Getting Operational Leaders on Board to Deliver the Triple Aim

Lauren Anthony, MD
System Medical Director
Allina Health Clinical Laboratories
Learning Objectives

• Recognize the three most important strategies necessary to implement a systemwide blood management program.

• Identify the most important changes required for a successful blood management program.

• Recall how an interactive dashboard can be used to monitor transfusion practice and assess transfusion outcomes and effectiveness.
Poll Question #1

How effective is your organization’s blood conservation program?

1) Not effective
2) Somewhat effective
3) Moderately effective
4) Very effective
5) We don’t have one
6) Unsure or not applicable
Allina Health believes that patients deserve to receive the optimum level of care through the use of a systemwide comprehensive blood conservation program.
Every 3 seconds someone in the U.S. needs blood.

Nearly 17 million blood components are transfused each year in the U.S.

Blood transfusions are the most common hospital procedure.

Approximately 31,000 units of red blood cells are needed every day in the U.S.
Allina Health is dedicated to the prevention and treatment of illness and enhancing the greater health of individuals, families, and communities throughout Minnesota and western Wisconsin.

- 85 clinic sites and ambulatory care centers.
- 5,000 physicians.
- 3.0 million+ clinic visits.
- 12 hospitals.
- 103,000+ inpatient hospital admissions.
- $4B in revenue.
- 31% Twin Cities inpatient market share.
A Case for Policing Blood Usage

Blood transfusions are less effective and substantially more harmful than previously assumed.

Blood transfusions are the most common procedures performed during hospitalizations.

Transfusions are very expensive.

A variety of published studies show that 30-60% of transfusions given in the U.S. are not indicated, not warranted, and not appropriate according to evidence-based transfusion guidance and best practice.
The Need for Blood Conservation at Allina Health

• According to national benchmarks, Allina Health had a transfusion rate that was 25-40% percent above average (depending on diagnosis-related group [DRG] code and patient mix).

• In 2011, senior clinical leaders at Allina Health began discussions on how to reduce the use of blood products across the system.
Results

Reduction in red blood cells—which accounts for 70% of all transfusions—per 1,000 admissions.

41% & $1M+ annual savings

Studies have shown that when adding in costs for lab compatibility tests, blood inventory maintenance, nursing time to administer, and adverse events, the total cost is closer to four times the acquisition cost.
Systemwide Blood Conservation Program Launched

Key strategies targeted at achieving best-in-class:

- Initial **benchmarking** of blood product utilization by an outside consultant.
- An **educational** splash with multiple sessions by national experts.
- Revision of transfusion **guidelines** along with educational videos to support the new guidelines targeted to physicians and nurses.
- Implementation of a new order set with **analytics decision support** at order entry.
- Formation of a system **transfusion council to govern** the work.
1. Initial Benchmarking

Utilization compared to database of 400+ hospitals for each MS-DRG.
(Performed by an external consultant)
Grand Rounds by National Expert:
“Blood Management is Good Medicine.”
Role of Pathologists and Laboratory Professionals
3. Governance
Allina Health Transfusion Care Council

Designated transfusion champions from each of the 12 hospitals in the system:
- Blood-ordering physician.
- Transfusion nurse lead.
- Transfusion pathologist.

Executive sponsor

Allina Health
Quality Council

Allina Health
Transfusion Care
Council

Transfusion Services
- Technical specialist.
- Laboratory medical director.

System pharmacy coordinator
Perfusionist

Service lines, specialty physicians and departments

Other clinical and support services
Blood supplier vendors consultants
IT support

#HASUMMIT17
4. Guidelines Outline Key Process Improvements

Reduce iatrogenic blood loss in special patient groups: implementation requires very minimal physician practice change.

Cardiac surgery: STS standards
- Implemented 22 standards from the STS Blood Conservation Guidelines.

Surgery: salvage shed blood*
- Preserve the patient's own red cell mass.

ICU: Reduce blood loss for lab testing
- Process improvements to reduce iatrogenic blood loss.

Give 1 RBC and reassess
- Eliminate automatic 2-unit RBC transfusions in nonbleeding patients.

7 is the new 8
- Restrictive RBC transfusion threshold AND in-person evaluation of patient's overall condition.

Restrictive transfusion guidelines: high yield but requires major physician practice change.

* Collect blood from surgical sites, concentrate it, wash it, and then reinfuse the blood to the patient.
Practice Change

How to diffuse practice change across a large health system?

