



# The US Blood Supply Is it Adequate?

Advisory Committee on Blood Safety  
& Availability

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America's Blood<sup>®</sup>  
Centers  
It's About *Life.*

# America's Blood Centers (ABC)

- 🇺🇸 **Founded in 1962, ABC is North America's largest network of community-based, not-for-profit blood centers**
- 🇺🇸 **77 individually licensed blood programs (FDA or Health Canada) serving nearly 180 million people in 45 States & all of Canada**
  - 🇺🇸 **> 9 million blood donations at >600 collection sites**
  - 🇺🇸 **Over 2.5 million blood recipients at 3,500 hospitals**
  - 🇺🇸 **Members collect half the U.S., and all of Canada's volunteer donor blood supply**
- 🇺🇸 **Members provide therapeutic and transfusion services, recruit marrow, cord, stem cell and tissue donors**
- 🇺🇸 **Several Members have Research Institutes**

# Discussion Items

- 🇺🇸 Elasticity of the blood supply; monitoring by ABC and BCA
- 🇺🇸 Member preparedness for major disasters, natural or man-made
- 🇺🇸 Comments on the flu pandemic
- 🇺🇸 Experience with past disasters
- 🇺🇸 Considerations about other potential strategies to meet shortages, including a National Blood Reserve
- 🇺🇸 Ethical considerations

# Challenges in Blood Supply

- 🇺🇸 Short Shelf Life
  - 🇺🇸 42 days RBCs
  - 🇺🇸 5-7 days PLTS
- 🇺🇸 Low reimbursement – low prices despite continuous increases in safety costs
- 🇺🇸 Disaster Lessons Observed
  - 🇺🇸 Communications
  - 🇺🇸 Transportation and fuel
- 🇺🇸 Adoption of just-in-time logistics by vendors and blood centers
  - 🇺🇸 Inventory on the shelf costs \$\$\$\$
  - 🇺🇸 Limited stocks

