



**SUMMARY OF AAO MEMBERSHIP SURVEY
ON ELECTRONIC HEALTH RECORDS**

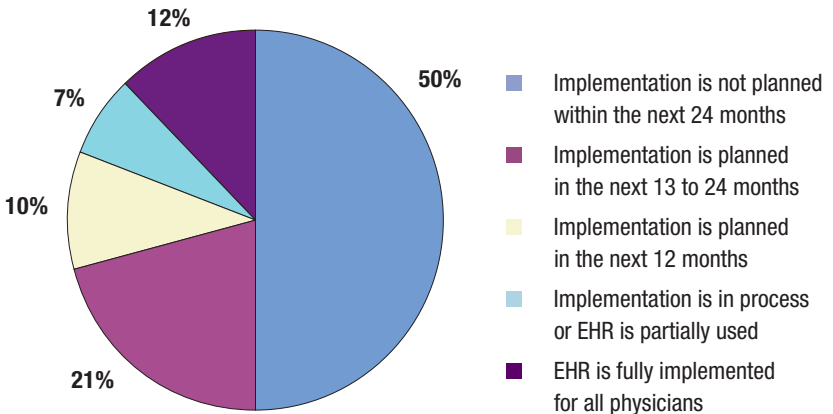
EXECUTIVE SUMMARY:

The Academy and its contractor, Medical Group Management Association (MGMA), conducted a survey of the membership on the adoption of electronic health records and other information technologies in March 2006. A total of 592 responses were received, both from e-mail surveys and from telephone interviews, for an overall 18% response rate. The results appear consistent with other surveys and estimates of current electronic health record adoption. Highlights of the results include:

Accelerated growth of adoption of EHRs:

A total of 49%, or about half of respondents, have or are planning EHR implementation within the next 24 months. Of those with an EHR system in place, about 41% implemented their systems in the past 2 years.

FIGURE 1: DEGREE OF EHR IMPLEMENTATION

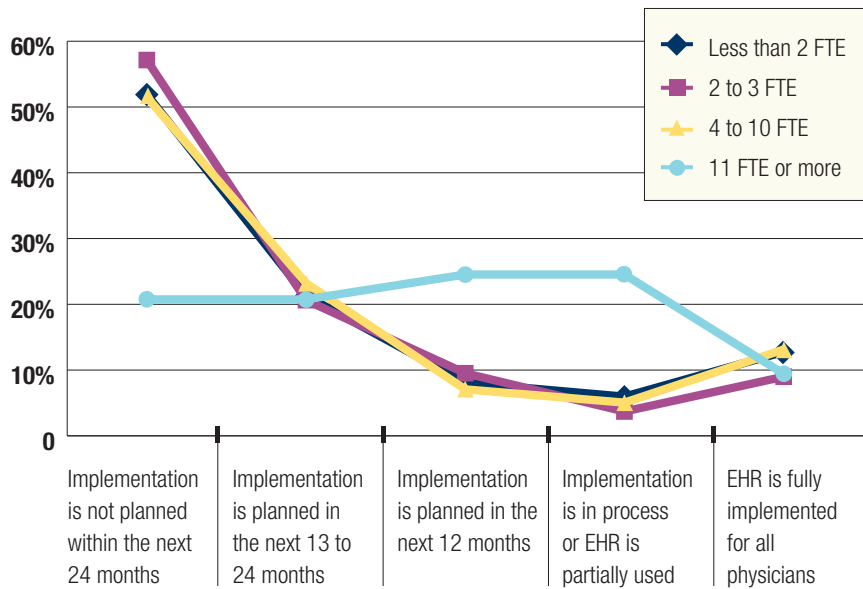


EHR implementation is greater in larger groups, but also increasing rapidly in the smaller practices:

34% of the largest groups (11 FTE or greater) already had implemented or were in the process of implementing an EHR

About 30% of the other groups (10 FTE or lesser) are planning to implement an EHR within the next 12-24 months

