

## MEGATREND

# Remote Possibilities

### New Business Models Unlock Telemedicine's Potential for Eyecare



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Creating opportunities to support the next generation of optometrists.



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and performing auto-refraction, intraocular pressure, OCT of the optic nerve and macula, as well as external and fundus photography. Wavefront technology is used to measure corneal thickness, topography, and angle. A cataract screening feature uses retro-illumination to grade posterior, cortical and nuclear lens opacification. "The entire no-touch/no-dilation scan still only takes about eight minutes to complete," said Dr. Mallon.



GlobeChek's William Mallon, MD (l) and Adam Katz, MD with the ESG 1200.

Test results are sent to a HIPAA-compliant portal. Patients can download a PDF and forward it to their eyecare provider. GlobeChek can send the images captured during the exam if the doctor requests it. Patient are not provided with a prescription for glasses or contact lenses, but their doctor can provide one based on measurements taken during the testing.

## EyecareLive

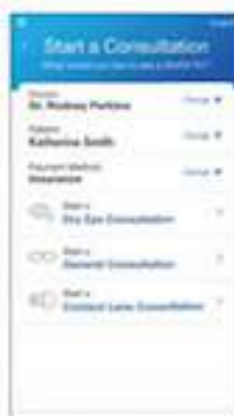
EyecareLive enables optometrists and ophthalmologists to interact with patients online in real time or asynchronously. Developed by Moshe Mendelson, OD and Raj Ramchandani, a software and IT expert, EyecareLive consists of mobile apps for patients and a cloud-based portal for doctors. The company provides training for ECPs on the

best practices for telemedicine, education on telemedicine regulations in their state and information on insurance reimbursements and malpractice coverage. It has also partnered with several contact lens labs which utilize its platform for ECP education and trouble-shooting for specialty contact lenses.

EyecareLive provides free iPhone, iPad and Android apps for patients, who can use the apps to schedule new or follow-up appointments with their doctor, upload photos and videos of their eye conditions in real time and take eye tests such as Acuity, Dry Eye SPEED, Amsler and Halo. An Alexa-enabled visual acuity test is also available. Patients can securely communicate with the doctors using Messenger, receive notifications when doctors update their treatment plans and receive medication reminders.

"Two hundred and fifty doctors are currently using EyecareLive," Mendelson told VM. "Ninety percent are ODs, and the rest are MDs, but we haven't done much marketing yet to MDs," he said.

Mendelson said the



EyecareLive apps.

company received a significant investment from "a Fortune 500 company," in December, 2018, enabling it to expand its range of services.

EyecareLive is currently launching a new version of its platform that is designed to provide virtual care for emergent as well as chronic ocular conditions. The company recently released PeerMed, a feature that allows doctor-to-doctor consultations for second opinions and is covered by Medicare. The EyecareLive platform is embedded in several EHR systems, including Crystal PM and Compulink.

## DO IT YOURSELF VISION TESTING

Products and services that empower consumers to not only learn about their health and wellness but take an active role in maintaining it are riding a wave of popularity. Optical companies that are using telemedicine to tap into that trend are finding a receptive audience among consumers who prefer the Do It Yourself (DIY) approach to vision care. This involves an online vision test requiring either a computer, smartphone and app—a method used by Visibly, Warby Parker and 1800Contacts—or a smartphone and app used together with a special viewlet, an approach pioneered by EyeQue.

## Visibly

Visibly, formerly known as Opternative, introduced the industry's first online vision test in 2014. Consumer who take the five-minute, self-administered test submit the results to a licensed ophthalmologist or optometrist in whatever state the test taker is in, and, the doctors issues them a prescription for glasses or contact lenses within 24 hours.

Visibly's approach was controversial from the start, drawing fire from optometrists who felt threatened by a remote refraction process that replaced a visit to the optometrist's office. Many ODs expressed concern that consumers would forgo a comprehensive eye exam, thinking that the remote "vision test" would suffice. State optometric associations filed lawsuits to try to block Opternative from doing business in their



**T**elehealth's growth is apparent not only in eyecare but in other fields of medicine as well. As of 2018, 34 states plus the District of Columbia had enacted parity laws for private insurance coverage of telemedicine, up from 12 states in 2010, and five other states were reviewing proposed legislation, according to the American Telemedicine Association.



