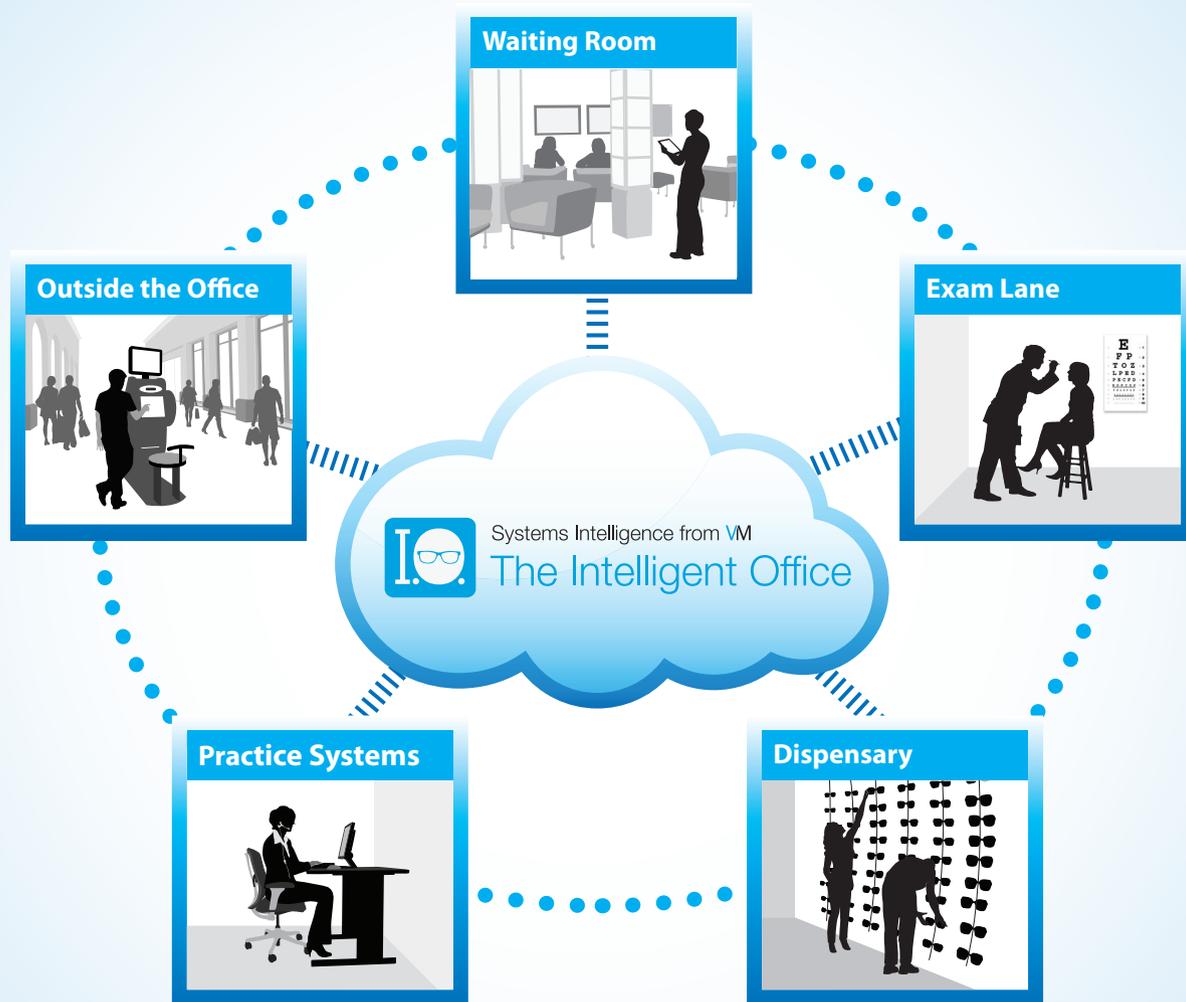


The Intelligent Office

How new technologies are transforming the eyecare practice



BY ANDREW KARP / GROUP EDITOR

Eyecare practices are now the nexus of a vast and rapidly growing information network that connects practitioners with patients, insurance companies, suppliers, doctor alliances and other medical professionals. Managing the ever expanding stream of data that flows through this network is one of the biggest challenges that eyecare practices currently face.

