

Blood Supply Challenges **and** Red Cross Strategies and Response

August 2007



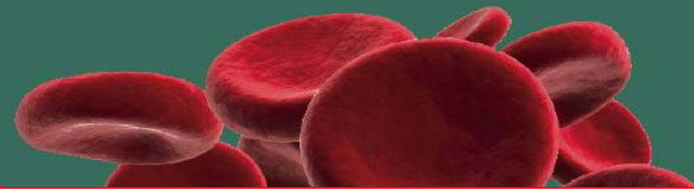
The American Red Cross



The American Red Cross blood program was established in 1940, under the leadership of Dr. Charles Drew.

- **Over 9 million blood components distributed annually to 3,000 hospitals nationwide.**
- **Working relationships with 50,000 organizations to hold more than 135,000 blood drives each year.**
- **Over 6 million blood donations collected from ~4 million volunteer blood donors annually.**
- **Nation's largest inventory of regular, antigen-negative, and rare blood units.**
- **Extensive immunohematology reference and other specialized testing services.**
- **Direct patient care clinical services (therapeutic apheresis, perioperative cell salvage, stem cell collections).**
- **Dedicated blood safety research and development facilities.**

Blood Supply Challenges

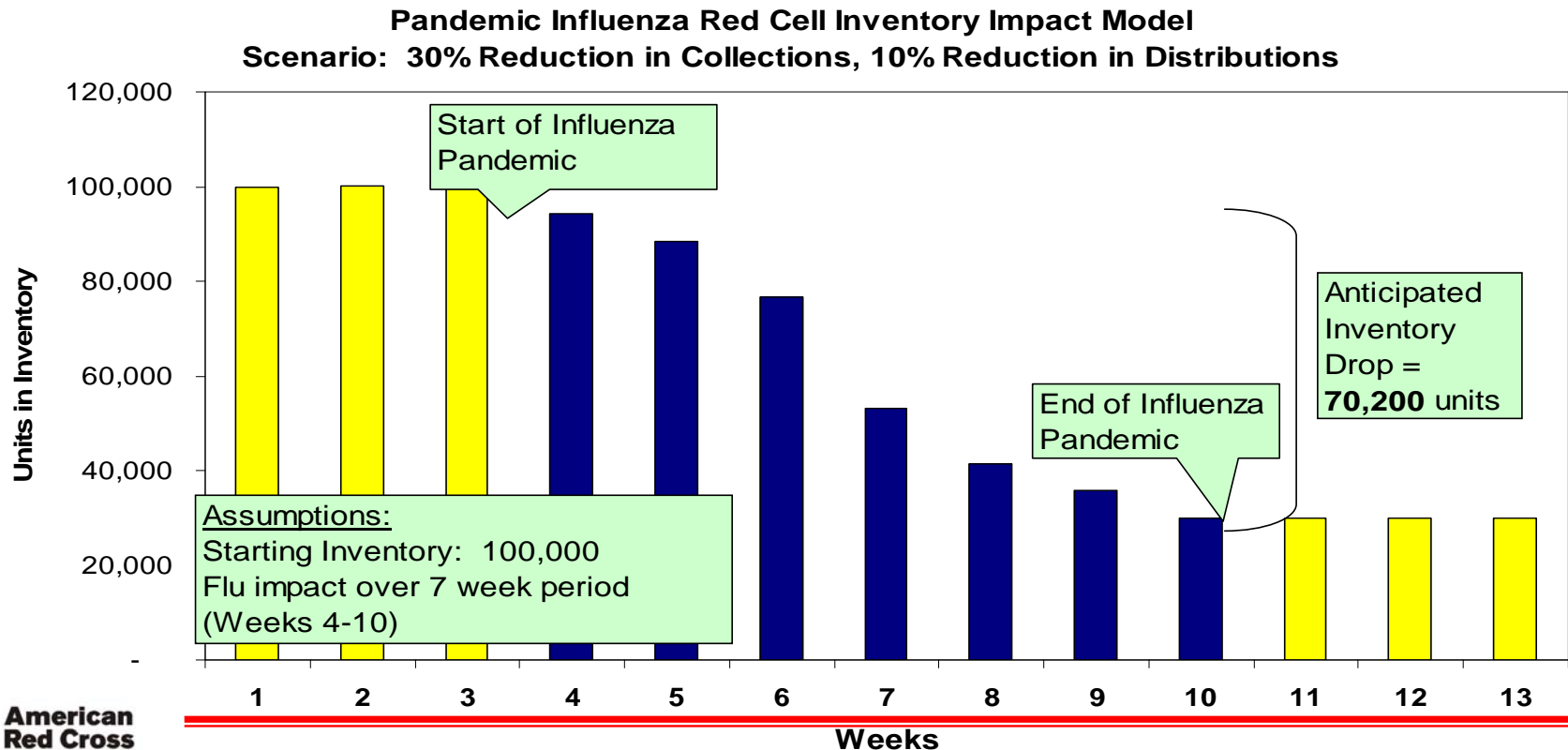


- **Supply during Disaster**
- **Seasonality**
- **Ongoing Challenges**
 - **Donor Base Challenges: shrinking, aging, deferrals**
 - **Optimal Donor Utilization**
 - **Optimal Utilization of Available Supply**
 - **Blood Utilization by Hospitals**

