

# MABB Newsletter

## In A Different Vein



### PRESIDENT'S MESSAGE



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It has been an honor to serve as the 2020 President of the Michigan Association of Blood Banks (MABB). 2020 was an unprecedented year for the country and the organization. COVID-19 changed the way we did everything. It caused numerous challenges in our lives. With the public health protocols put in place, hopefully we are beginning to turn the corner on getting back to an almost normal life.

Despite the changes we've had to make, the MABB 66<sup>th</sup> Annual Meeting remained a bright spot. It was our first virtual meeting and was a great success. I would like to thank, Sheri Hugan, 2020 President-Elect, who did a phenomenal job in making sure the meeting was successful despite our inability to meet in person.

The speakers were exceptional and discussed a wide-range of topics – gene therapies in sickle cell, blood utilization, platelet refractoriness to name a few. The Kay Beattie Award, initiated in 1991, was presented to Laurie Gillard, MS, MT(ASCP)SBB. Thanks to all for your support of MABB.

***Mark your calendar for MABB's 67<sup>th</sup> Annual Meeting which will be held on September 22 and 23, 2021.***

In an effort to meet our mission, MABB will continue to offer educational opportunities and resources for blood bankers across the state. The Education Committee is working on plans to hold virtual RAP sessions. These sessions are an invaluable tool and virtual meetings will allow us to expand our reach.

It is up to all of us to keep the organization growing and thriving – talk to your co-workers about joining MABB, pay your dues, volunteer for a committee, submit an interesting article for the newsletter, be a speaker at the Annual meeting, and participate in any way you can.

My time as your President has come to an end but my participation in MABB has not. I look forward to the upcoming year and will work to ensure the continued success of the Michigan Association of Blood Banks.

Tammon Nash, MD, MS  
2020 President of Michigan Association of Blood Banks

## **Summary of the 2020 MABB Annual Meeting**

In accordance with the MABB mission statement, the 66<sup>th</sup> Annual Meeting program consisted of many diverse topics with a linked theme of promoting the highest standard of patient care for our respective patient populations. The meeting was held on the 16<sup>th</sup> and 17<sup>th</sup> of September 2020, and it was an online meeting through Zoom.

The 1<sup>st</sup> day of the meeting began with an introduction and welcome by Dr. Tammon Nash, the 2020 President of MABB. Dr. Nash introduced our Kay Beattie Award recipient Laurie Gillard. Laurie is an assistant professor in the College of Health Sciences at Rush University. She began her medical laboratory clinical work as a generalist and later focused on blood banking and regulatory issues in the clinical laboratory. Her academic experience began while attending the University of Illinois at Chicago (UIC) in 2001 as a graduate student. While at UIC, she worked with the medical laboratory sciences program as a teaching assistant and later began instructing online immunohematology courses. As a result of her experiences, she has developed a great interest in teaching and mentoring students pursuing careers in the clinical laboratory and, specifically, transfusion medicine. Gillard joined Rush as the Director of the Specialist in Blood Bank Certificate Program in 2014 and continues to instruct and provide guidance to individuals interested in blood banking and the clinical laboratory. In her lecture, Laurie described the current blood banking/transfusion practices in sub-Saharan Africa (SSA) identifying the challenges of donor testing for various transfusion transmitted organisms.

The meeting progressed with a lecture on gene therapy is sickle cell disease presented by Dr. Asif Alavi from Karmanos Cancer Institute. Then Dr. Anne Eder from Georgetown University School of Medicine in Washington, D.C. talked about ABO mistransfusion of packed RBCs, reported fatalities, and effective preventive measures. Challenges and opportunities for the use of enzymes in blood conversion to

universal donor blood were discussed by Dr. Peter Rahfeld from the University of British Columbia, Vancouver, Canada.

