

Impact of very frequent plateletpheresis on donor platelet counts

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Guidance for Industry and FDA Review Staff

Collection of Platelets by Automated Methods

DRAFT GUIDANCE

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For questions on the content of this guidance contact Dr. Sharyn Orton, Division of Blood Applications, at 301-827-3524 or Dr. Jaroslav Vostal, Division of Hematology, at 301-496-2577.

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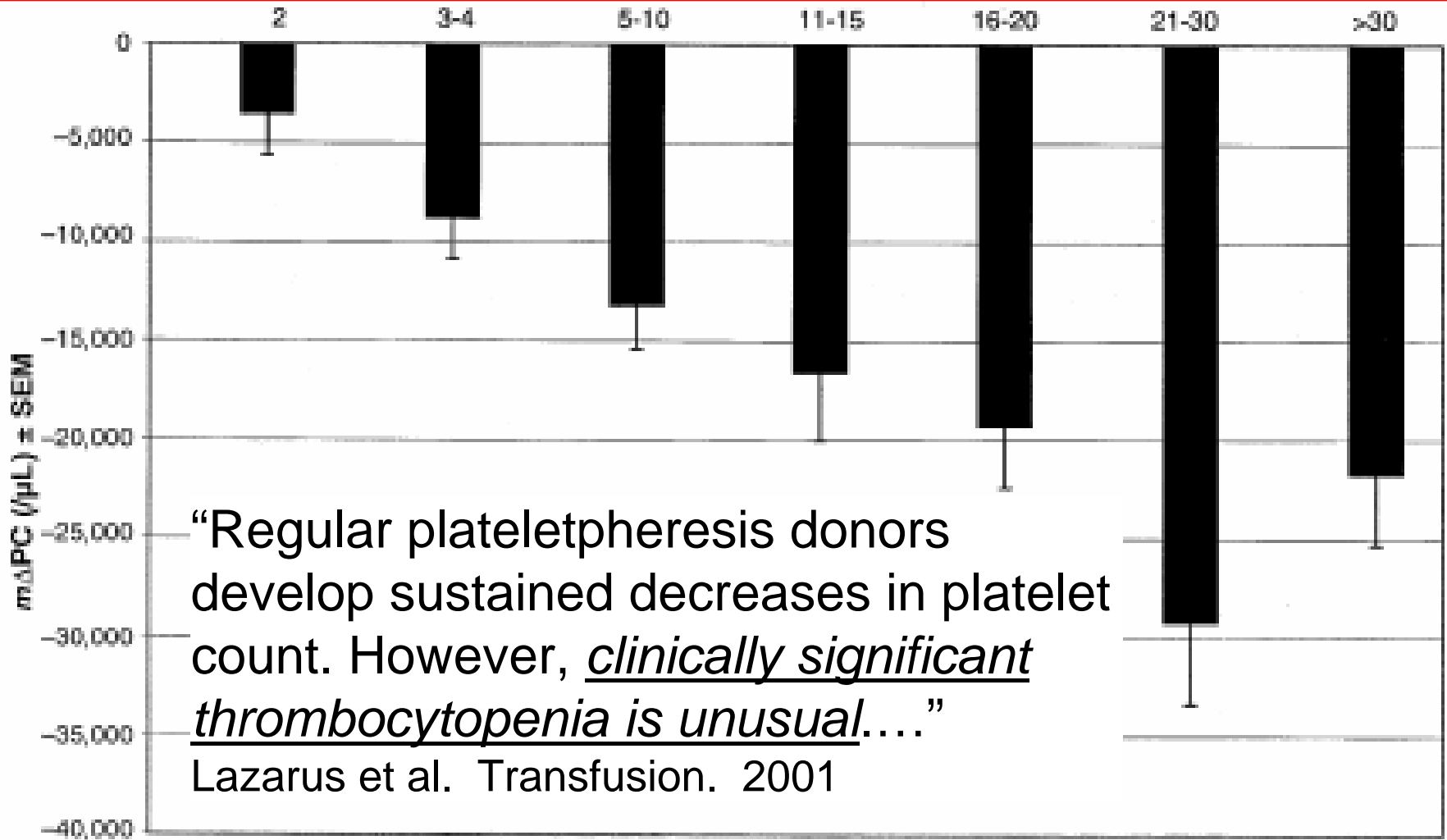
“To protect the safety of the donor...”

- “A donor should undergo no more than 24 Platelet, Pheresis collections in a 12-month period.”
- “You should collect no more than 24 total Platelets, Pheresis components in a 12-month period.”
 - Two components collected from a double collection of Platelets, Pheresis and three components collected from a triple collection of Platelets, Pheresis would be counted as two components and three components respectively.”

“To protect the safety of the donor...”

- The interval between each collection of Platelets, Pheresis should be at least two (2) days with no more than two procedures in a 7-day period.
- The interval between collection of a double Platelets, Pheresis and any subsequent collection of Platelets, Pheresis should be at least 7 days.
- *The interval between collection of a triple Platelets, Pheresis and any subsequent collection of Platelets, Pheresis should be at least 14 days.*
- A post-donation platelet count should be performed after each collection.

