

The Eye Handbook

A new ophthalmic educational resource for your smartphone.

BY ROHIT KRISHNA, MD

Physicians appear to be embracing mobile technology at a faster rate than the general population, and ophthalmologists are no exception. Two out of every three physicians utilizes a personal digital assistant or smartphone, and it is estimated that 81% of physicians will be using these devices in their practices by 2012.¹ This boom can be attributed to the proliferation of medical software applications, also known as *apps*, and the inherently portable nature of the content they hold. Keeping up with medical knowledge and its growing sources can be daunting, but an app that serves as a portal for all of this information assembles the data in a cohesive manner. It allows for more efficient use of an ophthalmologist's time. This article will explore the features of the Eye Handbook (Cloud Nine

Development, LLC, Overland Park, KS), a free app that is available for download on iTunes for the iPhone, iPod Touch, and iPad (all from Apple Inc., Cupertino, CA). The Eye Handbook has applicability in virtually every part of ophthalmic care, and it combines many commonly used tools for clinical evaluation and education into one easy-to-use, portable interface (Figure 1A).

EVALUATIVE AND EDUCATIONAL TOOLS

Testing Tools

The Eye Handbook's testing tools include near vision cards, color vision plates, a pupil gauge and ruler, a fluorescein light, a pen light, pediatric fixation targets, a Worth 4 Dot Test and accommodation targets, an Amsler grid, a red desaturation test, and an optokinetic nystagmus drum simulator (Figure 1B). Although these



Figure 1. The Eye Handbook has many features (A), including clinical evaluation tools (B) that can be used during office visits.

tools will not replace office-based testing under ideal conditions, they can be particularly useful during inpatient consultations and ER visits.

Patient Education Tools

Tools for educating patients such as the eye diagram and eye movie offer high-resolution images that explain anatomy and pathology as well as various treatment procedures and options. The eye movie provides a three-dimensional rendering of a rotating eyeball with which the physician can delineate specific anatomical considerations in medical or surgical disease management. The most common is a list of various disease processes that are encountered day to day in an ophthalmic practice. The list includes a brief description of a topic and an index of relevant and credible Web sites where patients

can access more information about their diagnosis. A wonderfully designed aspect of this app is that an ophthalmologist can e-mail specific information to the patient from the smartphone while speaking with the patient in the office (Figure 2A and B).

Physician Reference Tools

Classifications and grading systems such as angle anatomy, iritis severity, diabetic retinopathy, optic nerve edema, melanoma, and macular holes are helpful reference tools. The Eye Handbook also contains a useful section on definitions, differential diagnosis, Spanish translations of commonly used ophthalmic terminology, and Department of Motor Vehicles and legal blindness standards for each state as well as workups for common ocular diseases.

Physician Education Tools

The Eye Handbook provides a list of diagnoses not to miss, a color-coded diagram of retinal drawings, questionnaires for commonly encountered ophthalmic diseases, and a summary of benchmark studies in ophthalmology, including the Collaborative Initial Glaucoma Treatment Study (CIGTS), the Normal Tension Glaucoma (NTG) Study, the Advanced Glaucoma Intervention Study (AGIS), the Early Manifest Glaucoma Trial (EMGT), and the Ocular Hypertension Treatment Study (OHTS).

Calculators and Other Office-Based Tools

Useful calculators include a glaucoma risk calculator and an IOL power calculator. A section on ophthalmic coding allows the user to search various CPT and ICD codes. Another section reviews modifiers and explains when to use them.

The app can be used to obtain media consent from a patient; the patient's digital signature can be transferred to an electronic health record at a later date. The Eye Handbook's new 2.2 version allows content such as lectures, video presentations, movies, and flashcards to be downloaded. Recently added icons include links to the Web sites of major journals and periodicals and links to ophthalmic societies such as the American Academy of Ophthalmology (AAO), American Glaucoma Society, American Society of Cataract and Refractive Surgery, and the Association for Research in Vision and Ophthalmology.



Figure 2. A reference tool is used to look up ophthalmic terminology (A), which is then e-mailed to the patient (B).

COLLABORATIONS

Through an upcoming collaboration with the AAO, the Eye Handbook will feature educational videos and summary benchmarks. An interface to EyeWiki, the AAO's collaborative online encyclopedia, will also be enabled.

CONCLUSION

The Eye Handbook has been well received and has frequently been listed in the iTunes store as one of the top 100 medical apps available. It has been downloaded more than 70,000 times, and that number is growing rapidly. The app is used worldwide, with about 50% of downloads in North America, 20% in Europe, and 10% in Australia and Asia.² This dynamic interface has great functionality at present, and it has vast potential for future growth in the field of ophthalmology. □

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1. Manhattan Research, LLC. Physicians in 2012: The Outlook for On Demand, Mobile, and Social Digital Media.

http://www.manhattanresearch.com/products/Research_Modules/Physician/physicians-2012-mobile-social-media.aspx. Accessed September 22, 2010.

2. Apple, Inc. ITC Mobile Sales and Trends – User Guide Version 1.0. http://www.apple.com/itunesnews/docs/iTC_Mobile_UserGuide.pdf. Updated June 2010. Accessed September 22, 2010.