“Immediately, I felt that I was at the right place and confident that my vision would be restored.” — Carol Lazerick, 61, Cleveland Heights, Ohio. Carol inadvertently scratched her cornea while removing a contact lens, resulting in Acanthamoeba keratitis, an infection of the eye. Carol experienced burning sensations in her eye, extreme light sensitivity and a constant fear of losing her vision. After the infection healed, Carol received a transplant and now enjoys perfect vision with the aid of either contact lenses or glasses, enabling her to rekindle her zest for reading, yoga, pottery and swimming.
CORNEAL TRANSPLANTATION

2010 Highlights

In 2010, Cole Eye Institute surgeons continued to be at the forefront of corneal surgery and research. Team members performed 176 corneal transplants at Cleveland Clinic’s main campus and 59 at our Lorain, Ohio, ambulatory surgery center. Cole Eye Institute transplant surgeons also have implanted the Boston Keratoprosthesis as a mode of restoring vision in patients with end-stage corneal disease, including those with corneal blindness from severe chemical trauma.

Research and Innovations

Cole Eye Institute corneal surgeons were among the first in the country to perform a new transplant procedure, Descemet stripping automated endothelial keratoplasty (DSAEK). This procedure involves transplanting only the posterior side of the cornea in eyes with endothelial dysfunction, which greatly accelerates visual recovery, reduces surgically induced astigmatism, and entails a smaller wound with less risk of complications from an “open-sky” penetrating keratoplasty. Cole Eye Institute surgeons have introduced several technique modifications to improve surgical outcomes, and a clinical study is exploring the optimal tissue preparation techniques for visual outcomes and graft survival. Fuchs’ endothelial disease is among the leading indications in the United States for corneal transplantation.

Additional research efforts include:

Principal Investigator – Dr. Steven Wilson
Corneal Epithelial Cell Growth Factors and Receptors.

Principal Investigator – Dr. William Dupps
Research to Prevent Blindness: Supporting basic and translational studies of the biomechanics of keratoconus, a major indication for corneal transplantation.

Principal Investigators – Dr. Richard Rudick and Dr. William Dupps
Multidisciplinary Clinical Research Career Development Programs Grant: A collaborative K12 NIH Roadmap initiative involving Cleveland Clinic, Case Western Reserve University, University Hospitals of Cleveland, MetroHealth Medical Center and the Cleveland VA Medical Center.
Fast facts

In 2010, 235 corneal transplants were performed at Cleveland Clinic.

Expertise

Cole Eye Institute surgeons are experts in performing all types of transplantation procedures to treat anterior segment diseases. These procedures include:

**Corneal transplantation**
- Penetrating keratoplasty
- Anterior lamellar keratoplasty
- Intracorneal ring segments for keratoconus
- Descemet stripping automated endothelial keratoplasty (DSAEK)

**Limbal stem cell transplantation**

**Amniotic membrane grafting**

**Artificial corneas**

Approximately 35,000 corneal transplants are performed in the United States every year. Medical histories of all corneal tissue donors are reviewed carefully and blood tests are performed to check for infections. Corneal tissue is scrutinized by specular microscopy to ascertain viability. Corneal transplant success rates are high and rejection rates are low (with the use of only topical immunosuppressive medications).

Awards and Achievements

Ronald R. Krueger, MD: Program Chair and Convenor in Refractive Surgery, Asia Pacific Academy of Ophthalmology; Program Chair, Refractive Surgery Subspecialty Meeting, American Academy of Ophthalmology; Editor for Supplements & Special Sections, *Journal of Refractive Surgery*

David Meisler, MD: Board of Directors, American Board of Ophthalmology

William Dupps, MD, PhD: Distinguished Alumnus Award, College of Engineering, The Ohio State University; AAO Practicing Ophthalmologist Curriculum (POC) Refractive Management/Intervention Panel Member; Co-Chair, Corneal Physiology and Biomechanics Symposium, World Ophthalmology Congress, Berlin, Germany, June 2010; Cleveland Clinic/Parker Hannifin Corporation New Ventures Joint Management Committee, Cleveland Clinic Innovations; Associate Editor, *Journal of Cataract & Refractive Surgery*

Steven Wilson, MD: Jose Ignacio Barraquer Career Award at the 11th International Congress of Cataract and Refractive Surgery, Natal, Brazil, May 19, 2010; Cleveland Clinic Innovators Award, October, 2010; Section Editor, *Cornea and Ocular Surface, Experimental Eye Research*
Selected Publications


