THE FUTURE CONCEPTS
President’s Message, Monica H. Bellizzi

Recently I had my annual exam and when it was completed I was told to go online for my reports, blood draw, etc. While my doctor asked the questions, took the blood pressure, the data was put into a computer. Paper, penciled notes, large files are a thing of the past. I am in the "program".

She treated me the same way, as a caring professional but work has gotten easier or for her - harder, with the new way to record, "all about Monica". The appointment was completed, next year's appointment scheduled. Then.... instructions were given.

Check this website, log in and set up a password and establish an account. When that was done, there I am, in all my glory, with all my statistics. Wow.... my power has spread, I am on the Cloud.

If you have had a similar experience you can see how medical practices have changed, became more efficient, while still having a doctor whose main concern is to give you the best of care.

The article written by David G. Hwang, MD.FACS gives a "futures concept" in eye care. Please read and see what the future can hold. As the saying goes: Our future is so bright we need shades....

Please order the DVD's and free literature that are available to help you. A great big “Thank You" to our supporters. May you all have a Happy Healthy 2015!

2015 CORNEAL DYSTROPHY CONFERENCE
When: May 8 – 10, 2015
Location: University of California, San Diego Campus (UCSD)

Presenters Include:
Natalie A. Afshari, M.D., F.A.C.S.
Technical Conference Chairman, Professor of Ophthalmology & Endowed Chair of Ophthalmology
Chief, Division of Cornea and Refractive Surgery

Neda Shamie, M.D.
Associate Professor of Ophthalmology, USC Eye Institute
Keck School of Medicine
Medical Director of the USC Doheny Eye Center, Beverly Hills, CA

Patricia Aiken O’Neill
Principal at Exponential Potential
Washington D.C. Metro Area
Past President Eye Bank Association of America

Reception to be held
Friday Evening, May 9, 2015 7:30 PM
at The Embassy Suites, La Jolla
4550 La Jolla Village Dr.
San Diego, CA.

Hotel discount rates for attendees
May 6th through May 10th, 2015
2 Room Suites $139 per night! +21.5% tax ($29.89) - Includes breakfast

Reservations to open for Conference & Hotel
January 15, 2015
Imagine the future of eye surgery.

You’ve determined that it’s finally time to consider eye surgery. You’ve carefully researched your surgeon and the surgical technique you wish to undergo, using a consumer-friendly, third party data analytics clearinghouse that allows easy comparison of surgical outcomes and patient satisfaction amongst different surgeons and hospitals. Your preferred surgeon is out-of-state, so you meet your surgeon by web conference, at a local telemedicine office equipped with telepresence videoconferencing and remote-controlled examination equipment. Your eye examination is performed by your remote surgeon, using a robotically driven slit lamp microscope. You undergo a number of tests, each of which are uploaded to a secure cloud website, where the surgeon can review your results. Finally, to confirm your identity and the eye that will have surgery, an iris snapshot is taken, serving as a unique bio-identifier.

On the day of surgery, you report to your local eye surgery center, which has a state-of-the-art telerobotic workstation that will be performing delicate surgical maneuvers controlled by your surgeon located 2,000 miles away. The operation consists of both pre-programmed and customized, on-the-fly steps. The former are fully automated, whereas the latter are the surgeon’s preprogrammed surgical protocol preloaded into the workstation. To make sure that the surgery is being performed on the correct patient and correct eye, the system only gives the green light to proceed when the iris snapshot that was taken on the day of surgery matches that taken on the day of the examination. You exchange greetings with your surgeon remotely via teleconferencing and lie down under the laser workstation. A local, on-site assistant surgeon is in the room, as well as a nurse.