Vitor Pamplona

"We see about 200 different models of telehealth being run these days in the U.S. and abroad," said Vitor Pamplona, founder and CEO of EyeNetra, which markets a mobile refraction system and was an early entrant in the ocular telehealth market. "They are all different from each other and generally very protective of their way of doing it, for obvious reasons. Most of them are successful, profitable businesses already."



Moshe Mendelson, OD

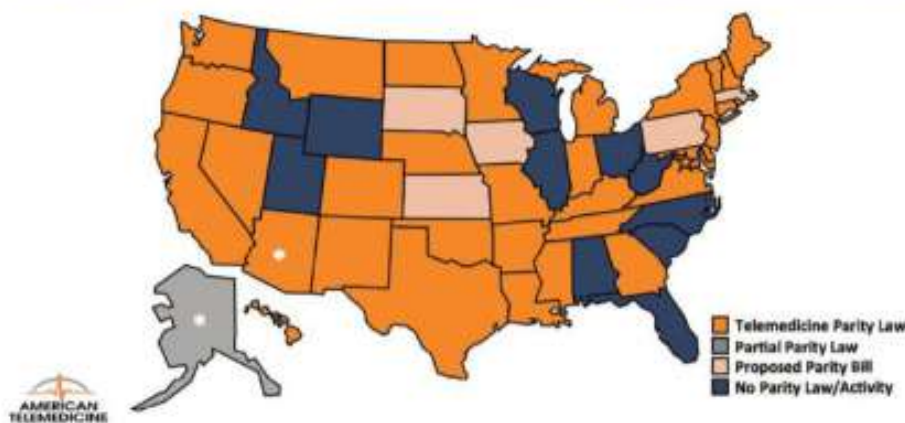
"The market for ocular telemedicine is growing," said Moshe Mendelson, OD, FIOA, who is chief medical officer for EyecareLive, a HIPAA-secure telemedicine portal that uses smartphone apps to link patients with doctors and schedule appointments. "Some commercial carriers are paying for telemedicine, and Medicare is expanding coverage. Most optometric conferences now cover telemedicine in their program."

"We see a significant increase in interest as ECP's understand that in order to stay relevant and competitive they will have to be active in the telemedicine space," said Mendelson.

Features and customer experiences can vary greatly from one form of ocular telehealth to another, making comparisons difficult. At one end of the spectrum are remote controlled, comprehensive eye exams and direct patient-to-doctor communications over HIPAA-secure channels.

At the opposite end are self-administered vision tests made popular by Visibly and online retailers

### States with Parity Laws for Private Insurance Coverage of Telemedicine (2018)



such as Warby Parker and 1800Contacts that enable consumers to quickly renew an eyeglass or contact lens prescription issued by an ECP who has reviewed the test results. Despite the significant differences between these and various other approaches to telehealth, their underlying premise is the same as it is for other types of telemedicine: expanded access to quality healthcare services delivered quickly and conveniently at affordable prices.



Greg Lechner

"Lower exam and health care costs through increased efficiencies and more screenings for critical eye disease is one of factors driving ocular telehealth," said Greg Lechner, director of marketing and communications for 20/20Now which provides comprehensive eye exams, including eye health screenings via telehealth using advanced technology, proprietary software and patented exam processes.

Younger consumers are particularly receptive. "Millennials are helping drive telehealth. They want to be served when it's convenient for their schedule, not the doctor's," observed Lechner.

Ocular telehealth companies report that most consumers who try their services are enthusiastic about the experience. Yet general awareness of ocular telehealth among consumers is still relatively

low. A VisionWatch survey conducted by the Vision Council in December 2018 found that only 24.8 percent of respondents had any awareness, with 7.2 percent being very aware and familiar. The report concluded that while ocular telemedicine services are growing in popularity, they have yet to penetrate the "mainstream" consumer consciousness. (For more detailed survey results, see the related article, "The Telehealth Consumer.")

Optometrists, ophthalmologists and even opticians who want to expand their services by adding refraction are beginning to embrace telehealth in its various forms.