Supply During Disaster



- **Single Disaster Planning**
 - Key issue: Transportation to location (rather than supply)
 - Elective surgery redistribution; Highly elastic donor response
- **Pandemic Influenza – possibility of sustained shortage**

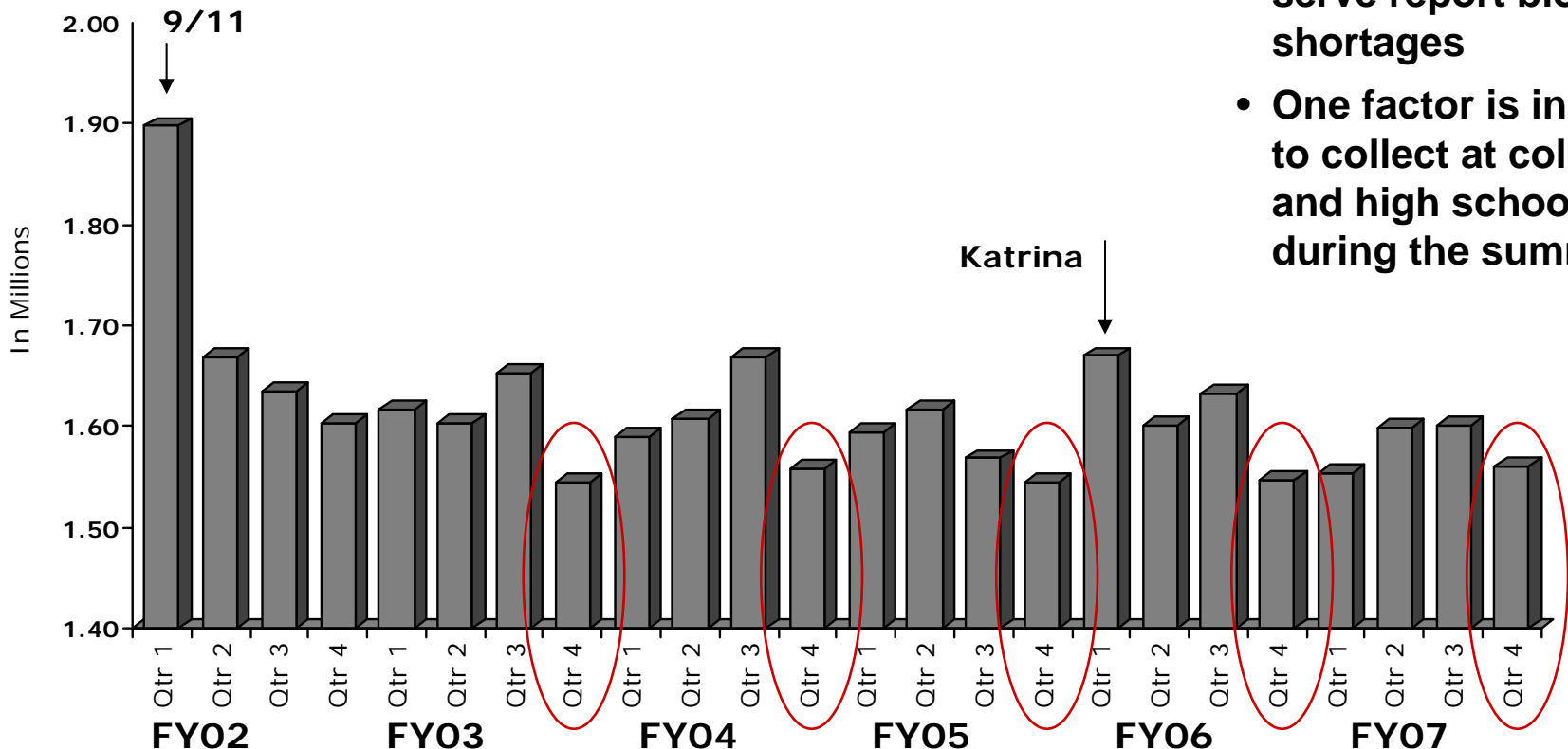


Seasonality



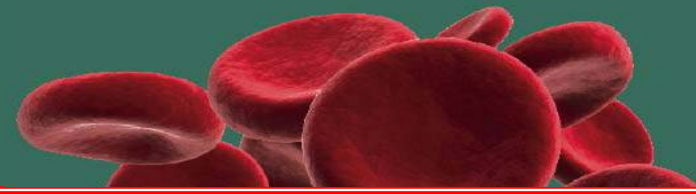
There is greater seasonality in supply than in demand, with donations consistently dropping during summers.

