode of care, cost avoidance from fewer complications, cost savings from reduced transfusion, ROI

3. Core Metrics

The following metrics provide a standardized framework for measuring PBM performance and monitoring key indicators across clinical, operational, and financial domains.

A. Transfusion Utilization Metrics (Baseline Indicator)

- RBC utilization rate (per 100 patient encounters or per DRG)
- Plasma and platelet utilization
- Single-unit transfusion compliance
- Transfusion threshold adherence
- Percentage of transfusions occurring without evidence-based indication

B. Anemia & Perioperative Optimization Metrics

- Preoperative anemia prevalence
- Percentage of anemic patients appropriately screened and treated
- Use of antifibrinolytics and associated transfusion rates
- Use of blood recovery devices and associated transfusion rates
- Surgical case delays or cancellations related to untreated anemia

C. Clinical Outcomes

- Major complications (infection, AKI, stroke, MI)
- Mortality (overall and risk-adjusted where possible)
- ICU LOS and ventilator days
- Readmission rates (7-day and 30-day)

D. Operational Performance

- Unnecessary preoperative autologous blood donation and associated operational waste
- Hospital LOS
- OR cancellations and delays
- Blood component availability and shortages
- Bed utilization and throughput indicators

E. Financial Impact

- Direct cost savings from reduced transfusions
- Cost avoidance from reduced complications
- Total cost of care per episode
- ROI of PBM interventions
- Revenue generation due to new clinical services



Executive Buy-In Through Data

“Once we shared clear data on resource utilization and clinical outcomes, while also emphasizing the alignment between PBM principles and our institutional values to put the needs of the patient first, the support from the C-suite became enduring.”

Matt Warner, MD
Mayo Clinic

4. Data Infrastructure Requirements

A sustainable PBM program needs reliable data streams from:

- Electronic Health Records (EHR)
- Laboratory information systems (LIS)
- Specific population-based quality sources (e.g., STS, NSQIP)
- Transfusion services databases
- Finance & cost-accounting systems
- Quality and safety reporting systems

Automated dashboards and self-service analytics reduce manual burden and ensure consistent, timely reporting.

Recommended tools:

- EMR-embedded patient blood management and transfusion-related decision support
- Strategic clinical alerts (e.g., hemoglobin thresholds)
- PBM dashboards in existing health record/reporting systems
- Monthly or quarterly audit and feedback cycles

5. Data Governance & Accountability

PBM metrics must be governed through standardized, accountable processes to ensure reliability, transparency, and comparability across the system.

- Define ownership of each metric (data analyst, lab, quality, perioperative leadership)
- Standardize definitions (e.g., “inappropriate transfusion,” “complication,” “LOS”)
- Establish reporting cadence (monthly → operational; quarterly → executive; annually → board)
- Review variation at both the system and provider level
- Tie findings to education, process improvement, and policy refinement
- Publish PBM outcomes internally and externally to support transparency, trust, and system-wide accountability

A mature governance model converts PBM data into actionable intelligence and organizational accountability.

6. Metric Maturity Pathway

Organizations implement PBM measurement in stages. A maturity pathway clarifies what to measure first, then how to build toward advanced analytics.

Stage 1 - Foundational Metrics

PBM METRIC	RATIONALE
Blood components transfused by service line	Identifies high-volume clinical areas and prioritizes PBM focus (medical and surgical).
Blood components transfused by DRG/procedure	Surfaces top DRGs/procedures driving transfusion use and establishes baseline variation.
Transfusion rates by provider (by DRG/procedure)	Reveals individual practice variation and informs targeted education and guideline reinforcement.
Total blood product use per 1,000 inpatient days or per adjusted discharge	Measures system-level utilization trends and evaluates impact of transfusion guidelines over time.
Elective and outpatient surgery patients with Hgb <13, and associated units transfused + LOS	Establishes prevalence of preoperative anemia and quantifies its impact on transfusion needs and length of stay.

