Electronic medical records (EMRs), also known as electronic health records (EHRs) and computer patient records (CPRs), will inevitably become a reality in all physician practices. By incorporating these technologies, we will improve the quality of patient care, reduce office and surgical errors, improve practice efficiency, and allow for easier practice evaluation and, thus, continuing improvements. Although physicians have begun to embrace electronic billing, we have been slow to move to EMRs.

President Bush is pushing this agenda by creating the role of a National Coordinator for Health Information Technology in hopes of moving health care providers into EMRs within 10 years. David Brailer, MD, PhD, has assumed this position and understands that physicians face many barriers to adopting EMRs, stating, “We need to create incentives for providers to adopt EMRs and ensure the products they buy will do the job.”

Certainly, the costs of most EMR systems are significant and come at the time of continually decreasing reimbursements. In addition, most physicians simply do not have the technical expertise or the time to become sufficiently knowledgeable to evaluate and implement these systems. Still, EMRs are the future and we will all be incorporating them into our practices.

The following represents a concerted effort by the PMCC to provide ASCRS members with basic information on how to begin adapting to the inevitability of EHRs. There will be an overview of the technology as it stands today as well as a discussion of future technologies. We will also enlighten the reader in regard to government and legislative issues, the financial impact of EMRs, and how to best implement these systems into your practice.

Making the Decision

Electronic medical record software allows for the input, storage, organization, and retrieval of patients’ charts. The question is, should your practice implement EMRs now? Following is a discussion of some things to consider in your decision-making process.

Recommended Steps in Evaluating and Selecting a System

Assuming you have made a decision to purchase an EMR system, here are some recommended steps that will facilitate the process:

1. Define what you need from an EMR system. This includes, but is not limited to,
   a. the ability to eliminate or significantly reduce transcription costs
   b. a vendor with several years of experience in ophthalmology that has the financial size and strength to ensure it will be a long-term player
   c. multiple methods of data entry to accommodate varying provider needs
   d. the ability to service different ophthalmic subspecialties
   e. strong prescription-writing ability with print, fax, and e-mail options
   f. strong reporting abilities including drawing capabilities, interfaces with the practice management system, reports to physicians, diagnostic test images, interpretation, and report requirements for diagnostic tests
   g. interfaces with instruments
   h. enhanced compliance and chart documentation.
2. Integrate the needs of the practice into a request for proposal (RFP) and send it to between 3 and 10 vendors. In general, vendors are more than happy to fill out the survey. This step in the process is designed to assist you in narrowing the field to between 3 and 5 vendors rather than to help you choose the right system for you.

3. Talk to other practices, and educate yourself. Now is a good time to speak with other colleagues about their experiences. In addition, read any articles you can find on the subject of EMRs.

4. Ask the vendors to conduct on-site demos. The practice should guide the demonstration of the system by being prepared to have the vendor address 10 or more specific functions, in addition to the more general presentation materials. It is a good idea to have a form on which the practice can rate the quality of the responses. In addition, ask several operational questions; for example, “Do you recommend using tablets or personal computers [PCs] in each exam room?”

5. Check references, and conduct several site visits to see systems in use. Now is the time to see what other practices think of the vendors under consideration. You can learn a lot—including information you may never get from an on-site demo with a vendor—by speaking with users of the EMR systems.

6. As the last step, select a vendor and negotiate the terms of contract.

No new technology comes without a cost. You must outlay expenditures for software, hardware, installation, training, wiring, communications, and ongoing support.

**Technology Considerations**

What computer hardware you should use when you implement EMRs is another thing to consider in your decision-making process. Should you have a PC in each examining room or use a tablet PC that can be carried from room to room?

The advantage of a PC in each room is that it is always in place and ready to use. The disadvantage is that it takes up space. The advantage of a tablet PC is that it does not require any more space in the examination room than a paper chart. However, although you will not need as many tablet PCs as stationary PCs, tablet PCs cost twice as much as as standard ones. Another disadvantage is that tablet PCs weigh about 3 pounds. Some EMRs offer “thin clients” or terminals instead of PCs. Terminals are smaller and less expensive than PCs but can only run with EMR or other software specifically designed for them.