Collections FY02 - FY07

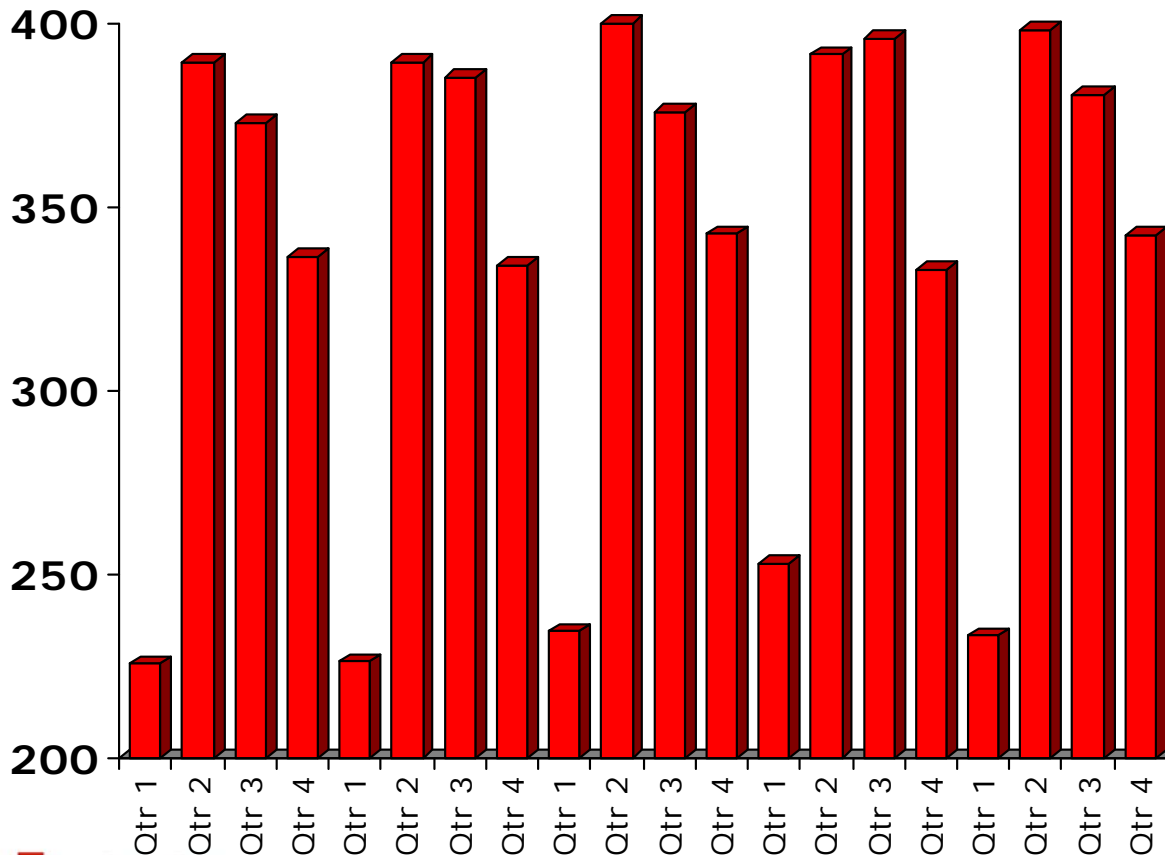


- 53% of hospitals we serve report blood shortages
- One factor is inability to collect at colleges and high schools during the summer.

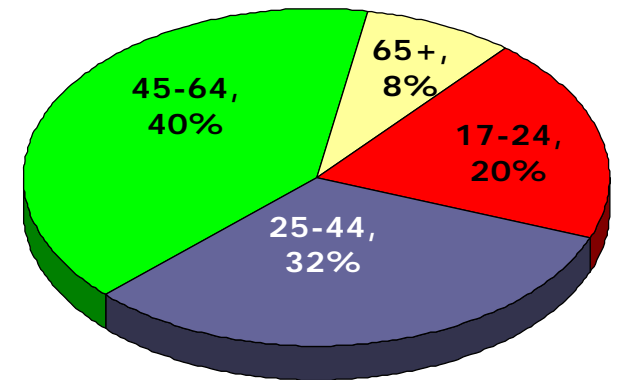
Seasonality



Red Cross Collections: 17-24 Year Old Donors by Quarter



Age of Donor Registrations



Registrations increase by an average of 70% from Summertime to Fall in Donors age 17 – 24.

