

By Conni Bergmann Koury, contributing editor

Teleophthalmology solution aims to prevent vision loss

The GlobeChek kiosk offers 11 tests, takes less than 10 minutes and requires no dilation.

The idea for GlobeChek was hatched by two ophthalmologists frustrated over the lack of comprehensive eye screenings in the United States. According to the CDC, only half of the estimated 61 million U.S. adults at high risk for vision loss have visited an eye doctor in the past 12 months (www.cdc.gov/features/healthyvision/index.html).

Even among diabetes patients, compliance with eye exam recommendations is alarmingly low. According to a 2019 study in *Diabetes Care*, almost half of insured patients with type 2 diabetes had no eye exam visits over a 5-year period.

Researchers Benoit, Swenor and Geiss, et al found that only about 15% met the American Diabetes Association's criteria for annual or biennial eye exams.

Drs. William Mallon and Adam Katz asked themselves, why is this happening? Is it a lack of awareness, education, access or convenience? All of the above? Six years ago, they set about creating a solution. They envisioned a way to provide convenient, affordable access to comprehensive eye screening exams. Further, they wanted to promote visual health awareness and prevent unnecessary vision loss by facilitating patients' access to a referral network of eye-care providers.

After many iterations of the system, GlobeChek was born. Now that the kiosks are finally being rolled out, the COVID-19 environment has allowed for robust reimbursement and the need for remote, "low-touch" health care.

HOW THE KIOSK WORKS

A GlobeChek technician operates the kiosks, guiding the patient through the process. The tests require no dilation and no contact with the eye. The screening exam detects the four leading causes of blindness

in the United States: glaucoma, diabetic retinopathy, macular degeneration and cataracts. It also alerts to systemic diseases like diabetes, hypertension and carotid artery disease.

The 11 tests are visual acuity, auto-refraction, KSP check, corneal pachymetry, wavefront corneal topography, OCT of the anterior segment, optic nerve and macula, fundus photography, a high-resolution external photo and cataract grading. The entire process takes less than 10 minutes. Also, the equipment is the same used in eye-care providers' offices, with familiar manufacturers such as Topcon and Optec.

EYE-CARE PROVIDER'S ROLE

The tests are reviewed by a certified GlobeChek provider — in accordance with AAO and American Association of Optometry guidelines — and the report is sent to the patient within 24 hours. It includes the appropriate diagnoses and recommendations for follow-up care if needed. Patients can choose to have a telemedicine consult to review the findings, and those with a diagnosis are referred to a local participating eye-care provider.

Ultimately, GlobeChek



IMAGE COURTESY GLOBECHEK

enables eye-care providers to identify previously undiagnosed conditions, such as asymptomatic glaucoma and diabetic retinopathy, and allow earlier intervention. With GlobeChek, physicians can concentrate on caring for patients. Also, Dr. Katz emphasizes that providers are not going to be replaced by a machine. The target is people who do not have a provider. "One of our tag lines is 'screen, detect and refer.'"

VARIETY OF SETTINGS

The kiosk is less than 3 feet wide and fits through double doors. It can be placed in a provider's waiting room or even be used as a mobile office.

"Ophthalmology in general lends itself to telemedicine, as we use imaging to direct much of our treatment," Dr. Katz says. "But these monitoring devices do not necessarily have to be in the eye-care providers' office. The ability to save patients from making a trip is more efficient and less burdensome for patients and physicians. There is no reason for waiting rooms to be filled with patients who do not really need to be in the office."

VALIDATION

A pilot study validated the GlobeChek teleophthalmology platform. Conducted in conjunction with New York-Presbyterian/Columbia University Medical Center in a community-based screening program in northern Manhattan, N.Y., the study found that this system was highly successful at identifying asymptomatic people with vision-threatening conditions. More than 300 participants

Financial information and reimbursement

GLOBECHEK KIOSK OWNERSHIP

- Purchase price: \$249,000*
- Lease payment: 5 years @ approximately \$4,500/month*

REIMBURSEMENT SCENARIO**

- 40 scans per day in a mobile satellite office
- \$150/scan (CPT avg. eye exam reimbursement) = \$6,000/day
- 200 scans/week at 50 weeks = \$1.5M of revenue (less overhead)

* Does not include small software license fees, which vary depending on whether GlobeChek provides the reads or not.
** All figures stated are approximate and best estimates from Dr. Adam Katz.

were screened at the kiosk; a sight-threatening eye disease or condition was newly detected in almost 50% of the participants. The results appeared in *Investigative Ophthalmology and Visual Sciences* in 2019.

"Teleophthalmology using a GlobeChek kiosk was feasible and effective in identifying the four most common causes of blindness," reported lead investigator Lama Al-Aswad, MD, who is a professor and the vice chair for innovation in the department of ophthalmology at the NYU Grossman School of Medicine.

MORE RELEVANT THAN EVER

With COVID-19, the importance of teleophthalmology and telemedicine is even more relevant and a huge impetus for wider and accelerated adoption and subsequent reimbursement. Saving patients trips to the office is no longer just about convenience, now it is about safety and exposure. At the GlobeChek kiosk, the masked patient only has to interact with a masked operator, and the kiosk has a shield between the operator and the patient.

Patient feedback has been almost unanimously positive. Dr. Mallon says more than

90% of his patients prefer the kiosk to a regular exam, and Dr. Katz notes that the technology appeals to all age groups. "A 94-year-old patient told me, 'It's awesome, I love it.'"

"We had always envisioned teleophthalmology as taking off," Dr. Katz says. "Just like telemedicine, it increases access and it decreases costs. The problem, before COVID, was providers just didn't adopt it as much as they should have because of reimbursement." (See "Financial information and reimbursement.")

GlobeChek, in essence, provides an automatic triaging system for patients and has the ability to increase the penetration of eye care. The platform can facilitate screenings in underserved populations like the Indian Health System, be implemented in a massive managed care system and help handle the immense need for eye screenings in Veterans Administration hospitals around the country.

The eventual goal is to place GlobeChek in public spaces, such as airports, malls and chain drugstores. Having kiosks in high-traffic locations makes it accessible, convenient and cost-effective. **EM**