

Pall Bacterial Detection System (eBDS) 7 days storage

Pall Pre Storage Pooling Systems for random donor PC 5 and 7 Days of Storage

BSAC – May 17th 2005

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eBDS – 7 day storage Update

eBDS and 7 day storage

eBDS approved Feb 2004 for QC use

510(k) for 7 day storage with eBDS:

Submission March, 2005.

- 1) Field Data with testing conducted under actual (routine) use conditions**
- 2) Post-marketing protocol**

Submission is intended for release indication allowing for 7 day storage of all single products (apheresis and RDP) already approved in terms of storage quality

eBDS and 7 day storage (release use)

Results of 114828 tests performed at 23 blood centers in the US - March to Nov 2004

103 (0.1%) “failed” results where:

23 confirmed true positives (presence of bacteria in the eBDS pouch)

43 false positives (no presence of bacteria in the eBDS pouch by culture)

1 missed detection (sepsis) with confirmed presence of bacteria (*S.epidermidis*) in the mother bag by culture)

37 were not confirmed positives (no bacteria in the mother bag by culture, eBDS pouch not tested)



Task Force Survey on Bacterial Contamination*

Results with Culture Methods

<u>Facility Type</u>	<u># Cultures</u>	<u>Init Pos</u>	<u>True Pos</u>
Blood Center	429,827**	1:930	1:4723

*BacT/Alert data (27 of 30 blood centers)

85% Aerobic bottle only

15% Aero and anaerobic bottles

*Advisory Committee on Blood Safety and Availability,
January 2005 (Presented by Marianne A. Silva)



THE ISSUE ABOUT ANAEROBES

Anaerobic bacteria, while documented as contaminants of platelet transfusion products(1,2), are rarely implicated in sepsis reactions (3,4). They have been reported in Japan, less so in Europe and have not been reported at all to the US FDA (5).

- 1. Schelstraete B, Bijmens B, Wuyts G. 2000 Transfusion 40(Suppl):73S**
- 2. Perez P, Salmi LR, Follea G,. Transfusion. 2001 Jul;41(7):862-72.**
- 3. Transfusion Medicine Bulletin Vol. 3, No. 2 - July 2000**
- 4. Ness P, Braine H, King K. Transfusion. 2001 Jul;41(7):857-61.**
- 5. Depcik-Smith ND, Hay SN, Brecher ME.. J Clin Apheresis. 2001;16(4):192-201.**

All reported bacterial transmissions in the past 8 years 1995-2003 have been from aerobic organisms

	Platelet Age (in days) at use							Bacteria Type
	1	2	3	4	5	NK	All	
All Species	0	2	3	6	10	4	25	
<i>Bacillus Cereus</i>				3*		1	4	Aerobe
<i>Coagulase negative Staphylococci</i>					1		1	Aerobe
<i>Enterobacter aerogenes</i>			1*				1	Aerobe
<i>Escherichia coli</i>		1*	1*			1	3	Aerobe
<i>group B Streptococcus</i>			1	1		1	3	Aerobe
<i>Morganella morganii</i>					1		1	Aerobe
<i>Staphylococcus aureus</i>					2	1*	3	Aerobe
<i>Staphylococcus epidermidis</i>		1*		2	6		9	Aerobe