Stage 2 - Intermediate Metrics

PBM METRIC	PRIMARY RATIONALE	PILLARS IMPACTED*	SABM STANDARD
LOS & Mortality (transfused vs non-transfused; CMI adjusted)	Determine impact of transfusion and PBM on outcomes	QPS, OE, FP, DDC	4, 6, 11
Pre-op anemia screening ≥21 days before elective surgery	Assess readiness pathway for anemia optimization	QPS, OE, FP, REPX	4, 6
Multiple unit transfusion rates (non-hemorrhaging)	Evaluate appropriate anemia management	QPS, OE, FP, DDC	4, 5
Complications & LOS (transfused vs non-transfused risk adjusted)	Identify whether complications are reduced by PBM	QPS, OE, FP, REPX, DDC	4, 6, 11
30-day readmissions (transfused vs non-transfused)	Assess PBM effect on downstream complications	QPS, FP, OE, REPX	4, 6, 11
Pre-op anemia treatment ≥21 days before surgery	Determine effectiveness of anemia-correction pathway	QPS, OE, FP, REPX	4, 6
% with Hgb <13 on day of procedure	Gauge adequacy of pre-op optimization	QPS, OE, REPX	4, 5, 6
ED patients transfused and discharged home	Identify opportunity for iron therapy instead of RBCs	QPS, FP, OE, DDC	4, 6
Inpatient anemia protocol metrics (iron studies OR IV iron)	Evaluate use and impact of anemia protocol	QPS, OE, FP, DDC	11

***Legend:** QPS = Quality & Patient Safety; FP = Financial Performance; OE = Operational Excellence; WC = Workforce & Culture; DDC = Digital & Data-Driven Care; REPX = Reputation, Equity & Patient Experience

Stage 3 - Advanced Metrics

PBM METRIC	PRIMARY RATIONALE	PILLARS IMPACTED*	SABM STANDARD
Use of cell-recovery technology + transfusion rates	Measure effectiveness of blood-sparing strategies	QPS, OE, FP, WC	4, 7
Use of anti-fibrinolytics (THA/TKA/CVT)	Evaluate impact of coagulation optimization	QPS, OE, FP, WC	9
Trauma/OB with discharge Hgb >8-10 g/dL	Identify over-transfusion and guideline adherence in hemorrhage settings	QPS, OE, FP	5
Daily standing lab orders in non-ICU patients	Measure iatrogenic blood loss and overtesting	QPS, OE, FP, DDC	4, 8
Use of waste-reinfusion device	Evaluate strategy to reduce iatrogenic anemia	QPS, OE, FP, WC	4, 8
Anti-fibrinolytic use in trauma patients ≤3 hrs	Assess adherence to trauma best practices	QPS, OE, WC	9
Warfarin reversal metrics (PCC, FFP, Vitamin K)	Evaluate compliance with reversal protocols	QPS, OE, FP, DDC, WC	4, 5
% compliance with hospital-established viscoelastic testing in cardiac surgery	Evaluate impact of diagnostic testing on transfusion reduction	QPS, OE, FP, DDC, WC	9

***Legend:** QPS = Quality & Patient Safety; FP = Financial Performance; OE = Operational Excellence; WC = Workforce & Culture; DDC = Digital & Data-Driven Care; REPX = Reputation, Equity & Patient Experience

8. Key Performance Indicators (KPI) for PBM

For organizations that use KPI, here are two examples.

KPI EXAMPLE 1

1	Title	Single Unit Transfusion Rate (SUT)
2	Description (PBM Metric)	Measure the total number/percentage of single-unit RBC transfusion orders in non-hemorrhaging patients, compared with double-unit orders.
3	Rationale	Evaluates appropriate anemia management
4	Classification	Patient Safety; Resource Utilization
5	Target	Single Unit Transfusion RBC transfusion rate >80%.
6	Calculation	Total number of RBC ordered as SUT/total number transfusions ordered vs. total number of RBC ordered at 2 units/total number RBC units ordered.
7	Data Source	EMR/CPOE
8	Data Collection (Frequency)	Monthly
9	Reporting Method and Frequency	Quarterly reporting to stakeholders; PBM/Transfusion Committee review

KPI EXAMPLE 2

1	Title	Pre-operative Anemia Evaluation
2	Description (PBM Metric)	Percentage of elective surgical patients (anticipated blood loss >1 unit) screened ≥ 21 days before surgery.
3	Rationale	Measures effectiveness of preoperative anemia management pathways and readiness optimization.
4	Classification	Effective Care; Patient Safety
5	Target	>90% of patients who qualify by elective procedure are evaluated for pre-operative anemia.
6	Calculation	<i>Numerator:</i> Number of elective surgical patients with anticipated blood loss >500 mL or 10% blood volume who received anemia evaluation ≥ 21 days prior to surgery <i>Denominator:</i> Total number of elective surgical patients with anticipated blood loss >500 mL
7	Data Source	EMR/Lab data.
8	Data Collection (Frequency)	Monthly
9	Reporting Method and Frequency	Quarterly reporting; PBM/Transfusion Committee review.