939 donors, 11,464 collections at NIH (1994-98)

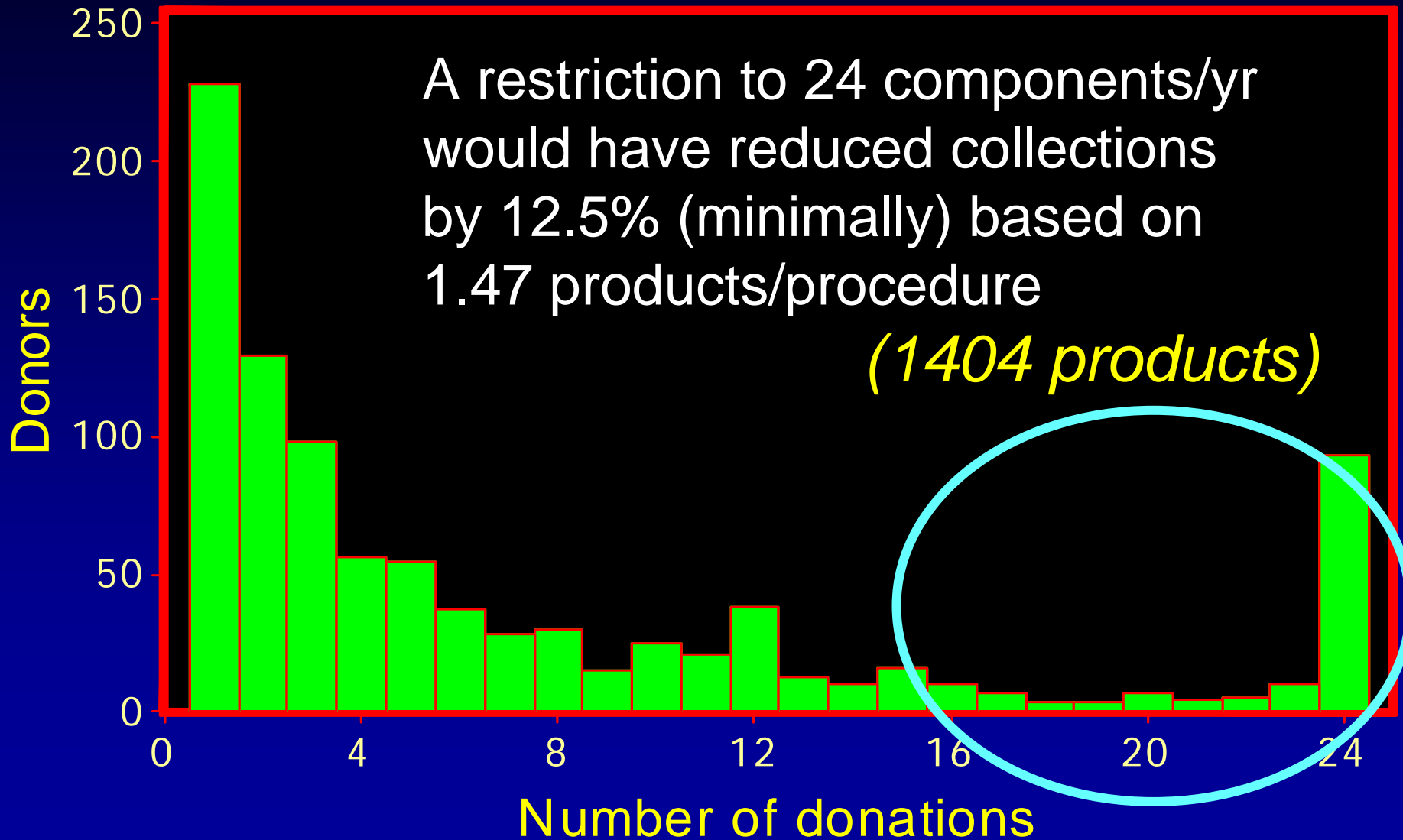


Cumulative number of donations during study period (1994-1998)

MVRBC

- 54 hospitals in IA, IL, WI, MO
- ~130,000 RBCs 2007
- ~ 13,000 apheresis platelets 2007
 - 6 fixed-site plateletpheresis centers plus mobile apheresis
 - 5 hours from main center to furthest
 - 1 doc
 - Fenwal Amicus[®]
 - Gambro Trima[®]
 - >100 24 karat donors (24K)

Frequency of plateletpheresis 2004: MVRBC



MVRBC 24K* (n=60) donors: 2005

Davenport, IA fixed site

Total platelets	2439 (20% of total collections)
Platelets/donation	1.7
Platelets per donor in 2005	40.7
Platelets lost per donor with 24 limit	16.7
Platelets lost with 24 limit	41% or 1000 platelets

*24 apheresis donations in calendar 2005

Approx. replacement donors needed at MVRBC with 24 product limitation (modeled from 2004 and 2005 data)