Employing technologies such as Electronic Health Records, mobile apps, social networks, exam and dispensing systems, kiosks, smartphones and tablets, eyecare practices are developing new ways to process and share information in the physical office, and, by extension, the virtual office. These high tech tools, when integrated with cloud computing and new types of Internet-based software, form the basis of a new business and medical model for delivering eyecare: The Intelligent

Office. By leveraging the combined power of these technologies, Intelligent Offices are delivering a higher level of personalized eyecare along with greater operational efficiencies, often resulting in increased profits for the practice.

The Intelligent Office is constantly evolving as both patients and practitioners are taking advantage of new products and services to do everything from locate doctors to book appointments, send Elec-

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The Intelligent Office: A New Model for Delivering Eyecare

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tronic Health Records, learn about new surgical procedures, order eyeglasses, submit insurance claims and post reviews on social networks. A random sampling of new products and services illustrates how the Intelligent Office is taking shape.

In the Waiting Room

The advent of the iPad and other tablets is allowing practices to abandon clipboards and printed forms as a means of gathering patient data in the waiting room. For example, a new digital application from Solutionreach called PatientReach is simplifying the check-in process. Patients can use an iPad to update insurance information, read and sign legal forms and submit patient reviews. The digital intake provides legible documentation, ensuring accuracy and data validity. The paperless PatientReach method eliminates the need for printing, scanning and shredding documents previously distributed on a clipboard.

PatientReach also lets patients sign up for the online patient portal, where they can pay bills, schedule appointments, send or receive secure messages, and change their correspondence pref-

erences at any time. Additionally, patients can select from a customized group of health care articles that are then e-mailed to the patient to read at their convenience. The articles engage patients with point-of-care education and encourage them to take a more active role in their health care.

In the Exam Lane

Just as many practices are throwing away their clipboards in favor of tablets, so too are tablets and video screens replacing brochures as a means of educating patients about new products and medical procedures. One company that specializes in patient education, Eyemaginations, offers iPad apps, software and educational videos designed to help doctors present complex information to their patients in an engaging, easy-to-understand manner. Doctors use the company's popular Luma software to show patients video clips about topics such as cataract surgery, implants, glaucoma, macular degeneration or contact lenses while the patients' eyes are being dilated before an exam. Personal playlists can be created for each patient, depending on their needs or interests.

In the Dispensary

Many opticians are now using multi-functional dispensing systems to measure patients for eyewear and let them virtually try on eyewear either in the dispensary or online. One such system is Optikam's iPad-based OptikamPad, which captures personalized measurements for free-form lenses, assists with frame selection and demonstrates lenses. The system also offers augmented reality simulations of real-life situations such as office and outdoor scenes, which showcase the lens style and treatment options the patient has chosen compared to a lens without them. A "cloud sync" feature lets the dispenser access saved sessions from any iPad in their practice, manipulate measurement sessions from any iPad and back up data off-site.

Outside the Office

In the Intelligent Office, mobile apps are enabling patients and practitioners to interact with each other as well as access and share information. For example, EyeXam, a bi-directional mobile app and web platform developed by Global EyeVentures, in partnership with Eyefinity, is designed to help eye doctors connect with patients. The app offers features such as

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Step Into The Intelligent Office

Welcome to *The Intelligent Office*, a new series of *Vision Monday* articles that explores how eyecare practices and optical retail stores are using new technologies such as smartphones, tablets, apps and cloud computing to manage information with unprecedented speed and efficiency.

In this two-part introductory article, you'll learn how new information systems and processes are facilitating communication between practices and patients, and between practices, insurance companies, suppliers and health care providers. You'll

also get an in-depth look at how one of the most significant technologies, Electronic Health Records (EHR)—is changing the way patients' health information is shared via handheld devices and desktop computers, both with the patients themselves as well as with other practitioners. The rapid changes that are taking place in the waiting room to the exam lane, dispensary and back office—and even outside the practice—are transforming the delivery of eyecare.