9. Future Goals: PBM Metrics, SABM Standards and Quality

This section highlights advanced outcome metrics for mature PBM programs.

Patient Blood Management Program			Quality	
SABM STD	PBM Metric	Rationale	Improve Operational Process	Improve Clinical Process
4,6	Compare rate of Hgb. increase/rise and dosage in patients treated with oral iron vs. IV Iron vs. ESA vs. ESA/Iron therapy in specific DRG/procedure	Evaluate outpatient anemia protocol	X	X
4,6	Compare number# of patients with anemia optimization/correction vs. anemia (Hgb. <12) non-optimized/non-corrected and compare with LOS and complications (CVA, DIC, DVT, MI, PE, Sepsis) by DRG/procedure and discharge Hgb.	Evaluate impact of pre-operative anemia management on LOS, complications, infections	X	X

Executive Guide Takeaway

PBM thrives on transparent, standardized measurement that drives consistent practice, reduces variation, and demonstrates value.

A mature PBM program uses data to reinforce evidence-based practice, identify improvement opportunities, and demonstrate meaningful operational and financial value ensuring PBM becomes a scalable, enterprise-wide performance engine.

2.3 Frequently Asked Questions

PBM Fundamentals

What is Patient Blood Management (PBM) in executive terms?

PBM is a **system-wide performance strategy** that strengthens the strategic pillars of a modern health system: quality, safety, finance, operations, workforce alignment, and data governance. It optimizes anemia management, minimizes blood loss, and improves transfusion decision-making to deliver safer, more efficient, and more sustainable care.

Is PBM only about reducing transfusions?

No. Transfusion reduction is a result of good PBM, not the goal. PBM focuses on diagnosing and treating anemia, minimizing blood loss, and using evidence-based practices to prevent and address abnormalities in blood health. When practice is optimized, transfusion rates fall naturally while outcomes improve.

How is PBM different from traditional blood conservation?

Blood conservation focuses on reducing transfusion volume. PBM is broader: a holistic, patient-centered model with strong clinical and operational benefits, designed to improve recovery, reduce complications, and enhance system reliability.

Strategic & Financial Impact

What measurable ROI can hospitals expect from PBM?

Most programs see improvements within the first quarter. PBM reduces LOS, complications, ICU days, and readmissions delivering rapid, recurring financial gains and ROI that can reach 7:1 in comprehensive implementations.

Does PBM require significant upfront investment?

No. PBM typically leverages existing workflows, diagnostics, and protocols. Any resource requirements are modest and often offset quickly by reductions in unnecessary transfusions, complications, and LOS.

Can PBM improve throughput and bed availability?

Yes. By shortening LOS and reducing postoperative complications, PBM frees capacity and improves system throughput, supporting access, revenue, and patient flow without additional beds.

How long does it take to see impact?

Many hospitals see measurable improvements in LOS, transfusion rates, and cost per case **in the first 90 days**, with substantial financial and operational gains emerging in year one.

Quality & Safety Outcomes

Which clinical outcomes improve the most with PBM?

Evidence shows consistent reductions in infection, acute kidney injury, cardiac events, stroke, ICU utilization, and mortality. Patients experience faster recovery and fewer complications.

Does PBM increase risk for patients with anemia or complex conditions?

No. PBM reduces risk by identifying and treating anemia earlier, optimizing patients pre-procedure, and using evidence-based transfusion thresholds proven effective even in high-risk patients.

Is PBM supported across multiple medical specialties?

Yes. PBM is validated across cardiac surgery, orthopedics, obstetrics, trauma, oncology, internal medicine, critical care, emergency medicine, and more. It is a cross-disciplinary framework.

Metrics & Data Requirements

What core metrics should we track?

Executives typically focus on five high-impact metrics:

1. Blood component utilization rate
2. Risk-adjusted LOS (transfused vs. non-transfused)
3. Major complication rate (AKI, infection, MI, PE, sepsis)
4. Preoperative anemia screen-and-treat rate
5. PBM cost savings / ROI estimate

A fuller list including anemia metrics, operational outcomes is provided in Section 2.2 Data, Metrics & Analytics.

