



## Cornea and Eye Banking Forum features mini-symposia, awards, and more

**T**he 2018 Cornea and Eye Banking Forum included two mini-symposia, with one featuring surgeons sharing what they learned from some of their first cases of different procedures and the other focusing on post-keratoplasty fungal infections.

### Learning from first cases

“What I Learned from My First 50 Cases” was moderated by **Maya Bitar, MD**, Huntington, West Virginia, and **Kavitha Sivaraman, MD**, Cincinnati. Speakers at the session included **Deepinder K. Dhaliwal, MD**, Pittsburgh, **Peter Veldman, MD**, Chicago, and **Mark Gorovoy, MD**, Fort Myers, Florida.

Dr. Dhaliwal first discussed her experience with deep anterior lamellar keratoplasty (DALK).

Why choose DALK instead of penetrating keratoplasty (PKP)? There is no risk of endothelial rejection in DALK, she said. There is longer graft survival, less steroid exposure (decreased risk of cataract and glaucoma), and it is a closed eye surgery so there is a more stable intraoperative and postoperative globe. Disadvantages of DALK, Dr. Dhaliwal said, are that it’s technically challenging for the surgeon and has the potential for mild interface scarring.

Dr. Dhaliwal shared what she has learned from her first 50 cases:

- Try DALK anytime the endothelium is normal.
- Start by attempting DALK when doing planned PKP.
- It’s helpful to know several different techniques like big bubble, manual dissection, and viscodissection.
- Never give up, even if there is a small perforation.
- Use technology to help you.
- Have the right tools in your toolbox (including lamellar blades and special cannulas/dissectors).



Elmer Tu, MD, president of the Cornea Society, presents the Dohlman Award to Suzette Smith, wife of Ronald Smith, MD, who received the award posthumously. Dr. John Irvine, Dr. and Mrs. Sadun accompanied Ms. Smith to the award ceremony.

- Manual dissection is much easier if residual stroma is “bulked up” with air or fluid.
- Deeper stromal fibers are easier to dissect.
- Patients can do well even if stroma is left behind (especially if at a high risk for PKP).
- Don’t stop steroids until all sutures are removed.

Dr. Veldman shared some of his tips for Descemet’s membrane endothelial keratoplasty (DMEK), offering three main points:

1. Inject the grafts with the correct side up.
2. Know the common tissue conformations and how to open them.
3. Try to open the graft prior to removing the injector.

### Post-keratoplasty fungal infections

“Controversies in Eye Banking: Post-keratoplasty Fungal Infections” featured **Bennie Jeng, MD**, Baltimore, **Gregory Grossman, PhD**, Birmingham, Alabama,

**Jennifer Li, MD**, Sacramento, California, **Mark Terry, MD**, Portland, Oregon, **Elmer Tu, MD**, Chicago, and **Kourtney Houser, MD**, Memphis, Tennessee.

Dr. Jeng and Dr. Grossman debated the use of antifungal supplementation of donor storage media.

Dr. Jeng argued in favor of this, and he noted that in addition to asking if it should be performed, you need to ask if there is a need for it and if it works.

He said that the increase in the number of cases of fungal infection demonstrates a need for it. It seems to work, and amphotericin B seems to be effective in decreasing fungal load.

He did note some considerations for the future: more efficacy and safety studies, logistics of supplementations, and clinical trials.

Dr. Grossman shared evidence against antifungal supplementation of donor storage media. The scientific data does not support the immediate implementation of supplementing of CSM with antifungals, and there is still



# Cornea Society

*Advancing the treatment of corneal disease*

## President's message

Dear Cornea Society members,

I hope everyone enjoyed the holidays and got a chance to relax and spend time with family and friends.

The Cornea Society had great success at the 2018 American Academy of Ophthalmology (AAO) Annual Meeting last fall. Beginning with the meeting's best kept secret, in my opinion, the Cornea and Eye Banking Forum, where the world's most advanced and controversial topics in cornea, external disease, and eye banking are presented, packed the meeting room at the Westin Michigan Avenue. The topics included controversies concerning prevention and management of fungal infections in corneal transplantation as well as surgeon experiences with the newest corneal transplantation techniques. Posthumously, Professor Ronald Smith was honored with the Dohlman Award for teaching and achievements in the field of cornea. The award was received by his wife, Suzy Smith, with a touching presentation by his good friend Alfredo Sadun, MD, of the UCLA

Doheny Eye Institute. Mark your calendars to arrive a day early before the 2019 AAO Annual Meeting to participate.

