

Electronic Medical Record *Implementation Guide*

The Link to a Better Future
2nd Edition



Health Information Technology
Practice Management Services



THE
PHYSICIANS
FOUNDATION
HELPING DOCTORS HELP

www.physiciansfoundation.org

Dear Colleague:

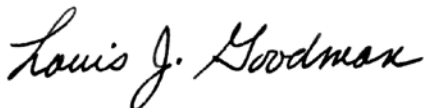
Physicians and their practices face tremendous pressures and stress today as they struggle to deal with new and expensive technology, changes in reimbursement, and information overload. The Physicians Foundation is dedicated to helping practicing physicians, particularly those in solo and small practices, overcome these challenges so that they can focus their time and talents on patient care.

The potential of health information technology (HIT), including electronic medical records (EMR), to strengthen the health care system and improve quality of care has garnered nationwide attention. Now more than ever, physicians need information about implementing EMRs as the American Recovery and Reinvestment Act begins offering financial incentives for physicians to implement HIT. Our goal is to help ensure that HIT helps you, your patients, and your practice by improving quality of care, patient safety, and practice viability.

Electronic Medical Record Implementation Guide: The Link to a Better Future, 2nd Edition, takes a nontechnical view of the subject to help you successfully select and adopt an EMR system, with an emphasis on the needs of smaller practices.

We hope that you find this handbook useful. Meanwhile, The Physicians Foundation continues working to help you improve the care you deliver to your patients.

Sincerely,



Louis J. Goodman, PhD
President
The Physicians Foundation



Louis J. Goodman, PhD

TMA gratefully acknowledges the Texas Medical Association Special Funds Foundation for its support of this publication through funds awarded by The Physicians Foundation.

Authors

David D. Marcus, MBA, PhD

Dr. Marcus is a Nashville-based writer, seminar presenter, and consultant on physician payment and health policy issues. Before founding Physician Payment Resources in 1998, Dr. Marcus headed TMA's Department of Health Care Financing, where he developed nationally recognized physician advocacy and education activities to guide TMA's membership in adapting to the growth of health care payment plans and the evolution of Medicare reimbursement. His writings have appeared in AMNews, Texas Medicine, The Journal of Practice Management, and in numerous TMA publications on physician payment and health policy. He can be reached at ddmarcus@comcast.net.



*David D. Marcus, MBA,
PhD*

John Lubrano, PhD

Dr. Lubrano is the founder and owner of Protis I.T. Solutions. For nine years, Protis has provided information technology consulting and support for professional service firms in Texas. Dr. Lubrano specializes in office automation and electronic health record selection and deployment for medical practices. He works exclusively with TMA Practice Consulting as its technology expert. He graduated summa cum laude with a BA from the University of Notre Dame, and earned his PhD from The University of Texas at Austin. He can be reached at lubrano@protis.com.



John Lubrano, PhD

Jennifer Murray, MHA

Prior to starting her own company, JGM Business Services, Inc., Jennifer Murray worked in health care administration for more than eight years for organizations such as the Texas Medical Association and St. David's Healthcare Partnership. Now she offers business and technical writing services to health care and medical companies. Ms. Murray has coauthored articles in Texas Journal for Rural Public Health and Journal of Health Administration Education. She has written for organizations such as Seton Healthcare Network, Premium Health Products, and the Comprehensive Breast Center of Arizona. Ms. Murray holds a bachelor of science in biology and a master of health care administration, and is a fellow of the American College of Health Care Executives. She can be reached at jengmurray@gmail.com.



Jennifer Murray, MHA

Contributors

Ana E. Cowan, JD

Brown McCarroll, LLP, Austin

Hal S. Katz, JD

Brown McCarroll, LLP, Austin

Roger A. Maduro

President and CEO, LxIS

Physician Reviewers

Abraham Delgado, MD (1st edition)

Kenneth Haygood, MD (1st edition)

Lewis Foxhall, MD (1st edition)

Martin Garza, MD (1st and 2nd editions)

Matthew Murray, MD (1st and 2nd editions)

William Moran, MD (1st and 2nd editions)

Joseph Schneider, MD, MBA (1st and 2nd editions)

Wesley W. Stafford, MD (1st edition)

TMA Staff Editors

Debra Farris

Bridget McPhillips, MBA, MAHS

Shannon Moore

Lee Spangler, JD

Meredith Tenney

Ellen Terry

Disclaimer

This publication is designed to provide general information in regard to the subject matter covered. It is provided with the understanding that the authors are not engaged in rendering legal, medical, or other professional services. Although prepared by professionals, the information provided in this publication should not be utilized as a substitute for professional services. TMA has attempted to present materials that are accurate and useful, some material may be outdated, and TMA shall not be liable to anyone for any inaccuracy, error or omission, regardless of cause, or for any damages resulting therefrom.

This information is provided as a commentary on legal issues and is not intended to provide advice on any specific legal matter. This information should NOT be considered legal advice and receipt of it does not create an attorney-client relationship. The Office of the General Counsel of the Texas Medical Association provides this information with the express understanding that 1) no attorney-client relationship exists, 2) neither TMA nor its attorneys are engaged in providing legal advice and 3) that the information is of a general character. Although TMA has attempted to present materials that are accurate and useful, some material may be outdated and TMA shall not be liable to anyone for any inaccuracy, error or omission, regardless of cause, or for any damages resulting therefrom. Any legal forms are only provided for the use of physicians in consultation with their attorneys. You should not rely on this information when dealing with personal legal matters; rather legal advice from retained legal counsel should be sought.

© 2009 *The Physicians Foundation*

CME Accreditation

The Texas Medical Association is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

TMA designates this educational activity for a maximum of 3 *AMA PRA Category 1 Credits™*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

TMA designates this activity for 3 credits in ethics and/or professional responsibility education.

CME credit is available for the period of Sept. 1, 2009, to Sept.1, 2012.

CME Instructions

1. Read the book, then complete the evaluation that begins on page 104.
2. Print and return the completed evaluation form to the Texas Medical Association, Attn: Knowledge Center, 401 W. 15th St., Austin, TX, 78701-1680. Please include your \$25 CME processing fee. Checks should be made payable to the Texas Medical Association.
OR, click [here](#) for online CME processing.
3. **Please note that your program evaluation and payment must be returned to TMA to receive CME credit.**
4. TMA will mail you a CME transcript within two weeks. If you are insured by the Texas Medical Liability Trust (TMLT), TMA will forward your completion information directly to TMLT as a request for the premium discount.
5. Questions regarding this program should be directed to TMA's Health Information Technology Department at HIT@texmed.org, or (800) 880-5720.

Target Audience

This publication is developed for physicians, practice managers, and administrators considering adoption of an electronic medical record system.

Course Objectives

Upon completion of this course, you should be able to:

- Discuss the efficiency and quality benefits of an electronic medical record (EMR) system;
- Evaluate your practice with a needs assessment to determine EMR readiness in terms of financial and operational variables;
- Discuss common EMR vendor contract issues and legal considerations for utilizing technology;
- Summarize necessary steps for selecting, implementing, and maintaining an EMR system.

Study Schedule

Task	Study Time
Read chapters 1-12	2 1/2 hours
Review case studies, glossary, and resource list	20 minutes
Complete evaluation	10 minutes
Total Study Time	3 hours

Disclosure

The content of this course does not relate to any product of a commercial interest; therefore, there are no relevant financial relationships to disclose.

Professional Liability Insurance Discount

Physicians who are insured with TMLT may earn professional liability insurance discounts by participating in approved continuing education activities. TMLT policyholders who complete this course may earn a 3-percent discount (not to exceed \$1,000), which will be applied to their next eligible policy period.

In conjunction with a practice review, TMLT policyholders may receive an additional 2.5-percent risk management discount for the use of EMRs or electronic prescribing (e-prescribing). Eligibility for this discount is contingent upon documented use of a system for a minimum of one year. The program also must meet specific risk management criteria. Call TMLT at (800) 580-8658, ext. 5912, for more information.

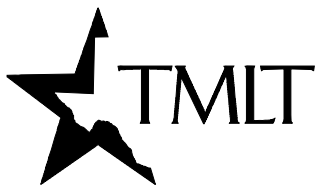


Table of Contents

Chapter 1: Introducing Health Information Technology	9
HIT Is Already Here	9
Terminology	11
Chapter 2: Why Now?	12
HIT’s Nationwide Attention	12
Relevance to the Individual Physician	13
Quality Benefits of an EMR	15
Efficiency Benefits of an EMR	16
Chapter 3: American Recovery and Reinvestment Act	18
Meaningful Use	18
Medicare Incentives	20
Medicaid Incentives	22
Privacy Provision	24
Other HIT Developments	26
Chapter 4: Is Your Practice Ready for HIT?	27
Stage of Your Career	27
Taking the First Steps	28
The Impact of Workflow Redesign	29
Practice Readiness	30
EMR Readiness Questionnaire	31
<i>Case Study: Change Is Good</i>	34
Chapter 5: Which Product Is Right for Your Practice?	37
Determine the Practice’s Technology Needs.	37
Best-of-Breed Vs. Fully Integrated Solutions	37
Input Devices	39
Accessing the Software: Client-Server Vs. Application Service Provider Models.	40
Market Penetration Considerations	42
Practice Size	42
That Old Practice Management System	43
Chapter 6: Open Source Solutions	44
VistA	45
Advantages	46
Disadvantages	48
Barriers	49
Certification Issues	51
Evaluating Open Source in Your Practice	51
Chapter 7: Making the Selection	54
Narrowing the Choices	54
Site Visits	55
Use the Trial Versions	56
Vendor Demonstrations	56
After the Vendor Meetings	58

Chapter 8: The Request for Proposal	59
Should You Use a Request for Proposal?	59
RFP Format and Content	60
<i>Case Study: The Networking Element</i>	64
Chapter 9: Budgeting and Financing for HIT	66
Benchmarking HIT Costs	66
Improving the Proposal's Financial Attractiveness	68
Budgeting for HIT Acquisition	69
Getting the Most Return on Your Investment	69
Obtaining Help to Pay for HIT	70
Financing Options	71
Chapter 10: Creating the Contract	72
Determinants of Contract Details	72
Contract Review Checklist	72
Chapter 11: Moving Forward: Implementation	81
Now That You Are Ready	81
The Vendor's Role	82
Planning for Implementation	82
Communicate With Your Patients	87
<i>Case Study: Small Town Success</i>	88
Chapter 12: The Law and HIT	91
Antikickback and Stark Rules	91
Technology Liability Exposure	92
HIPAA	93
Telemedicine	94
The Internet	94
Web Sites	95
<i>Case Study: Using Technology From Day One</i>	96
Glossary	98
Resources	101
Evaluation Form	104

Chapter 1: *Introducing Health Information Technology*

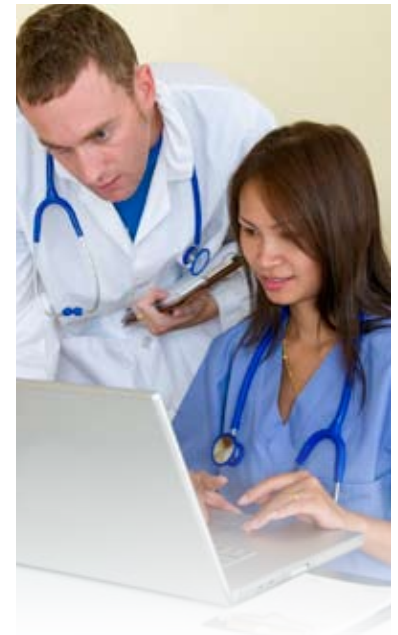
Successfully implementing health information technology (HIT) into an office practice can bring improvements in both quality of patient care and practice profitability. This book offers a nontechnical view of the steps necessary for the successful introduction of HIT, with an emphasis on the needs of smaller practices, and walks you through the process of acquiring and learning to use HIT.

HIT Is Already Here

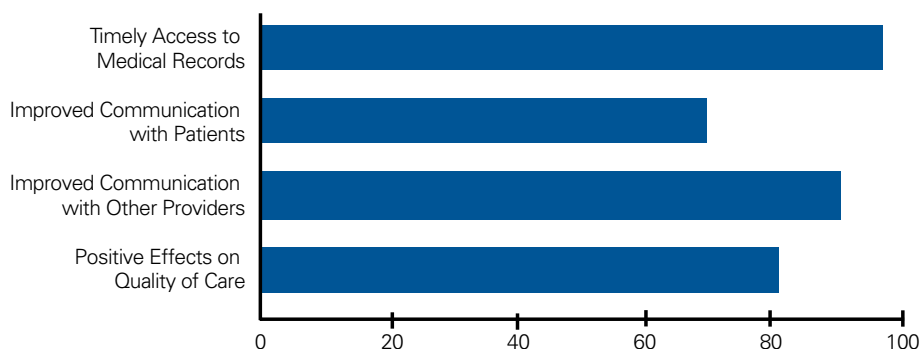
In cooperation with the Robert Wood Johnson Foundation, the New England Journal of Medicine conducted a study in 2008 to determine national electronic medical record (EMR) adoption rates, satisfaction with chosen systems, anticipated barriers to adoption, and perceived effect on quality of care. The survey drew 2,758 responses. The survey results show that less than 10 percent of the physicians in the study had incorporated a fully functional EMR. However, almost half of the responding physicians either already had incorporated HIT into their practices or planned to adopt it within the next two years.

Early-Adopting Physicians See Improvements

At the time of the survey, 17 percent of the physicians surveyed used EMRs in their office practices, and 26 percent planned to acquire EMRs in the next two years. Those who had adopted EMRs had had successful experiences. The physicians overwhelmingly reported the following as the most important features of EMRs.



Most Important EMR Features



Collectively, all of these improvements reflect positive changes in patient care and practice operations.

Implementation Consideration Among Nonadopters

Among physicians who do not use EMRs, barriers to adoption include:

- The capital costs of purchasing a system 66%
- Not being able to find a system to meet their specific needs 54%
- Uncertainty about return on investment 50%
- Concern that the system would become obsolete 44%

The nonadopters were not the only ones to express concerns about the cost of acquiring an EMR system. Even among the physicians already using an EMR, financial incentives for purchase were cited as major incentives for adopting and using a system. The need for financial assistance remains critical for widespread HIT adoption. Additionally, 40 percent of respondents reported that protection from personal liability due to record-tampering would help motivate them to adopt an EMR.

Overall Positive Outlook on EMR Adoption

Overall, the survey results describe a physician community that now favors the adoption of EMRs:

- Physicians who are using EMRs in their offices can cite concrete benefits to their office operations and quality of patient care. Among the adopting physicians, 93 percent report that they are satisfied with a fully functional system that includes order entry capabilities and clinical decision support. Eighty-eight percent who utilize a more basic EMR system indicate that they are satisfied.
- While physicians believe that EMRs are beneficial to their practice, a concern across the board is cost.
- A large majority of respondents reported an overall positive effect on their practice with the use of their EMR system.

Even among the physicians currently not using an EMR, more than half reported that financial assistance would facilitate adoption. Even among those who already had adopted, 46 percent indicated that they would have liked some financial assistance.

Terminology

- Health information technology (HIT) includes introducing medical offices to computerized processes for maintaining patient medical records, automating administrative tasks of patient management, making patient records available at the point of care, linking clinical information to billing systems, and having a communications infrastructure capable of meeting interoperability standards and opportunities now and into the future.
- Electronic medical record (EMR) is a computerized system of accessing in real time the history of a patient's care within a single practice. The content of an EMR is analogous to the paper record, but the electronic format creates usable data in medical outcome studies, improves the efficiency of care, and makes for more efficient communication among providers and easier management of health plans.
- Electronic health record (EHR) is a computerized patient-centric history of an individual's health care record that includes data from the multiple sources of care that the patient has used. Because they are interoperable (i.e., can be accessed across networks by computers using a variety of operating systems and software), they can be accessed at any authorized point of care. At this time, the EHR is in a developmental phase, and it will be several years before it will be possible to determine the effect that the EHR will have on medical practices and patients.

Follow these two simple rules to eliminate confusion among these terms:

1. Most of the time when someone uses the term "electronic health record" or "EHR," he or she actually means "electronic medical record" or "EMR." The main exception is when the topic is the entire networked health care system five to 10 years from now, or interoperability, referencing EHRs.
2. Often the terms "electronic medical records" and "health information technology" are used synonymously. For example, a survey may inquire about "the acquisition of electronic medical records," because that terminology is more recognizable by physicians than the broader term, "health information technology."

Chapter 2: *Why Now?*

HIT's Nationwide Attention

A combination of public policy, quality of care, and economic concerns is driving HIT into physician office practices. The leadership of both political parties has endorsed the commitment to building a health care delivery system in which clinical information about individual patients as well as evidence-based standards of care are electronically available at the point of service. To increase connectivity over the next decade and beyond, interoperability standards allowing the secure sharing of information among systems with differing operating systems and hardware are now being developed and tested.

Current health care publications highlight an increased national interest in EMRs and personal health records. These forms of HIT are ways to help resolve multiple issues within the health care system. With decreasing physician reimbursement, increasing overall costs of health care, and an increasingly uninsured and underinsured population, the dialogue is shifting from simply managing costs to include quality improvement.

Drivers Pushing HIT

Below are listed some of the many drivers currently pushing HIT into physicians' offices.

- **Federal government.** In 2004, President George W. Bush launched an initiative to make electronic health records available to most Americans by 2014. This was followed by an August 2006 executive order calling for federal programs to lead the way with HIT adoption, along with financial and quality transparency. In February 2009, President Barack Obama passed the [American Recovery and Reinvestment Act](#), which earmarked \$20 billion for the establishment of HIT infrastructure.
- **State policy and legislation.** State leaders continue to take steps to utilize HIT to address the health needs of their constituents.
- **Large employers.** Large employers are forming [coalitions](#) and business groups to affect changes in the health care system, seeking demonstrable value and quality for their health care dollars.
- **Patients.** Recent studies indicate that patients prefer physicians who can communicate electronically; patients being able to communicate electronically with their physician can improve patient satisfaction. Additionally, consumer groups are calling for cost and quality reassurances that will empower patients to make sound health care decisions.
- **Health plans.** Health plans view HIT as a tool for measuring the efficiency and quality of the health care they cover.

- **Interoperability.** Many state and regional projects are underway to develop the framework for secure and standardized sharing of data among providers through health information exchange.
- **Transparency.** Transparency refers to providing patients accurate and reliable information about the cost and quality of medical care. The goal is to facilitate market pressures that will improve quality and efficiency. National data standards promoting transparency are beginning to emerge; however, no oversight of process and data accuracy is in place at this time. The ideal situation would include two-way transparency that includes payer transparency.
- **Pay for performance.** Pay for performance is a model in which health plans reimburse physicians or other providers at a level relative to the achievement of quality measures. More than 160 pay-for-performance programs are in effect, mostly in the pilot stage. Technology is a valuable tool for documenting compliance with reporting measures.
- **Tiered networks.** Tiered networks essentially are networks within networks in which both patient out-of-pocket costs and physician reimbursements are variable, dependent on achievement of quality measures.
- **Quality-of-care initiatives.** While some variance among specific measures may exist, a common acknowledgement of HIT's vital role in quality-of-care initiatives is clearly evident.

Relevance to the Individual Physician

More relevant to the individual physician, perhaps, is the need for change in the following four areas, areas in which the application of HIT will be noticeably beneficial: patient safety, quality improvement, pay-for-performance reimbursement, and improved practice efficiency.

Patient Safety

Physicians' increased use of information technology is a key to reducing risk to patients. For example, intelligent e-prescribing, in conjunction with an EMR, improves patient safety by eliminating the need to interpret handwriting and by checking prescriptions against the patient's medication list for any potentially harmful interactions or allergies before sending the prescription to the pharmacy.

Quality Improvement

The use of EMRs in physician offices is critical to the implementation of effective quality improvement in medical practices. EMRs enable physicians to build evidence-based protocols in medical records. Additionally, physicians can produce and use data so that they can view patient care and the performance of their practices in the context of the aggregate population they treat. Because of an EMR, the answers

to the following sample questions are actionable and can lead to definable improvements in the health of patients:

- What percentage of a practice's diabetic patients actually received their periodic eye and foot evaluations?
- What percentage of the children treated in a pediatric practice received their immunizations on the correct schedule?

