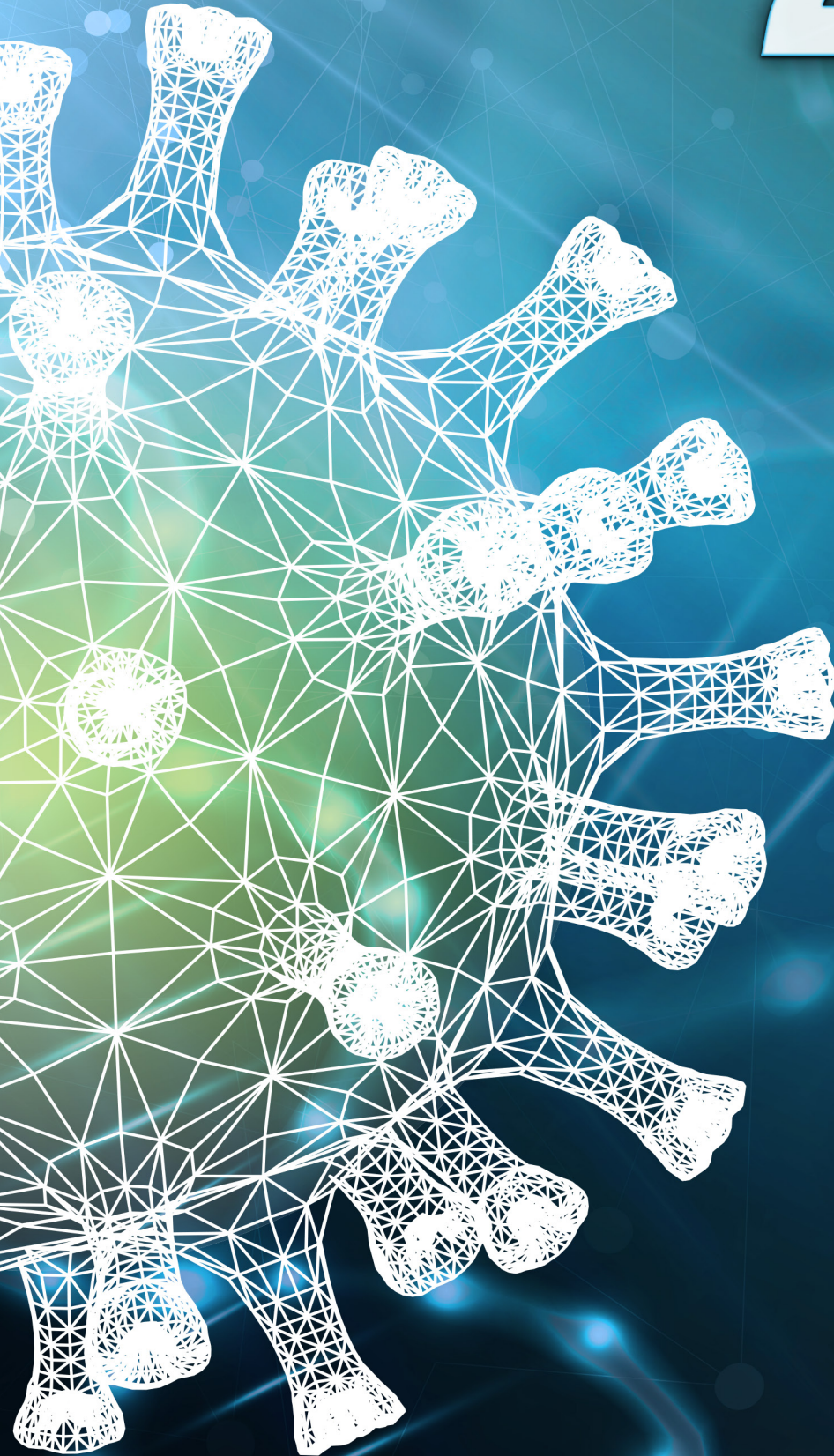




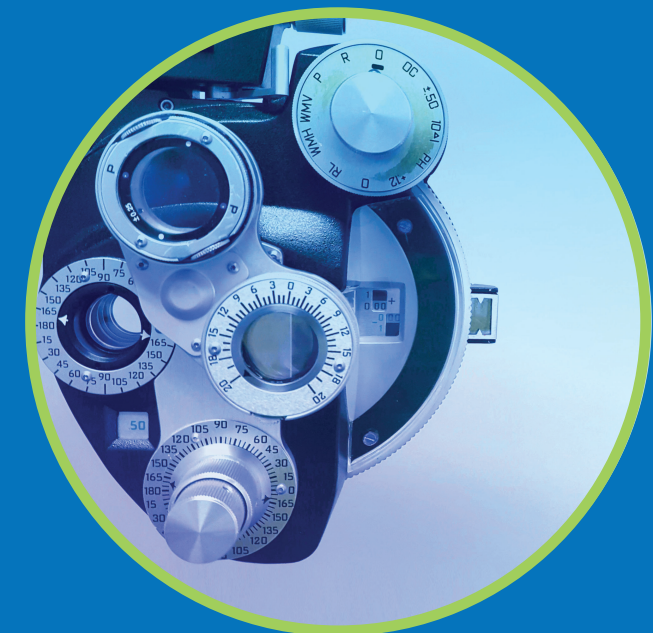
# 2020

YEAR IN REVIEW



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# CHAIR'S ADDRESS

Noël Mick, The Eye Bank for Sight Restoration

2020-2022



As the saying goes, hindsight is 20/20, and it's aptly applied to this past year because it would have been hard to imagine the events of 2020 in advance. But in retrospect, how we dealt with the historic COVID-19 pandemic which affected us all, speaks volumes about our eye banking profession and the EBAA. As an association of eye banks, the EBAA worked diligently to serve its members and to keep the ball moving down the field.

In March, just prior to the start of the shutdown, the EBAA welcomed 18 members of the Class of 2020 at the Physician Leadership Program held in San Antonio. This program, conducted every two years, introduces cornea surgeons to the full scope of eye banking; highlighting the important collaboration that the EBAA fosters between eye bankers and physicians that ultimately results in the best outcomes for patients.

In June, the EBAA held a highly effective virtual Annual Meeting over the course of several days. The online meeting included all the content we typically provide in person, including more than 25 hours of educational programming, the Accreditation Board and Medical Advisory Board meetings and the Scientific and Medical Directors' Symposia. The Annual Meeting also featured the meeting of the House of Delegates including the election of the 2020 Board of Directors. It is a special honor for me to thank Dr. Woodford Van Meter for his outstanding leadership and expertise as Chair of the EBAA for the 2018-2020 term and for his continued service to the Board as Immediate Past Chair.

Following the Annual Meeting, the Board conducted its annual orientation and strategic planning session virtually over the course of three Saturdays in late summer. In addition to integrating our five new additions to the Board and reviewing leadership best practices, we began the implementation of an impressive marketing campaign, "Safety First, Innovation Always." This outreach program to physicians emphasizes the critical value EBAA accredited eye banks offer cornea surgeons and their patients.

The Fall Leadership Meeting and Cornea and Eye Banking Forum took place as scheduled, albeit without attendees, as it also was held virtually. It included the meeting of the Medical Advisory Board, the Accreditation Board and an excellent Scientific Symposium.

As the COVID-19 pandemic rippled across the country, restrictions were alternately implemented and lifted with the surges of infection rates and the subsequent demands on healthcare systems and frontline workers. Member eye banks' role in meeting the needs of elective surgeries was affected proportionately. The pandemic is not over. But gratefully by December, light appeared at the end of the

tunnel with the development of vaccines, and we can see a glimmer of hope that this period may soon be part of the past.

In hindsight, much groundwork was laid that will come to fruition for members in 2021. Watch for new platforms for member communications such as The Lens; more Town Hall Meetings of the House of Delegates to provide input into the EBAA Board discussions; research grants to develop new methods and technical advances for eye banking and transplantation; and more educational content on eye banking programs and best practices.

2021 marks the 60<sup>th</sup> Anniversary of the Eye Bank Association of America's founding and it is a testimony to the true strength of our profession that we find ways to improve and be innovative, even in times as harsh as a global pandemic.

A handwritten signature in blue ink that reads "Noël Mick".

*"2021 marks the 60th Anniversary of the Eye Bank Association of America's founding and it is a testimony to the true strength of our profession."*

# PRESIDENT'S ADDRESS

Kevin P. Corcoran, CAE

## MAINTAINING COMMUNITY THROUGH COVID

To “associate” is to connect, whether objects, ideas, or people. As an association in 2020, the greatest challenge we all faced was making and maintaining meaningful connections when we could not physically be in the same space.

EBAA's role is to serve as the venue through which our members can collaborate to fulfill their mission to maximize the gift of sight through donation, transplantation, and research. We take this obligation very seriously. COVID-19 presented the ultimate challenge of whether we were up to the task of maintaining the strong sense of community we enjoy as an association, through unanticipated circumstances.

From the pandemic's outset, we drew on all our resources to support our members and made adjustments to respond to their changing needs as the situation evolved:

- Our Policy & Position Review Subcommittee met in late January and issued the first of countless Informational Alerts on February 3. As we added more information and updates, we created a dedicated webpage to house our ever-growing resource library.
- In March, we issued the first in a series of monthly surveys measuring how the virus affected eye banks' operations, staffing strategies, and financial positions, giving the Board and staff unparalleled insights into the issues facing our members.

- We provided information, links and hands-on support to eye banks applying for Payroll Protection Plan loans. And when the stock market was in freefall, we invited eye bank CEOs and Finance Directors to listen in on calls with our investment advisors, so they could learn how to protect their financial reserves.
- When we shifted the Annual Meeting to an online event, we cut the registration fee in half and established a Group Pass option that admitted an eye bank's entire staff for one flat fee—registrations tripled over our 2019 meeting.
- Because state restrictions banned elective surgeries early in the pandemic, transplant volumes fell by 90% or more in April and May. In response, we offered our members an additional three-month grace period to make their dues payments.
- To reduce unnecessary travel, we extended all eye banks' accreditation status by six months and implemented hybrid in-person/remote inspection protocols for the Fall 2020 and Spring 2021 cycles.

While all these steps were needed to help our members weather the disruption caused by COVID-19, they didn't replace the connection and community our members had

come to expect from our network of eye banks. This is where EBAA stepped in to create new events and venues for members to gather, share ideas and strategies, and cultivate new connections.

- Daily virtual networking events at the Annual Meeting where members could talk informally, just like in a coffee break or evening reception.
- Hosting targeted Community Chats, organized by eye banking function, for members to share insights, ask questions, and discuss issues unique to their role and interests within their eye bank.
- Launching “The Lens,” our new community discussion platform that replaced our listserv system. The Lens allows members to easily talk about issues related to eye banking and corneal transplantation with their peers and colleagues throughout the association in groups or individually.
- Taking the ultimate group event – EBAA's annual Run for Vision – and making it virtual. Eye bankers and physicians were challenged to run a 5K and submit their times, with the fastest times receiving medals, just like in past years. Like the Annual Meeting, registrations for the 2020 event significantly outpaced past years' Runs.



This clear need for connection during a time of disruption was a major consideration in the selection of our theme for Eye Donation Month 2020 – “A Community of Compassion.” Just as it takes a team of professionals to share the gift of sight from a generous donor to a thankful recipient, it takes all facets of EBAA, working together, drawing on our collective knowledge, and sharing our perspectives, to make this association the strong, vibrant, and collaborative community that is dedicated to the restoration of sight around the world.

I hope you find this issue of EBAA's Year in Review informative and inspiring. On behalf of the Board, volunteers, and staff of EBAA, I thank you for your support for our work and invite you to take your place in our community.

*“From the pandemic's outset, we drew on all our resources to support our members and made adjustments to respond to their changing needs as the situation evolved.”*

# FINANCIAL REPORT

Eye Bank Association of America

Revenue and Expenses For Fiscal Year 2020

## REVENUE

Member Dues	\$1,434,117
Meeting Registration	\$249,990
Accreditation Fees	\$83,750
Technician Exam/Recert	\$68,475
Other Contributions	\$235,605
<b>Total</b>	<b>\$2,071,937</b>



## EXPENSES

Member Services	\$812,548
Meetings	\$683,547
Accreditation	\$142,446
Administrative	\$636,471
<b>Total</b>	<b>\$2,275,012</b>



Note: Excludes Investment Income and Unrealized Gain/Loss

# STATISTICAL REPORT

Eye Banks by the Numbers



Since its inception in 1961, the Eye Bank Association of America has collected and distributed a statistical record of the profession's activity. This data has been used to track new developments and trends in corneal transplantation, quantify the effect of emerging diseases and regulatory changes, and identify and share best practices in eye banking.