Another consideration is whether to use hard-wired or wireless connections. The expenses of hard-wired connections include running cables under floors, through walls, or over ceilings and the price of the cable and connections. The connections must be reliable and comply with the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Although wireless connections save the cost of the cables, the associated routers, hubs, and receivers are costly. Wireless connections make HIPAA compliance more difficult.

**A Hiccup or Two**

With paper charts, the records are physically in front of the physician. When paper charts stack up, the physician realizes he or she is behind and signs them. With EMRs, physicians may not notice how many charts must be signed and that they are behind. Physicians should look at the list of unsigned charts in the computer on a regular basis and then sign them. Many EMR software packages prompt physicians to sign the chart at the end of the examination.

How you will structure the system is another decision. To make the shift to EMRs easier, examinations can be tailored to how the individual physician or a group of physicians practice medicine. Or, they can be tailored to the practice rather than to each physician for ease of maintenance and technician flow from physician to physician. One selection criterion is to choose software that allows the practice’s staff to change the design of examinations without calling the software company, which is quicker and avoids charges and delays.

**Should You Implement an EMR System?**

As with any new technology, EMRs require a learning curve and can meet resistance from employees. It is important to use a rigorous process to guide your decision making when choosing an EMR system and when transitioning to a paperless office.

**Financial Impact**

**Bruce S. Maller**

Practices must consider affordability issues when deciding whether to implement an EMR system. On the front end is the real cost associated with evaluating various systems. Many practices report hundreds of staff hours and a significant amount of provider time associated with this aspect of the process. There is also upfront investment in software, hardware, implementation support, and training as well as a host of related costs. It may take several years to see cost savings generated from EMR implementation, and you may decide your practice cannot afford the upfront negative cash flow.

Despite the cost ramifications, practices should adopt a long-term strategic objective of implementing an EMR system. The key is to provide enough time to complete the proper review and assessment of different systems and to ensure the practice develops a conservative financial plan that incorporates both the capital and operating cost assumptions associated with implementation.

What follows is intended to provide practices with the necessary tools to make an intelligent decision when purchasing an EMR system.

**Financial Considerations**

Exhibit 1 is an example of a cost–benefit analysis for an EMR system. This tool is designed to assist practices in evaluating the potential cost savings from purchasing an EMR system. In the first part of the analysis, the practice lists all upfront costs it expects to incur during the first 12 months of operating the system. Second, the practice estimates recurring annual expenses in maintaining the system. In the next section, the practice estimates the ongoing monthly expenditures associated with the system. These include any debt service related to the system acquisition and new staff hires needed to implement the system. In the last section, the practice estimates areas of opportunity for cost reduction. These include anticipated reductions in staff, supplies, outside transcription, and other system support services. [The example is for illustration purposes only. Practice results will vary significantly based on individual circumstances. In addition, this analysis is not intended to illustrate any potential productivity gains or losses associated with implementation of an EMR.]

**Cost-Reduction Opportunities**

- **Reduced transcription costs.** Many offices with EMR systems are able to eliminate transcription costs by having data entered directly into the EMR. Because an EMR system provides instantaneous access to all charts, even practices that choose to maintain some transcription support will find their transcriptionists will spend more time actually transcribing and less time searching, assembling, reassembling, and filing charts.

- **Reduced copying expenses.** The ease of printing the electronic chart translates directly into labor savings and reduced copying costs.
Administrative labor savings. The efficiencies of an EMR system can result in redeployment of or reduction in staff, leading to fewer full-time employees (FTEs) required to support each provider. In many cases, this allows the practice to expand the number of providers without the added cost of hiring new administrative staff or technicians.

Lower paper and storage costs. Transitioning to an EMR system means reducing the expense required to support a paper-based system (estimated to average $3 per chart). In addition, EMRs offer the potential to reclaim office space that was once dedicated to chart storage.

Lower malpractice insurance rates. Practices that use an EMR system offer insurers an improved risk profile based on their quality of care and improved documentation. Some insurers have begun to reduce premiums to practices by approximately 5%.

Decreased pharmacy costs. Prescription-writing software can automatically notify physicians of the recommended medication based on the patient’s insurance formulary, saving time and money.

Multiple office locations can be connected to the main office. Physicians will no longer have to take charts with them from location to location. All charts are instantly available at all locations.

Referral letters can be generated from templates in the EMR software. The software can be set to pull all findings or only certain findings. The physician has the option of adding his or her own text before the letter is printed and sent.