The 2<sup>nd</sup> day of the meeting started with a talk entitled “Two birds with one stone: Developing our emerging laboratory professionals through patient blood management” by Lauri Gillard. During her lecture Laurie discussed the purpose and goals of patient blood management (PBM) and described PBM strategies for identifying opportunities to improve patient outcomes and safety. Whole blood and source plasma collection, their regulatory requirements, donor adverse reactions, and manufacturing process were presented by Dr. Marla Troughton who is the Medical Director of the American Red Cross, Alabama and Mississippi Region. Mary Lieb gave a talk on laboratory accreditation, and how to identify Blood Bank deficiencies and prepare for inspection. Dr. Kristina Davis from the University of Michigan gave a lecture on platelet refractoriness, its diagnosis, and how to support patients with platelet refractoriness. Finally, a session on Serologic Case Studies was presented by Anji Miri (Beaumont Hospital), Monica Irelan (University of Michigan), and Dr. Timothy Greenwell (Royal Oak Hospital).

## **2020 66<sup>th</sup> MABB Annual Business Meeting Minutes**

**MABB Annual Business Meeting Minutes**, Wednesday, September 16, 2020. Call to Order: 3:03 pm  
Adjourn: 4:00 pm

Dr. Tammon Nash opened the meeting with an introduction, welcome, and thank you to our organizing committee. There were approximately 13 that were in attendance for the virtual business meeting. Dr. Nash presented an overview of the present MABB committees and introduced Salika to give the first report for the Membership Committee.

### Committee Reports:

#### 1. Membership Committee: Salika Devine, Chair

The committee reports 65 individual members, 18 student members, 8 Physician members, 0 Institutional members, 0 corporate members, and 2 emeritus memberships. The organization has had a slight increase in student membership with a decrease in corporate membership from last year due to the virtual format of this year’s annual meeting. If you are not a member, please join.

#### 2. Education Committee: Angela Wholehan, Chair, Dr. Nash reporting

There was a RAP session held in November 2019 regarding Pathogen-Reduced Platelets. The spring 2020 session was canceled due to the COVID pandemic. Future plans include reinstating the fall and spring sessions but likely under a virtual format such as Zoom. The committee is always open to topic suggestions.

#### 3. Publication Committee: Zaher Otrrock M.D., Chair with Arthur B. Eisenbrey M.D., Kristina Davis M.D., Jim Fiedor, and Meredith Hoag as part of the committee. Dr. Nash reporting.

Dr. Nash reported that the 2020 winter edition of the MABB newsletter, *In A Different Vein*, is available online. Included in the edition is the president’s message, 2019 MABB Annual Meeting activities, and the

Spring RAP session. There is also a new article by Dr. Mary Jo Drew entitled *A Blood Banker's View of the Plasma Industry Part I*. The next issue will document the 2020 MABB Annual Meeting activities although it may be a challenge due to the virtual nature of the meeting. There is an initiative to promote writing material contributions through the MABB website by committee members in preparation for the next issue. COVID-19 related material is welcome. There is a plan to publish two issues of *MABB News—In A Different Vein* each year.

4. Archive Committee: Jim Fiedor, Chair

Jim reported that the archives have been updated on an external drive to include 2018-2019 documents. No further changes have been made.

5. Website Development Committee: John Sherbeck M.D., Chair with Louise DuRussel and Bethany Neldrett (Webmaster)

Dr. Sherbeck reported that it has been a quiet year after launching the new website a year ago. The committee continues to find ways to optimize the new digital resource. Bethany has created storage space for online images. The Twitter and Facebook feeds continue to grow the brand name. Remember to show your support of our organization: #TransfuseLocal and #MABB2020. Sheri will send the links for the annual meeting Zoom recordings. A request was made to confirm that the website is working properly for registration and membership.

6. By-Laws/Policy Committee: Barry Siegfried, M.D., Chair with Terry Downs as part of the committee.

Dr. Siegfried reported that the current bylaws and policy manual are located at <https://mabb.org/about/> and were revised in 2005. Both documents were converted to editable format. The plan is to post the documents on the MABB website, develop proposed changes to the bylaws and policy manual; for example: the central office manager, annual dues, honoraria and reimbursement rates and communication methods. The committee invites the membership to send suggestions to [barry.siegfried@redcross.org](mailto:barry.siegfried@redcross.org). Dr. Siegfried requested a file upload function so members can load edits. Once final edits are complete, the Executive Board and members approve the bylaw changes and the Board approves the policy manual changes.