After numbing drops are instilled into your eye, your procedure is ready to begin. The local surgical team, including the nurse and assistant surgeon, now place their 3D glasses and view the high-definition display. They see exactly the same three-dimensional image as the surgeon located half-a-continent away. The surgeon begins the automated surgical sequence, refined to optimize surgical outcomes and tailored as needed for the specific anatomy of your eye. The laser quickly and painlessly makes a predefined series of incisions into your eye, including ports through which the micromanipulators are then inserted. Through these ports, robotic micromanipulators are controlled by the surgeon and the surgical procedure is completed. No sutures are needed. After less than 30 minutes, you exit the procedure suite. Your procedure is a success, and your surgeon completes your examination the next day at the telemedicine office. Each time you have a visit, your data is auto-uploaded into a database that allows you to compare your results with others, and provides real-time analytics. Surgeons with the best outcomes share their techniques, resulting in continuous refinement and process improvement.

Sounds like something out of science fiction? Well, the future is closer than you might think. The majority of the processes and technology described in the fictional scenario above are already here or are in development. Just this month, in the November 2014 edition of *JAMA Ophthalmology*, a French team of medical researchers reported the first successful use of a robotic surgical workstation to perform eye surgery in three patients. The particular operation, amniotic membrane transplantation, was chosen for its relative simplicity and lack of requirement for more intricate maneuvers required by other techniques, such as corneal
transplantation. The robot arms lifted and manipulated the tissue and instruments under direct command using surgeon-controlled micromanipulators. Although the commercial robotic surgical platform used in the study was not sufficiently miniaturized to perform most types of ophthalmic surgery, the report demonstrates the exciting potential of this technique.

At the University of California, San Francisco (UCSF), eye surgeons from the UCSF Beckman Vision Center are teaming with experts from Bay Area biotechnology, engineering, and information technology firms to develop innovative integrated systems that hope to transform the practice of eye surgery. What was once and still is a skill requiring years of training that strains the limits of hand-eye coordination may one day become a computer-driven, technology-based technique that uses lasers and micro instrumentation to perform techniques with a precision not possible by human hands. Through software, the robotic platform can be constantly updated so that the latest and best surgical maneuvers are available to surgeons and their patients.

At UCSF, Dr. David Hwang and colleagues have recently installed a suite of various laser workstations that allows portions of cataract surgery, corneal transplant surgery, and LASIK vision correction surgery to be performed robotically, using a computer-driven femtosecond laser. The surgical planning is performed in software, using images from the eye and screen overlays to show where the incisions will be placed. Once activated, the execution of laser-cut incisions takes place in rapid sequence, with the entire operation completed in less than 3 minutes. Not all steps of the procedure can be performed by the laser workstation, so the surgeon must complete much of the procedure manually. But the precision of the incisions is already yielding benefits in terms of visual outcomes that are simply not possible using standard, scalpel-based techniques. Soon, a 3D high-definition visualization system will be tested, allowing surgeons to perform surgery “virtually” wearing 3D glasses. Using this technology, surgeons can view and perform surgery from a remote location.

Other researchers at UCSF have developed platforms for telemedicine examination of eye patients to examine eye patients in Thailand; nanotechnology methods of fabricating ultra miniature scalpels that can execute incisions at the micron scale (1/1000 of a millimeter); laser adaptive optics to allow visualization of single retinal cells; light-adjustable lens implants that allow dynamic “tuning” of the optical properties of a patient’s lens implant to achieve 20/20 vision without glasses; and micro implants that allow medications to be delivered for months at a time, without the need for eye drop administration.

Dr. Hwang is working to create at UCSF a Center for Innovative Eye Surgery, the first of its kind for developing and integrating these and other innovative technologies, to create 21st century methods of performing eye surgery. His hope is that one day, not only will the most demanding techniques such as DMEK (Descemet’s Membrane Endothelial Keratoplasty) and DALK (Deep Anterior Lamellar Keratoplasty) be widely available to patients regardless of location or access to an expert surgeon, but that new and yet-to-be-developed techniques will be created, advancing the state of the art in sight restoration. With persistence and luck, that vision of the future of eye surgery will be coming soon – to a telerobotic surgical workstation near you.

