Pall Bacterial Detection System (eBDS)
-7 days storage (release use)

Pall Pre Storage Pooling Systems

-5 and 7 Days of Storage

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eBDS and 7 day storage (release use)

Random Donor PCs (RD PCs) with the Pall Leukotrap RC-PL system have been approved (quality) for 7 days storage

eBDS approved Feb 2004 for QC use

510(k) for release use of eBDS:

Target date for submission February, 2005.

1) Field Data with testing conducted under actual use conditions

2) Post-marketing protocol

(Approval will allow for 7 day storage of single products already approved in terms of quality)

eBDS and 7 day storage (release use)

Results of 118067 tests performed at 23 blood centers in the US - March to Nov 2004

118 (0.1%) "failed" results where:

- **23 confirmed true positives (presence of bacteria in both the eBDS pouch and the platelet mother bag by culture)**
- **76 false positives (no presence of bacteria in neither the eBDS pouch nor the platelet mother bag by culture)**
- **1 false negative (sepsis) with confirmed presence of bacteria (*S.epidermidis*) in the mother bag by culture)**
- **18 were not confirmed false positives (no bacteria in the mother bag by culture, eBDS pouch not tested)**

Field Data with eBDS:
118067 tests performed at 23 blood centers

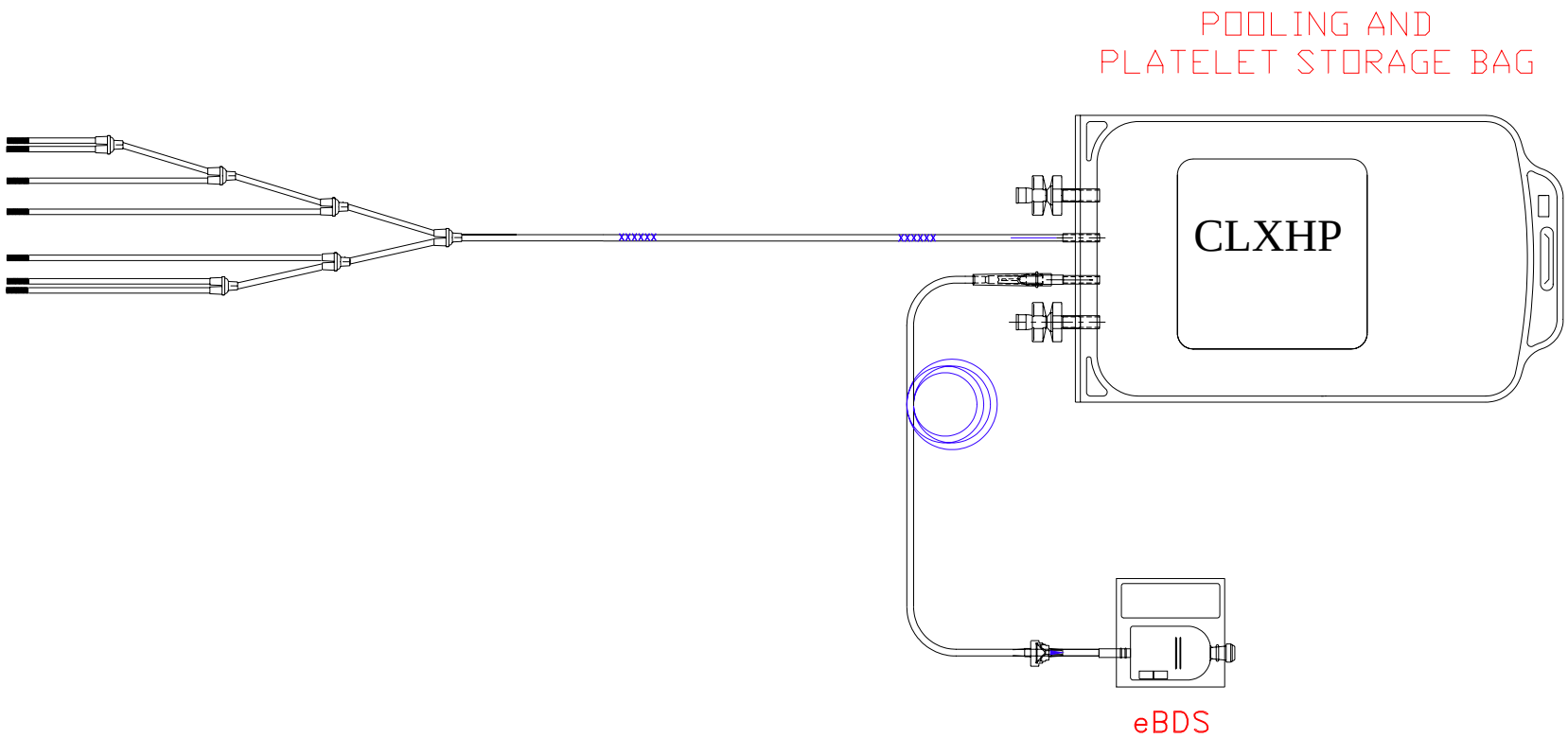
	Tested Samples that "Failed"	Con-firmed True Positives	Confirmed False Negatives	Confirmed False Positives*	Not Confirmed False Positives**
Number	118	23	1	76	18
Percentage of total tested	0.100% (1/1001)	0.019% 1/5133)	0.001% (1/118056)	0.064% (1/1554)	0.015% (1/6559)