The 2020 Eye Banking Statistical Report shows the dramatic impact the COVID-19 pandemic had on tissue recoveries and corneal transplantation. On March 18, the American Academy of Ophthalmology (AAO) issued a statement urging all ophthalmologists to immediately cease providing any treatment other than urgent or emergent care. These restrictions were gradually relaxed in April and May as the virus temporarily subsided in various regions of the country. The Policy and Position Review Subcommittee (PPRS) of the EBAA Medical Advisory Board provided updated guidance and donor eligibility screening recommendations to assure the safety of corneal tissue for transplantation.

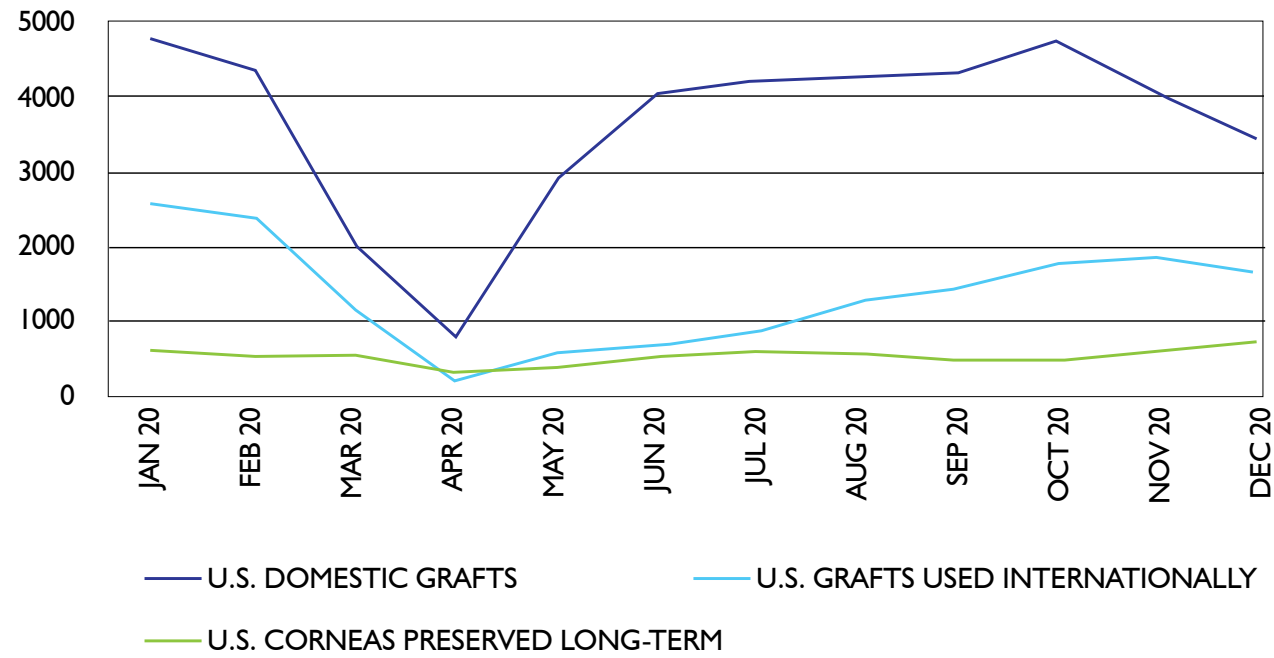
*“The 2020 Eye Banking Statistical Report shows the dramatic impact the COVID-19 pandemic had on tissue recoveries and corneal transplantation.”*

## TOTAL DONATIONS AND DISTRIBUTION BY U.S. EYE BANKS IN 2020

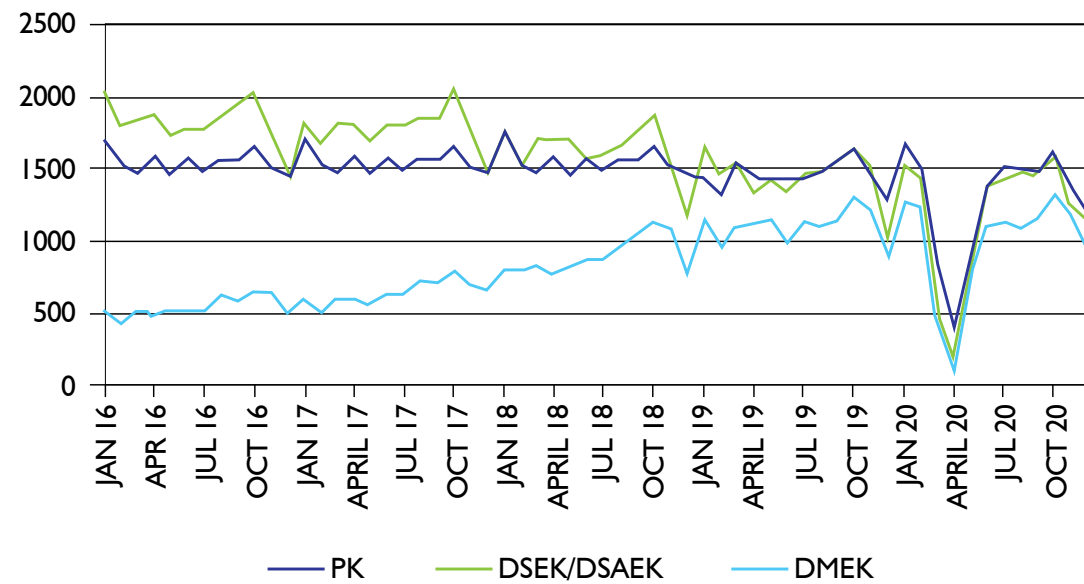
DONATIONS	2019	2020	% CHANGE
Total Number of Donors	68,759	54,740	(-20.4%)
Total Whole Globes and Corneas Donated	136,130	108,382	(-20.4%)
Total Eyes/Corneas Donated with Surgical Intent	124,843	100,732	(-19.3%)

DISTRIBUTION	2019	2020	% CHANGE
Total Corneal Grafts	85,601	66,278	(-22.8%)
Intermediate-Term Preserved Corneas	79,534	59,996	(-24.6%)
Total Domestic Transplants	51,336	43,873	(-14.5%)
Total International Transplants	28,402	16,123	(-43.2%)
Sclera	5,999	3,151	(-47.5%)
Long-Term Preserved Corneas	8,614	9,093	5.6%
Research	13,743	11,336	(-17.5%)
Training	9,487	6,504	(-31.4%)

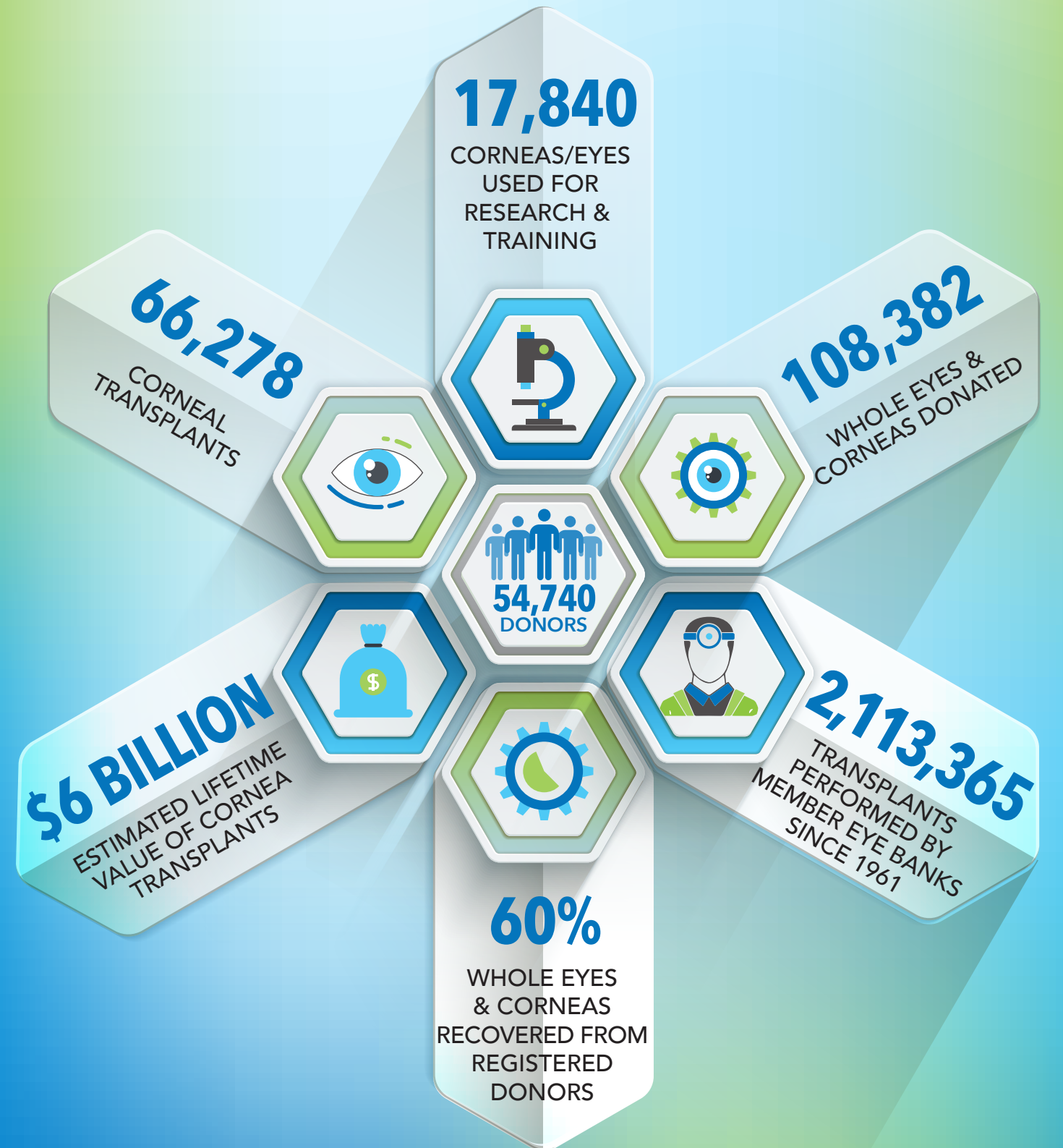
## 2020 U.S. CORNEAS TRANSPLANTED



## 2016-2020 DOMESTIC PK VS. DSEK VS. DMEK U.S. EYE BANKS



# 2020 EYE BANKING BY THE NUMBERS



# MAIN ARTICLE

The Year of Perfect Vision & COVID-19



*“A year that was so highly anticipated in the optical community as the “Year of Perfect Vision,” quickly took a turn into uncharted territory.”*

It is impossible to tell the story of 2020 without COVID-19 as the main character. A year that was so highly anticipated in the optical community as the “Year of Perfect Vision,” quickly took a turn into uncharted territory.

And while the EBAA office, and our eye bank and physician members could not fully avoid the impact of an unforeseen global pandemic, the association’s tale of 2020 is not one of victimhood, but rather one of resilience.

## THE ONSET OF COVID-19

From the first cases of COVID-19 in China and around the world, EBAA closely monitored reports from various government agencies and public health entities, keeping members informed of the latest developments and knowledge of the virus. We created a [COVID-19 page](#) on the main website, dedicated to regulatory updates and business operation resources, which was continuously revised as new information became available.

Friday, March 13 was the last day EBAA staff worked together in our main office before moving to a virtual “work from home” setup as most areas of the country entered mandatory “lockdown” periods to try to contain the virus. Thankfully, our previous flex-time work arrangements and the purchase of additional monitors and wireless keyboards made this transition seamless and ensured no loss of productivity.

## THE GREAT UNKNOWN

Early in the lockdown period, EBAA CEO Kevin Corcoran was in regular communication with eye bank CEOs and Executive Directors, learning of the immediate needs of members and distributing monthly surveys to keep abreast of challenges and determining how the association could help.

Maintaining EBAA’s culture of collaboration, member eye banks sought out one another for advice and to commiserate. To foster this sense of community in a time of strife, EBAA hosted virtual “Community Chats”; Zoom-based meetings open to all members serving a specific role within their eye bank, such as Quality Assurance, Medical Director or CEO. The topics for these calls were based on these members’ interests and concerns, and discussion took place between participants as much as from the presenters. This same need for a sense of community influenced the selection of the theme for 2020’s Eye Donation Month, “A Community of Compassion.”