7. Committee of Legislative Matters: Arthur Bradley Eisenbrey, III, MD, PhD, Chair

Regular review of the legislative docket in the Michigan Legislature ([legislature.mi.gov](http://legislature.mi.gov)) does not find introduced, passed by Chamber, enrolled or adopted resolutions directed at clinical laboratory medicine in 2020. HBs 4488, 4489, 4490, 4491 (health occupations), 4492 and 4493 passed Chamber and are intended to reduce licensing restrictions for minor offenses unrelated to the occupation. HB4023 would create a pilot program for military medical personnel to practice under the supervision of a licensed physician or podiatrist. Another valuable tracking site: [mha.org/Issues-Advocacy/Legislative-Bill-Tracker](http://mha.org/Issues-Advocacy/Legislative-Bill-Tracker).

8. Annual Meeting Organizing Committee: Sheri Hugan, Chair and PACE Coordinator, Sherwin Imlay M.D. CME Course Director.

Sheri expressed her gratitude to Tammon Nash, MD, Theresa Downs, Suanne Dorr, Angela Wholehan, Barry Siegfried, MD, and Louise DuRussel for their assistance with organization of the annual meeting. There were 30 – 35 professionals in attendance. Sheri reminded that certificates for up to 9 PACE credit hours will be emailed to paid attendees after the meeting based on attendance records at the Zoom sessions. Presentation evaluations will be displayed at the end of each session and are anonymous.

9. Financial Report: Terry Downs, Treasurer

Terry reported that this is a non-profit organization, dedicated to professional education. She reports that cash flow is different this year due to the virtual meeting format. The Planning Committee meeting may also be virtual decreasing expenses this year. The organization has been financially neutral. Inflow - \$3275; Outflow - \$3348 that includes the deposit for 2021 meeting of \$1925; Overall loss of \$73. The virtual Zoom meeting expense is approximately \$370. There was an honorarium of \$600. As of 9/16/20, the checking account has \$46,898. The former \$25,000 Dreyfus account funds were deposited into checking and will be moved to a money market account at a later date. There was a long conversation on how to handle future cash flows and the process for account access with signature card updates (additions and deletions). To create a new money market account, the institution needs a list of current board members and a list of the new board members. This can be obtained off the annual meeting brochure. Terry recommended that the account signature card process be added to the next board meeting agenda. There was a recommendation to perform an independent audit of the 2019/2020 account books.

10. Secretary Report: Suanne Dorr, Secretary

Suanne reported that the Board met four times in planning for the annual meeting and educational sessions. Meetings were held on December 5, 2019 along with the Planning Committee, March 26, May 28 and September 3, 2020. The Annual Meeting minutes from September 11, 2019 were verified and approved by the membership as submitted. The meeting minutes are available on the MABB website, MABB Newsletter *In a Different Vein*.

11. President's Award: Sheri Hugan presented the President's Award bowl to Tammon Nash, MD for her leadership role with the organization. She thanked her on behalf of the organization for her guidance and leadership.

12. 2020 President's Remarks: Tammon Nash, M.D.

Dr. Nash thanked the many committee chairs and the board members for their hard work this year. Their dedication and efforts are greatly appreciated to help us fulfill our mission as an organization. She is looking forward to continue to work with the MABB as the past president for future years as well. We usually look forward to our annual meeting as our big event and it is the culmination of a lot of hard work put in by the president elect, this year, Sheri. Thank you so much for all of your work. She wanted

everyone to know that the annual meeting is not all that we have to offer so if anyone has any skills or expertise that they want to share, she would urge you to sign up for committees by contacting the committee chairs especially if you would like to be added to a meeting. From what Salika reported today, we all need to step up our recruitment efforts of members. Thank you for your support. Dr. Nash was honored to be president of the MABB this year.

13. Nomination Committee: Consists of the past 3 presidents: Louise DuRussel, BS 2019; Chisa Yamada, M.D. 2018 and Brigitte Becker MT(ASCP)SBB 2017.

