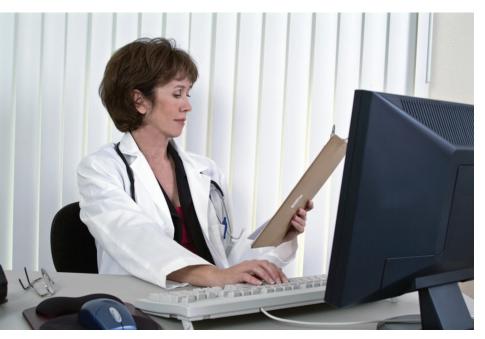# How can I choose the best electronic health record system for my practice?

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How can I choose the best electronic health record (EHR) system for my practice? Until recently, the best response consisted of answering several more focused questions, including the following: What problems do I want to solve? What features do I want? What implementation schedule do I wish to follow?

Today, the process of EHR selection is very different given new Centers for Medicare & Medicaid Services (CMS) policies and other health care developments. There are now strong monetary incentives to use EHRs, but there are also potential penalties, in the form of reduced payments, if EHRs are not adopted.[1] For many physicians, the short answer to the question is now: "Whatever CMS mandates."

ABOUT ELECTRONIC HEALTH RECORDS

EHRs can improve the quality of medical care. They enhance the ability of health care providers and patients to collect and retrieve patients' health-related information and to tap into the world's medical knowledge base at the point of care. Through computerized provider order entry, electronic prescribing, alerts, and reminders, EHRs can improve medical decision-making, increase patient safety, and decrease medical errors. Some EHRs match physician notes with coding requirements, and even suggest how to improve documentation to optimize billing and reduce costly audits. Interoperable EHRs, those that share a common electronic language, enhance continuity and coordination of care by enabling different providers at different sites (clinic/office, hospitals, urgent care centers) to access and contribute to a single canonical version of the patient's medical record.

What are the most common types of EHR systems in use, and what are their advantages/disadvantages? Despite recent industry-wide consolidation, there are still numerous EHR vendors offering products with varying feature sets. Data input methods vary from rigidly defined drop-down menus to free text entry via typing or voice recognition. A controlled vocabulary makes data processing easier but provider note entry and review more awkward. Technological infrastructure ranges from systems that reside locally on one or more computers in an office or clinic, to EHRs that run in large offsite data centers accessed by physicians via a small client program or Web browser interface on a computer at the point of care. Offsite solutions are becoming more popular since they are easier to update and maintain.

Despite the advantages of EHRs, there are downsides. These systems require significant initial capital investments in terms of cost, time in training, and workflow disruption, as well as recurring expenses for support and maintenance. The EHR marketplace is volatile. EHRs have largely been unregulated, with questionable contracts between vendors and end users.[2] New categories of medical errors related to health information technology (HIT) are increasingly recognized.

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Physicians have viewed EHRs as a voluntary and optional means of practice improvement. Each practice has followed its own timetable regarding selection and implementation. The perceived cost-benefit ratio for EHRs has not been compelling for many clinicians, resulting in slow adoption.[3]

THE NEW HEALTH INFORMATION TECHNOLOGY LANDSCAPE Five upcoming developments will reshape medical practice in the United States. All require EHRs for successful implementation:

1. Physician Quality Reporting Initiative (PQRI) incentives
2. Federal HIT standards, implementation specifications, and certification criteria
3. Federal HIT meaningful use incentives/penalties
4. 5010 data transmission standards
5. International Classification of Diseases (ICD)–10 diagnosis coding, which will replace all ICD-9 codes currently in use

And that's not all. New models of reimbursement based on volume and quality criteria, such as accountable care organizations and the medical home, may replace many traditional fee-for-service arrangements. The only way to handle the information requirements at the core of these new reimbursement models is electronically.