Revenue-Enhancement Opportunities

Direct reimbursement increases. Many large corporations, including General Electric, Proctor & Gamble, and Ford Motor Company, plan to expand a program to provide financial rewards to physicians for implementing an EMR system. Some industry experts predict that Medicare will use differential reimbursement schedules to encourage physicians to adopt EMRs.

Health maintenance tools. Some systems allow a practice to search for all patients who are overdue for recommended services and then generate a reminder letter. This feature can increase the quality of patient care and enhance practice revenue.

Improved coding accuracy. The revenue lost as a result of inaccurate coding is estimated to be between 3% and 15% of the total practice revenue. An EMR system has the potential to reduce this loss by making it easier to provide complete documentation through the use of templates and clinical macros.

Increased number of patient visits per day. Improved flow and efficiency may increase patients seen per day by 10% to 15%, leading to higher practice revenues.

Paper-records systems can be very expensive and highly inefficient. There is much debate on whether a fully functional EMR system will result in net cost savings or improved practice efficiency. One should not necessarily expect significant cost savings but instead should focus on the EMR system as a long-term investment that will improve the quality of patient care and streamline operating functions. Even so, cost savings are a reality practices should consider.

Government and Legislative Directives

Nancy McCann

In the past few years, the U.S. government has made a significant push toward implementing information technology (IT), including EMRs. Following is an overview of actions the government has taken to make health care IT a nationwide reality and directives it has issued on the subject.

The Administration
In April 2004, President Bush called for the establishment of EHRs for all Americans within 10 years as well as nationwide adoption of health

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<td>Principal and interest on acquisition debt</td>
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<td>Monthly maintenance</td>
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<td>New EMR employees</td>
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<td><strong>Total Monthly Cost</strong></td>
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<td>4. Potential Monthly Savings</td>
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Note: Principal and interest on acquisition debt assumes $470,000 is amortized over 5 years at an interest rate of 7%.
care IT. To facilitate this goal, he signed an Executive Order establishing the position of the National Coordinator for Health Information Technology, to be housed in the Department of Health and Human Services (HHS). David J. Brailer, MD, PhD, who was appointed to this position, was charged with the development, maintenance, and oversight of a strategic plan to implement the IT initiative. In addition, the Administration included $125 million for health care IT in its fiscal 2006 budget proposal. The goal is to help ensure all Americans have an EMR by 2014.

**Strategic Action Report.** In July 2004, HHS issued the *Framework for Strategic Action Report*, which outlined 4 goals and 12 strategies for health care IT adoption. One action item in the report was the establishment of a Health Information Technology Leadership Panel (HIT Leadership Panel) comprised of corporate executives from companies that are large purchasers of health care. The panel’s mission was to examine the importance of investing in IT, with a focus on the major roles of the government and private sector in its implementation. A primary goal was for panel members to use their experience with IT adoption in their non–health care industries to identify key lessons and recommendations for IT implementation in health care.

In August 2004, Brailer retained The Lewin Group, a health care policy consulting firm, to convene the panel and report its findings. The panel met in Washington, D.C., on November 29, 2004, and approved the final report, entitled *Health Information Technology Leadership Panel: Final Report*. The report, which was released on May 11, 2005, stated that the federal government must take the lead in incorporating IT into the nation’s health care system by leveraging its purchasing power and helping develop standards. It recommended that the government should do this by creating “incentives and rewards whenever possible rather than creating unfunded mandates, which might slow the adoption of health IT.” The report also says that providers and consumers must play a key role and that the “benefits of health IT will far exceed its manageable costs.”

In remarks announcing the release of the report, HHS Secretary Mike Leavitt said, “We are at a critical juncture. Working in close collaboration, the federal government and private sector can drive changes that will lead to fewer medical errors, lower costs, less hassle, and better care.”

Among the report’s numerous recommendations are seven regarding the federal government’s role in spurring the use of health IT. The panel identified three key imperatives:

- The widespread adoption of interoperable health IT should be a top priority for the U.S. health care system.
- The federal government should use its leverage as the nation’s largest health care payer and provider to drive adoption of health IT.
- Private sector purchasers and health care organizations can and should collaborate alongside the federal government to drive adoption of health IT.