The 2020 nominees for 2021 Board are:

President Elect:	Barry Siegfried, MD
Secretary:	Kayla Waider MLS(ASCP) <sup>CM</sup>
Treasurer:	Terry Downs, MT(ASCP)SBB
Member-at-Large:	John Sherbeck, MD
Member-at-Large:	Kathryn Watkins, MT(ASCP)

14. Installation of New Officers:

Welcome was given to the new members and officers. Approval was given to the new board officers by the membership. Terry will check for active memberships for one year.

15. Board Members 2021:

President:	Sheri Hugan, BS, MLS(ASCP) <sup>CM</sup> SBB <sup>CM</sup>
President Elect:	Barry Siegfried, MD
Past President:	Tammon A. Nash, MD, MS
Treasurer:	Terry Downs, MT(ASCP)SBB
Secretary:	Kayla Waider MLS(ASCP) <sup>CM</sup>
Member-At-Large:	Salika Devine, MT(ASCP)SBB <sup>CM</sup>
Member-At-Large:	Angela Wholehan, MLS(ASCP) <sup>CM</sup>
Member-At-Large:	John Sherbeck, MD
Member-At-Large:	Kathryn Watkins, MT(ASCP)

16. New Business and Questions: Sheri Hugan, BS, MLS(ASCP)<sup>CM</sup> SBB<sup>CM</sup>

Dr. Eisenbrey recommended that vendors be recruited early for commitments for sponsorship. There could be slides running in between sessions, special Zoom rooms created, and promotions for new products and/or representative information. Dr. Nash recommended that the Planning Committee meeting agenda include a discussion for a formal planning forum if the next annual meeting is a virtual meeting. The meeting was adjourned at 4:00 pm. Next year's 67<sup>th</sup> MABB Annual Meeting will be held on September 22 and 23, 2021.

17. Kay Beattie Award: Dr. Nash presented the award to Laurie Gillard, MS, MT(ASCP)<sup>CM</sup> for her accomplishments. Laurie presented two excellent lectures *Transfusion Practices in Africa and How We Can*



*Contribute to Global Health Equity and Two Birds with One Stone: Developing Our Emerging Laboratory Professionals Through Patient Blood Management.* The award is bestowed to an individual who has been a driving force in the education of blood bank serology. Kay was known for her work with weak subgroups A & B, wrote a classic AABB book on ABO discrepancies, showed that anti-M could often be enhanced by acidification of the serum, and reported Gu, a weak expression of the G antigen. The award is sponsored by Michigan Blood.

**Respectfully submitted by Suanne Dorr, Secretary, Michigan Association of Blood Banks**



Laurie Gillard holding the Kay Beattie Award

## 2021 Spring RAP Session

On April 21st, in conjunction with Lab Week, the MABB hosted a virtual Spring RAP session entitled "**Help! I've Been Assigned to Blood Bank!**" for PACE credit. The session was moderated by Angela Wholehan (Michigan State University) and was presented by Aundrea Fullwood (Ascension Genesys), Kayla Waider (American Red Cross), Karen Houthoofd (Scheurer Hospital), and Jordan Walraven (Sparrow Health System). The RAP session objectives were to 1) Discuss the potential issues with rotating into the blood bank as opposed to specializing, 2) Discuss strategies for success when rotating in the blood bank, 3) Describe both institutional and reference laboratory support services available for laboratory scientists in the blood bank, and 4) Review blood bank regulations in place to prevent errors.

All of the panelists had experienced rotating in the blood bank, often as new laboratory professionals on off shifts, and offered excellent insight into their experiences. A fruitful discussion commenced with wonderful tips, tricks, and advice shared with attendees to help build confidence and reduce anxiety about working in the blood bank. The MABB looks forward to hosting more educational sessions in the future, with the next session likely to be scheduled in late fall of 2021.

### A Blood Banker's View of the Plasma Industry: Part 2

Mary Jo Drew, MD, MHSA

#### Source plasma, recovered plasma-what's the difference?

Some definitions are in order here. **Source plasma** is an FDA-licensed product, defined as plasma removed from whole blood and intended for further manufacture, rather than for transfusion. **Recovered plasma** is an unlicensed plasma product intended for further manufacture.