Excitement is building for Cornea360, taking place at the Westin Kierland, April 4–6, 2019. Cornea360 is a completely different meeting concept, focusing on short presentations by the world's authorities on all subjects related to cornea and external disease followed by open discussions with faculty and attendees about controversial topics as well as rarely discussed tips and tricks to successful management of seemingly impossible medical and surgical challenges. Cutting-edge diagnostic tools and treatments will be presented, all in a format that will encourage attendees to interact and challenge conventional wisdom. Registration and housing is open and space is limited. Visit [Cornea360.org](http://Cornea360.org) for details.

Cornea Subspecialty Day was a resounding success. The format and topics were well received by the audience. The best evidence of this was the impressive attendance in the room, even into the late afternoon. Chicago has a tremendous number of distractions, but count the wonderful programming of Cornea Subspecialty Day as one of them. Credit goes to this year's organizers Carol Karp, MD, Jennifer Li, MD, and Sanjay Patel, MD. Special thanks to Carol as our senior organizer this year as she rotates on to her next adventure.

In conjunction with the German Ophthalmologic Society, the Cornea Society presented "The Future of Cornea in 3-D: Drugs, Devices, and Diagnostics," which featured a series of talks on cutting-edge advancements in the practice of cornea and external disease. The program was highlighted by discussions of intraoperative OCT, the role of VEGF inhibitors, keratoprotheses, and DMEK, among others. The session was concluded by this year's Castroviejo Award winner, Alan Sugar, MD, from the University of Michigan, speaking on the thought-provoking topic of "Ethics in Clinical Research."

Now that your holiday shopping for others is done, don't forget to give yourself the gift of Cornea360, the gift that will keep on giving. Register today!

—Elmer Tu, MD, president, Cornea Society



**Elmer Tu, MD**

## 2018 Cornea Subspecialty Day

**C**ornea Subspecialty Day at the 2018 American Academy of Ophthalmology (AAO) Annual Meeting covered a variety of topics, including anterior segment imaging and keratoplasty.

### Anterior segment imaging

**Elmer Tu, MD**, Chicago, discussed diagnostic imaging in infectious keratitis. He first highlighted the use of slit lamp biomicroscopy as a tool, noting that most surgeons already have this in their offices.

Bacterial keratitis, he said, is generally a discrete “colony” lesion and there’s usually associated inflammation. Meanwhile, clinical signs of early fungal keratitis may include minimal necrosis, minimal inflammation, a growth pattern that includes branching filaments (punctate “on end” opacities), additive thickness to the corneal contour, satellite lesions, and a feathery, irregular margin. Dr. Tu said to watch out for the sudden onset or worsening of hypopyon because that could indicate that the fungal keratitis has penetrated into the anterior chamber. Any pigmentation should also strongly suggest a fungal etiology.

Dr. Tu highlighted culture methods before moving on to discuss how optical coherence tomography (OCT) may help identify infectious keratitis. He noted

that OCT has a limited ability to identify organisms but may be useful in special cases, like CMV endotheliitis, retro-corneal plaque assessment or infection localization.

The “gold standard” is confocal microscopy, Dr. Tu said, which is an alternative to corneal biopsy and offers real-time imaging. He noted that bacterial keratitis is not easily imageable because the bacteria are so small. Corneal morphology can be imaged, and atypical infectious keratitis will be the greatest capability for confocal microscopy.

### Topics in keratoplasty

**Mark Mannis, MD**, Sacramento, California, presented “Perfecting Penetrating Keratoplasty: Lessons Learned Over Time.” Although there has been a shift to endothelial keratoplasty (EK), Dr. Mannis said that surgeons still need to know how to do penetrating keratoplasty (PK). He noted that PK “still dominates outside North America.” Additionally, Dr. Mannis highlighted several instances when PK is still necessary, particularly in pan-layered corneal disease and for therapeutic keratoplasty (infection, trauma, or in regions of the world with significantly advanced disease).

Signature skills for PK include patient selection, open sky management in the OR, suturing skills, refractive management, immunomodulation, and

glaucoma management. Dr. Mannis said that surgeons should take certain preoperative considerations, especially making sure to optimize the ocular surface.