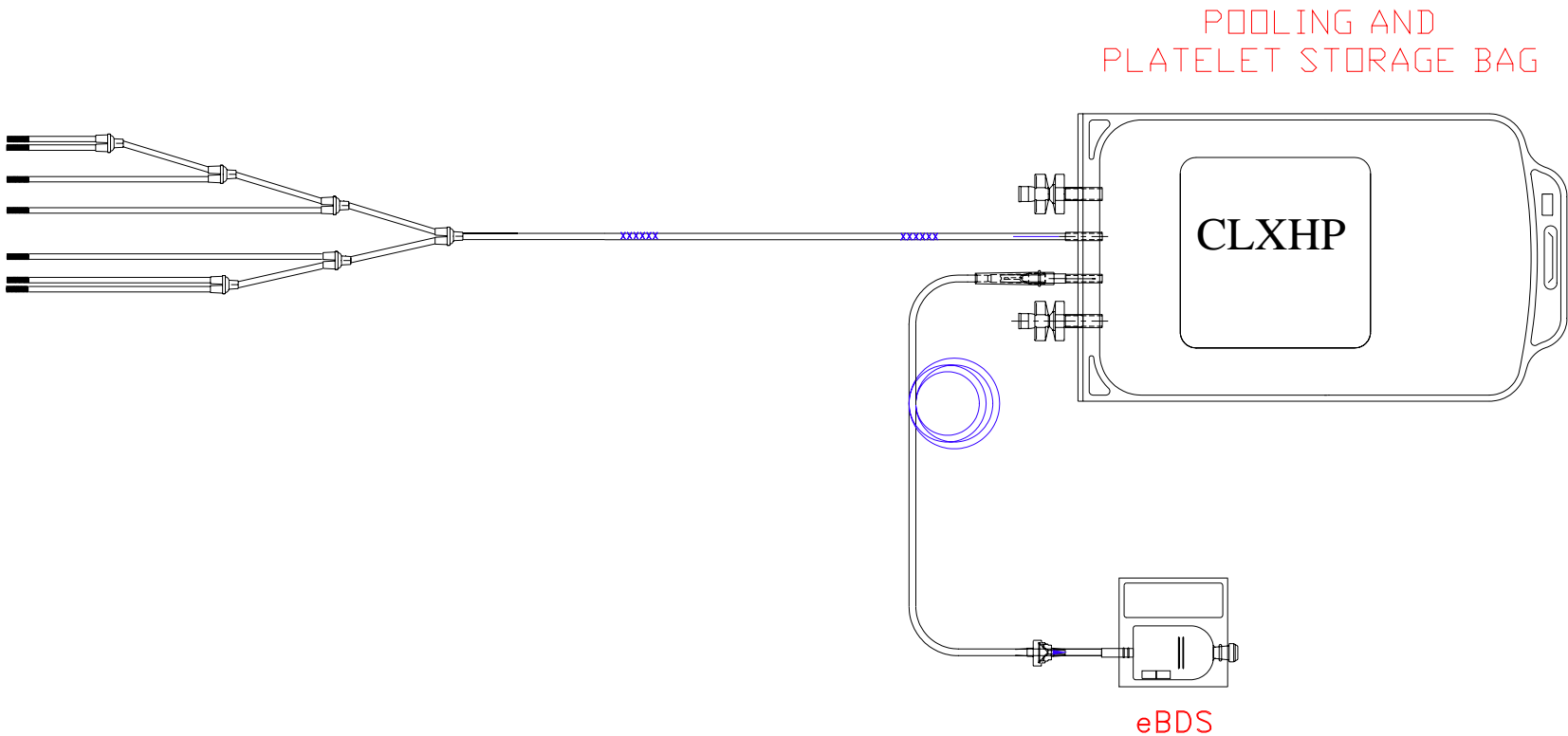
* Infection was implicated in the death of a recipient

Pre storage pooling - Update



System for Pre Storage Leukoreduced Pooled Platelet Products

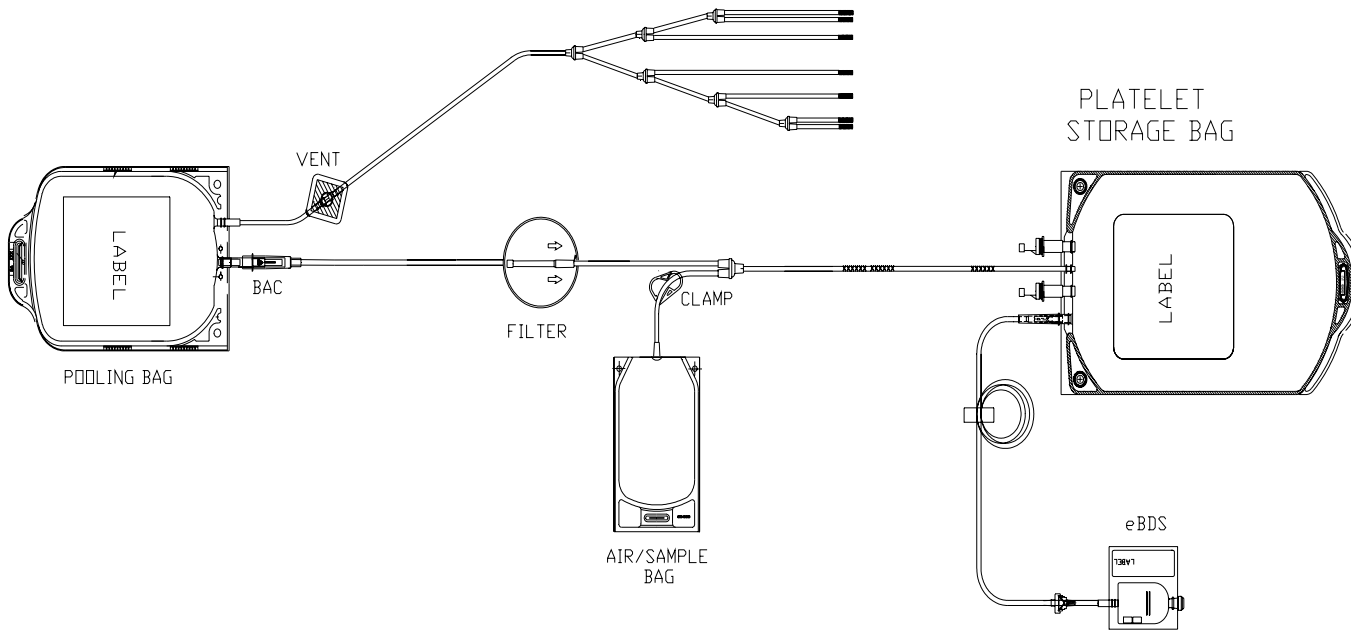
SYSTEM (#1) FOR 5 DAYS STORAGE
1.5L CLX®-HP bag, with eBDS in line.