THE HEALTH INFORMATION TECHNOLOGY FOR ECONOMIC AND CLINICAL HEALTH ACT The Health Information Technology for Economic and Clinical Health Act (HITECH Act),[4] part of the American Recovery and Reinvestment Act of 2009,[5,6] promotes widespread use of HIT by addressing key obstacles:

- Define meaningful use of HIT
- Encourage and support the attainment of meaningful use through incentives and grant programs
- Bolster public trust in electronic information systems by ensuring their privacy and security
- Foster continued HIT innovation

What is the promise of the provisions of the HITECH Act? In other words, what is the best-case scenario for practitioners and for public health? Quite simply, that electronic management of medical information will improve patient care.

The HITECH Act created a new health information technology ecosystem comprising 10 new regulations and programs ranging from the design of individual HIT applications to the exchange of health information at the national level (table).

Three rules that determine the specifics of EHR adoption, including incentives and penalties for eligible professionals (physicians and others) caring for

Table	Health information technology ecosystem created by the Health Information Technology for Economic and Clinical Health Act
Standards and certification to define the required technological underpinnings and feature set of HIT applications	
Meaningful use criteria to specify how to use EHRs in a clinically relevant way	
Certification that individual EHR applications have the features enabling them to be used in a clinically meaningful manner; providers will be incentivized to use certified EHRs	
Certification criteria and standards defining how EHRs become certified	
Workforce training programs to train HIT support staff	
Beacon communities that will serve as examples on the optimal use of HIT	
Regional extension centers that will assist providers in becoming meaningful users of HIT by choosing the right EHRs and using them correctly	
Health information exchange programs that enable states to share health information within and across their jurisdictions	
Nationwide Health Information Network that will enable health information to be shared with consistent standards	
Strategic health information technology advanced research projects to advance the state of the art of HIT	

Abbreviations: EHR = electronic health record; HIT = health information technology.

Medicare and Medicaid patients, were released in mid-2010 to start in 2011. They concern EHR certification, standards, and meaningful use/incentives of HIT. Details are posted on the HealthIT.hhs.gov Web site. There are also moves to increase government oversight of the EHR industry.[7]

Total EHR incentives differ for eligible professionals in the Medicare and Medicaid programs. Maximum incentives in the Medicare program are $44,000 over 5 years. Maximum incentives in the Medicaid program are $63,750 over 6 years. A Medicare Eligible Professional who does not demonstrate meaningful use by 2015 will be subject to payment adjustments in their Medicare physician fee schedule. Medicaid-only Eligible Professionals are not subject to payment adjustments.

The current rules only define the first stage, which rewards users for following certain workflow processes: collecting critical data elements in electronic form, sharing key information with other providers and with patients, and reporting quality measures to the government. Future stages 2 and 3 may focus on practicing better medicine by rewarding providers for using EHRs to improve processes of care and outcomes.

As Dr. David Kibbe[8] pointed out, "What Congress/HHS/ONC have now done is attempt to regulate into existence an entirely new software core for what is hereafter to be known as 'EHR technology.' This new core is built around decision support and

quality, rather than around charge maximization." The new policy will encourage vendors to develop software modules with different EHR functionalities that can be assembled into a customized full-featured EHR. Instead of the "take it or leave it" approach of the big HIT companies, users will be able to buy components focusing on the EHR functions they need and still meet the standards for meaningful use.

NEXT STEPS IN HIT How would all of the above likely affect the typical EHR system in use by practitioners currently? Will the current systems have to be replaced completely, adapted in some way, or is there some other path? Health care providers, organizations, payers, consultants, and EHR vendors are carefully studying and analyzing the new Federal rules so they can determine their next steps. Providers will be incentivized to purchase only those HIT applications that meet or exceed the new requirements. Consultants will scramble to provide their customers with the best methods of choosing their next EHR systems in accordance with the new mandates. Existing HIT applications will need to be modified to adhere to the new standards. If not, they will become obsolete. New HIT applications will be designed in accordance with the new mandates.