Pay-for-Performance Reimbursement

Pay-for-performance reimbursement systems require a major calibration of the data interchange between physicians and payers. For physicians who use evaluation and management codes (E&M) heavily, billing data reveal relatively little about what happened during a specific situation or whether a particular treatment protocol was used. Moreover, following an evidence-based protocol may well involve making appropriate referrals to another specialist. For example, a family medicine physician, primary care internist, or pediatrician might send a diabetic patient to an orthopedic surgeon for a foot exam or to an ophthalmologist for an eye exam. Linking these exams back to the referring physician and to the patient's diabetic treatment regimen solely on the basis of claims data is not a simple matter, and is all the more difficult in paper-based practices.

While some practices use manual systems to track pay for performance, tracking clinical services accurately by patient and by payer virtually requires the use of EMRs. Using EMRs that allow documentation templates to be customized will capture performance markers in the routine documentation process.

Improved Practice Efficiency

As physician income continues to decline, controlling practice costs is becoming a critical issue for physicians in office practice. Medical practices that use HIT potentially can gain the same type of cost savings that information technology has long been creating in other businesses through the substitution of technology for manual work. With EMRs, practice office staff no longer need to pull charts for every patient visit, every patient phone call, or every request for a prescription renewal, and nobody has to search for lost charts.

Quality Benefits of an EMR

Assessing data from paper medical records is time-consuming because it involves reviewing information manually — record by record. By contrast, an EMR makes data easily accessible and enables physicians to use their own data to improve quality of care. With efficient electronic access to clinical data, practices can systematically improve the quality of care in a number of areas:

- **Enhanced patient education materials.** Practices can customize information packets and Web site referrals for patients so that patients receive essential information about their health at the point of care and guidance from reputable, scientific sources.
- **Quicker turnaround times for results of lab tests and imaging studies.** Connectivity between practices and the clinical laboratories and imaging centers shorten the time necessary for diagnostic information to reach the practice and the patient. Physicians can initiate therapy more quickly and reduce patient waiting time.
- **Improved diagnostic process.** The availability of decision support at the point of service fosters a consistent, evidence-based diagnostic process.
- **Streamlined health maintenance and chronic disease management.** EMR systems can generate automated appointment reminders for periodic checkups and for monitoring chronic diseases and conditions. Monitoring patient responses to these reminders enables practices to follow up with patients who need medical attention but are not responding to the practice's automated messages.
- **Protocol-based treatment.** EMRs have the capability to incorporate treatment protocols so that physicians can track the care of individual patients within an evidence-based framework.
- **Reduced medical errors.** Intelligent e-prescribing alerts physicians to problems resulting from drug interactions and allergies. It also can help physicians avoid errors caused by the very large number of prescription drugs that have similar names.
- **Improved access to patient records.** EMRs improve access to patient information that is both legible and up-to-date. EMRs can provide the physician electronic access to patient records from remote locations whenever needed.
- **Improved outcomes.** The sum of all these individual parts is process improvement that leads to better outcomes. The incorporation of evidence-based protocols, decision support, and e-prescribing into the EMR gives the physician diagnostic and treatment-relevant information during the patient encounter. The tools for improving practice and self-monitoring are immediately at hand.

With EMRs, practice office staff no longer need to pull charts for every patient visit, every patient phone call, or every request for a prescription renewal, and nobody has to search for lost charts.

Efficiency Benefits of an EMR

The efficiency benefits of an EMR derive from three changes that occur in practices as they move from paper to electronic:

- The reduction in expenses associated with the management of paper records;
- Significantly more efficient and accurate coding and billing of claims as a result of template-based documentation;
- Redesign of workflow so that practice staff can become more productive users of the practice's HIT system;
- Real-time access to a patient records from multiple computers and locations, including remote access beyond the office, without physically retrieving a paper chart; and
- Multiple people simultaneously accessing a single patient record from multiple locations, improving work flow in some situations.

Getting Rid of Paper

Eliminating paper medical records saves both forests and money. Typically, practices report a \$25 savings per chart by eliminating the supply, copying, printing, and storage of paper charts. Transcription costs generally drop by a range of 50 to 100 percent. Staff efficiency is greatly improved because the time-consuming task of physically moving paper charts around the office is eliminated, and the time needed for ordering and tracking lab tests, imaging studies, and prescriptions is greatly reduced.

Coding and Billing of Claims

EMRs encourage structured documentation. Commonly, EMRs are able to accommodate user-developed templates to capture services that a practice most frequently provides quickly, accurately, and in detail. In turn, the EMR influences the coding process in two ways:

1. Because electronic documentation is structured, it captures the Current Procedural Terminology (CPT) criteria that define levels and types of services more accurately than paper records. As a result, it reduces the number of coding disagreements between practices and payers. In practical terms, the increased accuracy of coding equals a shorter revenue cycle, as payers dispute fewer claims. Also, whenever payers do request additional documentation, the practice easily can send the relevant portions of the patient's EMR.
2. As physicians gain confidence in the accuracy of coding developed on the basis of the EMR, they begin using the full range of E&M codes. In particular, many practices have underutilized the higher-level E&M codes out of fear that payer coding profiles would identify them as outliers. But with the more solid EMR documentation in hand, physicians are willing to bill based on the accuracy of their records. Although this varies from practice to practice, this closer adherence to CPT standards

The sum of all these individual parts is process improvement that leads to better outcomes. The incorporation of evidence-based protocols, decision support, and e-prescribing into the EMR gives the physician diagnostic and treatment-relevant information during the patient encounter. The tools for improving practice and self-monitoring are immediately at hand.

can result in increased revenue. One study of a number of family practices that installed HIT systems found that the combination of more accurate coding and additional office visits (due to increased efficiencies) generated an additional \$23,000 per physician in annual revenue.

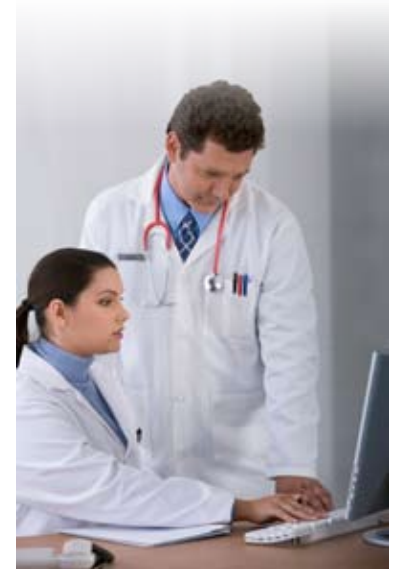
Redesign of Workflow

As practices migrate from paper to EMRs, change is constant. Everybody in the office, including physicians, will perform a major portion of their day-to-day work differently. Much of the economic benefit of HIT derives from the reorganization of daily tasks, as staff and physicians substitute time-consuming, manual processes for technology. The implementation of HIT combined with a major redesign of workflow can reduce practice expenses.

Chapter 3: *American Recovery and Reinvestment Act*

In February of 2009, President Obama signed the [American Recovery and Reinvestment Act \(ARRA\)](#), with the intent to stimulate the economy through investments in infrastructure. ARRA includes significant funding earmarked for the development of information technology for health care and the improvement of the quality of care provided to patients, while bringing down costs. In the hopes of swaying more physicians to adopt and use EMRs, ARRA set aside almost \$20 billion under the U.S. Health and Human Services Department (HHS) to help physicians purchase and implement HIT systems. This is a historic opportunity to improve the health of Americans and the performance of the nation's health system through unprecedented investment in HIT. This initiative is expected to be an important part of health reform for health professionals and institutions harnessing the full potential of digital technology to improve the health of the nation.

Two major sections of the stimulus package, Title IV and Title XIII, collectively known as the Health Information Technology for Economic and Clinical Health (HITECH) Act, provide for incentives and aid for physicians who use EMRs meaningfully. The incentive payments in this legislation hopefully will lower a big EMR hurdle that physicians face today — the cost of purchasing software. Reimbursement from the stimulus package will be distributed over a period of time and may be utilized to purchase software, and more important, to pay for implementation and training.



Meaningful Use

Although the incentive payments under HITECH are available to physicians who demonstrate “meaningful use” of an EMR, the act leaves many key questions unanswered, as HHS has yet to define “meaningful use” and clarify other terms of HITECH. What we do know is this: To demonstrate meaningful use, a physician must be able to:

- Use certified EMR technology,
- Engage in e-prescribing (physicians must use an e-prescribing system; computer-generated faxes of prescriptions to pharmacies do not qualify),
- Participate in health information exchange in accordance with law and standards, and
- Produce quality reporting measures according to HHS specifications.

According to ARRA, “certified technology” means that a qualified EMR:

- Includes patient demographic and clinical health information,
- Can provide clinical decision support to physician order entry,

- Has the capacity to capture and query information relevant to health care quality, and
- Exchanges and integrates electronic health information with other sources.

The physician's EMR must be able to exchange health information to achieve several aspects of meaningful use, including improvement in care coordination. While still fairly early in development, health information exchanges already are active in some parts of the country and in development in others. It is expected that the definition of "meaningful use" will initially call for the technology to be capable of participating in an exchange, and in later years, will require actual participation in an exchange.

Reporting and acting on quality measures to improve health outcomes are key factors in the transformation of the health care system that ARRA envisions. The federal policy, as expressed in the law, presupposes that to improve health care delivery, physicians must be able to generate, analyze, and effectively use quality reports from their EMR data. Physicians who provide quality care may then be rewarded. The Office of National Coordinator for Health Information Technology (ONC) is developing criteria for quality measures around five core areas of health outcomes:

1. Improve quality safety and efficiency while reducing health disparities,
2. Engage patients and families,
3. Improve care coordination,
4. Improve population and public health, and
5. Ensure adequate privacy and security protections for personal health information.

Potential quality measures HHS expects include these reports:

- Percent of hypertensive patients with blood pressure under control,
- Percent of orders entered directly by physicians through computerized order entry,
- Percent of patients with LDL under control,
- Use of high-risk medications in the elderly,
- Percent of smokers offered smoking cessation counseling, and
- Percent of female patients over age 50 receiving an annual mammogram.

In various proposals, ONC indicates that in 2011 and 2012, physicians receiving incentives must first demonstrate the **ability to generate reports on quality measures**, which will reward them for purchasing and implementing EMRs that can **capture quality**. Then in 2013, the proposed definition of "meaningful use" would expand to include

a requirement for the **reporting of quality data results**, which will reward the physician for **actual reporting of data**. Lastly, in 2015, the reports must **meet national standards or benchmarks**, which will reward **effective use of data**, when the systems permit physicians to improve care and meet quality benchmarks.

The time waiting for the final definition of “meaningful use” is cause for concern for those physicians who already have adopted an EMR or who are in the process of purchasing one. Physicians currently in the process of purchasing an EMR should request that vendors sign a contract stipulation that ties final payment to the vendor’s promise to deliver an EMR, including all of the EMR functionalities needed to enable the physician to meet all meaningful use guidelines by 2011. Furthermore, physicians may want to consider a contract provision that ties payment of any annual fees for maintenance or updates to be contingent upon the ability of the EMR product to meet the meaningful use requirements each subsequent year.

If you already have adopted an EMR system, now is the time to start an ongoing dialogue with your EMR vendor to determine its efforts to provide a product that will allow you to achieve the meaningful use requirement each year, thereby remaining eligible for incentive payments.

Definitions continue to evolve, with a final answer expected in early 2010. Check the [ONC Web site](#) for updates and developments.

Medicare Incentives

Those physicians who utilize EMRs and meet the meaningful use criteria can take advantage of thousands of dollars of incentives over the next few years. The proposed incentives do not include payments to long-term care physicians or hospital-based physicians (e.g., pathologists, emergency room physicians, and anesthesiologists), if those hospital-based physicians provide care almost exclusively in the hospital and using the hospital’s facilities and equipment, including qualified electronic health records. The incentives also may exclude physicians who use hospital-based EMRs in hospital-based clinics.

Funding amounts vary depending on mathematical formulas and the year in which the physician is first able to demonstrate meaningful use. **To receive the maximum amount over five years, physicians must demonstrate meaningful use by 2011 or 2012.** Prepare now so that you are positioned to receive maximum levels of incentives offered.

Depending on the amount of Medicare services provided, physicians who accept Medicare patients could earn up to \$44,000 in incentives over five years. For those who meet the requirements by 2011 or 2012, the first Medicare incentive payment is \$18,000. The annual payment amounts decrease after that.

Medicare Incentive Schedule

First Payment Year	2011	2012	2013	2014	2015	2016	Maximum Potential
2011	\$18,000	\$12,000	\$8,000	\$4,000	\$2,000	-	\$44,000
2012		\$18,000	\$12,000	\$8,000	\$4,000	\$2,000	\$44,000
2013			\$15,000	\$12,000	\$8,000	\$4,000	\$39,000
2014				\$12,000	\$8,000	\$4,000	\$24,000

Eligible physicians who work in health professional shortage areas will receive a 10-percent increase in incentive payments as compared with physicians in other areas. Please note that these funding amounts are per physician; therefore, practices with multiple physicians would multiply the amounts by the number of physicians in the practice achieving meaningful use. However, where an eligible professional is providing covered professional services in more than one practice, the incentive payment shall be modified to “coordinate” the incentive payments. This aspect of the law will be subject to future rulemaking.

While ARRA offers quite a large carrot to physicians, be aware that there is a stick involved as well. Physicians who have not become “meaningful users” will be subject to reduced Medicare payments, beginning with a 1-percent cut in 2015. The penalties increase to 2 percent by 2016 and 3 percent by 2017. HHS may continue to decrease 1 percent per year to a maximum of 5 percent, if 75 percent of office-based physicians do not achieve meaningful use by 2018. All incentive payments end in 2016.

ARRA does place some caveats on eligibility to receive incentive payments. Physicians who report using an EMR with e-prescribing capabilities forfeit their eligibility for the e-prescribing bonuses established by the 2008 Medicare Improvements for Patients and Providers Act if they seek incentive payments under ARRA. In addition, physicians may qualify for payments for using HIT under Medicare or Medicaid, but not both.

The potential success of the incentives is debatable, but any funding is likely to be of assistance to physicians planning to adopt technology, as cost is frequently cited as a major barrier. Opportunities for incentive payments and threats of penalties related to adoption and use of EMRs make it tempting to rush into implementing a system. Physicians

should proceed with caution and tap into available resources to make wise decisions.

Medicaid Incentives

The Medicaid incentives and definitions for “meaningful use” of certified EMR technologies are vaguer than those for Medicare. Nevertheless, the stimulus legislation stipulates that the following health care professionals are eligible for incentive payments:

- Nonhospital-based pediatricians and other professionals with at least a 30-percent Medicaid patient volume;
- Nonhospital-based pediatricians with at least a 20-percent Medicaid patient volume are eligible for two-thirds of the dollar amounts specified for the maximum;
- Eligible professionals who practice predominantly in federally qualified health centers or rural health clinics and have at least 30 percent of the patient volume attributable to needy individuals. Needy patients are those covered by Medicaid, receiving services under Title XXI, unable to pay, or receiving services on a sliding scale due to inability to pay.

The Medicaid incentive program will be administered by the states, and has a more complex funding schedule based on EMR costs. Medicaid will pay up to 85 percent of costs related to EMR adoption and operation. Physicians can receive a one-time incentive payment for 85 percent of the allowable cost for the purchase and implementation of a certified EMR in the first year.

For example, in the first year, physicians can receive up to \$21,250 (85 percent of a \$25,000 maximum) for an EMR implementation or upgrade. Medicaid professionals who achieve meaningful use can receive up to \$8,500 (85 percent of a \$10,000 maximum) for five years for operating and maintaining an EMR. Physicians who already have an EMR can receive the one-time payment the first year and the yearly payments thereafter by achieving meaningful use in those years. Remember, physicians may qualify for payments for meaningfully using HIT under Medicare or Medicaid, but not both. The maximum amount an eligible physician can receive through Medicaid incentives is \$63,750 over a five-year period.

The legislation does not penalize Medicaid physicians for failing to adopt a certified technology. Unlike Medicare penalties, no reductions in Medicaid payments are to be made if the physician does not adopt EMR technology.

Check your state's Medicaid Web site for more detail.

Alabama	Indiana	Nebraska	South Carolina
Alaska	Iowa	Nevada	South Dakota
Arizona	Kansas	New Hampshire	Tennessee
Arkansas	Kentucky	New Jersey	Texas
California	Louisiana	New Mexico	Utah
Colorado	Maine	New York	Vermont
Connecticut	Maryland	North Carolina	Virginia
Delaware	Massachusetts	North Dakota	Washington
Florida	Michigan	Ohio	West Virginia
Georgia	Minnesota	Oklahoma	Wisconsin
Hawaii	Mississippi	Oregon	Wyoming
Idaho	Missouri	Pennsylvania	
Illinois	Montana	Rhode Island	

A Word of Caution

With the possibility of receiving incentive money from the government, physicians will be approached by many vendors offering many services or goods intended to be ultimately paid for through Medicare and Medicaid. Indeed, some vendors may offer low-interest or no-interest loans, cash back, or other incentives for the purchase of their products that comply with program requirements. Physicians should be mindful that the federal antikickback statute prohibits any person from knowingly and willfully paying, offering, soliciting, or receiving any remuneration, directly or indirectly, in cash or in kind, to induce the referral of business covered (in whole or in part) by a federal health care program, including Medicare and Medicaid. Prohibited action also includes knowingly and willingly soliciting or receiving remuneration in an attempt to induce purchasing, leasing, ordering, or arranging for or recommending any good, facility, service, or item paid for (in whole or in part) through federal health care programs. You will want to review such offers with your retained legal counsel.

Privacy Provision

The HITECH Act also includes [expanded privacy and security laws](#). Most changes will not take effect until 2010 or later, but one requirement regarding personal health information becomes effective in September 2009. With this requirement, physicians must notify patients and the U.S. Department of Health and Human Services (HHS) of any unsecured leak or breach of protected health information (PHI). HITECH defines “unsecured protected health information” (unsecured PHI) as protected health information that is not secured through the use of technology or methods to be specified in guidance issued by the HHS secretary.

In compliance with the law, the secretary already has issued guidance and has specified the technologies and standards identified in “Publication 800-111, Guide to Storage Encryption Technologies for End User Devices” and, for data in motion, “the standards described in NIST Special Publications 800-52, Guidelines for the Selection and Use of Transport Layer Security (TLS) Implementations; 800-77, Guide to IPsec VPNs; or 800-113, Guide to SSL VPNs, and may include others which are FIPS 140-2 validated” Information not secured using these standards will be considered unsecured.¹

The notification requirements also are very specific. Each patient must be notified within 60 days of discovery of the breach by first-class mail or e-mail if that is the patient’s preference with the following information:

- Date and circumstances of the breach,
- Date of discovery,
- Type of PHI involved,
- Steps the person should take to protect himself or herself and to mitigate future damages,
- How the person can obtain more information about the breach.

The physician’s practice is required to maintain a log of privacy breaches that affect fewer than 500 people and report this information annually to HHS. For breaches that affect 500 or more people, HHS and relevant prominent media outlets must be notified immediately. On Aug., 19, 2009, the government issued regulations on breach notifications. Those regulations may be found through links on the federal government’s privacy Web site at www.hhs.gov/ocr/privacy/.

ARRA also enhances enforcement of the Health Insurance Portability and Accountability Act (HIPAA) by making changes to the existing complaint investigation and enforcement scheme along with increased

¹ 79 Fed. Reg. 19008.

funding. This funding enables the Centers for Medicare and Medicaid Services and the Office for Civil Rights to carry out mandated audits and make modifications in case and document management systems. The law also grants state attorneys general authority to file suit on behalf of a state's citizens and increases monetary penalties for violations of certain provisions to a maximum of \$1,500,000 per year for each identical violation.

For example, if a physician or business associate does not properly notify patients of multiple breaches of confidential information, a penalty of \$50,000 for each failure to notify a patient may be imposed on the physician or business associate until the total reaches \$1,500,000. If the physician or business associate, in that same year, regularly discloses to third parties in a way that violates the regulations, the government can impose a penalty of \$50,000 for each improper disclosure until that total reaches \$1,500,000. The physician or business associate in that calendar year would then be required to pay \$3,000,000.