Where does the data come from?

Most data are already available in your EHR, laboratory information system, billing systems, and existing quality dashboards. PBM primarily requires **better use**, not new sources.

Do we need new analytics tools?

Not necessarily. Most hospitals begin with existing infrastructure. Some later adopt enhanced dashboards or EMR-embedded decision support as PBM matures.

How do we benchmark PBM performance?

Hospitals benchmark against:

- Internal pre-implementation baselines
- SABM PBM Standards
- Published literature and guideline metrics
- System-level performance across sites (for multi-hospital systems)

Implementation & Operational Questions

Who should lead the PBM initiative?

Successful programs are typically led by a **clinical leader** (e.g., surgery, anesthesia, critical care) and an **operational leader** (e.g., quality, patient safety). C-Suite sponsorship is essential.

Do we need a dedicated PBM leader?

A leader dramatically increases consistency and outcomes. The role is easily supported once early financial and quality gains are demonstrated.

Which departments must be involved?

PBM is inherently multidisciplinary, involving: Surgery, anesthesia, nursing, internal medicine, hematology, emergency medicine, laboratory services, pharmacy, quality, IT, and finance.

How can small or resource-constrained hospitals start PBM?

Begin with the highest-value fundamentals:

- Screening for anemia
- Treating iron deficiency
- Using restrictive transfusion thresholds
- Reducing iatrogenic blood loss

These require minimal cost and generate fast improvements.

How do we address physician variation?

PBM reduces variation through standardized thresholds, order sets, dashboards, audit/feedback, and leadership modeling. Data transparency fosters alignment across clinicians and services.

Clinical Practice & Guidelines

What guidelines support PBM?

PBM is supported by international guidelines, national transfusion recommendations, professional societies, and the World Health Organization (WHO), which endorses PBM as standard of care.

How do PBM transfusion thresholds differ from traditional practice?

PBM promotes **restrictive, evidence-based thresholds** tailored to patient physiology, not provider habit or laboratory values in isolation. Evidence shows these thresholds are safe and often superior to liberal transfusion practices.

Is PBM compatible with Enhanced Recovery After Surgery (ERAS™) programs?

Yes. Anemia management is a critical component of ERAS that has been marginalized due to implementation challenges. However, PBM complements ERAS by improving preoperative readiness, reducing complications, and accelerating recovery.

Blood Supply, Safety, and Risk Management

How does PBM help during blood shortages?

PBM reduces unnecessary transfusions. Hospitals with PBM programs experience significantly greater resilience during shortages.

Are transfusions still risky?

Transfusions today are safer than ever, but not risk-free. They are associated with infection, organ dysfunction, longer LOS, and higher mortality. PBM minimizes avoidable exposure.

Can PBM improve crisis preparedness?

Yes. PBM lowers overall blood demand, helping hospitals maintain safe operations during pandemics, disasters, or supply disruptions.

Technology & Tools

Do we need new technology to implement PBM?

No. Most organizations begin with existing EHR functions, lab tools, and workflows. Optional enhancements, like EMR alerts or AI-driven anemia detection, can be added later.

Can PBM integrate with our existing EHR?

Yes. PBM pathways integrate fully into order sets, transfusion alerts, preoperative workflows, anemia modules, and dashboards in Epic, Cerner, Meditech, and other major systems.

Education & Culture Change

How do we engage clinicians who are skeptical?

Use transparent data, peer leadership, evidence summaries, and clear protocols. Clinicians respond best when they see improved outcomes, not pressure to change behavior.

What training is available?

SABM provides CME sessions during its Annual Meeting and workshops. Hospitals often supplement with targeted internal training.

How do we build a culture that supports PBM?

Leadership alignment, consistent policies, regular data review, and patient-centered messaging drive cultural adoption. Culture follows consistency.

Global Standards & Accreditation

Is PBM part of accreditation frameworks?

PBM aligns with major quality and safety standards and is increasingly referenced during surveys and audits. PBM certification is also available through the Joint Commission.

What do international PBM standards require?

They emphasize restrictive thresholds, anemia management, blood loss prevention, data tracking, and multidisciplinary governance.

Patient & Public Communication

How do we explain PBM to patients?

“PBM optimizes your blood health to support safer, faster recovery.” Clear, simple language builds trust.

Does PBM improve patient experience?

Yes. Patients benefit from fewer complications, shorter stays, better recovery, and more personalized care. Many hospitals report improved satisfaction scores.