The panel also reached the following six conclusions to help guide IT adoption:

- The potential benefits of health IT far outweigh manageable costs.
- Health IT needs a clear, broadly motivating vision and practical adoption strategy.
- The federal government should provide leadership, and industry should engage and follow.
- Lessons of adoption and success of IT in other industries should inform and enhance adoption of health IT.
- Stakeholder incentives must be aligned to foster health IT adoption.
- Among its multiple stakeholders, the consumer—including individual beneficiaries, patients, family members, and the public-at-large—is key to adoption of health IT and realizing its benefits.

The panel identified themes regarding the benefits and costs of implementation. The first was that investment in health IT is urgent and vital to rising health care demands, business interests, and the broader U.S. economy. The panel stated that despite the initial costs, health IT will become an essential means—among others—for managing health care costs. The second theme was that the potential benefits and costs of health IT must be clearly perceived by its stakeholders.

**Personal Health Records.** Part of the Administration’s plan is to create a personal health record (PHR), which is essentially an online record patients create and own. The PHR is a subset of all EMRs of all encounters the patient has had. A PHR is different than an EMR used by physicians, hospitals, and other health care entities.

**National Center for Health Statistics**

On March 15, 2005, the National Center for Health Statistics (NCHS)—which is part of the Centers for Disease Control and Prevention (CDC)—released a report on the use of EMRs in health care settings. The report combined data collected from the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Care Survey (NHAMCS) conducted from 2001–2003. These surveys are done on a regular basis to obtain data on the patients’ characteristics, including diagnosis, symptoms, and the diagnostic and therapeutic care provided. The purpose is to track trends in the patterns and quality of medical care. The IT questions were added to the surveys.

According to the NCHS report, only about 17% of physician offices have EMRs in place to support patient care. The study also found that electronic billing systems are used in about three quarters of physician offices and that only 8% of physicians use computerized physician-order entry systems to electronically order drugs and diagnostic tests. According to Brailer, “Physicians and providers face many barriers to adopting health information tools.”

**The Congress**

Physician adoption of IT is a bipartisan issue, and the pressure to implement EMRs will continue to increase, regardless of which party controls the White House and Congress. The Administration and Congress want to change how physicians are paid under Medicare from a fee-for-service system to a value-based purchasing system (Pay for Performance [P4P]). This is being used as a further incentive to adopt EMRs and IT. Some believe that EMRs will encourage quality and efficiency and result in lower volume and intensity, thus addressing the volume issue that currently exists under the Sustainable Growth Rate (SGR) formula.

The Medicare Payment Advisory Commission (MedPAC) March report to Congress included a recommendation that Medicare payments to physicians be aligned with quality, efficiency, and outcomes. To accomplish this, MedPAC advocates implementing P4P and the rapid adoption of IT. To motivate physicians to participate in P4P programs and adopt IT systems, MedPAC proposes that 1% to 2% from the physician payment pool be set aside and then used to make higher payments to those who participate in the P4P programs. In this budget-neutral scenario, those who do not or cannot participate would fund the “bonus” pool. The report recommends that the “reporting” requirements begin with structural measures, such as whether the practice has an EMR system and whether the physician is Board certified. In this case, however, those with IT would eventually be able to report outcomes and participate in the P4P initiatives. Physicians who make the investment in EMRs would get a higher reimbursement than those who do not.

Reporting quality or efficiency indicators and health outcomes data could be administratively prohibitive to many physicians, especially
Legislation

Electronic Medical Records and Electronic Prescribing. The original version of the House and Senate Medicare prescription drug legislation (H.R. 1 and S. 2) included provisions regarding the implementation of medical electronic prescribing. Although the Senate version included the development of electronic prescribing standards and a voluntary provision on the use of electronic prescribing, the House bill contained a federal mandate requiring that all prescriptions be written and transmitted electronically within 3 years.

The physician community lobbied against the House provision, deeming it to be an unfunded mandate. It also explained that electronic prescribing requires an EMR system—which most physicians do not have. As a result, the final version of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) required that the National Committee on Vital and Health Statistics (NCVHS) develop recommendations for uniform standards to enable electronic prescribing in ambulatory care. The provision also stipulated that the standards be compatible with all other standards that are becoming part of the National Health Information Infrastructure (NHII). This includes those developed under the HIPAA and the Consolidated Health Informatics Initiative (CHI).