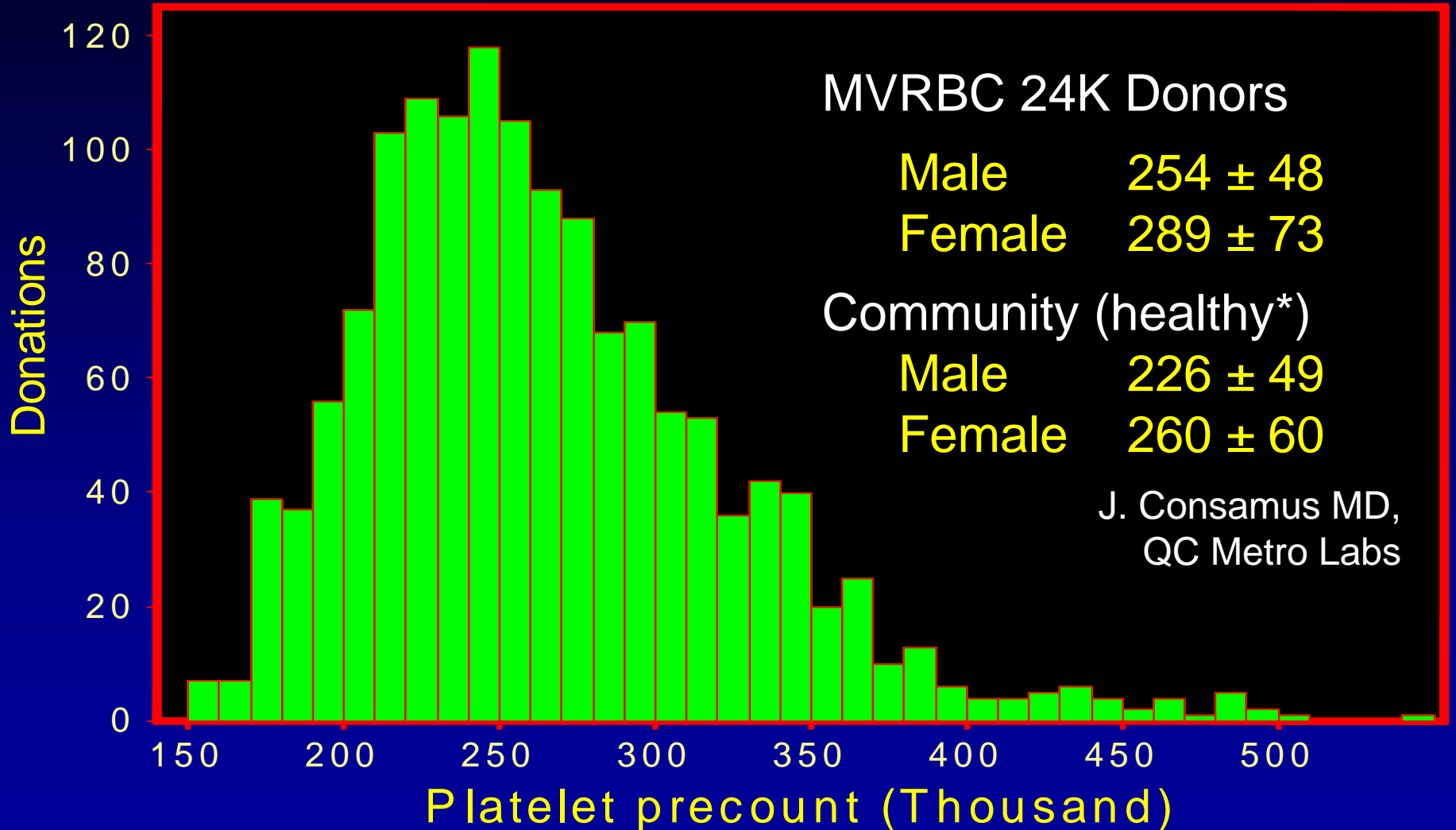
Freq. in 2004	N	Ave. don/yr	Prod/donation	Total prod	Prod lost @ 24/year
<16	797	4.4	1.47	5153	0
≥16	142	22.4	1.7	5407	1999

To replace 1999 products from ≥16 time donors with products from <16 time donors requires approximately 1999 products ÷ 1.47 products/donation ÷ 4.4 donations/year or 309 new donors. ***This is ~33% of the current donor base***

>24 component donors (n=3,896):
ARC 2004 (6 regions)