Additional privacy enhancements include:

- Prohibiting the sale of patients' medical records without their consent;
- Limiting the marketing of protected health information;
- Requiring any entity using an EMR to keep an audit trail of three years' worth of disclosures to all people and organizations with whom it shared protected health information;
- Requiring the federal HIT Policy and Standards committees to consider setting standards for technology systems to segment sensitive information and for data encryption;
- Expanding the definition of business associate to include new business entities that were not contemplated when HIPAA was originally written, such as EMR vendors, so that they are subject to the same privacy and security rules as physicians either directly through the new HITECH provisions or through a business associate contract.

Other HIT Developments

ARRA extends its reach to the development of national HIT offices and programs. It creates statutory authority for the [ONC](#), charging this office with the responsibility to harness the potential of HIT to improve the health of Americans by developing certification and standards criteria and coordinating HIT policy.

ARRA also establishes the HIT Policy Committee and the HIT Standards Committee to support the ONC in its charges. An additional \$20 million in funding was allocated to the National Institute of Standards and Technology (NIST) for continued work on advancing health care information integration through activities such as developing interoperability standards. Additional funding went to the Veterans Benefits Administration, Agency for Healthcare Research and Quality, National Institutes of Health, and Health Resources and Services Administration ... all for the development of HIT infrastructure.

Chapter 4: *Is Your Practice Ready for HIT?*

Stage of Your Career

Now that you know how HIT can advance your practice, you will want to consider the stage of your career when looking at purchasing an EMR.

New Physician Starting a Practice Out of Residency

As a new physician, you do not have existing patient records or systems to convert, and more importantly, you typically have time to devote to EMR deployment. In your case, only a compelling reason (e.g., if you plan on joining a large group within three years, should keep you from beginning a practice with electronic records). Converting later on will be far more difficult.

Physicians Nearing Retirement Within the Next Five Years

Because it takes time, money, and resources to implement HIT, converting to an EMR system at this stage in your career likely will not be beneficial because of the high-conversion, hardware, and software costs. You also will experience a loss of productivity during the transformation process. However, having an EMR in place with a trained staff may be important if you are planning to sell your practice. It may, therefore, behoove the physician to implement an EMR and take advantage of the federal subsidies available during the five-year window.

Physicians Who Have Practiced for Five to 10 Years and Plan on Continuing for Another 15 to 20 Years

If you are in this category, you should certainly consider EMR implementation. Things to consider include your practice setting and payer mix. Converting to an EMR system can disrupt your practice and reduce revenues in the short run, but has significant benefits in the long run. It typically takes two to four years to realize the full benefit of the investment — this means effective EMR selection and deployment are critical. With the federal subsidies in play, there are very few reasons to remain on the fence.



Taking the First Steps

The successful transition from a paper- to electronic-based practice begins with developing an understanding of system functionality (what HIT actually does), analyzing the practice's readiness to manage a new operating system, and preparing staff for this major change. With hundreds of EMR products, the marketplace offers a robust choice, and selecting a system that is right for your practice depends heavily on understanding the practice's needs before seriously discussing a purchase with vendors. When the time comes to buy a system, emphasizing functionality and the practice's readiness assessment can help vendors show you the product characteristics that create value for you and your practice.

Analyzing and Preparing Your Practice

The first step in analyzing your practice is to assess your readiness in terms of culture, leadership, strategy, and technical readiness. Introducing an HIT system into a practice requires a team effort, and before making any formal decisions, begin preparing your team.

- In a group practice, begin discussing with your partners and your practice manager the possibility of implementing HIT. The main concerns will be inevitable — the time and money the acquisition process will require.
- In a multi-physician setting, everyone cannot have their exact preference. Be prepared that someone will have to inevitably compromise.
- A crucial element in the success of HIT acquisition is the “physician champion” who guides the change process. To introduce major changes that affect workflow and to keep the team on track, a physician in the group will need to take the lead.
- Consider creating a training venue in the office utilizing an LCD projector. This is helpful when viewing demonstrations and participating in training after EMR implementation.
- Take notes, keep files, and circulate informational materials of interest within the practice. A steady stream of concise documents will help keep interest and momentum alive.

Motivating Staff

Like most small business owners, physicians who own and run their practices find that the most challenging part of their work is managing and motivating office staff. In most practices, the burden of paperwork is overwhelming, and the successful operation of the typical medical practice depends heavily on the skills of the employees and their ability to multitask in an office with few automated functions. Emphasize to your team that using HIT can help automate many routine, time-consuming tasks as well as improve more complex processes.

To introduce major changes that affect workflow and to keep the team on track, a physician in the group will need to take the lead.

Instead of...	Use HIT to...
Relying on staff members to confirm appointments,	Automate the reminders.
Manually faxing prescriptions to pharmacies,	Electronically prescribe.
Calling the carriers to verify insurance coverage,	Verify online.
Relying on the skill of the practice's coder to assign CPT and ICD 9 codes to services,	Create template-based documentation to display structured data so that the coding process is accurate and verifiable.
Depending on third-party payers to provide baseline data and progress reports on pay-for-performance goals,	Create your own reports so you can monitor your practice's progress and reconcile any major differences with the payers early on.
Negotiating payer contracts blindly,	Develop value-based negotiating strategies by integrating financial and clinical data.

The Impact of Workflow Redesign

HIT changes the patient experience and, therefore, the design of your workflow. Consider the following.

- Will patients enter their medical histories and/or information about the history of their present illness on a computer in a kiosk in the waiting room or over the Web via a patient portal, or will they narrate the information to a nurse and/or to the physician?
- With the addition of data entry equipment, how should the exam rooms be arranged? Where does the physician sit in relation to the patient? How can data entry be set up so that it does not intrude upon the patient-physician relationship?
- Does the practice want to communicate with patients via e-mail? What are the requirements for HIPAA compliance in patient e-mails?

Developing a flow chart of how patients will move through your office can help you visualize the changes that HIT implementation will effect. Discuss with staff your practice's HIT plans, and get their input on workflow organization. Be sensitive to your staff's concern that the introduction of HIT might result in a reduction in the number of practice employees.

It is imperative to note that the careful, team-based redesign of work process is mission-critical to the success of HIT acquisition. Conversely, inattentiveness to workflow very commonly lies at the heart of failed installations that fail to meet expectations or that are so poorly executed that the practice has uninstalled its HIT system and returned to paper records.

Workflow redesign is your opportunity to determine how the EMR system can optimally be used to improve operational efficiencies. Use tools like lists and flow charts to look closely at patient flow, point of care, documentation, and communications. For example, the paper chart in the bin no longer will signal to the physician that the patient is ready to be seen. Determine what effective electronic processes you can use instead. **Remember, installing an EMR system on top of your current processes fails to take full advantage of the technology you are paying for.**

Practice Readiness

Set your vision and objectives for the adoption of HIT. Prepare all staff and physicians involved for the changes by frequently and openly sharing the plan and communicating the steps and challenges needed to be successful.

The following exercise offers a brief readiness assessment tool that practices can use to gauge their state of preparation for HIT.

It is imperative to note that the careful, team-based redesign of work process is mission-critical to the success of HIT acquisition.

EMR Readiness Assessment Questionnaire

Complete this assessment tool as you begin introducing your practice to the capabilities of HIT, and fill it out again at perhaps monthly intervals until the results demonstrate the progress necessary to make a commitment to acquiring HIT. Respond to each of the statements by placing a checkmark in the column that most closely aligns with your situation. When you have finished, total each column and read the outcome interpretation section at the end of this document.

This assessment intentionally does not include a “not sure” option. This is to help encourage you to arrive at a more decisive position by talking with other potential stakeholders in your organization.

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
Business Goals				
The HIT Initiative is mentioned in the organization’s strategic plan and is linked to achieving specific future organizational goals.				
Physician leadership views HIT as key to meeting future organizational goals.				
There is a clear, defined set of HIT goals and measurable objectives.				
Physician leadership understands HIT and the business benefits it can bring.				
Commitment/Sponsorship				
The physician leadership understands the financial and time commitments that the initiative requires and is willing to make these investments.				
Physician leadership is committed to supporting and improving the HIT initiative to a resource level consistent with success.				
The organization is prepared to reinvent, re-engineer, and improve its patient-oriented processes if need be.				
There is a physician champion willing to take leadership roles in an HIT implementation by taking responsibility for key objectives, guiding the implementation team, and helping to promote the system to the physician community.				
Communication/Perception				
All stakeholders potentially affected by an HIT initiative have been identified.				
Staff has had an opportunity to ask questions regarding the HIT initiative.				
Staff members understand the benefits of HIT and are enthusiastic about using the new system.				
Stakeholders have been/will be included as part of the project team from the start of the project.				
All stakeholders understand their role in making the HIT initiative a success.				

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
Patient Orientation				
A strong patient focus permeates every department in the organization.				
Business decisions are driven by patient needs.				
Methods for capturing and enhancing patient care have been identified and documented.				
HIT design will be driven by what is important to patient care and patient satisfaction.				
Workflow and Processes				
Current workflow and processes have been identified and documented.				
The organization has identified and prioritized areas where HIT could be best applied.				
Ways in which HIT will improve current workflow and processes have been identified.				
Technology Evaluation				
A list of evaluation criteria was/will be used in the HIT vendor selection process.				
A clinician-defined user interface was/will be a primary consideration in HIT software selection.				
An IT infrastructure is either in place or under development that will support the processes of the HIT with minimal downtime during its implementation.				
The organization has established service levels that must be met by the HIT system used to deliver patient care.				
Data Management				
The importance of integrating databases containing patient information has been recognized.				
Data accuracy and integrity procedures have been addressed and rectified.				
Measurement				
The HIT initiative is/will be justified on a return on investment basis.				
Ongoing measurement systems have been/will be developed to validate that the rollout has met project goals.				
Training/Support				
A budget is/will be in place to provide end-user training.				
Training for all user groups has been/will be scheduled well in advance of the final rollout.				
Training includes reference materials that can be used before, during, and after training.				
A budget is/will be in place to provide reasonable coverage for HIT support services.				
Staff is/will be in place to implement, provide support for, and maintain the new HIT system.				
Totals				

Outcome Interpretation

Enter the totals for each column below:

_____ Strongly Agree

_____ Agree

_____ Disagree

_____ Strongly Disagree

A high number of Strongly Agree and Agree selections (20+) means that you are well positioned to implement an HIT initiative.

If your responses fall mostly into the Agree-Disagree range (25-20), then your organization needs to further develop its current processes, attitude, and strategic plans before pursuing an HIT initiative.

If the majority of your responses include Disagree and Strongly Disagree (15+), implementing an HIT initiative at this time would likely result in failure.

Regardless of your results, take a good look at those statements with which you did not Strongly Agree. These areas are candidates for improvement, and by pursuing this path you will further the chances of success for your HIT solution. Any statements with which you Disagree or Strongly Disagree are red flags that should be addressed and rectified before your organization moves any closer to HIT implemen-

Case Study: *Change Is Good*

tation.

When Plano, Texas family physician Christopher Crow, MD, entered practice six years ago, his knowledge of computers was admittedly limited: “When I opened my practice, I couldn’t turn on the computer.” But Dr. Crow quickly became convinced that shifting his practice from paper medical records to EMRs would improve both quality of care and the practice’s bottom line.

Dr. Crow and his two partners established in their practice a culture receptive to change and particularly to the introduction of information technology. “Our mantra is ‘change is good.’ ” The office staff already was accustomed to using computers in the management of the practice and, outside the office, in their personal lives. And Dr. Crow became the physician champion leading his practice’s effort.

Based on his experience, Dr. Crow sees three factors as critical to the success of an HIT acquisition:

1. Strong physician leadership,
2. Sufficient resources for both physician and staff education, and
3. The patience to allow everyone in the practice to overcome the learning curve.

The physician champion’s responsibility is to keep everyone in the practice pointed in the same direction. He or she must clearly communicate to the entire practice that although increasing efficiency is a major goal in an HIT purchase, at first the practice will have to slow down so that both physicians and staff can gain proficiency in using the software. Then the practice can integrate necessary information from the paper medical record into the electronic system.

In Dr. Crow’s practice, the physicians handled the integration by reviewing the medical records of patients as they came in for their appointments and flagging any sections of their records that needed to be scanned into the EMR. In the early period of EMR use, that process slowed the practice down considerably and lengthened the physicians’ working day. But in a matter of weeks, the need to integrate data into the EMR or to consult the paper chart declined rapidly.

The use of EMRs also has had a major impact on physician documentation. While the physicians still have the option of writing notes in the medical record, documentation has become template-driven. The advantage, Dr. Crow points out, is that templates allow the practice to build a database that includes all of its patient encounters. To build that database, all the physicians have agreed on a uniform approach to documentation, and as a result, the practice’s common data-focused

Case Study: *Change Is Good*

approach has significantly improved quality of care. “We have moved from passive to active management and are case managers for populations within our practice.” It also has given the practice the capability to document pay-for-performance treatment criteria.

For example, Dr. Crow’s practice used its EMR-generated data to determine whether the practice’s diabetic patients were having regular eye examinations for the detection of diabetic retinopathy. The physicians were confident at the beginning that their practice would score well relative to the national average. In fact, only 36 percent of their diabetic patients were having regular eye exams, significantly below the national average.

The physicians responded by purchasing the equipment necessary to do the exam, a step that immediately increased the practice’s exam rate to 60 percent, and a long-term program was created to raise the exam rate to 90 percent. Similarly, the practice uses its EMR system to manage protocol-based drug management (e.g., every patient on anti-depressants is required to see a physician every six months).

Early in the acquisition process, Dr. Crow and his partners decided to discard their legacy practice management system, because linking it to any of the HIT systems under consideration would require the use of two vendors to maintain the dual systems — a strong negative in Dr. Crow’s view. He also had contemplated the use of tablet PCs for data entry in the exam rooms, but a visit to a pediatric practice where flat panel screens were showing educational cartoons to waiting patients changed his mind. Dr. Crow’s practice uses the flat screens to provide health education materials and to inform patients about the practice.

In addition to improving quality of care, the HIT acquisition also resulted in improved practice financial performance. Dr. Crow estimates that it took only 18 to 24 months to pay off the full cost of the HIT system, less time than he expected.

The practice’s net revenue increased by approximately \$75,000 per physician due to improved efficiency and a greater ability to generate revenue. The following improvements highly contributed to the increased revenue:

- The practice operates with only 2.5 employees per physician — approximately half the national average of slightly more than five employees per physician.
- The improved clarity of documentation demonstrates the appropriateness of higher level E&M codes.
- The superior efficiency of all the practice’s work frees physicians to see more patients.

The practice operates with only 2.5 employees per physician — approximately half the national average of slightly more than five employees per physician.

Case Study: *Change Is Good*

Dr. Crow began the search for a new integrated system by visiting vendor trade shows, talking with colleagues, and reviewing local market penetration data. That process narrowed his focus to nine or 10 systems that had a strong local presence in the Dallas area and that were frequently and favorably mentioned by colleagues. Visits to developer Web sites for additional information and an opportunity to try demonstration versions of the various software packages reduced the number of systems under consideration to five or six. Site visits to family medicine practices using those products further reduced the potential candidates to two.

Next came the vendor demonstrations. Dr. Crow views them as most beneficial when they are unhurried and focused on how the technology captures the services most commonly provided in your office. Physicians should set aside at least two hours for each vendor demonstration and take steps to ensure that all of the presentations focus on their own practices' actual use of EMRs.

The typical vendor demonstration does not accurately depict the use of the technology as it will function in your office. There is no patient, no network, and only a canned database whose contents may or may not resemble the patient encounters that most frequently occur in your office. Because of this, Dr. Crow recommends that prior to a vendor presentation, physicians go through their medical records and identify three or four cases that typify some of the most common problems seen in their practices. At least two weeks before presentations begin, send copies of these cases (with the patient identities removed) to the vendors asking that they use them in constructing their demos. The use of your own cases moves the demos a step closer to addressing your practice's needs. Dr. Crow also urges physicians to focus their attention on the use of the technology as opposed to the appearance or manner of the presenter.

Chapter 5: *Which Product is Right for Your Practice?*

Determine the Practice's Technology Needs

As the practice gets closer to purchasing an EMR, your decisions about system features will become much more specific — especially if seeking ARRA incentives. Working through, in detail, exactly what the practice needs in its EMR system becomes more important. Below are a few examples.

1. A physician wants to download his schedule to his personal digital assistant (PDA), so he purchases a system that will sync with his PDA. When he runs the sync for the first time, his schedule for the next 30 days and the patient charts were downloaded to the PDA. However, he expected and wanted to see his schedule for the entire year, and he wanted the ability to download only selected charts, but the technology he selected would not do so.
2. Document scanning might be particularly important to another physician because she has many patients who have records from other practices. But when a patient presents a 12-page chart for scanning, the system's scanning generated a single, 12-page image file instead of generating 12 one-page images. The EMR system she chose did support scanning, but not multi-page scanning.

These examples illustrate the importance of seeing a demonstration of any system features necessary to the practice. The generic description of a system's ability to, say, download to a PDA or scan files does not provide enough information for the practice to make an informed decision.

Best-of-Breed Vs. Fully Integrated Solutions

HIT solutions fall into one of two categories: best-of-breed or fully integrated. These are discussed in detail below.

Best-of-Breed Model

In a best-of-breed model, several products that each excel in a specific function are joined to work as one. A practice might choose one practice management product and combine it with a different product for EMRs, another for document scanning/management, and yet another for electronic faxing. One aspect of best-of-breed solutions is linking the components of the legacy practice management system (billing software, for example) to the new HIT system.

One or more communication products can be added to this mix to transmit information among the different applications. For example, when a patient's demographic information is entered into the practice

management software, it automatically transfers the information to the EMR. Once the chart is complete, billable services the physician assigns at the point of care are automatically ported back into the practice management software for billing.

The main advantage of the best-of-breed approach has traditionally been cost. Depending on the exact combination of products, the cost of software and training (excluding hardware) is typically less than \$15,000, and often less than \$10,000 for each of the first five users in a practice.

On the other hand, this approach has its shortcomings:

- **A break in data linkages.** The best-of-breed scenario involves multiple products built by different software developers in different languages that must communicate reliably with one another. The most common problem is that the transfer of data between programs stops. Typically, the solution is simple but disruptive. Everyone has to stop working, exit the system, restart the program or network service, and verify that data are flowing the way they should be.
- **No single point of accountability.** Merging many software products implies many points of accountability. When one part of the system stops working, it can be difficult to determine which program is faulty and who the appropriate person is to call. The practice management vendor tells you to call your EMR vendor; the EMR vendor tells you to call your communications vendor; the communications vendor tells you to call your practice management vendor. Even if you purchased all the products through a single reseller, getting to the root of a problem can be challenging.
- **Weaker integration with third-party services or software.** Products in the best-of-breed model tend to lag behind the fully integrated products in terms of their ability to assimilate with productivity-enhancing services such as online insurance eligibility, lab interfaces, and PDAs for hospital charge capture. Generating complex reports also is a problem because the practice management and clinical data are separate, and data has to be captured from several sources and manually integrated into one report.
- **Problems upgrading best-of-breed systems.** As the multiple products within a best-of-breed system need upgrading, the upgrading process can introduce incompatibilities among the different versions of each product.

Fully Integrated Model

Generally, fully integrated products are built from the ground up on a single platform and are designed to perform billing, scheduling, EMRs, document imaging, document management, electronic prescribing, and electronic faxing in a self-contained system.

Fully integrated systems tend to be more reliable. Because these systems are developed on a single platform, data flows between software functionalities seamlessly. One developer means a single point of accountability for software issues. Reporting on practice management and clinical data is easily accomplished. Finally, fully integrated products tend to integrate effortlessly with labs, PDAs, and other productivity-enhancing services.

But there are downsides to fully integrated systems as well:

- **Higher cost.** Software and training expenses for some fully integrated products can be two to three times more than for best-of-breed solutions.
- **Disruptive technology updates.** Updates invariably invite challenges even in integrated systems. A system can be running fine until the next “upgrade.” Immediately thereafter, new features have slowed down the system, changed something that users liked, or broken features that used to work. These issues are almost always resolved fairly quickly, but expect them to occur.
- **Lapses in integration.** Many times, fully integrated products are portrayed as being more fully integrated than they actually are. The classic example is faxing. Many products use simple faxing software to fax prescriptions from the practice to the pharmacy. In some cases, however, this does not include the ability to easily receive and share all faxes electronically, which is how the functionality is portrayed.