To complement these articles we're also creating an information rich Intelligent Office micro-

site coming your way next month. There you'll find articles from the Intelligent Office series as well as links to related articles, videos and other content about mobile health, EHR, patient portals, patient education, diagnostic instruments, patient education, lens and dispensing technology, practice management, staff training and more.

Step into *The Intelligent Office* and learn how your practice or store can use advanced information technologies to improve performance and profits.

—The Editors

EHR: 'ECPs' Everyday' Health Records

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to “the cloud.” Rather than storing data onsite in the doctor’s office on computers that require regular maintenance and continuous upgrading, it is sent to a remote server farm where all updates are automatically performed. Any internet connection will suffice to enable the ECP to access that data, and practitioners have established redundancies so that if one conduit to the web is down another is readily available. Anywhere and at any time, a patient’s records can be accessed immediately.



(L to R) Tommy Crooks, OD, Lorie Lippiatt, OD, and Kim Castleberry, OD, were instrumental in the creation of VisionWeb’s Uprise EHR software.

“I can go home, log into my home computer, do my charts, finish up my day and check my schedule for the next day,” said James E. Harris, OD, FAAO, of Modern Eye Care in Concord, N.C., about the RevolutionEHR cloud-based system his practice has been using since 2009.

Also, while the EHR programs themselves eliminate the need for the extra square footage it takes to store cabinets full of paper files, going to the cloud further frees up space by limiting the amount of hardware necessary onsite as well.

The digital world of health care is close, and electronic health records are the vehicles that will drive both patients and doctors to that destination. The following breakdown details how EHR systems and the information they store and share permeates the patient experience within and beyond the ECP’s office. ■

Portal Power: Connecting Patients With Practitioners

Everyone’s familiar with the experience of visiting a practitioner’s office for the first time and being asked to arrive at least 15 minutes early in order to fill out paperwork and the inevitable clipboard of forms that comes along with that request. Portals that allow new patients to electronically complete all of those intake forms online, on their own time and in the comfort of their own home, can completely eliminate this step and enable the patient to accomplish this task at a time of their own choosing before setting foot in the doctor’s office. When the patient arrives at the ECP’s office for the first visit, all of their contact information, health history, insurance details and any other pertinent data will have already populated the office’s practice management and electronic health record systems.

For those patients who choose not to complete their forms prior to their first office visit, they might be handed an iPad or other tablet device to electronically enter their information once they arrive. Either way, the data can be automatically transferred to the doctor’s electronic records; no more

keying in the information and no more errors that might accompany that extra step.

Other benefits include the opportunity to complete basic tasks such as paying bills and scheduling appointments online as well as the ability to communicate directly with the ECP and electronically manage personal health records.

“Having a patient portal is a hot topic for EHR,” said Mathew Petersen of My Vision Express, which offers one free with its web-hosted software solution. And once Meaningful Use Stage 2 goes into effect, patient portals will not only be hot...they’ll be mandatory. “Using a portal, patients can communicate with the doctor, pay their bill online, reorder contacts, manage their appointments, monitor the care they’re receiving and be proactive,” he said.

“Using the portal gives patients access to look at their accounts, see their medical records, find out if their glasses or contact lenses are ready, and if not, what’s their status,” added James E. Harris, OD, FAAO, of Modern Eye Care in Concord, N.C., who has been using RevolutionEHR’s cloud-based system in his practice since 2009.

Engaging the Patient

Communication goes both ways, and there are a number of systems that also enable ECPs to stay in touch with their patients when they are not in the office. These include Demandforce, Solutionreach, Websystem 3 and 4PatientCare, all of which can integrate with certain EHR systems. In other cases, these patient communication systems can also be embedded into the EHR software. For example, 4PatientCare comes “baked into” Uprise, Jeffrey J. Guterman, MD, MS, chief medical officer of 4PatientCare told *Vision Monday*. It’s ready to run as soon as the office installs the software.