Examples of recovered plasma include unused units of FFP or PF24, which may be relabeled as recovered plasma and sold to plasma derivative manufacturers.

The FDA Code of Federal Regulations (CFR) allows "frequent" plasma donors to donate 2 times per week with at least 48 hours between donations, up to a fixed total plasma volume per year, depending on donor weight. In most other countries, plasma donation is non-remunerated, and is collected only once per week. (For those





## **A Blood Banker's View of the Plasma Industry: Part 2 (Cont'd)**

interested, FDA regulations specific to source plasma may be found in Section 640, Subpart G-Source Plasma.)

### **Plasma safety and pathogen inactivation**

During and after the discovery of HIV, the plasma industry implemented strict controls for donor selection, as well as donor testing. Other measures used to increase the safety of plasma include quarantine of a donor's first plasma donation (until a second collection also tests negative for pathogens), plasma inventory holds, and screening for HIV, HBV and HCV by nucleic acid testing (NAT). These precautions were implemented under the auspices of the Plasma Protein Therapeutics Association (PPTA) as the "Quality Plasma Program", or QPP.

In addition, pathogen inactivation of plasma has become a mainstay of assuring removal of both known and unknown viruses and bacteria during the fractionation and purification processes. Pathogen inactivation may be accomplished via solvent/detergent washes, low pH, heat, nanofiltration and chromatography. These steps decrease risk of viral transmission by several orders of magnitude. The search for new methods of pathogen inactivation is ongoing.

### **Clinical uses of plasma derivatives**

At the present time, over 20 therapeutic derivatives are manufactured from source plasma. These products are used mostly in very rare diseases, so the products are classified largely as "orphan" drugs by the FDA. Due to the low concentration of target proteins in the plasma, these products are derived from large pools of source plasma from thousands of donors.

There are several main categories of plasma-derived products:

**Immune globulins.** Replacement therapy with immune globulins for patients with various congenital, humoral immune deficiencies has been used since the 1950s. Both

## **A Blood Banker's View of the Plasma Industry: Part 2 (Cont'd)**

intravenous (IVIg) and subcutaneous (SCIg) formulations are produced. These immune globulins have also been found to be useful in some patients with autoimmune-based neurological and other diseases.

Hyperimmune immunoglobulins are preparations in which specific antibodies have been enriched and concentrated. These include Anti-D, anti-CMV, anti-HAV and -HBV, anti-rabies, anti-tetanus, and anti-varicella, with many more in development.

**Anti-hemophilic factors.** Clotting factors VIII and IX are congenitally absent in patients with hemophilia A and B, respectively. These patients require replacement of the missing clotting factor on a regular basis to avoid bleeds (prophylactic dosing) and treat bleeds (therapeutic dosing). Patients with severe von Willebrand Disease (vWD) may also require treatment with factor VIII products, some of which also contain von Willebrand factor (vWF).

**Albumin.** Albumin has been manufactured and used since the 1940s for treatment of blood or fluid loss in surgery or trauma. It is also valuable in treating shock, burns, and renal dialysis patients, and is also used as replacement fluid in some plasma exchange procedures.

**Alpha-1-antitrypsin (AAT).** This product is used as a replacement therapy for patients with AAT deficiency, who, without replacement of the enzyme, would suffer from various lung and liver diseases.

**Antithrombin III (ATIII).** This product is used for ATIII (a natural anticoagulant) deficiency, which can lead to excessive clotting and thrombosis. The congenital deficiency is extremely rare, but the condition can result secondarily from liver disease, sepsis or major surgery.

**C1 esterase inhibitor (C1-INH).** Patients with hereditary angioedema (HAE), who are missing this protein (i.e. C1-INH), use this product to prevent episodic swelling of the face, neck, airways and extremities. Swelling of the larynx may lead to suffocation if

## A Blood Banker's View of the Plasma Industry: Part 2 (Cont'd)

not treated promptly with this derivative.