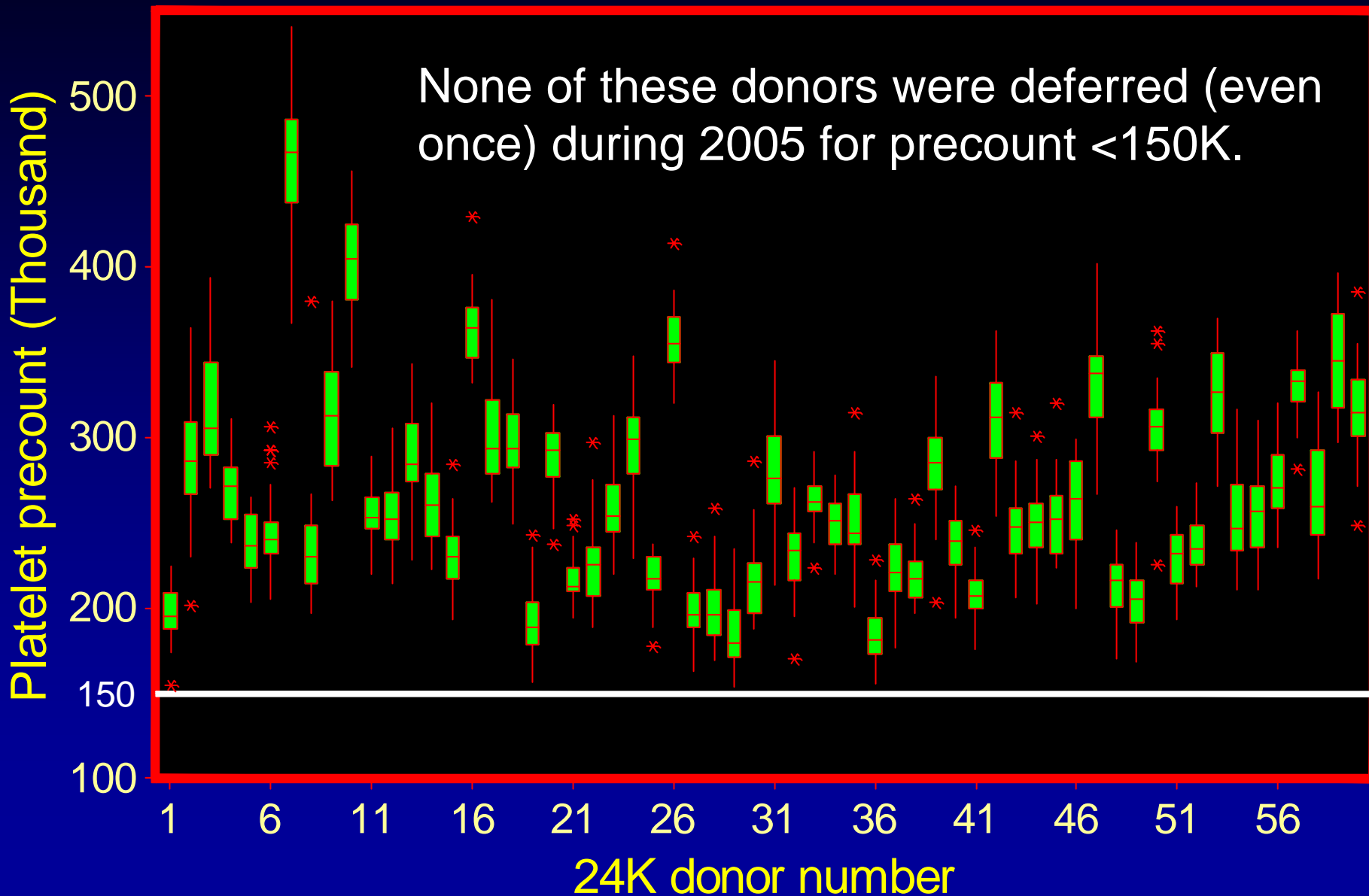
Total products	129,290
Products per donation	1.8
Products per donor	33.2
Products per donor lost with 24 component limit	9.2
Products lost with 24 product limit	28% or <u>35,786 units</u>

