How much time are you spending on your EHR?

Study reveals how much time ophthalmologists at a single center spent using EHR

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Electronic health records (EHRs) have been widely adopted in recent years; in fact, the adoption rate in ophthalmology doubled from 2011 to 2016. Despite the benefits an EHR can provide, some doctors think they take away valuable time from their patients. One study sought to quantify just how much time ophthalmologists spend using EHR. On average, ophthalmologists spent 11.2 minutes with the patient during an examination, 3 minutes of which were spent using the EHR. “What we found striking is that it’s a significant percentage of what’s not a lot of time,” said Michael Chiang, MD. Read more about how much time ophthalmologists in the study spent using EHR and how to improve efficiency in “How much time are you spending on your EHR?”

In “Software and specialist: A comprehensive approach to HIPAA compliance confidence,” Brendan Gallagher, Brock Fick, and William Rabourn III discuss the importance of maintaining one's HIPAA compliance program in an era of increased enforcement, penalties, and technological threats. The authors share the requirements that ophthalmic businesses must address to be fully compliant, and they suggest a dual approach to compliance, utilizing both HIPAA software tools and an outsourced compliance specialist.

Younger doctors are more likely to receive unsolicited complaints from patients—and sooner—compared to their older counterparts, according to a study described in “Why do patients complain and who do they complain about?” The study authors speculated that many factors could contribute to this, including being new to clinical systems, having less support staff, receiving more difficult referrals, and insufficient training for certain medical situations or emotional conversations.

With the healthcare sector contributing to 10% of the country’s greenhouse gas emissions, medicine could be “harming the public’s health through its emissions—even if we are helping it in other ways,” said Cassandra Thiel, PhD. Dr. Thiel coauthored a study that evaluated the environmental footprint of cataract surgery in a setting where some supplies were allowed to be reusable; it resulted in 96% fewer carbon emissions than cataract surgery in the U.K. Dr. Thiel and Todd Sack, MD, editor of the nonprofit My Green Doctor, provide their thoughts on medical practices going green.

Find these articles and more in this issue of Ophthalmology Business. Let us know how you apply these tips and ideas to your practice, and contact us with any questions or ideas for future articles. Thank you for reading!

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Fewer residents entering ophthalmology

by Liz Hillman, Ophthalmology Business Staff Writer

Survey of medical students shows “insufficient interest” as the main reason

Adrienne W. Scott, MD, assistant professor of ophthalmology, Wilmer Eye Institute, Bel Air, Maryland, didn’t begin her medical education with her eye on entering ophthalmology. She enjoyed working with children and thought pediatrics would be a good fit.

But when she and a friend chose to do their surgical rotation first as part of their clinical rotations, to tackle the hardest rotation first, hoping for a bit more leeway as newbies at the time, it put her on a new career path.

“I was completely taken with surgery and I started to love it,” Dr. Scott said. “I knew after that rotation, the nature of being procedure-oriented, that it required manual dexterity, that’s something that fit for me.”

Knowing she wanted to maintain a certain lifestyle and have long-term relationships with patients, Dr. Scott said ophthalmology came to her after examining all the different surgical subspecialties.

Ophthalmology was a field she decided to enter through her own deduction of what she sought in a medical career. But how much easier would the choice have been if she’d had mentors in the field or had been introduced to it as an option earlier?

Dr. Scott now advocates for both, especially considering a recent paper that surveyed medical students’ perception of a career in ophthalmology. A questionnaire given to 114 medical school students (89% completed) shortly after their residency Match Day looked at why they were not choosing ophthalmology as a career path. The top cited reason was an insufficient amount of interest (68.1% among non-underrepresented minority residents and 86.7% among underrepresented minority residents).
This was followed by not having enough exposure (or knowledge) of the specialty, and it being considered too specialized, among other reasons.

Other data, such as that from the Association of American Medical Colleges Center for Workforce Studies, shows a 10.2% decline in ophthalmology residents and fellows from 2010 to 2015, and a recent report from the National Center for Health Workforce Analysis projected that ophthalmology would see the greatest shortage in physicians within a surgical specialty by 2025.2,3

“The population is aging and the prevalence of eye diseases that primarily affect older individuals, such as glaucoma and age-related macular degeneration, is growing ... Similarly, diseases like diabetic retinopathy, which is the most common disease in working-age people, is growing,” Dr. Scott said. “We need a workforce to be able to accommodate patients because the eye care needs are going to continue to grow and grow.”

The survey by Linz et al. evaluated underrepresented minorities as a subset as they expressed their perspectives on ophthalmology as a career choice because many ocular diseases affect minority groups in larger numbers. Linz et al. cited other research that suggests patients being treated by physicians of the same ethnicity might be more satisfied with their care, and physicians who are part of underrepresented minority groups are more likely to practice in underserved areas.4,5

“The current population of the ophthalmology physician workforce does not mirror the growing numbers of medically underserved populations that are more likely to suffer vision loss,” Dr. Scott said, adding later that to reverse this trend she thinks earlier exposure to ophthalmology and more mentors in the ophthalmic subspecialty could help increase interest. “As medical schools design curricula, it is important to keep in mind that knowledge of ophthalmology is critical to all other areas of medicine. You’re going to have a patient who complains of blurry vision or something like floaters. All of us in medicine need to be able to at least have a basic knowledge of the eye.”

As for her own pitch to those who might not have considered ophthalmology, Dr. Scott cited its “incredible breadth and diversity.”

“Even though the eye is a very small organ, we have many different subspecialties that are completely different from one another. ... Also, there is potential for research and different types of applications of imaging and technology in our field. As ophthalmologists, we’re on the forefront of many different clinical trials in medicine; a lot of those breakthroughs and clinical trials were first done in ophthalmology,” Dr. Scott said.

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References

Editors’ note: Dr. Scott has no financial interests related to her comments.

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“The current population of the ophthalmology physician workforce does not mirror the growing numbers of medically underserved populations that are more likely to suffer vision loss.”