# Trends in Allogeneic WB/RBC Collections & Transfusions

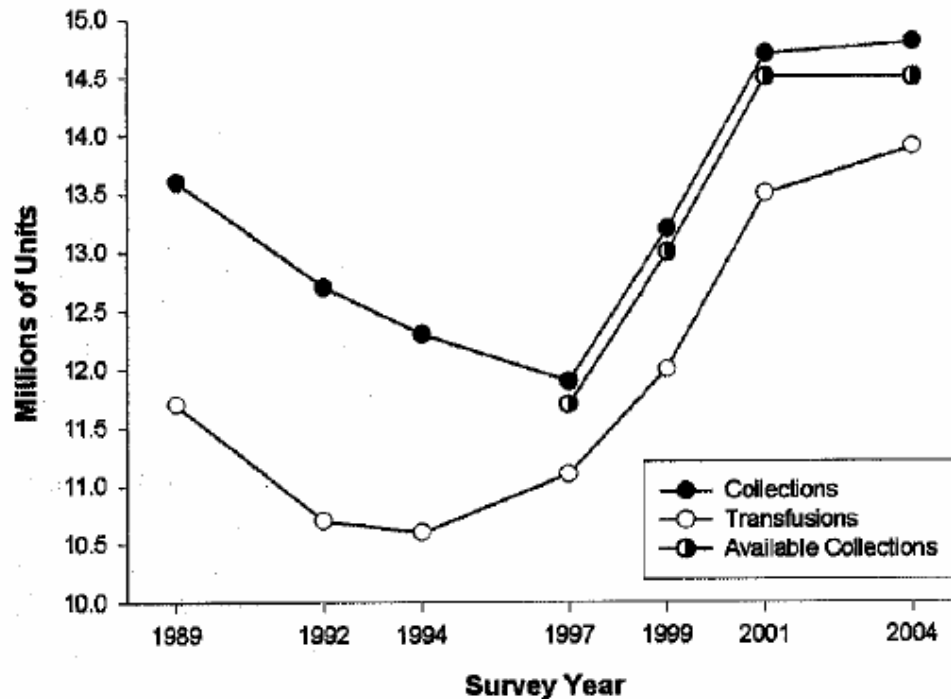
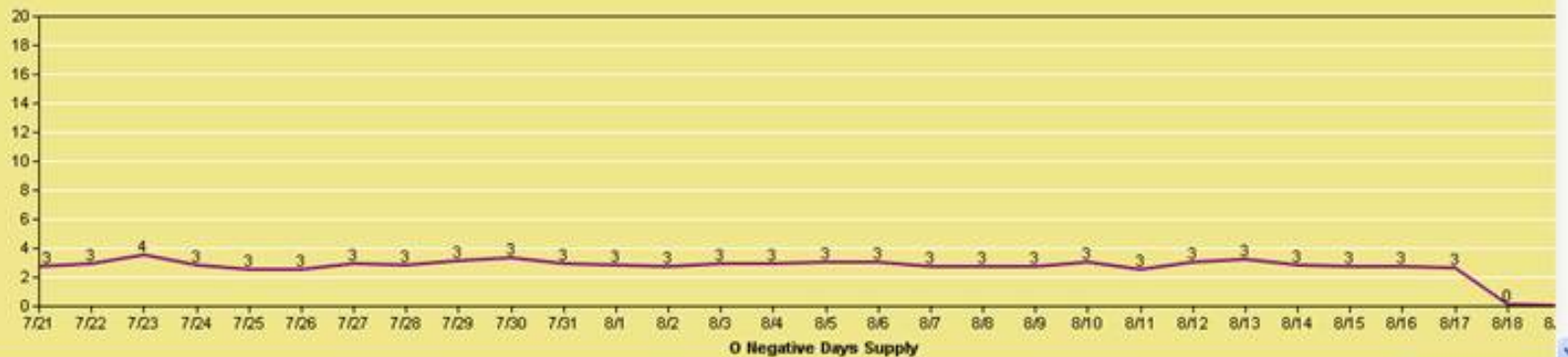
