



BLOOD BANKS ASSOCIATION OF NEW YORK STATE

BLOOD BANKS ASSOCIATION OF NEW YORK STATE, INC. QUARTERLY

Volume 54 No. 1 | Winter 2020

PRESIDENT'S LETTER

Dear BBANYS Members,

I wish all a very happy and healthy New Year! As we say our goodbyes to 2019, we can reflect upon all of the great accomplishments and events that we have achieved as an organization, and we now look forward to the exciting events we have planned ahead with a "2020 vision". Certainly, we anticipate another highly educational Annual Meeting in Rochester, known as the Flower City, this coming June. But closer in mind is our inaugural Town Hall Meeting, hosted on January 10th, during which we got together via the web to discuss strategies to implement the FDA Guidance on Bacterial Risk Control Strategies to Enhance the Safety and Availability of Platelets as required by the spring of 2021. We do plan on hosting future Town Hall Meetings and invite all members to submit proposed topics.

In the meantime, please enjoy this issue of the BBANYS Quarterly, which includes an informative article covering the re-mergence of whole blood transfusions for trauma resuscitation.

President's
Letter **1**

BBANYS
Member Spotlight **2**

The Whole Truth
About Blood **3**

Education
Committee Update **7**

Member Resources,
Webinars, Events **8**

Board **9**



Respectfully,

Mark T. Friedman, DO
BBANYS President

BBANYS Member Spotlight

Janet Gatti, MS, MT(ASCP)SBB, Blood Bank Quality Assurance Manager, Stony Brook University Hospital, Stony Brook



blood bank career has spanned over 40 years! I find my career to be both rewarding and challenging.

How has being a BBANYS member impacted your blood banking career?

I became a member of BBANYS because I feel that it is important to support an organization that represents my profession. Since we're a state organization, I find that it is easier to network with fellow members. I have observed the growth over the years of BBANYS and the expansion of the educational programs that are offered. Blood bank is a constantly changing field and it is important for everyone in this profession to be cognizant of the latest developments. Membership in this organization and others such as AABB and ASCP enable me to expand my knowledge of the field and provide accurate information to my facility. My favorite feature is the Quarterly Newsletter. I have attended many of the annual meetings and have benefitted from the educational programs that are presented. I have also subscribed to many of the webinars. These rewarding programs cannot continue without membership support. I am grateful for all the members of BBANYS that have contributed in leadership roles.

What fun fact about yourself would you share with others?

I'm a member of my church choir as a soprano. Every year at this time, we perform a benefit concert featuring Handel's Messiah. We also perform music from composers such as Bach, Pergolesi, and Mozart. I had the pleasure of joining my choir for a trip to Austria to perform a composition by Mozart with the Salzburg choir. My other passion is football; I'm a lifetime fan of the New York Jets!!!

How long have you been a BBANYS member?

I have been a member for approximately 20 years.

How long have you been in your current blood bank role at Stony Brook University Hospital? How long have you been involved in the blood banking field altogether?

I have been the Quality Assurance Manager of the Blood Bank at Stony Brook University Hospital for the past 19 years. In my current position, I'm responsible for SOP management, the quality program and audits, staff technical training and competency, validation of new equipment, processes, information system upgrades, and regulatory compliance. Since Stony Brook is a teaching hospital, I'm also responsible for training the clinical laboratory science students that rotate through our department, a role that I truly enjoy! Prior to this position, I was the Blood Bank Supervisor at Huntington Hospital for approximately 6 years. Before that, I was a Blood Bank Technologist at Stony Brook for 15 years.