Always leaders in the field, EBAA sponsored research to better understand the implications of COVID-19, its transmission, and what it meant for ocular tissue and corneal transplantation. To this end, two targeted research grants were awarded.

## RESEARCH GRANTS AWARDED

- **Analyzing effect of COVID-19 pandemic on donor pool, infiltration of SARS-CoV-2 in ocular tissues and evaluating effectiveness of Povidone Iodine to inactivate SARS-CoV-2.**

Shahzad Mian, MD,  
University of Michigan, Eversight

.....

- **Can SARS-CoV-2 be transmitted through donor corneal tissue? An in vitro infection study.**

Joshua H. Hou, MD,  
Lions Gift of Sight/ University of Minnesota



## MOVING VIRTUAL

It quickly became clear that even as elective surgeries resumed and eye banks began to open back up, things would not make a speedy return to “normal.”

Concerned about our members’ safety, the EBAA Board of Directors voted to move the June EBAA Annual Meeting, slated for Dallas, to a virtual event. With the help of technology and a lot of creativity, the much-anticipated meeting included all the components EBAA members have come to love and expect from an in-person meeting, but online. The price of “admission” was reduced, and attendance tripled. Attendee feedback was overwhelmingly positive:

“

*I enjoyed the meeting, and I think it was great that EBAA could overcome challenges it faced with COVID 19.*

”

“

*I thought the EBAA did a great job of improvising due to COVID and providing a virtual meeting. I found the case studies and the tissue evaluation seminars to be the most interesting and most helpful.*

”

“

*Great program! It was actually a great way to view the sessions at my own pace. I was very impressed at the changing of the meeting in the short amount of time. Great job!”*

”

Our Annual Meeting was not the only EBAA event to move to virtual in 2020. While we were fortunate to fit the Technician Education Seminar (TES) and Eye Banker and Physician Leadership Programs in as in-person seminars, the Cornea and Eye Banking Forum, Fall Leadership Meeting, Board of Directors Orientation Meeting, and other events were held online. Our members embraced these virtual meetings, and our experience will help enhance these events when they return to in-person attendance.

## THE NEW NORMAL

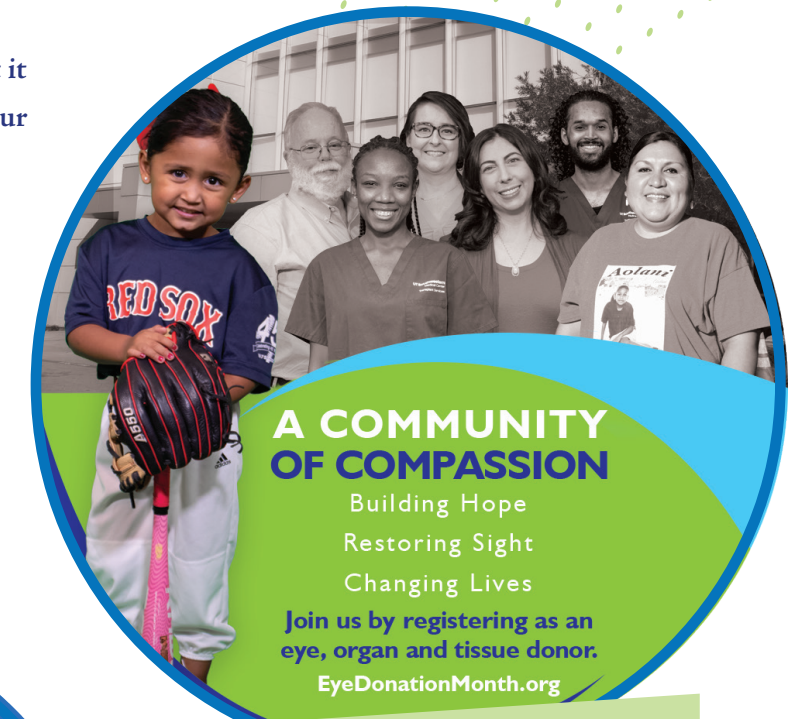
Just as EBAA adapted, so did our members. While eye banking is an inherently tactile profession – you cannot recover, prepare, or ship tissue from your home – eye banks made accommodations to ensure the safety of their staff. Recovery and processing teams changed their schedules to isolate themselves from other staff, and tissue processing was performed sequentially so the lab could be disinfected by the departing staff member before the next person entered the room. Similarly, eye banks’ community outreach teams refocused their efforts and resources for remote meetings and educational programming. Surgeons’ support was equally critical; with a reduction of the donor pool by 25% or more, many surgeons willingly adjusted their selection criteria to ensure that their patients could receive tissue in a timely manner.

## A RETURN TO BUSINESS AS USUAL

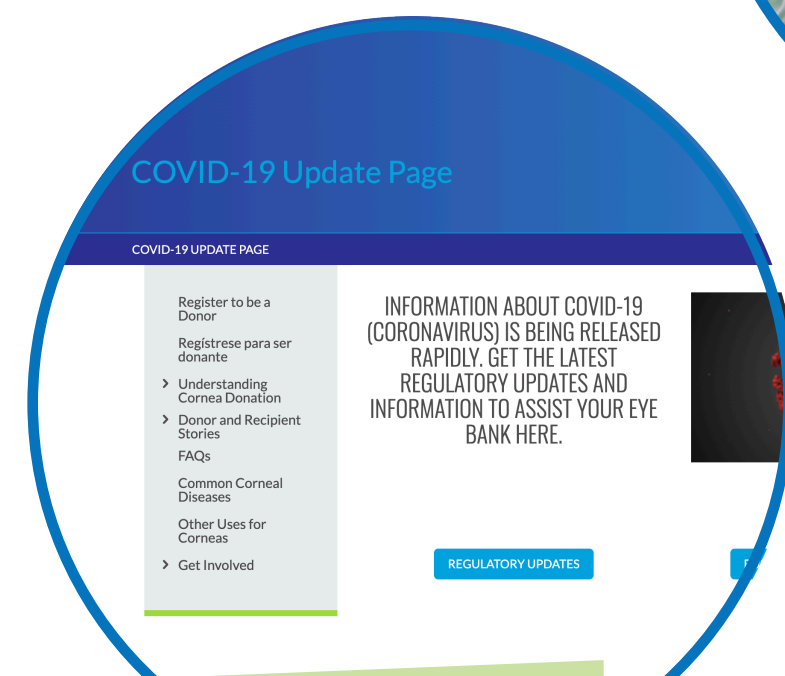
Nearly a full year since the beginning of this pandemic, and with the arrival of vaccines to protect the public, there is light at the end of the tunnel. But what will a return to “normal” really look like? The need to adapt to changed circumstances exposed EBAA and its member eye banks and physicians to new approaches that will likely persist after the virus subsides. For example, regular Community Chats seem like something EBAA will host in the future; they are a good way to check in, get advice, and compare notes without having to get on a plane.

Early in 2021, the pandemic still lingers. Our 2021 Annual Meeting (#EBAA2021) will also be a virtual experience, and our staff continue working from home. But, from this vantage point, at what we hope is the beginning of the end, the resilience of the EBAA membership should be acknowledged and praised. We will all lean into a new day while considering the lessons learned from the past year, and take with us the small elements that actually improved our association and made it stronger. But we’ll also appreciate the simple things we once took for granted.

**The “year of perfect vision” was not at all perfect, but it certainly provided clarity about how we can serve our members and the profession.**



2020's Eye Donation Month, "A Community of Compassion."



COVID-19 page on the main website, dedicated to regulatory updates and business operation resources.

# EYE DONATION MONTH

A Community of Compassion

Transplant Services Center UT Southwestern Medical Center, Staff

Rosalba González, Donor Mom

**A COMMUNITY OF COMPASSION**

Building Hope  
Restoring Sight  
Changing Lives

Join us by registering as an eye, organ and tissue donor.

EyeDonationMonth.org

f t i #EyeDonationMonth

Zoe Rabago, Recipient

Aolani Lopez, Donor

**EYE DONATION MONTH**  
NOVEMBER 2020

EYE BANK ASSOCIATION OF AMERICA®

The theme of Eye Donation Month 2020 was “A Community of Compassion.” Drawing on the uncertainty present because of a once in a lifetime pandemic, and overall tension across the country, the need for compassion was evident, as was the need for an overall sense of community. The term “community” also let us highlight all aspects of eye banking and the various roles and ways in which anyone can be a champion for eye/corneal donation.

## NEW FOR 2020

Because of COVID-19, Eye Donation Month promotion had to shift focus from in-person events, to nearly fully virtual communications. Because of this, EBAA offered new promotional tools for eye banks to use, including:

- EDM preparation checklist
- Shared social media calendar
- Physician letter for patients
- TV monitor ads
- Digital Zoom backgrounds
- Facebook profile picture frame
- Facebook “registered donor” camera effect
- Instagram animated stickers
- Veterans Week stories
- Pre-EDM “Community Chat”

## EYE DONATION MONTH PREP EFFORTS

Every effort was made to make members aware of Eye Donation Month, the accompanying website with all the tools, and how to best promote EDM within their community and following.

- Kevin Corcoran announced the new theme during the Annual Meeting in June.
- 10 email blasts were sent out to membership via Constant Contact, starting with saving the date for the prep webinar, to the conclusion of November.
- 1 email blast went out specifically to the physician list being used by Berlin Rosen to alert new corneal surgeons about EDM efforts.
- EDM “kickoff webinar” was held on September 11 to introduce the new tools and promotional ideas for 2020.

- A “community chat” was held for members to ask questions and share ideas on October 17.
- Communications Manager, Colleen Bayus presented information on EDM for partner orgs during DLA’s conference on Oct 1.
- Monthly EDM updates were featured in Insight starting in June.

## SOCIAL MEDIA EFFORTS

Most Eye Donation Month promotional efforts took place predominately on social media in 2020. Without specific data available, there was a noticeable uptick in members’ social media presence throughout the month when compared to prior years.

From October 19 through November 30, EBAA alone had the following social activity:

- 30 Facebook posts
- 12 LinkedIn posts
- 25 Instagram posts
- Roughly 200 Instagram stories (EBAA original content + “sharing” of member posts)
- 142 Tweets/retweets on Twitter

Another social media activity that got considerable engagement was “Trivia Tuesday” – where a different question was asked about eye donation each Tuesday, with people replying with their guesses for a chance at a prize.

## EYE DONATION MONTH VIDEO

This year’s [Eye Donation Month video](#) featured the touching story of Zoe, her mother, and her donor’s family – especially donor mother Rosalba. The video was created after Zoe’s story was presented at the 2020 Annual Meeting in June. EBAA got such positive feedback about the two families, it made sense to adapt the Annual Meeting presentation to a shorter video for Eye Donation Month. Special thanks to UT Southwestern Transplant Services Center for coordinating video and interview logistics,

and especially to Drew Timmons for his tireless efforts assisting with photography. While we can't get an exact count of how many times it was viewed in total, from EBAA accounts alone, there were at least **6,988 views** of the video. The exact reach of this video is likely exponentially larger due to the high number of shares from members and partner organizations. For example, **Donate Life America** posted the video on their Facebook account on November 10, 2020. They have a Facebook following of **257,217 people**, and the video was shared **39 times** from their account alone. It was also viewed **831 times** on their Instagram page. Similarly, their Facebook post announcing the start of EDM with the 2020 logo and graphic was shared 365 times.



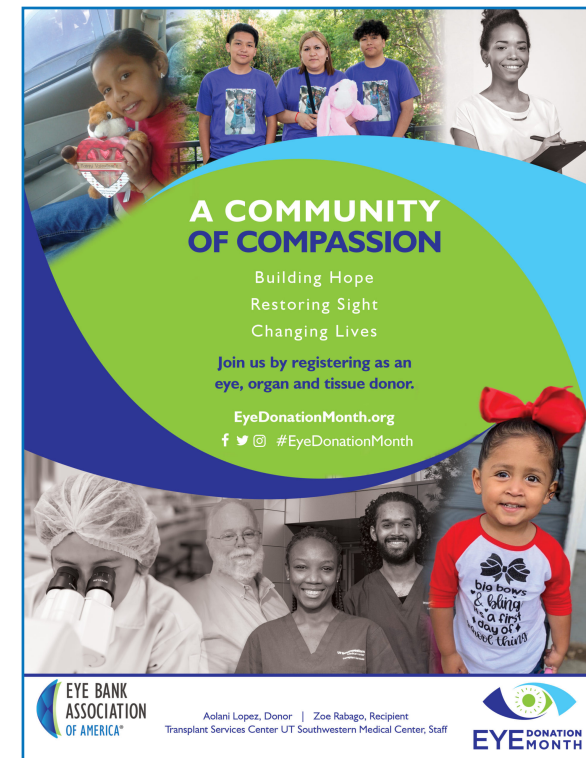
### “EYE DONATION MONTH IS EVERYWHERE” SOCIAL MEDIA CAMPAIGN

We continued the “Eye Donation Month is Everywhere” social media campaign from 2019 using EDM logo buttons. Members could use their buttons to take photos around their communities sending the message that Eye Donation Month takes place everywhere, spreading awareness, and helping register donors. This year's campaign focused on photos in people's home communities rather than travel photos that were emphasized in 2019. Some of the year's highlights were photos featuring: Mount Rushmore, fall foliage, and EDM buttons together with “I voted” stickers.