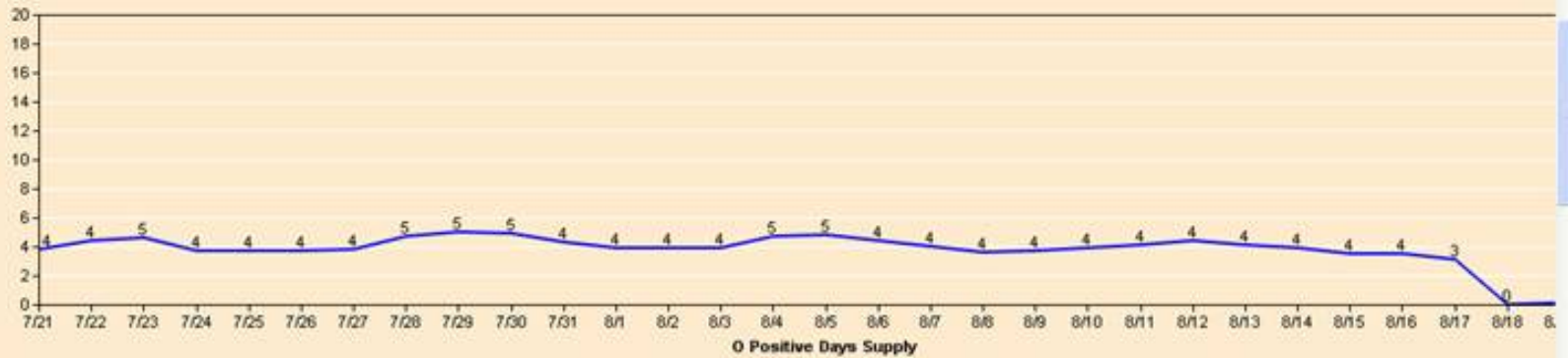


Figure 11-2. Allogeneic whole blood and red blood cell collections and transfusions, 1989-2004.