- 12 hospitals
- 800 physicians
- 4,000 nurses
- 15 minute video shown across the system
- Mandatory nursing education
5. Implementation of a new order set

1. HCT is <= 21% or HGB is <= 7 g/dl
2. Patient w/coronary artery disease and unstable angina/myocardial infarction cardiogenic shock HCT is <= 24% or HGB <= 8 g/dl
3. Acute blood loss w/ inadequate response to volume resuscitation w/ abnormalities in vital signs
4. Symptomatic anemia: Postural hypotension or tachycardia, if no other therapy is likely to correct anemia
5. Symptomatic anemia: Exertional dyspnea and lightheadedness, if no other therapy is likely to correct anemia
6. Symptomatic anemia: Chronic transfusion regimen for a red cell disorder, if no other therapy is likely to correct anemia
7. Symptomatic anemia: Sepsis: HCT is <30% and SVO2 <70% per IH1 sepsis bundle
8. Other (free text comment)
Analytics Provide Essential Decision Support

Initial benchmarking was useful to show opportunities to improve utilization, however monthly reports did not have enough detail to be useful.

Analytics platform enabled an interactive transfusion dashboard with robust metrics and detail to support ongoing quality improvement using Allina Health’s existing enterprise data warehouse.
Poll Question #2

Does your organization have an analytics platform in place that can provide actionable data to frontline teams to drive improvement efforts?

a) Yes  
b) No  
c) Unsure or not applicable
Dashboard Examples

Blood product utilization metrics
Systemwide - Utilization Trend 2010-2015

Allina Transfusion Dashboard units per admission trend

Blood Supplier data for Allina’s RBC utilization

Red Cell Usage Comparison: 2010-2015

$10 M annual blood center charges in 2010 → now $6 M
Dashboard shows total units saved compared to baseline transfusion rate

<table>
<thead>
<tr>
<th>Location</th>
<th>Baseline: Units Transfused Per 1,000 Encounters</th>
<th>Selected Timeframe: Units Transfused Per 1,000 Encounters</th>
<th>% Saved</th>
<th>Units Saved</th>
<th>Costs Saved (Acquisition Cost)</th>
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</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>493.1</td>
<td>404.8</td>
<td>17.9%</td>
<td>19,949.1</td>
<td>$9 M</td>
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<td></td>
<td>140.1</td>
<td>111.4</td>
<td>20.5%</td>
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<td>298.8</td>
<td>22.4%</td>
<td>58,002.3</td>
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Baseline Period:
May 2010 - Apr 2011

Selected Timeframe:
Minimum Month = Jan 2010
Maximum Month = Dec 2015
Transfusion Monitoring

Tools to monitor appropriateness and identify outliers
Practice Change: Give 1 and Reassess

Published article in *Transfusion*
Practice Change: “7 Is the New 8”

Encounter Measures Trend

- Q-5: RBC Transfusion Threshold: Lowest Encounter Hemoglobin Value
- Q-7: RBC Transfusion Effectiveness: Last Hemoglobin Before Discharge

Month
Next Phase…
Demonstrating Value with Dashboard Analytics
If a stable patient has a Hb between 7-8, is it better to transfuse or not transfuse? (example for patients with same DRG procedure)

<table>
<thead>
<tr>
<th>Transfusions?</th>
<th>Avg LOS</th>
<th>Avg Last Hemoglobin</th>
<th>% with 30 Day Readmission</th>
<th>% with Pneumonia</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>6</td>
<td>8.4</td>
<td>50.0%</td>
<td>0.0%</td>
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<tr>
<td>None</td>
<td>5</td>
<td>7.4</td>
<td>12.5%</td>
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</table>
Preoperative Anemia Management
Demonstrating the Value

Essential for best outcomes in elective surgery.

<table>
<thead>
<tr>
<th>Preop Hb status</th>
<th>Avg LOS</th>
<th>Avg Discharge Hemoglobin</th>
<th>% with 30 Day Readmission</th>
<th>% with Pneumonia</th>
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<tr>
<td>Normal (n=184)</td>
<td>5</td>
<td>12.0</td>
<td>8.8%</td>
<td>0.5%</td>
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<tr>
<td>Anemia (n=95)</td>
<td>5</td>
<td>10.2</td>
<td>15.1%</td>
<td>1.1%</td>
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</table>
Start your program with an educational splash to show why blood management is good medicine.

Senior leadership support is essential for success.

Initial external benchmarking is extremely important to clinically validate whether unnecessary transfusion is occurring and to communicate the opportunity.

Identify and partner with physician and nurse champions—those who already have an interest in blood management and reducing unnecessary transfusions.

The single most effective intervention to reduce unnecessary transfusion is decision support at electronic order entry.
Future Plans

- Implement peer review for transfusion at the system level (instead of individual hospitals).
- Correlate transfusions to outcomes such as LOS, readmissions, SSIs, hospital acquired UTI, or pneumonia, and use the information to validate and/or refine our transfusion guidelines.
- Include transfusion metrics in ongoing physician practice evaluation (OPPE).
Questions & Answers
Write down the key things you’ve learned related to each of the learning objectives after attending this session.
Thank You