Christopher Lechner (right) received laser eye surgery under the care of Dr. Thomas Connor (center) at the Froedtert & the Medical College of Wisconsin Eye Institute. The pioneering research of Dr. Alfredo Dubra (left) aims to make possible early detection and prevention of diabetic eye disease.

A landmark advance in diabetic eye treatment more than three decades ago has improved vision dramatically for thousands of patients ever since. Today, vision research at the Froedtert & the Medical College of Wisconsin Eye Institute seeks to redefine success by actually preventing retinal eye disease.

More than 35 years ago, Ida Teichmiller was treated by Medical College of Wisconsin physicians at the Eye Institute as part of a national clinical trial evaluating laser surgery as a new treatment for diabetic eye disease. Ida was in her 70s and nearly blind from complications of diabetes. The treatment succeeded.

The laser surgery restored partial vision to Ida; she could see her family and read again for the rest of her life. More than that, the clinical trials nationwide proved the effectiveness of the treatment, which remains the standard of care to this day. Now, four generations later, the legacy of the clinical trial and Ida’s participation has benefited thousands of patients worldwide, including Ida’s own great-grandson, Christopher Lechner.

Diagnosed with diabetes at age 11, Christopher began experiencing vision problems in his 20s, to the point where he had to stop driving, leave school, and halt his career goal of auto mechanics. Under the care of Thomas Connor, MD, at the Froedtert & the Medical College of Wisconsin Eye Institute, Christopher received specialized treatment, including laser surgery, which has advanced since his great-grandmother’s day. Now 25, Christopher’s vision is restored and stabilized; his life is back on track.

Diabetes can damage the blood vessels in the retina, a condition known as diabetic retinopathy, which can lead to blindness. “The clinical trials of three decades ago were a game changer,” said Dr. Connor. “Before then, nothing could be done for diabetic vision loss.”

Today’s pioneering research by MCW vision scientists holds far-ranging potential for the ultimate goal: actually preventing eye disease. MCW’s Advanced Ocular Imaging Program is a world leader for inventing technology to non-
invasively view the living cells in a person’s retina. The team, co-directed by Joseph Carroll, PhD, and Alfredo Dubra, PhD, has developed novel methods for visualizing the retinal photoreceptors and vasculature in vivo with unprecedented microscopic detail.

Their work aims to detect the earliest changes in a patient’s retinal cells, signaling the start of disease long before symptoms appear, to make prevention possible. Dr. Dubra’s studies are searching for early bio-markers of eye diseases, including diabetic retinopathy. The Eye Institute is one of only a handful of places in the U.S. with this equipment and expertise, and patients of MCW eye specialists have benefited already.

Clinical trials at MCW and nationally continue to refine and improve current treatments. MCW eye physicians are members of the Diabetic Retinopathy Clinical Research Network, a collaboration of more than 100 sites throughout the U.S. dedicated to multicenter clinical research of diabetic eye disease. The network offers rapid results and evidence-based standards to improve care.

As in Ida’s time, advances from research will continue to make life better for patients and their families.

Dr. Connor is Associate Professor of Ophthalmology; Dr. Dubra is Assistant Professor of Ophthalmology and Biophysics. Dr. Carroll is the Richard O. Schultz, MD/Ruth Works Professor in Ophthalmology and Associate Professor of Biophysics, and Cell Biology, Neurobiology and Anatomy.