

# Useful Resources for the Ophthalmologist

Smartphone and tablet applications can increase the efficiency of your practice.

**BY NIC J. REUS, MD, PhD**

Smartphones and tablets such as the iPhone and the iPad (both from Apple Inc.) have become integral parts of our lives. We can personalize the content on these devices to make resources available at the touch of a fingertip. This article describes several applications, more commonly known as apps, that are useful for the ophthalmologist.

## FIVE OPHTHALMIC-RELATED APPS

**No. 1: Eye Handbook (Cloud Nine Development LLC; free on the iPhone and Android [Google]).** This app may be described as the Swiss Army Knife of ophthalmology apps. Most apps are specialized by use, but this app encompasses a variety of abilities, including vision testing, patient education, physician reference, and calculators. With regard to the calculators, this app includes a visual acuity converter, a surgically induced astigmatism calculator, and a converter of dioptric powers to radii of curvature.

For patient education, the app features various diagrams of the eye that may be used to illustrate a disease or condition to patients. Additionally, the Eye Handbook enables users to purchase patient education videos and flashcards from the American Academy of Ophthalmology (AAO), both of which can be used to educate patients.

The Eye Handbook app features various reference tools as well, including a large number of photographs of ophthalmic conditions in its eye atlas and an extensive list of links to ophthalmology journal Web sites. Furthermore, the app includes tools to (roughly) assess visual function, such as an Amsler grid, Ishihara color vision plates, an optokinetic nystagmus drum simulator, and various fixation targets for children.

**No. 2: Eye Pro 2011 (EB Eye Limited; €2.39 [limited-time offer]).** This app features the Borasio Edmondo Smith and Stevens (BESS) 2.0 formula for IOL calculation after laser refractive surgery. Additionally, ophthalmologists can use the app to create a plot of surgically induced astigmatism with pre- and postoperative astigmatism data, which subsequently can be exported via e-mail for further use. This app also allows users to calculate IOL power with the SRK/T and Hoffer Q formulas. Furthermore, it includes various calculators, including one to calculate the surgically induced astigmatism in an individual eye.

TAKE-HOME MESSAGE
<ul style="list-style-type: none"> <li>• Various apps are now available to personalize an ophthalmologist's smartphone or tablet.</li> <li>• With the recent introduction of Newsstand for the iPhone and iPad, various ophthalmology magazines are now available within this app.</li> </ul>

**No. 3: Wills Eye Manual (Skyscape; €62.99).** This app is a renowned reference guide for ophthalmology compiled by Wills Eye Institute in Philadelphia. Similar to the print edition of the manual, the app describes the symptoms, signs, work-up, treatment, and follow-up of various eye disorders. With the mobile edition, users can carry this extensive reference at all times, and it allows easy searching through a vast amount of information. With purchase, you receive content updates for 12 months, thus keeping you up-to-date for a long time.

**No. 4: Colorblind Vision (opcoders.com; €0.79).** This app simulates color deficiencies in real time. Images captured with the iPhone's built-in camera are instantly transformed into images as seen by someone with deuteranopia, protanopia, tritanopia, or achromatopsia. This app therefore allows you to experience the world around you as someone would with any of these color deficiencies.

**No. 5: CataractSurgery for the iPad and CataractMobile for the iPhone (George Kong softwares; free).** These apps allow the user to practice creating a capsulorrhexis and sculpting a lens on his or her device. As of yet, it does not provide a true-life experience; however, it is interesting to see what is already possible with these electronic devices and also

fun to let friends outside the ophthalmic profession try some cataract surgery themselves.

### APPS FOR CONGRESSES

**Apps from major ophthalmic societies.** Societies including the European Society of Cataract and Refractive Surgeons (ESCRS) and the American Society of Cataract and Refractive Surgery (ASCRS) have made their annual meeting programs available as smartphone apps. The apps allow you to browse the programs in advance and create a schedule of the courses and scientific presentations you wish to attend. Furthermore, they often feature a map of the convention center and a layout of the industry exhibition. These apps limit the need to bring the abstract book with you to the congress, making you more mobile.

**Evernote (Evernote; free).** While attending a congress, you may want to take notes. Evernote, a useful app for this purpose, is great for both recording and organizing notes. The Evernote app is available for almost all smartphones. Above all, it instantly synchronizes data from your smartphone to your Mac or Windows desktop, making it easy to access your new knowledge once you have returned home.

### OTHER REFERENCE APPS

**Papers (mekentosj.com; €7.99).** This is an app for the

iPhone and iPad that lets you put your entire scientific literature database in your pocket and have it available at your fingertips whenever and wherever you go—at a conference, in a meeting, in the clinic, or on the couch in the evening. Although it can be used on its own, Papers may also be used with its Mac desktop counterpart, and the two versions can be synced with each other.