2005 precounts in 60 MVRBC 24K donors

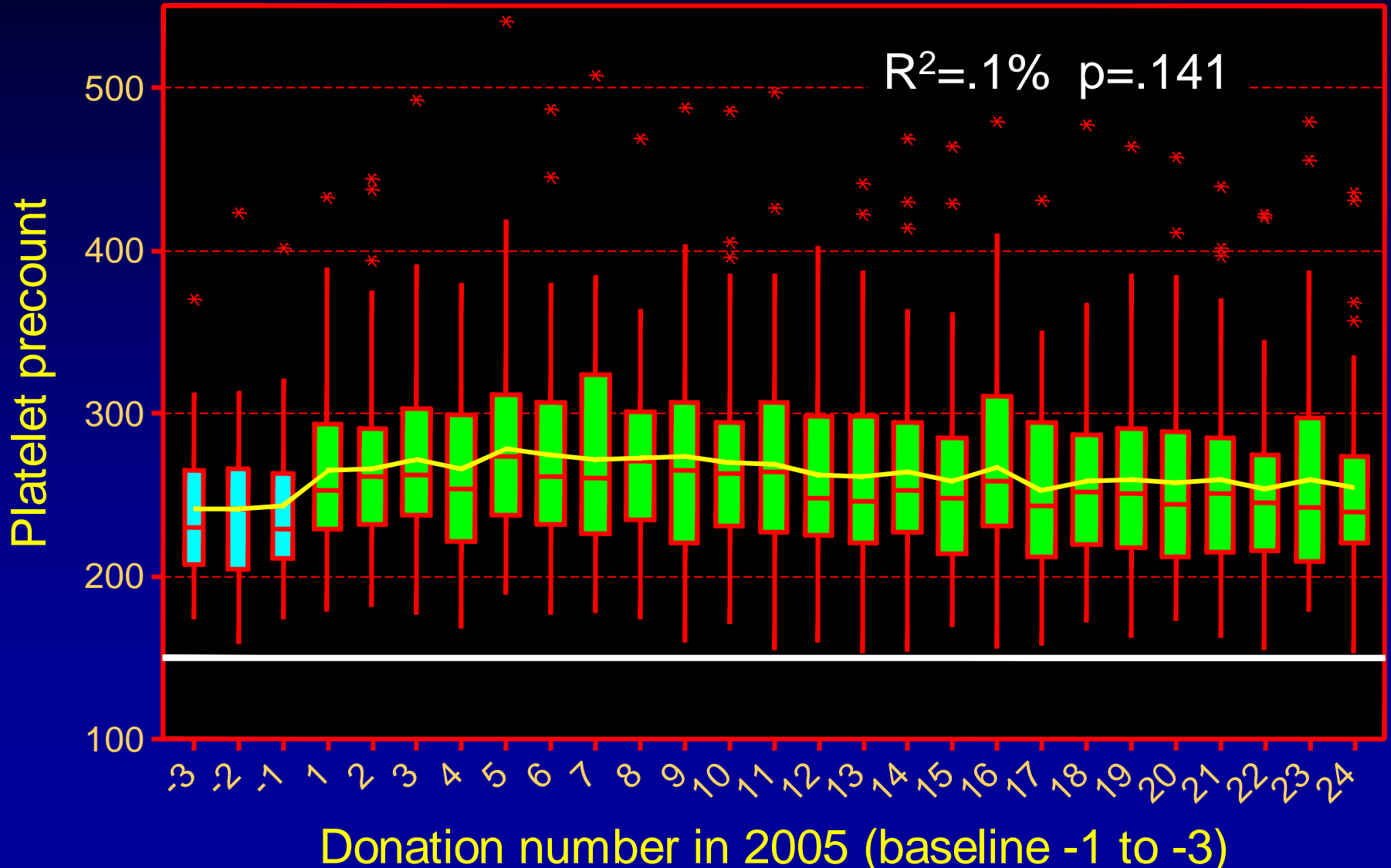


*Used to establish normal range of new instrument in commercial lab

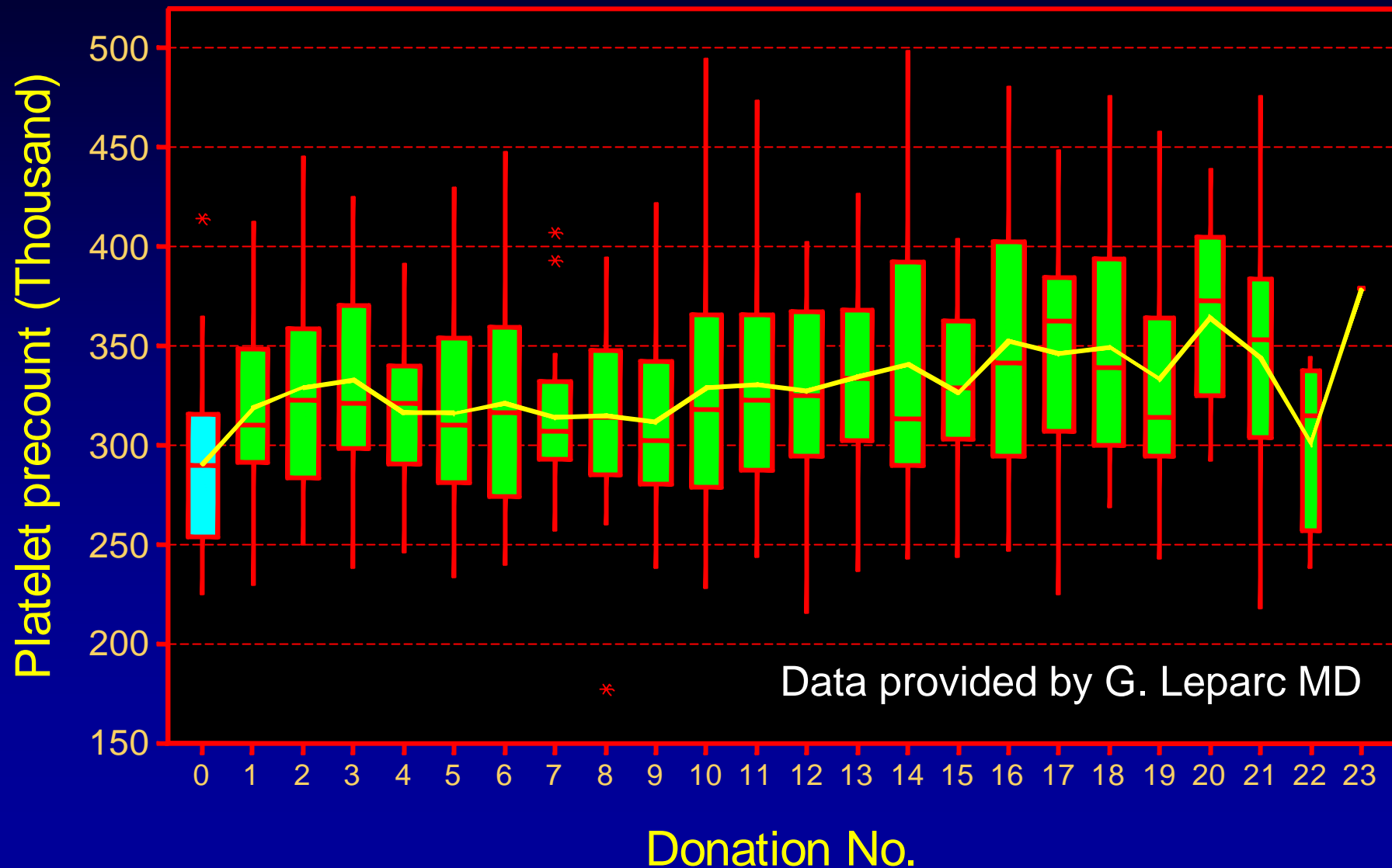
2005 precounts in 60 MVRBC 24K donors



Precounts for 2005 and 1st 3 (ever) donations (1997-2003, n=31) in 60 MVRBC 24K donors