In summary, costs of fully-integrated systems have dropped significantly in recent years making it difficult to justify best-of-breed solutions on a cost basis alone. A fully integrated system can be more expensive initially, but offers a large productivity advantage due to its single-platform nature and ability to integrate with outside services and technology. Starting with fully integrated solutions will provide your practice with the maximum return on technology investments over the long term, but either paradigm is viable.

Input Devices

While tablet PCs currently are a favored input device and many EMR systems presume their use in charting, physicians should consider carefully their preferences and proficiency when choosing an input device. In the truest sense, a tablet PC is a computer that resembles a slate or a legal pad. Instead of a keyboard or a mouse, the operator uses only a digital stylus to select prepopulated information or to write text.

Before buying tablet PCs, you need to feel comfortable that you can learn to use them. Local electronic stores generally will carry one or two models. Alternatively, visit other practices using tablets or ask

The main advantage of the best-of-breed approach is cost.

software vendors if they have units you can borrow. The weight, look, feel, and screen size will vary by manufacturer. Tablet PCs can be very effective for electronic charting. If a tablet PC is your input device of choice, find one that matches your personal preferences.

And remember, the use of either terminals or laptops for entering information is perfectly acceptable.

Accessing the Software: Client-Server Vs. Application Service Provider Models

Physicians can access HIT software through two different models: client server and application service provider (ASP).

Client-Server Model

In the client-server model, HIT software is installed on a server located in the physician’s office and is accessed through the practice’s input devices.

Client-Server Vs. Application Service Provider (ASP) Models

	Client Server ASP	ASP
Location of Software/Data	On a server located in the physicians’ office	Located on a remote server and commonly accessed via the Internet
Security and Backups Responsibilities	Practice is responsible for maintaining a secure data center	ASP provider is responsible for data backup and security
Technical Staff	Practice is responsible for providing technical support for the servers and service operating systems	Vendor typically provides support and service
Cost	Higher up-front costs used for hardware and installation	Lower initial fees, but there is a monthly fee payable to the vendor for access

ASP Model

Alternatively, in the ASP model, the software is located on a server at a remote location and accessed most commonly via the Internet.

The advantages of the ASP model are lower initial costs, the reduced need for ongoing network monitoring and support, and less responsibility for data backup and security. The medical practice pays a monthly per-physician fee for access to the software, the storage of the practice's medical records on the software company's server, and the costs of the high-speed Internet connection. It is imperative that the practice has reliable high-speed internet service (such as DSL, cable, or T1). Consider having a backup internet connection available on site.

ASP solutions are highly attractive to small offices with less than ten users.

HIT software can provide the following transactions using an ASP:

- EMRs including transcription and voice recognition;
- Patient scheduling and registration;
- Claims submission, eligibility inquiries, referrals, and, depending on the health plan, preauthorizations;
- Financial reporting and collections management; and
- Supply ordering.

Advantages of the ASP model include:

- **Upfront cost savings.** Practices pay \$100 to \$500 per physician per month, as long as they are using the vendor's server, for ASP-based software vs. a multi-thousand dollar per physician initial investment plus annual maintenance costs as in the client-server model. Offices with ASPs still will incur costs to set up a networked, wired office, which is required for this model.
- **Easy upgrades.** An ASP can install software improvements at its central server overnight, and the office can take advantage of them the next day.
- **Staff or contract savings.** Most ASPs manage all of the software maintenance so that the practice will have less need to hire any IT staff or outside contractor.

Disadvantages of the ASP model include:

- Complete dependency on internet access. Without internet access, the practice cannot function. It is best to pay more for T1-type technologies that provide very reliable Internet connectivity at high speeds.
- Be careful of contractual or payment disputes with the ASP provider since the data resides outside your office. There is potential for the provider to lock the system and prevent access. These issues should be specifically addressed in your contract.

Market Penetration Considerations

Purchasing a system or products whose developer is committed to your home state and/or has a large local client base increases the likelihood of responsive customer service whenever a problem arises. With rapid industry consolidation and increasingly difficult certification standards, physicians should be concerned that the software developer will go out of business or be acquired. This is generally more likely with small, less capitalized developers with specialty-specific products. Another likely scenario is that developers who are less successful in penetrating the local market will concentrate on other areas of the country where they have an existing customer base. While customers in your market will still be able to get support from providers out of state, the incentives for those providers to offer excellent service are reduced, and the community of users — which also is a great resource for product support — will diminish steadily.

Practice Size

Some HIT systems are designed for small practices with no more than two physicians, and others are designed for practices with 100 or more physicians in multiple specialties at multiple sites. The key concept is scalability (i.e., the ability of the software to accommodate the number of users who can work on the system simultaneously without it either crashing or running at an unacceptably slow speed).

Now is the time to think about whether your practice will be expanding during the next three years. Are there plans to add physicians, nurse practitioners, or physician assistants? Are there plans to add a satellite office? While there is no need to purchase the capacity necessary for future expansions in the initial system acquisition, it is necessary to determine whether the system your practice purchases can accommodate an expansion.

That Old Practice Management System

Practice management systems and HIT systems share patient demographic data. Linking a legacy practice management system to a new HIT system requires the development of a custom interface. The vendor who provided the practice management system will very likely know or be able to find out whether a custom interface has been developed.

However, custom interfaces are notoriously finicky, and a practice using one to link two data systems essential to its daily operations assumes two risks:

- When either the practice management software or the HIT software is updated, the update may disrupt the functioning of the interface.
- If a disruption does occur, it may be unclear who is responsible for fixing it, because the HIT vendor is unlikely to provide support for the interface. The provider of the interface may not be willing or able to correct a problem due to the updating of the HIT software.

This is a situation no practice wants to have to resolve, because it disrupts the efficient operation of the practice.

Some HIT systems are designed for small practices with no more than two physicians, and others are designed for practices with 100 or more physicians in multiple specialties at multiple sites.

Chapter 6: *Open Source Software*

Open source software products (OSS) are systems whose programming code is openly available to download, use, review, critique, modify, and redistribute. The definition of “open source software” refers to the licensing terms governing the use and distribution of the software code as intellectual property. The terms of the open source software license allow for the code to be modified, customizing the program to the needs of a practice.

In most instances, because the source code is openly available, the program is free, although there may be costs for service, support, implementation, and hardware. Open source software in the form of EMRs for physician practices is emerging as an option.

While strictly speaking, “open source” is an engineering term referring to source code, it also is used in a broader context to refer to a philosophy where openness, transparency, and collaboration are seen as the best approach to solve problems. An example is the emergence of health information exchanges where collaboration is critical to get stakeholders to exchange patient records, and where openness is necessary to access and exchange the data. This broader approach is becoming known as “open health care.”

This “open” approach is the cornerstone of the efforts of the [National Health Information Network \(NHIN\)](#). It is being developed to provide a secure, nationwide, interoperable health information infrastructure that will connect providers, consumers, and others involved in supporting health and health care. The NHIN will be used to transmit data to appropriate federal agencies, such as Medicare, for quality measures.

The infrastructure, [NHIN Connect](#), is being built using open source development methods and code, which means the code is free and available to all who wish to connect their applications to the NHIN. Even vendors with proprietary data formats can use the software interfaces of NHIN Connect to share data.

A nonprofit organization, [Open Health Tools](#), recently has emerged as a major collaboration point for these efforts. The organization now has more than 40 members including government agencies, academia, commercial companies, and nonprofit organizations. Some of the members already have made major contributions such as Britain’s [National Health Service \(NHS\)](#), which has contributed over \$40 million worth of tools and terminology to the open source community.

VistA

Open source EMRs have a long and successful history in U.S. federal agencies. The U.S. Department of Veterans Affairs (VA) began EMR development in 1978. This was done using a decentralized development strategy that encouraged hands-on involvement of physicians, nurses, and other clinicians in product development. Today, more than 300,000 people use the software (now called VistA) daily to care for more than 6 million veterans at more than 1,200 VA facilities across the world. While only a minority of private hospitals in the United States have EMRs, 100 percent of VA facilities have used EMRs for almost 15 years.

VistA is available as open source software to the public and to companies that are implementing it and continuing its development in the private sector. There are hundreds of successful deployments. Some, such as the VistA implementation at the Midland Memorial Hospital in Midland, Texas, have been covered extensively in the press. It was implemented in a fraction of the time and for a fraction of the cost that otherwise might have occurred.

Today, almost every major medical school in the United States is located near a VA medical center. A large percentage of teachers at U.S. medical schools are employed by the VA, and more than 50 percent of all medical students complete their residencies at VA hospitals. These doctors already have experience using VistA.

VistA has extended beyond the VA to the Indian Health Service (IHS). The mission of IHS is to provide medical care to more than 3 million American Indians and Native Americans. As Congress allocated no money for developing an EMR, IHS developed an EMR in collaboration with the VA for over 30 years. Today, this EMR, called Resource and Patient Management System (RPMS), is deployed at more than 600 medical facilities.

Although they share 95 percent of the code base, VistA and RPMS are different. This has to do largely with the different missions of the VA and IHS. The VA is primarily a hospital-centric environment whose mission has been to care for veterans. IHS operates a few small hospitals and large number of clinics. In addition, it cares for people from cradle to grave. This RPMS's workflow is optimized for clinics, and it has additional modules such as pediatric and OB-Gyn modules. Thanks to open source collaboration, many of the additional modules in RPMS have been ported to VistA. At the same time, many consider RPMS, although not as well known as VistA, to be a better choice for clinics.

Advantages

Open source has worked with great success in other industries, sometimes becoming the dominant licensing model. The Internet runs on open source software that uses open standards. More than 70 percent of the world's Web servers run on a combination of open source software.

Open source is vendor-neutral and is created in a culture of collaboration. Multiple vendors support each open source program. These programs also may be supported by communities and physicians who may contribute to the project enhancements written for their practices. While access to the software's program for adaptation is important, open source users may scrutinize and identify avenues for improvements to the software that lead to high-quality, reliable software. This can have the added benefit of fewer software bugs, continuous improvement, and more local customization.

There are costs involved in implementing "free" open source EMR software. One of the great advantages of open source is that it can be downloaded and thoroughly examined and tested before it is implemented. However, implementing EMR software is complex whether the product is open source or proprietary. Many of the physicians who have downloaded and installed open source solutions in their practices recommend that the practice hire a vendor or a consultant to carry out the implementation and provide the support. Also note that open source EMRs require the purchase of hardware.

Many costs, such as implementation, are similar to those of proprietary software. Other costs may be substantially lower. Table 1 outlines the costs that may and may not be incurred during the implementation of an open source solution. The comparison assumes that the practice hires an independent consultant or a vendor to implement the solution.

Table 1
Open Source: What Costs Money and What Doesn't

What you pay for	What you don't pay for
Implementation	Licensing fees
Support and maintenance	Interfaces
Training	Templates
Database (if you choose a proprietary one)	Database (if you choose an open source one)
Operating system if you use a proprietary operating system such as Windows	Operating system if you choose an open source solution such as Linux
Hardware and infrastructure (servers, desktops, network, etc.)	Tools

Looking at Table 1 in detail, we do see that it will cost money to implement the EMR, but open source EMRs do not involve the major costs associated with proprietary EMRs, which include licensing fees, interfaces, and templates. Licensing fees, for example, vary greatly for proprietary EMRs, and in some cases, they exceed the cost of implementation. In contrast to open source vendors, proprietary vendors may charge licensing fees per physician, per user, for workstations, for equipment such as faxes and scanners, per site, and so on.

While there are costs to implement open source solutions, in most cases, they will be substantially lower than a proprietary solution.

The software is not the only difference between open source and proprietary models. The way consultants and vendors operate is also different. The primary business model for vendors in the health care industry has been what is known as the “lock-in” model. That is, the software is designed in such a way as to “lock in” the customer; once a practice has purchased an EMR (or a practice management system), it is difficult to change vendors or migrate data to a different system. This is one of the reasons for the difficulty today in exchanging medical records. Once a contract is signed and the proprietary software installed, the vendor is then in the position to start a cycle of upgrades, which require new licenses and additional charges for other components. The initial investment in the software can grow substantially, and the customer is locked into this cycle.

In contrast, the open source model makes it easy to change vendors — there is no lock-in. Most open source software vendors compete for service and support contracts, not for sales, forcing a successful open source vendor to concentrate on customer support. You are not pay-

ing for advertising or sales costs of a business. Because the program is openly available, the physician practice retains a degree of control and protection against the risk of a technology vendor going out of business or merging with another company, or having to accept an expensive system upgrade. As open source programs are supported by multiple vendors, if one vendor goes out of business or provides poor support and services, it can be replaced by another vendor.

Open source EMRs may appeal to physician practices because they are very easy to acquire, by downloading them from the Web; they also have lower acquisition and maintenance costs. The flexibility and innovative potential of open source EMRs are greater than with proprietary software due to their modular structure and the ability to modify the source code.

These attributes allow the practice to more easily customize the open source EMR for unique needs instead of asking and waiting for a proprietary vendor to do so. These code customization abilities, as well as other components such as templates, have proven to be a great benefit to open source implementers. Many of the open source adopters are actively sharing the templates they have developed. Interestingly enough, because these templates are released as open source, not only are the adopters of the open source solutions downloading and installing these templates, but also it turns out that even adopters of proprietary solutions are doing the same.

Furthermore, open source EMRs lend themselves more readily to interoperability; may actually decrease barriers to interoperability; offer increased quality of product, development, or support issues; and protect the practice from other vendor failures including product terminations.

Disadvantages

As we have seen, open source solutions have some distinct advantages, but they may present risk for the physician practice.

One of the great challenges to open source solutions can be described as “look and feel.” Open source developers, many of whom are physicians, usually focus on technical capabilities and functionality. Most open source solutions are generally not aesthetically pleasing. Fancy icons and buttons, beautiful fonts, and splashes of color are not generally a priority for open source developers.

Comparing solutions side by side, a prospective user may pick a proprietary solution over an open source solution with greater functionality and capabilities simply because of the visual aesthetics of the

proprietary solution. This is an issue that is being resolved, as open source solutions are more widely deployed and commercial open source companies are developing better graphic images with which to differentiate themselves. However, it may be awhile before they can match the aesthetics of some of the proprietary solutions. Conversely, it should be noted that some of the proprietary EMRs are hard to use because they require navigating through multiple screens to enter data, making the process time-consuming.

Changes to open source EMR software require expertise with the product, the programming language, and the steps to incorporate changes. Because it is difficult to self-manage open source software, especially for small practices, you typically will need a technical consultant with expertise in implementation, training, and ongoing support of open source solutions.

Physicians who lack experience and knowledge about open source software may not be able to afford or want to spend time becoming familiar and comfortable with the concept. Such familiarity is helpful for the practice to take full advantage of the flexibility of the software.

Without a vendor acting as a fiduciary agent for their product, there may be liability issues that emerge with the use of open source software.

Despite the flexibility of open source EMRs, there are some technical limitations to open source solutions. While some open source EMRs, such as VistA, have a full set of features, other products lack fully featured e-prescribing or lab ordering capabilities, do not have strong decision support capabilities, and rely heavily on free text entry that is not linked to coded clinical data that can aid in quality reporting.

How quickly these technical gaps close in the future depends on the persistence of knowledgeable developers and how much effort is applied to open source solutions development.

Barriers

Oddly enough, low cost is one of the great barriers to open source adoption in health care in two ways. First, as the revenues for open source projects are substantially lower, there is considerably less money to invest in advertising and promotion. Users usually find open source solutions through word-of-mouth or Internet searches as opposed to advertisements in magazines or exhibits in trade shows. Second, the unfounded perception is that because open source solutions are so “inexpensive” compared with proprietary solutions, they cannot possibly be as good.

Proprietary software itself is the largest barrier to open source prevalence, as the idea of sharing and changing a product conflicts with the traditional business model. In the health care arena, it may require considerable political support to manage the opposition by several major health care stakeholders before the open source approach will be able to gain a foothold. Open source continues to be a little fish in the large pond of health care EMRs, and proprietary vendors have no incentives to promote an ease of transfer to another vendor’s product.

An additional barrier to open source EMRs is the difficulty in establishing trust in the physician marketplace. Open source solutions are not as well known as proprietary ones, and currently, there are a limited number of vendors who provide installation and support and a limited number of knowledgeable developers.

Sometimes the open source community can be its own worst enemy. Disagreements among community members may lead to what is called a “fork” in the code. The very nature of open source allows developers who disagree with the way a project is going to take the code and start a new version with a different name.

Exploring concerns about privacy and security is important, even though there is no evidence that open source software is any more or less secure than proprietary software.

And finally, to establish a critical mass of open source within health care, the medical community must be enlightened on open source issues such as licensing, needed technical perspective, software limitations, and marketplace hindrances.

Table 2
Summary of Open Source Advantages and Disadvantages

Advantages	Disadvantages
Low-cost software	Higher physician involvement and potential risk if self-deployed
Flexibility with customization	Limited decision support features
Data accessibility and portability through interoperability	Increased liability if self-deployed
Avoid vendor lock-in through customer ownership	Lacks quality reporting capabilities

Certification Issues

Open source software has to comply with the same kind of certification requirements as proprietary software, with some modifications to account for the development model. By its nature, the community-based open source technology is constantly evolving, which makes it difficult to certify using the same methodology as with proprietary standards. By definition, “proprietary software” is developed behind closed doors by the vendor. There is no mandated schedule for upgrades and product releases.

Thus, in contrast to proprietary solutions, the rapid evolution of open source EMR solutions would require that the open source product be frequently recertified — currently a very expensive and daunting proposition. In addition to vendor certification, the fact that the users can modify the software presents its own challenges.

To address these challenges, the [Certification Commission for Health Information Technology](#) (CCHIT) developed several new options for certification in early 2009. One of those options, CCHIT-S, provides a path for CCHIT certification of individual sites instead of a product. This allows sites who use self-developed EMRs, including open source solutions, to be CCHIT certified.

Evaluating Open Source for Your Practice

One of the challenges to adopting open source in health care is that currently there is no central Web site or location where you can find information about all available solutions; but there are several good starting points.

The most comprehensive and detailed study of open source software in health care was conducted by the [California Healthcare Foundation](#). Its report identified numerous active open source EMR projects in the United States and internationally as defined by (1) providing software that manages patient-specific clinical information, and (2) providing at least some of the software under an open source license.

Currently, the most notable open source EMR project in the United States, the Department of Veterans Affairs’ release of VistA Office EHR, is a version of the Veterans Affairs Hospital records system that has been adapted for use in small- and medium-size medical practices.

As noted earlier, [Open Health Tools](#) is a site worth visiting, though it focuses on projects, not software packages per se.

For those interested in VistA or RPMS, there are three major sites to visit: www.Medsphere.org, www.WorldVistA.org, and www.vxVistA.org. While the first two sites are fully active and operational, www.vxVistA.org is under construction and should be up September 2009.

As previously stated, open source software is freely available for anyone interested in downloading the product. However, just like installing commercial software, users must abide by the same operational considerations, such as the costs associated with installation, maintenance, upgrades, and training. In the long run, open source savings may be substantial, as the user is not paying for costs such as marketing and technical support. This approach might be right for your practice if you are willing to work with software that is not backed by a large company offering consistent technical support. An increasing number of commercial entities, however, are offering commercial support for open source software. Look for these items when evaluating open source software:

- A good application
- A robust, active community
 - Multiple developers actively advancing the product
 - Thousands or tens of thousands of users
 - Active support discussions
 - Good online documentation
- Commercial support*
- Companies providing professional implementation, support, maintenance, documentation, and training services

** Even if the practice will perform its own implementation, the very existence of commercial entities supporting the product is a good indication that it is a mature and full-featured open source product.*

The software is typically downloaded through a Web site, and the license that comes with the product must be accepted prior to completing the download. The software often will only be available to be installed on a single computer. If you are considering open source for your practice's EMR solution, consider what support and services accompany the license when completing your due diligence and research. Also consider how you will adapt the software to fit the needs of your practice. Perhaps you will need to hire a professional programmer to make the needed changes.

With the recent ARRA legislation, there will be continued study of the availability, cost, and capacity for interoperability of open source systems. Open source solutions show great potential for successful use in the health care industry to improve patient care. Spurred by a sense of urgency to adopt HIT, health leaders are showing a renewed interest in open source solutions. At the same time, the community of open source supporters is becoming more energized, prepared to take advantage of a critical mass to tip the scales toward widespread utilization.

