Introducing the SightBook App

An innovative approach to patient management.

BY CALLAN NAVITSKY, ASSOCIATE EDITOR

Thanks to the wide range of applications, or apps, available for today's smartphones and tablets, there is seemingly little that these technologies *cannot* do. By taking advantage of their devices' capabilities, smartphone and tablet users can enjoy greater access to information, improved communications, the opportunity to streamline a busy schedule, and much more. Now there is an app that enables these abilities to be extended to the field of ophthalmology and, more specifically, to patient management and physician-patient communication. The SightBook Mobile Vision Assessment System, developed by DigiSight Technologies Inc., is an app that provides patients and physicians with the first web-based system for mobile monitoring of vision, integrated into an electronic personal health record designed specifically for retina patients.

Figure 1. The SightBook app home screen.

THE SIGHTBOOK APP

The SightBook app, which is compatible with the iPhone, iPod Touch, and iPad (all from Apple Inc.), was designed for the quantitative monitoring of visual function (Figure 1). The app was developed by a team of eye scientists and physicians under the guidance of Mark S. Blumenkranz, MD, of Stanford University in California, who was the medical and creative force behind SightBook's inception.

With the SightBook app, patients can use their mobile devices to perform a set of quantitative near vision tests, including visual acuity (Figure 2A), inverse acuity, color acuity, contrast, inverse contrast, acuity and contrast, low light, and Amsler grid (Figure 2B).

Tests can be taken with the SightBook app at any time. With the help of their ophthalmologists, patients can define a sequence of tests to be taken at regular intervals as often as necessary. With the aid of cofounder Daniel Palanker, PhD, of Stanford University, the SightBook vision measurements have been carefully correlated with traditional measures of visual function, including the ETDRS distance chart and Rosenbaum Near Card. Test results are immediately displayed and stored on the patient's device (Figure 2C).

In addition to its testing capabilities, the SightBook app can also be used to log treatments (Figure 2D); patients can record the date of treatment, which eye was treated, and the type of treatment administered. Patients can also use the app to keep track of their upcoming appointments.

THE DIGISIGHT NETWORK

After installing the SightBook app, patients can join the DigiSight Network via the app or the DigiSight website. Once the patient is a member, his or her information and test results are automatically and securely uploaded and stored to a SightBook web account on the DigiSight website, providing each user with a personal electronic health record (Figure 3). Patients can use this account to monitor changes in their vision over time and share their data with any physician in the DigiSight Network.

To connect with patients, physicians must also join the DigiSight Network and be invited by the patient to access his or her data. Once logged in to the network, the physi-

Figure 2. Screen shots of the SightBook capabilities: visual acuity test (A), Amsler grid test (B), test results (C), and treatments (D).

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cian can view the self-tests performed by the patient, access data from his or her last office visit, maintain a log of tests and treatments, and store images. One unique feature of the app is the "Alert Settings," which enables the physician to choose to be alerted when his or her patients miss 1, 2, or 3 tests, and when patients experience 1, 2, or 3 lines of vision loss. If a patient misses the number of tests or loses the number of lines indicated, a red alert symbol will appear by his or her name in the Patient Summary section of the physician's page (Figure 4).

MONITORING VISION

Giving patients the ability to monitor changes in their vision will likely empower them to take an active role in their eye care. Close monitoring of visual function is especially important in retina patients, whose conditions often require careful observation and frequent treatment. Because patients can perform the SightBook tests as frequently as desired, both they and their ophthalmologists can monitor their vision in between visits to the office, providing somewhat of a safety net to their care.

"Retina patients who are receiving injections, not only

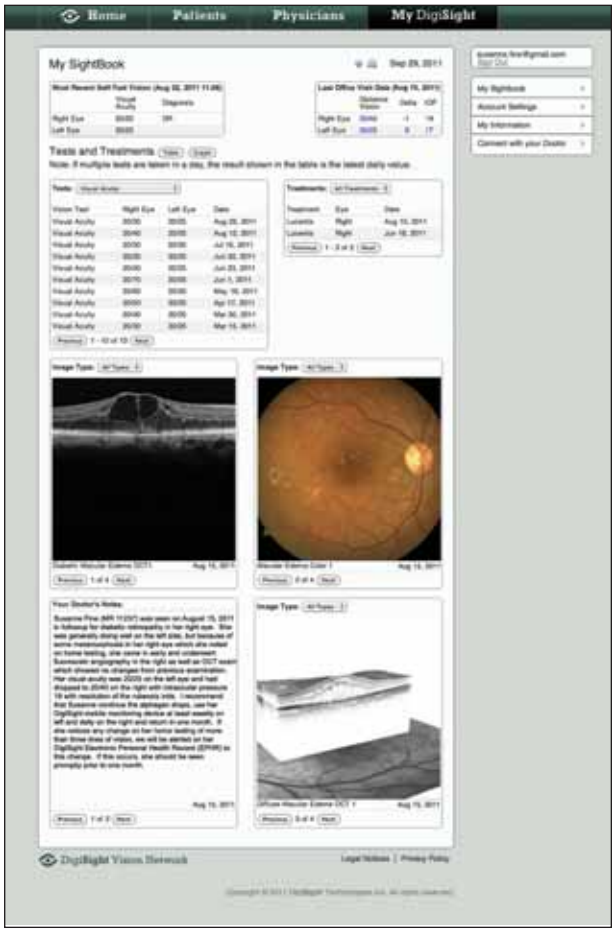

Figure 3. The patient's homepage on DigiSight.net.