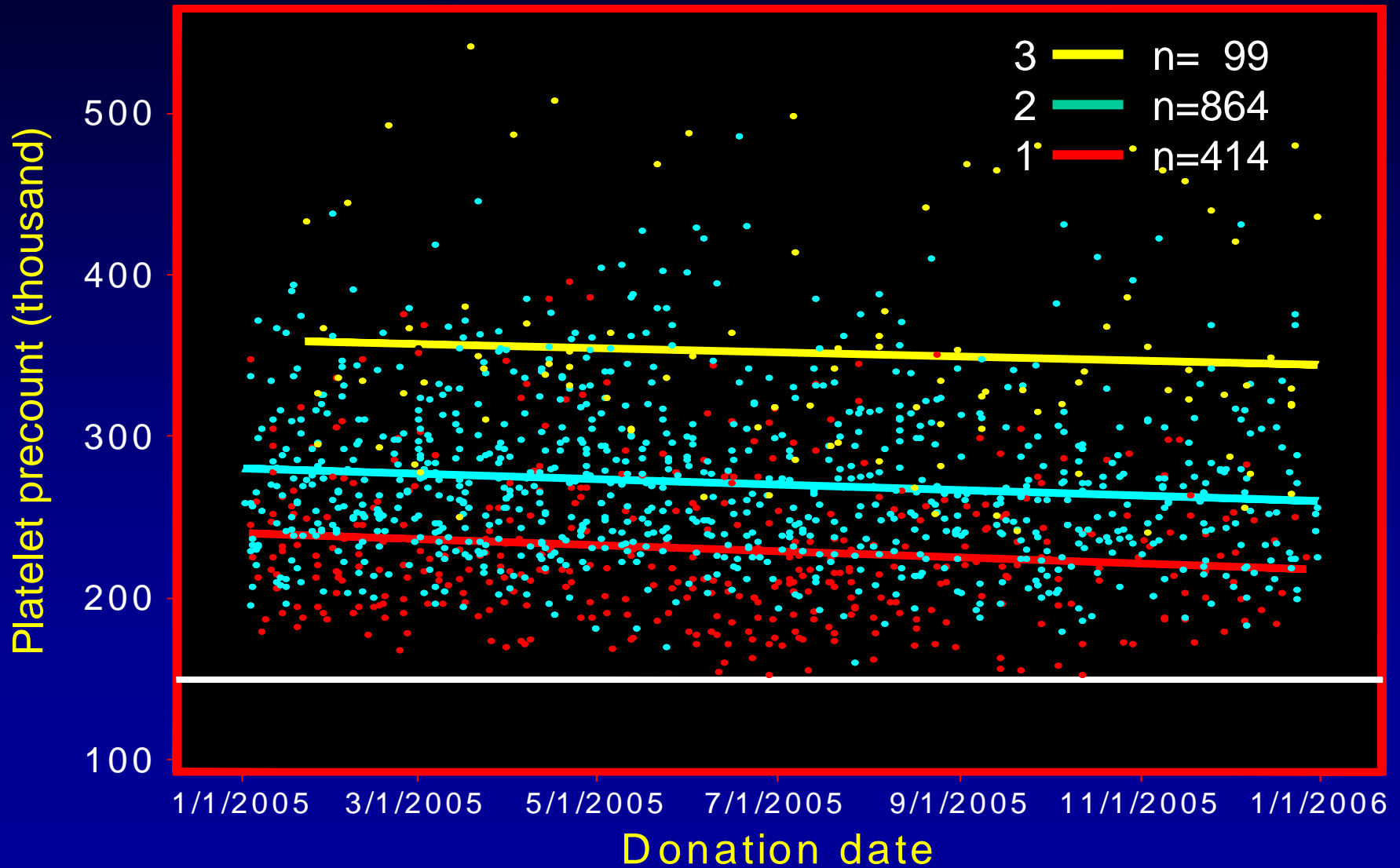


Precounts in 20 frequent FBS donors from 2005 (donation "0" 4/97-1/05 baseline)