Ongoing Blood Supply Challenges



Red Cross Initiatives/Strategies

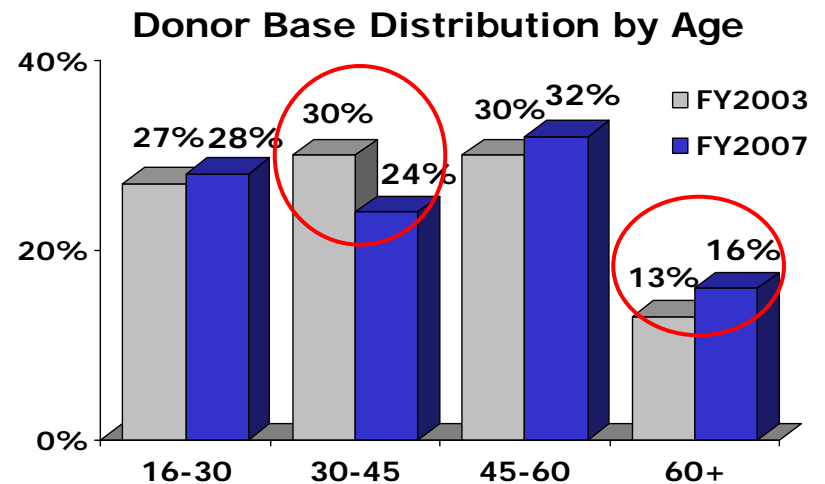
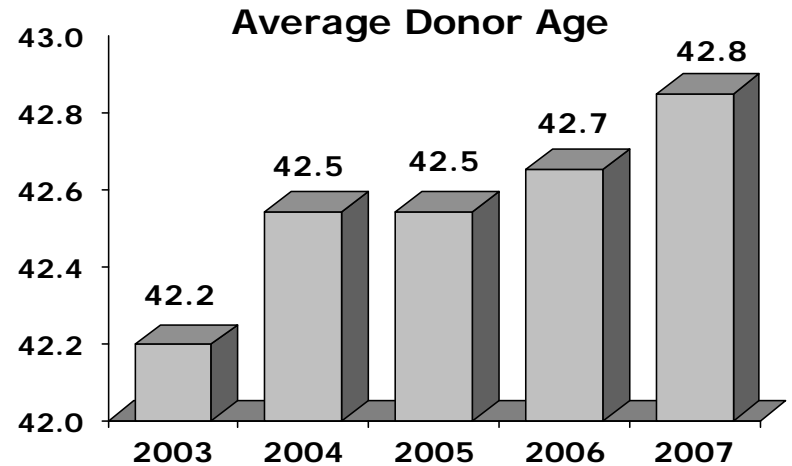
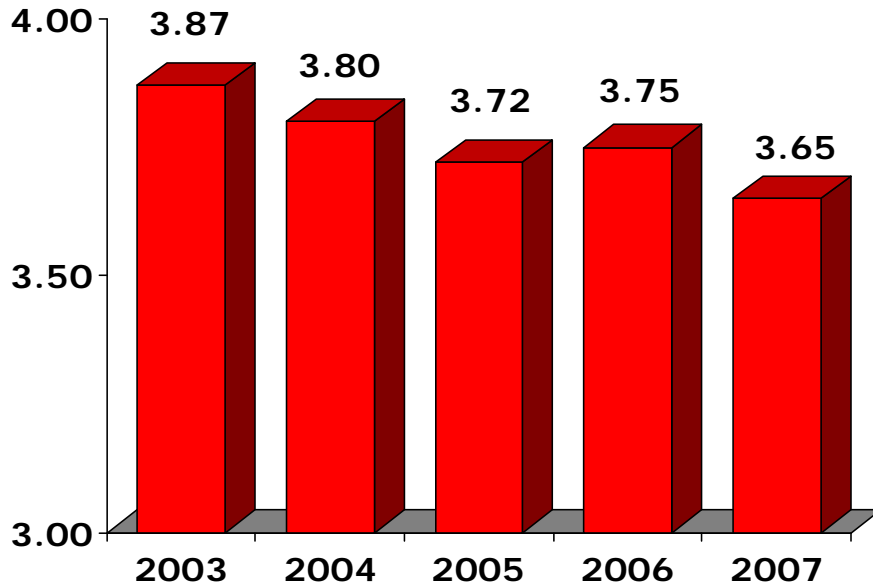
- **Donor Base Challenges: shrinking, aging, deferrals** →
 - Youth initiatives
 - CRM
- **Optimal Donor Utilization** →
 - Automation – double reds; double/triple platelets
 - Right type mix initiatives
- **Optimal Utilization of Available Supply** →
 - Demand driven planning
 - Yield improvement
- **Blood Utilization by Hospitals** →
 - Blood management programs
 - Transfers/Hospital sharing

Donor Base Challenges



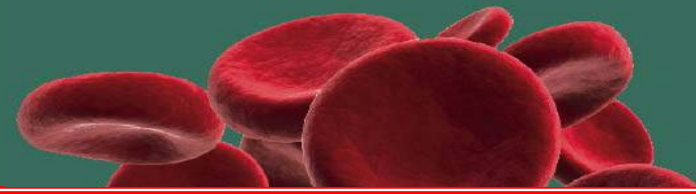
The donor base is shrinking and aging.

