Seven Ways to Boost "App-titude" in the Clinic at Little or No Cost

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When it comes to access to information for clinical care, we are living in the golden age of wireless. It sometimes seems the sum total knowledge of humanity is available on the smartphones in our pockets. While this exaggerates reality a bit, no one would deny that the challenge of our age is rapid navigation of the information superhighway. There are certainly some well-known stops on this highway. For instance, our vision science libraries have a rich trove of optometric knowledge, and many of our students can access their class notes electronically wherever they go. These are all highly useful resources when time permits their use. However, when we are under the tight time constraints of clinical care, it is tablet and smartphone applications, or apps, that allow for extremely rapid access to needed information.

Many apps are free, paid for by advertising, and others cost just a few dollars. As a result, my phone is crowded with folders of these apps, many seldom used. On the other hand, a few get such heavy use (or promise such in the future) that I encourage my students to use them in clinic. I'm certain there are some apps I've missed, and many of you have favorites you would rank higher than these seven. Also, not all of these apps work on all platforms. Even so, I'm not going to let that stop me from sharing with you my current favorite apps for clinical optometry.

1. Epocrates

Rhyming with "Socrates," this very useful, free app and Web site (www.epocrates.com) offer a wealth of information concerning systemic disease, medications, and insurance coverage for medications under Medicare and Medicaid.

Drug monographs

Epocrates has an exhaustive database of oral medications, arranged by drug class and categorized from Allergy to Rheumatologic.

You won't find many (if any) topical medications here, but if your patient is on a pill with which you or your interns aren't familiar, you can bring up an entire monograph on the medication. The monographs include indications, contraindications, adverse effects and pictures of the medication if the patient isn't certain of the name.

Interaction check

Here, you can interact with a virtual pharmacist of sorts. By entering the names of the medications a patient is taking, you can see if a potential new medication has any known drug interactions. While not the same as a human pharmacist, the Epocrates interaction check is a potentially lifesaving feature.

Pill ID

Does your patient have an unidentified pill in her pocket? The Pill ID section of Epocrates allows you to search by imprint, shape and color to determine what it is. Try a blue diamond to see a famous example.

Notifications: doc alerts

Epocrates also features periodic "doc alerts." The topics are often timely. One recent alert was titled "What Risks Do Energy Drinks Pose?"

Notifications: picture quiz

The app's picture quizzes can help refresh your knowledge on "mystery diseases," such as skin conditions and ear infections, of interest to primary care providers. In addition, a "Journal Watch" section highlights editors' picks.

Resource centers

This corner of the Epocrates app contains monographs on several common systemic conditions, from bipolar disorder to HIV to schizophrenia. Links lead to clinical news on prescribing meds for the condition as well as scientific abstracts. Even on the smallest screens, the format is readable.

Tables and calculators

Not all of the tools available on Epocrates are commonly used in clinical optometry, but they include the Glasgow Coma Scale for adults and children, and a Body Mass Index calculator.

Systemic diseases

While not technically part of the app, Epocrates online contains a marvelous disease index, including summaries, basics about the disease, diagnosis, treatment, follow-up, references and images.

Registering to use Epocrates on your smartphone, tablet or laptop is simple and free. Make sure you remember your password because with each unsuccessful attempt to log on, you will experience a longer delay.

2. EyeDock

If you want to search contact lenses or topical ophthalmic medications, use a cross-cyl calculator, or find codes for billing, EyeDock is the iPhone app and Web site (www.eyedock.com) for you. EyeDock is not free, but the Web site can be made available at no cost to students, staff and faculty of the schools and colleges of optometry. Here, I've listed what I see as its most useful features.

Contact lens searches

If your patient needs a high-dK toric lens in a high myopic power that costs less than $40 a box, or you want to find the multifocal lens with the steepest base curve available in a six pack or the smallest-diameter plus lens for a young accommodative esotrope, EyeDock can help. It provides a powerful search engine that allows you to use specific parameters to quickly narrow your search. The optometrists who run the site do a good job of keeping new lenses on the list and clearly marking discontinued lenses in red. Even if they are familiar with the latest releases in the contact lens market, your students will find this searchable database invaluable.