Chapter References

Goldstein, D., Groen, P. *Medical Informatics 20/20: Quality And Electronic Health Records Through Collaboration, Open Solutions, And Innovation*, Jones & Bartlett Publishers; 1st edition. Jan. 3, 2007.

California Healthcare Foundation. *Open-Source EHR Systems for Ambulatory Care: A Market Assessment*. January 2008.

California Healthcare Foundation. *Open Source Software: A Primer for Health Care Leaders*. March 2006.

Health Information Management System Society. *Open Source Software Fact Sheet*. Feb. 20, 2007.

McEvoy, C. *Open Source EHRs Set to Grow. Advance*.
<http://health-information.advanceweb.com>. June, 17, 2009.

Yellowlees, P.M.; Marks, S.L.; Hogarth, M., Turner, S. Standards-Based, *Open-Source Electronic Health Record Systems: A Desirable Future for the U.S. Health Industry. Telemedicine. Vol. 14, No. 3: April 2008.*

Chapter 7: Making the Selection

Narrowing the Choices

After deciding which type of product is best for your practice, it is advisable to narrow your choices to no more than five EMR systems you are considering.

Start With Certified Products

A good way to begin that process is to eliminate systems that are not certified by the Certification Commission for Health Information Technology (CCHIT). CCHIT is a public/private partnership with the mission to accelerate the adoption of robust, interoperable HIT throughout the U.S. health care system by creating an efficient, credible, and sustainable mechanism for certifying HIT products. CCHIT has developed a comprehensive list of standards that assess an EMR product's capabilities in terms of security, functionality, and interoperability. The CCHIT criteria provide a direct connection with the HIT marketplace. By limiting choices to certified systems, practices also are guaranteeing system performance.

The importance of CCHIT to the practicing physicians is that it tests — with the participation of practicing physicians — whether systems actually do what they are supposed to do. Moreover, it tests functions that are vital to the usefulness of the system but that physicians themselves have no way of testing (e.g., security and interoperability). A current list of certified products is available at www.cchit.org.

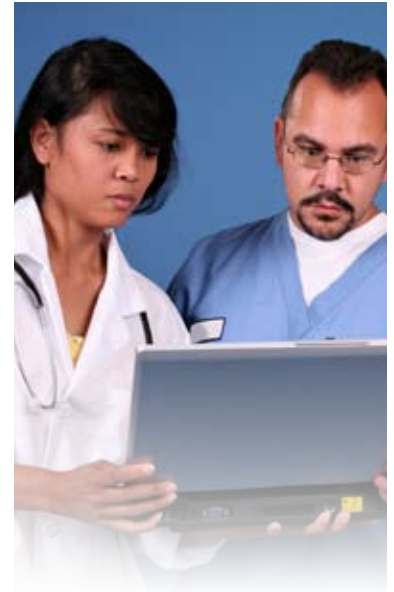
Although the lack of certification at this stage does not warrant eliminating a vendor from consideration, note that pay-for-performance programs eventually may require the use of certified products. Referring to the list of certified products is a good initial step in the due diligence process of researching EMR products that are appropriate for individual practices.

Other Ways to Select Potential Products

These five additional factors are helpful in narrowing down the choices:

1. The location of your practice,
2. The size of your practice,
3. Site visits to practices in your specialty,
4. Whether you are planning to interface your HIT system with your legacy practice management system or acquire an integrated system, and
5. What you learn from the product demos, and
6. Considered recommendations from your specialty society.

While ONC has not named CCHIT as the official body to certify EMRs, it is currently the only body who can certify EMRs.



Site Visits

Rather than relying solely on the certification seal of approval to narrow a vendor search, practices should begin the selection process by talking with other practices of similar size and specialty about their software experiences, because of varying documentation and information needs. HIT vendors you are taking into consideration can help you identify and put you in touch with those practices that would be beneficial for you to visit.

Here are two general guidelines to follow for site visits:

1. You can learn the most from practices that have been using the technology for one to two years. Those who have been using the technology less amount of time than that are still in an educational phase.
2. Only buy a system that you have seen in operation in a working medical practice. Vendor demonstrations are not enough.

Reference Questions

The following questions are a sample of what you might ask a colleague when you go on site visits or talk to references about a particular product.

1. Why did you choose this product?
2. When did you go live with this product?
3. How long was training?
4. Did you feel the training was worthwhile?
5. How were issues handled during the implementation?
6. How did implementation go?
7. How much time did you spend customizing the product?
8. Did you use preloaded templates?
9. How did you transition from paper charts to electronic?
10. How were issues handled by the vendor after you went live?
11. How would you rank support from the vendor?
12. How often are updates required?
13. Are all of your physicians using the system? If not all, why not?
14. What functions do your physicians use the most?
15. What input devices do you use?
16. How many interfaces do you have with this product? Which ones?
17. What hardware was recommended by the vendor?
Were those recommendations successful?
18. How did you acquire the needed hardware?
19. Have you had any problems with the network being slow or crashing?
20. What kind of server do you use?
21. What has been the most frustrating part of installing and using the product?
22. What had been the best thing about installing and using this product?
23. Would you buy this system again?
24. Would you recommend this system?
25. Have you achieved a return on investment? Have you seen increases in efficiency?

Use the Trial Versions

HIT system developers frequently include demonstrations, screen shots, or a downloadable trial version of the software on their Web sites. Demos serve as a useful sample of the software program, giving the prospective buyer the opportunity to get a feel for the daily use of the product.

Ask yourself these questions while navigating the demos:

1. Are the screens attractively designed?
2. Can a user look at the screens and understand intuitively what to do next?
3. How difficult will it be for my staff and me to learn this software?

Vendor Demonstrations

Vendor demonstrations are extremely important in the HIT system selection process. To get the most benefit from this step, meet with three to five vendors. Each of the meetings will last from two to two-and-one-half hours. Because the purchase of an HIT system involves a substantial financial commitment by the practice, it would behoove all of physicians who are partners in the practice and their practice manager to attend these demonstrations.

At or prior to the meeting, ask the vendors a series of questions. They can share their answers with you prior to or at the presentation. This format will give your practice a uniform overview of each of the vendors and their products.

Questions for Vendors

The following questions are a starting point for you to discuss with a potential vendor.

1. How long has your company been in business?
2. How long has the HIT product been offered?
3. What were your total sales last year? Last quarter?
4. What is your total customer base? Of those, how many are new within the last year?
5. Does the company hold regular user meetings or have user groups?
6. Is your software sold modularly or does it need to be purchased as a complete package? What functions are available?
7. What operating platform does the product work on?
8. Will your company guarantee in the contract that the software will comply with all current and future federal and state mandates?
9. How are the licenses issued?
10. What is the cost per practitioner (or concurrent user) for entire package?
11. What does the price include?
12. How much will on-going maintenance and upgrades cost?

Questions for Vendors - continued

13. What existing interfaces are up and running?
14. Can your software interface with practice management systems?
At what cost?
15. Does the training occur on site or at your facilities?
16. Is this training included in the overall cost?
17. Are you willing to be flexible with your training methods (e.g., individual vs. group training based on our needs)?
18. Is your software tailored for physician specialties? What sort of customization, if any, is needed for specialties?
19. At what point in the process does the salesperson transition to implementation specialist?
20. How often will a support person(s) be available once the system goes "live," in case of any system difficulties?
21. What is the frequency and depth of upgrades?
22. What is your process for enhancement requests?
23. What happens if the system fails?
24. Does this system work over the Internet or do I need to purchase a server?
25. Does the system require regularly scheduled down time for backups, system maintenance, etc.?

Use the Practice's Own Clinical Cases as Examples

Vendors can bring a customized presentation to your office. To take advantage of this feature, prepare from your own experience some clinical case studies, provide them to the vendors well in advance of the meeting, and request that they use them as illustrations. As preparation, perform a quick analysis of the most frequently used CPT codes in your practice. In the great majority of single-specialty clinical practices, the number of codes that account for 95 percent of practice revenue is surprisingly small, rarely more than 25. Ask the vendor to illustrate how a template for documenting some of these codes might look, whether users can create templates, what is involved in constructing a template. In other words, make the sales presentation as much as possible about your practice's needs.

Evaluate the Product, Not the Person

While the personality and appearance of the sales representative are difficult to ignore, the software itself should be the focus at an on-site demonstration. The demonstration will help to resolve both objective and subjective concerns. Will the system be easy to learn for physicians and staff? Is it a product that this practice can become proficient at using relatively quickly? Will the data capability of the system generate the information necessary to enhance quality of care and reimbursement?

After the Vendor Meetings

At the end of the vendor meetings, take no more than 30 minutes collecting the opinions and rankings from the group. The people with decision-making power will stay after this to narrow down the three to five products to a one and a two. This is not a decision to buy — it is a decision to get detailed proposals from the top two-ranked vendors.

Chapter 8: *The Request for a Proposal*

Should You Use a Request for Proposal?

One approach to getting the maximum value out of the vendor meetings is by submitting a formal request for proposal (RFP). An RFP is a carefully structured, detailed outline that includes all of the decisions your practice has made so far about its HIT needs plus information about your practice — number of physicians, specialty, location or locations, current IT hardware and software, and so on.

Benefits of an RFP

An RFP enables vendors to focus on the issues that you have identified as important and tailor their offering to your practice's needs. Because all vendor presentations will be built on the same specifications, you can compare them fairly. As an added benefit, after a proposal has been accepted, the RFP can serve as the basis for building a project timeline and minimizing misunderstandings between the vendor and the practice regarding costs.

Additionally, an RFP is a document that provides a consolidated overview of all the decisions the practice has made throughout the planning process. Particularly in a practice with more than three partners, the RFP closes any gaps in communication that may have occurred during a long planning process. Circulating the RFP to staff also is an important opportunity for additional input. In the process of change management, the RFP is a major milestone for both physician and staff buy-in.

Determine the Necessity of an RFP

If the vendors invited to make presentations have performed several installations in practices similar to yours in size and specialty, and if the consensus within the practice is strong, the detailed RFP process may not be necessary. However, if you need the structure and clarification that an RFP provides, a vendor presentation tailored to your practice's self-defined needs is well worth the time and energy. If you are working with a consultant, he or she can help you prepare your RFPs.



RFP Format and Content

The RFP content should be in a tightly structured outline format so that the vendors can respond point by point. This format ensures that all of your questions are covered and facilitates comparisons among all vendor responses. Your cover letter to the vendors should specify that their proposals must follow the same order as the outline, the only exceptions being the items that are informational and do not require a response.

RFP Outline

The following is a guide you can use when developing your request for proposal outline.

- I. Cover Letter
 - II. Background Information About Your Practice
 - a. Goals for EMR implementation
 - b. Size and location
 - c. Specialty
 - d. Description of physical space
 - e. Legacy practice management system
 - f. Current computer hardware
 - g. Current network information
 - h. Your practice's desired HIT/PMS system functionality (prioritized)
 - i. Required interfaces
- (Request information from the vendor about each of the items listed in sections III-XII.)*
- III. System Developer Information
 - a. Company history
 - b. Number of employees (separate numbers for sales, support, research and development, and management)
 - c. Financial statements
 - d. History of the developer's practice management system product
 - e. List of all current practice management system users in your practice's geographic area and list of users similar to your practice in size and type, including how long they have been using the software, and which version they are using currently
 - IV. Product Description
 - a. How the vendor's product performs the functions described in your practice's desired Functionality
 - b. Other functions it performs
 - c. Product brochures and other marketing materials
 - d. Software versions and release dates
 - V. Hardware and Network Requirements
 - VI. Customer Maintenance and Support
 - VII. Vendor Training
 - VIII. Implementation Plan
 - IX. Interface History and Capabilities
 - X. Proposed Costs and Payment Schedule
 - XI. Warranties
 - XII. Sample Contract

An RFP enables vendors to focus on the issues that you have identified as important and tailor their offering to your practice's needs.

I. Cover Letter

The cover letter should provide a contact person at the practice in case the vendor has any questions. Also request that responses be submitted to the practice at least 10 days in advance of any scheduled vendor presentation. The practice manager is probably the best designated contact because he or she likely has been involved in the planning process and can quickly make contact with the physician HIT leader if necessary.

II. Background Information About Your Practice

a. Goals for EMR Implementation. Because the vendor only works with a practice for a very short period, it is best to focus on clear, operational goals that you want the practice to achieve in the first six months of HIT operation. The vendor then can focus on providing the HIT capabilities you need in this early operational period. Concentrate on the basics.

For example:

- Our goal is to improve patient care by implementing and monitoring the use of evidence-based treatment protocols in our practice.
- Our goal is to replace paper medical records and handwritten prescriptions with an EMR and e-prescribing.
- Our goal is to improve efficiency and redesign workflow so that practice revenue can grow without having to add administrative employees.
- Our goal is to increase the connectivity of the practice to ancillary providers, our hospital, and the newly developed Regional Health Information Organization in our community.
- Our goal is to be able to send clinical data to a central repository and receive in return aggregate, normative data with which to measure our clinical performance.

b. Size and location. Include the number of physicians, the number of other providers (e.g., physician assistants, advanced nurse practitioners, physical therapists, and so on), the number of clinical employees, the number of administrative employees, the number of active patients, and the address of the office. In addition, if your practice is planning to add physicians, staff, or a satellite office in the next three years, it is important to include that information in the RFP so that the practice purchases a system capable of scaling up to handle the additional load. Some EMR companies base purchase and maintenance costs on the number of providers, while others charge based on total users.

c. Specialty. In a single-specialty practice, this information easily can be included in the size and location section: “We are a five-physician family medicine practice.”

d. Description of physical space. Include a floor plan of the office space if one is available.

e. Current practice management and HIT system. Include the name and version number of the practice management software the practice is currently using, even if you intend to replace it with an integrated system. Don't omit from the list any HIT system that already may be in place. If your practice is using additional software (e.g., any of the claims scrubbing or coding assistance packages), include them.

f. Current computer hardware. Provide a complete list of computer hardware currently in your office, which should include computers, monitors, printers, servers, and other networking equipment. The more detail the inventory includes, the more easily the vendors will be able to tell how much of the current equipment can be used in an HIT system.

g. Current network information. Provide the name and version number of the networking software your practice is using in the office and also information about how the practice currently connects to the Internet.

h. Your practice's desired HIT/practice management system functionality (prioritized). This is an opportunity to look farther into the future and to add features that may not be immediate necessities but can make a major long-term difference to your practice: customized templates for documentation of the most commonly provided services, expert coding advice, clinical protocols to track the progress of patients, and identification of possible drug interactions at the time a prescription is written all exemplify HIT features that aid practices.

Also take into account the vendor's ability to customize the system to your specialty. For example, can the system simplify the management of routine workers' compensation reports that orthopedic surgeons and neurologists must frequently produce? Can the system provide protocols for the management of hypertension that are useful to cardiologists for tracking patient progress? Ask for the tools that will simplify the most common and time-consuming tasks that your practice faces while improving patient management, billing practices, and paperwork management.

i. Required interfaces. While connectivity linking physicians with the entire health care system remains an important goal, connectivity with local health care organizations is increasingly available and can improve the efficiency of medical practices. As your practice puts together an RFP, conduct a brief connectivity survey with the entities your practice uses: hospitals, ambulatory surgery centers, clinical laboratories, physical therapy providers, imaging centers, and the like.

If they offer the capability for electronic transactions (e.g., entering orders for patient services, sending test results back to your practice, communicating with you or your staff about patient care issues), get the technical specifications for interfacing with them and include those specifications in the RFP along with any information about the availability of the necessary interfaces through vendors or developers. In addition, if you are planning to retain a legacy practice management system, include that same information in the RFP.

III. Developer Information

All of the information requested in this section represents the due diligence necessary in selecting a particular company's product. Although some large companies have entered the HIT business, many of them are small, new companies not much beyond the start-up phase. As a potential purchaser, you want enough information with which to gauge the stability of the company and if it will stand behind its products. In addition, the list of practices using that product gives you further opportunities to verify, independent of the vendor's presentation, the capability the product has to meet your practice's needs as outlined in the RFP.

IV. Product Description

The balance of the RFP consists mainly of questions you are asking the vendor about products and business arrangements. If there are more specific questions your practice has in any of the listed areas, feel free to add them. Hot button issues that you may want more detail on in the vendor's response to the RFP include:

- **Maintenance and support.** Find out exactly what is being offered. What are the hours for assistance via telephone? What is the company's standard for responding to e-mail assistance requests?
- **Implementation plan.** Gain a clear understanding of how long the practice will have to be closed for installation and staff education. Emphasize the need for exact dates, well in advance of the implementation period.

Finally, keep in mind that the vendor's implementation plan does not include one of the elements most critical to the successful integration of HIT into a practice — the redesign of workflow. While vendors may offer suggestions on workflow design, the initiative has to come from within the practice, and if necessary, with the assistance of a practice consultant.

Case Study: *The Networking Element*

In his seven years of practice as a family physician in Tyler, Texas, Ken Haygood, MD, had from time to time considered the acquisition of EMR software. In 2005, he concluded that the functionality of the available products had reached a point where bringing HIT into his solo practice would improve both efficiency and quality of care. What makes Dr. Haygood's experience unusual is that his software selection is tied to a community coalition that is simultaneously encouraging the acquisition of EMRs and the development of secure connectivity among physicians and laboratories in Tyler and the surrounding counties.

For Dr. Haygood, networking increases the value of EMRs. Physicians, he says, often think of the EMR as an electronic version of the traditional paper medical record, a history of the patient's treatment. Sharing medical records with other physicians improves the treatment of patients wherever they may be in the community's health system.

The goal of the Tyler coalition is to select a single EMR software package that can be easily networked, then create a data center through which practices in the network have the capability to access data from any of the other members' practices. So far, six practices with a total of 29 providers are participating and are at various stages of implementing the selected EMR product. The coalition also has established a data center in Dallas. Practices that have chosen not to use the recommended EMR still can participate in the data center through a higher-level interface.

From his experience in working with coalition physicians on EMR selection, Dr. Haygood observed that despite the claims of vendors and developers, interoperability is still some distance in the future. Many EMR systems are still based on proprietary technology that does not easily communicate with other systems.

The coalition physicians are now thinking through the future of their connectivity project. One step under consideration is moving the data center from Dallas to Tyler, which would make the data-sharing project more local. Another likely step is the expansion of the program to include physicians in a 10-county area near Tyler. That expansion would allow data-sharing within a region with a population of about 700,000. Finally, the physicians are considering how to link their project to other similar health information exchange projects in Texas.

Dr. Haygood's EMR acquisition has so far cost him about \$15,000 for software, a basic lab interface, and a practice management system interface; and data center costs have been an additional \$4,000. The financial goal of the coalition is to bring the overall cost of EMR

Case Study: *The Networking Element*

acquisition to about \$20,000 per physician and annual data center costs to \$6,000 to \$7,000 per practice — a figure that all of the currently involved physicians consider reasonable.

He urges physicians who are about to embark on an EMR acquisition to look carefully at the products they are considering purchasing and to focus on systems with the level of functionality that will yield the greatest benefits to their practices. “There are EMR products out there for as little as \$2,000 per physician, but when you look at functionality, they are just not the same as the products selling at significantly higher prices.”

Within his own practice, Dr. Haygood has seen major improvements in both practice operations and patient care:

- The EMR has strengthened the practice’s ability to monitor and provide preventative care;
- The EMR has almost entirely eliminated paper and staged workflows;
- The practice has experienced major improvements in efficiency; and
- Documentation has improved in efficiency and accuracy through the use of templates and voice-recognition software.

Sometimes the improvements are subtle. For example, he cites the system’s “To Do” list, which is accessible to all employees. Because his staff is cross trained, he does not have to make specific assignments of each item but can simply create a single list that employees tackle task by task as they have time. He does not plan to reduce the number of employees in his practice but does plan “to make dramatically better use of them.”

He sees other practices in the Tyler community using EMRs to overcome the limitations of a paper-based environment. One large procedurally focused practice had reached a limit on the number of procedures it could perform until the group installed an EMR. With the help of the EMR, the practice set up algorithms that improved the efficiency of care, the monitoring of patients, and the ability of the practice to educate patients. They also allowed the physicians to increase the number of procedures they performed and to generate additional revenue.

Chapter 9: *Budgeting and Financing for HIT*

Benchmarking HIT Costs

A survey conducted and published by *Physicians Practice* in September 2009 showed that the variance among software costs is broad. The survey demonstrates that approximately one-third of the responding physicians paid \$500-\$3,000; one-third paid \$3,001-\$6,000; and one-third paid over \$6,000. Although not revealed explicitly in the article, it is likely that these data refer to the software license cost per provider. Seventy percent of physicians see or expect to see a return on their investment through billing and operational efficiencies.