* Pouches confirmed to be negative by culture

** Pouches not tested by culture

System for Pre Storage Leukoreduced Pooled Platelet Products

SYSTEM (#1) FOR 5 DAYS STORAGE
1.5L CLX®-HP bag, with eBDS in line.



System for Leukoreduced Pre Storage Pooled Platelet Products

SYSTEM (#1) FOR 5 DAYS STORAGE

1.5L CLX®-HP bag, with eBDS in line.

Suitable for pooled leukoreduced PCs from whole blood collected with the Pall Leukotrap(R) RC-PLsystem using CP2D as anticoagulant.

Store pools of 4-6 units (40-65 mL) of leukoreduced PCs in plasma for up to 5 days with total yields of 2.2 – 5.8 x10^11 plts.

To used with an approved bacterial detection system (eBDS)

Concerns/challenges with pre storage pooling of random donor PC

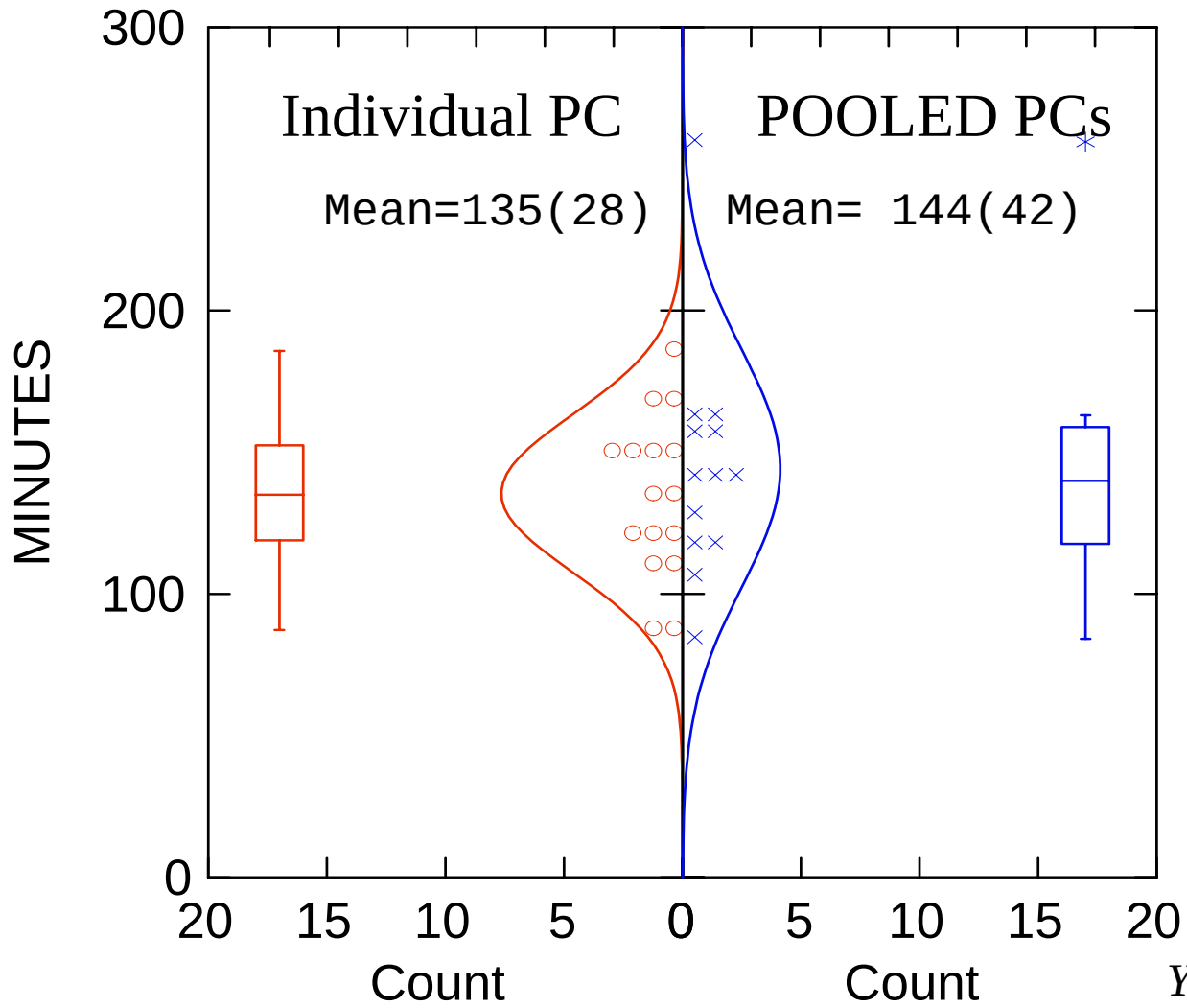
- Risk of elevated bacteria levels after storage
  - Sensitive bacterial detection system
- Lymphocyte activation, generation of harmful levels of cytokines, complement and clotting factors
  - Pre storage leukoreduction
- Platelet Storage Quality
  - Bag able to handle 4-6 RD PCs with a large variability in yields and volume

Bacterial Issues with Pre storage Pooling

- Bacteria growth and final CFU levels may be higher on a pre storage pooled product as compared to a post storage pooled product at the time of transfusion

- At the time of pooling a potentially contaminated individual PC will be **diluted** in the pooled product – thus resulting in a lower CFU/mL level. This may thus challenge the sensitivity of detection with immediate sampling.

Bacterial Growth
Generation (doubling) time of *S.epidermidis* in PC during storage (24-48 hrs)



Young et al. AABB 2004

Effect of dilution with pooling

Probability of obtaining no organism in a 3 ml (eBDS) sample

CFU/mL	*I PC*	*Pool 5 PC**
5.000	0.000	0.049
4.000	0.000	0.089
3.000	0.000	0.164
2.000	0.002	0.300
1.000	0.049	0.550
0.800	0.089	0.620
0.600	0.164	0.700
0.400	0.300	0.790
0.200	0.550	0.890
0.100	0.740	0.940

* 1 contaminated and 4 non contaminated PC

Satisfactory In vitro and in vivo Quality and lymphocyte activation levels at 5 Days of Storage with pooled leukoreduced RDP stored in CLX- HP

STUDY SITES:

1) **Dr. Joe Sweeney - Miriam Hospital, Providence –**

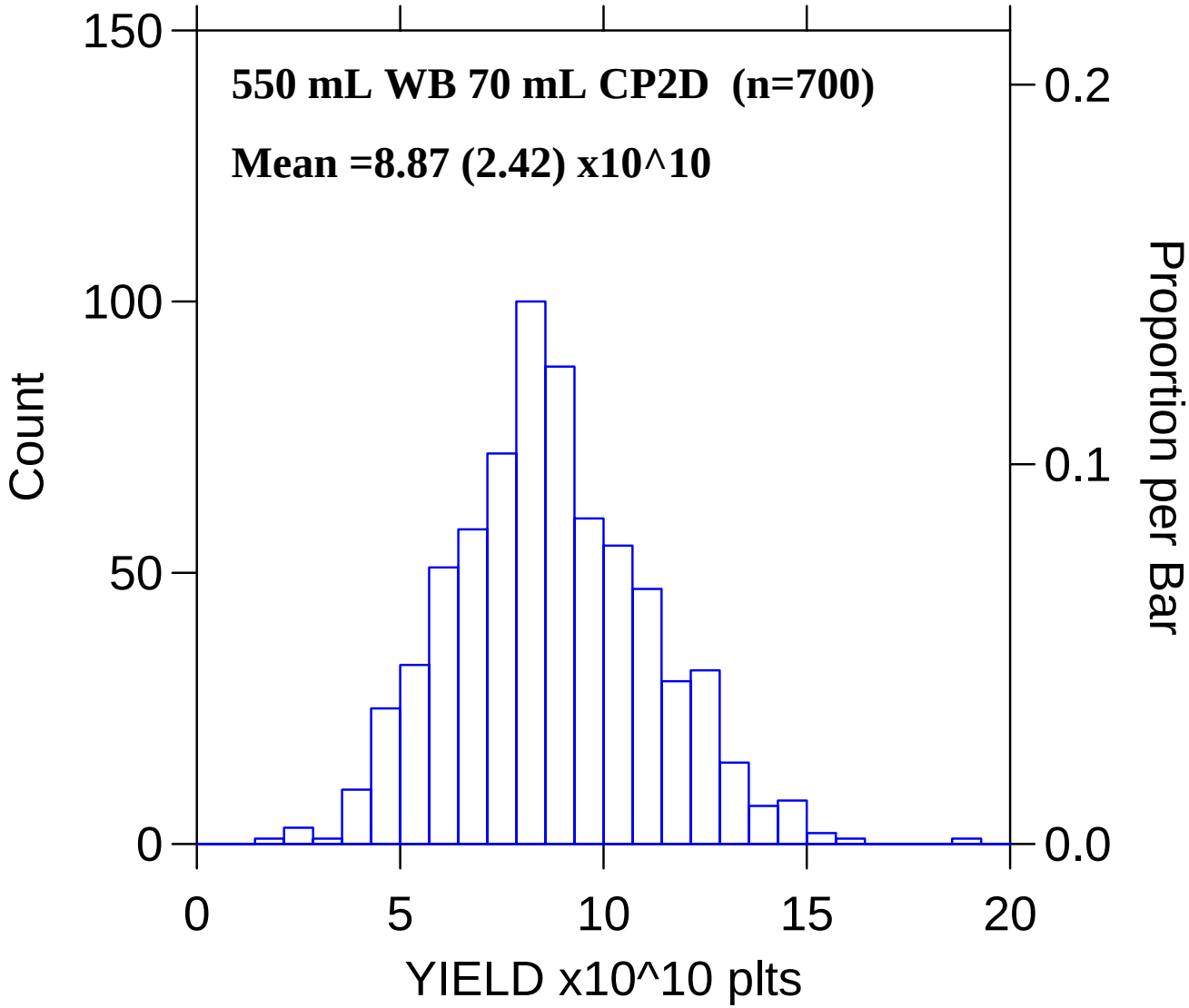
   Prestorage pooled whole-blood-derived leukoreduced platelets stored for seven days, preserve acceptable quality and do not show evidence of a mixed lymphocyte reaction.
   Sweeney JD, Kouttab NM, Holme S et al.
   Transfusion. 2004 Aug;44(8):1212-9.