### VETERANS DAY/WEEK STORY CAMPAIGN

New in 2020, we took advantage of [Veterans Day](#) during Eye Donation Month and expanded it to a full week, highlighting stories from Veteran eye bankers. eight different veterans were interviewed (four from Miracles in Sight shared one day) and posted about during the week of the 11<sup>th</sup>. We created a webpage with all of the stories, which we linked to from social media. The page was the 5<sup>th</sup> most visited page on the EBAA site during that time.



### RUN FOR VISION

Since Run for Vision was made into “Run for Vision – from home,” it took place throughout November and was easy to combine as an Eye Donation Month Event. Members who were unable to participate in a specific city at one specific time were able to do it at their convenience, or as a group effort. Many participants documented their experiences on social media and sent us their photos, adding to our own social media content. We were also able to create a nice [video](#) for sharing across social platforms sharing all the runner's photos with one another.

### EYE DONATION MONTH MEDIA ATTENTION

Entering into this EDM we know that securing media attention would be an uphill battle. Anticipating non-stop coverage of the Presidential election and its aftermath, we started promotion of Eye Donation Month earlier than in past years. Even with considerable obstacles to press coverage there were a few notable EDM mentions:

- [The Gifted Life Podcast](#)
- [“Talk of Alabama”](#) (Advancing Sight)
- NBC5 [“Health Connection”](#) (UT Southwestern)

# MEETINGS, EVENTS, EDUCATIONAL OFFERINGS

Continuing Education with Eye Bank Association of America

Each year, EBAA hosts meetings, events, and webinars to provide education on important topics relevant to the eye bank community and convene members to discuss issues facing the profession.

In 2020, to adjust to the COVID-19 pandemic, EBAA became more flexible and nimble when it came to hosting meetings and offering educational opportunities. EBAA was fortunate enough to host three in-person events at the beginning of the year but then pivoted, transitioning in-person events into virtual learning experiences, hosting Community Chats to encourage discussions amongst members, presenting free webinars, and adding more content to [eyeLEARN](#) for easy on-demand access. Although the format, delivery, and venues for educational opportunities, meetings, and events looked a little different in 2020; EBAA provided members with opportunities to learn, meet, network, discuss, share, and govern throughout the year without missing a beat.

The next few pages highlight events and educational offerings that EBAA hosted this year. Thank you to everyone who helped make these events and experiences successful. All of these programs and offerings, whether in person or virtual, were only possible because of the hard work, flexibility, and support of volunteers, members, speakers, attendees, host eye banks, and sponsors. We hope to see you at an in-person event soon, but for now we will continue to enjoy seeing your living rooms, labs, offices, and fun virtual backgrounds.



## TECHNICIAN EDUCATION SEMINAR

February 20-22, 2020

### Host Eye Bank

Lions Eye Bank of Delaware Valley

### Faculty

- Josh Galloway, CEBT, Lions VisionGift
- Sam Ramos, CEBT, CTBS, Sierra Donor Services Eye Bank
- George Rosenwasser, MD, CEBT, Gift of Life Donor Program Eye Bank
- Ingrid Schunder, MBA, CEBT, Miracles in Sight
- Troy Win'E, CEBT, SightLife

EBAA welcomed attendees from around the US, Canada, and Saudi Arabia to the 2020 Technician Education Seminar (TES). The hybrid course allowed attendees to deepen their understanding of eye banking, connect with other eye bank professionals, gain hands-on experience through a variety of activities and demonstrations, and learn from the course's experienced faculty.

“  
I had a wonderful experience and I have learned so much. I wish it was longer. Thank you all for everything!  
”

“  
“Loved the information and staff. The breakout sessions and case studies were great as well!  
”

“  
Overall experience of the seminar was outstanding. I learned an extensive amount of information from the surgical standpoint.  
”



### Highlights Included:

- A fun social event at Lucky Strike Bowling Alley
- Interactive activities and demonstrations on physical exams, aseptic technique, slit lamp evaluations, in situ excisions, and laboratory excisions
- Breakout sessions on Slit Lamp Microscopy, Tissue Processing, Tissue Recovery, and Corneal Excisions with an opportunity for attendees to perform an excision!
- Case study discussions with Dr. George Rosenwasser, the faculty, and attendees
- Two personal accounts about the Gift of Sight:
  - Genevieve Magnuson, EBAA Education and Programs Manager, spoke about her dad's legacy.
  - Alex Cummings, a TES attendee and employee at Lions Eye Bank of Delaware Valley, discussed how her corneal transplant changed her life.

Thank you to the attendees, the faculty, Lions Eye Bank of Delaware Valley, and everyone who made the 2020 TES a success! The TES is virtual in 2021 with on-demand sessions and live virtual workshops. See you online!

## EBAA 2020 ANNUAL MEETING

June 18-26, 2020 | #EBAA2020

The [2020 Annual Meeting](#) was a virtual success! Hosted June 18-26, the event was EBAA's longest and most well-attended meeting in our 60 year history. Throughout the two-week event, themes of innovation, adapting to change, navigating COVID-19, diversity and inclusion, and the importance of cornea donation were all front and center through presentations, interactive sessions, panel discussions, scientific presentations, peer to peer discussions, heartfelt videos, [and more](#).

While we were not able to be together in person, we were able to listen, learn, and laugh together throughout #EBAA2020. Check out our Annual Meeting Blog for a comprehensive look at the meeting.

- Event Featured: A total of 30 live, interactive, and on-demand events and sessions over 8 days
- More than 70 presentations and 88 speakers
- Live Governance Meetings
- Networking Events and a Moderated Peer to Peer Medical Director Discussion
- Opportunity to earn more than 28 CEUs and 9 CME
- More than 1100 registered attendees



### Meeting Highlights:

- The Second City Improv Theater facilitated a dynamic and interactive workshop, focusing on the power of “Yes, and...!”
- Partners in the transplant community came together to discuss how each association navigated 2020.
- A grateful recipient spoke about receiving the gift of sight thanks to her sister and the local eye bank
- Two mothers speaking different languages shared how cornea donation brought their families together and how a 10-year old's legacy lives on through the bright future of a three-year-old.
- The House of Delegates elected new members of the EBAA Board of Directors, and passed a change to the voting process allowing candidates to be elected based on a plurality rather than a majority vote.
- Donna Drury, Executive Director at UT Southwestern Transplant Services Center was recognized as the 2020 Leonard Heise Award Recipient.
- Jeffrey Barnard, MD, Chief Medical Examiner, Dallas County and William Rohr, MD, Chief Medical Examiner, Collin County were jointly honored as the Gift of Sight Awardees.
- Peter Bedard from Lions Gift of Sight, received the Best Paper of Session Award during the Scientific Symposium for his presentation, “Descemet's Membrane vs. Amniotic Membrane for Corneal Epithelium Regeneration.” The award is supported by an unrestricted educational grant from the International Journal of Eye Banking (IJEB).

“  
I am glad I took the time to set in and listen, I could not tear myself away, lots of wholesome information.  
”



Thank you to the speakers, attendees, sponsors, and planning committees for helping make the EBAA 2020 Annual Meeting a success.

A special thank you to the Donna Drury and her team at UT Southwestern Transplant Services Center Lions Eye Bank for making the memorable donor family and recipient sessions possible, for presenting in multiple areas, and for helping to secure additional speakers.

Thank you to the organizations who generously supported the 2020 Annual Meeting – they were critical to its success. View the [Sponsors page](#) for information about these organizations!

We look forward to seeing everyone online at the **2021 Annual Meeting!**

“  
Very refreshing to hear new idea and information.  
”

“  
This was very well done and easy to attend.  
The variety of topics was impressive.  
”



Cheryl Cran, NextMapping  
Keynote: Leading With An Eye to the Future with Innovation, Strategy, and Teamwork



Gerard Sutton, MD, MBBS, FRANZCO  
Global Corneal Blindness

## 2020 CORNEA AND EYE BANKING FORUM

November 7, 2020

Hosted by the EBAA and the Cornea Society, the [Cornea and Eye Banking Forum](#), took place online in homes, eye banks, offices, and labs around the US and world. The live virtual event was moderated by the program chairs, Marjan Farid, MD, and Sophie Deng, MD, PhD, and included guest moderators, Maria Woodward, MD, MS, and Olivia Lee, MD.

Over 300 individuals from the U.S., Canada, Germany, Ecuador, Australia, Pakistan, the Netherlands, Saudi Arabia, Japan, and the Philippines attended the program. The day-long event featured the latest research in cornea and eye banking with invited presentations on innovative research, award lectures, discussion on timely topics, moderated discussions, scientific abstract presentations, and even a fun networking event.

“

*Everything was amazing. Well-organized, great speaker selection, amazing presentations, cutting-edge research. Grateful to have had the opportunity to watch these lectures.*

”

“

*Excellent content - learned a tremendous amount. Great “seeing” colleagues on Zoom.”*

”

### Program Highlights:

- The presentation of 17 scientific abstracts with live Q&A
- Two Invited Sessions:
  - Update on Injectable Endothelial Cell Technology presented by Shigeru Kinoshita, MD, PhD
  - Therapeutic Potential of Mesenchymal Stem Cells on Corneal Injury presented by Ali Djalilian, MD
- A Mini-Symposium on COVID-19 and the Donor Cornea including updates on the research funded by the EBAA Targeted Research Grant on COVID-19 and current EBAA donor eligibility guidelines
- The R. Townley Paton Award Lecture delivered by Stephen C. Kaufman, MD, PhD
- The Troutman Prize Lecture given by C. Drew Salisbury, MD
- The Dohlman Award presentation to Eduardo Alfonso, MD
- The Paton Brunch moderated by Marian Macsai, MD, with live discussion on clinical cases

“

*Though it was a bit different attending from my living room, I did enjoy connecting with others and learning about what is still going on in the cornea world and how awesome we have all been able to adapt during this pandemic and continuing to provide service to our patients.*

”

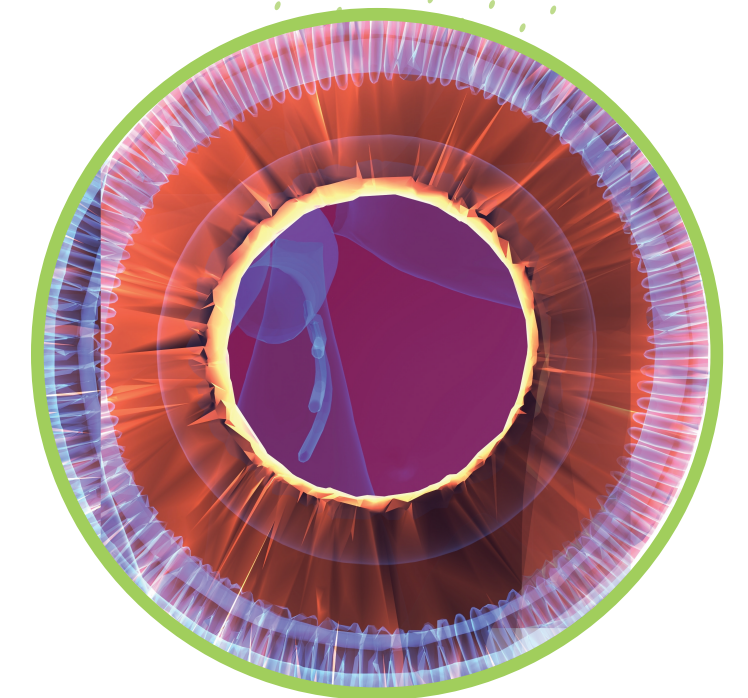
Stephen C Kaufman, MD, PhD, was presented with the R. Townley Paton Award in recognition of his many contributions to EBAA, eye banking, research, corneal transplantation and sight restoration. After being introduced by Dr. Shahzad Mian, the 2019 R. Townley Paton Award recipient, Dr. Kaufman delivered the R. Townley Paton Lecture, [“Reflections During COVID-19: My Important But Little Known Research and Our Legacy.”](#)

Joana Karanxha, a medical student at Bascom Palmer Eye Institute, was presented with the Best Paper of Session Award for her presentation, [“A Novel Dual-Chamber Vial for Corneal Graft Preservation.”](#) The Best Paper of Session Award is supported by an unrestricted educational grant from The Eye-Bank for Sight Restoration.