How do we manage patients who request or decline transfusions?

PBM supports shared decision-making with evidence-based information and alternatives. It helps clinicians responsibly navigate both preferences and clinical needs. For many hospitals, PBM programs bring growth in patient referrals, particularly in those seeking alternatives to transfusion-based care.

Sustainability & Expansion

How do we sustain PBM gains?

Consistent data review, regular feedback, leadership commitment, and annual program evaluation ensure long-term reliability.

What does PBM maturity look like over time?

- Year 1: Foundational practices
- Years 2–3: Integrated pathways & dashboards
- Years 4–5: Enterprise-wide standardization & advanced optimization

Can PBM extend beyond inpatient care?

Yes. PBM principles strengthen outpatient anemia clinics, oncology pathways, obstetrics, trauma, and chronic disease management.

Organizational Fit

Does PBM work in small or rural hospitals?

Yes. PBM is scalable. Smaller systems often achieve rapid adoption due to simpler structures.

How do we adapt PBM for large, multi-hospital systems?

Use unified governance, shared protocols, standardized metrics, and centralized training with local champions.

What if we already have elements of PBM? How do we know what's missing?

Conduct a PBM readiness assessment. PBM weaves existing best practices into a cohesive, measurable, system-wide strategy.

2.4 Core Elements to Implementation

These core elements work together as an integrated cycle to build momentum, reduce variation, and ensure sustainable performance improvement.



2.5 SABM PBM Standards

SABM Standards is a multi-page PDF that provides guiding principles that help administrators and physicians make evidence-based decisions regarding blood health optimization. Importantly, these standards ensure that patients remain at the center of decision-making.

SABM Standards:

- Close the time gap between guidelines and practice
- Are broad and patient-centered
- Provide a roadmap for the creation of infrastructure to bring evidence-based medicine to the bedside
- Establish operational markers to full implementation of PBM

Download at sabm.org.



3.0

Partner & Learn

3.1 Exec Corner Video Series

SABM's PBM experts provide short executive commentaries that offer practical insights from real-world PBM implementation. These videos complement the Guide by highlighting strategic lessons, common challenges, and leadership considerations from institutions that have successfully adopted PBM.

Go to: sabm.org/exec-corner.

3.2 SABM Annual Meeting (CME)

The SABM Annual Meeting provides hands-on learning, evidence updates, and networking with PBM leaders around the world.

Go to: sabm.org/annual-meeting.

3.3 Expert Panel

Our Expert Panel brings together leaders who have shaped Patient Blood Management programs across diverse health systems. These clinicians, administrators, and advisors contributed directly to the development of the Exec Guide and Exec Corner, offering the real-world experience, evidence expertise, and strategic insight that inform every section of this resource.



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National Director of Operations and Delivery, Patient Blood Management, hcl, USA; Research Fellow, University of Western Australia