On May 11, 2005, Representatives Patrick J. Kennedy (D-RI) and Tim Murphy (R-PA) introduced legislation in the House of Representatives to spur the adoption of Health IT, H.R. 2234—the 21st Century Health Information Act. The legislation would create regional health information networks as an incentive. The bill would also give stakeholders 9 months to create interoperability standards, after which HHS could adopt standards on its own. The bill would provide $50 million in fiscal year 2006 for 3, 3-year grants to help fund the development of these networks—as well as “such sums as necessary” to fund the grant programs from FY 2007 through FY 2010.

On June 16, 2005, Senator Majority Leader Bill Frist (R-TN) and Senator Hillary Clinton (D-NY) introduced S 1262, the Health Technology to Enhance Quality Act of 2005, which promotes the rapid adoption of HIT and EMRs. The bill also includes a provision that directs the Secretary of HHS to adopt uniform health care quality measures for use in a budget-neutral “value-based purchasing” or P4P program. On June 30, 2005, Senate Health, Education, Labor and Pensions Chairman Michael Enzi (R-WY) and ranking member Edward Kennedy (D-MA) introduced S. 1355, the Health Information Technology and Quality Improvement Act of 2005, which also seeks to enhance the adoption of HIT and improve quality. Senator Enzi has indicated his intention to begin consideration of this legislation after the July 4 break.

Conclusion

The adoption of EMRs and health IT is gaining support. Even former House Speaker Newt Gingrich and Senator Hillary Clinton (D-NY) have gotten involved—recently appearing at a joint press conference voicing support for the House legislation. They said they will work together with the sponsors on adoption of the legislation. According to Gingrich and Clinton, “Over reliance on paper records is unsafe for patients and increases the total cost of providing health care. If we can begin to move to using more information technology, we will help reduce errors, we will improve quality, and we will save money.” They went on to say that the legislation sets the stage for the House and the Senate to do something decisive this year.

Although most physician practices do not use clinical IT systems, some use practice administrative systems that have the ability to maintain patient registries, identify ongoing diagnoses, and track patients with comorbidities. At present, no nationally recognized standards are in place and many of these systems are not interoperable. National standards for HIT systems must be established before physicians can be expected to invest in IT systems that may become obsolete in a few years because they do not match expectations for data collection. Federal funds must be provided for IT investment, especially for solo practitioners or those in small group practices. This group will need assistance to make an upfront investment in the equipment. Then, they can train themselves and their staffs on its use and, ideally, incorporate the system into their practices.

Implementation

Sandy Boles

Implementing EMRs in an ophthalmology practice is a labor-intensive, multifaceted project. It involves many stakeholders, detailed analysis of existing clinical and administrative operations, consensus of opinion on “must have” and “nice to have” hardware and software features and benefits, realistic timelines for each project component, and commitment to the project in terms of budget allocation. There must be passionate support of at least 1 major physician partner in the practice. The implementation phase assumes that a vendor has already been chosen.

The Project Team

A project of this size and scope demands a separate team and dedicated leadership within the practice, regardless of whether it is a small 1- to 2-physician group or a much larger enterprise. The team should be given adequate resources and time to develop the goals, objectives, timelines, and assignment of individual responsibilities.

Team members should be carefully selected. In most cases, team members should represent various functions within the practice and include vendor representatives; an outside EMR consultant might be hired to facilitate the functioning of the team. There should be at least 1 of each of the following: physician, technician, administrator or business office professional, coding and billing person, and optical dispenser or ambulatory surgical center (ASC) person, if applicable.

Choose people who are able to work within a team to achieve results, are enthusiastic about EMRs and their potential value for your organization, and have the time and resources to commit to the project. Include a senior level physician to serve as the project’s internal champion and provide sufficient clout to keep the timeline moving should it lag along the way.

Project Team’s Tasks, Goals, and Budget

- **Develop a timeline for the go-live date.** Team members must articulate the precise reasons for changing to an EMR system, the costs and risks of not implementing it, and the positive impact it will have on the organization. In addition, the team should set expectations and
goals for the process and for the eventual conversion to EMRs. This should include assessment of computer literacy and skills within the organization, anticipation of resistance and potential obstacles among physician and nonphysician users, and assessment of necessary facility modifications and options regarding hardware (e.g., desktops, laptops, and/or tablet PC, PDA; wireless versus cable, voice recognition capability, and scanning technologies).