—Adrienne W. Scott, MD
Software and specialist: A comprehensive approach to HIPAA compliance confidence

by Brendan Gallagher, Brock Fick, and William Rabourn III

Designed to nurture peace of mind in the age of electronic protected healthcare information, the Healthcare Information Portability and Accountability Act of 1996 (HIPAA) has become an intimidating, many-armed creature. Infamous for vague terminology and numerous regulations, HIPAA is a difficult sentinel to appease, especially for those official or unofficial compliance officers within an ophthalmic ambulatory surgery center or practice who have responsibilities beyond developing, tracking, and maintaining their compliance program. Nevertheless, HIPAA compliance cannot be ignored, or even half-way addressed. Ophthalmic businesses and any other covered entities that do not carefully monitor and follow HIPAA’s regulatory movements may experience a sharp financial and legal “bite.” Penalties could reach as high as $50,000 per violation if it is determined to have been willful neglect. Additionally, if an entity attests to being HIPAA compliant and is contradicted by an audit, that entity may be required to return government incentive money earned for meaningful use.

Finding a viable HIPAA assessment and maintenance solution for an ophthalmic business that addresses the full scope of regulatory requirements has never been more vital than right now as the healthcare community faces a significant rise in HIPAA enforcement, penalty severity, and technological threats.

**Increased HIPAA enforcement and penalties**

In the past, finding and implementing a total compliance solution was not especially urgent. The HHS Office for Civil Rights (OCR) was heavily focused on growing and refining new rules and processes. Entities committing HIPAA violations were at low risk for discovery, and those that were discovered rarely faced financial penalties. Attorney generals given the right to issue fines for HIPAA violations did not actively do so; the first fine was not dispensed until 2008, 12 years after HIPAA went into effect. Even the OCR’s Phase 1 onsite HIPAA audits of 2011–2012 were more exploratory than disciplinary. Recent events, including OCR’s 2016 commencement of Phase 2 desk audits on covered entities and business associates (BAs), reflect that the age of HIPAA enforcement leniency is ending, and many healthcare organizations are not prepared.

The OCR’s preliminary Phase 2 results showed that HIPAA noncompliance is still widespread, and the majority are slow to implement plans and security technology to protect patient data. Ninety-four percent of healthcare organizations followed inadequate risk management plans, 83% performed inadequate risk analyses, and 89% were rated inadequate on patients’ right to access their PHI.

**Take the preliminary compliance test**

Answering “no” to even one of the following questions could be enough to fail an audit.

- Have you designated a compliance officer?
- Have you performed a security risk assessment and self-audits?
- Have you documented all deficiencies found in the audits?
- Have you created remediation plans to address deficiencies?
- Do you have policies and procedures relevant to the HIPAA Privacy, Security, and Breach Notification Rules?
- Have all staff members undergone and attested to HIPAA training?
- Do you have appropriate agreements with all business associates?

The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 also highlights the nationwide lack of compliance preparedness. In accordance with the HITECH breach notification regulations, breaches affecting 500 or more individuals must be reported to the HHS Secretary to be put on the HHS Breach Portal website.

The Breach Portal broke a new record in 2017, reaching 2,000 reported breaches since the portal’s creation in 2009. For some perspective, it took almost 5 years for the portal to reach 1,000 breaches, but with OCR’s ramped up enforcement efforts, reporting the other half of

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In addition to increasing its scrutiny of covered entities and BAs, the OCR is more aggressively imposing penalties for HIPAA violations. In 2015, OCR-issued fines totaled $6,193,000. In 2017, they reached as high as $19,393,200. Ophthalmic business looking to avoid adding to these costly violation totals must mimic the OCR and ramp up compliance programs.

**Rising technological threat**

If rising enforcement penalties are not enough incentive for ophthalmic businesses to implement HIPAA compliance plans, the added threat of rising technological data breaches may be.

As technology improves, it is incorporated more and more into all aspects of the ophthalmic practice and ASC. The rising use of laptops and portable devices that house electronic health records and other patient information offer many conveniences, but they also present more vulnerabilities for attacks and accidental data breaches. The 2017 Cost of Data Breach Study conducted by Ponemon Institute revealed that the cost of a data breach in the U.S. has hit an all-time high at $7.35 million. “Compliance failures” were among the most common reasons for this 5% increase over last year, and according to a 2017 Carbon Black report, 68% of consumers stated they would leave their provider if a data breach occurred.

Following best security practices can help mitigate the risks of data breaches and put medical businesses on the path to compliance. Unfortunately, many are unsure exactly what those best security practices are or how to implement them.

**The total HIPAA solution**

With compliance, there is no such thing as minimum effort, no “HIPAA lite.” Current market solutions often only address pieces of compliance, such as Security Risk Assessments, policies and procedures, and training. These alone are not enough. To be fully compliant ophthalmic businesses must address all requirements:

- Security, privacy, and administrative audits
- Gap identification
- Policies and procedures
- Employee training and attestation
- Business associate management (BA agreements and audit)
- Incident management

A dual approach to compliance, utilizing both HIPAA software tools and an outsourced compliance specialist, can simplify this laundry list and provide justifiable HIPAA confidence.

How? The most effective compliance software options serve as a convenient comprehensive repository for regulatory checklists (addressing the full scope of HIPAA, HITECH, and Omnibus requirements) and templates for BA agreements, confidentiality agreements, security and privacy policies, etc. An outsourced compliance specialist then steps in to ensure that the monumental legwork required to utilize these tools takes up as little of the ophthalmic business’ time as possible. He or she routinely performs compliance support missions, including leading users step-by-step through the software checklist, building a custom remediation plan, managing employee training, and more. Overall, the specialist may serve as a more cost-effective solution than training staff to perform compliance maintenance.

**Conclusion**

The time for initial HIPAA compliance adjustment has passed. As OCR actively seeks to shore up holes in healthcare organizations of all sizes, complacency is no longer an option for ophthalmic businesses, especially considering the increasingly harsh and more frequent consequences of noncompliance. It is time to become proactive versus reactive. It is time for ophthalmic businesses to do their research, or to consult those who already have to find out how the combined benefits of HIPAA software and a compliance specialist could prevent crippling penalties and redirect time and energy back to caring for patients.