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3.4 References

Reference	Executive Relevance
<p>1. Frank SM, et al. (2024). Greater than sevenfold return on investment for a comprehensive patient blood management program with equivalent or improved outcomes. <i>Anesthesia & Analgesia</i>.</p>	<p>Demonstrates a greater than sevenfold return on investment from comprehensive PBM implementation, driven by reduced transfusions, fewer complications, and improved operational efficiency establishing PBM as a margin-positive enterprise strategy rather than a cost-containment initiative.</p>
<p>2. Warner MA, Ferreira R, Raphael J, Shore-Lesserson L, Grant MC, Hill SS, et al. (2024). Return on investment of preoperative anemia management programs in cardiac surgery: an advisory from the Society of Cardiovascular Anesthesiologists Clinical Practice Improvement Committee with endorsement by the Society for the Advancement of Patient Blood Management. <i>Anesthesia & Analgesia</i>.</p>	<p>Provides the clearest peer-reviewed evidence that PBM can generate direct clinical revenue through anemia evaluation and treatment while also delivering cost savings and margin expansion, even under conservative reimbursement assumptions.</p>
<p>3. Warner MA, et al. (2021). Implementation of a comprehensive patient blood management program for hospitalized patients at a large United States medical center. <i>Mayo Clinic Proceedings</i>, 96, 2980–2990.</p>	<p>Shows that system-wide PBM implementation at a large and well-respected U.S. institution resulted in sustained reductions in transfusion, complications, and length of stay, validating PBM at scale in real-world operations.</p>
<p>4. Bolliger D, et al. (2025). Outcomes, cost-effectiveness, and ethics in patient blood management. <i>Current Opinion in Anaesthesiology</i>, 38(2), 151–156.</p>	<p>A concise, contemporary synthesis linking PBM's clinical outcomes, economic value, and ethical foundations. Well suited for executive-level orientation.</p>
<p>5. Hofmann A, et al. (2022). Patient Blood Management: Improving Outcomes for Millions While Saving Billions. What Is Holding It Up? <i>Anesthesia & Analgesia</i>, 135, 511–523.</p>	<p>High-level synthesis explaining why PBM can save millions per hospital and billions at scale. Details barriers to adoption and system-level opportunities.</p>
<p>6. Hofmann A, et al. (2021). Making patient blood management the new norm(al) as experienced by implementors in diverse countries. <i>BMC Health Services Research</i>, 21, 634.</p>	<p>Demonstrates that PBM delivers consistent clinical and economic benefits across diverse healthcare systems, confirming its adaptability from low-resource to high-resource settings.</p>
<p>7. Meybohm P, et al. (2020). Health economics of Patient Blood Management: a cost-effectiveness analysis. <i>Vox Sanguinis</i>.</p>	<p>Provides rigorous economic modeling demonstrating PBM's consistent cost-effectiveness across multiple clinical pathways and implementation scenarios.</p>
<p>8. Franchini M, et al. (2019). Patient blood management: a revolutionary approach to transfusion medicine. <i>Blood Transfusion</i>.</p>	<p>A clear, accessible overview framing PBM as a paradigm shift from product-centered transfusion practice to patient-centered blood management.</p>
<p>9. Roets M, et al. (2025). The cost of downstream adverse outcomes associated with allogeneic transfusion. <i>Healthcare (Basel)</i>.</p>	<p>Quantifies the substantial downstream costs of transfusion-related complications (infection, AKI, ICU days, organ dysfunction), reinforcing the financial rationale for PBM beyond blood component acquisition alone.</p>

<p>10. Wu DW, et al. (2024). Impact of PBM on RBC utilization: seven-year retrospective study. <i>Life</i>, 14(2), 232.</p>	<p>Longitudinal U.S. data showing durable reductions in RBC utilization over seven years, supporting PBM as a sustainable, not transient, performance strategy.</p>
<p>11. Salenger R, et al. (2025). Safety of ultra-permissive anemia within a cardiac surgery PBM program. <i>JTCVS Open</i>, 27, 102–109.</p>	<p>Demonstrates that PBM remains safe and effective even under ultra-restrictive transfusion thresholds in high-risk cardiac surgery populations.</p>
<p>12. World Health Organization (2010). WHA63.12 Resolution on availability, safety, and quality of blood products. World Health Organization (2021). Patient Blood Management Policy Brief: Evidence, Ethics, and Economy.</p>	<p>Establishes PBM as a globally endorsed health system strategy grounding in evidence, ethics, and economic sustainability.</p>
<p>13. Gombotz H, Hofmann A, Nørgaard A, et al. (2017). Supporting PBM in the EU – Practical Implementation Guide for Hospitals. European Commission.</p>	<p>Provides practical, implementation-focused guidance adopted across multiple European health systems, supporting PBM as an operationally executable strategy.</p>
<p>14. Shander A, et al. (2009). Activity-based costs of blood transfusions in surgical patients at four hospitals. <i>Transfusion</i>.</p>	<p>Demonstrates that the true cost of an RBC transfusion is three to five times the acquisition price, providing a conservative and defensible foundation for PBM financial analyses.</p>
<p>15. Shander A & Hofmann A. (2010). The cost of blood: multidisciplinary consensus conference for a standard methodology. <i>Transfusion Medicine Reviews</i>, 24, 232–246.</p>	<p>Establishes standardized methodology showing that plasma and platelets carry equal or greater system costs than RBCs, confirming PBM ROI estimates based on RBCs alone are conservative.</p>
<p>16. Ozawa S, et al. (2025). Blood Health: The Ultimate Aim of Patient Blood Management. <i>Anesthesia & Analgesia</i>, 141(5), 950–955.</p>	<p>Establishes Blood Health as the organizing framework of PBM, positioning patient blood optimization as an enterprise-level performance strategy.</p>



**Advancing Patient Blood Management
as a Strategic Standard of Care**