- **Produce a thoroughly detailed evaluation of the organization’s current workflow and operations activities.** This is among the team’s most labor-intensive tasks. Data contained in the EMRs will be obtained from patient calls to the practice; front-desk check-in; technician workups; ancillary testing; physician work; surgery scheduling; communications from outside physicians, labs, hospitals, ASCs, and pharmacies; and coding and billing processes. A thorough understanding of the current operations helps the team avoid omitting important, although seemingly minor, processes that could create unnecessary difficulty in later phases. A recommended exercise is to “dissect” an existing paper record to determine exactly by whom and from where each bit of data was generated.

- **Assess the computer skill levels of users.** Plans should be made to increase basic computer literacy and provide specialized application training for the user’s particular job description. This will help ensure all staff are positive about and involved in the implementation phase.

- **Decide what, if any, facility modifications will be required.** Most clinics find they must add workstations in virtually every area of the facility so staff can easily look up or enter patient data. Consider the electrical, data cable, and/or wireless capability as well as high-speed Internet connectivity for platforms on which your data will be stored in cyberspace rather than on an on-site proprietary server. Layout decisions should be based on a design that optimizes workflow and throughput processes. A triangle between physician, monitor, and patient to facilitate eye contact and allow the physician to sit close enough to touch the patient is recommended. Make sure that the keyboard height, mouse position, and monitor-viewing height are ergonomically appropriate. Avoid the clutter caused by racks of paper forms on the wall, and have a readily available writing surface.

- **Carefully research and consider security measures.** These include limiting user access on a “need to know” basis and eliminating stray visibility in the layout of the clinic. The project team may want to investigate the benefits and risks of sharing EMRs with outside labs, surgical centers, hospitals, pharmacies, and referring physicians. As the government’s recommendations become more forthcoming to meet the decade timeline that has been laid out, there may be mandates for more open architecture, universal connectivity, and required firewalls and privacy shields. The HIPAA regulations for electronic security became effective this year.

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When deciding whether to partner with other entities, be aware that any partnership can create delays and increase the cost of your project—now and in the future. Another important security measure for the team to consider is database backup. Despite your best efforts to protect and preserve your database, wherever there are humans and technology at work, vulnerability for loss exists. Make sure you have multiple backup and recovery mechanisms in place and that you thoroughly test the backup when you go live—and regularly thereafter.

The team, especially the physicians and technicians, will have to devote much time to setting up tables and templates. The software vendor should provide guidance to ensure that all team members fully understand the interconnectedness of the system setup which, in turn, ensures that data entry and retrieval produce the expected results after implementation.

**Data Entry**

A crucial implementation decision is how to enter old data into the new system. The amount of old data that are loaded into the system depends on the amount of time and money available. Options range from no preloaded data to extensive abstraction and data entry. Critical elements from the paper chart (e.g., progress notes, operative reports, ancillary test results and measurements, allergies, and current medications) can be summarized and transcribed and then downloaded into the system or directly entered into the system as the physician summarizes.

Depending on the volume of charts to be preloaded, this process can take months to accomplish before the go-live date. Once the system is operational, the data will be entered electronically via keyboarding, voice recognition, scanning, and other methods.

Extra time will be required for the extensive data entry on the date of service, so accommodations to the patient roster must be made. Most who have made the conversion report that after the adaptation and learning curve, reductions in the number of available patient slots can be increased to preconversion levels.

**Go-Live**

The patient schedule on the go-live date should be lighter than normal; you probably don’t want to do this on a Monday. By now, you have conducted one or more “dry run” scenarios and your best internal “cheerleaders” have been at work encouraging users. You may want to post signs around the office or provide fun buttons for your staff to wear that announce to patients that you are using a new computer system and that some delays are normal. Celebrate with your staff and patients, and congratulate everyone on the hard work and preparation that led to such a smooth first day.

**The Continuing Evolution**

By most reports, the new-integration phase lasts for a few months and is replaced by an organic increase in the demand to use more electronic features and benefits of the new system to gather speed and efficiencies. Ongoing reports on the EMR system at staff meetings, further investigation into health care technology capabilities, and a heightened awareness of the untapped resources of the powerful system at work in your practice are a few of the noticeable differences in how your organization functions after you successfully implement an EMR system.