Isolation and manufacture of plasma derivatives are constantly under research and development to assist treatment of patients with rare diseases. With the advent of genome therapy, particularly for hemophilia, some patients with single-gene mutations may be able to discontinue therapy with plasma derivatives for long periods, or perhaps permanently. Manufacturers are also active in research involving molecular diagnostics and therapies. The plasma industry is a growing and vital part of medical practice and patient care.

### REFERENCE:

Clinical uses of plasma products. The marketing research bureau. Accessed at: <https://marketingresearchbureau.com/plasma-industry/clinical-uses-of-plasma-products>, 7/19 2018.

## Recycling Pipette Tip Boxes & Inserts

*Meredith Hoag, CLS II (ASCP)<sup>cm</sup>*

Recently, the Blood Bank at Michigan Medicine started to participate in a recycling program new to us. We now recycle pipette tip boxes and inserts (Figure 1) generated in our Reference Lab. We've always recycled paper products and other plastics such as saline cubes, but were unaware of this program. The program was actually started in 2009 at the request of the University of Michigan. In the first 10 years, over 200,000 pounds of pipette tip boxes had been recycled. Once the Blood Bank heard about the program, we immediately were struck with interest. The pipette tip boxes and inserts are recycled through Fisher Scientific. When the pipette tips are all used, the boxes the tips are kept in are placed in an empty box by the technologists (Figure 2). They



**Figure 1:** Inside the box that will be shipped to Polytech when it is full

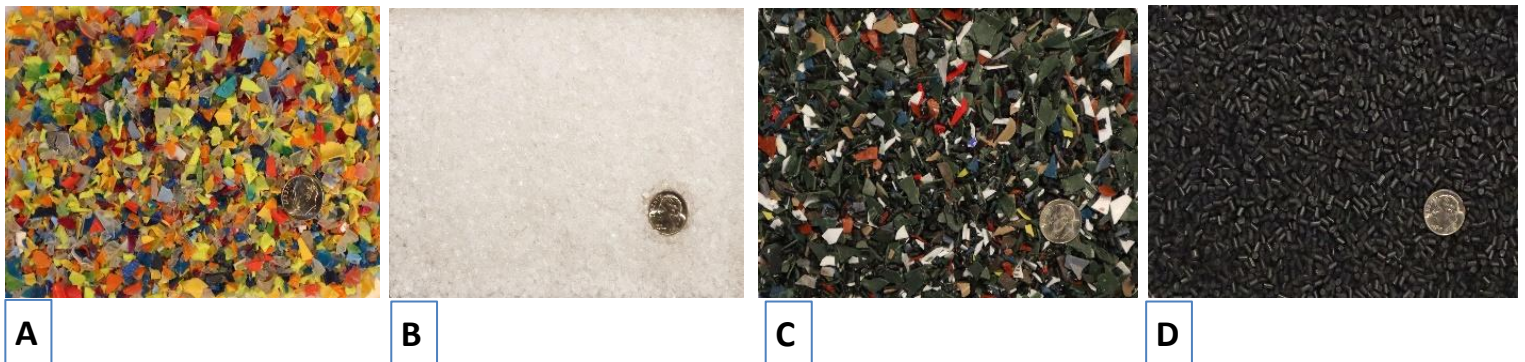
## Recycling Pipette Tip Boxes & Inserts (Cont'd)

are taken by UPS with prepaid mailing labels to Polytech, Ltd., which is located in Burton, Ohio, east of Cleveland.

I talked to the owner of Polytech, Ltd., Nick Trudick, who explained the entire recycling process (Figure 3). After the plastic boxes are delivered, they are granulated into  $\frac{1}{4}$ " pieces. Poly Pro Resin (virgin pellets) are then added. The parts can be various colors, but are not sorted, so the end product is black in color. They are then pelletized into BB size pieces (like BBs in an air gun). These plastics are all post-industrial products, not post-consumer products. The pieces are then sold in market horticulture.



**Figure 2:** Sticker on outside of the box we collect our empty tip boxes in



**Figure 3:** A) Granulation of the plastic into  $\frac{1}{4}$ " pieces; B) Poly Pro Resin (virgin pellets) added as 50/50 mixture; C) The result of the 50/50 mixture (starts to turn black); and D) Pieces are then pelletized into BB size. Color turns black due to all difference colors of plastic being processed.