William Mallon, MD

"Eyecare is the most natural fit for telehealth because of the ease of acquisition and the volume of information that can be gathered from non-invasive testing," observed William Mallon, MD, an ophthalmologist and co-founder of GlobeChek Enterprises, a Florida-based company that has developed a kiosk-based vision screening system.

As consumer interest in ocular telehealth increases and its impact on vision care ramps up, health care and business leaders are grappling with a complex and challenging trend that is reshaping relationships between doctors and patients and

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fundamentally changing the delivery of health care services and diagnoses. Telehealth models that enable practitioners to build connections with patients for diagnosis and disease management are gaining traction, as well as models that keep the doctor in the loop for comprehensive care.

Proponents of ocular telehealth say it enables optometrists and ophthalmologists to leverage modern technology in order to extend and even raise the level of care they provide.

"We have to understand the limitations and boundaries that are set by what we can physically do at the moment. Once we recognize those boundaries, we need to think how we're going to enhance the ultimate service we provide. That's where telehealth comes in," said Paul Super, OD, FAAO, a co-founder of EyecareLive and medical director and owner of Eyesite Optometric Group, which operates two locations in Los Angeles.

Ocular telehealth's detractors question whether quality care is being sacrificed for the sake of convenience. They argue that in-office, in-person eye exams are the gold standard, and caution that some forms of ocular telehealth fall short of it. They also maintain that some consumers will forgo a comprehensive eye exam and instead opt for just a visual acuity test in order to obtain an eyeglass or contact lens prescription. Adding to the controversy are online eye "tests" which are expanding their reach while blurring the distinctions between "routine refractions" and "Rx verifications" versus comprehensive eye exams.

The debates are playing out in a series of legislative battles at the state level that pit state optometric associations, sometimes with the support of the American Optometric Association (AOA), against some ocular telehealth companies. However, the AOA has indicated an openness to optometrists participating in telehealth under certain conditions. In a February 2017 position paper, the AOA stated, "Telehealth, which includes the related concept of telemedicine, is a rapidly-evolving tool for the delivery of health information and services. The AOA supports the appropriate use of eye and vision telehealth services to supplement access to

high-value, high-quality eye and vision care. Eye and vision telehealth services, when used appropriately, can serve to improve patient coordination and communication among and between doctors of optometry and ophthalmologists, as well as other primary care or specialty care providers." (A complete version of the AOA's position paper on telehealth is posted on the organization's website.)

On the national level, the FDA has also entered the fray, warning prescription renewal service Visibly that it had violated the Federal Food, Drug, and Cosmetic Act, and requiring it to submit to an approval process before granting market clearance for its online vision test.

A Visibly spokesperson told VM the company is continuing to work with the FDA on its De Novo application process.

Separate legal battles have erupted between several ocular telehealth companies that have sued each other over patent infringement, a scenario common to emerging tech sectors.

Despite a fragmented market and legislative and legal hurdles, ocular telemedicine is steadily gaining ground in the U.S. Hundreds of thousands of U.S. consumers have had remote eye exams, remote consultations or taken online eye tests, according to suppliers and practitioners, and the number is steadily increasing.

However, the biggest factor that could determine ocular telehealth's growth trajectory is insurance reimbursement, and managed vision care companies are approaching the idea of reimbursement cautiously. (For more on this topic, see related article, "Managed Vision Care Perspectives on Ocular Telemedicine.")

To understand what's driving this segment of the vision care market, and why it's gradually gaining traction with consumers, VM spoke with some of the leading players in ocular telemedicine as well as eyecare practitioners and optical retailers who offer this service.

#### Analyzing Ocular Telehealth's Appeal

Today's eyewear customers and patients are also healthcare consumers, and many want eyecare delivered on their terms, both in-office and online. That

demand has fueled the growth of telehealth, which, by nature, is consumer-centric. For some consumers, that means having their ECP be available at their convenience and be able to use the latest technology to monitor an eye condition, give a diagnosis, and if needed, issue a prescription for medication.



Howard Fried, OD

"The market driver for ocular telehealth has been patients' need for better access to quality comprehensive eye health and vision analysis coupled with early detection of disease," said Howard Fried, OD. "Patients want comprehensive eye exams

at their convenience, including evenings and weekends. It has to be accessible to patients in remote areas and where access to eye exams by licensed optometrists varies from limited to unavailable."