Red Cross Donor Base

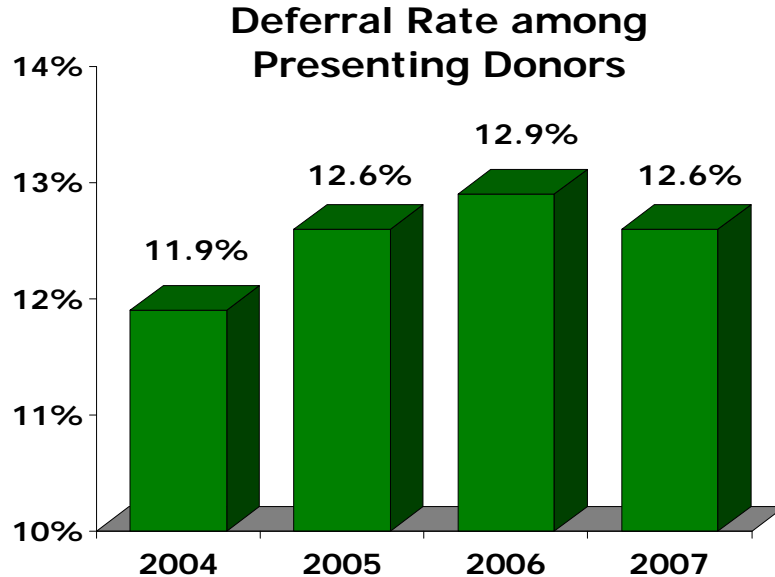


Note: Years based on Fiscal Year

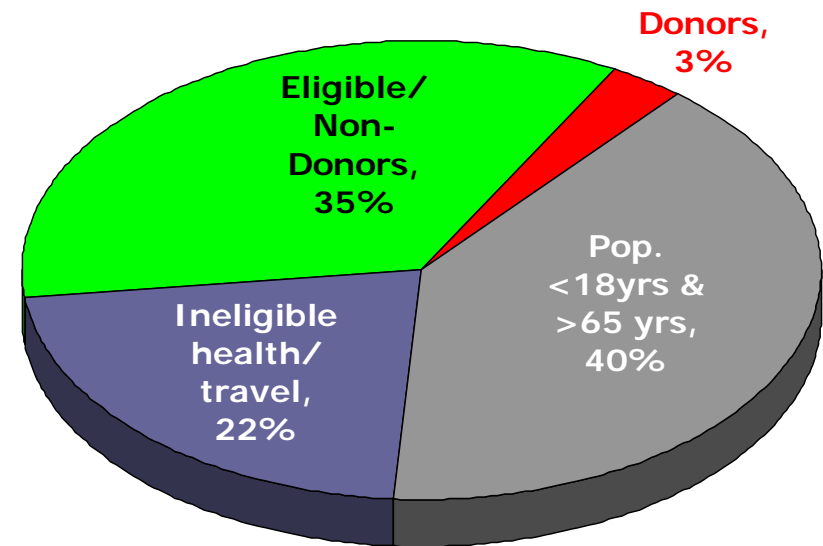
Donor Base Challenges



A growing number of deferrals means fewer eligible donors.



US Population and Donation



Major deferral impacts:

- vCJD travel restrictions
- UDHQ
- Expanded travel restrictions for malaria
- SARS, WNV, and others

→ Significant impact on self-deferrals

U.S. Population 2003: 293 million

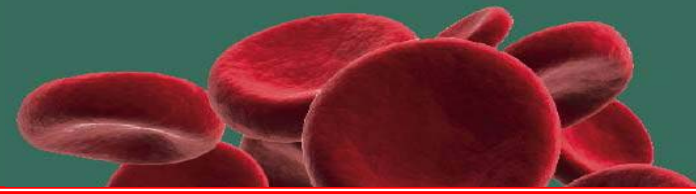
Source: *Transfusion* Vol. 47 July 2007, ARC



Other Factors Impacting the Donor Base

- **Donation frequency – static at 1.6 donations/yr**
- **Changing demographics → growing share of minority populations with lower donation rates**
- **Changing work patterns**
 - **Downsizing of corporate America**
 - **Growing “virtual” employee base**
- **Additional safety measures**
 - **Impact of TRALI mitigation**
 - **Chagas’s disease**
 - **Possible future: Babesiosis, other**

