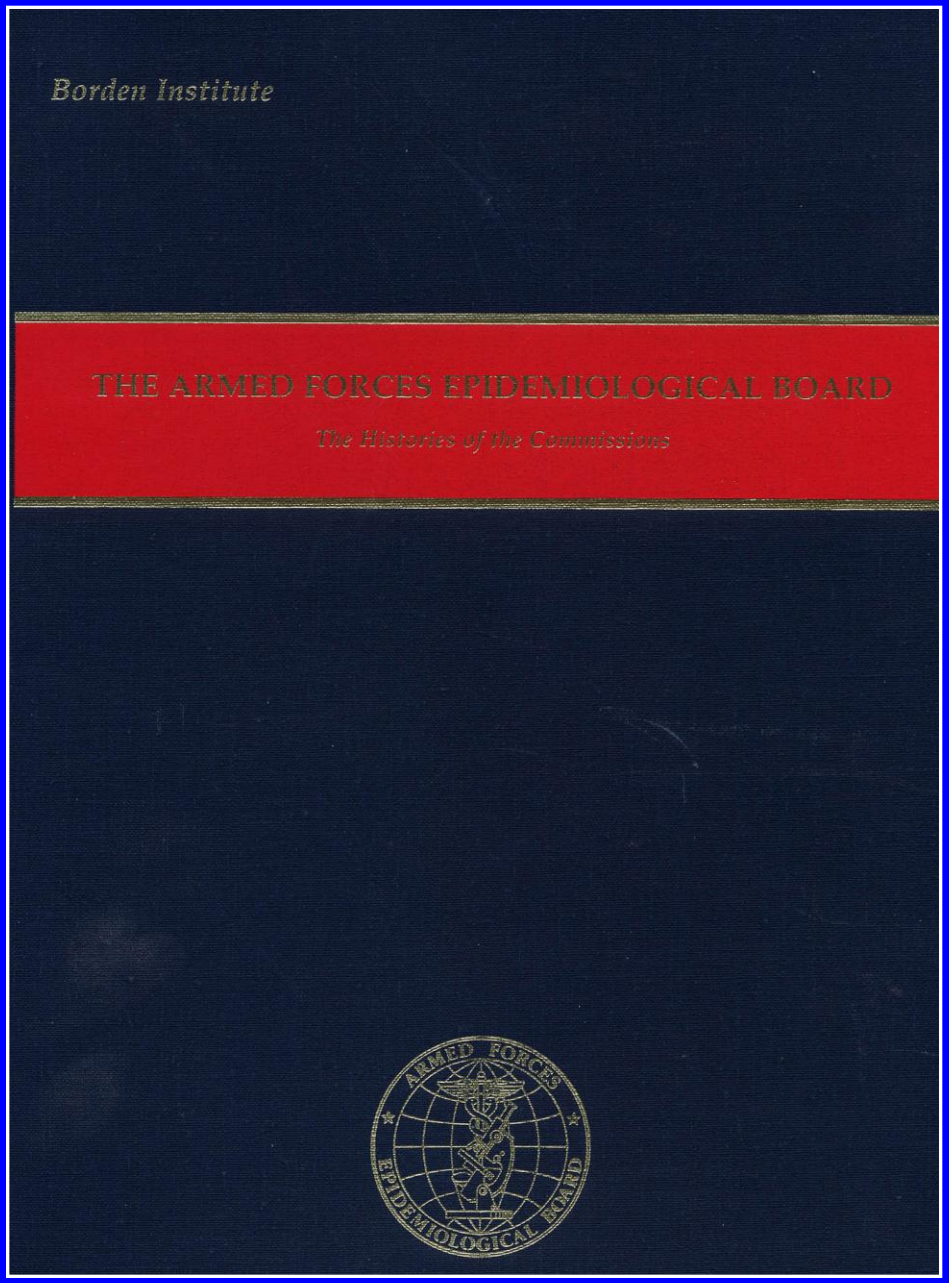
The Warren Air Force Serum Collection

Housed at:
Department of Pediatrics
University of Minnesota Medical School
Minneapolis, MN

“Guardian:” Edward L. Kaplan, M.D.
Professor of Pediatrics
University of Minnesota Medical School
Minneapolis, MN USA

Purpose of this DHB Briefing:

Seek confirmation of AFEB and ASD action from 2004-05 to maintain this valuable Warren Air Force Base serum repository dating from 1949-1952.