The choice of anesthetic technique and knowing your eye bank are also important factors preoperatively.

Intraoperatively, Dr. Mannis said that establishing a team approach, choosing the appropriate speculum, being prepared for the worst complication such as expulsive hemorrhage, and operating with refraction in mind are all important.

Finally, he highlighted some postoperative considerations, which he noted are “most important.” These include careful patient education, establishing realistic expectations, close monitoring of IOP, simplification of medical management, and knowing when “enough is enough.”

**Mark Terry, MD**, Portland, Oregon, discussed the challenge of transitioning to DMEK.

DMEK today is easier and faster with standardization of techniques, he said, noting that eye banks now take several steps to help eliminate some complications prior to surgery. Tissue is prestripped, eliminating the risk of the surgeon destroying tissue at the time of surgery. Tissue is also prestamped, which

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a paucity of evidence on safety and efficacy and risk associated with supplementation.

There are current methods to reduce fungal loads and more robust and proven alternatives with a broader killing ability. He said that emerging pathogens and resistant pathogens are not addressed by current research; countries using antifungals still have incidences; and a lower rate of post-surgical infections does not warrant a rush to supplementation.

### Awards

**W. Barry Lee, MD**, Atlanta, received the R. Townley Paton Award and gave the corresponding lecture. Dr. Lee present-

ed “Planning for the Next Generation: Mentorship” and highlighted some of the many mentors in his life. He went on to stress that mentors are problem-solving partners; mentors challenge you; mentors tell you the truth; mentors give you courage to take action; and mentors let you take the credit.

The Richard C. Troutman, MD, DSc, Prize Lecture and Award went to **Gregory Moloney, MD**, Sydney, Australia. He gave the lecture on “Descemetorhexis Without Grafting for Fuchs’ Endothelial Dystrophy – Supplementation with Topical Ripasudil.”

Also during the program, the Claes H. Dohlman, MD, PhD, Award was posthumously given to **Ronald Smith,**

**MD**, and the Best Paper of Session Award was given to **C. Drew Salisbury, MD**, Atlanta, for his paper “Increasing Betadine Exposure During Cornea Tissue Preparation Decreases Positive Rim Cultures and Postoperative Infection.” **CN**

*Editors’ note: Dr. Dhaliwal has financial interests with Bausch + Lomb (Bridgewater, New Jersey). Dr. Veldman has financial interests with W.L. Gore (Newark, Delaware). Dr. Jeng and Dr. Grossman have no financial interests related to their presentations.*



## Cornea Society symposium features Castroviejo Lecture and discussion of drugs, devices, and diagnostics



Elmer Tu, MD, president of the Cornea Society, presents Alan Sugar, MD, with the 2018 Castroviejo Award.

**“T**he Future of Cornea in 3-D: Drugs, Devices, and Diagnostics” symposium at the 2018 American Academy of Ophthalmology (AAO) Annual Meeting was co-sponsored by the Cornea Society and Sektion Kornea of the German Ophthalmological Society (DOG). The symposium featured the Castroviejo Lecture on “The Ethical Basis of Clinical Research” given by **Alan Sugar, MD**, Ann Arbor, Michigan.

Dr. Sugar started with some background on the history of clinical research, noting several “scandals” in clinical research, including the Nazi experimentation in World War II and the Tuskegee Syphilis Study in the U.S. He also spoke about several scandals in ophthalmology, including the Tampa Trepine, which was a new device to cut donor cornea, approved for animal study and a clinical trial (though no patients enrolled), and data was presented at the AAO Annual Meeting in 1995. However, 60+ patients were treated outside of trial, without consent.

Dr. Sugar discussed ethical standards, regulation, and ethical principles developed, often as a result of these scandals.

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helps eliminate the risk that it would be inserted upside down, and it is pretrephinated and preloaded, ready to inject into the recipient eye.

DMEK requires a different skill set than DSAEK, he said. The DMEK scroll always spontaneously rolls up with endothelium on the outside of the scroll, so touching the tissue directly kills endothelium, Dr. Terry said, adding that donors over 60 years old tend to be thicker and are easier to unscroll.

Dr. Terry described two variations in DMEK tissue injection: endothelium-out and endothelium-in. The endothelium-out technique (natural scrolling conformation of the tissue) uses a tapping

method of opening the tissue. Meanwhile, endothelium-in (tissue folded over viscoelastic) uses a pull-through method with an anterior chamber maintainer to insert and unfold the tissue.