The event included two dynamic and interactive discussions. Dr. Marian Macsai moderated the Paton Brunch Discussion and Patricia Dahl moderated the Eye Banker Brunch Discussion. Both discussions allowed for attendees to share personal experiences and perspectives and were a wonderful opportunity to reconnect with peers.

Thank you to the program chairs, the moderators, the planning committee, the speakers and the attendees for making this event successful. Also, thank you to our Supporters. Please visit the [Conference Supporters page](#) for more information about the organizations who provided support for this event.

The 2021 Cornea and Eye Banking Forum takes place Friday, November 13 in New Orleans, we look forward to seeing you there!



“

*I feel better informed and connected with fellow corneal surgeons.*

”

## EYE BANKER LEADERSHIP PROGRAM

March 5-7, 2020

### San Antonio Eye Bank

Eye Bank professionals from around the country traveled to San Antonio, Texas, for the Eye Banker Leadership Program. The program featured engaging speakers, dynamic sessions on various leadership topics, and provided attendees with information and tools to successfully lead their teams and organizations.

The program kicked-off with a private tour of the San Antonio Riverwalk led by Dr. Ken Maverick, Medical Director for the San Antonio Eye Bank. The tour concluded at the historic Alamo and was followed by a reception at Maverick Whiskey sponsored by the San Antonio Eye Bank.

The programming included sessions on the following topics:

- Leading from Within
- A Review of Personal Leadership Assessment Results
- Developing a Leader's Mindset
- Leading a Team Through Change
- Motivating Staff
- Leading your Board
- Making Strategic Decisions
- Delivering Engaging and Impactful Presentations
- Culture focused on Customer Service

Laughter, engagement, and reflective thought were fully present throughout the program, as the facilitator, Brian Riggs, and the speakers kept the energy in the room buzzing with insightful presentations that provided attendees information and tools that can be applied within their own organizations. Thank you to everyone who participated in the 2020 program!



Eye Banker Leadership Program Group Photo



Physician Leadership Program Group Photo

## PHYSICIAN LEADERSHIP PROGRAM

March 7-8, 2020

### Faculty

- Donna Drury, MBA, CEBT, CTBS,  
UT Southwestern Transplant Services Center
- Joshua Hou, MD, Lions Gift of Sight
- Jennifer Li, MD, Sierra Donor Services Eye Bank
- Shahzad Mian, MD, Eversight
- Noël Mick, The Eye-Bank for Sight Restoration
- Michelle Rhee, MD,  
The Eye-Bank for Sight Restoration
- Michael Tramber, MBA, CEBT, CTBS,  
Miracles in Sight
- Woodford Van Meter, MD, Kentucky Lions Eye Bank

The Physician Leadership Program (PLP) welcomed physicians from around the country to learn more about eye banking, the EBAA, working with their local eye bank, and opportunities to get involved with the association. Each participant was nominated by an EBAA member eye bank and selected by the PLP selection committee.

### The Physician Leadership Program Class of 2020:

- James Huffman, MD, Kentucky Lions Eye Bank
- Joann Kang, MD,  
The Eye-Bank for Sight Restoration
- David Kennedy, MD, Southern Eye Bank
- Jennifer Ling, MD, Iowa Lions Eye Bank
- Priya Mathews, MD, MPH,  
Lions Eye Institute for Transplant and Research
- Nambi Nallasamy, MD, Eversight
- Afshan Nanji, MD, Lions VisionGift
- Ahmed Omar, MD, PhD, Eversight
- Catherine Reppa, MD, Great Plains Lions Eye Bank
- Drew Salisbury, MD, Advancing Sight Network
- Ankit Shah, MD,  
Lions Eye Institute for Transplant and Research

- Christine Shieh, MD, Miracles in Sight
- William Waldrop, MD,  
UT Southwestern Transplant Services Center
- Evan Warner, MD, Lions Eye Bank of Wisconsin

The program included two components: a site visit with the nominating eye bank and an in-person seminar hosted by EBAA. During the eye bank site visit, participants learned about the eye bank and the overall process of eye banking. Many of the participants mentioned that they learned a lot during the visits and were moved by telephone calls with the next of kin and the outreach to donor families. The in-person event built upon the information and knowledge that PLP participants received at the eye bank, and included programming on leadership skills, the eye banking process, opportunities that are available to physicians at their eye bank and within EBAA, and physician engagement.

The weekend flew by, with each PLP participant leaving with excitement regarding eye banking, new information, a personal leadership assessment, ideas for developing their careers through engagement with their eye bank and EBAA, and new colleagues in the eye bank profession. Each PLP participant received a complimentary Paton Society Membership for two years, and all are now serving on EBAA Committees.

Thank you to the eye banks who nominated physicians for this program, to the physicians who participated in the program, and the faculty for facilitating the sessions. The Physician Leadership Program continues to grow, and we expect great things from the class of 2020. The next program takes place in 2022!

## 2020 FALL LEADERSHIP MEETING

This past Fall, EBAA members convened online for the 2020 Fall Leadership Meeting. The meeting consisted of the Accreditation Board Meeting, the Medical Advisory Board Meeting, and a fun networking happy hour event. All events were free and individuals not serving on the boards were able to attend and listen to the discussions.

The Accreditation Board met virtually on November 10, voting to approve the *Guidance on the Use of Video During Accreditation Inspections* as well as the revision to the *Policy and Procedure G1.000 Identification of Accreditation Status*. The Board discussed and received feedback about the use of the hybrid inspection model during the Fall Inspection Cycle. The Accreditation Board also released an updated [Eye Bank Accreditation Status List](#).

The Medical Advisory Board (MAB) met on November 12, following an evening networking event. The MAB passed a proposal to accept the definition revisions in the Medical Standards Glossary as well as the additions to the Statistical Ledger to collect data on preloaded tissue and tissue recovery establishments. The MAB formed a subcommittee for surgeon outreach and education regarding adverse reaction reporting. The board also discussed the need for additional data on the number of donors lost due to donor behavioral risk and travel history as part of the advocacy efforts with FDA.

## COVID-19 WEBINARS AND UPDATES

EBAA kept members updated on COVID-19 by hosting informational sessions with the latest available knowledge on COVID-19 presented by Dr. Jennifer Li, Dr. Michael Ison, and Jennifer DeMatteo. The speakers presented details about COVID-19 and the EBAA guidelines for donor eligibility, while answering questions from attendees and members. EBAA rebroadcast one of the sessions in conjunction with APABO, allowing for APABO representatives to engage in a lively discussion and answer questions from their members.

## EBAA VISITS GERMANY: THE EEBA ANNUAL MEETING AND A VISIT TO THE MUNICH EYE BANK

In January, before the world shut down, EBAA President and CEO, Kevin Corcoran, and Director of Education, Stacey Gardner, traveled to Hannover, Germany, to attend the EEBA Annual Meeting. They enjoyed attending the educational sessions and interactive workshops, including a presentation by Patricia Dahl, from The Eye-Bank for Sight Restoration. Kevin and Stacey were thrilled to connect with several EBAA members at the meeting as well as members of the Global Alliance of Eye Bank Associations, a former Mary Jane O'Neil Fellow, and a recipient of a previous EBAA Research Grant.

Following a fun and informative meeting, Kevin and Stacey headed south to Munich to visit EBAA member bank, Hornhautbank Muenchen gGmbH. During the visit at the eye bank, Stacey received the "eye banker for the day" experience and learned to perform cell counting with the specular microscope, under the strict supervision of Andrea Gottwald. Thank you to Andrea Gareiss-Lok, Claus-Dieter Lok and Andrea Gottwald, for their wonderful hospitality and for educating EBAA staff about their organization and the operations at their eye bank.



## COMMUNITY CHATS

Throughout the year, EBAA brought members of the association together for a new type of engagement activity called "Community Chats." These virtual discussions provided members opportunities to meet individuals with similar roles or job functions to discuss timely topics and share insights and lessons learned, best practices, and status updates regarding eye banking, donation, or transplantation. These chats focused on topics of interest to eye bank CEOs, technical staff, QA staff, donor development staff, and medical directors. The chats were a platform for individuals to meet "face-to-face" and help each other navigate the uncertainty brought on by the pandemic. Because of the positive responses and feedback we got about the Community Chats, we look forward to continuing to offer these sessions and discussions in 2021!



# CERTIFICATION

Celebrating the Newest CEBTs



*“Since 1981, EBAA has administered an exam to enable individuals in the eye banking profession to become Certified Eye Bank Technicians (CEBT).”*

## CERTIFICATION UPDATE

Since 1981, EBAA has administered an exam to enable individuals in the eye banking profession to become [Certified Eye Bank Technicians \(CEBT\)](#). The certification process is a long-standing, well-respected program ensuring that eye bank technicians are well-versed in the standards and regulations of eye banking.

Although there were obstacles, EBAA was able to offer the [Certified Eye Bank Technician \(CEBT\) Exam](#) twice in 2020. In response to the pandemic and the associated safety concerns, EBAA worked with the Professional Testing Corporation to postpone the spring cycle of the exam and offer candidates the option to take the exam in person, or at a location of their choice, with a remote proctor. The exam eventually took place in July in the U.S., Canada, and Saudi Arabia, with 12 individuals successfully passing the exam, for a passing rate of 80% for this cycle. A special congratulations to **Nathan Hawley from Regional Tissue Bank** for earning the highest score in the spring exam cycle.

The exam was offered again in October and EBAA is thrilled to announce that all 11 candidates who took the CEBT Exam passed, resulting in a 100% passing rate for fall exam cycle. The exam took place across the country and for the second time, candidates had the option to take the exam with a remote proctor. Congratulations to **Dawson Nance from Sierra Donor Services Eye Bank** for earning the highest score during the fall exam cycle.

**Congratulations to everyone who passed the exam this year and are now Certified Eye Bank Technicians!**

## NEWEST CERTIFIED EYE BANK TECHNICIANS

### Class of Spring 2020

- Patrick Becker, CEBT, Lions Gift of Sight
- Lisa Bennett, CEBT, Lifebanc
- Jolene Bonney, CEBT, New Brunswick Organ and Tissue Program - Ocular Division
- Michelle Burrowes, CEBT, OneLegacy
- Justin Ferguson, CEBT, Sight Society of NENY, Inc. (Lions Eye Bank at Rochester)
- Bridget Gipper, CEBT, Lifeline of Ohio
- Nathan Hawley, CEBT, Regional Tissue Bank
- Megan Houston, CEBT, Regional Tissue Bank
- Kyle Nance, CEBT, Rocky Mountain Lions Eye Bank
- Jess Pridemore, CEBT, Medical Eye Bank of West Virginia
- Destiny Saxiones, CEBT, UT Southwestern Transplant Services Center Lions Eye Bank
- Hailey Strable, CEBT, Iowa Lions Eye Bank

### Class of Fall 2020

- Peter Addington, CEBT, LifeSource
- Emily Carter, CEBT, New England Donor Services
- Ashley Conlin, CEBT, LifeSource
- Hannah Flaig, CEBT, The Eye-Bank for Sight Restoration
- Bobby Gilbert, CEBT, Sierra Donor Services Eye Bank
- Chelsea Green, CEBT, Iowa Lions Eye Bank
- Chanelle Laus, CEBT, Gift of Life Donor Program Eye Bank
- Brandi Lowe, CEBT, East Tennessee Lions Eye Bank
- Melissa Mitchell, CEBT, New England Donor Services
- Dawson Nance, CEBT, Sierra Donor Services Eye Bank
- Karen Stevenson, CEBT, New England Donor Services

# AWARDS AND SCHOLARSHIPS

Honoring People In Our Community

*EBAA congratulates our award and scholarship winners on their accomplishments and hard work!*

## JACHIN MISKO MEMORIAL SCHOLARSHIP FOR TECHNICAL ADVANCEMENT IN EYE BANKING

**Rebecca Hubbs**  
Processing Technician  
Lions VisionGift

Rebecca Hubbs has been with Lions VisionGift for three years, working first in the referral center before transitioning to her current role in the processing department. She has been extremely dedicated to helping others in every department she has worked in and proactively seeks out new areas for learning and opportunities for growth within her own department as well as assisting other departments. Rebecca is an excellent example of a team player, demonstrating that it takes all staff working together to restore sight. As the recipient of the Jachin Misko Memorial Scholarship, Rebecca attended the Technician Education Seminar (TES) in Philadelphia, Pennsylvania. Rebecca shares her TES experience in this [personal account](#).