Borden Institute
THE ARMED FORCES EPIDEMIOLOGICAL BOARD
The Histories of the Commissions
ARMED FORCES
EPIDEMIOLOGICAL BOARD

USAF Hospital; Warren Air Force Base, Wyoming

I. History of the Collection:

These sera were collected from **Air Force recruits** at the time of the Korean War. They were collected as a part of the extensive studies of streptococcal infections and rheumatic fever carried out by Dr. Charles Rammelkamp, Dr. Lewis Wannamaker, Dr. Floyd Denny, Dr. Harold Houser and others. The group was awarded a Lasker Prize for this work. Much of what is known about the epidemiology of group A streptococcal infections was learned during the Warren studies between 1949 and 1952 which were **supported by the AFEB**..

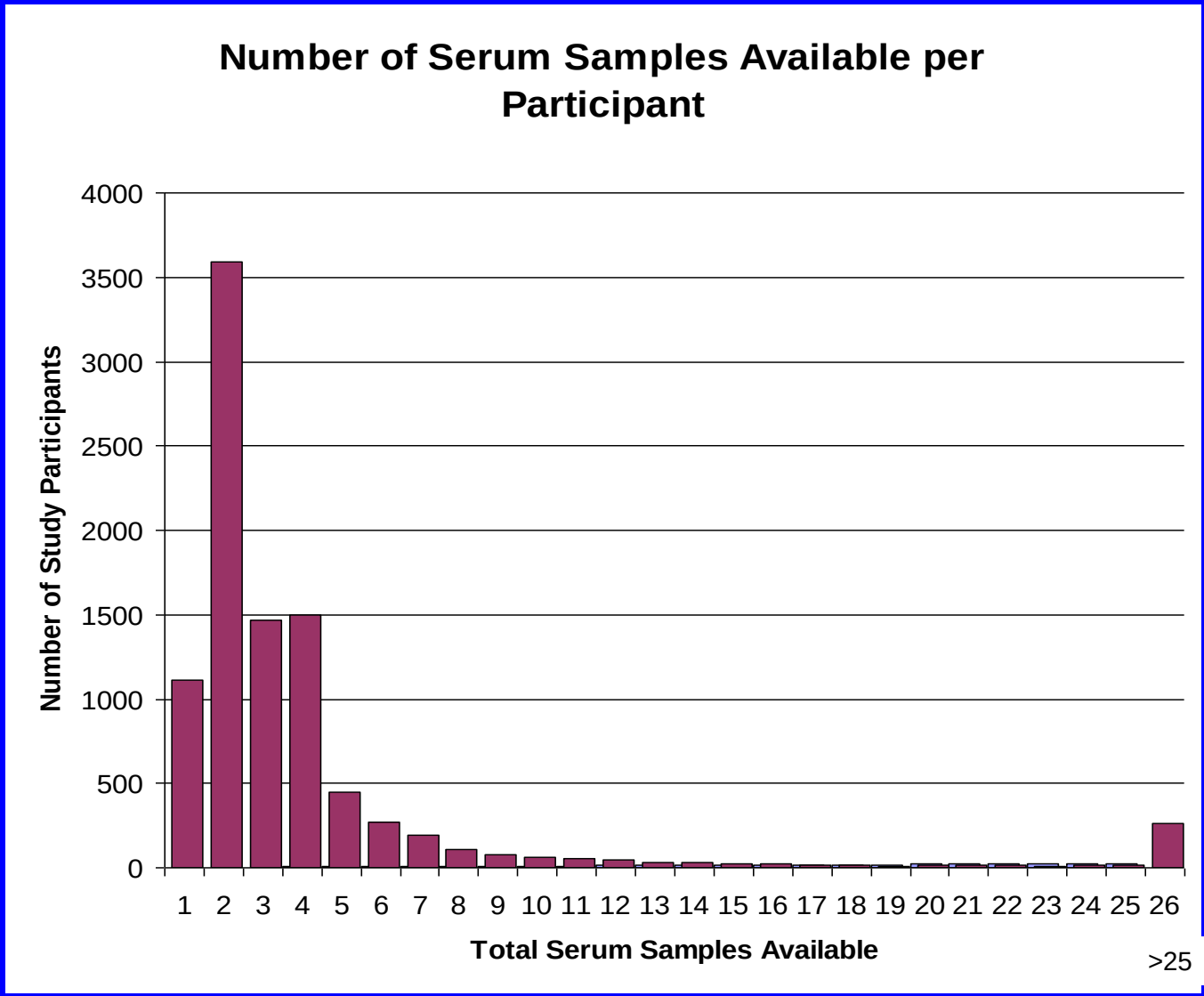
Shortly before retirement in the late 1970s, Dr. Rammelkamp gave the entire collection to Dr. Edward Kaplan (Department of Pediatrics; University of Minnesota Medical School; Minneapolis) to care for and to make certain that only deserving scientific studies would be chosen for future use of the sera.