2) **Dr. Scott Murphy - ARC Penn Jersey, Philadelphia**

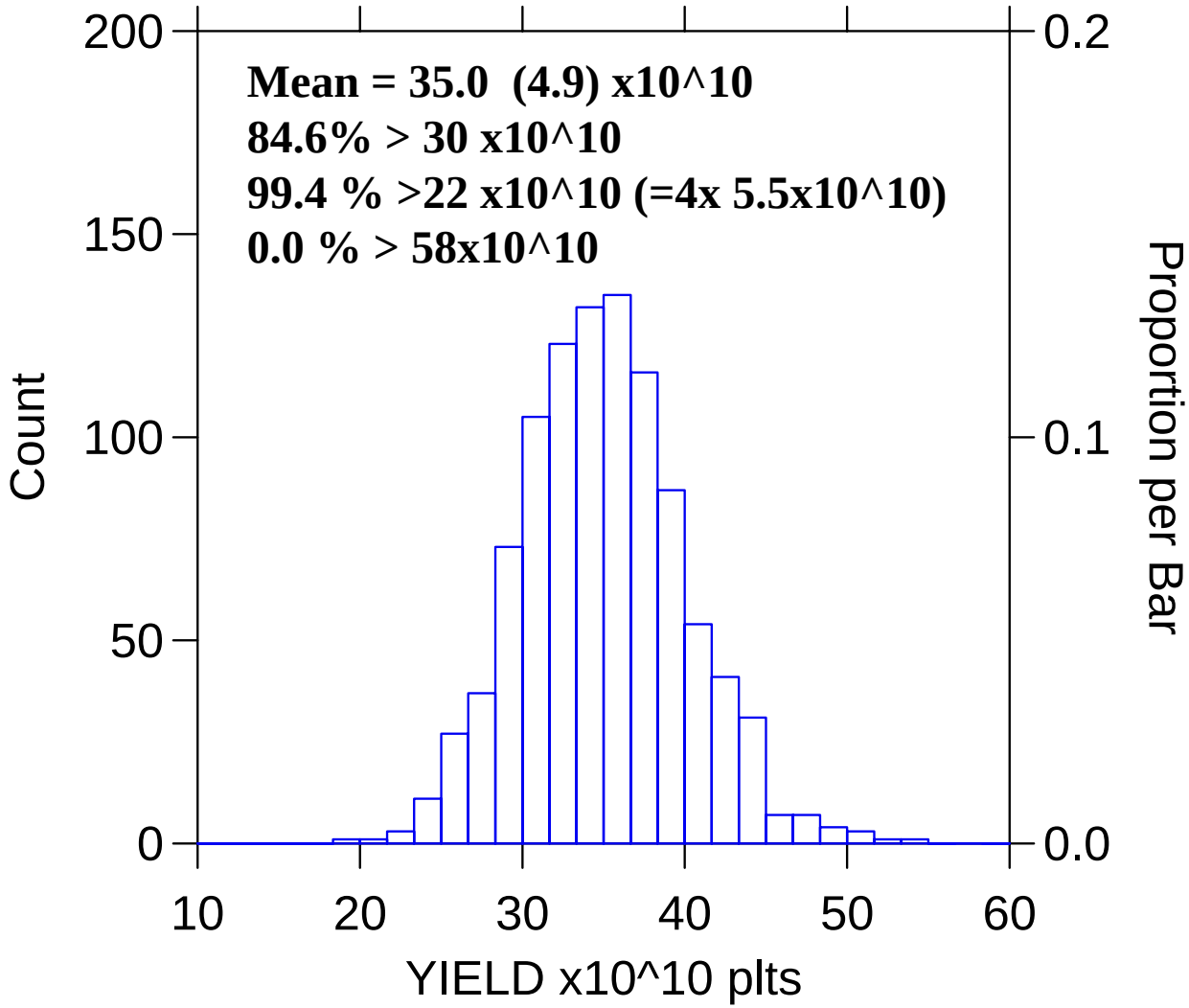
3) **Nancy Heddle - McMaster University, Hamilton -**

   Whole blood derived platelets stored as a pool: a randomized block noninferiority trial. Heddle NM et al. Vox sang 2004, 87(suppl.3).p 6