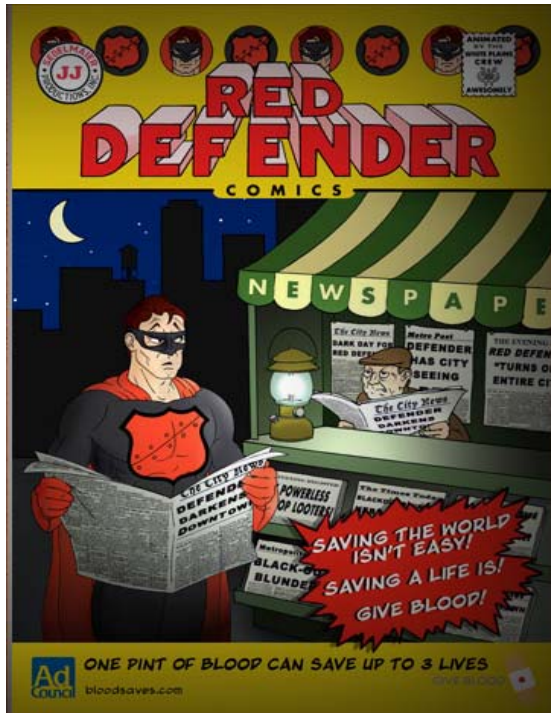
Donor Base Challenges



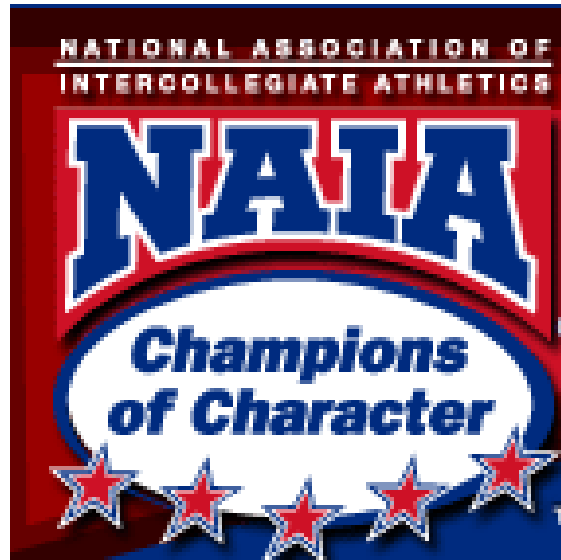
Red Cross Initiatives and Strategies

- Youth Outreach

Ad Council Campaign



National Athletics Assn



Delta Sigma Phi





Red Cross Initiatives and Strategies, *continued*

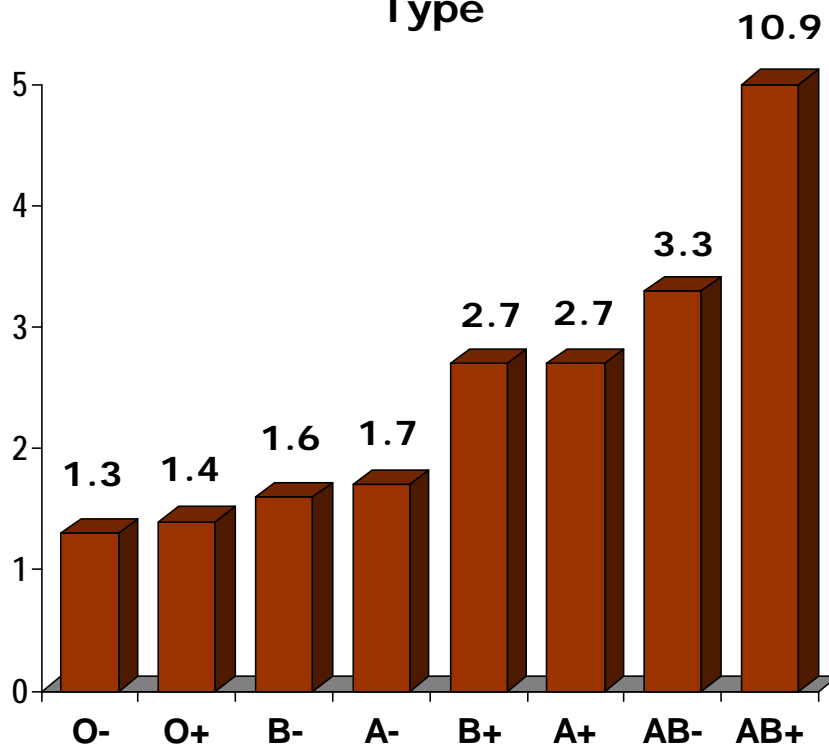
- **CRM**
 - Increase collections by attracting new donors and sponsors
 - Increase customer satisfaction by understanding donor and sponsor motivations and preferences
 - Build loyalty (and increase frequency) with existing donors and sponsors by implementing recognition and rewards programs
 - Increase the donor and sponsor pools by implementing formal referral programs
- **Donor Growth Efforts with Hospitals**
 - Formal programs with hospitals generate donations through the hospital facility and the hospital's support in the community

Optimal Donor Utilization



Demand for universal O-type blood exceeds the natural supply, creating persistent inventory challenges.