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

Better Blood, Better CareSM





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 x10¹¹ 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

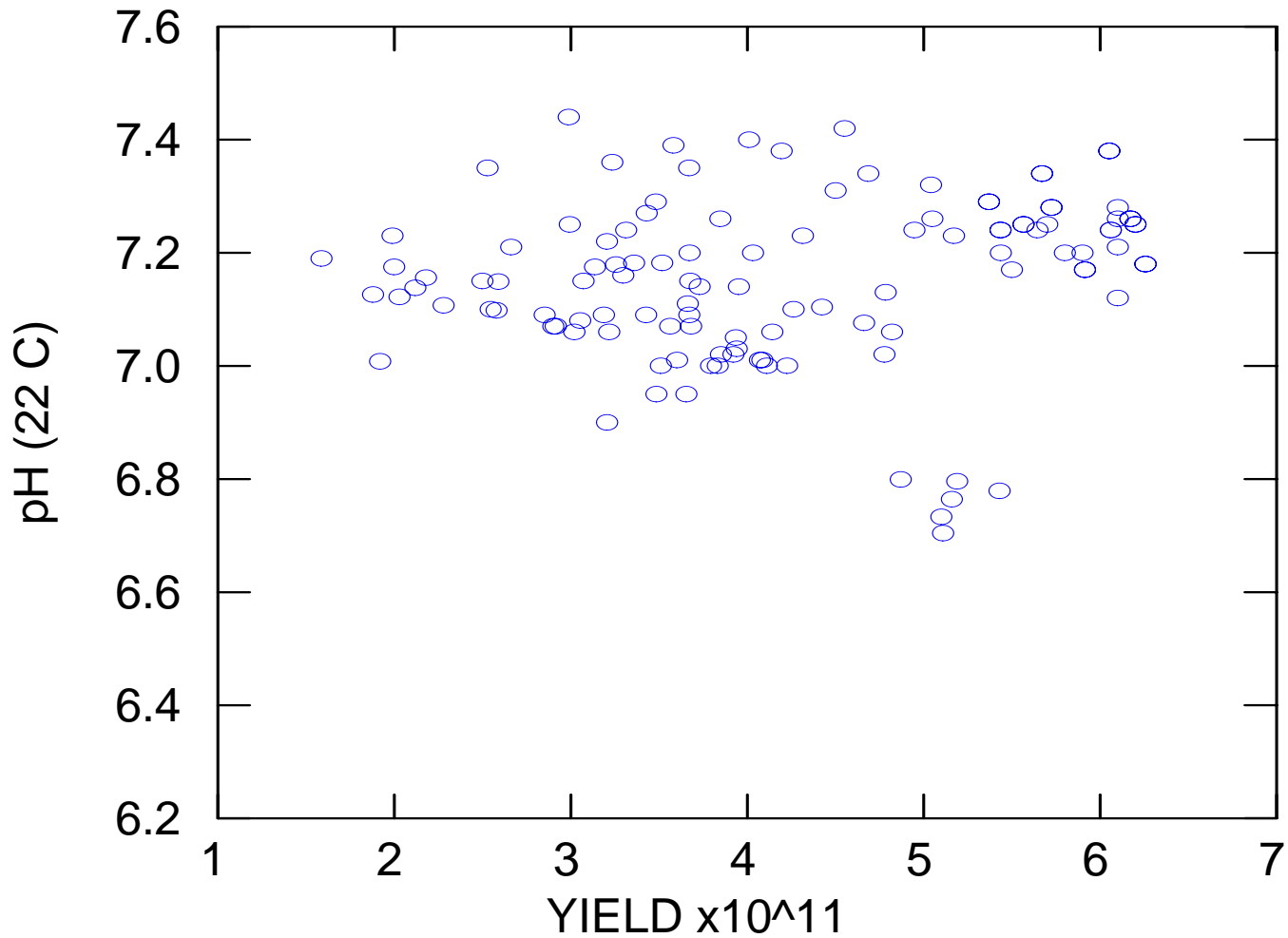


Satisfactory In vitro and in vivo Quality and lymphocyte activation levels at 5 Days of Storage with pooled leukoreduced RDP stored in CLX- HP

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):1212-1219.
- 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

PLATELET CAPACITY STUDIES CLX-HP – 5 DAY STORAGE



Detection of Bacteria in Pooled Platelet Concentrates Using the Pall eBDS

S. Young, R. Smith, S. Perez,

Tricore Reference Laboratories, Albuquerque, NM

S. Holme, M. Cortus, T. Lieu, E. Nelson,

Pall Medical, Covina CA

Study Design

- An individual PCs inoculated with dose of 1-15 CFU/mL of various bacteria.
- Stored for 24 hours at room temperature.
- PC is mixed with 5 other non-inoculated stored PC (pool).
- Samples are then taken for culture and eBDS testing immediately after pooling.
- Samples incubated for 24 hrs at 35 C
- Measurement of oxygen to determine pass/fail.





Pall System for Leukoreduced Pre Storage Pooled Platelet Products

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

<i>Milestone</i>	<i>Status</i>
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	Completed
Submit to FDA	May '05



Pre storage pooling and with an inline Sensitive Bacteria Detection System

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

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