I have a BS degree in medical technology and biology from Stony Brook University. I later earned an MS degree in Health Care Policy and Management from Stony Brook University. I became ASCP certified as an MT after graduation, and I received my SBB in 1995. My

The Whole Truth about Blood: The Renaissance of Whole Blood Transfusions in Trauma Care

By: *Tauhid Awan, MD, PGY-2 and Nnaemeka Ibeh, DO, PGY-2 (Department of Pathology, Mount Sinai Health System)*

Massive hemorrhage is the leading cause of preventable death due to trauma. Hemorrhage can lead to shock and coagulopathy. U.S. hospital data on trauma patients show that coagulopathy, which is associated with early mortality, occurs in 28% of hospital admissions. Different combinations such as fresh whole blood, blood component therapy, colloids, and crystalloids have all been used in trauma care. Although component therapy became favored by the late 1980's, use of whole blood in trauma care is making a comeback, specifically low-titer group O whole blood (LTO-WB).¹

Military establishments have successfully been using group O whole blood for trauma resuscitation since 1917, but towards the end of World War II a severe hemolytic transfusion reaction due to ABO minor incompatibility led to high titer screening for anti-A and anti-B with a cutoff value of 200 or 256 (depending on location).² Although arbitrary, the cutoff values proved to be effective with no hemolytic transfusion reaction reported after transfusion of approximately 400,000 high-titer and low-titer group O whole blood units to group O and non-group O recipients, respectively, during the Korean War.³ Civilian hospitals began to incorporate the successful military-based whole blood programs into their trauma resuscitation protocols, but the practice quickly fell in favor of component therapy due to its ability to effectively treat isolated cytopenias.

A 2007 study found that there was improved survival to hospital discharge among casualties suffering from combat-related trauma if a high plasma to red blood cell (RBC) ratio was transfused for resuscitation.⁴ Furthermore, the PROPPR (Pragmatic Randomized Optimal Plasma and Platelet Ratios) clinical trial demonstrated that a plasma to platelet to RBC ratio of 1:1:1 for massive transfusions was as safe as a ratio of 1:1:2 with no significant differences in mortality at 24 hours or at 30 days. Nonetheless, deaths due to exsanguination at 24 hours were fewer in the 1:1:1 group.⁵ As a result, a 1:1:1 ratio is now widely accepted as standard of care for massive transfusion protocols. In fact, using ratios of 1:1:1 have resulted in a decrease in the hospital hemorrhagic death rate in military casualties from 40% to 14% during the last 15 years.^{6,7} In light of these compelling data supporting the use of a 1:1:1 ratio

to mimic physiologic proportions, one might ask: why not use whole blood, an innate 1:1:1 product?

The rationale behind the resurgence of whole blood use is that it delivers all of the active components of blood necessary to maintain tissue oxygen support and hemostasis in only one product (see Table for benefits of LTO-WB). Whole blood also does not require component modification, therefore reducing storage requirements. Replacing each trauma pack (i.e., 5 RBC units, 5 plasma units, and an apheresis platelet unit) with 5 whole blood units results in a significant (> 50%) reduction in the number of blood bags that need to be hung; this optimizes logistics at the point of care.^{8,9} While there may be concern about loss of clotting factor activity in stored whole blood, there is evidence of significant retention of factor activity (at or above 50%) at 14 days, including retention of fibrinogen and factors V, VII, and VIII.¹⁰ Meanwhile, cold-stored platelets have increased hemostatic effect for trauma use (due to cold activation) with reduction of the risk of septic (bacterial contamination) transfusion reactions associated with room temperature-stored platelets.¹¹ Reconstituted whole blood (1:1:1) is a more diluted product than whole blood due to the combined anticoagulant and additive solutions in each component. Therefore, reconstituted whole blood actually produces an anemic, thrombocytopenic, and coagulopathic product. Finally, a recent study conducted at the University of Texas Health Science Center in Houston that compared hemolysis panels between patients receiving LTO-WB versus those receiving component therapy concluded that the LTO-WB group showed similar evidence of laboratory hemolysis and transfusion reaction rates and was associated with a reduction in post-emergency department transfusions with an increase likelihood of survival.¹²

AABB Standard 5.15.1 in the 31st edition of the Standards for Blood Banks and Transfusion Services has been updated to include transfusion of LTO-WB for non-group-O recipients or recipients whose ABO group is unknown provided that the institution generates a policy specifying the following:

- A defined threshold for "low titer"
- Which patients are eligible/ineligible for LTO-WB transfusion