Correlations Between Product Cost and Satisfaction

Neither paying the most for a system full of bells and whistles nor skimping with a bare bones system will ensure you a high degree of satisfaction with your EMR purchase. The most important factor in success and satisfaction is not simply price, but matching the product's capabilities with your practice's needs.

System Pricing Methods

Although the cost of systems is generally stated in cost per physician, practices in the market for a new system will find that they are not actually priced that way, as illustrated on page 67. When a practice acquires HIT software, it is actually acquiring licenses to use that software. The most common metric for pricing is the number of licensed professionals in the practice whose services can be billed. Those professionals not only include physicians, but also, for example, advanced practice nurses, physician assistants, and physical therapists who are employed by the practice.

The table on page 67 illustrates several pertinent questions when researching EMR system costs. To explore a few:

- Will your practice require interfaces with e-prescribing, a practice management system, lab, or radiology?
- What are the ongoing price considerations like annual fees, upgrades, or technical support?
- Are there charges for additional features like reporting tools, voice recognition, scanning software, or a Web-based patient portal?
- What are the costs associated with having current records converted into the new system?
- What are the hardware needs?

**What Can I Expect to Pay?
Sample Costs for a Solo Physician Practice**

Item	Product A	Product B	Product C
Software licenses	\$7,995	\$5,000	\$9,995
Vendor implementation and training	\$6,995	\$4,500	\$19,750
Practice management (interface or software)	Included solution	Unified	Included
E-prescribing (module or interface)	\$250 \$25 per month	\$300 or	Included
Technical support	Included	\$600	20 percent of license fees
Other required costs or fees	\$80 per workstation	\$1,200 for travel	None noted
Hardware	Not included in software pricing	Not included in software pricing	Not included in software pricing
Total Start-up Costs	\$15,320	\$ 11,600	\$31,744
Data conversion	\$3,000	\$3,000	Starting at \$1,995
Basic interfaces pricing	\$3,000	\$5,000	\$2,500-\$10,000
Eligibility verification	Varied per year	\$240	\$1,500
Patient portal	\$495 set-up, \$900 per year	\$900 per year	Included
Secure messaging	Included for patient reminders	\$.10 per call	Included
Reporting tools, software, and databases	Included physician	\$1,000 per	Included
Scanning software	Included	No cost	Included
Voice recognition software	Not included with product	Not included with product	Not included with product
Total Other Costs	\$7,395 and up	\$10,140 and up	\$5,995 and up
Ongoing costs	20 percent of software interfaces	\$2,400-\$3,000	\$3,999

Be aware that some expected costs are merely estimates. Implementation costs have been reported to be 5, 10, sometimes 50 percent over vendor estimates. Include some cushion room in your budget. Be sure to check the vendor's history in working with other practices before accepting the proposal. HIT is a highly competitive industry, and in some cases, vendors may attempt to close sales by using estimates that are unrealistically low. If your discussions with other practices show a pattern of a vendor underbidding projects by an amount you consider significant, either pass on his or her proposal or prepare yourself to pay more.

Improving the Proposal's Financial Attractiveness

Practices need to develop a strategy for price negotiations with vendors. After the vendor presentations, select the practice's No. 1 choice but have another vendor in mind as a fallback if there is only a very small difference between their systems according to your evaluations. In a highly competitive market, vendors are motivated to provide financial concessions and make the best offer quickly, knowing that you may be prepared to walk away. It is to your benefit to ask, "We really think of your product as one of the two that are most appropriate for this practice. Can you take a second look at the proposal to see if it can be made more attractive financially for us?"

Hot Tips for Negotiating Prices With Vendors

- **Seek pricing information from other practices.** As a part of the RFP, the vendors provide lists of practices that had installed their software. As you check with these practices, be sure to ask about pricing and price-related issues. What was the final per-physician cost of the system? How much variance was there between the vendor's proposal and the actual cost of the installation?
- **Ask for a discount.** Even if you know that this is the system you consider to be superior to anything else in the marketplace, still ask for a discount. The pricing of HIT systems can be much like the pricing of new cars; a margin is built in with the expectation that the customer will haggle over price.
- **Be flexible in working with the vendor.** The vendor may not offer a discount, but might be able to provide below-market financing for your purchase or a discount based on your completing the purchase agreement by a certain date.
- **Use the survey data to benchmark your purchase.** While published averages of cost per physicians are only a rough approximation of what an HIT acquisition will cost any particular practice, it does raise questions about significantly higher-cost systems for installation in small, single-specialty practices with no satellite offices. Be sure that the higher costs bring the practice significant additional value.

Finally, when you have reached agreement with the vendor, take some time and run the agreement by the practice manager and your partners, if you are in a group practice. The physicians need to agree to the pricing of the HIT acquisition and the scope of work outlined in the contract. The practice manager's expertise on the details of practice operations can help to identify any gaps that might exist in the scope of work. Make sure to have a lawyer familiar with HIT-related legal issues review the contract.

Budgeting for HIT Acquisition

In addition to the cost of software, hardware, and services provided by the vendor, the acquisition of HIT generates other costs for which your practice should budget.

- **The cost of the HIT leader's time.** Inevitably, the HIT leader is a physician whose commitment to the project reduces the amount of time spent on patient care and has a negative impact on that physician's earnings that can be larger or smaller depending on the practice's compensation arrangements. In group practices, the partner physicians may need to make a decision about whether and how to compensate the physician leader for time spent on HIT.
- **The cost of closing the practice for installation and training.** Practices will close for about a week while installing the system and training staff; these activities will reduce revenue but not expenses.
- **The cost of ramping up the practice after installation.** Immediately after the installation, practices will frequently begin operation at a reduced pace for a limited time, generally two to three months, as the practice works to integrate the new technology and the new workflows. This process will commonly reduce the number of patients seen by about 25 percent.

Getting the Most Return on Your Investment

In small- and medium-size practices, calculating a precise [return on investment](#) is difficult because indirect costs are difficult to track and allocate to particular projects. The widely quoted rule of thumb is that practices recover their acquisition costs in approximately 18 to 24 months. The cost recovery and subsequent improvement in practice profitability result from a series of process improvements that EMR capabilities facilitate.

- A combination of template-based documentation and expert coding advice increases the use of higher-level codes because physicians and coders are more confident of their ability to demonstrate the appropriateness of their code selections.

- The elimination of paper records leads to numerous efficiencies that flow to a practice's bottom line. The time spent pulling paper records for every patient visit, telephone call, or request for a prescription renewal is virtually eliminated. There are no more lost records. Medical record supply costs also are eliminated. The office space used to store medical records can be eliminated or put to profitable use.
- The number of nonclinical employees can be reduced, or alternatively, each staff person's responsibilities can be shifted to support a practice's ability to handle an increased patient load.
- The ability to run a profitable satellite office is greatly increased through the availability of EMRs over a practice's network, which eliminates the need for faxing records back and forth.

Obtaining Help to Pay for HIT

ARRA established funding for states to develop grant and loan programs to assist with the financing of physician EMR acquisition. Currently, here are some limited opportunities for participation in interoperability, telemedicine, and quality tracking projects. Check www.grants.gov for any current grant opportunities.

Historically, the Stark restrictions on medical practices preclude accepting anything that might be considered an incentive for patient referrals and have acted as barriers to the distribution of free or reduced-cost software to physicians. However, in late 2006, the government approved two exceptions to the Stark legislation that open the opportunity to provide, without charge, e-prescribing software to physicians and, with a 15-percent physician copay, EMR software.

Donation Options

Donor organizations also can provide training services but cannot provide hardware. Donated EMR software must include an e-prescribing capability and must be interoperable. While health plans can be donors, the rules do not allow the use of the technology to be restricted to members of the donor organization.

The newly available donor option is potentially attractive to physicians because it may greatly reduce the cost of acquiring HIT, but it will take awhile before potential donors formulate their plans.

Donation Regulations

The new regulations permit hospitals to offer computer health information systems (or access thereto) to ambulatory medical practices, potentially at a significantly greater discount than the practices could obtain if they pursued the systems individually. While this option may be a key to faster adoption — and faster and improved interoperability — faster may not be better. Although the inevitable attraction of an

The widely quoted rule of thumb is that practices recover their acquisition costs in approximately 18 to 24 months.

inexpensive EMR offered through a local hospital may hold promise in the short term, the risk exists that physicians may lose control of the practice of medicine and provision of patient care, interoperability notwithstanding, in the long term. Be advised that while a technology donation may be ideal and highly beneficial for the recipient physician in some cases, any physician considering whether to accept a donation from a health system must be aware of all the implications and costs of doing so. Physicians are encouraged to enter into such agreements fully informed and only after weighing the advantages and disadvantages for their particular practice.

Financing Options

Financing an HIT purchase requires some advance planning. While the vendor may have a financing program your practice can use, it may or may not offer the best rate. Vendors generally develop a relationship with a bank or other financial organization that actually provides financing to medical practices. For the most part, those relationships are a profit center for the vendors.

Take into consideration how your practice will finance temporary revenue reductions. Before launching into an HIT acquisition, have the practice accountant perform a cash flow analysis of the impact of HIT expenses and, based on that analysis, obtain from your bank a line of credit sufficient to meet the entire cost of the project, including the need for additional cash during the period of reduced revenue. If the vendor offers an attractive financing proposal, there will be less need to draw on the line of credit.

Give yourself some choices. The cash flow projection prepared by your accountant should take into account varying scenarios in HIT cost, your practice's cash needs, and plausible repayment scenarios. If your practice has an established line of credit with a local bank or a financial services company and if that line of credit is sufficient to meet your cash needs, there may be no reason to look further, although it never hurts to see what the competition is offering. By the time of the vendor presentations, your practice should have in place an independent commitment for financing that allows you to choose whether you wish to use services available through the vendor.

Take into consideration how your practice will finance temporary revenue reductions.

Chapter 10: *Creating the Contract*

After taking the time to research vendors and set up demonstrations, you will want to ensure that the selected vendor delivers its promised services. For this reason, a written contract that clearly meets the practice's needs, goals, and security expectations is crucial.

Determinants of Contract Details

The specificity of vendor contracts varies, in part, with respect to the size and technical capabilities of a practice. For example, many larger practices and clinics hire IT personnel to oversee the security of data and create individualized software interfaces unique to their practice. In these situations, specific interface provisions that will maintain the integrity of existing programs may be necessary.

On the other hand, a smaller practice may completely rely on the contracted vendor for all of its security, software, and integrity needs. In such a case, the vendor's capabilities become particularly relevant, and the practice will want to ensure that the vendor's program not only meets its specific needs, but also facilitates compliance with federal and state law. At a minimum, all vendor contracts should address the following factors.

Contract Review Checklist

New contract or renegotiation.

Is the proposed contract arrangement a renegotiation with an existing vendor or a new relationship? While everything discussed below applies equally to both situations, physicians should view renegotiations as an opportunity to evaluate the vendor's performance and make needed changes.

Contract term.

The contract should clearly state (1) the beginning or effective date and (2) the ending or expiration date.

Contract parties.

The contract should include the full name, address, legal status (e.g., corporation, partnership), and contact person of the other party. Verify that the vendor identified in the contract is the party that you have been dealing with, and not a less solvent subsidiary or affiliate. Finally, pay close attention to the definition of a "licensee." You may want to widen the scope of the term "licensed parties" to include use by affiliates or related parties.

Duties and obligations.

The contract should clearly state all duties and obligations of the practice and the other parties to the contract so that all know (1) what the duties and obligations of each party are,

(2) how each party is to perform them, and (3) when they will perform them. The contract should be evenhanded so that both parties are subject to similar obligations.

What is being licensed and its purpose.

Contracts frequently fail to identify exactly what is licensed and the functions the software performs. An exhibit outlining software functions is an ideal way to include this information — the more detailed, the better for the practice. You also might consider creating an exhibit with an understanding of what the licensed program will do (e.g., the specifications). If nothing else, consider attaching brochures, presentations, or any other document the vendor provided.

Questions About Your Software to Ask Your Vendor

- In which format is the software delivered?
- What type of user documentation is required?
- Will use of the software require purchase of hardware owned by a third party? If so, how much will it cost?
- Are updates included in the license agreement?
- Will the version that the practice is licensing be phased out over the next two years and no longer be supported?

Scope of license.

The contract should specify the scope of the purchased service. For example, a contract may be “exclusive” or “nonexclusive.” The issue of exclusivity may not be important if the practice uses mass-produced or retail software; however, it becomes very important if the practice pays a programmer to develop custom software. In addition, a vendor contract may refer to the “use” of the software. As a licensee, the practice should seek a broad license that will not limit future use if the practice later expands.

In addition to limiting the scope of the license to internal use only, vendors commonly attempt to limit:

- Number of users;
- Right to create derivative works;
- Territory and industries covered;
- Who can perform repairs (i.e., only the licensor);
- Use as a service bureau;
- Right to sublicense; and
- Location (if the practice has facilities in nearby towns or cities that will need to use the software, you don’t want a license that is limited to a particular location or facility).

Finally, the contract should stipulate whether the license is transferable or nontransferable. A physician who sells his or her practice will want the license to be transferable to the buyer, or else the buyer will have to get a new license to use the software (and the buyer may seek to lower the purchase price for the practice in this case).

Compliance with laws and standards.

The vendor should agree to comply with applicable laws and any applicable accreditation standards, including adherence to ARRA criteria

Payment and fees.

The contract should clearly and accurately state the amounts the practice is obligated to pay under the contract, and clearly establish place, time, and method of payment following receipt of an agreed-upon invoice. The contract should state what detail will be included in the invoice.

Payment methods vary greatly and may include flat monthly rates, amounts based on usage time, or fee schedules based on the number of system users or the quantity of data hosted.

Consider the following when evaluating the contract for payment information:

- If the payment schedule calls for a down payment, the contract should make clear as to whether there also are additional annual payments.
- If the payment schedule calls for a down payment plus royalty, the contract should clearly outline how the royalty is calculated and what is deducted.
- Consider incorporating provisions that allow for a right to change or modify pricing within a certain range after one or two years. Alternatively, the practice may prefer a right to change pricing after the initial term.
- The contract should outline whether support services are provided as part of the fee or whether the fee includes any customization services.
- The contract should outline whether training services are included in the initial payment fee. If so, the contract should clarify who will provide the training and to what extent and whether the training will be “live” or through “remote services.”

Ideally, the physician and vendor should anticipate changes in the volume of system users and data requirements when agreeing to initial terms.

☑ Privacy and security.

The contract should require the vendor to maintain and document a comprehensive privacy and security program that includes administrative, technical, and physical safeguards to reasonably and appropriately protect the confidentiality, integrity, and availability of electronic health information as required by HIPAA. The contract should require the vendor to provide documentation upon the practice's request.

☑ Disclosure protocol.

The vendor should have an established protocol for reporting to the practice any inappropriate disclosures of information that may occur.

☑ Termination.

A contract may set forth various types of termination provisions, including:

- A fixed, initial term of multiple years with automatic renewal, unless a certain amount of notice is provided;
- A fixed term with annual renewal unless terminated with prior notice;
- Termination without cause (this gives the practice the most flexibility to get out of the license, but also offers the vendor the same flexibility); or
- A provision allowing either party to terminate only in the event of material breach.

At a minimum, the physician should be permitted to terminate for the following events:

- Vendor's failure to maintain state licensure or comply with legal requirements imposed upon the practice;
- An increased number of patient complaints or the practice's perception that serious problems in care quality have occurred as a result of the vendor's failure to comply with the agreement;
- Vendor's failure to maintain system performance resulting in system downtime (98-percent performance), compromised data integrity and/or security; or a physician's ability to render services; or
- Vendor's failure to mitigate consequences or implement appropriate safeguards in the event the vendor makes inappropriate disclosures.

☑ Wind-down provision.

The practice should attempt to include a wind-down provision to protect it from the effects of termination by a vendor. This is typically coordinated with the termination section so that there is a reasonable period of time to transition services. In addition, the vendor should be obligated to cure any material breaches prior to ending the relationship, to cooperate with new service providers or vendors, and especially to migrate or transfer electronic information in a mutually agreed upon format at no additional cost to the physician.

☑ Data ownership.

The contract should acknowledge the ownership of data contained in or generated by the system, and designate the practice as the owner of all patient information, confidential information, or any derivative thereof. The contract also should clarify the format in which information is to be returned, the method for returning the information, and the time frame. This provision should apply equally to subcontractors.

☑ Software ownership.

The contract should address who has ownership rights to licensed software, set forth who owns derivative works to the software, determine whether the practice has the right to modify software, and agree on ownership rights in any modifications. Ownership rights become especially important if the practice initiates and makes modifications to the software. This can also be addressed when determining who will have rights to the source code.

☑ System updates and changes.

The practice should require the vendor to provide notice of any new versions or updates to the software, especially for compliance with federal or state regulations, and improvements in security and operability functions.

☑ Testing/Quality assurance.

If the vendor is providing solutions or modifications unique to the practice, the contract should ensure that the vendor tests systems to verify that they will meet the contract requirements. You may request that the vendor provide evidence of having tested systems or system components under simulated conditions similar to those you expect in your practice. This will ensure that the vendor is able to address all of your needs. Because such quality assurance requires a high degree of expertise, the practice and vendor may contract with a third party to review the systems for contractual compliance and to identify potential issues.

☑ Support services.

The contract should specify whether support is provided by a third party or the vendor. Issues to address include:

- Is there a 24-hour help desk?
- If support is needed at the practice's site, who pays for the travel time and expenses?
- How quickly will the vendor respond to requests for support services?

☑ Representation and warranties.

Warranties obtained from a vendor will vary greatly depending on services provided. Evaluate the following:

- Whether the contract includes a “performance warranty” that the software will actually perform the functions the seller claims it will. These functions usually are outlined in a specification sheet, preferably attached to the license agreement.
- Vendors typically try to avoid a performance warranty, or they include language that leaves them wiggle room, such as “substantially comply with specifications”; “no known major bugs”; or “free from defects as delivered.” Instead, the practice should try to insert contract language that states the software will “operate in accordance with the specifications”; or “conform to specifications.”
- Whether the support services will be performed in a professional and quality manner.
- Whether the provided hardware and computer programs constitute all applications, systems software, or interfaces required to operate computer programs.
- Whether computer programs are compatible with the practice’s existing data files, business information, and systems, so that significant additional applications, software, or interfaces are not required.
- The amount of time for which the vendor agrees to maintain uptime of services during a calendar month. (Typical usage time is near 98 percent.)
- The vendor’s agreement to repair or replace a defect, or alternatively, to provide a refund.
- The vendor’s representation that the media in which the computer programs are delivered shall be free of any defect, virus, or other program designed to erase or otherwise harm or collect unauthorized information from the physician’s hardware, data, or other programs.
- Whether the vendor ensures that services for which it is responsible are free of defect or malfunction.
- Whether each party has the power and authority to execute, deliver, and perform the obligations under the contract and that the person signing the contract is authorized to perform these functions.

Language to Look for in a Warranty *(In order of preference)*

The physician should look to include these phrases in a warranty dealing with the expected performance of the vendor:

- “Good and workmanlike manner,”
- “Timely and professional manner,”
- “In a commercially reasonable manner,” or
- “In accordance with standards generally observed in this industry for similar software.”

The physician should be leery of negation of warranties. Vendors sometimes seek these disclaimers:

- “As is,” which means all warranties are excluded;
- “Software contains no known viruses”; or
- Disclaimer of implied warranties under a statute commonly referred to as the Uniform Commercial Code or UCC.

☑ Liability.

Licensors typically insist on disclaimers of particular damage remedies. Try to limit the contract so that the vendor is still liable for actual damages caused by the software. The vendor should be liable for any claims directly attributable to product malfunction or failure to protect integrity of information. Also look out for provisions capping any liability at a certain amount (e.g., license fees paid) and whether such provisions apply to indemnificatory obligations.

☑ Downtime provisions.

In any data-hosting arrangement, there will be times when access is unavailable because of periodic maintenance procedures or repairs. The vendor should agree that any controlled downtime will occur only on an “as-needed basis” and not exceed three hours per week. The vendor should give the practice at least 48 hours prior written notice of controlled downtime, and use its best efforts to schedule the downtime during non-business hours.