For those looking for additional resources, the Complete HIPAA Compliance Plan and Guide 2013 is available for members to purchase in the American Society of Ophthalmic Administrators (ASOA) Bookstore. Visit members.asoa.org/core/store for more information. OB

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Study finds link between age and unsolicited complaints

Do you know what kinds of complaints your practice gets and who patients are most likely to complain about?

A study published in JAMA Ophthalmology found that younger ophthalmologists were more likely to receive unsolicited patient complaints compared with their more seasoned colleagues.¹

Led by Cherie Fathy, MD, Vanderbilt Eye Institute, Nashville, Tennessee, the retrospective cohort study assessed time to a first complaint between 2002 and 2015 for 1,342 attending ophthalmologists or neuro-ophthalmologists who had graduated from medical school before 2010. All of the physicians were affiliated with an organization participating in the Vanderbilt University Medical Center’s Patient Advocacy Reporting System. The participants practiced among 13 academic and seven private, community, or regional medical centers.

Study researchers divided the ophthalmologists into the following five age bands:
- 31 to 40 years old
- 41 to 50 years old
- 51 to 60 years old
- 61 to 70 years old
- 70 or older

Participants were followed from the time employment began to when they received their first complaint. The unsolicited patient complaints

Why do patients complain

by Vanessa Caceres, Ophthalmology Business Contributing Writer
were classified under six main categories: 1) care and treatment, 2) communication, 3) access and availability, 4) concern for patient and family, 5) safety of environment, and 6) billing.

**The findings**
Researchers found that ophthalmologists age 70 or older had the longest mean time to their first complaint, and they had the lowest complaint rate. There were 0.71 complaints per 1,000 follow-up days compared with 2.02 for those 41 to 50 years old and 1.88 for those 31 to 40 years old.

The physicians in the two youngest age bands—31 to 40 and 41 to 50 years old—had a significantly shorter time to first complaint compared with their older peers.

Neuro-ophthalmology was associated with a statistically significant higher adjusted hazard ratio for time to first complaint compared with comprehensive ophthalmology; participants at regional medical centers also received complaints more quickly than those at academic medical centers.

The most common type of complaint was about care and treatment, such as diagnosis, recommendations, and medications. The second most common complaint type was a concern about accessibility and availability, followed by communication concerns. Within ophthalmology, there were no complaints about safety of environment.

There were proportionally fewer complaints about a perceived lack of humanistic concern for patients or family. The type of complaints received did not vary much among the age bands.

Overall, 42% of ophthalmologists received at least one unsolicited patient complaint.

**Behind the numbers**
There may be a few reasons that younger ophthalmologists have more complaints, the authors wrote. “Early-career physicians may be associated with less time to first complaint and overall more unsolicited patient complaints owing to the challenge of mastering new clinical systems and how to best provide excellent attending-level care largely on their own,” they wrote.

Several other factors may stack against younger physicians, they added. They may have less experienced support staff and nurses, and they may receive a larger number of “difficult” patients referred by mid- and late-career ophthalmologists. They also may not have sufficient training to handle unsolvable medical situations or emotionally difficult conversations, the study authors observed.

“Our finding that younger physicians had less time to first complaint and a greater risk for unsolicited patient complaints is consistent with findings that malpractice claim rates are highest in the first 10 years of practice and peak when physicians are in their 40s,” the study authors wrote.

Although mid-career physicians had longer times to complaints than younger colleagues, they still had more complaints than seasoned peers. “Despite greater experience and know-how, mid-career physicians’ unsolicited patient complaints may arise from greater external challenges, including personal, family, or financial problems that may drive them to undertake workloads for which they are not adequately trained or for which there is little institutional support,” the authors wrote. Although mid-career physicians may feel obliged to see more patients, they also may get complaints that they are not spending enough time with patients and that quality of care is lower.

As for late-career ophthalmologists, this group has “survived” the challenges through time, while those who received more complaints or had other challenges had likely left the organization. Some healthcare experts or patients may raise concerns about age-related cognitive and motor skill decline in older physicians, but this particularly study did not find this to be true. “Why late-career physicians may be associated with fewer complaints remains to be explored,” the authors wrote.

**Pearls, perspectives for early-career physicians**
One issue that may not be addressed as often is the age bias that younger physicians face, said Jeffrey Y.H. Chung, MD, in private practice, Gaithersburg, Maryland, and board member, Prevention of Blindness Society of Metropolitan Washington. He gave the example of a younger physician passionately trying to convince a patient to get a sight-saving surgery. Even though the physician has the right idea medically, he or she may be perceived as abrasive by a patient. Over time, after receiving negative feedback from patients, that usually leads physicians to back off a

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bit. “Unfortunately, even if it’s a legitimate medical mistake, I would bet if a young physician made the same mistake as a department chairman, the young physician will likely get a complaint or lawsuit [but not the chairman] because you are getting the very best from the chairman,”—or at least that is the public perception, Dr. Chung said.

It may seem that early-career physicians have the odds stacked against them in terms of receiving complaints, but there is some good news, said co-study author Paul Sternberg Jr, MD, Vanderbilt Eye Institute. “The vast majority will self-correct with feedback,” he said. It’s just a matter of letting them know if or when there is a problem. Such conversations can be informal, Dr. Sternberg said. “If they don’t respond, there are areas for professional development, such as counseling or coaching,” he said.

Hemik Patel, MHA, senior consultant, Healthcare Division, RS&F Healthcare Advisors, Baltimore, sees potential for continuing education and professional development to improve younger physicians’ communication and interaction skills. “They can be instrumental for younger physicians who will deal with unsolvable medical situations and having emotionally tough conversations with patients and families,” he said. “Ongoing institutional training that emphasizes the delivery of high quality patient care to drive patient satisfaction would greatly benefit those physicians early on in their careers.”

A focus on developing a better bedside manner is also needed, Dr. Chung said.