- Maximum number of LTO-WB allowed per patient
- How to monitor for post-LTO-WB transfusion complications¹³

Some centers in the U.S. have already begun to implement the use of whole blood transfusions for severe trauma such as the University of Alabama at Birmingham Hospital, Mayo Clinic in Rochester, Minnesota, and the University of Pittsburgh Medical Center.¹⁴⁻¹⁶ However, there is paucity of literature regarding whole blood

transfusions in traumatic cases in the pediatric population, so this area warrants further study. In conclusion, there are many advantages of using LTO-WB compared to individual components in trauma cases. Yet, widespread adoption of LTO-WB across civilian hospitals for trauma support would require a collaborative effort between the blood collection centers, hospital transfusion services, emergency medical systems, and trauma centers.

Table 1
Benefits of LTO-WB Compared to Component Therapy in Severe Trauma

Safety	<ul style="list-style-type: none"> - LTO-WB has equivalent risk of hemolysis/transfusion reactions compared to components - Reduced risk of bacterial contamination due to cold storage of platelets in LTO-WB compared with room temperature-stored platelets
Efficacy	<ul style="list-style-type: none"> - LTO-WB less diluted product compared to component trauma packs - Retention of clotting factor activity at 14 days of storage for LTO-WB - Improved hemostasis for trauma use with cold-stored (activated) platelets in LTO-WB
Logistics	<ul style="list-style-type: none"> - Reduced storage requirements of LTO-WB compared with components - Reduced number of blood bags that need to be hung at the bedside for LTO-WB

Adapted from Cap AP, Beckett A, Benov A, et al.: Whole blood transfusion. Mil Med 2018; 2: 44– 51.

References:

1. Goforth CW. Military Critical Care Nursing: Navy. Fresh Whole Blood Transfusion: Military and Civilian Implications. *Critical Care Nurse*. 2016;36(3):50-57. doi:10.4037/ccn2016780
2. Crosby, William H., and Joseph H. Akeroyd. Some immunohematologic results of large transfusions of group O blood in recipients of other blood groups. *Blood*. 1954;9(2):103–116., doi:10.1182/blood.v9.2.103.103.
3. Madden, Kathleen M., and Jay S. Raval. "Review of Whole Blood Use in Trauma." *ISBT Science Series*, vol. 14, no. 3, 2019, pp. 282–288., doi:10.1111/voxs.12497.
4. Borgman MA, Spinella PC, Perkins JG, Grathwohl KW, Repine T, Beekley AC, Sebesta J, Jenkins D, Wade CE, Holcomb JB: The ratio of blood products transfused affects mortality in patients receiving massive transfusions at a combat support hospital. *J Trauma*. 2007, 63: 805-813. 10.1097/TA.0b013e3181271ba3.
5. Holcomb JB, Tilley BC, Baraniuk S, et al. Transfusion of plasma, platelets, and red blood cells in a 1:1:1 vs a 1:1:2 ratio and mortality in patients with severe trauma: The PROPPR randomized clinical trial. *JAMA*. 2015; 313(5):471–482. doi:https://doi.org/10.1001/jama.2015.12
6. Sperry JL, Guyette FX, Brown JB, et al. Prehospital plasma during air medical transport in trauma patients at risk for hemorrhagic shock. *N Engl J Med*. 2018;379:315- 26.
7. Eastridge BJ, Holcomb JB, Shackelford S. Outcomes of traumatic hemorrhagic shock and the epidemiology of preventable death from injury. *Transfusion*. 2019;59(S2):1423- 8.
8. Haley, N. R. and Hess, J. R. (2019), Whole blood: back to the future (Article, p. 3468). *Transfusion*. 59:3293-3294. doi:10.1111/trf.15579
9. Cap AP, Beckett A, Benov A, et al. Whole blood transfusion. *Mil Med*. 2018;2:44– 51.
10. Huish S, Green L, Curnow E, Wiltshire M, Cardigan R. Effect of storage of plasma in the presence of red cells and platelets: re-evaluating the shelf life of whole blood. *Transfusion*. 2019;59:3468- 77.
11. Kornblith LZ, Moore HB, Cohen MJ. Trauma-induced coagulopathy: the past, present, and future. *J Thromb Haemost*. 2019; 17:852-62.
12. Williams, J et al. Safety profile and impact of low-titer group O whole blood for emergency use in trauma. *Journal of Trauma and Acute Care Surgery*. (2019). doi: 10.1097/TA.0000000000002498.
13. AABB. Standards for Blood Banks and Transfusion Services. 31st edition. Bethesda, MD: AABB; 2018.
14. Weblink: <https://www.uab.edu/news/health/item/10709-uab-hospital-using-whole-blood-in-transfusions-for-severe-trauma>
15. Weblink: <https://www.mayoclinic.org/medical-professionals/trauma/news/resuscitation-scheme-changing-for-pediatric-patients/mac-20464846>
16. Weblink: <https://undark.org/2017/10/05/blood-trauma-care-reforms/>