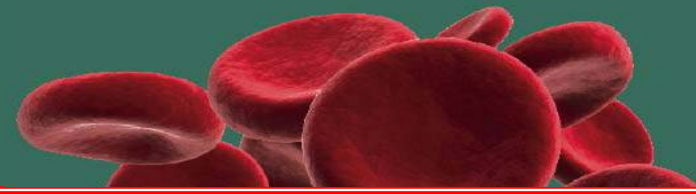
Average Days Supply by Blood Type



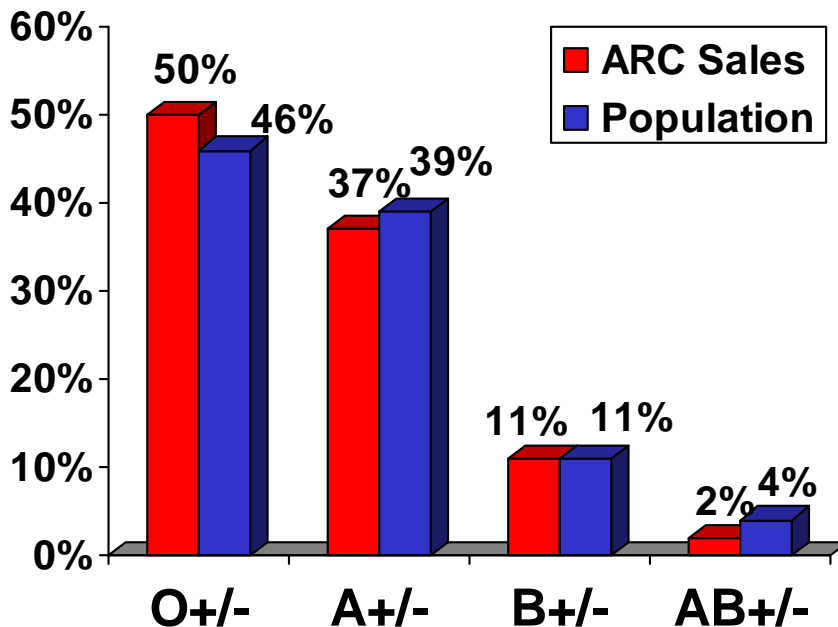
Red Cross Strategies

- **Collection goals set by type** (goals for O-blood higher than the natural prevalence of type O in the population)
- **Donor base management** – leveraging type O donors for double red cells; and A and AB donors for plasma
- **Working with hospitals to manage utilization by type**

Optimal Donor Utilization



**Blood Types:
Sales vs. Population Distribution**



Red Cross Strategies

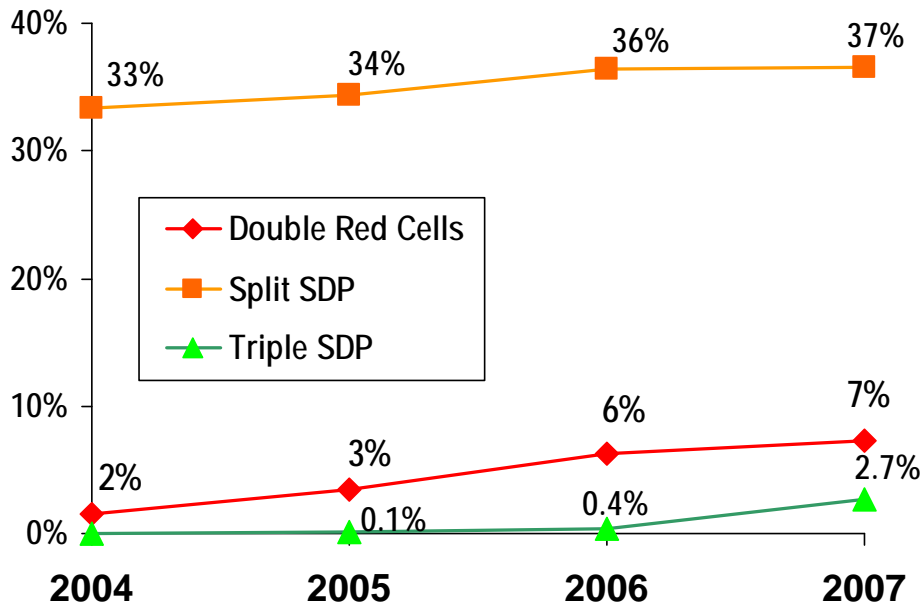
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Optimal Donor Utilization



On the positive side, technology has opened opportunities for higher product yield per donor.

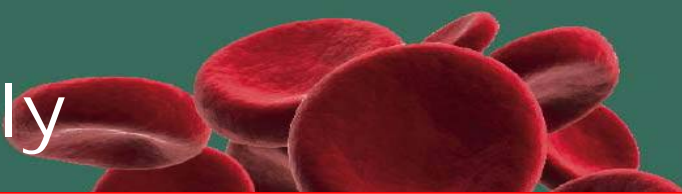
Share of Procedures Targeting Multiple Products



Red Cross Strategies

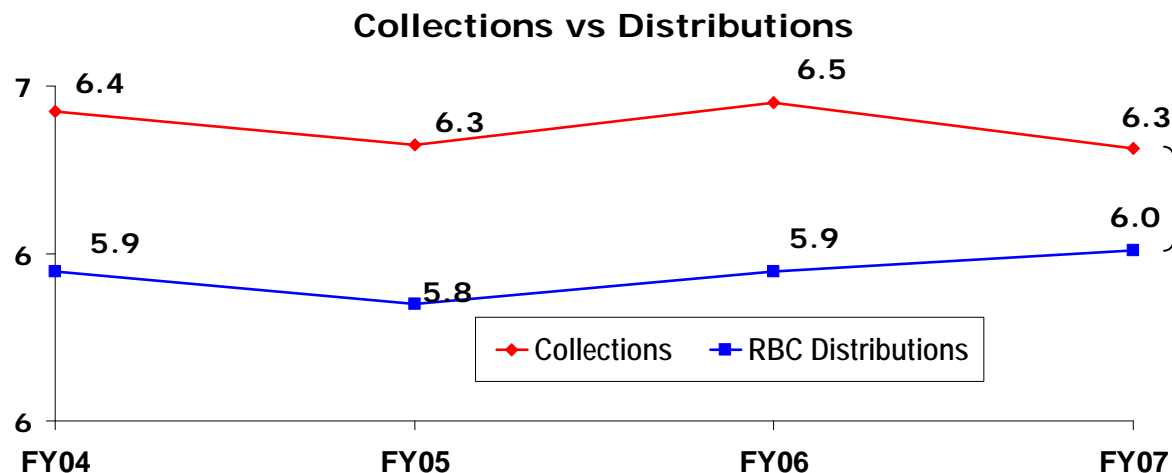
- **Growth of double red cell collections**
- **Growth of double and triple platelet production for single donor platelets (SDP)**