FIGURE 2: DEGREE OF EHR IMPLEMENTATION BY NUMBER OF FTE PHYSICIANS CATEGORY

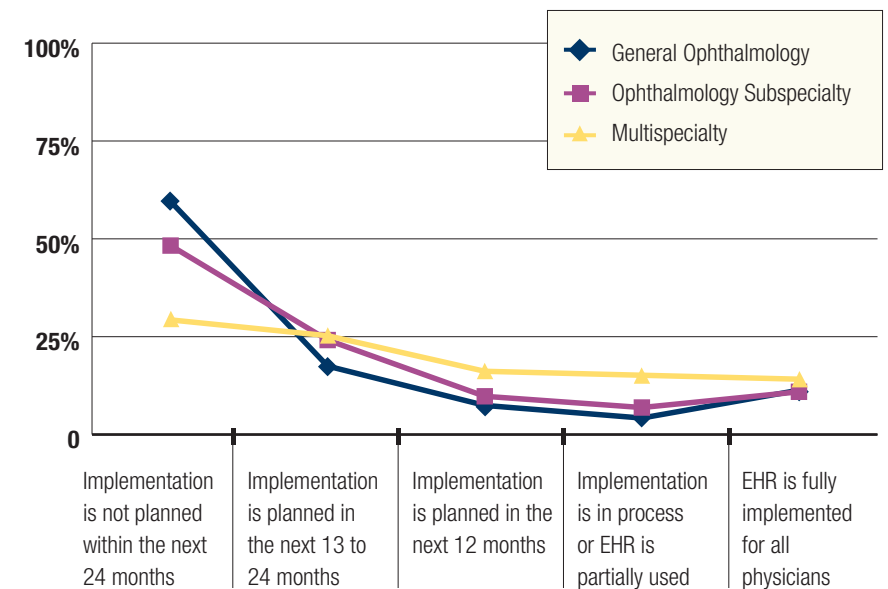


EHR implementation is greatest in multispecialty groups, but shows growth in next 2 years in general ophthalmology and single subspecialty groups

71% of multispecialty groups have implemented or are planning implementation of EHRs within 24 months

52% of single subspecialty groups and 40% of general ophthalmology groups have implemented or are planning implementation of EHRs within 24 months

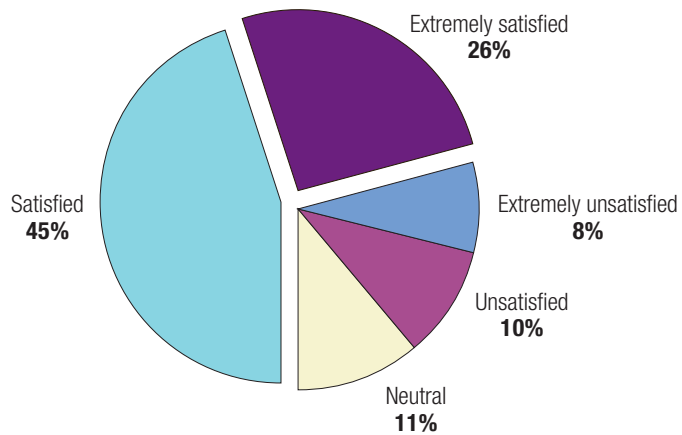
FIGURE 3: DEGREE OF EHR IMPLEMENTATION BY PRACTICE TYPE



Overall satisfaction with EHRs and replacement of paper medical records:

71% were extremely satisfied or satisfied with their EHR
 76% would recommend their EHR to another ophthalmologist
 79% would not go back to paper-based records

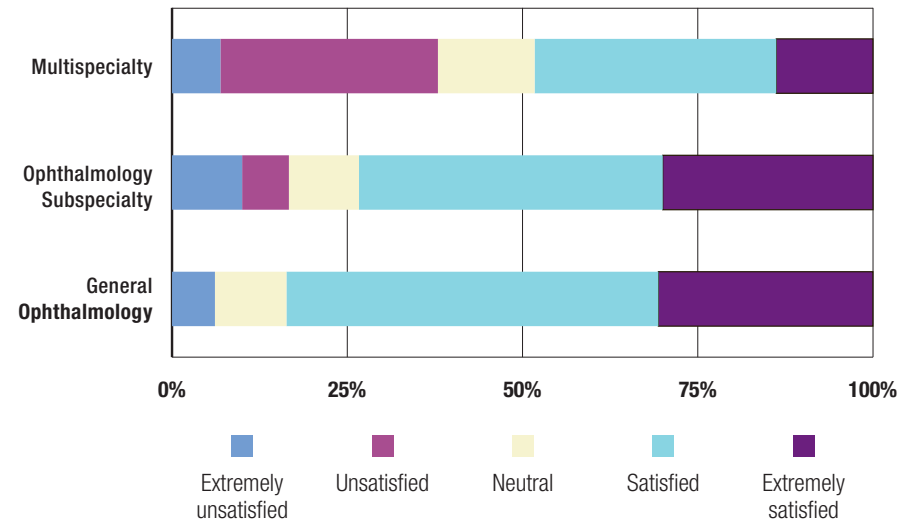
FIGURE 5: EHR OVERALL SATISFACTION



Multispecialty groups were less satisfied with EHRs than general ophthalmologists and single subspecialty groups:

38% of ophthalmologists in multispecialty groups were extremely unsatisfied or unsatisfied.
 6% of general ophthalmologists and 17% in single subspecialty groups were extremely unsatisfied or unsatisfied. Figure 4: EHR overall satisfaction

FIGURE 5: EHR OVERALL SATISFACTION BY PRACTICE TYPE



Significant financial costs associated with acquisition and maintenance of EHRs:

The average price (purchase and implementation) was \$49,712 per physician
 The average maintenance cost was \$1,066 per month per physician

Overall, an improvement or neutral effect in physician productivity and practice costs was noted after 6 months with EHRs:

33% said physician productivity increased
 31% said physician productivity stayed the same
 29% said overall practice costs decreased
 22% said overall practice costs stayed the same

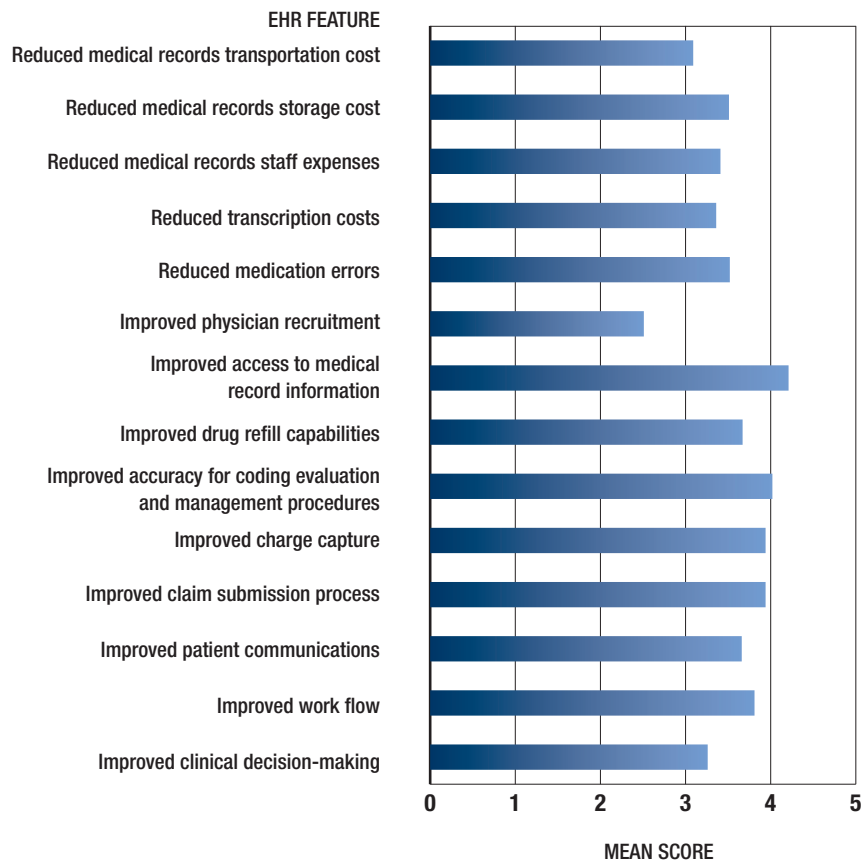
Best features (perceived or realized) of EHR cited by all respondents were:

- Improved access to medical record information
- Improved accuracy for coding evaluation and management procedures
- Improved claim submission process
- Improved charge capture

BEST outcomes of EHR implementation cited by respondents included:

- Guaranteed access to patient information from all offices. No more lost charts
- Improved patient care and increased revenue
- Extreme ease of following patient history
- Electronic integration of fundus photos
- Detailed, complete, clear documentation
- Improved efficiency of MDs. Retrospective analysis of clinical treatments. Improved communication with referring physicians
- We have become very efficient with patient care due to this system. There are no charts to locate and more than one person can be viewing the same chart at the same time. We can verify insurance, bill in room and be ready to collect at checkout.