For surgeons looking to take the first steps in learning the DMEK procedure, Dr. Terry recommended attending didactic and wet lab courses, viewing videos online, and understanding the variations in DMEK techniques and unique challenges of each. He added that the most important step is to “be the first assistant at the microscope with an experienced DMEK surgeon.” This will help a surgeon learn the nuances of the surgery before doing his or her first case.

Dr. Terry also offered advice on how to make your first DMEK cases easy. Start with DMEK in a Fuchs’ dystrophy eye that is already pseudophakic. Avoid eyes with prior vitrectomy, an AC IOL, large iris defects, tubes, or trabeculectomies; request tissue that is 60 years or older; start with preloaded tissue; use SF6 if it is easily accessible; and learn to rebubble at the slit lamp to have minimal disruption in your clinic. **CN**

*Editors’ note: The physicians have no financial interests related to their presentations.*

The Belmont Principles became the principles of clinical research ethics in the U.S., and the three principles are autonomy, beneficence, and justice. Autonomy refers to respect for persons and that individuals must be treated as autonomous agents. Beneficence refers to the obligation to secure well-being of research participants. Justice refers to the idea that benefits and burdens should be fairly shared. The Belmont Principles have had an influence on clinical practice, applicability to non-research patient care (as well as research patient care), and recognize the decline of medical paternalism, he said.

Dr. Sugar also mentioned ClinicalTrials.gov. Federal law requires registration of trials, and summary results must be reported after FDA approval. That database includes almost 300,000 trials from around the world.

Dr. Sugar discussed surgical innovations, physicians' conflicts of interest with treatment and research, and increasing public awareness. On the topic of surgical innovations, he mentioned several suggestions for testing: invest in simple prospective trials with careful data collection and follow-up; publish in

peer-reviewed journals; publish negative results and reasons for abandoning procedures; publication is an essential component of research; and dissemination of knowledge.

In conclusion, he said that clinical research is an essential part of improving patient care. Ethical issues are complex and critical. Consider these issues when designing studies and reading study reports. He also said that there is a need for systematic study to better understand and resolve the ethical issues in ophthalmology and to consider these issues in all clinical care.

Also during the session, **Lalitha Prajna, MD**, Madurai, India, discussed molecular diagnostics in infectious keratitis. These techniques have been around for nearly 20 years, she said. Challenges include that diagnosis and treatment, early and exact diagnosis, appropriate and effective treatment, quick healing and fast recovery, and treatment outcomes are unpredictable. Limitations may include small amounts of a specimen or different organism specimens.

She noted the conventional lab methods: lab smear or culture on standard media. However, cultures have

suboptimal sensitivity. Many organisms cannot be cultured, and mixed infections can be missed.

Molecular diagnostic tests, Dr. Prajna said, detect the presence of nucleic acid in the samples, are more sensitive and provide rapid diagnosis, and are ideal for a scarce quantity of specimens.

Dr. Prajna moved on to discuss the future of diagnostics for the diagnosis of microbial keratitis. She noted next generation sequencing, third generation sequencing; personalized medicine ("host biomarkers"); smart probes; and neural network approach to classify infective keratitis as potential options for the future.

She thinks future strategies will be multi-dimensional. She pointed to conventional microbiology, molecular diagnostic tests, point-of-care and smart probes, next generation sequencing, targeting host biomarkers, artificial intelligence, and adjuvant therapies. **CN**

*Editors' note: The physicians have no financial interests related to their presentations.*

## Cornea journal news

### Published ahead-of-print

The editors are pleased to offer publication of accepted papers prior to print publication, which are citable with their unique DOI numbers. Stay up to date! Be notified every time a new item is published ahead-of-print. Receive an email or subscribe to an RSS feed.

### Progress in Corneal Research and Practice in Japan and Abroad: The 23rd Annual Meeting of the Kyoto Cornea Club

Supplement: Articles from the supplement are available on *Cornea's* website at [journals.lww.com/corneajrnl/toc/2018/11001](http://journals.lww.com/corneajrnl/toc/2018/11001). **CN**

## Cornea journal report

**T**he journal has continued to be very busy. Because of the increasing number of submissions, the rate of acceptance of papers has decreased from 30% over the past 2 years to 25% this year. The journal authorship has been increasing internationally. In 2018, 73% of the papers accepted came from outside of the United States.