Younger physicians should be aware that they are judged by patients on their age and other factors likely out of their control, Dr. Chung said. At the same time, they need to develop a strong sense of the difference between good medicine and happy patients. “Be sensitive to patients’ response to you, always self-examine your actions, and if you get resistance from patients, don’t try to push the right medical decisions; instead, try to facilitate a second opinion or transfer of care,” Dr. Chung recommended.

Some patients will be difficult and eager to complain no matter what you do, he added.

**Pearls, perspectives for mid-career and late-career physicians**

Dr. Chung wonders if older ophthalmologists are a bit more shielded against complaints and if that point comes out in the study. “Mistakes made by older physicians are often ignored or protected by peers and the medical system,” he said. Still, everyone makes mistakes that could lead to patient complaints, he said.

One obstacle with many physicians as they advance in their career is that they may be less open to recognizing a need for self-correction, Dr. Sternberg said. This may require healthcare organization leaders to be more thoughtful in how they provide feedback based on complaints. Keeping feedback in the greater context of continuous improvement—where organizations aim to lower adverse outcomes and decrease malpractice risk—is helpful, Dr. Sternberg said.

This also requires some humility, said Dr. Chung, who describes himself as a mid-career physician. “Experience doesn’t make you mistake-proof. Always be careful treating every patient, and feel free to discuss problems with a colleague,” he said.

One thing often working in favor of older physicians is emotional intelligence, a skill they have likely developed with time and experience, Mr. Patel said. “Experienced physicians have a better manner in managing emotions and handling communications and relations emphatically. This skill is critical in driving patient satisfaction.”

A more emotionally intelligent approach is helpful for physicians of any age, even if the complaints from a patient do not directly relate to patient care, Dr. Sternberg said. He gave the example of a patient who complains about a bad parking situation at the practice. The ophthalmologist could respond by acknowledging the problem and letting the person know that free valet parking is available, or he or she could gloss over the patient’s complaint. “With which response do you think the patient will be more upset?” Dr. Sternberg said. Naturally, patients who don’t feel heard would be more likely to escalate their complaint.

Dr. Sternberg wants ophthalmologists to reflect on something positive from their study. “It’s important that more than half of the ophthalmologists [in the study] had no reported complaints over many years. That’s pretty amazing,” he said.

**Reference**


**Editors’ note: The sources have no financial interests related to their comments.**

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How much time are you spending on your EHR?

by Liz Hillman, Ophthalmology Business Staff Writer
As a physician, if you think that you’re spending a good portion of your day entering data and making notes on an electronic record system, you may be right. According to a recent study, ophthalmologists spent a significant portion of their patient visits using the electronic health record (EHR). The research found that the average time ophthalmologists at a single center spent in an exam with the patient was 11.2 minutes; 3 of those minutes—or 27% of the examination time—was spent on the EHR.

“What we found striking is that it’s a significant percentage of a fairly short patient encounter,” said Michael Chiang, MD, Knowles professor of ophthalmology and medical informatics and clinical epidemiology, Oregon Health and Science University, Portland, Oregon, and corresponding author of the study. The research was spurred by physicians complaining about the amount of time they were spending on EHR, reducing their efficiency, Dr. Chiang said.

In the study, researchers followed five attending ophthalmologists from different subspecialties at an academic center for at least 5 half-days over the course of a few months, recording the amount of time they spent in a patient examination and how long they used the EHR, in conversation with the patient, or were actively examining the patient. This amounted to 363 patient encounters.

The researchers then collected timestamp data for these patient encounters (a patient encounter was clocked from the time they checked in until they checked out) using EHR audit logs, comparing the timestamp data against the findings of the in-person observations. This analysis validated the previously described manual observations and proved more practical for large scale data collection and analysis than the manual observation approach.

This approach was used over the course of a year to evaluate 27 attending ophthalmologists who logged 46,000 patient encounters. EHR timestamps showed that these physicians were spending, on average, 10.8 minutes total using the EHR per patient—5.9 minutes during the patient encounter and 4.9 minutes after it.

“What we take from this is that it’s a lot of time spent on the EHR. When we do the math … it’s roughly 3.7 hours per full clinic day spent using the EHR,” Dr. Chiang said.

Half-day clinic volume and complexity (identified via primary billing code) were also analyzed in the context of time spent on the EHR. Physicians who saw a higher volume of patients spent less time per patient on the EHR (but more total time) compared to those who saw a lower volume of patients. Ophthalmologists who saw more complex cases (judged based on billing code) spent more time per patient on the EHR (but less total time) compared to those with less complex cases.

Study reveals how much time ophthalmologists at a single center spent using EHR; more research needed to draw conclusions about the field as a whole

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While Dr. Chiang said the study doesn’t answer why this is the case, he speculates that those with higher patient volume might be seeing more standardized patients. “If you’re doing a similar thing with many patients, it’s a stereotyped workflow,” he said, noting that this could apply to the EHR use in these cases as well. Physicians could use macros to streamline their documentation, they could be copying and pasting certain text, or they could be clicking “normal exam” and autopopulating EHR fields, making their documentation process faster than physicians who might see more complex and nuanced cases, Dr. Chiang said. It should also be noted that all ophthalmologists in the study spent at least 5.8 minutes per patient encounter using the EHR. This, Read-Brown et al. wrote, suggests “that there is a minimum amount of EHR time needed per encounter.”

**Improving EHR efficiency**

While physicians might decry the amount of time they spend using the EHR, the electronic documentation system is not going away, Dr. Chiang said.

“I don’t think there is any realistic way the EHRs are going to go away… there are too many clinical, compliance, quality assurance, and public health-type reasons that that’s not going to happen,” he said. “What I’m hoping this research does is start a dialog about how we can make these systems better and how we make them more efficient. Part of that is going to involve designing better systems. How do you design better systems? You’ve got to get doctors to talk to the people who design the systems.”

From there, Dr. Chiang said doctors need to be adequately trained in using the selected EHR system.