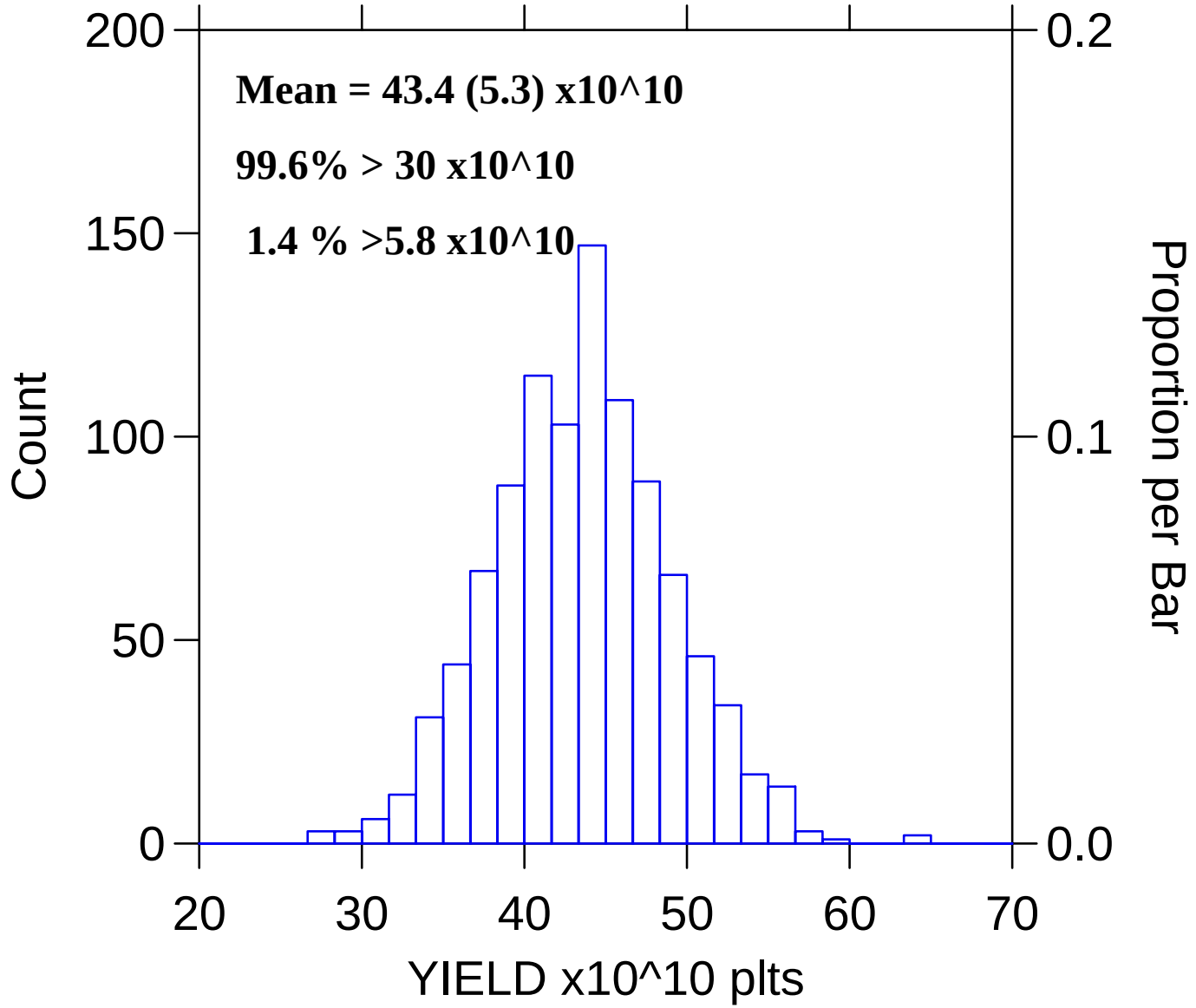
Bag Capacity
Yield Distribution of individual processed PC (Pall RC-PL)