Harris uses Solutionreach with the RevolutionEHR system he’s installed. “For recalls, patients can choose whichever they prefer, text, e-mail or phone call,” said Harris. “When the patient responds, it goes directly into our system.”

Solutionreach also recently streamlined its integration with MaximEyes, giving users of the First Insight software program instant access to these patient engagement tools. Many more examples illustrate this type of integration for improved interaction between the patient and the practitioner’s office.

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Automating the Exam Lane With Software Integration

As EHRs evolve, so does their efficiency. While older legacy systems may have been click and typing intensive, newer programs are offering more intuitive and adaptive learning interfaces for use on portable tablet devices. This frees up the ECP's attention for the one-on-one eye contact that is so important during the examination. "You can go back to having conversations with patients, because you don't have to have your back to the patient entering things in the desktop," said Ryan Wineinger, OD, of Wineinger Vision Associates of Shawnee, Kan.

For example, VisionWeb's new Uprise EHR starts by helping the doctor and staff do a better job recording the patient's history. Through an online portal or on a tablet in the waiting room, the patient makes selections to document their health history. By the time the doctor sees the patient in the exam room all of this information has pre-populated their health record. As the doctor proceeds with the examination, any diagnosis entered automatically selects ICD codes, recommends testing and suggests educational materials that can be sent directly to the patient via e-mail. "We focused on reducing the amount of clicks and the time it takes to complete anything," said Julia Medina, director of product strategy for VisionWeb.

Eyefinity EHR also offers adaptive learning and an intuitive interface, again to reduce the number of clicks necessary, eliminate the need for typing and streamline the examination process. The new technology combines Eyefinity's practice management and EHR solution experience with Modernizing Medicine's Electronic Medical Assistant. Pinch and zoomable on an iPad, the software is adaptive through touch, and it types out a diagnosis based on the choices the doctor has selected.

"Workflow is changing in the office," said Floyd Webb of Eyecom3. "Technicians or pre-testers can prepare the patient record so it's already on the

doctor's computer when he gives the examination. Doctors are now able to do more of what they went to optometry school for, attend to patients, because the staff can work on the gathering of patient history and pre-testing for the doctor."

Preview Your eScript

Patient
 Laura Webb DOB 10/15/1986
 PatientID 377
 92127

Provider
 Provider One MD
 EyeCom Test Practice
 123 main
 San Diego, CA 92107
 Phone 619-444-5555
 Fax 619-444-5566
 Medical license 45678
 DEA bk9876351
 NPI

Medication(s)
 Ocuflox (ALLERGAN) - Ophthalmic Solution 0.3 %
 QTY: 1 Bottle(s) —1 drop in affected eye 4 times a day for 5 days—
 Refills: None
 Substitution Permissible

Send Script To
 Patient's Last Used Pharmacy
 COSTCO PHARMACY #452
 12350 CARMEL MTN RD
 SAN DIEGO, CA 92128
 Phone: 1-619-675-0930

Print copy for patient's chart
 Invite this patient

One of the core objectives of Meaningful Use Stage 2 is e-prescribing.

Diagnostic Instrument Integration

In the past, data and images generated by diagnostic equipment were stored and accessed separately from the patient's electronic health record, or it was a cumbersome process to transfer the information between them. Today, these devices can automatically upload their information directly into the patient's record. For example, equipment provider, Reichert Technologies recently released a built-in bi-directional certified integration between its Auto Phoropter RS Refraction System and MaximEyes cloud-based EHR software from First Insight Corp. The new equipment integration allows users to upload lensometer or auto refractor data directly into a MaximEyes patient exam record then export the final data, such as manifest refractions, pupillary distance and unaided VA from the EHR to the phoropter.

Both the time taken to create the record and the errors that might result are reduced. "The old way, you'd check the Rx with a phoropter then go into the EHR and retype it," said Harris. "Now we have digital phoropters to generate the information. Hit a button, and it goes right into the EHR. Hit another button to authorize the Rx, and I'm done."