“Of all the different tools that we use as physicians, there are very few tools that everyone uses… not even every ophthalmologist uses an ophthalmoscope. Yet the EHR is something that every physician uses. Despite that, we get no training to use it. … The time that’s dedicated to teaching ophthalmologists how to use the EHR, which is so fundamental to medicine, is sometimes zero,” Dr. Chiang said.

In addition to designing systems that are more functional for clinical use and being well educated on how to use them, Dr. Chiang said having a standardized method of documentation within the group can help.

“It makes it confusing for staff and physicians when everyone documents differently. Most practices use the same paper templates for everyone, so everyone knew where to look to find information. It’s my experience that different doctors even within the same subspecialty don’t use [the EHR] the same,” he said.

Getting more staff members involved with the EHR can reduce the amount of time physicians spend on it as well. “For example, we have technicians who are very adept at using the EHR. We spend time with them working out what they can help document vs. what we can help document,” he said, adding that some practices are starting to employ scribes for this purpose.

**Alan Mendelsohn, MD**, Eye Surgeons & Consultants, Hollywood, Florida, has had a medical technician or scribe take notes during his appointments for all of his 30 years in practice, even when he was still using paper charts. Using a scribe allows him to maintain eye contact with the patient during the exam and gives him more time to explain things and put an emphasis on preventative care.

While Dr. Mendelsohn said he understands the need and benefits of EHR, he thinks he was more efficient with paper charts and found them more reliable. An advantage of paper charts, he said, is they aren’t subject to power outages or server failures. When hurricanes hit Florida in 2017, for example, Dr. Mendelsohn said their electronic records were down for 5 days, forcing staff to take handwritten notes and input them electronically later.

**Dan Montzka, MD**, Golf Coast Retina Associates, Clearwater, Florida, said EHR efficiency has improved immensely since when he first left paper records for electronic 14 years ago. He estimated that he spends about 1 minute on the EHR during a patient’s exam time, but time spent on an EHR can vary widely depending on the system chosen.

“You have to have a system that has been responsive to user input over time and has been willing to improve and listen to the end user to try to make the workflow better,” Dr. Montzka said, adding later that if you are on a well-designed system, you have to take the time to learn it and customize it to your own use.

**Where do we go from here?**

**Michael Boland, MD**, associate professor, director of information technology, Wilmer Eye Institute, Johns Hopkins University School of Medicine, Baltimore, in a published commentary about this study wrote that, in general, “it is hard to know if this is too much time with the EHR, too little, or just about right.” Other research, he continued, showed differences between medical specialties in time spent using the EHR and broke down the time spent on specific EHR tasks, such as documenting patient findings or reviewing data.

“Beyond just time spent on EHR-related tasks, it will also be important to ask what those particular tasks are. It will then be possible to make value judgments about the importance of each task—is it worth the time spent? We might be willing to have increased documentation
More details about “the nature of each practice, the culture of the department and physicians, and the details of EHR deployment,” would also give more context to studies about time spent using the EHR. “Only with such additional variables reported will we be able to draw conclusions about which factors are associated with success or failure using EHRs,” Dr. Boland said.

In an interview with *Ophthalmology Business*, Dr. Boland further explained that the conclusions from Read-Brown et al.’s study are limited due to it representing a single academic institution. “As I indicated in my editorial, we need more stories from ophthalmologists before we can say anything about how the profession is doing overall. We also need more context to understand if this time is too much, too little, or just right,” he said.

The “right” amount of time spent using an EHR will be the amount of time required to complete tasks deemed useful to the patient or to the physician. “Many physicians don’t like documenting, but it does serve a number of critical purposes—communication with other providers, communication with the patient, and communication to your future self at the next visit,” Dr. Boland continued.

 “[This] work is a good start—we need more practices to report similar data. We also need to know more about what the physicians were doing during that time,” Dr. Boland said. “As I wrote, we can’t make judgments about what is too much or too little until we know what the physicians are actually doing.”

Dr. Montzka also said he thinks the Read-Brown et al. study is a good start, but future studies will need to compare EMR systems and look at metrics other than speed.

 “[W]hat we have to understand is, right now, EHR are not commodity systems, they’re not made the same, they are distinctive, there are significant differences in the design and architecture of the different systems, and I think we would find widely divergent results if we compare different systems,” he said.

Quality of documentation also needs to be assessed. One thing Dr. Montzka said many doctors using EHR are frustrated with is a lack of specificity in the electronic records.

“[W]hen they had a paper chart they could describe with a great deal of specificity the patient’s condition fairly quickly. Now when you get to pick lists, unless you have a system that’s designed very intelligently, it’s hard to obtain that same level of specificity, but there are some systems that are able to do that, and people need to look into that,” he said.

System design will also influence the ability to use the EHR as a data-mining tool, Dr. Montzka said.

At this point, when choosing an EHR system, Dr. Montzka stressed the importance of visiting a clinic using the system to verify its features and efficiency.

“All doctors who are looking at buying a system have to verify what they’re hearing from a vendor in an actual clinic. ... I shudder to hear of doctors making decisions about using a system and they never visited a clinic; they basically took the vendor’s word for it. You can get yourself into a lot of trouble doing that,” Dr. Montzka said.

Editors’ note: The physicians have no financial interests related to their comments.

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OB 27% of the examination time was spent on the EHR
Going green in medicine

by Liz Hillman, Ophthalmology Business Staff Writer

Incorporating practices that are environmentally sustainable into a medical practice

In the U.S., the healthcare sector accounts for 10% of the country’s total greenhouse gas emissions and 9% of its criteria air pollutants. This, Cassandra Thiel, PhD, assistant professor, Department of Population Health, New York University School of Medicine, New York, said, means that the healthcare system is “harming the public’s health through its emissions—even if we are helping it in other ways.”

Some strides have been made in this sector on the environmental front. Todd Sack, MD, currently a volunteer physician after nearly 3 decades in private practice, specialized in gastroenterology and hepatology, said that large hospitals in the U.S. are about a decade ahead of medical offices in taking some action for the environment, but, he pointed out, “far more care is given and far more resources are used in the outpatient setting.”