The Whole Truth about Blood

CONTINUING EDUCATION (CE) QUESTIONS

To receive a CE Certificate, answer the three questions below, print and complete the CE form from the bbanys.org website (under Member Resources > Quarterly Newsletters), and have your supervisor, manager or medical director review the form (for questions regarding the article, send email to mark.friedman@mountsinai.org).

1. What was the main finding of the PROPPR clinical trial?

- A.** Survival outcomes in massive hemorrhage are equivalent using individual component therapy versus using components in a 1:1:1 ratio (plasma: platelets. [PLTs]: red blood cells [RBCs])
- B.** Deaths due to exsanguination at 24 hours were fewer in the 1:1:1 component ratio group compared with the 1:1:2 component ratio group.
- C.** Use of low-titer O whole blood improves trauma survival compared with using component transfusions in a 1:1:1 ratio.
- D.** Survival outcomes at 24 hours and 30 days were superior in the 1:1:2 component ratio group compared with the 1:1:1 component ratio group.

2. Which is not an advantage of using low-titer O whole blood (LTO-WB) versus component therapy for trauma support?

- A.** LTO-WB delivers all of the active blood components necessary to maintain tissue oxygenation and hemostasis in one product.
- B.** Cold activation of platelets stored in the whole blood units provide greater hemostasis in the setting of trauma care with reduced risk of septic (bacterial contamination) transfusion reactions.
- C.** Widespread adoption of LTO-WB across civilian hospitals for trauma support would require a collaborative effort between the blood collection centers, hospital transfusion services, emergency medical systems, and trauma centers.
- D.** LTO-WB provides for a product that is less diluted with anticoagulant and additive solutions compared with using component replacement in a 1:1:1 ratio.

3. Which statement is correct regarding LTOWB?

- A.** AABB Standard 5.15.1 in the 31st edition of the Standards for Blood Banks and Transfusion Services has been updated to include use of LTO-WB for non-group-O recipients or for recipients whose ABO group is unknown.
- B.** Use of LTO-WB in the pediatric population has been well studied.
- C.** Widespread adoption of LTO-WB will only require simple policy changes by hospital trauma centers blood banks without regard for blood collection centers.
- D.** All of the above statements are correct.

Education Committee Update



The Education Committee, chaired by Dr. Yvette Tanhehco, Assistant Professor of Pathology and Cell Biology and the Director of the Cellular Therapy Laboratory as well as an Assistant Director of Transfusion Medicine at Columbia University Irving Medical Center/New York-Presbyterian Hospital, is responsible for the management and oversight of educational activities provided by BBANYS, including webinars and podcasts. The webinars run in the spring and fall and include an excellent lineup of topics and speakers. Recordings of the webinar are available for download if you missed the live event. Podcasts are also a great way to catch up on hot topics. Please visit the BBANYS website at www.BBANYS.org to register for the webinars or to view podcasts. Additionally, please contact Dr. Tanhehco at yct2103@cumc.columbia.edu if you have any suggestions for webinar topics, podcasts, or other educational ideas. Members are also encouraged to volunteer for committee membership.