"Uprise EHR will be integrated with digital refraction systems such as Marco and with other pieces of technology such as retinal imaging, OCTs, etc.," said Lorie Lippiatt, OD, of Salem Eyecare Center of Salem, Ohio, who was involved in the development of the Uprise EHR system. "Image management will ultimately be built in as well." Images are an important part of the eye examination, and incorporating them into EHR systems will enable ECPs to easily access, reference and compare them over time to improve the efficiencies as well as the outcome of patient care.

In addition to images, other information generated by diagnostic instruments also integrates with EHR systems. For example, diagnostic data automatically populates VisionWeb's Uprise program, which includes pre-entered minimum and maximum values in each field. The system warns the ECP when numbers approach these minimum or maximum values. The vitals required by Meaningful Use are included and can be graphed to measure their changes over time.

In anticipation of the massive coding overhaul from ICD-9 to ICD-10 being undertaken by the Centers for Medicare & Medicaid Services, Uprise software is built on the new coding system but still automatically backs to ICD-9 while it is still in effect. CMS expects ICD-10 to be in place by Oct. 1, 2014. "In order to get paid for a claim, doctors' certified EHRs will morph under their feet in 2014," said Scott Jens, OD, FAAO, CEO of RevolutionEHR, referring to the coding changes that will take place and the fact that software developers will have to accommodate them. ■

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The Result: Care Coordination and Improved Outcomes

Where is all of this technology headed? While some ECPs may view the installation of EHR systems as a means to the end of receiving incentive payments for their documented meaningful use of certified software, this is actually only the beginning. The incentives were put in place to encourage doctors and hospitals to install the software that will be necessary to share encrypted information over secure health information exchanges, which in turn will enable all practitioners on a care team to have access to the necessary health records related to a particular patient.

“Interoperability is the core foundation of where the government sees health care going,” said Steve Baker of Eyefinity. “It will allow the medical professionals around the patient to seamlessly share information for their health and wellness, to keep them out of the emergency room and away from the

debilitating diseases that are causing the country to go broke. What optometry brings is probably the most valuable piece, the ability to diagnose far earlier in the process.”

Stage 2 Meaningful Use standards, which will go into effect in 2014, require connectivity among all care providers and with patients themselves. This will be achieved by electronically transmitting patient health records (PHRs) and continuity of care documents (CCDs) via the internet through health information exchanges (HIE).

“Health information exchanges are currently being created at the state level,” said Jens of software company RevolutionEHR. “The value of HIEs is that they create a center hub for data that is currently often estimated by the medical practice, and they keep the patient from having to self-report. We’re only six months away from using true health information exchanges. In 2014, those providers who move toward Stage 2 Meaningful Use will have to move toward HIEs to exchange health data in real time.” For example, one of the requirements of Meaningful Use Stage 2 is that 5 percent of an ECP’s patients will have to be able to send their practitioner a secure encrypted message through a portal. “The big change for EHRs is that they’re not just a data repository but will have to bring more patient engagement,” said Jens. “It’s not so much that I have to send a patient a message, it’s whether they send me a secure message.”

“If you have connection to Direct, you will meet all the national requirements of data exchange,” he added. ONC Direct is an approved encrypted transmission protocol that Health Information Service Providers, or HISPs, must use. More information is available at www.Directproject.org.



Computing in the cloud enables you to access your data from anywhere at anytime. Photo courtesy of RevolutionEHR.

Personal Health Records

In addition to health information exchanges, patients will be able to participate in the maintenance of their own personal health records, information that they can then securely share with their care team and insurance providers. One example is Blue Button being used by several federal agencies, including the Departments of Defense, Health and Human Services, and Veterans Affairs. In 2010, the Center for Medicare and Medicaid Services (CMS) launched its version of Blue Button, providing online access to 40 million beneficiaries. Today, the use of Blue Button has expanded to private sector organizations, including health insurance companies and EHR developers. Blue Button provides patients with an easy way to retrieve and keep track of their health while offering practitioners an easy way to share data with patients.