After serving on committees of medical societies and government commissions for decades where he helped create policy statements about environmental issues and climate change, Dr. Sack found despite that, “we were doing almost nothing to help health professionals do anything about these problems.” So, in 2013, he decided to go green and is now the editor of My Green Doctor, a nonprofit owned by the Florida Medical Association that acts as a free online resource to help medical offices bring environmental sustainability to their practice, creating a healthier office environment and saving money in the process.

“People are truly proud to work in a business that cares about the environment,” Dr. Sack said. “In our office, we recycle, reuse paper, turn off devices, use the electronic record exclusively instead of paper, have environmental health brochures in the waiting room, and proudly display our Green Doctor Office certificate in the patient waiting room and the staff lunchroom.”

Though Dr. Sack said his office hasn’t tracked its financial savings after going green, he noted one practice that saved more than $2,000 per doctor per year for enacting sustainability measures.

“I think this is just the tip of the iceberg for what can be saved in water, energy, and by adopting...
a company-wide ethos of resource conservation,” he said, noting that the Escambia County Health Department, Pensacola, Florida, studied its energy use before and after enacting energy efficiency measures and saw an average energy reduction of 5.2% per day, equating to $14,000 in annual savings.

My Green Doctor provides workbooks on energy efficiency, renewable energy, water efficiency, solid waste and recycling, drug disposal and chemicals, transportation and commuting, and healthy foods for the doctor’s office. These resources can help a practice focus on its specific environmental goals. The resource also provides a quick start guide to those just getting started, suggesting a luncheon for staff where two to three action items are chosen and where a team member is selected to take the lead on each of those items, reporting back on progress at the next “action step” meeting. Dr. Sack said many of the workbooks start with easy items that a practice could implement before diving deeper into the process. A few of these include:

- Turn off machines and lights when not in use.
- Switch to compact fluorescent bulbs.
- Institute a thermostat policy: 74 degrees F in the summer and 68 degrees F in the winter.
- Provide recycle bins around the office and in the waiting room.
- Turn off the hot water heater if it’s not needed.
- Eliminate Styrofoam products in favor of reusable dishware.
- Use more environmentally friendly chemicals and cleaners, when possible.
- Avoid using paper when use of an electronic medical record is possible instead.

More intensive action items include getting a comprehensive energy assessment and water audit, purchasing renewable energy, and changing out plumbing fixtures with water-efficient options.

There are also measures specific to medicine that could improve environmental sustainability as well. Dr. Thiel and her team demonstrated this with a paper published in the Journal of Cataract & Refractive Surgery. Dr. Thiel said not much is known, overall, about the environmental footprint of medicine, but there have been a few studies examining surgeries that found single-use, disposable supplies are the largest contributor of environmental emissions for single surgeries. Most of these studies, however, were conducted in the U.S. and Europe where almost all surgical supplies are single-use; Dr. Thiel and her team wanted to research the impact of reusable surgical supplies on environmental sustainability.

Over a 4-month period, researchers conducted waste audits and interviews and looked at purchasing data as it pertained to one surgical procedure (phacoemulsification cataract surgery) at two tertiary care centers of the Aravind Eye Care System in southern India where most of the surgical supplies are reusable. Based on analysis of the data collected, cataract surgery within this health

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system results in 96% fewer carbon emissions than the same procedure taking place in the U.K. (emissions from cataract surgery in the U.K. were already known*). Dr. Thiel said her team is currently researching the carbon footprint of cataract surgery in the U.S. and expect similar results to that seen in the U.K.

“Aravind operates with mostly reusable surgical supplies, and they designed safe handling processes and training programs to ensure that the supplies are properly sterilized for each case. They also maximize the materials that they recycle, which earns the hospital some money from their local recycling market,” Dr. Thiel said.

In addition to reusability of materials, Dr. Thiel said Aravind’s environmental success is influenced by other measures as well.

“Aravind designed—and continues to redesign—their system with the aim of efficiency. Their goals to reduce costs and increase access, while maintaining quality, also helped to reduce their environmental footprint,” Dr. Thiel said. “Aravind has standardized their process so everyone does the same thing every time; it resembles an assembly line. They have also arranged the physical space to optimize the flow of patients. They use two beds per physician, so that one patient is being operated on while the other is being prepared for surgery. These steps allow Aravind to reduce the duration and turnover time of surgery.

“Aravind’s surgeons only do what surgeons are trained to do—the surgery. Mid-level ophthalmic professionals handle all the pre- and postoperative work the day of surgery, thus optimizing the surgeon’s time. In contrast, at a typical American hospital, the surgeon will often visit with patients in the preoperative room, prepare the patient’s surgical site in the OR, and help clean up the patient after the surgery. Additionally, because every surgical team uses exactly the same supplies, Aravind can negotiate for better deals when purchasing supplies.”

Thiel et al. acknowledged that there are some regulatory barriers in developed countries like the U.S. that prevent straight replication of Aravind’s model. Still, Dr. Thiel said there are some things U.S. physicians could consider implementing—and some already have.

• If possible, have one surgeon use more than one operating room to improve surgical flow from case to case.

• Limit the surgeon’s nonsurgical duties.

• Reduce the size of custom packs (disposable surgical supply kits) and switch to reusable supplies when available.

• Have the team ask the surgeon before they open certain supplies to reduce unnecessary waste.

Larger efficiency improvements could require policy changes, Dr. Thiel said.

“One example specifically for ophthalmology is the continuous disposal of partially used pharmaceuticals,” she explained. “At Aravind, eye drops used in surgery are administered to multiple patients until the bottle is empty. In the U.S., because the vials are branded as single-use, the amount remaining after they administer a few drops is thrown out. Even if the drug is something the patient will use at home (like antibiotics), in most cases, the operating room staff is forbidden from releasing that drug to the patient, and it is thrown out. The patient then has to buy another bottle for at-home use.”