The samples have been frozen for the past five decades at -20 degrees. Prior to moving the collection to Minnesota, the collection was housed in a walk in freezer. Since being moved to Minnesota the collection has been maintained in freezers at the same temperature. As far as is known, the entire collection has not been subjected to multiple freeze/thaw cycles. At the present time the entire collection is carefully catalogued and put into a computer data base that allows determination of where any given serum is located and how much serum remains from any given identifiable subject. One of the samples from each of the subjects has been thawed and aliquoted into 1.0 ml aliquots in order to eliminate any freeze/thaw problems.

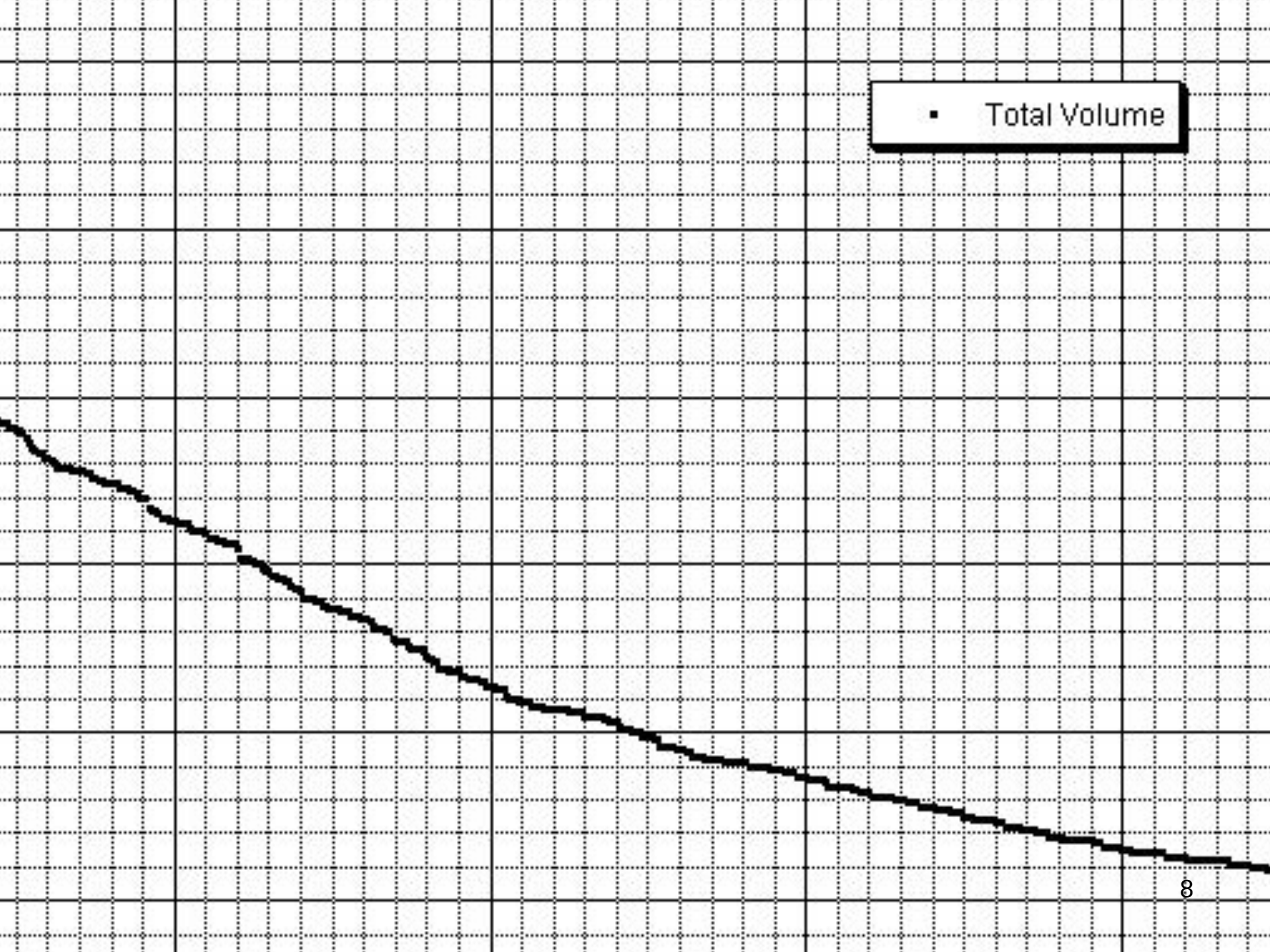
As far as can be determined, there has not been any evidence of signficant “deterioration of antibody within these constantly frozen samples.