### JOURNALS, BOOKS, AND VIDEOS

**iBooks (Apple Inc.; free).** Numerous ophthalmology journals and books have now begun appearing in Apple's App Store. For example, the AAO has published its *Basic and Clinical Science Course* as an electronic book in the iTunes Store and the iBookstore, enabling the text to be read with the iBooks app.

Elsevier, Inc., has started developing iPad apps for its monthly peer-reviewed journals, *American Journal of Ophthalmology* and *Ophthalmology*. These apps are the electronic equivalents of the printed journals and allow selected articles to be downloaded to your iPad for offline reading. Currently, the apps provide only a basic journal reading experience, as the publisher has only recently developed them. One current limitation is that you cannot export articles in PDF format; therefore, it is not yet possible to export content to the aforementioned Papers app for archiving.

**Newsstand (Apple Inc.; free).** With the recent introduc-

### SMARTPHONE APP PHYSICIAN POLL

*Members of the CRST Europe Editorial Board and Global Advisory Board discuss their favorite smartphone applications and how they benefit themselves, their practices, and their patients.*



**Arthur B. Cummings, MB ChB, FCS(SA), MMed (Ophth), FRCS(Edin)**

I use the Eye Handbook app (Cloud Nine Development LLC) most. It is comprehensive and includes many subapplications such as calculators, journals, meetings, eye atlas, medications, and eye tests. It continues to surprise me with how much information is included in the app. The calculators are particularly good, and it is easy to use.



**Sheraz M. Daya, MD, FACP, FACS, FRCS(Ed), FRCOphth**

I sometimes use the Eye Handbook, but this app is becoming pretty dense and unwieldy in terms of information, and users must hunt a bit to get the data needed. It features great calculators and conversion charts, such as those for radii to diopters, visual acuity equivalents, and IOP based on central corneal thickness, as well as IOL calculations. There are other features that I do not use but might be useful,

including color charts and visual acuity test charts. There is some useful reference information for the ophthalmic trainee and practicing ophthalmologist who might be a bit rusty and need to look up, for instance, medication dosages and mode of action.

On the nonophthalmic front, my favorite app is Evernote (Evernote Corp.), which I use to take notes, attach files, and store all sorts of useful information. I can take notes on the fly or even dictate material, which then gets stored in the Evernote cloud. I can e-mail the relevant note to my personal assistant to handle or work on later; using Evernote on the Mac (Apple Inc.), I am able to view the same notes and act on them. Evernote also serves as a great tool for backing up vital files such as PowerPoint presentations. The search feature on Evernote is powerful, and another cute feature is the app's ability to record the place where the note was taken and show the location on a world map.



**Eric D. Donnenfeld, MD**

I enjoy recommending iRead, an app designed by ophthalmologist Richard G. Davis, MD. iRead will allow you to read for a short period with your

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phone when you are in a situation where you do not have your reading glasses. If your phone supports the zoom function and has a built-in light and camera, iRead will enable you to read that menu! Best of all—it's free!

**Simonetta Morselli, MD**

One smartphone application that I use every day for my job is FarmaciaPlus (Logica Informatica srl). This app gives users the ability to search and learn about all types of drugs and formulations.

**Karl G. Stonecipher, MD**

There are three smartphone-related apps that I constantly find myself using. The first is the Eye Handbook. It is the one application that is specifically for ophthalmology and ophthalmic-related issues. I particularly like the atlas for showing patients photographs of their ocular issues. Second, I am always on Epocrates (Epocrates, Inc.). It is challenging for physicians in a field like ophthalmology to keep up with all of the new drugs. Epocrates is a quick reference source, and the DocAlerts keep you on top of the latest issues in medicine. Finally, in a world of ever-changing microbes, I find the Sanford Guide to Antimicrobial Therapy app (Antimicrobial Therapy, Inc.) invaluable. With a touch of the finger, I can look up bugs versus drugs or disease processes and the latest antimicrobial options.

**Carlos Vergés, MD, PhD**

In my opinion, smartphone apps are a great tool in ophthalmology and have many advantages for our patients. Using smartphone apps, patients can test their vision rapidly. Apps are also useful for patients who have problems like maculopathies or who have just had surgery, as a means to control vision recovery. The best are Vision Test (3 Sided Cube Design Ltd.), Vision Training (Mogens Hestholm),

and Vision (Dimitriy Glebenok), all for the iPhone.

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tion of Newsstand for the iPhone and iPad, various ophthalmology magazines are now available within this app. In fact, you may be reading this article on your iPad in the *Cataract & Refractive Surgery Today Europe* magazine.

**Eyetube (Bryn Mawr Communications, LLC; €0.79).** Finally, Eyetube.net, the online video archive dedicated to ophthalmology, with videos on cataract and refractive surgery among other topics, is also available on the iPad and iPhone. The newly released Eyetube app makes it even easier to access the vast amount of fully narrated ophthalmology videos that are available through this valuable resource for ophthalmologists. For more information, see *The Eyetube App*, page 18. ■

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