**The Horizon: Confessions of an EMR Skeptic**

**John Pinto**

**Luddite:** One who opposes technical or technological change. 
[After Ned Ludd, an English laborer who was said to have destroyed weaving machinery.]

**The American Heritage Dictionary**

Here is the short version of the quaint story behind this wonderfully appropriate word for our all-too-accelerated modern times, abstracted from a posting at www.bigeastern.com:

**In 1812 England was in turmoil—Napoleon ruled Europe and English troops were engaged in a far-flung and fruitless war in North America. At the same time the industrial revolution was drastically reshaping the nature of traditional economic and social relationships...these changes met with bitter and well-organized resistance.**
For at least three hundred years the weavers of England enjoyed the status and rewards accorded to fine craftsmen. [A little like ophthalmologists, one might say.] Weavers produced lace and stockings that dominated the English markets and were prominent items in export trade. These products were hand-made, often in the weaver’s home. The weavers worked mainly as independent contractors, not as employees of a factory owner, and were reasonably secure in their modest lifestyle.

In the first years of the 19th century the early automation of the power loom threatened this long-standing way of life. Because the new equipment was expensive, the weavers could not afford to purchase it themselves and the balance of power shifted away from the weavers and in favor of the factory owners. For the weavers, this meant that they were asked to endure a drastic decrease in income and to submit to the regimented and unpleasant atmosphere of a factory. The weavers complained bitterly that the machines made mass produced products of shamefully inferior quality. Naturally, the weavers saw the new technology as the most powerful tool of their new oppressor, the factory owner.

Legend has it that about this time, a “feebleminded lad” by the name of Ned Ludd broke two frames at a factory in Nottingham. Of course he meant no harm, and could hardly be punished for his innocent act of clumsiness. Henceforth, when an offending factory owner found one of his expensive pieces of machinery mysteriously broken, the damage was conveniently attributed to poor Ned Ludd.

During a short period climaxing in the spring of 1812, inspired perhaps by the French Revolution and the writings of Thomas Paine, the weavers formed into something akin to a guerrilla army and took substantial control over the territory near Nottingham and several neighboring districts.

The Luddites often appeared at a factory in disguise and stated that they had come upon the orders of General Ned Ludd. Their demands included restoration of reasonable rates of compensation, acceptable work conditions, and probably quality control. Faced by intimidating numbers and the surprisingly disciplined actions of the Luddites, most factory owners complied, at least temporarily...

We’ll return to learn the ultimate fate of the Luddites later. Meanwhile, let’s talk about ophthalmic EMRs.

For several decades, EMRs have been available in one form or another—cruder versions in the 80s to ever-more-sophisticated forms in recent years. Some systems were placed by national companies, while others were developed by brilliant, energetic surgeons who worked by day in the clinic and surgery and by night writing their own programs. But the average satisfaction level with many systems has been low, even in recent years. Typical complaints include the following:

• There are no real cost or labor savings.
• There is a lack of acceptance by all the practice’s physicians.
• Acceptable EMR platforms are bundled with poor patient accounts or appointing systems.
• Systems are orphaned by undercapitalized vendors.
• There is a high rate of frank abandonment and a return to paper records.
• There is no harnessing of secondary benefits; that is, the practical use of such systems to code more effectively, track outcomes, or convince third-party payers of superior care.

Based on these experiences, I have been skeptical—pessimistic even—about the advisability of the average practice adding EMRs. Electronic records, clearly, are not yet at a stage of development to benefit the average practice.

Based on systems and practices that seem to be working out the bugs and finding nominal utility with computerized records, I offer the following success and go/no-go suggestions—some Do’s and Don’ts.

**Do:** Make sure that you have not 1, but 2 (or more), key operators who can handle troubleshooting and will serve as your practice’s internal trainers.

**Don’t:** Don’t adopt EMRs with an advance expectation that you will save significant costs, see more patients per hour, or provide better clinical care. Depending on the system you bring in—and more important, on your diligence with ongoing training and selection of key operators—you may indeed save costs, improve services, and even bill and chart more appropriately. But realize that today, a “win” in many settings is no more than preventing lost charts and breaking even in terms of efficiency. Anything more than this should be considered a bonus.

**Do:** Expect diseconomies—transient, one hopes, but potentially permanent—to arise from the adoption of EMRs. If you buy an EMR system within the next 3 years, you will still be a pioneer…and pioneers have always gotten shot full of arrows.