*The [Jachin Misko Memorial Scholarship](#) for Technical Advancement in Eye Banking honors the memory of Jachin Misko, an eye bank technician who was dedicated to technical innovation in eye banking. It brings a highly motivated technician from an EBAA member eye bank to the Technician Education Seminar. Thank you to Saving Sight for sponsoring this scholarship.*



“

*I want to extend my sincere gratitude for the opportunity to attend this seminar. It was an honor to be chosen as the recipient of the Jachin Misko Memorial Scholarship. I consider this to be a major steppingstone in my eye banking career, and I come away from the experience with a sense of excitement and inspiration. I am very grateful to Saving Sight for sponsoring this opportunity, and to the EBAA for making the whole experience possible. I also want to extend my gratitude to the Lions Eye Bank of Delaware valley for being such amazing and generous hosts for the event.*

*Moving forward with my career in processing and eye banking, I will strive to emulate the level of excellence I saw at the TES. Both from the presenters and the other technicians around me. It was inspiring to connect with so many talented and passionate people.*

”

## R. TOWNLEY PATON AWARD

**Stephen C. Kaufman, MD, PhD**

University of Minnesota/Lions Gift of Sight

Presented during the [Cornea and Eye Banking Forum-](#)  
[access the Paton Award Presentation and Lecture.](#)

Stephen C. Kaufman, MD, PhD, is the Professor and Vice-Chairman of Ophthalmology, the Director of Cornea and Refractive Surgery, and the Director of the Cornea Fellowship Program at the University of Minnesota, as well as an Associate Medical Director at Lions Gift of Sight. He is a member on the Board of Directors at the Eye Bank Association of America, and the Chairman of the American Academy of Ophthalmology's Cornea Knowledge Base Committee, the Co-Chairman of the Midwest Cornea Association, on the Board of the Minnesota Academy of Ophthalmology.

He conducts research in many areas of Ophthalmology, and has lectured at numerous national and international Ophthalmology meetings over his more than two decade career in Ophthalmology. Dr. Kaufman is the editor of two cornea textbooks, is on the editorial board of two ophthalmic journals, has published 11 chapters on cornea and refractive surgery and has more than 400 publications and presentations to his name.



During his career, he has moved many times and has always tried to leave each location better than when he arrived. He is especially proud of working with Jackie Malling, Patricia Dahl, and Ellen Heck on the *International Journal of Eye Banking* and of his various research contributions.

*The R. Townley Paton Award is EBAA's highest honor for corneal surgeons presented annually to an ophthalmologist in recognition of his/her contributions to EBAA for exemplifying the precepts of modern eye banking, and the founder of the first eye bank established in the United States.*

“  
*I enjoy the personal fulfillment of helping patients, but I also appreciate the new advances and techniques that continually allow me to provide improved care.*  
”

## LEONARD HEISE AWARD

**Donna Drury, MBA, CEBT, CTBS**

Executive Director

UT Southwestern Transplant Services Center Lions  
Eye Bank

*Due to the circumstances of 2020, Donna will be honored during the 2023 Annual Meeting in Dallas, Texas.*

Donna Drury has been actively involved in eye banking for more than 20 years and has contributed to the provision of high-quality eye banking services to the North Texas area and beyond. She has served on multiple committees in the EBAA, including but not limited to, Accreditation Board, Medical Advisory Board, and Board of Directors where she recently completed service as Chair of the association.

Donna has been, and continues to be, actively involved in the development and implementation of DSAEK and DMEK tissue provision to serve physician and patient needs throughout the bank's service area and to other banks when they need assistance. She implemented a tissue request system to maximize tissue allocation more rapidly thereby assuring the best use of transplantable tissue for both physician and patient comfort and efficiency.

Internationally, she has facilitated the distribution of gratis tissue for mission trips for physicians traveling to clinics in Africa, and provided tissue for international requests when availability permitted.



Donna has maintained her status as a Certified Eye Bank Technician (CEBT) since 1992 and has contributed to the success of a number of EBAA programs and initiatives. Donna's commitment and diligent efforts have significantly impacted the eye banking community as well as the EBAA.

*The Leonard Heise Award is presented to non-physician eye bankers in recognition of their outstanding devotion to EBAA's development and for exemplifying the precepts of Leonard Heise, a major contributor to the fight against blindness and one of EBAA's founders.*



**GIFT OF SIGHT AWARD**

**Jeffery Barnard, MD**

Chief Medical Examiner Dallas County

**William B. Rohr, MD**

Chief Medical Examiner Collin County



This year, the Gift of Sight Award was awarded to Jeffrey Barnard, MD, and William B. Rohr, MD. UT Southwestern Transplant Services Center Lions Eye Bank nominated both of these individuals because of their tremendous efforts regarding cornea donation.

Dr. Barnard graduated from medical school at Texas A&M with a fellowship at the Suffolk County Medical Examiners Office. He is board certified in anatomical and clinical pathology, and forensic pathology by the American Board of Pathology. Dr. Rohr graduated from the medical school at Louisiana State University Medical. He is board certified in anatomical and clinical pathology, and forensic pathology by the American Board of Pathology.

Both medical examiners have been extremely supportive of donation and transplantation, making thousands of cornea donations possible by providing access to their facilities, and information on donor medical and social histories. In addition, they have encouraged the support of their field investigators and other pathologist trainees, influencing a broader outreach for cornea donation and transplantation.

Their unwavering commitment to improving healthcare in the community through death investigation for the benefit of the living, has made them to be avid supports of the donation and transplantation programs of the Tissue Transplant Center at UT Southwestern. The support in identifying and locating donor families and supplying critical information regarding the circumstances and manner of death of the potential donors is and remains invaluable for providing ocular tissue for transplant locally, domestically, and internationally. Working through these exemplary programs has provided data for the publication of articles related to serology and toxicology in donors, and influences healthcare safety measures.

*The Gift of Sight Award is presented annually to a professional(s) who works closely with the eye banking community and whose efforts have demonstrated significant support of eye banking and corneal donation.*

“  
UT Southwestern Transplant Services Center Lions Eye Bank nominated both of these individuals due to their tremendous efforts regarding cornea donation.  
”

# RESEARCH GRANTS

EBAA proudly supports research and innovation by offering grant opportunities to fund research specifically related to eye banking, sight restoration, and corneal transplantation.

## THE 2020 PILOT RESEARCH GRANT RECIPIENTS

**Doug Chung, PhD**

**UCLA Stein Eye Institute**

Investigation of oxidative stress and inflammatory response in ex vivo corneal endothelial cells during cell culture and expansion

**Elsayed Elbasiony, MD, MSc**

**Schepens Eye Research Institute**

Efficacy of growth factors in promoting corneal endothelial cell survival during tissue storage and transplantation

**Alfonso Iovieno, MD, PhD, FRCSC, FACS**

**The BioFoundry at UBC**

Development of novel hybrid co-polymer for corneal stromal tissue engineering

**Ahmad Kheirkhah, MD**

**University of Texas Health Science Center at San Antonio**

Nanoparticle Technology for Improving Corneal Graft Survival

**Kenten Kingsbury, BS**

**Iowa Lions Eye Bank**

Proteomic Validation of Diabetic Corneal Endothelial Cell Matrix



**Sung Lee, BSc**

**Lions Gift of Sight**

Evaluation of alamarBlue as an “in-situ” Endothelial Cell Viability Assay in Preloaded DMEK grafts.

**Whitney Stuard**

**The University of Texas Southwestern Medical Center**

The Temporal Effects of Cold Storage and Re-warming on Mitochondrial Fitness in Donor Corneal Endothelium

## HIGH IMPACT RESEARCH GRANT UPDATE:

### Feasibility For Storage And Transport Of Cultured Grafts For Endothelial Keratoplasty.

**Khoa D. Tran, Wei Wang, and Albert S. Jun**  
2018 High Impact Research Grant Recipients

The cultivation of human corneal endothelial cells for endothelial keratoplasty (EK) is an active area of research. Several groups can expand and grow corneal endothelial cells in culture, and at least two of these groups are currently performing in-human clinical trials to examine the safety and performance of these cultured cells as a replacement for donor corneal grafts currently used to treat endothelial dystrophies.

The collaborative efforts between Dr. Albert Jun’s Laboratory (Johns Hopkins University, JHU) and Lions VisionGift (LVG) has resulted in the successful creation of a next-generation EK graft consisting of a collagen carrier with cultured corneal endothelial cells. Thus, as the field has overcome the initial hurdle of developing protocols to culture and expand human corneal endothelial cells, groups began investigating potential methods for storage and transport of these cultured grafts to determine their compatibility with current eye bank tissue preparation and transport practices.

Work funded by the EBAA High Impact Grant has shown that grafts can be prepared for up to 7 days prior to a hypothetical surgery date. These grafts can be transported using techniques that are currently employed by many eye banks to deliver preloaded DSAEK and DMEK grafts. Cultured grafts stored in cold storage media (such as Optisol-GS and Life4°C) and shipped (in both vials and corneal viewing chambers, **Figure 1A**) from JHU to LVG were viable and expressed molecular markers routinely used to examine corneal endothelial cells.



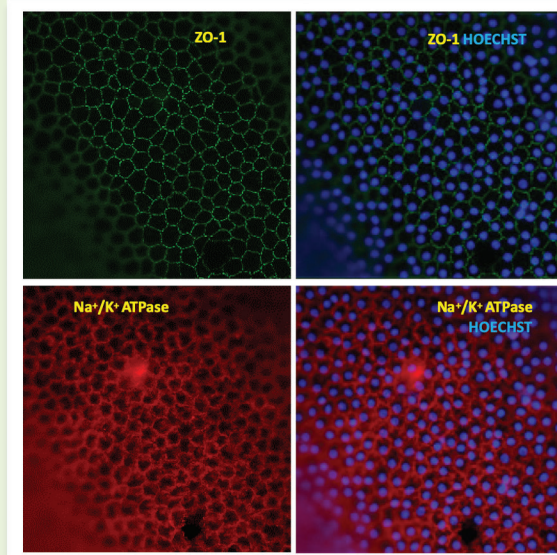
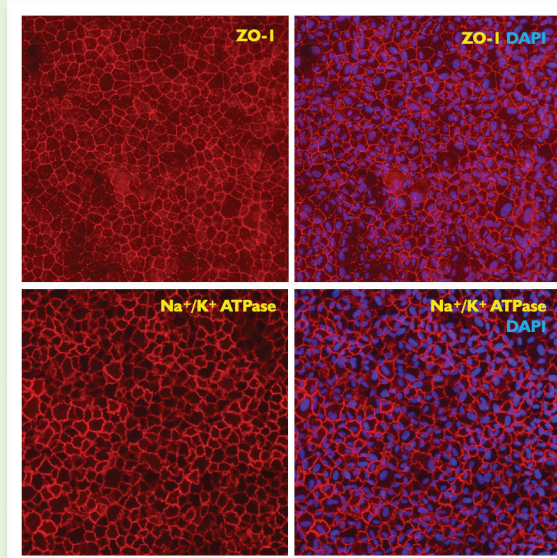
**Figure 1A**

Cultured grafts on collagen vitrigel were shipped using current methods employed for shipping eye bank preloaded DSAEK and DMEK grafts.

## HIGH IMPACT RESEARCH GRANT UPDATE (CONTINUED)

Calcein-AM staining for cell viability up to 7 days post-preparation revealed that grafts were more than 90% viable. The cultured endothelium also expressed markers such as ZO-1 and Na<sup>+</sup>/K<sup>+</sup> ATPase (Figure 1B), similar to standard DMEK grafts obtained from donor tissue (Figure 1B'). Cell death, as examined by labeling with propidium iodide, was minimal. Similar results were obtained when grafts were shipped in culture media at 4°C. By current eye bank processing standards, these grafts would likely be determined suitable for transplantation.