What would a typical EHR system of the future look like if the ideal as embodied in the provisions of the new regulations were met? The modular approach espoused by the new policies may encourage additional vendors to enter the HIT market. Smaller developers will be able to offer commercially viable products with limited functionality as long as they can be used as building blocks for a comprehensive EHR system.

CMS regulations often serve as templates for policies of commercial health insurance companies. They may soon issue their own sets of HIT incentives and penalties, if they haven't already, further transforming the HIT landscape.

WHAT'S THE BOTTOM LINE FOR MY PRACTICE? Should I get an EHR? Is it worth the trouble and effort? The answer is "Yes" if you see Medicare or Medicaid patients and are not planning to retire in the next several years. Even if you do not have a lot of Medicare and Medicaid patients, the answer is probably also "Yes," since most other insurers are likely to adopt incentive and penalty programs that explicitly or implicitly require EHRs, such as electronic prescribing. Furthermore, it will be impossible to meet the information needs required for participation in most new reimbursement programs focused on quality without an EHR. Your patients will know whether you are up to date or not. Names of physicians participating in PQRI and EHR incentive programs will be publicly available via the Web.

What if I already have an EHR? You will need to work with your vendor to make sure your current system already satisfies or can be upgraded to satisfy the new requirements. If not, you need to decide whether or not to switch to another system.

How do I go about selecting a specific EHR system? The steps include assessment, planning, and selection.

The first step is assessment: what you want, what you need, what you can afford. Assess the practice to identify opportunities to design and improve processes for patient care, improve workforce morale, and integrate HIT into it. Identify a physician champion and develop an EHR implementation team. Determine whether or not you will use outside help, from one of the regional extension centers established by the HITECH Act or a private consultant.

What problems do you want to solve? Tailor your choice of product to your specific needs. It is not necessary to spend money for functionalities and services that are not needed and may never be used. If you hope to qualify for Medicare and Medicaid incentives and avoid penalties, study the specifics of the new Federal HIT regulations.

The second step is planning. Identify goals, priorities, and barriers. Identify high priority needs, features, and functions of EHR from the practice perspective. Define a project scope. Communicate to staff the anticipated changes in processes and workflow. Work through the implications of different ways to start using the new EHR: either the Big Bang approach or an incremental rollout.

How to handle legacy paper charts and new paper-based data that often accompany new and follow-up patients? One option is scanning patient charts: making an electronic image of a document, which may or may not be searchable.

A core concept of medical informatics is that you can only manage what you measure

The third step is selection. How do you know if an EHR system is right for you? First, be certain of your practice's requirements. Do you need a new billing system (practice management system)? If you do not, does your current practice management system support an interface to an EHR? Do you want a single vendor solution or several applications that interface with one another? Weigh the pros and cons of choosing a full-featured solution vs an incremental or partial ("good enough") one. You will need to select among the different EHR hosting models and data input methods. Continue to be mindful of the new Federal regulations.

What will provide value? Value does not necessarily equal return on investment. It can include time saving, ease of use, better quality of practice, or ability to participate in certain insurance programs. Focus on things physicians do 95% of time. Consider what the staff needs, such as e-mail, instant messaging, patient education tools, and forms. There is no guarantee that even the maximum Medicare or Medicaid incentive payments will totally cover the costs of implementing an EHR.

Issuing a Request for Proposal is recommended. This is an invitation for suppliers to submit a proposal on a specific product or service. A Request for Proposal structures the procurement process and allows the risks and benefits to be identified clearly up front. Focus on your practice's needs and requirements. Ask vendors to tell "how" the system will address your practice's problems, not "if." Pay careful attention not only to product features, but also to vendor track record, financial health, and viability.

Careful evaluation of competing individual EHR systems is most successful if you get hands-on experience with the products under consideration. This can take place during product demonstrations and site visits.

There are many contract provisions to consider when finalizing your agreement with the EHR vendor. They include discussion of contingencies (what if …), scope of the license, and certain boilerplate clauses. Does the system meet your requirements? Have you done due diligence on the vendor? An attorney familiar with EHR vendor contracts should review your contract.

