Baylor St. Luke's Medical Center | Baylor College of Medicine

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Ophthalmology

The exemplary team of physicians, caregivers and researchers at Baylor St. Luke's Medical Center continues to push the boundaries of what is possible in patient care through meaningful medical advancements and notable clinical achievements. This document highlights just a few of the stories that reflect our commitment to advanced services, innovative technology and forward-thinking care. Together, these accomplishments demonstrate how we remain at the forefront of medicine—bringing leading-edge solutions, improved outcomes and exceptional care to the patients and communities we serve.

Researchers at Baylor St. Luke's Medical Center advance cohesive guidelines for measuring astigmatism and improving outcomes for cataract surgery patients.

Baylor College of Medicine physicians at Baylor St. Luke's Medical Center are redefining how cataract surgery outcomes are measured, reported, and optimized worldwide. Through landmark, consensus-driven research published in the Journal of Cataract & Refractive Surgery, Baylor faculty have led the development of rigorous, scientifically grounded standards for analyzing astigmatism—one of the most critical determinants of visual quality after cataract surgery.

Led by internationally recognized experts including Douglas D. Koch and Li Wang, Baylor ophthalmologists played a central role in establishing unified guidelines that bring clarity, accuracy, and reproducibility to astigmatism reporting. This work integrates advanced optical principles, contemporary vector mathematics, and robust statistical methodologies to ensure that cataract surgery outcomes are evaluated in a manner that truly reflects visual performance and surgical precision.

These standards—now recommended by the field's leading journal—address long-standing inconsistencies in astigmatism analysis by defining correct measurement techniques, emphasizing ocular surface optimization, incorporating posterior corneal effects, and introducing validated vector-based and nonparametric statistical approaches. By doing so, Baylor faculty have provided surgeons and researchers worldwide with a common language and framework to compare results, refine surgical planning, and improve patient outcomes.

Through this research leadership, physicians at Baylor St. Luke's Medical Center continue to shape the future of cataract surgery, ensuring that innovations in technique and technology are matched by equally sophisticated methods of outcome analysis—ultimately translating into more predictable vision, higher patient satisfaction, and better standards of care across the globe.

Read more about cataract surgery

Baylor St. Luke's Medical Center one of few in nation to provide surgical solution for treating corneal nerve damage.

At Baylor St. Luke's Medical Center, the Department of Ophthalmology is one of only a few centers nationwide offering corneal neurotization, an advanced surgical procedure that treats neurotrophic keratopathy—a condition caused by damage to the corneal nerves resulting in loss of sensation and potential vision loss. Without normal sensation, the cornea is vulnerable to serious complications, including infection, scarring, and even corneal melting.

Corneal neurotization involves transferring healthy donor nerves, often from the leg or the opposite side of the face, directly to the cornea. This innovative technique reinnervates the damaged tissue, restoring corneal sensation and enabling protective mechanisms such as the blink reflex and normal tear production.

Dr. Michael Yen, Head of the Oculoplastics Section in the Department of Ophthalmology, emphasizes the significance of this procedure: "Corneal neurotization is the only disease-modifying treatment for neurotrophic keratopathy. No other therapy improves the underlying corneal sensation. At Baylor St. Luke's Medical Center, we are among only a few major medical centers worldwide offering this treatment. By significantly restoring corneal sensation, corneal neurotization achieves outcomes not seen with any other available therapy."

Baylor St. Luke's Medical Center provides groundbreaking clinical trials and treatments for patients with macular degeneration, other retinal diseases.

Baylor St. Luke's Medical Center is one of the leading sites in the nation for a landmark home OCT clinical trial. This groundbreaking trial involves an FDA-approved, portable Optical Coherence Tomography (OCT) device, introduced in the Spring of 2024, which promises to revolutionize the management of wet age-related macular degeneration and other retinal diseases.

The device enables patients to regularly monitor their condition at home, allowing researchers to assess the effectiveness of self-monitoring and potential treatment adjustments based on the data collected, often with the goal of reducing the need for frequent office visits to the doctor.

Baylor College of Medicine's participation in this trial, which is sponsored by the DRCR Retina Network, National Institutes of Health, and National Eye Institute, underscores Baylor St. Luke's' commitment to advancing ophthalmic care and improving patient outcomes.

Learn more about the OCT clinical trial

Baylor St. Luke's Medical Center a leader in the diagnosis and treatment of ocular surface disease.

The Cullen Eye Institute at Baylor St. Luke's Medical Center established the first ocular surface center in the southwestern United States. Under the directorship of the renowned ocular surface disease and cornea specialist, Dr. Stephen Pflugfelder, the Dry Eye Center of Excellence is a leader in diagnostic and therapeutic technology.

The use of therapeutic scleral contact lenses in the treatment of ocular surface disease was pioneered here. In fact, BCM served as the first satellite for the PROSE (Prosthetic Replacement of the Ocular Surface Ecosystem) lens in the US.

The Dry Eye center also boasts the capability to prepare autologous platelet rich plasma. This is different than the more commonly prescribed autologous serum eye drops, as platelet rich plasma contains up to 4x as many growth and platelet factors as serum. This can make it especially effective in severe disease. BCM is also a leader in corneal stem cell transplantation, providing the latest in surgical techniques. There is a monthly multi-specialty Sjogren syndrome clinic which allows us to work in a multidisciplinary fashion with our oral medicine and rheumatology colleagues to provide patients one institution to meet all of their needs.

Dr. Pflugfelder also leads an integrated NIH-funded basic science research unit studying dry eye disease and developing new therapies. Our ophthalmology department is leading the way in providing relief to dry eye patients worldwide.