There were no adverse reactions (such as infections or rejections) noted in animal studies conducted during this funding period where cultured grafts were transplanted into the feline model (n=12). These outcomes are comparable to previous studies performed prior to this funding period where only one cat (out of 30) experienced a rejection episode. Further, the corneas treated with the cultured grafts were 11-39% thinner at 4-weeks post-operative than control corneas that only received the collagen carrier. Corneas that received grafts containing cultured human endothelial cells also had better attachment to the stroma

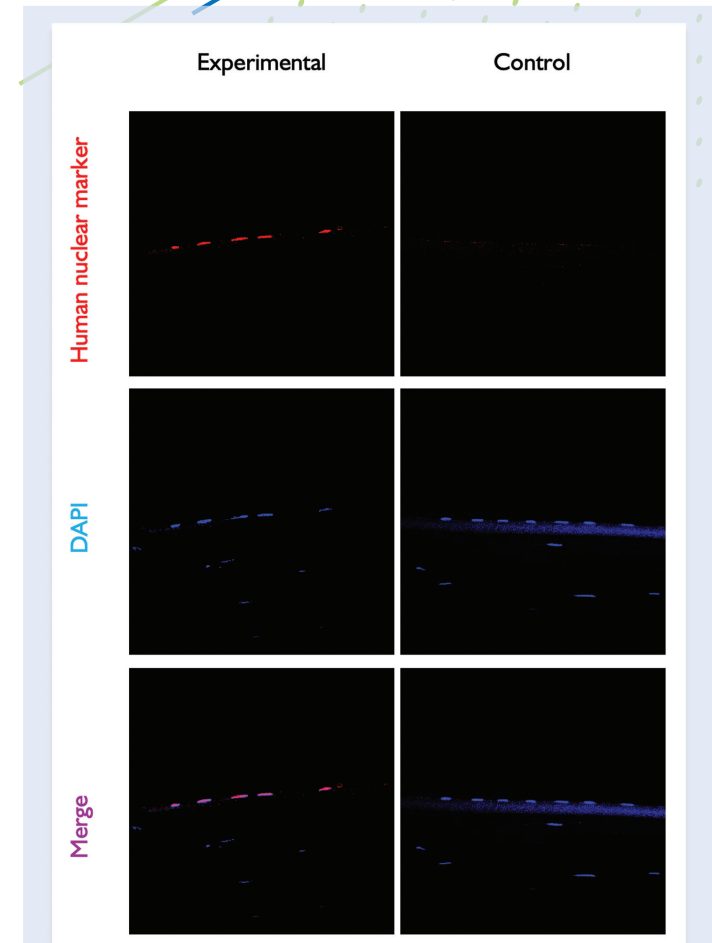


**Figure 1B and 1B'**

Cultured grafts stained for molecular markers Na<sup>+</sup>/K<sup>+</sup> ATPase and ZO-1. Grafts from this lot were used for transplant experiments in the feline model. B'. A DMEK graft derived from a donor cornea is stained with Na<sup>+</sup>/K<sup>+</sup> ATPase, ZO-1, and HOECHST.

and were clearer than the control grafts. Histological studies performed at the end of the experiment period confirmed the presence of human endothelial cells on the transplanted grafts and were absent from the collagen carrier of the control grafts (Figure 1C). The outcomes of these animal studies, supported in part by the EBAA High Impact Grant, will allow us to assess whether our cultured grafts are a viable option for endothelial keratoplasty procedures in the future. If the results are favorable, it may support the decision to invest in a much larger, GLP-compliant animal safety study that can be submitted to the FDA to support a first-in-human trial.

Cells cultured from two donor corneas using our method can be used for up to 60 transplants. In addition, these grafts can be made in batches on a weekly basis. This would greatly reduce the amount of effort that eye bank staff would need to spend finding tissue to match surgeon parameters for endothelial keratoplasty. The ability to grow thin grafts (<25 μm) with consistently high cell counts (>2800 cells/mm<sup>2</sup>) for endothelial keratoplasty could essentially remove the uncertainty of donor tissue availability and eliminate the need for eye banks to import corneas to fulfill their surgical needs.



**Figure C**

Histological sections of cat eyes 4-weeks post-transplantation. The human nuclear marker is used to identify cultured human endothelium transplanted and is absent from the control sample.

## TARGETED RESEARCH GRANT: COVID-19

In response to the spread of SARS-CoV-2 and COVID-19, EBAA created the Targeted Research Grant on COVID-19 and requested proposals for research investigating questions surrounding SARS-CoV-2 and COVID-19 and how they may affect ocular tissue recovery and transplantation.

After receiving a number of strong proposals, the recipients of this special one-time grant were selected.

### **Shahzad Mian, MD** University of Michigan / Eversight

Analyzing effect of COVID-19 pandemic on donor pool, infiltration of SARS-CoV-2 in ocular tissues and evaluating effectiveness of Povidone Iodine to inactivate SARS-CoV-2

#### Research Team

Onkar B. Sawant, PhD	Sneha Singh
Robert Emery Wright, III	Kayla M. Jones, CEBT
Michael S. Titus, CEBT	Eugene Dennis
Eric Hicks	Parag A. Majmudar, MD
Ashok Kumar, MD	

### **Joshua Hou, MD** University of Minnesota / Lions Gift of Sight

Can SARS-CoV-2 be transmitted through donor corneal tissue? An in vitro infection study

#### Research Team

Ching Yuan, PhD	Maxim Cheeran, PhD
Declan Schroeder, PhD	Heidi Roehrich, MS
Venkatramana Krishna, PhD	

Research from both studies were presented at the Annual Meeting and the Cornea and Eye Banking Forum. Updates about the research are as follows:

### *Analyzing effect of COVID-19 pandemic on donor pool, infiltration of SARS-CoV-2 in ocular tissues and evaluating effectiveness of Povidone Iodine to inactivate SARS-CoV-2*

#### **Shahzad Mian, MD** University of Michigan/Eversight

The SARS-CoV-2 virus is highly infectious and transmitted primarily through respiratory droplets from infected persons. SARS-CoV-2 is found in conjunctival swabs and tears of COVID-19 patients. However, the presence of SARS-CoV-2 within different ocular tissues was not well understood. Therefore, we undertook this EBAA funded study to analyze the prevalence of SARS-CoV-2 in human post-mortem ocular tissues. In this study, the expression of SARS-CoV-2 RNA was assessed by RT-PCR in corneal and scleral tissues from 33 surgical-intended donors who were eliminated from a surgical use per EBAA donor screening guidelines or positive COVID-19 test. Ocular levels of SARS-CoV-2 RNA (RT-PCR), Envelope and Spike proteins (immunohistochemistry) and anti-SARS-CoV-2 IgG and IgM antibodies (ELISA) were evaluated in additional 10 COVID-19 donors. Of 132 ocular tissues from 33 surgical-intended donors, the positivity rate for SARS-CoV-2 RNA was 13%. Of additional 10 COVID-19 donors, six had PCR positive post-mortem nasopharyngeal swabs whereas eight exhibited positive post-mortem anti-SARS-CoV-2 IgG levels. Among the 20 eyes recovered from these donors: three conjunctival, one anterior corneal, five posterior corneal, and three vitreous swabs tested positive for SARS-CoV-2 RNA. SARS-CoV-2 spike and envelope proteins were detected in epithelial layer of the corneas that were procured without Povidone-Iodine (PVP-I) disinfection. No detectable immuno-reactivity for spike and envelope proteins were observed in tissues procured after

EBAA recommended double soak PVP-I treatment.

Our study also sought to identify the impact that new donor restrictions during COVID-19 limited the corneal supply at a single eye bank as well as the role of routine post-mortem testing donors intended for surgical use. A retrospective review was conducted of the referrals and eligible donors of an eye bank between February and June of 2020, using the same period in 2019 as a control. In this five-month period, referrals to the eye bank were reduced by 24% and eligible donors reduced by 34%. The EBAA guidelines during this period led to a 4-14% decrease in the number of referrals to the eye bank. A surplus of surgically suitable corneas remained, compared to the demand for corneal tissue for surgical use, a 10-44% excess of tissue. On June 1st, 2020, the Eversight eye bank began routinely post-mortem testing all donors intended for surgical use who had not been tested within 72 hours of death. The eye bank sent 266 post-mortem tests in June, of which 13 were positive (4.9%). These donors were eligible based on EBAA COVID-19 criteria and would have been cleared for transplantation had a post-mortem test not been sent.

In summary, we report the presence of SARS-CoV-2 RNA and proteins in the ocular tissues of donors who had COVID-19 at the time of death or had related signs and symptoms, as well as donors who tested positive for COVID-19 post-mortem despite having no symptoms. The results of this study strongly recommend simultaneous implementation of post-mortem PCR testing, PVP-I disinfection protocol, and thorough donor screening according to EBAA and CDC guidelines to mitigate the potential risk of transplanting a tissue with SARS-CoV-2 particles.



## Can SARS-CoV-2 be transmitted through donor corneal tissue? An in vitro infection study

Joshua H. Hou, MD

Lions Gift of Sight/ University of Minnesota

The COVID-19 pandemic caused by SARS-CoV-2 has severely impacted eye banking operations worldwide. Though COVID-19 is primarily associated with a viral pneumonitis, increasing evidence suggests that the ocular surface may be a susceptible route of infection.<sup>1</sup> Based on this and concerns that COVID-19 may be transmitted through corneal transplantation, EBAA has instituted strict screening criteria to rule-out confirmed and suspected COVID-19 donors. However, such measures have resulted in significant constriction of the eligible donor pool.<sup>2</sup>

In order to affirm the appropriateness of ongoing EBAA screening guidelines, further evidence is needed to determine whether donor ocular tissue can truly harbor live SARS-CoV-2. Though multiple studies have identified the presence of SARS-CoV-2 RNA in tears, conjunctival swabs, and ocular tissue lysates, there is limited evidence directly demonstrating the infectivity of live virus on ocular tissues.<sup>3</sup> To address this, we performed an in vitro infection study of ocular tissues using live SARS-CoV-2 and further evaluated the stability of live SARS-CoV-2 in cornea preservation medium.

For our infection studies, primary cultures of corneal epithelium, conjunctival epithelium, limbal epithelium, and corneal endothelium were inoculated with two different SARS-CoV-2 isolates from Hong Kong (HK) and Washington state (WA). After an hour of incubation, samples were washed and assessed for viral infection using

immunostaining for nucleocapsid (N)-protein. Overall, both SARS-CoV-2 strains were found to be capable of infecting all cultured cell types; however, the rate of infection varied from donor to donor and differed between viral strains. The HK strain demonstrated slightly higher infection rates compared to the WA strain. Additionally, conjunctival epithelium demonstrated the greatest susceptibility to infection among all cell types.