Another regulatory enforcement hurdle faced in the U.S. is short cycle steam sterilization, or what Aravind calls “flash autoclaving,” for surgical tools. (Flash autoclaving has a different meaning in the U.S.) Dr. Thiel explained that this is allowed in the U.S. for surgeries performed on the same day the instruments were sterilized, but the terminology around sterilization practices has created confusion in ophthalmology. At Aravind the sterilization technique is used between cases with a full cycle at the end of the day. Dr. Thiel said this allows Aravind to stock fewer instrument trays during the day and reduces electricity used in the sterilization process.

“Making a small change to [cataract surgery], if implemented across the country, can make a big difference in the cost and the environmental footprint,” Dr. Thiel said.

“Likewise, some of the sustainability lessons we learn by studying cataract surgeries can be applied to other procedures performed in an operating room. Medical practice as a whole needs to be analyzed for efficiency improvements, so that we can reduce waste, reduce spending, and minimize our environmental impact.”

Overall, she added, this research showed that “sustainable healthcare is possible with low environmental emissions, little waste, low costs, and excellent outcomes. We should all be taking steps to reduce our environmental footprint.”

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Editors’ note: Dr. Sack and Dr. Thiel have no financial interests related to their comments.

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Supplementary services that can net profits

A look at one practice’s use of adjunctive services to enhance patient convenience and bring in more revenue

Patient expectations coupled with reduced reimbursement rates have some ophthalmic practices considering the addition of complementary adjunct services that can generate positive revenue while meeting patient needs.

Minnesota Eye Consultants is one such practice that’s not afraid to bring on new but relevant services. From an optical shop to a website for over-the-counter items, the practice with several offices in the Minneapolis metropolitan area has always put a focus on “being on the front edge of things,” said Brent Wilde, president of Minnesota Eye Consultants.

“In a service industry like eye care (and healthcare in general), businesses cannot expect to lead a market by only providing a single core offering to the public. Attracting and retaining today’s patients demands a fundamentally different approach,” Mr. Wilde said. “Patient expectations are higher than ever, and competition is greater than ever. People want to consolidate their errands, their outings, their appointments. The quality surgical and medical care provided to patients is still at the center of everything we do at Minnesota Eye, but the convenience of offering enhancement services is where the difference is made in meeting and often exceeding patient expectations.”

It has always been in the culture of Minnesota Eye to lead and innovate in the ophthalmic space, Mr. Wilde said, adding that this value goes back to the practice’s founder, Richard Lindstrom, MD.

“We were founded on the principle of working closely with referring providers and trying to offer services that they couldn’t necessarily offer, not taking patients from people, but supplementing the referring partners’ needs,” Mr. Wilde said, adding later, “We think that if you do these things and do them right, everyone can be a winner, starting with the patient.”

First and foremost, when Minnesota Eye looks at bringing new supplementary services into its ophthalmic practice, it assesses its possible synergy with the practice’s core set of offerings, Mr. Wilde said.

“Is it related or connected to our mission and vision for the organization? We look at whether we have the structure and staff in place to set a new program up for success. Do we have buy-in from our physician team? Can we deliver a consistent experience to our patients with a new program, across all locations and specialties? We develop a pro forma to establish predictable revenues and gauge the opportunity from the perspective of whether the hard/soft costs and projected returns make a good business case,” he said.

One of the most natural fits, especially given Minnesota Eye’s integration of optometric staff, was establishing an optical shop. Dr. Lindstrom said after owning an ambulatory surgery center and having employee doctors, having an optical shop can be a meaningful point of revenue. Another adjunct offered by Minnesota Eye is aesthetic plastic surgery.

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services, such as onabotulinumtoxinA injections and dermal fillers.

“There is an opportunity here, and it is a positive revenue generator in our practice to make some of these aesthetic treatments available,” Dr. Lindstrom said. “Also some of the aesthetic adjuncts, like facial creams and skin lubricants, can be meaningful as well.”

Dr. Lindstrom said that Minnesota Eye established a website where over-the-counter products recommended by physicians can be easily found and obtained by patients. It’s called MyEyeStore (Bloomington, Minnesota), and it’s something that any practice can establish. Minnesota Eye’s MyEyeStore has everything from omega-3 tablets to artificial tears to contact lenses. Some of these items, Dr. Lindstrom said, can be difficult for patients to access, but with MyEyeStore, patients can easily locate and purchase items, and they can be ordered by the doctor with a single click through the patient’s electronic medical record and shipped directly.

“We created this as a service to our patients, but it does generate a small profit,” Dr. Lindstrom said. “The products are fairly priced—better than what you could get at a typical retail drug store—and far more convenient.”

Dr. Lindstrom said the practice is getting ready to launch a prescription drug vending machine called InstyMeds (Minneapolis) in its waiting room. The machine is stocked with some of the more commonly prescribed medications, such as antibacterial drops, glaucoma medications, nonsteroidals, and more. Patients can pick up their prescription from the machine before leaving the office. It even has a telephone that can allow the patient to speak confidentially with a pharmacist, if they need to.

“If you look at MyEyeStore, we can provide all the over-the-counter products ... then with InstyMeds, we’ll be able to provide a prescription pharmacy option for patients, too,” Dr. Lindstrom said.

Minnesota Eye Consultants tried to bring on hearing services. Dr. Lindstrom said there have been studies showing people with ocular problems are also likely to have hearing problems. Minnesota Eye tried offering basic hearing tests and fitting hearing aids, but Dr. Lindstrom said this didn’t work out well for the practice and was discontinued.

Mr. Wilde said assessing add-on programs is critical.

“We look at a variety of things: aggregate costs of patient turnover or the greater profit margins that repeat patients can provide,” he said. “We look at unmet demand of our current patients or referral market, as well as market research and trends. For some programs, the additional services function more as a patient satisfaction and retention tool than a moneymaker. We are constantly evolving our financial reporting to be more aware of all data points that inform decisions about all of our service lines.”