FIGURE 6: SCORES FOR EHR FEATURE EVALUATION



WORST outcomes of EHR implementation cited by respondents included:

- Increased non-productive time in office doing data input
- Difficulty for ophthalmology because there is no drawing capability, no Ophth-specific software
- Longer to implement than expected
- Some interference with doctor-patient face-to-face time
- EHR crashing with many patients in limbo, worked up in EHR but cannot complete the exam
- Add on costs, add on costs, add on costs
- Greatly increased documentation time, cannot incorporate visual fields, fundus photos except by scanning drawing controls rudimentary, not practical for busy clinic schedule

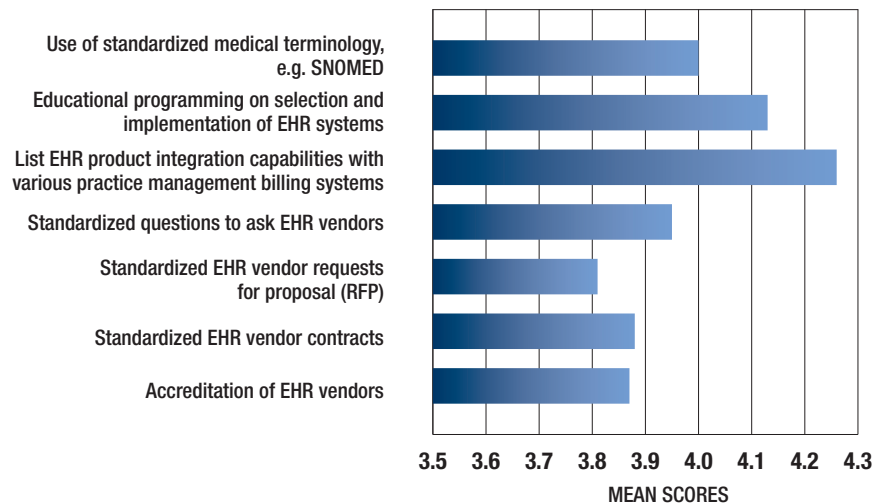
GREATEST BARRIERS to EHR implementation cited by all respondents were:

- Inability to easily input historic medical record data into EHR
- Concern about loss of productivity during transition to EHR
- Lack of capital resources to invest in EHR
- Insufficient return on investment from EHR
- Inability to evaluate, compare and select appropriate EHR
- Concern about ability to document exam findings by created computer-based drawings
- Concern about ability to integrate EHR with existing ophthalmic imaging equipment

SOLUTIONS that all respondents think would help simplify EHR selection:

- List EHR product integration capabilities with various billing systems
- Educational programming on selection and implementation of EHR systems
- Use of a standardized medical terminology, e.g. SNOMED
- Standardized questions to ask EHR vendors
- Standardized EHR vendor contracts

FIGURE 7: SCORES FOR SOLUTIONS TO SIMPLIFY EHR SELECTION



CONCLUSIONS:

The number of ophthalmologists adopting electronic health records is increasing dramatically in the next few years. External forces have played a pivotal role, including: the President's Executive Order which called for electronic health records for most Americans by 2014, the federal Office of the National Health Information Coordinator charged with promoting EHRs, and the Centers for Medicare and Medicaid Services (CMS)' provision of financial incentives for the adoption of EHRs. Not everyone's practice setting will necessitate the implementation of an EHR now; however, this is an opportune time to weigh the costs and benefits, and to make a decision.

The majority of survey respondents who have adopted electronic health records are satisfied. Benefits most valued by respondents include improvements in access to patient information, accuracy for coding and charge capture, reduced errors and reduced expenses related to medical recordkeeping. However, there are significant concerns and barriers to EHR implementation for many physicians, including financial costs, effect on practice workflow and productivity, time needed for adapting to the system and full implementation, impact on patients, etc. Features in an EHR relevant or ophthalmology but not always available currently include: integration with ophthalmic imaging systems and ability to create drawings to document exam findings.

IMPLICATIONS

The selection process for an EHR is complex and time-consuming. The right electronic health record system will depend upon your practice's unique situation, needs, workflow, relationship with other entities, etc. To realize the benefits of an EHR system will require an understanding of your practice's data sources, data needs and communication of that data to external groups. In terms of selection, a certification process can help to reduce the risks to the purchaser. The Certification Commission for Healthcare Information Technology is the recognized authority in the U.S. for EHR products. In July 2006, it certified the first round of 20 ambulatory EHR products. Currently, specialized ophthalmology EHR products have not yet undergone the certification process, and the CCHIT will be looking into issues of certification of specialty-oriented EHRs in the future.