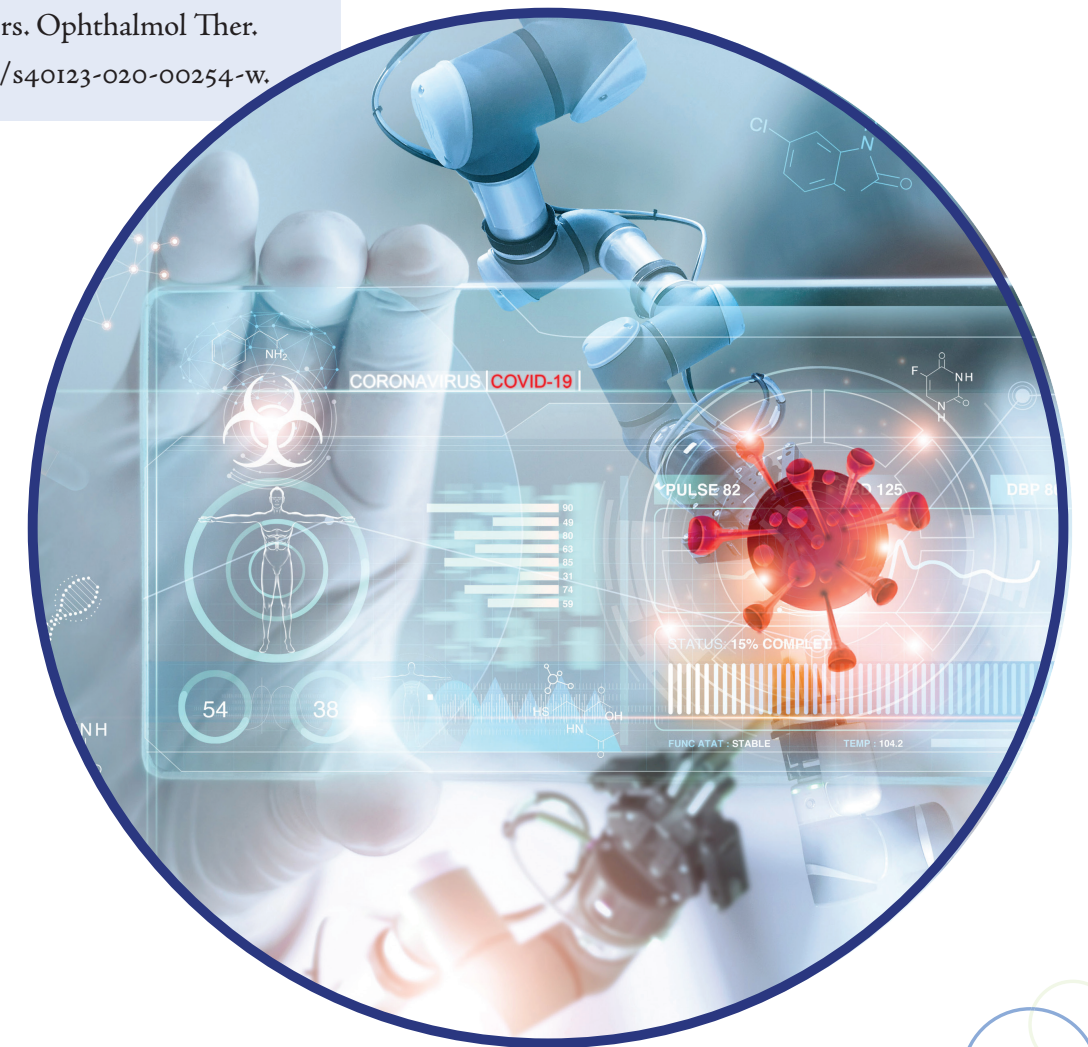
For our stability studies, Life4C in a standard corneal viewing chamber was inoculated with live SARS-CoV-2 HK virus at a fixed concentration. Fresh donor corneoscleral disks were introduced to half of the samples to determine whether the presence of tissue would affect viral stability. Samples were then stored at 4°C and assayed for live viral titers on days 0, 1, 2, 4, 7, and 14 post-inoculation using a plaque assay. Overall, SARS-CoV-2 demonstrated excellent stability in Life4C with less than one Log<sub>10</sub> decrease in viral titers out to 14 days. Additionally, the presence of donor tissue was not shown to significantly impact the stability of the virus.

Based on our studies, SARS-CoV-2 is capable of infecting ocular tissue and can remain stable in corneal preservation medium out to 14 days. As such, there is significant risk that donor ocular tissue from COVID-19 patients may harbor live SARS-CoV-2 at the time of transplantation. Even endothelial grafts, which do not contain cells from the ocular surface, may harbor virus. Because of this, the risk of disease transmission cannot be ignored. Donor screening remains an important strategy for mitigating the potential risk of COVID-19 transmission from infected corneal tissue. As eye banks continue to adapt to the challenges associated with COVID-19, further studies to optimize donor screening criteria will be important for maximizing future donor tissue availability.

Funding for this work was provided by the Eye Bank Association of America and the Minnesota Lions Vision Foundation.

### Footnotes

1. Roehrich H, Yuan C, Hou JH. Immunohistochemical Study of SARS-CoV-2 Viral Entry Factors in the Cornea and Ocular Surface. *Cornea*. September 2020. doi:10.1097/ICO.0000000000002509.
2. Ballouz D, Mian SI. Eye banking in the coronavirus disease 2019 era. *Curr Opin Ophthalmol*. 2020;31:389-395. doi:10.1097/ICU.0000000000000684.
3. Desautels JD, Moshirfar M, Martheswaran T, et al. Risks Posed to Corneal Transplant Recipients by COVID-19-Affected Donors. *Ophthalmol Ther*. 2020;9:371-379. doi:10.1007/s40123-020-00254-w.





# LEADERSHIP LISTINGS

Meet the board and our staff

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# MEMBER SPOTLIGHT

Profiles on EBAA members that went above and beyond



*These individuals' hard work, dedication and commitment shines in the EBAA community.*

## **BETH BINNION, CEBT**

Quality Assurance, Cincinnati Eye Bank

Beth has been in eye banking since 1981, when she was the first eye bank technician hired by the Cincinnati Eye Bank. She has remained there ever since, rising to Technical Director and then, in 1997, to Executive Director. Beth served as the eye bank's ED until 2020, when she turned the reins over to Tina Mays, and stayed on as its Quality Assurance Coordinator.

A member of the inaugural class of Certified Eye Bank Technicians (CEBTs), Beth has maintained her certification for 40 years, and has been heavily involved with EBAA throughout her career. She has served on the Accreditation Board (AB) for 18 years, including as AB Co-Chair and as the Forms Committee Chair. She has also been on the Medical Advisory Board (MAB) since 2012, and on numerous subcommittees for both AB and MAB. Beth has contributed research to the International Journal of Eye Banking and currently serves on its Editorial Board. In 2018, Beth was honored with EBAA's Leonard Heise Award.

Beyond EBAA, Beth is committed to the transplant community at large, serving in leadership roles at Donate Life Ohio and the Second Chance Trust Fund.

Members who dedicate so much of their time and talent to the association and the profession are truly the lifeblood of EBAA. They serve as our institutional memory, as Beth has done on the Accreditation Board for many years, and set an example that other members can emulate. We are fortunate to have benefitted from Beth's expertise for four decades, and thank her for helping EBAA fulfill our mission and serve our members.



**WILLIAM “DREW” TIMMONS, RN, CTBS**  
Ambulatory RN Supervisor  
UT Southwestern Transplant Services Center  
Lions Eye Bank

Drew has served as an eye banker at UT Southwestern for 21 years, and played a critical role in making our 2020 Eye Donation Month commemoration a success. He introduced EBAA and the world to Zoe and Aolani, the recipient/donor story that touched the hearts of our members and countless others when we featured them in our public outreach efforts.

Drew initially recommended Zoe, a vibrant three-year-old, as a recipient to speak at our 2020 Annual Meeting to be held in Dallas in June. When the pandemic forced us to put the meeting online, Drew, a very talented photographer when he’s not in the eye bank, arranged and filmed interviews with Zoe and her mother, and with Rosalba Gonzalez, the mother of her cornea donor. Our members’ incredible response to their story made it clear that Zoe and Aolani should be the centerpiece of the “Community of Compassion” theme for Eye Donation Month.

Drew’s photography skills saved the day again as we developed our Eye Donation Month materials. COVID-19 restrictions prevented us from staging a traditional group photo of the corneal surgeon and eye bankers who helped restore Zoe’s sight, so Drew photographed the subjects individually and worked closely with our graphic designer as she merged six photos into one; right down to the smallest details with the lighting and sizes.

Many thanks to Drew for going above and beyond his typical role for Eye Donation Month, and helping make 2020’s campaign so successful.



**GEORGE O.D. ROSENWASSER, MD, CEPT**  
Certified Eye Bank Technician (28 years)

Medical Director for Gift of Life Donor Program  
Eye Bank (20 years)

Lions Eye Bank director at Penn State  
Medical Center (13 years)

George O. D. Rosenwasser, MD, CEPT, has been associated with eye banking since 1984. He practices Cornea and External Disease in Hershey, PA, and is the Medical Director for the Gift of Life Donor Program Eye Bank. He is the author of “Introduction to Eye Banking: A Handbook and Atlas” and has served as the physician faculty member of the Technician Education Seminar since 2009, delivering many of the lectures to eye bank technicians from the U.S. and around the world. Dr. Rosenwasser has served on almost all of EBAA’s physician-oriented committees, including Medical Advisory Board, Technician Education Committee, Scientific Programs Committee, and the International Relations Committee. He has held our Certified Eye Bank Technician designation for nearly 30 years, and received the R. Townley Paton Award in 2015.

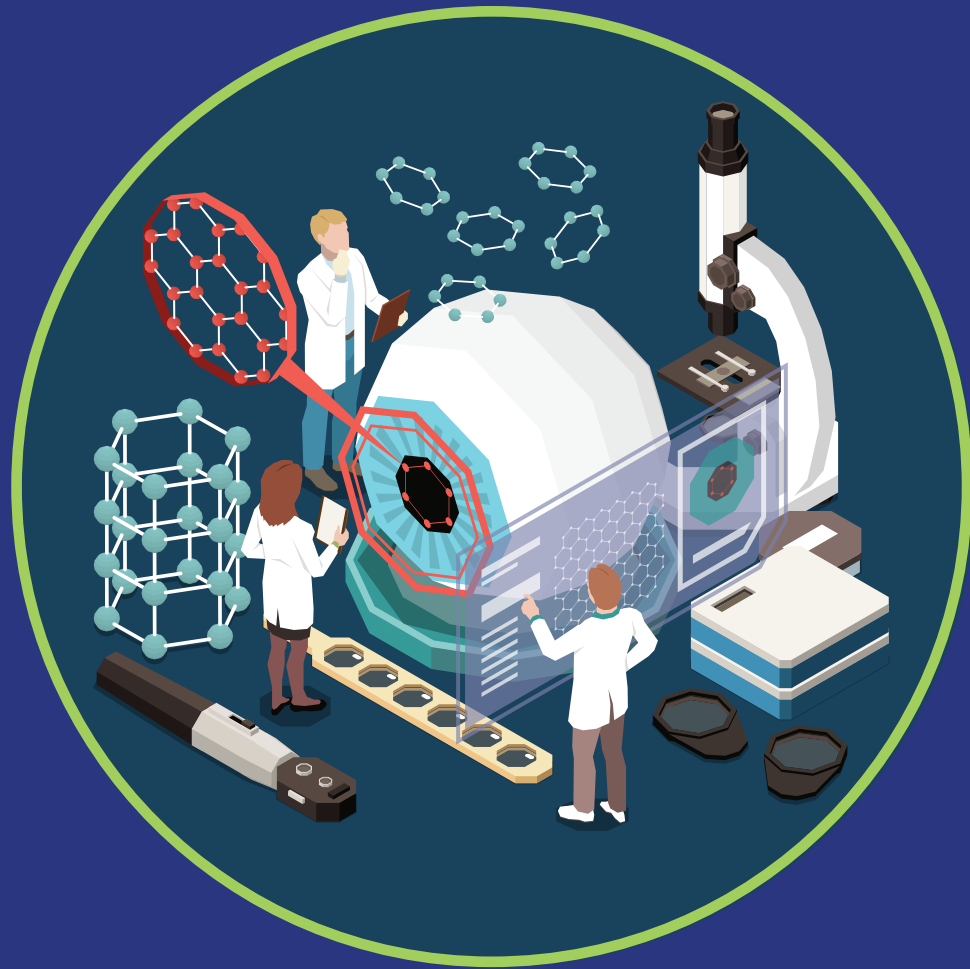
More significant than the list of George’s roles and titles is his dedication to EBAA and to the eye banking profession. Whether conducting his slit lamp training module during the Annual Meeting, teaching technicians about eye banking from a surgeon’s perspective, or moderating the case study discussion in the Medical Directors Symposium, George has been unwaveringly committed to improving eye banking practices and processes any way he could. It is notable that he is one of the only physicians to hold the Certified Eye Bank Technician designation.

Many generations of eye bankers and physicians owe George Rosenwasser a debt of gratitude for the knowledge and wisdom (delivered with his distinct sense of humor) that he has shared with them.



# CONCLUSION

We continue to pave the road for success, growth and education in 2021.



*“We remain dedicated to our mission to #RestoreSight worldwide.”*

We have now turned the page from 2020, an unprecedented year by all accounts, to 2021. While “normal” has yet to re-emerge, a shift is underway, and the feeling of hope is palpable. EBAA continues to passionately serve member eye banks and physicians by finding new ways to provide support the community, including new tools like The Lens, E-StatIS, and a new dedicated member page on [restoresight.org](https://restoresight.org). The goal is to stay connected by making it easier to locate important information and engage with fellow eye bankers.

2021 also marks the 60th “Diamond Anniversary” of EBAA. All year long, we will celebrate 60 years of leadership and innovation in eye banking, cornea donation, and transplantation. Join us as we reflect on our history and important milestones over the last six decades, and most importantly look to the future as we remain dedicated to our mission to #RestoreSight worldwide.



## Thank You

for a great 60 years! We look forward to leading the eye banking and cornea donation community into the future!



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