Overall, Dr. Lindstrom said adjunctive services are appreciated by his patients and when properly managed can generate net revenue. “For the little stuff, it is a service to your patients, making it one-stop shopping, which they like,” he said. “If you’re not looking at any supplementary services, you should be,” Mr. Wilde advised. “Make sure you understand your patients’ needs, make sure it meshes with the brand identity of the practice, and make sure your physician and leadership teams are aligned around the goals of the new program. Do your market research and financial homework and get to work.” 

Editors’ note: Dr. Lindstrom has financial interests with MyEyeStore. Mr. Wilde has no financial interests related to his comments.

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Is telemedicine for corneal diseases ready for widespread use?

by Vanessa Caceres, Ophthalmology Business Contributing Writer

Not quite yet, study reports

With the growth of telemedicine to detect and monitor diabetic retinopathy—and the dearth of eye care providers to see patients regularly—it’s only natural that ophthalmology practices and departments would look for ways to maximize telemedicine for other areas of eye care.

However, use of portable camera imaging to detect corneal disease isn’t quite ready for prime time, according to the results of a recent study.¹

Led by Maria Woodward, MD, assistant professor of ophthalmology and visual sciences, University of Michigan Kellogg Eye Center, Ann Arbor, the researchers’ prospective study evaluated the diagnostic accuracy of corneal disease detection with the use of external photos from two portable cameras. All subjects were adult patients at the University of Michigan Kellogg Eye Center in the cornea and comprehensive clinics. Some of the 110 subjects in the study had a clinical diagnosis of corneal pathology, including corneal abrasions, ulcers, scars, and pterygia. They had been diagnosed by a corneal specialist who performed a slit lamp exam.

Both the iTouch 5S (Apple, Cupertino, California) and the VersaCam (Nidek, Gamagori, Japan) were used to take photos of the eyes in multiple gazes. The iTouch is equipped with a portable camera (1,136 x 640 pixel resolution, 5.0 megapixels) and is otherwise similar to other smartphone technologies. The VersaCam is a portable ophthalmic camera that can take photos of the anterior and posterior eye segments with separate attachments to its base. Its pixel resolution is 1,920 x 1,080 (5.0 megapixels).

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Photographers took seven images of each eye: straight gaze as well as right, left, up, down, with eyelids closed, and straight gaze with cobalt blue light after instillation of topical fluorescein dye. An ophthalmic photographer took the photos.

Three corneal specialists interpreted the images for pathology. The graders judged the presence or absence of disease in each eye, and they had an additional category for “suspicious for pathology present.” Graders determined both the severity of disease as well as disease location. They graded each photo quality from 1 (lowest) to 9 (highest).

The study included 198 eyes. Per the clinical diagnosis, 30% of eyes had corneal scars, 17% had ulcers, 7% had abrasions, and 5% had pterygia. Forty-one percent of the eyes had no corneal disease.

There was a sensitivity of 54% to 71% to detect anterior segment pathology for the iTouch photos and 66% to 75% for the VersaCam across graders. Specificity ranged from 82% to 96% for the iTouch and 91% to 98% for the VersaCam. However, the sensitivity and specificity differed based on the corneal pathology involved: the sensitivity was especially low for corneal scars (29% to 54% for the iTouch and 42% to 58% for the VersaCam) compared with corneal ulcers and pterygia.

“For both cameras and all graders, each grader had significantly greater sensitivity to detect corneal ulcers than to detect corneal scars for each of the cameras,” the researchers wrote.

When grading image quality, two of the three graders rated significantly lower image quality from the iTouch compared with the VersaCam (both P<0.004). The graders also found that having additional images was helpful to detect the presence or absence of pathology. Overall, image quality differences were not consistent among diagnoses, camera types, or graders.

The future of corneal telemedicine
With a sensitivity of 80% thought to be the standard for the accuracy of telemedicine screening for diabetic retinopathy and other eye diseases, this method did not meet that standard overall, the researchers concluded.

“Our findings indicate that the interpretation of images from portable cameras had high specificity but low sensitivity,” the researchers wrote.

Dr. Woodward said that while it was encouraging that the cameras could reasonably detect ulcers and pterygia, it was disappointing that they could not accurately detect all other corneal pathology.

Lisa Park, MD, associate professor of ophthalmology, Columbia University Medical Center, New York, was surprised that the corneal findings were not easily detected, particularly corneal abrasions. “Patients commonly will present to an emergency room or urgent care clinic for this type of injury, and telemedicine would be quite useful in this case, but the technology does not yet appear to be useful for this diagnosis,” she said.

The problems with corneal pathology detection occurred even with the use of an ophthalmic photographer who knows how to obtain relevant images of the eye, she said.

One drawback for the portable camera technology is that corneal specialists are accustomed to high quality slit lamp photographs, Dr. Woodward said. That’s probably yet another reason that the photos analyzed in the study did not seem to help the graders effectively find pathologies.

The study is also a reminder of a situation in which many ophthalmologists find themselves—when family, friends, or patients send them smartphone photos of eye problems. “This grounds us in the fact of using clinical judgment. The photos are not as good as seeing someone in person,” Dr. Woodward said.

Christopher Rapuano, MD, chief of the cornea service, Wills Eye Hospital, Philadelphia, agreed. “A finite set of pictures doesn’t compare to examining someone at a slit lamp where you can adjust the slit beam width, height, and angle at will,” he said.

Dr. Woodward is continuing research in the area of low cost technologies that could be used effectively by general ophthalmologists and primary care physicians to improve access to and quality of care for patients with corneal diseases.

Dr. Rapuano thinks the technology for cornea telemedicine is not too far away in the future. He also thinks that having a trained image interpreter is key. He said teaching first-year residents how to use the slit lamp is like teaching someone to drive a car. With experience and training, he wants those residents to become Indy 500 race car drivers in their detection of cornea disease.

Dr. Park also sees a brighter future for corneal telemedicine. “Increased magnification, 3-D imaging, and ease of use will help improve the use of telemedicine. On the clinical side, establishing standardized guidelines for evaluating these images will make this a more robust resource,” she said.

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Editors’ note: The physicians have no financial interests related to their comments.

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