# Monitoring the Inventory

- 🇺🇸 ABC Stop Light – available on public side @ [www.americasblood.org](http://www.americasblood.org)
  - 🇺🇸 Red/yellow/green status of blood supply by region
  - 🇺🇸 Members enter data on a daily basis
- 🇺🇸 Blood Centers of America, Inc. Executive Dashboard
  - 🇺🇸 Hybrid electronic/manual unit level reporting of blood center inventories
  - 🇺🇸 Sophisticated trending, analysis, & dashboard
- 🇺🇸 ABC-BCA partnership
  - 🇺🇸 Disaster preparedness
  - 🇺🇸 Inventory monitoring

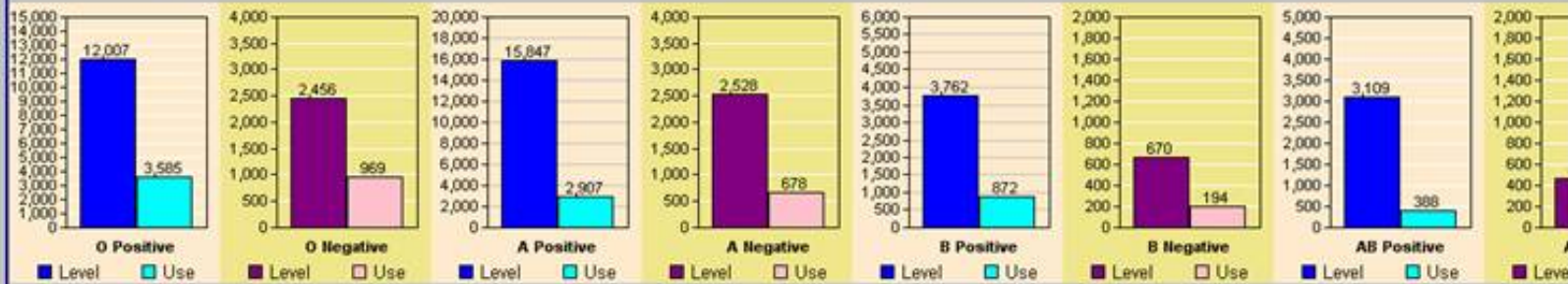


Select a Date 8/15/2007

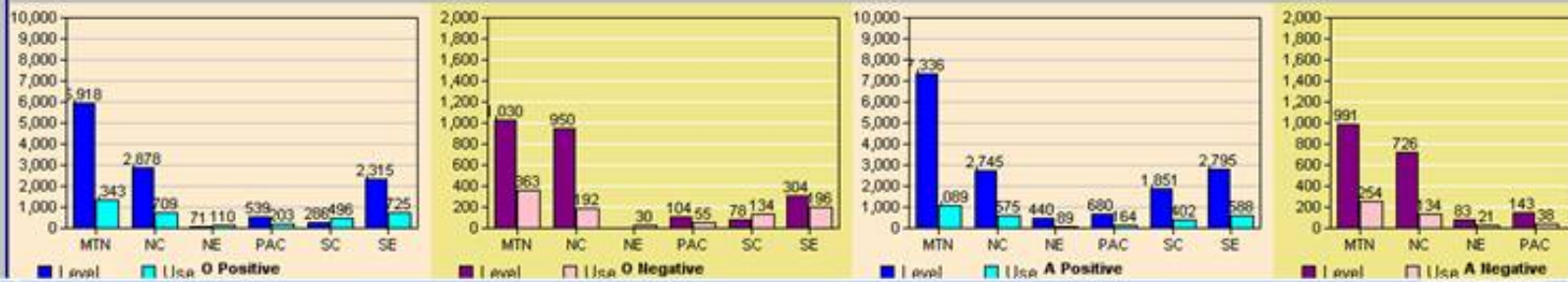
Run Report

22 Centers Reporting For 08/15/2007

### BCA Composite

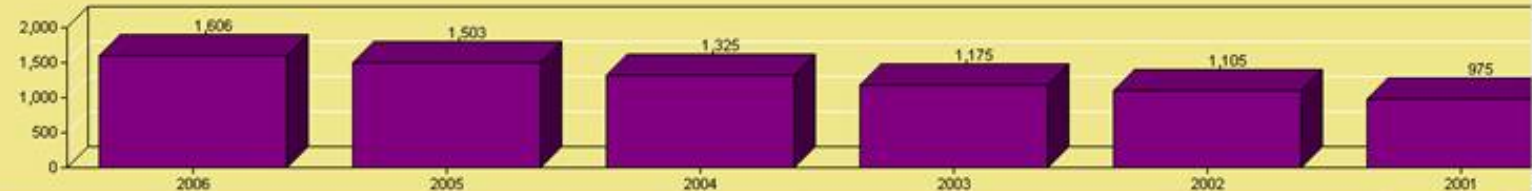
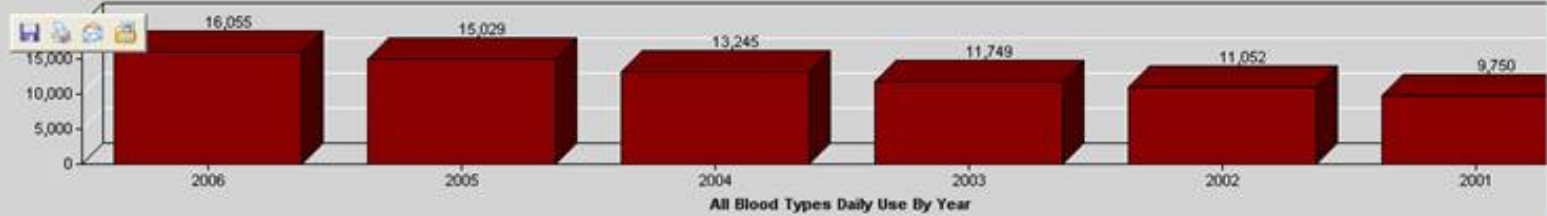