II. Collection Size and partial descriptive information:

The serum vial labels display the following information: Serum number, date, last name,
Warren study number identification.
When the information for these sera was entered in the database, an estimated serum
volume was also recorded for each vial of serum.
Warren sera: 48,056 serum vials are available
Mean volume for the 43,095 sera originally was 4.08 mL
Mean number of sera per individual was 43,095/9427 = 4.6
1110/9422 (12%) had only one serum available.
Approximately ½ of patients had 6 or fewer serum samples available.



Serum samples available in collection


Total Volume

Brief "recent" history

- December 2004: Presentation of collection to the AFEB meeting.
- May 2005: Memorandum from Drs. Poland and Gibson to ASD Winkenwerder
- September 2005: Memorandum from ASD Winkenwerder to AFIP.
- November 2008: Drs. Kaplan and Gibson visit Wright-Patterson AFB (LTC Woodruff)
- April 2009: Telephone conference; Memo from MFUA (Erdtmann)
- May 2009: Briefing of DHB

- AGENDA -

ARMED FORCES EPIDEMIOLOGICAL BOARD
30 November – 1 December 2004

Stephen M. Ostroff, M.D., AFEB President

Roger L. Gibson, Colonel, USAF, BSC, AFEB Executive Secretary

Host: Naval Health Research Center, United States Navy

1 DECEMBER 2004 - OPEN SESSION

Venue for the meeting is the Island Club,
North Island Naval Air Station,
San Diego, CA 92155-5000

0800	Opening Remarks	Ms. Embrey/Dr. Ostroff/Col Gibson
	LUNCH	
1230	Warren AFB Serum Repository	Dr. Kaplan

Warren AFB Original Card Files

USA-MD-380-34 SL

USA-MD-380-34 SL
Bryant, Arthur T. Jr. 12313736
P-516
P-1435
P-878
Bat - Bri
Bri - Ce
USA-MD-380

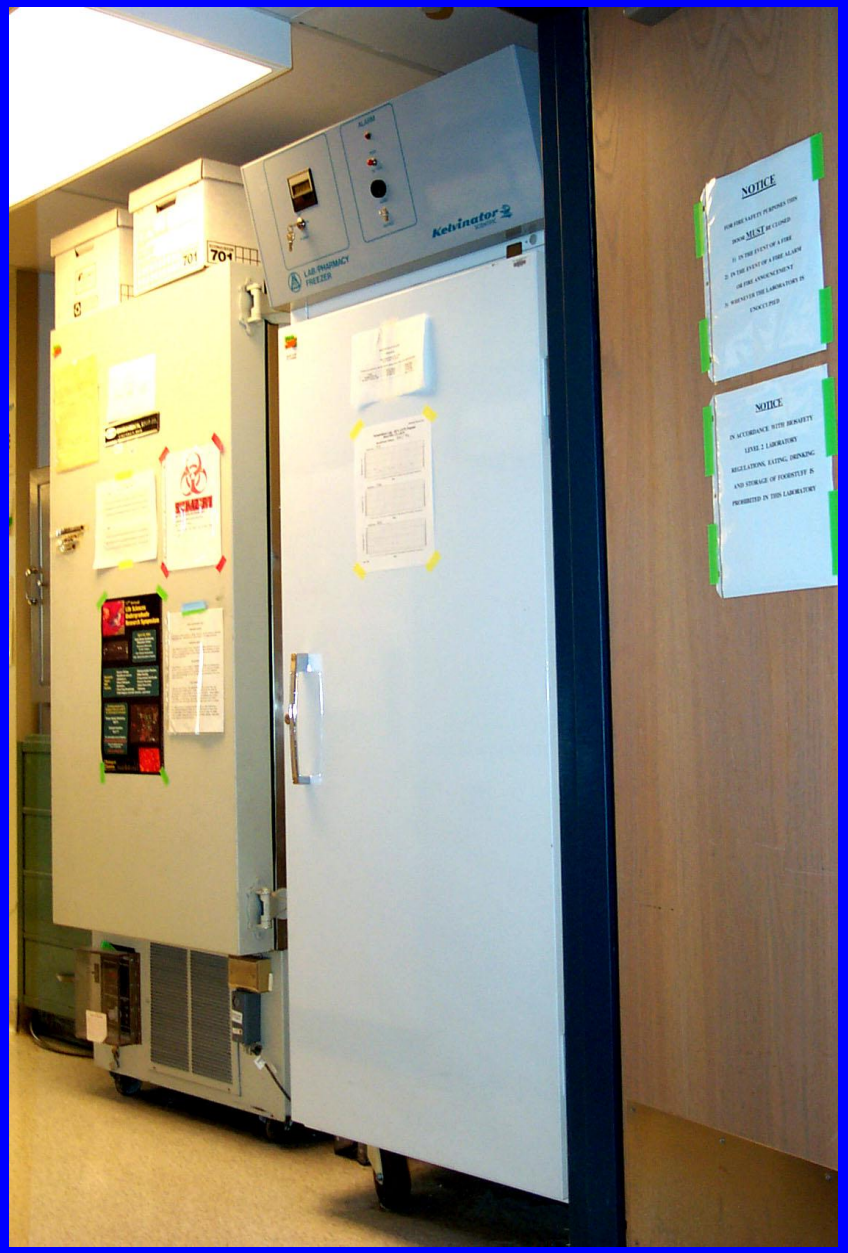
USA-MD-380-34 SL
Buel, Donald E.
16412129
P-17499
P-15815
Q-2106
Bri - Ce