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Strengthening the Connection Between Patients and ECPs

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Microsoft's HealthVault is another example of an online health record repository for easy accessibility and sharing. It lets patients store health information from many sources, access a range of health and fitness apps, upload data from health and fitness devices, and share health information with those they trust. Among the ways it can help ECPs achieve Meaningful Use requirements is by being integrated into their EHR to electronically upload a continuity of care document (CCD). Encrypted information can be sent via Direct Project messaging.

These and other systems for storing and sharing patient health records will assist ECPs with meeting

the secure electronic communication criteria required by Meaningful Use Stage 2.

Statistical Analysis

Combining all of the data stored by these software programs will result in other benefits. Its use for benchmarking and statistical analysis is already taking place. The American Academy of Ophthalmology, for example, has announced plans for an EHR-linked eye disease database that will enable ophthalmologists nationwide to statistically analyze and benchmark their own care. The Intelligent Research in Sight Registry will gather data from electronic health records and perform statis-

tical analysis on the aggregated patient data to produce benchmark reports on both the national and practice levels. The AAO estimates that the IRIS Registry will have more than 20 million patient records within two years.

Ultimately, with the ability to access patients' records, both in aggregate as well as on an individual basis, at anytime from anywhere, eyecare professionals will ultimately achieve one of the primary goals of health care reform—improved patient outcomes—and electronic health records will be the foundation on which that and a major transition in health care will be built. ■

Recent Developments Launch a New Generation in EHR

The prevalence of EHR in the optical field is illustrated by a number of major developments, some recently introduced at AOA Optometry's Meeting in San Diego at the end of June. Two prominent companies in the eyecare field launched two new next generation electronic health record software programs.

VSP's Eyefinity division introduced Eyefinity EHR in conjunction with software developer Modernizing Medicine. The cloud-based native iPad program features an intuitive user interface and adaptive learning that adjusts to diagnosis style and eliminates the need for templates.

VisionWeb launched Uprise, a new electronic health records program built from the ground up by optometrists for optometrists. Designed to be friendly on both tablet and PC devices, the cloud-based system was developed in partnership with VitalHealth software to meet the

specialized needs of optometric practitioners. Uprise will feature embedded educational video content from ECHO by Eyemaginations, product catalogs with wholesale pricing information from Frames Data, and CPT and code process and rule verification by CodeSAFE from ReimbursementPLUS, making them native to the system.

Also introduced at the AOA meeting in June, RevolutionEHR's MyRev mobile app enables ECP users to check their patient schedules and access patient information right from their smartphones.

AOAExcel, the wholly owned subsidiary of the American Optometric Association, launched OcuHub powered by AT&T as part of its Healthcare Community Online program. This new health information exchange designed specifically for optometrists by the national opto-

metric association was created to enable ECPs to connect electronically to physicians, hospitals and their ancillaries, pharmacies, payers, benefit managers, optical labs, medical labs, imaging and radiology services, employer human resource departments, home care providers, and with patients themselves. Through the use of EHRs, ECPs will be better connected than ever before.

"It will effectively ensure that optometrists who wish to meet Stage 2 standards and thereby qualify for federal incentive bonuses will be able to have the required connectivity," said Joe Ellis, OD, AOA Excel chair and past president of the AOA.

Many other apps, integrated technologies, software updates, and more are introduced regularly, continually upgrading the technologies associated with electronic health records.

Technologies Transforming the Eyecare Practice

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a doctor directory, a GPS-based doctor locator and avenues for communicating with EyeXam users, patient self-screening and the ability to share results and live chat with doctors' offices. Patients can also manage appointments with the app and receive communications from their doctor, including reminders and targeted messages. Doctors can utilize a web-based dashboard to monitor app activity, access a list of everyone who has viewed the app, by e-mail address, and connect with app users.