Topical medication searches

Unlike Epocrates with its extensive database of oral meds, eyedock.com includes topical ophthalmics. If you're not sure which size bottle Lumigan comes in, or what the cost of Zirgan is, or which combination anti-allergics have gone OTC, it's all there. This part of EyeDock is a fantastic tool for staying on top of the ever-changing TPA marketplace. The estimated retail prices listed are an increasingly vital element for helping to ensure compliance for patients who are uninsured.

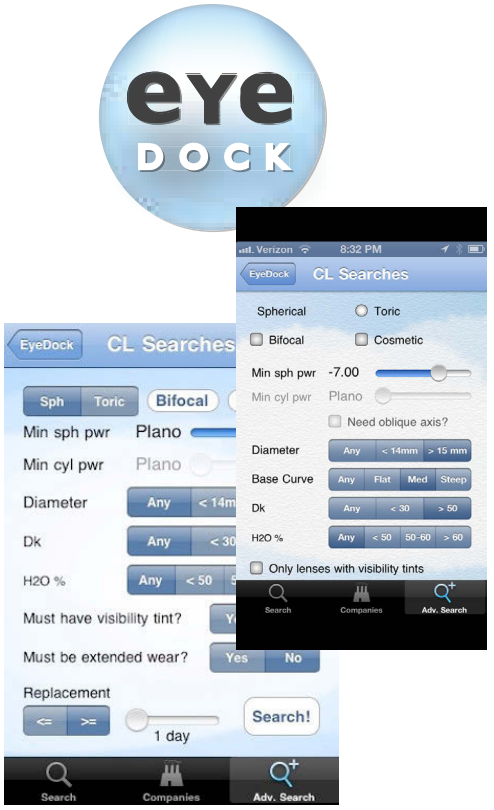
Calculators and tables

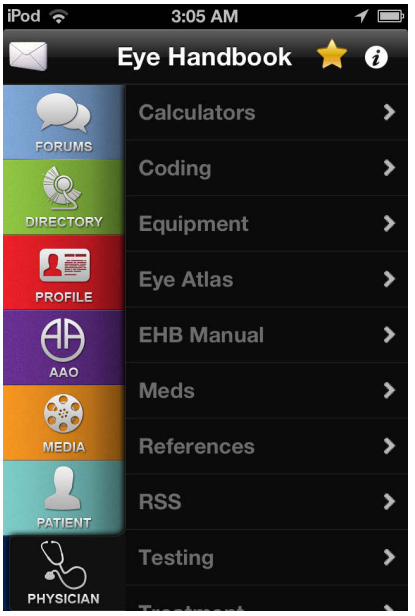
While still in its infancy, EyeDock has the potential to work as an expert system and to recommend a SCL or RGP based on spectacle-plane refraction, keratometry readings, and even fitting philosophy. The contact lens calculator attempts to do this now, though rather imperfectly.

EyeDock's other calculators, such as the one for cross-cylinder, are more straightforward. My students also appreciate the keratometer conversions tool. A Parks Three Step, Plaquenil dosage, CRT Lens Selector, and staff incentive calculator for profit sharing are also available.

3. Eye Handbook

Designed for ophthalmology, this wonderful app goes beyond meds, billing and coding and calculators. It also contains a very solid database of diagnosis and treatment, an estimator for glaucoma risk, a calculator for IOL power for cataract patients, an eye atlas, and RSS feeds to podcasts from various journals. The app is free for Android and iPhone, and the Web site (www.eyehandbook.com) lists it as "exponentially more comprehensive than any other eye re-





lated app." That's a lofty claim, but the Eye Handbook does an admirable job in achieving it. While not a comprehensive list of all the app's functions, the following are some of the most useful located in the "Physician" section.