☑ Subcontractors.

The vendor should identify any expected outsourcing or subcontracting of the services provided to the practice. If a vendor subcontracts work, the subcontractor or agent must be held to the terms of the contract, including the standards for protecting the confidentiality and integrity of patient information as the original vendor. Each subcontractor or agent must be subject to your state’s jurisdiction and venue — especially in today’s environment where a large percentage of work is subcontracted to other countries such as India.

☑ Personal services.

If the contract is for personal services (as in many consulting agreements), it must clarify the independent contractor status of the vendor.

☑ Insurance.

The contract should specify the amounts and types of insurance that the vendor is required to carry.

☑ Arbitration.

Almost all agreements contain a process for arbitrating disputes. Be sure to review these provisions carefully. At a minimum, the arbitration section should stipulate that the arbitrator(s) have expertise in the arbitration matter and that the process be conducted in accordance with the Arbitration Rules of the American Arbitration Association. The contract also should require that any arbitration take place in the city in which you practice.

In addition, decide if your arbitration clause should:

- Designate particular people or positions to be involved in early resolution of disputes;
- Require parties to negotiate in good faith to resolve disputes informally;
- Establish if it is possible to withhold payments over disputed invoices;
- Specify whether all disputes should be resolved by arbitration (you may want use of a courthouse for certain types of claims, such as breach of confidentiality or violation of intellectual property rights);
- Set limits on the authority of arbitrators or scope of relief; or
- Stipulate recovery of attorney's fees and court costs.

☑ Venue.

Make sure the contract contains no clauses that make it subject to either the substantive law or the jurisdiction (also referred to as "forum" or "venue") of another state; the contract should reference only your state.

☑ Assignment.

An assignment clause sets forth whether or not you will be allowed to transfer your rights or obligations under a contract to a third party. There are many different types of assignment clauses, such as those under which:

- Either party has assignment rights;
- The vendor may assign but not the physician;
- Neither party may assign without consent of the other party, but consent shall not be unreasonably withheld;
- Neither party may assign, unless the assignment is in connection with transfer of all or substantially all assets of the party; and
- The vendor may retain right to renegotiate terms if assigned by the physician.

Ideally, neither party should be allowed to assign the contract without the prior written approval of the other party.

☑ Source code escrow.

As a licensee, it is in your interest to seek a source code escrow under the contract. This ensures that if the vendor goes out of business, a copy of the source code is available so that the practice can continue to use it and have repairs made to it. Items to consider include:

- Escrow location,
- Access terms,
- Payment for upkeep of escrow, and
- Duty to keep updated version of source code in escrow.

☑ Promised items.

The contract should expressly incorporate all representations, promises, inducements, and warranties that are made to the practice (i.e., verbal assurances and representations that have material influence in convincing the practice to enter into the contract).

☑ Integration.

The practice should obtain and review all documents that relate to the contract or are referred to in the contract, as well as any policies and procedures referenced in the contract.

Chapter 11: *Moving Forward: Implementation*

You have accepted a vendor's proposal, so now the process of HIT adoption moves into the implementation phase. During this period, the most critical need is for everyone in the practice to maintain focus on the tasks critical to the success of HIT adoption: redesigning workflow, learning the new software, and moving essential information from existing paper records to the new EMRs. A well-planned and smoothly executed implementation period is critical to the success of HIT in your practice.



Now That You Are Ready

Change management involves the planned introduction of new processes and systems into an organization. This change management approach brings together tools for successfully dealing with both the technical and people issues that arise during major change. Here are some critical elements.

- The practice leadership must all support the introduction of HIT. In a solo practice, the leadership likely includes only the physician and the practice manager. In a group, it includes all of the partnering physicians. In a very large group, it may be select physicians, managers, and IT staff. While a physician champion is likely to be spearheading the effort, a unified effort among leadership conveys the clear message that the project is critical to the practice's future and will happen. In change management studies, strong support is the No. 1 determinant of success.
- Communicate regularly within the practice. Communication activities must strongly reinforce the process of change. Discuss the status of HIT acquisition at staff meetings; circulate plans for restructuring of workflow for suggestions; when the HIT project reaches a milestone (e.g., the practice commits to a particular system), tell people about it! In a project that can easily take a year or more from beginning to end, reminders help to maintain focus and to reinforce the message of change.
- Seek feedback. Consider how people are experiencing change by actively seeking feedback and by considering how their reactions may be affecting the project. Think in advance of strategies to deal with any resistance that might occur. As the direct supervisor of office staff, the practice manager is well positioned to act as a performance coach when a staff member is having difficulty adapting to change.

Through the entire acquisition, change management brings first a commitment to the process of change and finally an integration of the changes themselves into the daily operation of the practice.

The Vendor's Role

It is tempting but dangerous to view the vendor as the HIT implementation project manager. The vendor is a project manager, but will focus on specific tasks that are outlined in the proposal, not the success of the overall HIT adoption effort. To an HIT vendor, implementation means managing project deadlines for hardware installation, software setup, and training. These deadlines mark the end of the vendor's implementation responsibilities. Once the products are installed and the users trained, all subsequent issues concerning the vendor fall under "support."

A vendor may offer suggestions about managing the practice's implementation of HIT but will not develop those suggestions into a comprehensive plan that the practice can then implement. Very simply, the vendor does not function as a consultant on practice-related issues. What you can reasonably expect from the vendor is that he or she will meet the goals set in the proposal on time and within or very near the proposed budget and will coordinate his or her activities with the practice to keep to a minimum any disruption to the practice. Moreover, in addition to training sessions that the vendor will arrange for you and your staff, he or she also will provide instruction in the use of technical support so that everyone knows how and when to access help.

Planning for Implementation

Practices could experience an "implementation gap" after the vendor completes his or her set-up responsibilities. One physician, recounting how his practice had done little reconfiguration of workflow prior to implementation, compared catching up after the fact to trying to repair an airplane in the middle of a flight. Effective change management is critical. The implementation phase is perhaps the most crucial step of the entire HIT process. Unmanaged implementations often fall short of expectations. Several techniques have contributed to the success of HIT implementation.

1. Appoint an Implementer to Coordinate HIT Adoption.

The implementer acts as a logistics manager whose job is to see that the adoption of HIT moves forward. Because there is generally very little downtime within most medical practices, avoid the temptation of assigning the office manager or administrator to function as the implementer. Consider bringing in either a temporary employee if you can find someone who is experienced at handling logistics in the medical office setting or a consultant experienced in HIT implementation. One of the great advantages of having an implementer is that the person in that role can keep both the practice and the vendor on track.

The implementation phase is perhaps the most crucial step in the entire HIT process.

List of Responsibilities During HIT Implementation

- Have a finger on the pulse of the practice. Keep track of what software was supposed to be delivered, what is yet to be delivered, and the expected delivery date;
- See that the internal planning process stays on track and that steady progress is being made in the redesign of workflow and patient management;
- Solicit feedback from physicians and staff;
- Keep a running list of things that work and do not work, and things that have to be done, and find out from the software vendor when these problems will be addressed.
- Coordinate interfaces with medical equipment, third-party software vendors, and third-party services such as laboratories.

2. Monitor Costs on an Ongoing Basis.

It also is a good idea for a physician or the practice manager to talk regularly and often with the vendor about whether the costs of the project are close to the original estimate.

Once you have accepted a proposal always remember your side of the bargain — changes in midstream can be very expensive. Whether the vendor recommends a change or whether the change originates with your practice, always ask how much it will cost and ask for the vendor to provide a note revising the original estimate.

3. If Your Practice Is Falling Behind in Workflow Redesign, Take Immediate Steps to Catch Up.

If the implementer is a consultant familiar with HIT implementation, his or her commitment to you can expand to include facilitating workflow redesign. If the implementer is not skilled with workflow redesign, bring on a consultant who can move the process along. Be sure that the budget for HIT implementation includes sufficient funding for staff overtime so that the preparation for HIT implementation does not take second place to the press of handling daily practice operations. You do not want to reopen the practice without procedures in place for exactly how a patient phone call for a prescription renewal is handled or how the availability of patient charts in the exam room terminals will be managed.

4. Training Sessions Should Be Instructional and Foster Self-Reliance.

Instead of having trainers working with staff on-site for several weeks, conduct an intensive training session then allow everyone, including you, to start working with the software on their own. Have the implementer collect questions and after perhaps 10 days to two weeks, have a follow-up session with the trainer or the vendor.

When the trainers leave, your staff will have to be self-reliant. By using the software on their own immediately after the initial training, everyone in the practice quickly will gain experience and self-confidence in problem solving. In this case, there is a much smaller likelihood of feeling abandoned when the trainer and vendor finally leave.

5. Develop a Plan for Moving Essential Information From Your Paper Records to the EMR.

The reality is that initially, your practice will be living with an electronic system that combines data from electronic and paper records. Some historic information should be entered manually, (e.g., medication lists and problem lists). Scanning portions of or the entire paper record into the computer offers an option for incorporation, but these scanned, handwritten documents will be regarded by the computer as a graphic, not as a text document, and therefore are unsearchable.

To help alleviate or avoid this problem, set up a small private kiosk in the waiting room with a computer. As patients come for their first visit after the adoption of the EMR, they should fill out a new medical history on the computer. The physician then reviews the history and identifies relevant portions of the patient's medical record for scanning into the electronic record. Portions of the paper medical record that are entered electronically then can be scanned by optical character recognition software, and the contents of those documents should be searchable if the scanning works properly.

Another option is to have the information from paper charts abstracted, or summarized into key data sets and entered into the EMR. The abstracting option allows for a streamlined chart that contains key data elements searchable for quality reporting.

With either option or a combination thereof, be aware that in the process of converting paper files to electronic, the more time you spend working with both systems, the more likely the project will stall and fail. Have your migration plan worked out in advance and quickly implement that plan so that your practice is not completing dual work and processes.

Have your migration plan worked out in advance and quickly implement that plan so that your practice is not completing dual work and processes.

6. Negotiate With All of the Practitioners in Your Group a Uniform Format for Documentation.

One of the great advantages of EMRs is that they can simplify documentation through the use of templates. Templates save physician time by structuring patient encounters and reducing the need for narrative; they also promote more accurate coding and billing of services. A uniform format allows the development of a single set of templates that everyone uses, which makes it easier to code services and to generate reports. It also provides a level of clarity that justifies the more frequent use of higher-level codes. Virtually all EMR systems allow the use of customized templates, and many of the EMR developers have simplified the creation of templates to the point where medical practices can build them without assistance from the developer or vendor.

7. Celebrate Your Successes.

From beginning to end, the pathway from initial interest in HIT to successful adoption in the medical office can easily take 18 months or longer. Take small breaks along the way to recognize milestones and important individual achievements. As the practice is about to use the new system with patients for the first time, present every employee with a small gift that commemorates the occasion. There are numerous simple and inexpensive ways to recognize your employees' dedication and participation in this project.

EMR Implementation Checklist

Establishment of Project Team

- Physician champion(s).
- Project manager.
- Additional practice/department champions.
- Subject-matter experts.

Development of Project Plan

- Implementation schedule/timeline.
- Roles and responsibilities.
- Change management process.
- Issue tracking and management process.

Communication

- Set up regularly scheduled meeting with vendor implementation staff.
- Provide staff regular updates.
- Post implementation timeline in break room and mark overall progress.
- Utilize newsletters, e-mail, etc., to address specific topics or issues.

Mapping of Critical Practice Workflows

- Identify problem areas and bottlenecks.
- Remap practice workflows, incorporating HIT.

Handling of Existing Data

- Identify key information and documents that need to be in system.
- Develop plan for entering them into system.
- Develop plan for handling new, outside documents and information.

Training

- Assess PC and keyboarding skills of staff.
- Establish plan for developing staff's PC and keyboarding skills.
- Conduct hands-on, task-oriented sessions tailored to staff responsibilities.
- Identify "super users" and ensure they receive additional training sessions.
- Allow staff on-the-job learning time to familiarize themselves with system.
- Develop appropriate education material, such as cheat sheets, quick reference cards, diagrams of new workflows.

System Testing

- Conduct testing of modules and their integration with other systems.

Contingency Planning

- Develop disaster recovery plan.
- Test ability to restore system from backups prior to going live.
- Ensure a system backup plan in place and running.

Go-Live Planning

- Determine amount physicians' schedules will be reduced (if any) allowing time during day for providers to "catch up."
- Determine rollout approach (all at once or piecemeal).
- Ensure sufficient resources available to support staff and physicians.
- Make sure staff and physicians know who they can go to for assistance.
- Inform third parties and other vendors (e.g., labs, transcription) of go-live date so they are prepared to provide additional support.
- Plan for what to do if things go really wrong.
- Schedule midday "huddle" to evaluate progress.
- Schedule end-of-day debrief to identify and address issues.
- Plan to celebrate.

Communicate With Your Patients

As your practice moves closer to full implementation, let your patients know that you will be acquiring HIT; although, probably the better term to use with patients is “EMR.” Let them know there may be temporary delays in obtaining services until the practice is back to handling its full patient load. Present the idea of an EMR to them as a means for the practice to enhance patient quality of care and quality of service.

Utilize every patient communication vehicle available to your practice:

- Patient newsletters,
- E-mail updates,
- Mail reminders,
- Messages on the phone systems announcing the change while patients are on hold, and
- A one-page handout explaining that the practice may be closed and/or operating for a period at reduced capacity.

If your practice will be closed for installation and training, make arrangements with another practice to see patients who may urgently need care, and have an announcement put on your practice’s answering system telling patients how to contact that practice.

Case Study: *Small Town Success*

For Joseph Perkinson, MD, a Victoria, Texas-based physician with a solo family medicine practice, using an EMR has been his way of knowing that he is making a difference for his patients. Dr. Perkinson entered practice in 1998 as an employed physician in a small town near Victoria. In a practice with “lots of paper and lots of patients,” he felt unsure whether his care really met the health care needs of his patients. When he moved to Victoria and opened his own practice in January 2001, he acquired an EMR so that he would be able to base medical judgments on a more complete view of the relevant data and see from the record whether patients were, in fact, benefiting from his care.

He cites the example of a patient with a higher-than-normal blood pressure reading. In a practice with paper records, the physician can flip through the record and view only the patient’s blood pressure at one or two previous visits. In a practice with an EMR, the record includes a graph of previous readings that indicates the trend of the patient’s blood pressure over time. “That’s what you really need to decide whether the patient needs medication or a change of medication or no medication at all,” Dr. Perkinson said.

He does not consider himself an “early adopter” of EMRs; those were the physicians who began using EMRs in the 1980s and early 1990s. He also does not consider himself a tech person. But a physician in solo practice located in a smaller community venturing into an EMR in 2001 had to be more than a little adventurous. There were no all-in-one software suites to integrate EMR functionalities with one another and with practice management systems. Moreover, the majority of vendors had little or no interest in selling and servicing physicians outside of metropolitan areas.

His selection of his practice’s EMR was based largely on two factors:

1. The availability of local support and
2. His strong preference for a Windows-based system.

The system Dr. Perkinson assembled required a custom interface to link the EMR to the practice management system so that the two could share patient demographics. He has since made additions to his system that include voice-recognition software; a blood pressure, pulse, and respiration monitor that records its readings directly into the EMR; and a software suite that allows patients to enter and update data from a computer in a kiosk in the waiting room.

Case Study: *Small Town Success*

From his experience with EMRs, he has three pieces of advice for physicians who are just beginning the process of introducing HIT into their practices. First, he is a strong believer in “best-of-breed” solutions in which physicians create systems that combine the best products from different developers instead of using the suite approach in which the physician is committed to the products of a single developer. He states that “best of breed” results in higher quality, and although the up-front expenses may well be higher than simply adding another module to your current system, a customized solution is likely to have more enduring usefulness. Moreover, Dr. Perkinson is skeptical about the ability of practices to transfer their data easily from an integrated HIT software suite to alternative software. Once a practice has entrusted its data to an all-in-one system, the practice becomes dependent on the developer’s products and future upgrades.

Second, he sees the greatest barrier to HIT adoption as the physician perception that EMR use will slow the pace of physician work. He urges physicians to base their HIT adoption plans on the longer term benefits the technology provides. “Of course, EMRs do slow down physician work at first,” he says. But that early phase passes quickly, and what he found over time was that his efficiency has improved, the efficiency of his employees has improved remarkably, and that he has at his disposal a powerful tool for self-assessment and quality improvement.

Third, he strongly believes that physicians should acquire HIT primarily with the goal of improving quality of care. He acknowledges that there may be economic benefits, particularly with recent declines in the cost of the software. But the ability to have the relevant patient information immediately available as medical decision making takes place is clearly his most important objective. In his view, the availability of EMRs in physician practices is exciting and will bring about “a renaissance” in medicine.

Dr. Perkinson was able to recover the cost of his system in about three years. Because he knew when he opened his practice that he planned to acquire HIT, he hired only staff who had previous experience working with computers, although not necessarily with HIT systems. A trainer worked with the practice for a day, then staff worked on their own, simulating the day-to-day tasks of using the system. When the patients arrived, the practice was ready, and although an additional day with the trainer had been scheduled, it was cancelled as unnecessary.

Case Study: *Small Town Success*

The introduction of HIT has made a considerable difference in staff productivity. Time spent on moving charts around, handling prescription renewals, arranging MRI scans, and copying and sending medical records has all declined sharply. Dr. Perkinson uses a fax server to transmit prescriptions directly to pharmacies and to send or receive patient-related documents. He does not have secure e-mail. If patients want to communicate with him via e-mail he explains to them that he cannot ensure the confidentiality of their messages and will not reply to them via e-mail.

Technical support has been very strong. Dr. Perkinson gives his vendor high marks for the quality of service that his solo practice receives: "I'm just peanuts to them, but they never treat me that way."

Chapter 12: *The Law and HIT*

Along with the host of possible benefits, using technology presents a number of complicated legal issues. Many of these issues are familiar but pose new complications (e.g., HIPAA compliance, antikickback statutes, and Stark anti-referral rules) as practices bring HIT into the office environment. Others are more specific to technology and/or to the business relationship of the practice and the vendor.

This chapter is not intended as a substitute for the services of a knowledgeable attorney in the negotiation of specific contracts.

Antikickback and Stark Rules

Among the primary legal barriers are the antikickback statutes and the Stark anti-referral rules. Antikickback laws come into play when a practice or physician gives something of value for referrals. Stark issues arise when a physician refers to an entity with which he or she has a financial relationship. Despite the serious limitations these regulations impose, regulators have taken action to help protect certain types of arrangements that involve third-party financial support for providing to practices e-prescribing or EMR hardware, software, and training services.

E-prescribing

E-prescribing presents many advantages to physicians and patients, ranging from efficiency and convenience to fewer clinical errors. The U.S. Office of Inspector General recently proposed a new safe harbor to foster e-prescribing. A parallel exception also has been developed under Stark.

Because safe harbors for e-prescribing are subject to regulations, physicians should always find out if government regulators have issued additional guidance before entering into these types of arrangements.

Restrictions Regarding E-Prescribing Relationships

Any physician considering entering into an e-prescribing relationship with support from a third party should be aware of the following restrictions:

- The only services a third party may provide the physician are hardware, software, and training needed solely to send and receive electronic prescription drug information.
- Only the following entities may provide items and services: (1) a hospital to physicians who are members of its medical staff; (2) a group practice to physicians who are members of the group; and (3) a prescription drug plan sponsor or Medicare Advantage plan that offers drug coverage.

- The items or services donated must be used to access or be part of an electronic prescription drug program that meets the applicable standards under Medicare Part D at the time the items are furnished.
- There can be no restriction on the use of other systems.
- It is not proper to take into account the volume or value of referrals or other business generated between the parties.
- The parties must sign a written agreement that: (1) specifies the items or services being provided and their values; (2) covers all of the e-prescribing services to be furnished by the entity; and (3) contains a certification by the physician that the items and services are not technically or functionally equivalent to items and services that he or she already possesses.

Electronic Medical Records

There is a similar exception to Stark for EMRs that protects nonabusive arrangements under which third parties provide medical practices the software and training they need to receive, transmit, and maintain EMRs.

The restrictions applied to this exception are exactly the same as the restrictions on the provision of EMR technology with a single addition. When a third party provides EMR technology, it must contain e-prescribing capabilities that comply with the electronic prescription drug standards under Medicare Part D at the time the items and services are furnished. As with e-prescribing, be sure to find out if government regulators have issued additional guidance before pursuing this type of arrangement.