### By Region





RBC Daily Total Usage By Year - All Centers

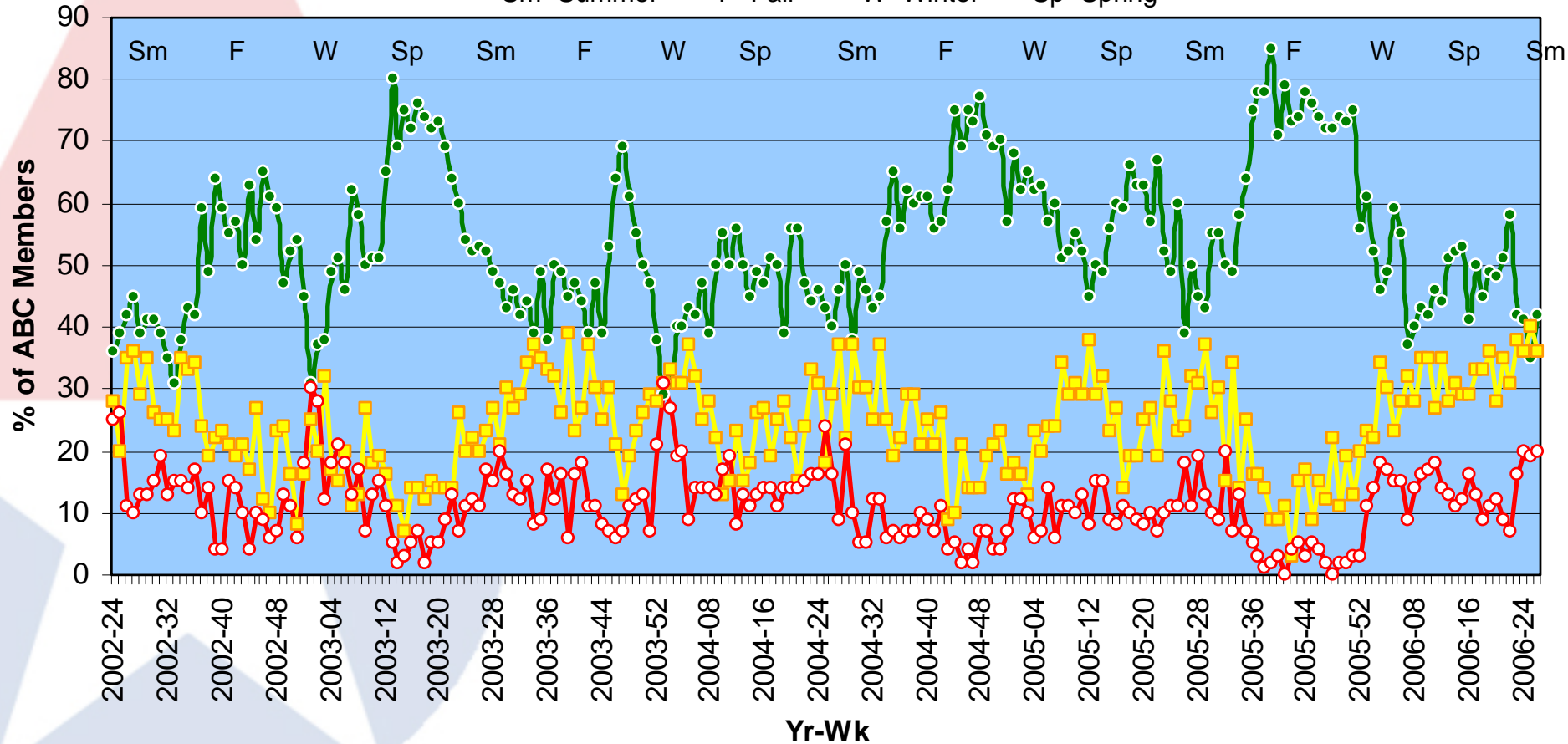


# ABC Blood Supply

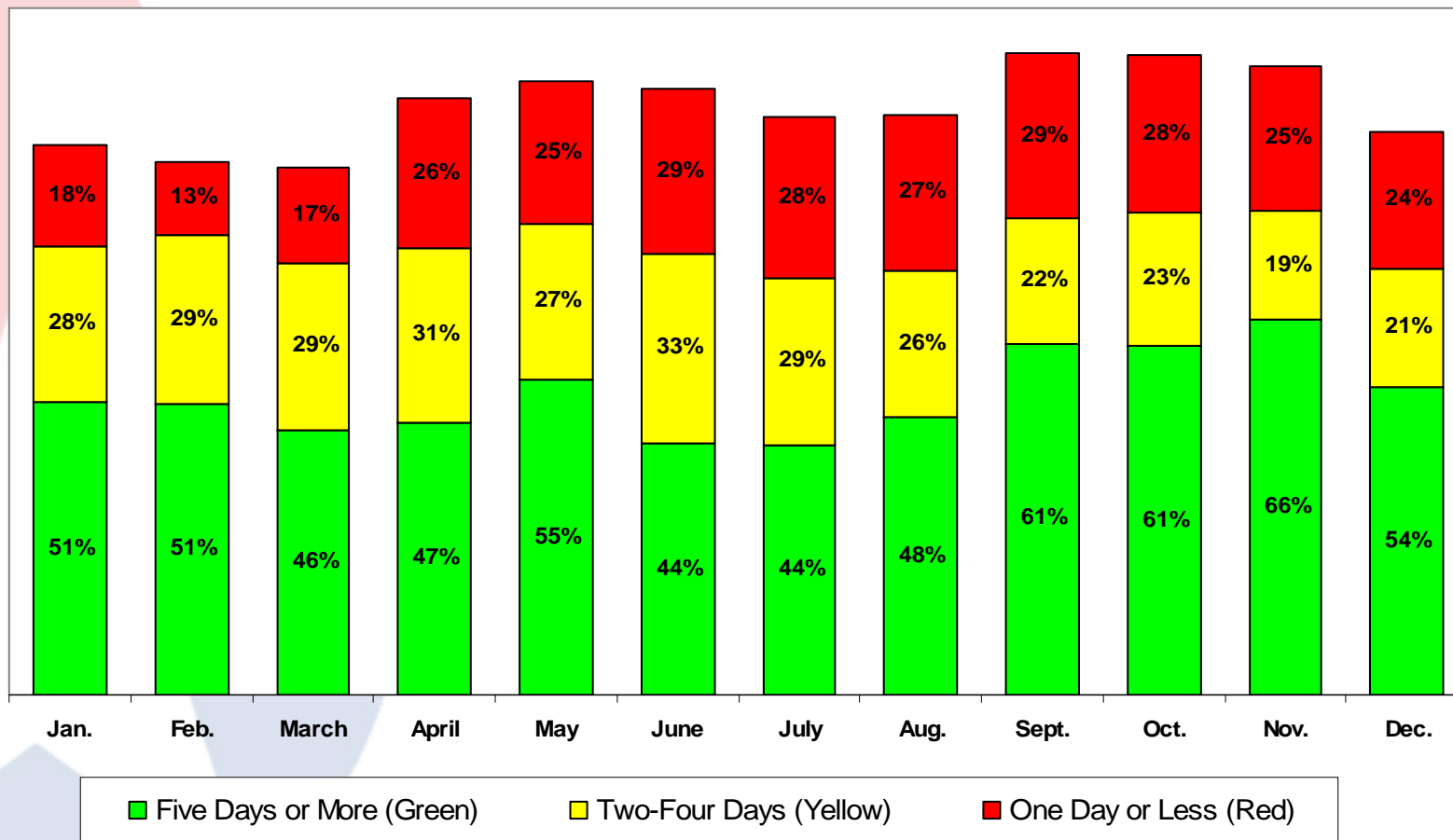
## June 18, 02 to June 27, 06

—●— 3+ day supply   
 —■— 2 day supply   
 —○— <1 day supply

Sm=Summer    F=Fall    W=Winter    Sp=Spring



# ABC Average Inventories – 05-07



Source: ABC Stoplight Data

# Key Findings in the 2005 HHS/AABB Survey

Whitaker B and Sullivan M. 2005 Nationwide Blood Collection and Utilization Survey Report

“Through efficient product management, evidenced by reduced outdates and low numbers of hospitals reporting unmet need, the blood community has maintained adequate supply to meet blood products needs.”

“The community must remain vigilant, however, because the margin is smaller than it ever has been.”

**Impact of Just-in-time  
Logistics & Financial  
Constraints**



# Perception

Sara Schwittek - Sept. 11, 2001 - 7PM  
Brooklyn Heights

# Reality

## Blood Use in US Disasters

Incident	Killed	Injured	Units Used	Available Inventory	Units Collected
Kansas City Hotel Disaster (1981)*	114	188	126	2500	1500
Sioux City Iowa plane crash (1989)*	111	185	119	703	602
Oklahoma City Bombing (1995)	167	83	131		>7,000
Denver, Columbine HS Shooting*	15	30	105	1024	1,700
World Trade Center (2001)*	3,000	139	224		Collected nation – wide >475K
Pentagon (2001) *	189	61	34	12,000	
Hurricanes Katrina, Rita,	1723/120	2018/11			
Bridge Collapse, Minn. MN	12	100	44	400	800