---A dime is used as reference in pics---

Final products made out of the recycled plastics can range from black plastic parts under the hoods of vehicles to outdoor furniture to black flats, which are the containers that hold plants and flowers at your local gardening store (Figure 4).



## Recycling Pipette Tip Boxes & Inserts (Cont'd)

**Figure 4:** A plastic gardening bowl...one of the end products made from our pipette tip recycling!



Nick told me that Michigan Medicine Laboratories generate 4-8 big cartons every single day. These cartons are 12" Wide x 15" High x 18" Deep and can weigh from 12-24 lbs each. Michigan Medicine itself generates 15,000 to 20,000 lbs of plastic to recycle each year! It really hit me when Nick said "if we just throw this type of plastic into the garbage what will happen to it? Nothing. It will just sit forever in a landfill and will never break down."

Michigan Medicine strongly believes in being a part of the solution of waste for the present time and for future generations. The benefits of this program are undeniable. It is not only beneficial to keep plastics out of the landfill, but it is exciting knowing we are doing things right when we purchase products made directly from our efforts. The bottom line is if we all contribute to recycling, it helps reuse these materials, protects the environment, and saves our planet! Michigan Medicine is always cheering "GO BLUE," but in this case we are cheering "GO GREEN!"



***A new book publication "HLA from Benchtop to Bedside" by Dr. Brad Eisenbrey. Dr. Eisenbrey wrote:***

*HLA from Benchtop to Bedside* (Elsevier Academic Press, 2021, eBook ISBN: 9780128242377, Paperback ISBN: 9780128239766) is a reality. The last textbooks for histocompatibility science and clinical medicine were published 21 years ago. It was time for a new one and to bring the teaching material up to date with the amazing technologies now available to the clinical laboratory scientists who



### ***“HLA from Benchtop to Bedside” (Cont’d)***

perform HLA (human leukocyte antigen) testing. This was a six year process, designing a format, researching the original articles that described the evolving understanding of the structure of the Human Major Histocompatibility Complex and the HLA genes, and deepening my own understanding of the technology being used in our HLA laboratories. Fortunately, I received tremendous assistance from my colleagues John Gerlach, PhD, Sharon Skorupski, CHS, and others at the kit and instrument manufacturers and the Mayo Clinic. John and Sharon, in particular, gave great helpful recommendations for improvement which I incorporated. The publisher's reviewers also provided excellent guidance and recommendations (along with some valid criticisms) which I took to heart and, eventually, adopted.

Retirement from the military and clinical practice (I'm still teaching) gave me time to focus, write, rewrite, research, and rewrite some more. My experience with writing scientific papers, textbook chapters and editing a laboratory medicine textbook helped but did not fully prepare me for the complexity of "solo" writing of a textbook (thanks to all of the support I received, it was not really solo). In addition, the publication staff at Elsevier was and is wonderfully supportive and guided me through the complexity of obtaining permissions to use figures and citations from other publications.

Who did I write for? The textbook is directed at Clinical Laboratory Scientists, particularly those working in HLA laboratories, transplant professionals, residents and fellows on transplant services, and doctoral level scientists and pathologists who want to "deep dive" in areas that they may not be exposed to in their laboratory practice. Each chapter is preceded by a "bullet list" of the key points to be covered in the chapter, similar to the "Key Points" that follow the chapters in the AABB *Technical Manual* (for which I have written the HLA chapters twice). The references are intentionally comprehensive, and cites the original sources wherever possible, and I have provided weblinks to important online resources.

***“HLA from Benchtop to Bedside” (Cont’d)***

I am happy to say that I have gotten really positive feedback from my HLA colleagues about the book. I hope I can convince someone to take up the mantle and do the "second edition." The science and technology continue to evolve. We should not have to wait two decades for the next HLA textbook.

Brad Eisenbrey

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**67<sup>th</sup> MABB Annual Meeting**  
**September 22 & 23, 2021**

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