Technology Liability Exposure

New information technology may carry different types of risk that require different types of liability insurance coverage and/or an expansion of the risks covered under your current policies. If your EMR system does not properly back up files and a patient's record is lost, does your general liability insurance cover any resulting claim? What if the integrity of an e-prescription is compromised upon transmittal and dosages are changed? Technology is not simply an instrument to be used to increase practice efficiency; it comes with the added responsibility of ensuring that the technology works properly. As the prevalence of technology increases, physicians are subject to a higher standard of care.

Physicians should take this additional responsibility into account when negotiating contracts and when purchasing the practice's insurance coverage. Consider these factors:

- Your practice will need to expand its general liability coverage to include any harm to patients that might result from equipment malfunctions, data transmission errors, incomplete or inaccurate data resulting in inaccurate medical diagnoses, misappropriation of confidential health care information, and other technology-related mishaps. Your medical liability policy will not cover these events.
- If you are a physician using the Internet or a telemedicine connection to provide medical services, you should determine whether your medical liability policy covers services provided electronically. Most medical liability insurance covers only “face-to-face” encounters within the state in which the physician practices and is licensed. Consequently, physicians who provide services to patients outside the state over the Internet or who engage in telemedicine can be exposed to claims if state law requires that the physician be licensed in the state where the test results are delivered.

HIT significantly lowers risk; therefore, most liability carriers are willing to offer premium discounts to users.

Always be sure to obtain written assurances from vendors that they are responsible for claims that may arise as a result of a defect or malfunction of their products.

On the other hand, HIT significantly lowers risk; therefore, most liability carriers are willing to offer premium discounts to users.

HIPAA

The Health Insurance Portability and Accountability Act (HIPAA) requires medical practices to protect the confidentiality and integrity of patient information. HIPAA policies and procedures are extensive and complicated, and the majority of physician offices need to comply with the regulations as they apply to HIT. For this reason, practices should obtain written assurances from their technology vendors that they comply with HIPAA and will remain in compliance through the term of any agreement.

Questions to Ask Your Vendor About HIPAA

1. Does your product give physicians the ability to document compliance with HIPAA?
2. Does your product notify the physician of authorizations that have been revoked or expired?

In addition, be sure to obtain a nondisclosure agreement from any vendor who has direct exposure to your practice’s patient data. Note that with the adoption of any new technology, the practice may need to reissue its Notice of Privacy Practices (NPP) and obtain updated authorizations. The NPP should disclose whether the physician e-prescribes or communicates with patients via e-mail.

Telemedicine

Telemedicine consists of a health care service initiated by a physician to obtain an assessment from another health professional — generally another physician — that requires the use of advanced telecommunications (i.e., that cannot be provided via the telephone or fax). The initiating physician may be asking for assistance in diagnosing a patient, a consultation on a patient's treatment plan, guidance in performing some particular treatment, or an interpretation of imaging studies. The defining characteristic of telemedicine is that the consulting physician is seeing either the patient, or complex data about the patient, electronically.

Historically, telemedicine served and still serves as a health care alternative in remote areas where some medical specialties are in short supply. But in recent years, it has become more common because it enables specialists to review a patient's record and/or provide care when the patient seeks care in a location remote from his or her medical record. For example, a radiologist in South Texas can easily review imaging studies and other data for a patient from Iowa vacationing in Texas.

When incorporating telemedicine into a practice, check with your state's requirements to ensure compliance. For example, a practice should create and follow written protocols that document a good faith effort to prevent fraud and abuse by addressing the following issues:

- Authentication and authorization of users;
- Authentication of the origin of information;
- Prevention of unauthorized access to information;
- System security, including the integrity of information collected, the program, and the system;
- Information storage, maintenance, and transmission;
- System and information usage; and
- Synchronization and verification of patient data.

The Internet

Check your state's regulations, but the law generally holds online treatment and consult recommendations, including e-prescriptions, to the same standards as traditional face-to-face settings. While the Internet enables physicians to deliver health care in a more efficient and cost-effective manner, physicians who use the Internet for patient care should first establish a face-to-face, patient-physician relationship. Evaluating a patient by phone, via the Internet, or over e-mail is not an acceptable standard of care.

The patient-physician relationship should include at a minimum the following elements:

- Establishing that a person requesting treatment is in fact who the person claims to be;
- Using acceptable medical practices such as patient history, mental status, physical examination, and appropriate diagnostic and laboratory testing to establish and diagnose underlying conditions, and identify appropriate treatment and/or any contraindications to treatment;
- Discussing with the patient the diagnosis and evidence for diagnosis in addition to the risks and benefits of various treatment options;
- Ensuring physician availability and/or coverage for appropriate follow-up care; and
- Making certain the communications are documented in the patient's record.

TMA strongly cautions physicians that e-mail is not a secure method for communicating with patients.

Web Sites

Traditionally, Web sites have been used as a means of marketing. However, more and more physicians are creating Web sites as a means of providing treatment and directly communicating with patients. The use of Web sites triggers both federal and state regulations including many of the legal issues raised in the preceding discussion of the Internet. In addition, Texas law requires any physician establishing a Web site to make clear disclosure of the following information:

- Ownership of the Web site;
- Specific services provided;
- Office address and contact information;
- Licensure and qualifications of physician(s) and associated health care professionals;
- Fees for online consultations and methods of payment;
- Financial interest in any information, products, or services offered;
- Appropriate uses and limitations of the site, including providing health advice and advising patients not to use the Web site for assistance in emergency situations;
- Uses and response time for e-mails, electronic messages, and other communications transmitted via the site;
- To whom patient health information may be disclosed and for what purpose;
- Rights of patients with respect to patient health information;
- Information collected through any passive tracking mechanism; and
- A liability disclaimer.

Please refer to your state's medical board Web site for current state regulations on the use of e-mail and medical records.

Case Study: *Using Technology From Day One*

The most straightforward path for introducing an EMR is to have the system up and running the day that a practice initially opens its doors. When Houston, Texas, internist Christopher Ogunro, MD, decided to establish an urgent care clinic, initially in partnership with two other physicians, he was able to make decisions rapidly and unfettered by an established practice culture. He did not have to concern himself with the complexities of managing change, redesigning workflows, or convincing staff to buy in to the necessity of converting from paper to EMR. And he was able to make his way through the process of system selection, installation, training, and going live without the use of a consultant.

From the beginning, Dr. Ogunro focused on systems that allowed easy creation of notes and generation of claims. He became accustomed to the use of template-based documentation during the 12 years he spent working as a hospital emergency room physician. He only included in his search integrated products with both clinical and business functions in a single package.

He began his search by reading articles and looking at published ratings of HIT systems. He found four or five names that came up repeatedly in his reading and in his discussions with other physicians. He then went to the Internet sites of the developer and worked with the Web demonstrations of all of them until he had narrowed his selection to one. He made three site visits to practices using that system, asking questions based on his Web demonstration experience. Only then did he speak with the vendor.

Staff and physician training took place three weeks before the practice opened. A trainer spent a week working with the practice, and afterwards, staff and physicians practiced using test cases. “The real training began when we started to see patients,” he said. After the practice opened, patient flow was, as expected, initially low, which allowed time for staff to develop facility with the software. “On our first day,” he says, “we had only one patient.” But as patient volume grew, the practice accumulated questions and worked through the vendor for answers.

The acquisition was financed through a bank loan. The EMR cost \$10,000 for the first physician, \$5,000 for each additional full-time physician, and \$2,500 for each part-time physician. Technical support costs \$600 per provider per year, and maintenance of the system and upgrades cost 18 percent of the initial licensing fee per year. Training costs are additional.

Case Study: *Using Technology From Day One*

Dr. Ogunro uses a tablet PC for data entry while his two partners use flat screens with keyboards. And the system can be set up for remote access. Beyond the initial goals of simple note creation and claims filing, he sees a number of day-to-day practice benefits that derive from the electronic office: no lost charts, ease of handling prescriptions and prescription refills, and elimination of legibility issues in prescriptions and medical records.

He sees the practice's next HIT challenge as the evolution of data needs that will occur as he and his partners develop contracts with third-party payers.

Glossary

American Recovery and Reinvestment Act of 2009 (ARRA):

an economic stimulus package intended to provide a stimulus to the U.S. economy in the wake of the economic downturn. A significant portion of the funds were allocated to health IT infrastructure and expansion.

abstracting: summarizing the important points of a text for import into the EMR

application service provider (ASP): a third-party entity managing and distributing software-based services to customers from a central data center

automation: the system of operating a process by highly automatic means, as by electronic devices, reducing human intervention to a minimum

best of breed: several products, each excelling at specific functions, joined to work as one

change management: the formal process of introducing, adapting, and diffusing change through the practice

chart conversion: process of deciding and implementing the means to get data from the paper charts into the new EMR

chronic disease management registry: a clinical information system that generally supplements the individual patient medical record and supports the physician in the treatment setting; used to capture, manage, and provide information on specific conditions to support organized care management

client-server model: a dedicated server located at a customer's site that handles most of the software processing tasks, while less-powerful client computers access and share files, programs, and computing prowess

computerized physician order entry (CPOE): a process whereby clinicians enter orders electronically; although orders are sometimes just printed for the paper chart and paper processes, usually CPOE is implemented with orders electronically communicated over a computer network to the receiving departments (pharmacy, laboratory, nursing, or radiology) responsible for fulfilling the order.

document imaging: creating an electronic image in a computer file from a paper document, typically through scanning

electronic health record (EHR): a longitudinal electronic record of patient health information generated by one or more encounters in any care-delivery setting

electronic medical record (EMR): the electronic record of patient health information generated by encounters at one particular delivery setting

freeware: programs that are intended to be distributed and used for free. Freeware is generally proprietary software available at no cost, but the author usually restricts the rights to copy, distribute, or modify the software.

hardware: devices to capture, process, and transmit data in an electronic form such as computers and network equipment

health information exchange (HIE): the sharing of health care information electronically across organizations within a region or community

health information technology (HIT): the acquisition, storage, retrieval, and use of electronic information in a health care setting

Health Information Technology for Economic and Clinical Health Act (HITECH): a portion of the 2009 economic stimulus package that aims to encourage more physicians to adopt EMRs by promising incentive payments to those who use the technology

integration: process of ensuring all elements in an information system can communicate and can act as a uniform entity

interface: a program designed to enable the exchange of data between two sources; enable software to connect one information system to another, to share certain data or outputs, to join systems to perform tasks seamlessly and without double entry of data

Internet: a worldwide system of computer networks that allows users to send and receive information among computers

interoperability: the capability of systems to pass meaningful information between them

legacy system: an older software system that is typically expensive to maintain and upgrade, has extreme limitations of functions, and does not interface well with new technologies. However, legacy systems have been proven to work, making it difficult for some consumers to make decisions about old vs. new technologies

network: a set of connected computers that is able to communicate and share data or programs

open source: systems whose programming code is openly available to download, use, review, critique, modify, and redistribute.

operating system: the software program that provides the commands and logic that operates the computer

patient registry: provides multiple views of information about a patient or lists of patients for use (1) at the point of care, (2) between visits to identify gaps in care, and (3) to provide status reports about specific patient populations

personal computer (PC): a computer designed for the individual user

personal digital assistant (PDA): a handheld computer loaded with personal productivity tools such as a calendar, address book, word processing, and spreadsheet functions

personal health information (PHI): individually identifiable health information that includes demographic and other information relating to the past, present, or future physical or mental health or condition of an individual.

personal health record (PHR): a health record maintained by the patient that incorporates information from various providers

return on investment (ROI): a measurement of success of a project; the percent of profit earned on an investment

scalability: the ability of a system to expand, such as when a practice needs to add additional users

server: a computer on a network that stores commonly used data or programs and makes those available on demand to clients on the network.

software: a computer program

templates: a form or pattern to capture data in a structured manner

workflow: the progress of how processes and functions are performed

Resources

The Physicians Foundation

The Physicians Foundation is a grant-making foundation devoted to helping practicing physicians improve the care they deliver to their patients. The foundation provides grants to nonprofit organizations for practice-based, innovative projects that improve the quality of health care.

Learn more at The Physicians Foundation Web site at www.physiciansfoundation.org.

TMA Health Information Technology Department

The Health Information Technology section on TMA's Web site includes research articles on HIT in the office setting and physicians' accounts of their experiences incorporating EMRs and other HIT into their practices. This same section on the Web includes HIT current events, quality initiatives, tools, and resources to assist physicians with the selection and adoption of HIT.

Visit www.texmed.org/HIT to access these resources and information.

In addition to using TMA resources and the resources of other organizations, also look at the Web sites of your own specialty organizations, as many of the national medical specialty societies have become involved in assisting their members in making HIT decisions. Finally, a number of HIT-related trade organizations, such as Medical Records Institute, sponsor local trade shows where physicians have the opportunity to see demonstrations and meet with vendors.

AAFP Center for Health Information Technology

The Center for Health Information Technology (The Center) is the focal point of the American Academy of Family Physicians' technical expertise, advocacy, research, and member services associated with medical office automation and computerization. The Center is dedicated to increasing the availability and use of low-cost, standards-based information technology among family physicians, nationally and internationally, through

consultative, educational, and outreach activities. The Center collaborates with government, industry, and other professional organizations to apply HIT to improve patient care and safety and refine the efficiency of health care delivery.

Visit www.centerforhit.org for more information.

Office of the National Coordinator for Health Information Technology

Organizationally located within the Office of the Secretary for the U.S. Department of Health and Human Services, the Office of the National Coordinator for Health Information Technology (ONC) is the principal federal entity charged with coordinating nationwide efforts to implement and use the most advanced HIT and the electronic exchange of health information.

Visit the ONC at www.hhs.gov/healthit for more information.

Agency for Healthcare Research and Quality

A division of the Department of Health Human Services, the Agency for Healthcare Research and Quality (AHRQ) works to improve the quality, safety, efficiency, and effectiveness of health care for all Americans by conducting research aimed at helping people make more informed decisions. AHRQ's Health Information Technology Initiative encompasses grant programs, contracts, and projects aimed at identifying challenges to HIT adoption, use, solutions, and best practices for making HIT work. The initiative also has tools to help hospitals and clinicians successfully incorporate new HIT.

Learn more at www.ahrq.gov.

Open Source Resources

AHRQ Open Source and Public Domain Software

Open Source Initiative (OSI) is a nonprofit corporation formed to promote and advocate for the benefits of open source, act as a standards body, and advance its Open Source Initiative Approved License trademark program.

For more information, visit www.opensource.org.

HIMSS

The Healthcare Information and Management Systems Society (HIMSS) is the health care industry's membership organization exclusively focused on providing leadership for the optimal use of health care information technology and management systems for the betterment of health care.

Visit www.himss.org for more information.

AHIMA

The American Health Information Management Association (AHIMA) is the premier association of health information management (HIM) professionals. AHIMA's 50,000 members are dedicated to the effective management of personal health information needed to deliver quality health care to the public. Founded in 1928 to improve the quality of medical records, AHIMA is committed to advancing the HIM profession in an increasingly electronic and global environment through leadership in advocacy, education, certification, and lifelong learning.

Visit www.ahima.org for more information.

MGMA

The Medical Group Management Association (MGMA) is the nation's principal voice for the medical group practice profession. The mission of MGMA is to continually improve the performance of medical group practice professionals and the organizations they represent. MGMA has several HIT-related publications and resources.

Visit www.mgma.com for more information.

U.S. Department of Health and Human Services

U.S. Department of Health and Human Services serves as the pivot point for several federal programs — the Office of the National Coordinator for Health Information Technology, National Health Information Network initiatives, and the American Health Information Community.

Visit www.hhs.gov/healthit for more information.

DOQ-IT

One of the Physician-Focused Quality Initiatives sponsored by the Centers for Medicare & Medicaid Services is the Doctor's Office Quality — Information Technology (DOQ-IT) project. The adoption of information technology in the outpatient setting is a primary focus of the DOQ-IT initiative, which also includes submission of clinical measure data to the Quality Improvement Organization (QIO) Clinical Warehouse. Electronic health record specifications have been developed that outline data standards required for submission to the QIO Clinical Warehouse using HL7 messaging. Measures will be calculated and reported at the practice level for quality improvement assessment.

Visit www.qualitynet.org for more information.

CCHIT

The Certification Commission for Health Information Technology (CCHIT) is the recognized certification authority for electronic health records and their networks with a mission to accelerate the adoption of health information technology by creating an efficient, credible, and sustainable product certification program.

Visit www.cchit.org for more information.

Leapfrog

The Leapfrog Group is an initiative aimed at mobilizing employer purchasing power to alert America's health industry that big leaps in health care safety, quality, and customer value will be rewarded.

Visit www.leapfroggroup.org for more information.

Bridges to Excellence

Bridges to Excellence is a multistate, multiemployer coalition developed by employers, physicians, health care services researchers, and other industry experts with a shared goal of improving health care quality through measurement, reporting, rewards, and education.

Visit www.bridgestoexcellence.org for more information.

eHealth Initiative

The eHealth Initiative's mission is to drive improvement in the quality, safety, and efficiency of health care through information the use of interoperable information technology by engaging multiple stakeholders to define then implement specific solutions.

Visit www.ehealthinitiative.org for more information.

NCQA

National Committee on Quality Assurance's (NCQA's) mission is to improve the quality of health care by generating useful and understandable information to inform consumer and employer choice. NCQA is the accrediting body for health care payment plans organizations.

Visit www.ncqa.org for more information.

Evaluation Form

Electronic Medical Record: The Link to a Better Future, 2nd Edition

CME eligibility: Sept. 1, 2009-Sept. 1, 2012

Name _____

Specialty _____

Practice Address _____

City _____ State _____ Zip Code _____

Medical License Number _____

Insurance Carrier _____

Policy Renewal Date _____

Statement of Completion: I attest to having spent 3 hours in this CME activity.

Physician Signature _____ Date _____

CME Processing Fee: \$25

Mail this evaluation form and check or credit card information to
TMA Knowledge Center, 401 W. 15th Street, Austin, TX 78701-1608.

Charge my credit card AMEX Discover MasterCard Visa

Card # _____ Expiration Date _____

Cardholder _____ Cardholder signature _____

Individuals paying by credit card may fax the completed CME form to (512) 370-1693.

Objectives

1. Discuss the efficiency and quality benefits of an EMR system.
2. Evaluate the practice with a needs assessment to determine EMR readiness in terms of financial and operational variables.
3. Discuss common EMR vendor contract issues and legal considerations for utilizing technology.
4. Summarize necessary steps for product selection, implementation, and maintenance of an EMR system.

Please rate each of the following:

	Agree	Mostly Agree	Mostly Disagree	Disagree
1. Content met the program objectives.				
2. Material was appropriate for target audience.				
3. Material was appropriate for stated objectives.				
4. Content was free of commercial bias.				
5. Teaching methods met program objectives.				
6. Information presented will be useful in my practice.				
7. Any comments about this course or programs you would like to see in the future?				

Which statement best describes the current status of your practice?

- a) We do not plan to implement an EMR.
- b) We want to implement or plan to implement an EMR.
- c) We currently use an EMR.

If you currently use an EMR, which product and which vendor are you using? _____

Yes or No Prior to reading this material, were you planning on implementing an EMR in your practice?

Yes or No As a result of reading this material, have you decided to pursue adopting an EMR?

Yes or No As a result of reading this material, do you feel more comfortable with the process of selecting an EMR product?

Yes or No As a result of reading this material, do you feel more comfortable with the process of implementing an EMR systems?

Yes or No As a result of reading this material, do you feel more comfortable with the process of determining if your practice is ready for an EMR?

If you want to implement an EMR systems, how soon do you anticipate doing so?

- a) We are in the process of implementation now
- b) Within six months
- c) Between six months and a year
- d) Between one and two years
- e) More than two years

Yes or No Are there topics that you felt should have been covered?

If yes, what topics? _____

What do you hope to gain by using an EMR systems? (Check all that apply)

- a) Improved clinical decision-making
- b) Improved workflow
- c) Improved patient communications
- d) Improved claim submission process
- e) Improved cash flow
- f) Improved charge capture
- g) Improved visit coding
- h) Improved drug refill process
- i) Better medical records access
- j) Reduced medication errors
- k) Reduced transcription costs
- l) Reduced staff expenses
- m) Reduced costs to store and transport medical
- n) Other _____