# Blood Supply in Disasters

- 🇺🇸 Are there blood shortages? Yes, but ...
  - 🇺🇸 They are short in duration, are local/regional and are seasonal
- 🇺🇸 On any given day in the US
  - 🇺🇸 ~ 40 K units of blood are collected and available as inventory at blood centers
  - 🇺🇸 ~200 K units of RBC sit on hospital shelves
- 🇺🇸 Disasters do not require a large amount of RBC
- 🇺🇸 Blood centers can increase processing by at least 3 fold for a limited period of time (9/11)
- 🇺🇸 The Interorganizational Task Force provides an effective connection between civilian and military blood agencies and, together with hospitals, manage the blood supply efficiently

# National Blood Reserve

- 🇺🇸 Already exists and is walking around the US
- 🇺🇸 Proven response to every disaster in recent US history
- 🇺🇸 Ideal storage
- 🇺🇸 No extra cost to collect and store
- 🇺🇸 Minimizes wastage of short-dated products



***The best place to store blood is in the donor***



# Blood Supply During a Pandemic

## Key Planning Assumptions

Alliance of Blood Operators  
International Blood Emergency Planning Action Group

 Platelets	No change
 Red Cells	Decrease 10–25%*
 Frozen Components	No change

\* May vary geographically, by country, by region, by hospital (during SARS in Toronto RBC demand fell by 25% in affected hospitals)

# Management of the Blood Supply During a Pandemic

- 🔥 Planning is key
- 🔥 Annual Flu vaccination for donors
- 🔥 Increase collections as Pandemic Flu (PF) Alert Level increases
- 🔥 RBC shelf stocks should carry through initial wave
  - 🔥 Postpone elective surgeries
  - 🔥 **Triage blood use – Key ethical issue for Pandemic Flu**
- 🔥 Attempt to maintain platelet collections since oncology patients still need platelets
  - 🔥 **Consider antivirals and PF vaccine for committed donors**
- 🔥 Address the supply issue (Just-in-time Logistics)
  - 🔥 Add collection bags materials to the National Strategic Stockpile
  - 🔥 Increase availability of test kits (can test retrospectively)
  - 🔥 Address vendor concerns: ***“We can keep whatever pipeline inventory you want, but who’s going to pay for it?”***

# Blood Supply in Face of Dirty Bombs, Rads, Nukes

## 🔥 Risks

- 🔥 Immediate needs historically 200-300 units
- 🔥 Could defer entire metropolitan area
- 🔥 Does radiation affect safety of blood products on shelf? (Top Off 3)

## 🔥 Response – ship blood from unaffected centers

- 🔥 **Transportation, Fuel and Communications** support

## 🔥 Simultaneous multiple detonations

- 🔥 200-300 units in each area
- 🔥 Geographically diverse blood centers
- 🔥 Capacity to replace blood supply within days
- 🔥 **Transportation, Fuel and Communications** support

# Summary of Key Points

- 🇺🇸 The blood supply is adequate and well managed by civilians
- 🇺🇸 Shortages are local/regional, not national
- 🇺🇸 Disasters don't require large amounts of blood
- 🇺🇸 There is sufficient inventory of tested RBC on blood center and hospital shelves to address emergencies
- 🇺🇸 Interorganizational Task Force on Disasters has proven timely and effective over past 6 years
- 🇺🇸 *A Natural* Blood Reserve is walking around as we speak

# Unmet Needs

- 🇺🇸 Past disasters and exercises (TOP OFF) have shown that the major remaining challenges are
  - 🇺🇸 Overwhelming response of blood donors
  - 🇺🇸 Transportation, fuel and communications
  - 🇺🇸 Availability of critical collection supplies and reagents
- 🇺🇸 Potential solutions
  - 🇺🇸 Management of the influx of blood donors
  - 🇺🇸 Vaccination of regular, committed donors for PF
  - 🇺🇸 **Addition of blood collection bags and venipuncture supplies to the National Strategic Stockpile to prepare for PF**
  - 🇺🇸 **Government incentives (\$\$\$) to increase vendor on-hand supply of bags, other supplies and test kits from 2-4 weeks to 3 months**



# Thank you!

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