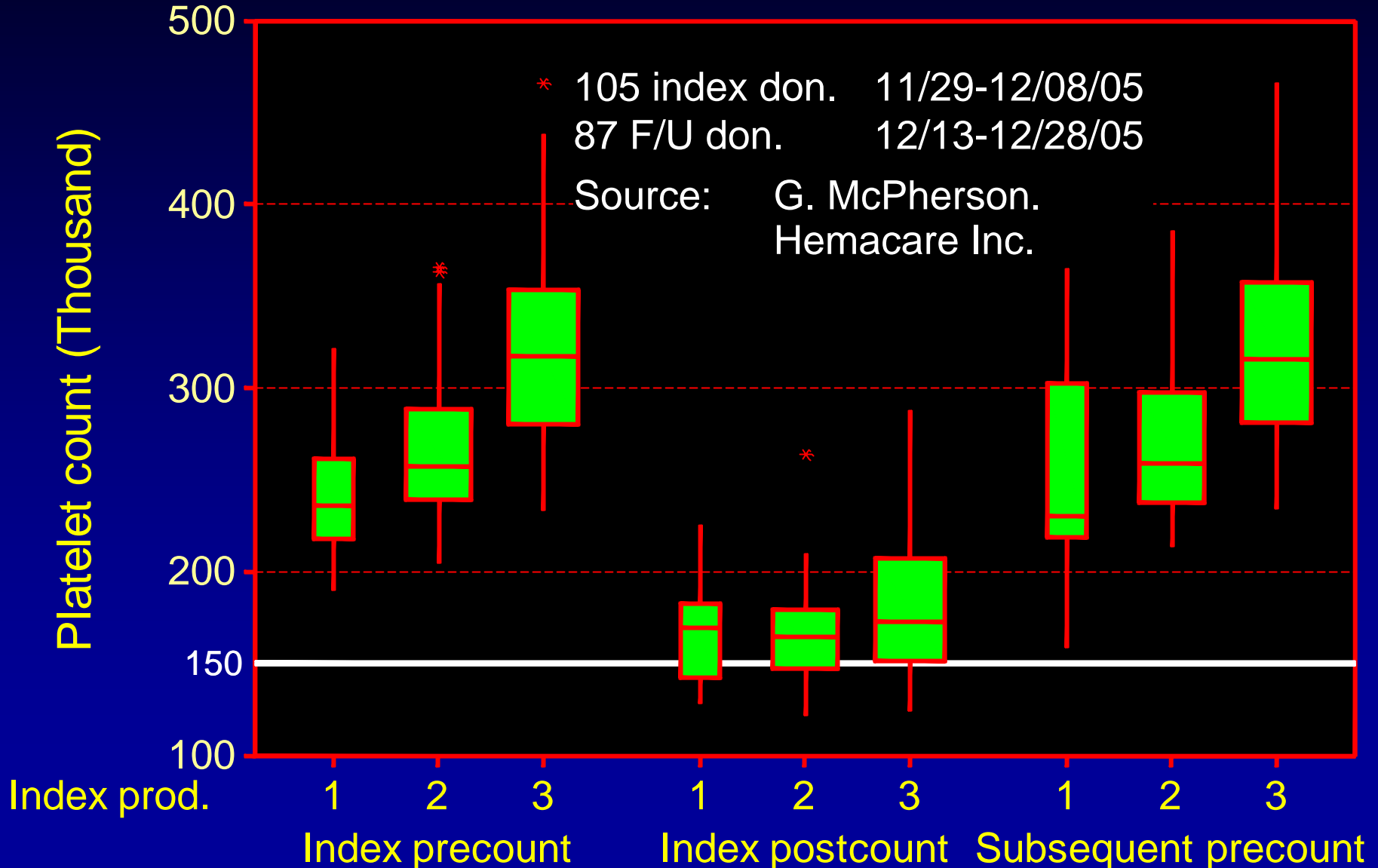
Precount v. products made

60 24K MVRBC donors in 2005



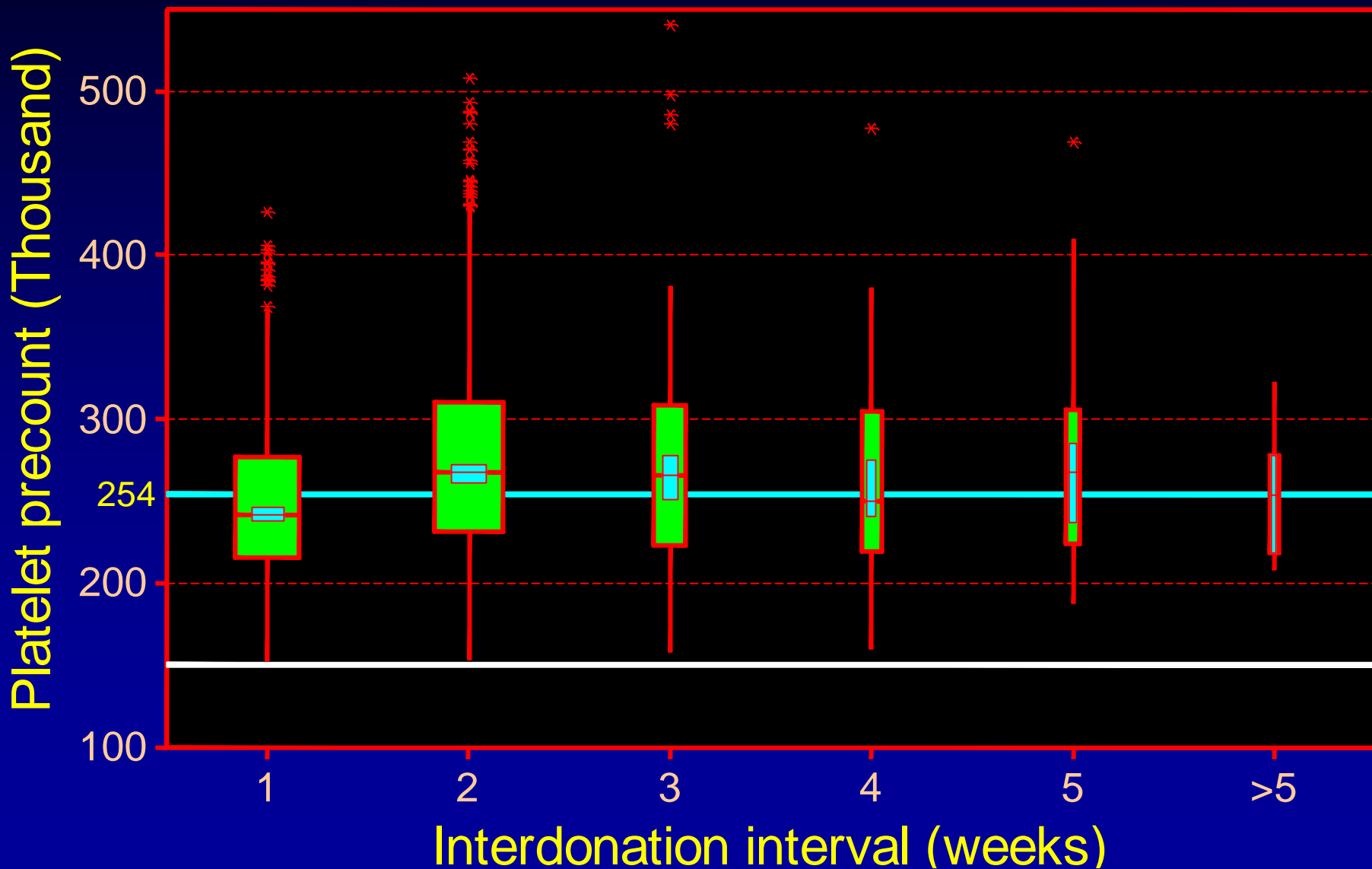
Platelets before/after multiple products

Are postcounts useful??