Current storage (partial view) in “new” freezers

ALARM
LAB/PHARMACY
FREEZER
FREEZER #1
BOX LOCATION

3275
Mar 49
urner
-1136

3300
29 Mar 49
Guiliano
P-1041



Freezer for aliquoted samples

Aliquoted samples stored in freezer

Storage of aliquoted samples

All samples (aliquoted or not) stored in data base with exact freezer box location

BIOHAZARD

Stored aliquoted samples

Recent ice build up. Accidents do happen and need to be anticipated.

Examples of importance of this collection:

Lasker Award for these studies in 1954

Classic papers in the field of streptococcal infections and sequelae

Future studies: Examples

Prevention of rheumatic fever: treatment of the preceding streptococcal infection

Denny, F. W., L. W. Wannamaker, W. R. Brink, C. H. Rammelkamp, Jr., and E. A. Custer

New England Journal of Medicine 143:151-3, 1950

The relation of antibody production to the development of rheumatic fever

Denny, F. W., L. W. Wannamaker,
and C. H. Rammelkamp, Jr.

American Journal of Diseases of Children 80:506, 1950

Effect of penicillin and Aureomycin on the natural course of streptococcal tonsillitis and pharyngitis

Brink, W. R., C. H. Rammelkamp,
F. W. Denny, and L. W. Wannamaker

American Journal of Medicine 10:300-8, 1951

Prophylaxis of acute rheumatic fever by treatment of the preceding streptococcal infection with various amounts of depot penicillin

Wannamaker, L. W., C. H. Rammelkamp, F. W. Denny, W. R. Brink, H. B. Houser, E. O. Hahn, and J. H. Dingle

American Journal of Medicine 10:673-95, 1951

Comparative Effects of Penicillin, Aureomycin, and Terramycin on Streptococcal Tonsillitis and Pharyngitis

Denny, F., L. Wannamaker, and E. Hahn

Pediatrics 11:7-14, 1953

The effect of penicillin prophylaxis on streptococcal disease and the carrier state

Wannamaker, L., F. Denny, and W. Perry, et al

New England Journal of Medicine 249:1-7, 1953

Transmission of group A streptococci, I. The role of contaminated bedding

Perry, W. D., A. C. Siegel, C. H. Rammelkamp, Jr., L. Wannamaker, and E. C. Marple

American Journal of Hygiene 66:85-95, 1957

Transmission of group A streptococci, II. The role of contaminated bedding

Perry, W. D., A. C. Siegel, and C. H. Rammelkamp, Jr.

American Journal of Hygiene 66:96-101, 1957

Example of "*recent*" *studies* utilizing Warren sera and MFU collaboration

45-Year Follow-up of Hepatitis C Virus Infection in Healthy Young Adults

Seeff, L. B., R. N. Miller, C. S. Rabkin, Z. Buskell-Bales, K. D. Straley-Eason, B. L. Smoak, L. D. Johnson, S. R. Lee, and E. L. Kaplan

***Annals of Internal Medicine* 132:105-111, 2000**

A collaborative effort

Rubio-Tapia A, Kyle RA, Kaplan EL, Johnson DR, Page W, Erdtmann F, Brantner TL, Kim WR, Phelps TK, Lahr BD, Zinsmeister AR, Melton III LJ, Murray JA. Increased Prevalence and Mortality of Undiagnosed Celiac Disease.
Gastroenterology (in press, 2009).

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Thank you for your attention.

Questions?