Taking AIM: Helping Hospitals Make Every Drop Count

Blood transfusion helps save millions of lives each year and makes many modern medical miracles happen. Transplants, major trauma resuscitation, sickle cell treatments and many cancer therapies can’t happen without an adequate supply of safe blood. While generous blood donors make blood transfusions possible, it is the hospital’s responsibility—with the help of community blood centers—to ensure adequate inventory levels are established and maintained for patient transfusion support. Despite the spectacular improvements in blood safety and availability in the last decade, much more can be done to improve blood utilization and inventory management.

America’s Blood Centers recently released the second module of the Appropriate Inventory Management (AIM) system, which includes the first and only national database of information that will allow blood centers to provide hospitals with individualized laboratory, donor and patient data; as well as local, regional and national data for benchmarking against best practices.

AIM tracks blood utilization and provides patient outcome analyses through vein-to-vein monitoring of the blood products by both the hospital and the blood center. Users see how much of what type of blood product is transfused in a specific patient population and can also analyze the outcomes of those transfusions.

Additional Features. AIM Module I offers automated data on blood product availability, allocated inventory, and wastage, as well as transfusion aggregate data. It identifies how many days’ worth of inventory are available based upon annualized patient transfusion needs, hospital size, clinical services offered, distance from blood provider, storage capacities, and blood product needs for disaster planning.

How it Works. Participating hospitals submit or electronically “push” data from the hospital database to America’s Blood Centers Data Warehouse in a standardized format. The system, which is purely web-based and can be accessed from any computer with a connection to the Internet, uses a central point for analysis, tracking, trending, forecasting, and benchmarking. Hospitals can access their own data through ABC member centers and benchmark themselves against a national database and anonymously against similar organizations.

Reports and Dashboards. AIM provides blood centers and their client hospitals with more than 180 reports and dashboards (see Fig. 1). Users can evaluate the patient population, including the percentage of patients receiving transfusions of nine distinct products. Product efficacy evaluation includes differentiating leukoreduced from non-leukoreduced red blood cell transfusions. Also, AIM provides dosage-specific product differentiation – single cryoprecipitate units from
pooled transfusions as well as single whole blood derived random platelets from pooled platelets versus apheresis platelet transfusions.

AIM reports and dashboards provide:

- Individual and community-wide blood inventory and transfusion data;
- The percentage of patients transfused by diagnosis-related groups, length of stay, transfused product, and product’s days to expiration;
- The percentage of patient transfusions by gender, age, payer mix, ordering physician, and physician subspecialty;
- Patients’ clinical indication for transfusion that is specific to the transfused product group (e.g., hemoglobin levels as an indication for RBC transfusions);
- Benchmarking of transfusion outcomes by patient mortality, length of stay, and patient re-admissions within 30 days of discharge;
- Transfusion reactions, including transfusion-associated infections monitoring; and
- Utilization reports with local, regional, and national benchmarking to reveal evidence-based best practices.

**Improved Patient Outcomes.** Reports and dashboards for each distinct product group allow hospitals to improve patient safety by tracking outcomes and adverse reactions. For example, the system automatically monitors transfusion-associated infections to aid hospitals and blood centers in developing intervention strategies.

**Cost Reductions.** The Module I system is based on hospital inventory management software developed by the English National Health Service Blood and Transplant. In eight years of using an AIM-like benchmarking system, NHSBT experienced a decrease of over 16 percent in the quantity of RBCs distributed, a reduction in wastage of 45 percent, and the distribution of RBCs on average five days fresher than previously. RBC use in the US is 48 per 1,000 population, a number similar to that of the UK in 2000. Today, blood use in England is 40 per 1,000 – a 17 percent reduction, much of which is attributed to the use of the benchmarking system.

A similar reduction in the US could save hospitals nearly $830 million combined annually or $640,000 or more per year for the average large hospital (300+ beds) and, more importantly, save hundreds of thousands of patients needless exposure to blood transfusion.

AIM is offered to hospitals through participating members of America’s Blood Centers, North America’s largest network of non-profit, community-based blood programs.

**References**


4. America’s Blood Centers analysis: 2009 member production of 8,408,838 RBCs, adjusted for loss (5%) and doubled to represent entire US blood supply.


**Cost Savings Estimates and Calculations**

*America’s Blood Centers relied on existing published data to arrive at the savings estimates mentioned in this publication. Applying the realized reductions by the NHSBT of 15 percent reduces the total US transfusions of red blood cells supplied by the members of America’s Blood Centers by 1,085,534 on an annual basis. The work of A Shander et al. estimated the cost of a red blood cell transfusion—from vein-to-vein—to be $761. US hospitals supplied by members of America’s Blood Centers have the potential of collectively saving $826,091,108 (1,085,534 RBCs by $761) by reducing usage an average of 15 percent. The actual usage reduction will depend, among other things, on any previous implementation of a blood management and reduction program by the participating hospital. The savings per hospital was calculated by dividing the total savings in each hospital size category by the number of hospitals in that category.*

---

**TABLE 1. Projected Cost Savings for US Hospitals Participating in AIM**

<table>
<thead>
<tr>
<th>Beds</th>
<th>Pct. Patients Using Blood</th>
<th>Total RBC Transfused</th>
<th>15% Total Reduction</th>
<th>Savings Per Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;150</td>
<td>12%</td>
<td>1,736,854</td>
<td>260,528</td>
<td>$116,078</td>
</tr>
<tr>
<td>150-300</td>
<td>18%</td>
<td>2,532,912</td>
<td>379,937</td>
<td>$465,966</td>
</tr>
<tr>
<td>&gt;300</td>
<td>21%</td>
<td>2,967,125</td>
<td>445,069</td>
<td>$641,472</td>
</tr>
</tbody>
</table>

Blood Counts is issued periodically by America’s Blood Centers. Editor: Matt Granato. The opinions expressed herein are opinions only and should not be construed as recommendations or standards of ABC or its board of directors. Publication Office: 725 15th St., NW, Suite 700, Washington, DC 20005. Tel: (202) 393-5725; Fax: (202) 393-1282; E-mail: abc@americasblood.org. Copyright America’s Blood Centers, 2010. Reproduction is forbidden unless permission is granted by the publisher. (ABC members need not obtain prior permission if proper credit is given.)