Another new mobile app, MyRev from RevolutionEHR, lets doctors check their patient schedules and access patient information from their smartphone. The app allows doctors to have more flexible work time and a better focus on patients, minimizing the overlap between life and business, according to RevolutionEHR.

Practice Systems

The business office was the first area within the eyecare practice to be computerized, so it's not surprising that some of the most advanced systems in the Intelligent Office are those used to manage the practice. Many different types of software and systems are available to help ECPs and office staff manage patient billing, inventory, payroll and other essential administrative functions.

Some systems now offer web-enabled features to allow the practice to capture and analyze patient metrics. One such program is ODLean Patient Experience, a new ODLean iPad application developed by The Vision Care Institute of Vistakon. ODLean Patient Experience is a diagnostic tool that allows eyecare practices to track patient flow, see in real-time where there are

bottlenecks, and immediately make changes that will improve flow and efficiency. The application will send data to a web portal on www.ODLean.com—available in mid to late 2013—where subscribers can access their metrics.

The above examples illustrate a few of the ways in which new technologies are shaping the Intelligent Office. In the companion article, *VM* offers a detailed look at one important technology—Electronic Health Records (EHR)—and its impact on the Intelligent Office and patient care.

The Intelligent Office series will be accessible through a companion microsite on www.VisionMonday.com that will feature related articles, videos and other content. ■

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How to Make Sure Your EHR ‘Use’ Is ‘Meaningful’

The Medicare and Medicaid EHR Incentive Programs provide financial incentives for the Meaningful Use of certified EHR technology to improve patient care. To receive an EHR incentive payment, providers have to show that they are “meaningfully using” their EHRs by meeting thresholds for a number of objectives. CMS has established the objectives for Meaningful Use that eligible professionals must meet in order to receive an incentive payment.

The Medicare and Medicaid EHR Incentive Programs are staged in three steps with increasing requirements for participation. All providers begin participating by meeting the Stage 1 requirements for a 90-day period in their first year of Meaningful Use and a full year in their second year of Meaningful Use. After meeting the Stage 1 requirements, providers will then have to meet Stage 2 requirements for two full years.

Meaningful Use Stage 1 includes both a core set



The crowd at the AOA Optometry’s Meeting press conference for the launch of Eyefinity EHR demonstrates the growing interest in the topic among ODs.

and a menu set of objectives. For eligible professionals, there are a total of 25 Meaningful Use objectives. To qualify for an incentive payment, 20 must be met—15 required core objectives and five objectives chosen from a list of 10 menu set objectives.

Meaningful Use Stage 1, implemented in 2011-2012, was created to allow for data capture and shar-

ing, while Stage 2, to become effective in 2014, is designed to advance the clinical process. After that, Stage 3, coming in 2016, is still being finalized. Its goal is to improve patient outcomes.

More information can be found on the Centers for Medicare & Medicaid Services (CMS) website at www.cms.gov. ■

What You Must Do for Stage 1 and Stage 2

All providers must achieve Meaningful Use under the Stage 1 criteria before moving to Stage 2.

Some of core objectives among the 15 required in Stage 1 are:

- e-prescribing
- provide patients with an electronic copy of their health information
- record demographics
- maintain active medication and medication allergy lists
- protect electronic health information

Menu objectives in Stage 1 include:

- provide patients with timely electronic access to their health information

- use certified EHR technology to identify patient-specific education resources and provide to patient
- generate lists of patients by specific conditions
- send reminders to patients per patient preference for preventive/follow up care

Just a few of the 17 core objectives in Stage 2 are:

- record certain patient demographics
- provide patients the ability to view online
- download and transmit their health information within four business days of the information being available to the professional
- provide clinical summaries for patients for each office visit
- protect electronic health information created or

maintained by the certified EHR technology through the implementation of appropriate technical capabilities

- use secure electronic messaging to communicate with patients on relevant health information

Among the six menu objectives in Stage 2 are:

- record electronic notes in patient records
- record patient family health history as structured data
- imaging results consisting of the image itself and any explanation or other accompanying information are accessible through certified EHR technology