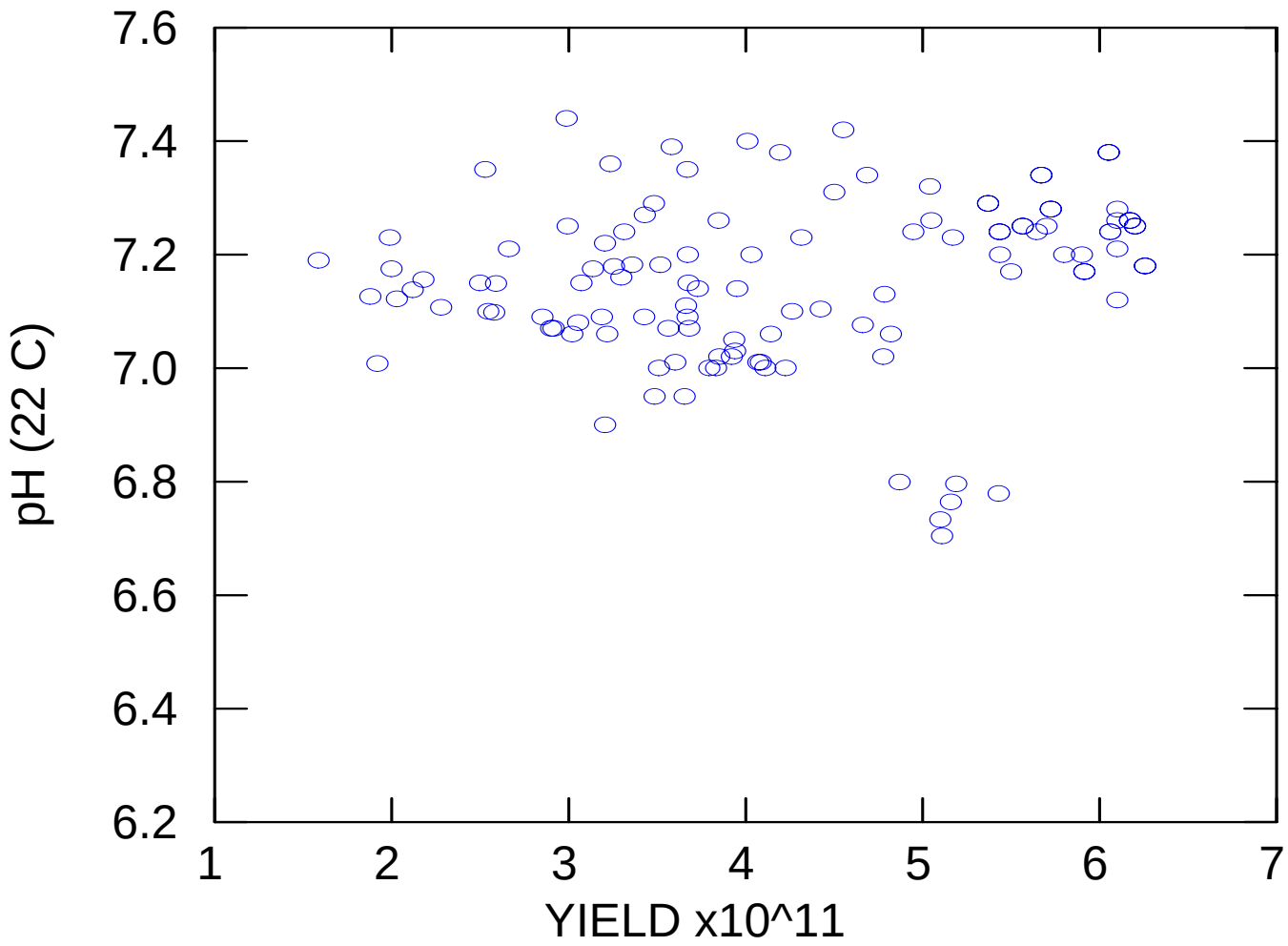
Bag Capacity
Expected Platelet Yield Distribution with a Pool of 4 PC