**Don’t:** Don’t select as an EMR vendor any company that has fewer than 50 active ophthalmic EMR users of systems that have been up and running for a year or longer. Call a random selection of these users and ask for references.

**Don’t:** Don’t select as a vendor any company without a product that is fully integrated between patient accounts, appointing, and EMR components. Some software firms, in an effort to address customer demands for EMRs, have cobbled together products from sister companies, products that do not necessarily work well together.

**Don’t:** Don’t purchase and install a system until you have made at least 1 site visit to a current, longer term user of your proposed system. Interview this user on-site at every level: physicians, managers, and general staff. Remembering that the workability of the patient account management component of any system is by far the most critical to cash flow, make sure that this aspect of your proposed system is superior. Also, visit a practice that is comparable to your own in location, size, and mix of services.

**Don’t:** Don’t proceed with EMRs if your practice is financially unstable. The transition to any new software package typically results in a 2- to 6-month drop in collections. Make sure your practice has the financial reserves in place to weather such interruptions.

**Don’t:** Don’t expect EMRs to save labor costs. Although this may happen over time, more often the adoption of an EMR system results in at least a transient reduction in technician productivity. Make sure that practice staffing is right-sized or better.

**Do:** Anticipate that the adoption of an EMR system may lead to a cascade of new capital equipment costs. The full potential value of EMRs cannot be realized until you link testing equipment to the system to automate data capture. Your present equipment may need an upgrade, and you are likely to see many new offerings in future years as manufacturers rush to keep up.

Always consider the big picture when making the EMR leap. The federal government is taking several steps to develop a national standard for EMRs, with the goal of having a common system in place within 10 years. On one hand, federal funding for an agreed global standard sounds like a winner—better that we should have a top-down standard than scores of noncompatible platform, right?

But what about the downside? What will be the timeline and cost of adoption? Mandated EMRs make HIPAA sound like child’s play. And here is a disturbing fact: At present, to audit your practice, third-party payers have to request, receive, and laboriously review paper charts by hand, which means that the audit rate is extremely low. But what happens when 100% prepayment or postpayment review of your patients’ records can occur from any geographic location and be fully automated? What happens when your records are compared to the latest
mandates from evidence-based medicine and the Preferred Practice Patterns of the American Academy of Ophthalmology? Ask yourself, “Will I have to change my tempo and attention to detail to stand up to that level of scrutiny?”

Am I still an EMR skeptic? Yes, but not to the same degree I was a year ago. I believe the adoption rate of EMR systems will accelerate sharply in the years ahead. I have seen systems that actually seem to work and, more important, to talk to users who, with time and commitment, have surmounted the adoption hurdle. Although many practices have purchased and subsequently abandoned EMRs, I expect to see the abandonment rate falling for at least 3 reasons: Systems are improving, company support is rising to become more proportional to customer requirements, and practices are realizing that the world of EMRs is not a “plug and play” environment but rather one that requires long-term commitment, expertise, and patience.

For those who feel confident about the Do’s and Don’ts above, now may be the time to take the EMR plunge. For others, it may be appropriate to wait for colleagues in different settings to be the pioneers, just as in your clinical and surgical practice. For practices somewhere in the middle, scanning-based document retrieval solutions that incorporate cost-conscious and user-friendly systems may provide a bridge to the future adoption of more robust EMR systems.

Wherever you may stand in the adoption curve, if you own or manage a practice, you must be feeling a little bit like a 19th century weaver right about now. So here’s the rest of the Luddite story:

The non-violent period of Luddism ended at Burton’s power loom mill in on April 20, 1812. A large body of Luddites—perhaps numbering over a thousand—attacked the mill, mostly armed with sticks and rocks. The mill was defended by well-armed guards. After the guards repulsed the attack, the Luddites turned on the owner’s house, burning it. Shortly thereafter they met up with a military force and several Luddites were killed. A government crackdown ensued, and many suspected Luddites were convicted, imprisoned, or hanged.

One suspects that 200 years from now, when our descendants read about this time in medical history they will think of us as being nearly as quaint and foot-dragging as the poor weavers of England. I only hope that given the trend in health care reimbursement between now and then, future eye surgeons will be able to afford to pause and ponder the primitive years of ophthalmology chart documentation.