David G. Hwang, MD, FACS
Professor and Director, Cornea Service
University of California, San Francisco

Dr. Hwang was a guest speaker at the 2007 symposium. DVDs of the symposium are available on the CDF website. To watch a clip of Dr. Hwang’s presentation, please visit https://www.youtube.com/watch?v=E_7TsbOyuHU.
As we age, isolation may become more common. During this time, relational connection and social interaction is as important as ever. Aging may create barriers to socializing, but it doesn’t have to be that way. With the appropriate planning, you or your loved one, can still have an active social life. Here are three ways to remain active and engaged:

1. **Volunteer To Provide Transportation.** One barrier to staying active and engaged is transportation. Some people with site issues, or other disabilities, do not drive, so access to transportation is important. If you live near a loved one that does not have the ability to drive, offer to take them to the grocery store, don’t simply pick up the groceries yourself. While it may take more time to run errands, helping others remain independent is crucial to our health and well-being.

2. **Encourage Dining with Friends.** Another way to help avoid isolation is to encourage dining with family and friends. Whether it’s lunch, dinner, or a coffee break, good conversation over a meal can be a therapeutic experience.

3. **Facilitate the Maintenance of Hobbies.** What activities or hobbies are important to you or your loved one? Whether it’s attending a church service, crafting, or playing games, look for ways to maintain these activities. Many hobbies require social interaction and also promote the art of conversation and emotional wellness.

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**3 Ways To Stay Socially Connected**

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[www.fashionproject.com](http://www.fashionproject.com) is an amazing concept for those who would like to give to the Corneal Dystrophy Foundation and other favorite charities. At the same time, you can shop for designer clothing and accessories at incredible prices.

You can donate items to Fashion Project and, when the items are sold, 55% of the proceeds will go to The Corneal Dystrophy Foundation if you designate us as your charity.

Please go to [www.fashionproject.com](http://www.fashionproject.com), join and select The Corneal Dystrophy Foundation. Look at their list of approved brands for donation and check your closet for unneeded items. They will send you a label or a donation bag – they pay the postage.

Shop the site. Be sure to search for items donated in the name of The Corneal Dystrophy Foundation. You will be pleased with what you find.

Signe Maximous, Board Member, The Corneal Dystrophy Foundation
NOTES OF THANKS FROM OUR DONORS

“Bob, without this foundation, I am not sure where I would be today! 20/40 uncorrected and no eye modifications what so ever.” -MaryAnn

“I decided not to wait until the 11th hour this year to make my donation. Sorry, I missed "Giving Tuesday". I always enjoy your newsletter and you certainly are making good use of the social media. Best Wishes!” -Louise

"Thanks for being there!" -Joyce

"...to recognize the remarkable organization that gave me so much information and support as I went through my Fuchs' Dystrophy journey. Thank you.” -Carol

"Thanks for all your help and good works." -Mary

“We very much appreciate the work of the Foundation in educating and supporting persons with corneal dystrophies and their loved ones. It's clearly a 'Mission that Matters' to you." -Sam & Gale

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www.cornealdystrophyfoundation.org
CDF will be participating in this year’s **Silicon Valley Gives** one-day fundraising event on May 5, 2015. Last year, Silicon Valley Community Foundation organized the first-ever regional day of giving. This 24-hour event benefited more than 674 participating nonprofits, 14,889 donors, and raised more than $8 million dollars for charities. Please visit us at: [http://svgives.razoo.com/story/Corneal-Dystrophy-Foundation](http://svgives.razoo.com/story/Corneal-Dystrophy-Foundation)

Watch the video of Bob Bellizzi, our Founder & Executive Director, being interviewed on NBC Bay Area News coverage at: [http://www.nbcbayarea.com/on-air/community/Silicon-Valley-Gives--254800101.html](http://www.nbcbayarea.com/on-air/community/Silicon-Valley-Gives--254800101.html)