



Vanderbilt Medical Center

A Vision for Better Eye Care

Vanderbilt University professor uses communications technology to save diabetics' eyesight

Every day 55 people in the U.S. go blind as a result of complications from diabetes. With approximately 21 million people living with the disease and 54 million more who show early warning signs of developing it, the number of people who will lose their eyesight to this insidious disease appears destined to climb higher. But not if Lawrence Merin can stop it.

Merin, an assistant professor of ophthalmology at Vanderbilt University and director of the Vanderbilt Ophthalmic Imaging Center in Nashville, is on a mission to combat diabetic retinopathy, a diabetes-related condition in which small blood vessels in the retina become damaged, eventually leaving the eye unable to respond to light. His weapon: a grafting of old and new technology that allows him to screen patients for diabetic retinopathy not only across the state of Tennessee but also, theoretically, around the world. In fact, he has already provided screening services for people in Peru.

The heart of Merin's screening service is an old tool: retinal photography. As early as 1886 doctors discovered that highly magnified photographs of the inside of the eye could help them spot abnormalities. Retinal photography soon became a standard part of care in eye clinics and ophthalmologists' offices. Unfortunately, Merin notes, only about half the people in the U.S. with diabetes visit an eye doctor annually, either because they aren't willing to invest the time or money or because they live where such care is not readily available.

Over the past decade, as retinal photography switched from film to digital technology, Merin had an idea. If he could get the appropriate photography equipment in places people routinely go for medical care—a general-practice medical clinic, for example—he could have someone capture the images and then transmit them electronically to a facility like his for interpretation. Speedy electronic delivery was critical to his plan, because diabetic retinopathy, after going undetected for years, can shift gears quickly and lead to blindness in weeks or even days. If it's caught early, however, blindness can often be prevented by changing the patient's diet and exercise routine or by laser surgery.

While digital images lend themselves to electronic delivery, sending them by e-mail over an ordinary Internet connection wasn't practical at the time; digital retinal photographs are so large that most e-mail systems can't handle them. So Merin turned to AT&T for a solution. AT&T not only created a high-speed telecommunications network that could handle those big files coming from outlying clinics in Nashville and Murfreesboro, Tenn., but also provided him with business-planning assistance and office space in downtown Nashville. Since then, Merin has expanded his center's reach. This year, for example, with funding from Vanderbilt's Center for the Americas, he is providing image-reading services for people in Peru.

Merin is passionate about his life's work—and the advances in telemedicine—because they allow him to treat a broader universe of patients than he would have dreamed possible 10 or 15 years ago. "Probably the most important benefit of this intervention is equity of care," Merin says. "It doesn't matter

Vanderbilt Ophthalmic Imaging Center Facts

- **Client Needs**
A high-speed network to accommodate the electronic delivery of digital retinal photographs
- **Technology Solutions**
AT&T created a telecommunications network and provided the center with business-planning assistance.
- **Business Value**
Allows the center to expand its reach to communities across the country and even in Peru
- **Industry Focus**
Ophthalmology
- **Size**
The center offers screening services nationwide and abroad.



how many dollars are in your pocket or whether you live in the country or a high-risk urban neighborhood or suburbia—you're going to get treated identically, and identically well."

He is also passionate about the role AT&T has played in his clinic's success. "Within a week of my approaching them, they had developed a plan to produce an extraordinarily robust, high-bandwidth telecommunications network for us," Merin says. In fact, Merin was able to almost immediately send medical records and retinal scans where needed, using Metro Ethernet at each office to connect to their main locations and FastAccess® Internet service to all remote locations. Then for that extra measure of security, Megalink® private line service was used to connect servers to further help ensure trouble-free service. "Over the past few years, I can't remember any hiccup in the system at all," Merin says. "Every time one of our participating clinics snaps a picture, we get it and are able to convey a report back quickly so that if the patient is in danger, the primary doctor can make sure he or she begins to receive the proper care."

For Glenn Kittle, the account manager who led the project for AT&T, it's been an especially fulfilling and personal undertaking. Subsequent to beginning work on the account, Kittle was diagnosed with type 2 diabetes. Today, thanks to exercise and a healthy diet, he's keeping the disease under control without medication. That's gratifying, but so is knowing that he helped Merin's clinic get off the ground.

"I can't remember any hiccup in the system at all. Every time one of our participating clinics snaps a picture, we get it and are able to convey a report back quickly."

For more information, contact your AT&T representative or visit us at www.att.com/healthcare.