John Serri

Eager to meet patients' expectations, a growing number of ECPs are embracing telehealth as a way to expand and enhance their service, generate additional revenue and add flexibility to their practice. "ECPs recognize a need to differentiate

by innovating, embracing technologies that establish patient loyalty, expand patient reach, improve patient care, and provide differentiated services," said John Serri, CEO of EyeQue, a maker of vision testing devices for consumers that enable ECPs to remotely monitor changes in their patients' vision.

Many patients want the convenience of on-demand access to eye tests or consultations with doctors. That can be 24/7 access to an online vision test, or being able to walk into a practice and get a vision test without an appointment and without an eye doctor present.

"Businesses that may not have the funds to employ a doctor full-time are finding that they are losing out on quite a bit of foot traffic," noted Yaopeng Zhao, co-founder and president of Smart Vision Labs, which markets a smartphone-based vi-

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nology and meaningful innovation. Our new website helps communicate our role as a technology developer and service provider for eyecare providers," said Chuck Scott, 20/20Now's CEO.

To help position itself prospective customers, 20/20Now recently hired Chad Overman, OD as optometry subject matter advisor. Dr. Overman has extensive optical industry experience, including 12 years of private practice and leadership roles in corporate optometry at Walmart where he was director of professional relations and led the doctor talent acquisition efforts for Walmart's Vision Centers and pharmacies.

## 20/20NOW®



A technician guides a patient through 20/20Now's exam.

Overman said that many optometrists are overcoming their initial skepticism about telemedicine as they learn more about its capability to deliver quality eyecare. "We're having to educate optometrists about telehealth, those that aren't the first adopters. I've actually had a couple of them tell me that 20/20Now actually delivers a better eye exam than what they themselves provide.

They may not be able to do some of the things 20/20Now can, such as take retinal photos."

### DigitalOptometrics

DigitalOptometrics developed and launched just over a year ago a patented remote comprehensive eye health and vision analysis system which permits patients, at an optical exam location, to receive comprehensive

eye examinations performed by a licensed optometrist from a location remote from the patient. A live remote video conference between optometrist and patient and remote operation of optical equipment is utilized with subjective visual findings by an optometrist followed by an accurate prescription for correction of vision at the conclusion of the examination.

"Our remote eye exam system is designed for in-office utilization by replicating an in-person quality comprehensive eye exam by a licensed optometrist and offers the doctor-involved practice the ability to expand office hours and locations while addressing their quality of life needs by providing support with remote exams performed by our staff of licensed optometrists," noted Howard Fried, OD, DigitalOptometrics founder and principal owner. He added that the company has performed more than 11,000 remote exams and expects to have its system installed in 150 practices by the end of 2019.

VM reported in September, 2018 that DigitalOptometrics had received a "significant investment" from "an S&P 500 company," although the DigitalOptometrics didn't reveal details.

Fried described DigitalOptometrics as a flexible system that can integrate its technology into "hundreds of devices," as well as some electronic medical records systems, including Crystal PM.

The company recently added veteran optometrist Chad Fellows, OD, as professional liaison.



A patient takes diagnostic tests which are part of DigitalOptometrics' exam, which is performed remotely by an optometrist.

### GlobeChek

Kiosks are an increasingly common feature of modern life, and many consumers are now comfortable interacting with them in shopping malls, hotels, airports and even hospitals. In fact, many types of healthcare kiosks are now popping up in public places.

The latest entry into this growing field is GlobeChek, a versatile system developed by two ophthalmologists, Adam M. Katz, MD and William J. Mallon, MD. Their goal was to provide convenient affordable access to medical eye screening exams in order to prevent asymptomatic people from losing vision.

GlobeChek is in the process of launching the Eye Screening Globe, or ESG 1200, following a teleophthalmology pilot study conducted at New York-Presbyterian/Columbia University Medical Center that successfully identified asymptomatic people with vision threatening conditions.

The unit houses a number of diagnostic instruments in a compact, globe-shaped structure that will easily fit through a standard double door, according to Dr. Mallon, who called it "a complete solution for ocular telehealth." Guided by a technician, patients can look into different windows in the globe to access the various testing devices which are connected to the company's GlobeChek Reading Center software.

The Globe is capable of checking visual acuity

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