We are in the process of selecting a new editor-in-chief, to begin in January 2020. We hope to select the next editor within the next few months. Several nominations have been received.

If you are interested in nominating someone or applying for the position, please send a note or curriculum vitae to [asugar@umich.edu](mailto:asugar@umich.edu) or [galbert@CorneaSociety.org](mailto:galbert@CorneaSociety.org). **CN**

—Alan Sugar, MD, editor-in-chief

# CORNEA DAY 2019

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## Cornea Society announces 2019 awardees

The Cornea Society is pleased to announce the following awardees for the 2019 Castroviejo Medal and Dohlman Award. **John Dart, MD**, professor and consultant with Moorfields Eye Hospital, will receive the 2019 Castroviejo Medal. Each year the Society names the most outstanding individual in the field of cornea and the anterior segment of the eye to receive the Castroviejo Medal and to deliver the Castroviejo Lecture at the Society's scientific symposium at the American Academy of Ophthalmology (AAO) Annual Meeting. This is the Society's highest award and is given in recognition of exceptional contributions in support of the Society's mission: to promote knowledge, research and understanding in cornea, external disease and refractive surgery. The award is named for Ramon Castroviejo, MD, the father of modern corneal transplant surgery and the inspiration for the founding of the Cornea Society. The Castroviejo Medal will be presented during the Cornea Society-sponsored symposium during the AAO Annual Meeting in San Francisco in October 2019.

**Ivan Schwab, MD**, director of the cornea service and emeritus professor of ophthalmology at University of California, Davis in Sacramento, will be awarded the Dohlman Award. The Dohlman Award is given to recognize a lifetime of teaching excellence in the field of cornea and external disease and for contributions to the profession. Claes Dohlman, MD, PhD, the inaugural recipient of the award and for whom it is named, created the first formal corneal fellowship program in the United States at the Massachusetts Eye and Ear Infirmary and the Retina Foundation (now Schepens Eye Research Institute) in Boston. Dr. Dohlman has trained hundreds of fellows, many of whom went on to become full professors. His commitment to teaching and education has enabled many of his students to leave their mark on the field of ophthalmology. The Dohlman Award will be presented during the Cornea and Eye Banking Forum in San Francisco in October 2019. **CN**



## Cornea Society/Vista Annual Dinner

**Registration, call for papers opened January 7**

**T**he Cornea Society is pleased to announce that this year's Young Physician Dinner & Case Presentations (Cornea Society/Vista) will be held on Sunday, April 28, at 6:30 p.m. in Vancouver, British Columbia, during the 2019 Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting.

For many attendees, the Vista program is the highlight of the ARVO meeting. The program serves as a venue for young or aspiring corneal specialists to present interesting, unusual, or complex cases in a congenial environment and be able to openly discuss the cases with prominent corneal specialists. The program has been very popular in the past, and individuals will be admitted with advance registration only. The program tends to fill to capacity. There is no charge for the program. Young physicians, fellows, residents, and new Society members will be given preferential booking. You do not have to send an abstract to register for the Cornea Society/Vista dinner meeting. Registration and call for papers opened January 7. For more information, please email the Society at [info@CorneaSociety.org](mailto:info@CorneaSociety.org). **CN**

## Defined Scope Mentorship Program

**O**n the heels of the inspiring Paton Award acceptance from **W. Barry Lee, MD**, stressing the essential role of mentorship and collaboration, the Cornea Society and Cornea Society University (CSU) are excited to announce the impending roll out of an innovative **Defined Scope Mentorship Program**. This initiative will pair willing experienced corneal specialists with more junior corneal specialists in targeted and time-limited mentorship engagements. Mentorship areas will include a range of pertinent topics identified by the Young Physicians' Task Force. We think the unique format of the program will facilitate efficient and effective mentorship relationships for both parties and will lead to increased interconnectivity and engagement within the society. Enrollment for both mentors and mentees will open in spring 2019 and will require registration with CSU. Consider registering now at [corneasocietyuniversity.org](http://corneasocietyuniversity.org) and participating in this exciting new initiative. **CN**

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**April 4-6, 2019**

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## Register Today

Visit [cornea360.org](http://cornea360.org) to register, book your hotel accommodations, and stay current with important meeting information.