The Education Committee oversees the following education opportunities:

- Planning educational opportunities all year round
- Improving and implementing webinars
- Taking part in the running of regional half-day seminars

BBANYS Quarterly is published four times a year. Subscription is included with BBANYS membership.

Editor: Mark T. Friedman, DO
mark.friedman@mountsinai.org

Have something to say or comment on?

Have an article to send us?

We would love to hear from you!



Follow & Like Us!  

BBANYS WEBSITE MEMBER RESOURCES

Visit our website and take advantage of your BBANYS member benefits! If you haven't checked out the website, make sure to visit bbanys.org and log-in today.

Username: members

Password (case sensitive): commitment19



Missed a webinar? Want to watch a past event that you particularly enjoyed? Past webinars are archived for members.



Have a question? Have an answer? Visit our LinkedIn private discussion forum.



Download educational audio files or listen to them on your computer. A new podcast is released almost every month.



We publish an annual member directory, complete with contact info. Find your colleagues and start making connections today!



Looking for a new position? Take a glance at job postings sent in to the association. Your next big opportunity awaits!

BBANYS SPRING WEBINAR SERIES

Looking for other sources of continuing education? Try our spring or fall webinar series! Each year BBANYS presents a fall and spring webinar series that includes four one-hour sessions offered on the first Tuesday of each month. You can register for one session or for all four at a discounted rate. Some recent topics covered by our webinar series included pathogen inactivation, genomic medicine in immunohematology, anti-thrombotic medicines, TTP and apheresis.

February 11, 2020

1:00 PM - 2:00 PM ET

Transfusion Management of Patients with Sickle Cell Disease

Yvette Tanhehco, PhD, MD, MS

March 10, 2020

1:00 PM - 2:00 PM ET

Current Status of CAR-T Cells

Jeffrey Jhang, MD

April 14, 2020

1:00 PM - 2:00 PM ET

Autologous Serum Eye Drops

May 12, 2020

1:00 PM - 2:00 PM ET

Volunteer Donor Milk Banking

Go to BBANYS.org each season to see what webinars we are offering.

Save the date for the 60th Annual BBANYS Meeting in Rochester, NY, June 4-5, 2020! Dr. Neil Blumberg will kick off the meeting as our Keynote Speaker!

BLOOD BANKS ASSOCIATION OF NEW YORK STATE, INC. 2020 OFFICERS AND BOARD MEMBERS

BOARD MEMBERS

OFFICERS

Mark T. Friedman, DO

President 2019-2021
Mount Sinai Health System
1000 Tenth Ave
New York, NY 10019
Phone: (212) 523-7242
Email: mark.friedman@mountsinai.org

Donna Mirabella, MS, MT(ASCP)SBB

President-Elect
Stony Brook University Medical Center
Blood Bank Level 5 – Suite 5000
Stony Brook, NY 11794-7530
Phone: (631) 444-2627
Email: donna.mirabella@stonybrook.edu

Rob DeSimone, MD

Secretary
Weill Cornell Medicine
525 East 68th Street, Room M-0-09
New York, NY 10065
Phone: (914) 262-4124
Email: rod9096@med.cornell.edu

JoAnn Christensen, MS, MT(ASCP)SBB

Treasurer
American Red Cross, New York
West Henrietta
825 John St
West Henrietta, NY 14586
Phone: (585) 760-5790
Email: joann.christensen@redcross.org

Matthew Elkins, MD, PhD

Immediate Past President 2018-2020
SUNY Upstate University Hospital
750 E. Adams St
Syracuse, NY 13210
Phone: (315) 464-6754
Email: elkinsm@upstate.edu

NON-BOARD MEMBERS

Sheryle Hazard, CAE, Executive Director

Blood Banks Association of New York State
2345 Rice St, Suite 220
St. Paul, MN 55113
Phone: (866) 397-8883
Fax: (651) 317-8048
Email: shazard@associationdevelopment.com
BBANYS Email: bbanys@bbanys.org