DISCUSSION AND CONCLUSIONS Emerging Federal HIT standards, implementation specifications, certification criteria, and meaningful use incentives/penalties will change the world of medical information management, including what EHR products are developed, who develops, oversees, and certifies them, evaluation and purchasing algorithms, end-user and patient expectations and workflow, and reimbursement. Although expectations are high, whether these initiatives will significantly improve the quality of medical care is yet to be demonstrated.[9]

A core concept of medical informatics is that you can only manage what you measure. There are unintended consequences of this maxim. For example, many would say evaluation and management service CPT coding standards transformed the paper medical record from patient- and physician-centered documents into an audit trail. Despite the best of intentions, the new Federal HIT regulations may move electronic health records in the same direction.[10]

Implementation of an EHR is not a one-time event. It is a process. Over time, you will change how you work with it, install upgrades and new features, and incorporate the latest government and health plan regulations. EHR evaluation uses the continuous quality improvement principles of plan, do, study, act. Plan a change, do it. Study its effects. Act on what you have learned.

In order to keep up to date, please visit the HealthIT.hhs.gov Web site regularly. The American Academy of Neurology Web site, AAN.com, will post the latest news with advice and commentary for members.

REFERENCES
1. The Official Web Site for the Medicare and Medicaid EHR Incentive Programs. Available at: http://www.cms.hhs.gov/Recovery/11_HealthIT.asp. Accessed September 13, 2010.
2. Koppel R, Kreda D. Health care information technology vendors' "hold harmless" clause: implications for patients and clinicians. JAMA 2009;301:1276–1278.
3. Hsiao CJ, Beatty PC, Hing ES, et al. Electronic medical record/electronic health record use by office-based physicians: United States, 2008 and preliminary 2009: Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/nchs/data/hestat/emr_ehr/emr_ehr.htm. Accessed September 13, 2010.
4. AMA: Health Information Technology (Health IT) Resources and Activities. Available at: http://www.ama-assn.org/ama/pub/physician-resources/solutions-managing-your-practice/health-information-technology/hit-resources-activities.shtml. Accessed September 13, 2010.
5. American Recovery and Reinvestment Act of 2009. Available at: http://www.recovery.gov/. Accessed September 13, 2010.
6. Blumenthal D. Launching HITECH. N Engl J Med 2010;362:382–385.
7. Goldstein J. Grassley asks hospitals about problems with health IT systems. *Wall Street Journal* [online]; January 20, 2010. Available at: http://blogs.wsj.com/health/2010/01/20/grassley-asks-hospitals-about-problems-with-health-it-systems/tab/article/. Accessed September 13, 2010.
8. Kibbe DC. EHR redux: The Health Care Blog. Available at: http://www.thehealthcareblog.com/the_health_care_blog/2010/02/ehr-redux.html. Accessed September 13, 2010.
9. Lohr S. Little benefit seen, so far, in electronic patient records. *New York Times* [online]; November 15, 2009. Available at: http://www.nytimes.com/2009/11/16/business/16records.html. Accessed September 13, 2010.
10. Baron RJ. Meaningful use of health information technology is managing information. JAMA 2010;304:89–90.

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AAN Electronic Health Records: Resources

AAN: **http://www.aan.com/go/practice/electronic**

Neurology Now

Orly Avitzur. A Worldwide Web of Personal Health Records. May/June 2006; **http://www.neurologynow.org**

Neurology Today

Orly Avitzur. Computerizing Your Office: Expert Tips on How To Select the Right Vendor. July 2004; **www.neurotodayonline.com**

Amanda Becker. Medicare Policies: How to Code for Use of Electronic Health Records. January 3, 2008; **www.neurotodayonline.com**

Elizabeth Stump. When Moving Records and Practices, Know Your Legal Obligations. March 19, 2009; **www.neurotodayonline.com**

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