Eye atlas

Want to see the difference between nodular and episcleritis, optic nerve drusen and edema, map-dot and granular corneal dystrophy, or BRVO and CRAO? All of these are pictured in the eye atlas, and are of considerable usefulness for students and seasoned clinicians alike.

EHB manual

The manual includes definitions, epidemiology, pathology, symptoms and signs, diagnosis, treatment and follow-up for almost every diagnosis you can think of, from acute conjunctivitis to vitreous hemorrhage. Research and references, including web links, are often included.

Testing

The "testing" section of the Eye Handbook is one I have not seen in other apps. Need a portable near card, Amsler grid, color or contrast test, OKN drum, pupil gauge or Worth dot test? All of these and more can be found under this section of the app.

4. Colorblind Vision

Advertised as the "Number 1 medical app in United States, China, Spain, France, Canada, Australia and 80 other countries," this app is subtitled "the color blind simulator at 30 frames per second." In other words, the Colorblind Vision app is a cellphone camera filter that simulates dichromacy (protan, deutan, and tritan) and monochromacy (achromatopsia), compared with normal trichromatic color vision. You can snap a digital picture with it, but you can also see a real-time simulation of how the world appears to a person with color deficiency.

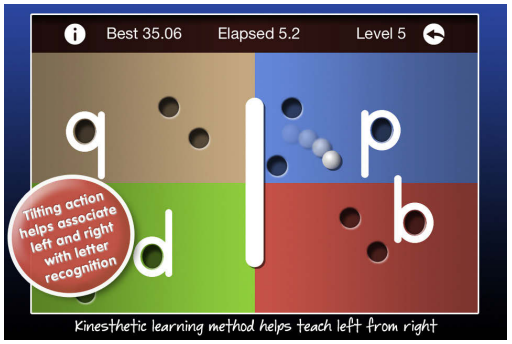
While simple, this app is extremely effective for patient education, particularly for people with a newly diagnosed colorblind family member. Its simplicity is likely the key to its success. It's available for the nominal fee of $2.99. More information is available at www.opcoders.com/colorblind-vision.

5. LetterReflex

We all know that a common chief complaint among our younger patients is trouble in school. It can be frustrating to the optometrist and patient alike when standard interventions such as corrective lenses are not necessary, yet the patient seems to have a vision problem. In places where vision therapy is available, these patients may be further tested for problems with telling left from right. But in many private offices, vision therapy is not available. Enter home vision therapy for laterality, directionality and reversal problems, and the LetterReflex app (www.dexteria.net).

Because there is some correlation between laterality/directionality problems and specific reading disabilities like dyslexia, patients with these problems will continue to report to optometric offices.

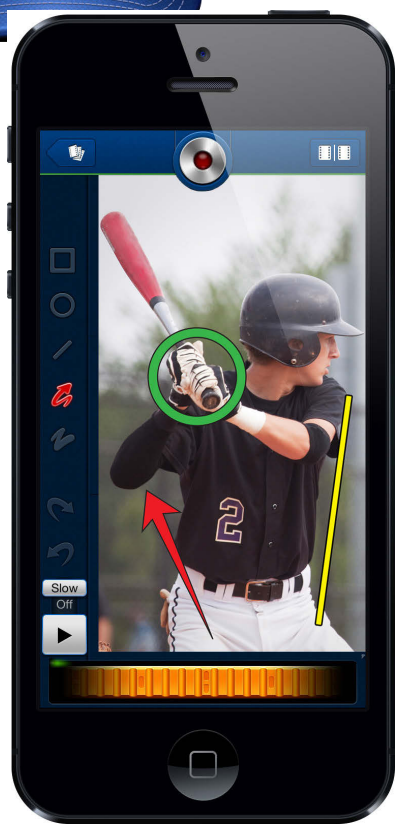
My patients who have tried this app find it very motivating and can demonstrate considerable skill after only a few weeks of practice. Listed as part of a family of apps for occupational therapy, LetterReflex is currently on sale for $1.99.