The initial financial investment is significant and often greater than initially planned, because of “scope creep”, or addition of features/options. There are different levels of sophistication (and costs) of EHR systems that are appropriate, depending on the group’s readiness, ranging from simple data access to data warehousing and analysis. There will be a learning curve, and sufficient time and resources need to be allocated for the training and implementation phase.

Calculating a return on investment (ROI) will help you to analyze the financial feasibility of an EHR system prior to purchase, and also to track if benefits are being realized after implementation. Costs include hardware, software, support, implementation, training, ongoing maintenance and future upgrades. Benefits include cost savings from paper chart supplies, clerical help, transcription, and storage, and from improvements in charge capture and documentation for coding. More qualitative benefits also accrue, such as easy access to records, complete documentation for liability purposes, tracking of diagnostic test results, patient registries for follow-up exam scheduling, etc.

The most significant challenges in implementation are probably not technology-related, but more related to process and people. In some situations, the workflow structure needs to be rethought and revised to eliminate the tasks related to the upkeep of paper medical records and to take advantage of the EHR capabilities and automate some tasks and organize data such as providing patient reminders for follow up or routine exams, tracking lab results, managing prescription refill requests, etc. These changes will require patience, commitment, and trial and error. Having a contingency plan for EHR implementation failure is prudent and also a requirement of the Health Insurance Portability and Accountability Act (HIPAA) Security Rule.

ACADEMY ACTIVITIES TO HELP THE MEMBERSHIP

The Academy has been working for the past several years to aid its members in enhancing the usability and practicality of electronic health records in ophthalmology. These activities include the development of a standardized ophthalmic terminology that can be used in EHRs (SNOMED), digital imaging standards so that images can be sent, stored and displayed across settings in a consistent manner, and plug and play (interoperability) standards so that EHRs can work with other ophthalmic devices and instruments to integrate

clinical images and data. These interoperability standards mean that any EHR system can integrate with any billing systems, practice management systems, imaging devices, etc., if they both adhere to these standards. Thus, the Academy has been encouraging all device vendors and EHR systems to be involved in these standards. The Academy has also developed a list of basic functions that an ophthalmic EHR should have, including drawing capability and ability to integrate digital images (e.g., fundus photos) and data from instruments such as visual fields and refractive instruments. (<http://commonsport.aao.org/education/library/mitech.cfm>)

The American Academy of Ophthalmic Executives (AAOE) has had an active member forum on EHRs to exchange information, ideas, etc. The AAOE also has a publication, “Selecting and Implementing the Right EMR, Practice Management and Optical System for Your Practice.” This contains a step-by-step guide for selecting an electronic health record system and contains a sample request for proposal. (<http://commonsport.aao.org/aaosite/>)

At the Annual Meeting in Las Vegas, there will be several programs that will help members in understanding about and selection process for EHRs:

- Monday, Nov 13, 12:15 – 1:30 p.m., Noontime Symposium:
“The Electronic Health Record: What you need to know,”
Venetian Hotel, Venetian Ballroom H
- *The Electronic Office – Integrating the Healthcare Enterprise (IHE) Eye Care* on the Exhibit Floor - Booth Number #4665). Come see the integration of electronic health records with imaging devices so that all clinical information (patient chart information, images, clinical data) is accessible
- Technology Pavilion Sessions on EHR and electronic workflow:
 - o Sunday, Nov 12, 2:30-3:30
The Electronic Office is Here: Automation of Clinical Workflow from Patient Registration to Billing
 - o Monday, Nov 13, 11:00 – 12:00
Electronic Health Records Connecting with Imaging Devices
All the Patient Data at One Workstation
 - o Tuesday, Nov 14, 11:00 – 12:00
Electronic Health Records, Electronic Workflow to Reduce Errors, Reconcile Billing and Incorporate Legacy Systems

- AAOE program activities on EHR
 - Sunday, 7:30 – 8:30
Computerization in the Ophthalmology Practice
 - Sunday, 7:30 – 8:30
EMR for the Retina Specialist
 - Sunday, 2:00 – 4:15
Primer on Selecting and Implementing an EMR
 - Sunday, 3:15 – 5:30
Electronic Health Record Systems and Tele-Ophthalmology
 - Sunday, 4:30 – 5:30
Soapware: A Look at the Most Commonly Used EMR
 - Monday, 10:15 – 12:30
A Case Study in Computer System Migration
 - Monday, 11:30 – 12:30
The Five-year Experience of EMR on Retina Practices
 - Monday, 2:00 – 4:15
Is My Office Ready for EMR?
 - Monday, 3:15 – 4:15
Computerization in the Ophthalmology Practice