Bag Capacity
Expected Platelet Yield Distribution with a Pool of 5 PC



PLATELET CAPACITY STUDIES
CLX-HP – 5 DAY STORAGE



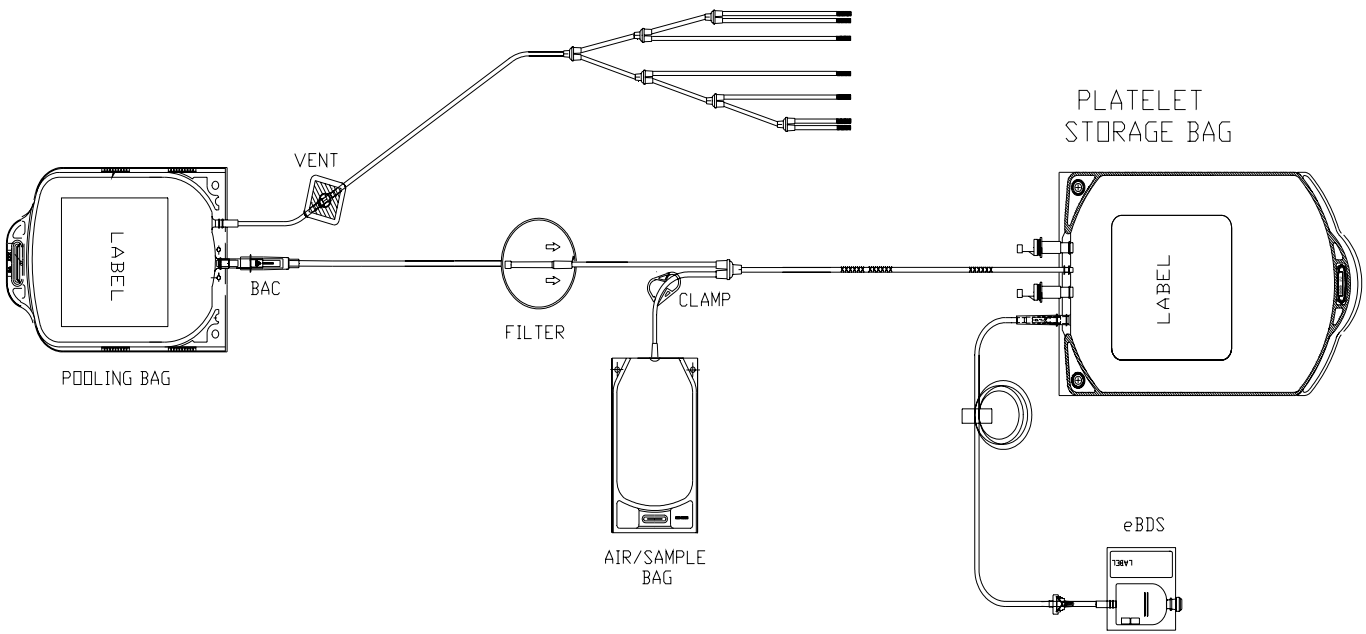
Pall System for Leukoreduced Pre Storage Pooled Platelet Products

SYSTEM (#1) FOR 5 DAYS STORAGE
1.5L CLX®-HP bag, with eBDS in line.

Milestone	*Status*
Lymphocyte/Plasma Activation Studies	Completed
In vitro and In vivo Storage Quality	Completed
CLX –HP storage bag capacity studies (low/high yield, and low/ high volume)	Completed
Studies on eBDS bacteria testing in pooled PCs	February '05
Submit to FDA	March '05

Pooling Set # 2 with Filter for non leukoreduced PC - 7 Days of Storage

Better Blood, Better Care℠



Pre storage pooling and with an inline Sensitive Bacteria Detection System

What are the advantages in terms *Blood Safety and Availability?*

- **The Simplicity and Affordability with 1 bacterial test for 4-6 RD PC:**
- **Enables continuous use of random donor platelets as an important source of platelets**
- **Enables improved bacterial detection compared to current practice**