6. Coach's Eye

This camera app has applications outside the optometric office for those who practice sports optometry. While the optometrist must exercise caution not to make recommendations that are better made by coaches, apps like this one allow coaches, teammates, and family to make videos that highlight skills on which the athlete needs to work. So why include this app in a list of the seven best for clinical optometry? The reason is Coach's Eye represents a new generation of software that puts the power of diagnosis in the patient's hands. The player can gather data for teammates, and the coach can apply his or her expertise to showing on the video where the athlete might improve.

So where does the optometrist come in? The Coach's Eye app can help the O.D. to better understand the visual needs of the athlete so as to better prescribe treatment, be it sports specs, contact lenses or vision therapy. You can find more information on this app at www.coachseye.com, or buy it for $4.99 at the iTunes store.

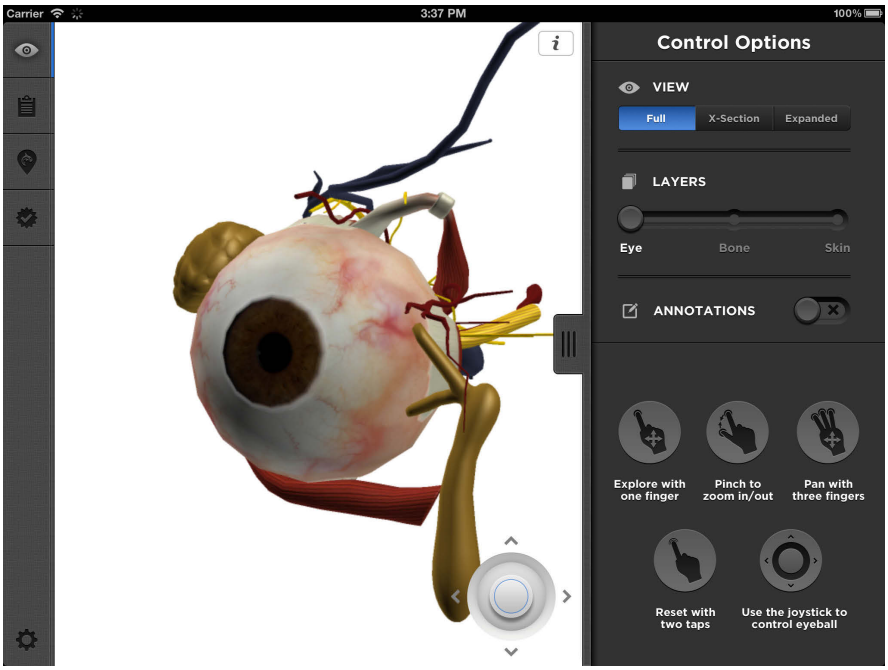


7. EyeDecide

The last of my seven favorite apps for clinical optometry is for students learning ocular anatomy or patients who want to see where their eye muscle problem is. We've come a long way from when I was in optometry school learning the extraocular muscle origins and insertions with a styrofoam eyeball and EOMs made of masking tape.

Now, students and patients can be impressed with 3D renderings of the orbit, including the nerves, vasculature and bones. The app also offers patient education videos illustrating common ocular conditions, such as cataracts and glaucoma. These include video simulations using the smartphone camera to show the visual effects of each disease.

One section of EyeDecide allows patients to find a specialist in their area though, unlike the app, advertising your office here may not be free. EyeDecide is available at no cost through www.orcahealth.com.



Looking Forward to What's Next

The ways in which we access information are changing rapidly, and it's hard to tell which, if any, of these useful clinical apps will be with us in the future. But part of the joy of living in the golden age of wireless is taking advantage of the cutting-edge technologies that make us better educators and clinicians. I eagerly await what I can hardly imagine: what our current students will develop in the future to improve the practice of optometry.