Daniel Alvarado, MLS(ASCP)^{CM}SBB^{CM}

Blood Bank Supervisor
NewYork-Presbyterian/Lower Manhattan
170 William Street
New York, NY 10038
Phone: (212) 312-5864
Email: daa9073@nyp.org

Christine Cahill, MS, BSN, RN

University of Rochester
601 Elmwood Ave
Box 608
Rochester, NY 14642
Phone: (585) 273-1937
Email: christine_cahill@urmc.rochester.edu

Sabino Curcio, MS, MLS(ASCP)

Long Island Jewish Medical Center
270-05 76th Ave
New Hyde Park, NY 11040
Phone: (718) 470-4907
Email: scurcio@northwell.edu

Michael Hsu, MD, PhD

Weill Cornell Medical College
Mailbox 251, Room M020
525 E. 68th St
New York, NY 10065
Phone: (212) 746-2212
Email: ysh9001@med.cornell.edu

Mary Ann Lasher, MT(ASCP)

St. Peter's Health Partners
315 S. Manning Blvd
Albany, NY 12208
Phone: (518) 525-1185
Email: maryann.lasher@sphp.com

Mahdokht Parsi, MPH, MT(ASCP)

New York Blood Center
45-01 Vernon Blvd
Long Island City, NY 11101
Phone: (718) 752-4628
Email: mparsi@nybc.org

Majed Refaai, MD

University of Rochester Medical Center
601 Elmwood Ave, Box 608
Rochester, NY 14642
Phone: (585) 276-3927
Email: majed_refaai@urmc.rochester.edu

Jene Shafer, MS, MLS(ASCP)SBB

Orange Regional Medical Center
707 E Main St
Middletown, NY 10940
Phone: (845) 796-6931
Email: jshafer@ghvhs.org

Yvette Tanhehco, MD, MS, PhD

Columbia University
622 W 168th St
Harkness Pavilion 4-418A
New York, NY 10032
Phone: (646) 317-4618
Email: yct2103@cumc.columbia.edu

Ljiljana Vasovic, MD

Weill Cornell Medical College
525 E 68th St, Box 251
New York, NY 10065
Phone: (917) 400-2308
Email: ljv9004@med.cornell.edu

COMMITTEE CHAIRS

Communications Committee Chair

Majed Refaai, MD
University of Rochester Medical Center
Phone: (585) 276-3927
Email: majed_refaai@urmc.rochester.edu

Conference 2020 Committee Chair

Majed Refaai, MD
University of Rochester Medical Center
Phone: (585) 276-3927
Email: majed_refaai@urmc.rochester.edu

Conference Oversight Committee Chair

Matthew Elkins, MD, PhD
SUNY Upstate University Hospital
Phone: (315) 464-6754
Email: elkinsm@upstate.edu

Education Committee Chair

Yvette Tanhehco, MD, MS, PhD
Columbia University
Phone: (646) 317-4618
Email: yct2103@cumc.columbia.edu

Membership/Nominations Committee Chair

Mary Ann Lasher, MT(ASCP)
St. Peter's Health Partners
Phone: (518) 525-1185
Email: maryann.lasher@sphp.com

Newsletter Editor

Mark T. Friedman, DO
Mount Sinai Health System
Phone: (212) 523-7242
Email: markfriedman@chpnet.org

Vendor Liaison Lead

Mahdokht Parsi, MPH, MT(ASCP)
New York Blood Center
Phone: (718) 752-4628
Email: mparsi@nybc.org

Young Professional Subsection Head

Nnaemeka Ibeh, DO, MS, MLS(ASCP)
Clinical Pathology Resident,
Icahn School of Medicine at Mount Sinai
One Gustave L. Levy Pl, New York, NY 10029
Tel: (908) 406-1830

BBANYS CENTRAL OFFICE

2345 Rice Street, Suite 220, St. Paul, MN 55113

Phone: 866.397.8883 | Fax: 651.317.8048

Email: bbanys@bbanys.org