Optimal Utilization of Supply



Red Cross Initiatives and Strategies

- **Yield Improvement Initiatives**



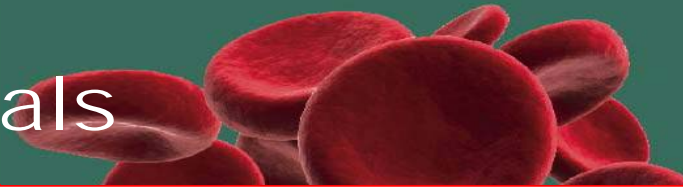
Distributions have grown despite lower collections due to yield improvements

- **Demand Driven Planning**

- **18-month Sales and Operations Planning Process aligns supply with demand with fairly high degree of accuracy**

	1 Month Out	3 Months Out	6 Months Out
Demand Forecast Accuracy	97%	96%	96%
Collections Forecast Accuracy	100%	98%	98%

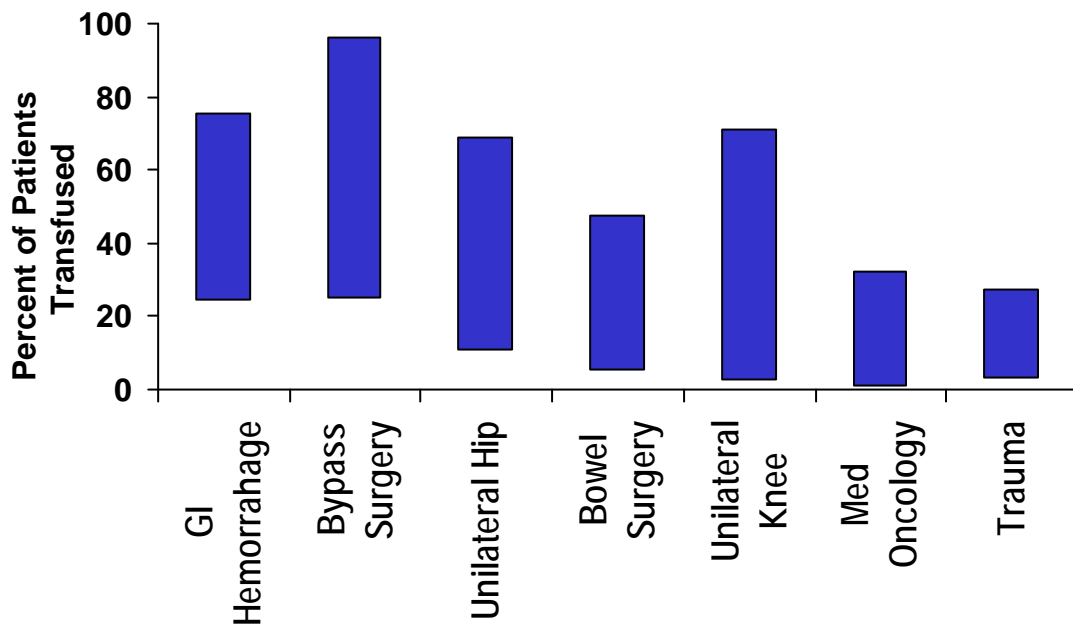
Blood Utilization by Hospitals



Tremendous variability exists in blood transfusion practices.

- **US transfuses 50 RBC per 1000 population vs. 32 in Canada, 37 in Australia, and 40 in Europe**

Min - Max % Patients Transfused



* Based on data from 44 hospitals, covering 6,000-12,000 cases for each DRG category. Source: CareScience, 2004

Red Cross Strategies

- **Evaluating Blood Management Programs, designed to train hospital staff on appropriate utilization of blood**
 - **System Audit**
 - **Gap analysis vs. best**
 - **Implementation plan**
 - **Education**
 - **Data tracking / analysis**



- **Broader challenges with the blood supply driven by:**
 - Donor demographic changes
 - Societal/workplace changes
 - Enhanced safety
 - Inconsistent/suboptimal transfusion practices
- **Red Cross Response**
 - Donor recruitment initiatives
 - Manufacturing/testing yield improvement efforts
 - Hospital blood management education and collaboration initiatives