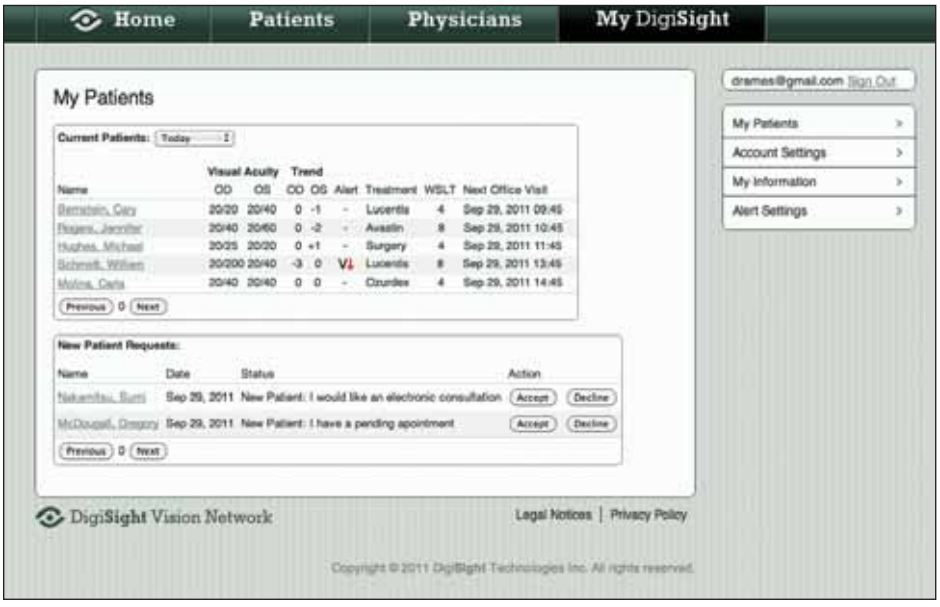

Figure 4. The physician's "My Patients" summary page on DigiSight.net.

for macular degeneration but also for retinal venous occlusive disease and diabetic retinopathy, have frequent fluctuations in their vision or Amsler grid based on what is occurring with their disease," K. Bailey Freund, MD, of the Vitreous-Retina-Macula Consultants of New York and a member of the DigiSight Medical Advisory Board, said in an interview with *Retina Today*. "With retinal diseases, particularly in eyes with active leakage or bleeding, the situation can change very quickly, and it is something that needs to be acted on very quickly as well because if the macula starts to hemorrhage, you need to catch and treat that immediately before irreversible damage occurs."

Early detection of changes in visual function will also enable physicians to optimize treatments, helping to prevent vision loss while minimizing unnecessary visits to the office, discomfort, and expense, according to DigiSight.

"I have been testing to what degree the feedback we are getting from the patients who are taking these tests can help us time their injections and know when they should return to obtain optical coherence tomography and more formal vision testing to confirm if there is worsening of the disease," Dr. Freund said.

REAL-TIME DATA

Because patients' test results, treatment information, and images can be stored on the DigiSight network, data can be easily and instantly transferred from 1 doctor to another, allowing better continuity of care.

"The SightBook app allows sharing of pertinent information with diabetologists, endocrinologists, and other eye care professionals in real time without having to go through the process of sending a letter," David S. Boyer, MD, of the University of Southern California Keck School of Medicine in Los Angeles and a member of the DigiSight Medical Advisory Board, told *Retina Today*. "The main goals are to empower patients to help monitor and take charge of their disease and to allow sharing of their health information with their other health care providers."

The ability to collect data in real time also has potential for use in clinical trials, Dr. Freund told *Retina Today*. "Usually, in clinical trials, we do something, and we see the patient 1 month later; however, we really have no idea what is happening with his or her vision in between," he said. "Our hope is to use this technology more in clinical trials. Perhaps the pharmaceutical companies and investigators conducting these studies may become interested in knowing what is happening to these parameters of vision in real time; that could be very important when testing new drugs or longer-term delivery systems."

ADOPTING THE APP

Use of the SightBook app requires patients to own and be able to operate an iPhone, iPod Touch, or iPad; in addition, they must also be able to navigate the DigiSight website to set up a personal account and connect with their designated physicians. Younger patients who are more comfortable with the technology have little trouble using the SightBook app; however, there may be more of a learning curve for older patients, Dr. Freund explained. Therefore, he suggests setting up the app for patients while they are in the office and then providing them with a tutorial.

"The response has been very enthusiastic. Sometimes, I have asked patients, 'Do you have an iPhone?' and they will say no, but as soon you tell them about the app, they want to run out and buy one because the idea sounds very exciting to them," Dr. Freund said. "I think we are just scratching the surface with how this technology can be used, not only in retina or ophthalmology, but in all fields of medicine." ■