Precount vs. interdonation interval

MVRBC 24K donors 2005



There is no reason to specify interdonation intervals according to components produced

60 MVRBC 24K donors 2005



Plasma volume losses

“...(V)olume (excluding anticoagulant) collected from a donor during a 12-month period should not exceed:

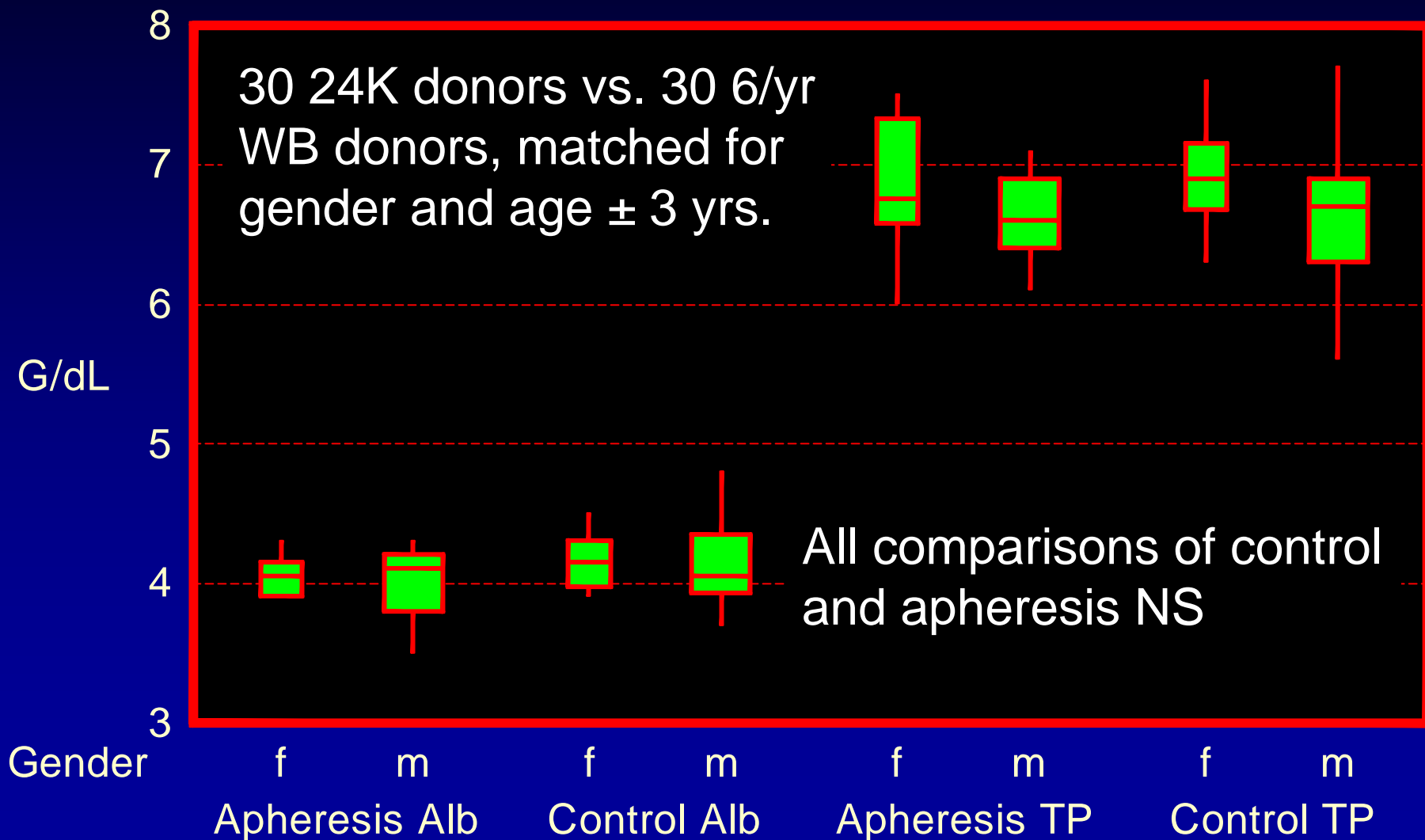
12 liters (12,000 mL) for donors weighing 110-175 lbs

14.4 liters (14,400 mL) for donors weighing more than 175 lbs”

- There is concern about the impact of high volume plasma removal on plasma protein concentrations

Collection facilities will commit to provide FDA data on total protein and albumin levels in frequent donors if this is requested

Total protein and albumin unaffected by frequent plateletpheresis



Conclusions

- Platelet homeostasis works
- No need to restrict components collected
- No need to restrict interdonation intervals according to the number of products produced
- Platelet post-counts are not needed to protect donors
- Plasma volume restrictions will not enhance safety compared to whole blood donors

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