Choosing Hardware and Software

Buying information technology is an expensive proposition. Making careful choices about which hardware and software are right for your particular practice can help ensure that you get your money's worth.

Chapter in Brief:

- *The Medical Group Management Association (MGMA) and the University of Minnesota School of Public Health estimate that the median initial cost of an integrated EHR/practice management system in a group practice is $32,000 per physician.*
- *Check the availability of advanced functions, even if your practice is not ready to implement them; Medicare eventually will pay bonuses for using certain features, and private payers often follow the government's precedent.*
- *Exemptions that were finalized in August 2006 permit hospitals, health systems, and even insurers to cover up to 85 percent of the cost of EHR software for independent physician practices. The Stark safe harbor doesn't apply to hardware and ongoing maintenance costs.*
- *Hardware selection and user training can be just as confusing as choosing the right software. The decision comes down to how physicians will use the technology and how information will be entered into the system.*
- *Practices should look at systems that integrate clinical and administrative functions. With these systems, providers can check to see if they are getting paid all that they are entitled to by comparing payer contracts with explanations of benefits that accompany reimbursements.*

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It cost Christopher Crow, MD, MBA, and his Plano, Tex., practice, Village Health Partners, about $100,000, plus $20,000 in lost revenue, to install electronic health records (EHR) and companion practice management software for the three-physician group.

That cost is in line with a 2004 estimate, by the Medical Group Management Association (MGMA) and the University of Minnesota School of Public Health, that the median initial cost of an integrated EHR/practice management system in a group practice was $32,000 per physician.

The AC Group, a Montgomery, Tex., health IT consulting and research firm, reports that software makes up about 36 percent of the total cost for a three-year technology project for ambulatory practices. Infrastructure (hardware plus network structure) accounts for 30 percent, and support the remaining 34 percent.

The actual price tag, of course, varies widely based on factors from technology features and complexity of installation to physician acceptance of technology and workflow redesign. Return on investment also depends largely on similar dynamics.

"The trend is toward having one solution," says Vinson Hudson, a practice management software market analyst based in Austin, Tex. This means either a single database for both practice management and clinical systems or a seamless interface between the two. "When we talk about true integration, it's one database," Mr. Hudson says.

By itself, an EHR system has limited positive effect on the practice's cash flow. "The practice management system is still what brings money in the door," he says. But Mr. Hudson believes EHR companies are figuring this out as EHR vendors are joining forces with practice management software vendors. The combination of these two programs can be the key to a positive return on a technology investment.

For example, it took about 18 months for Dr. Crow and his partners to recoup their investment in Centricity PM/EHR, a GE Healthcare product that is now called Centricity Physician Office. Today the practice estimates that each of the eight doctors in the group now brings in $60,000 to $80,000 more a year just because of the technology.

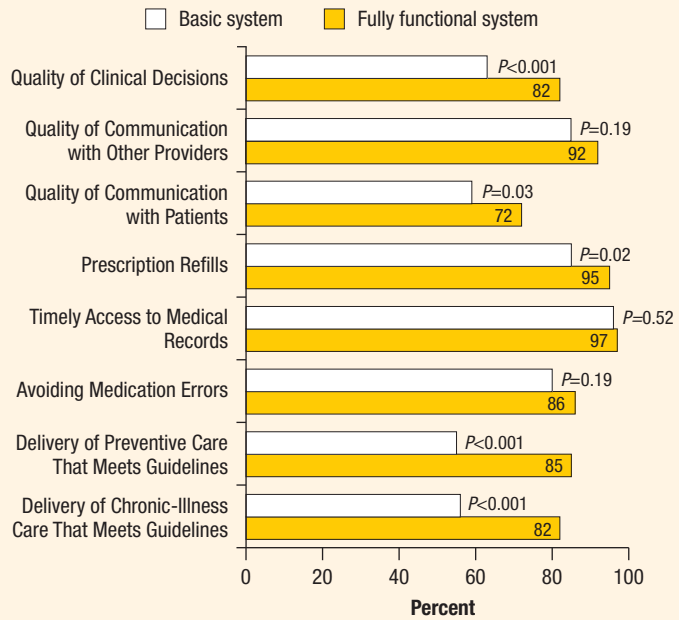
Clearly, those doctors did something right. But choosing suit-

able technology for an office-based practice is not a decision to be taken casually; computers in the exam room represent a whole new way of practicing.

More Functions; Greater Benefits

The July 3, 2008, issue of *The New England Journal of Medicine* featured a survey supported by the Office of the National Coordinator for Health Information Technology of the Department of Health and Human Services. The 2758 physicians who responded answered questions about the effects of technology on various aspects of their practice. Overall, physicians will more comprehensive electronic records systems reported greater benefits.

Rates of Positive Survey Responses on the Effect of Adoption of Electronic-Health-Records Systems



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Robert Kolodner, MD, national coordinator for health information technology for the Department of Health and Human Services (HHS), sees three main groups of EHR adopters: those with systems who have minimum functionalities; those with more advanced systems who are not using the full capabilities; and the clear majority right now, physicians without EHR systems. (Few, if any, are using every capability of advanced systems, Dr. Kolodner explains.)

Just as with any major purchase, Dr. Kolodner says practices should do their homework before plunking down tens or hundreds of thousands of dollars for HIT systems. "Even if you aren't ready to use them, make sure advanced functions are there," he advises. He says Medicare eventually will pay bonuses for using certain features, and private payers often follow the government's precedents.

Karen M. Bell, MD, director of health IT adoption in the Office of the National Coordinator for Health Information Technology (ONC), which Dr. Kolodner leads, says it takes three to six months of good, solid research and negotiation to settle on a suitable system. "This is not a decision you make overnight," Dr. Bell advises.

Different Systems for Different Practices

At the very least, make sure the systems you invest in are best for your practice's unique needs and situations. Motivations invariably differ from practice to practice.

For example, Jeffrey C. Brenner, MD, does not want or need a full-fledged system, nor does he have deep pockets to pay for bells and whistles that can often send costs soaring. A solo family physician in impoverished Camden, N.J., Dr. Brenner serves a patient population that is 75 percent native Spanish speakers, half of whom are on Medicaid.

About three years ago, Dr. Brenner switched to SpringCharts EMR, a product of Spring Medical Systems, Houston, Tex. He liked the fact that the system is built in the Java programming language, so it can run even on non-Windows computers. "I'm a Mac user, and [SpringCharts EMR is] platform-independent," Dr. Brenner says.

He had had another EMR system two years earlier when he

first opened his solo practice. "I couldn't get the product to work right," Dr. Brenner says, declining to name the previous product.

He likes the fact that SpringCharts is "flat," rather than deep and hierarchical. All the information is easy to find, so he can get patients in and out fast. "I see a lot of the same things over and over," explains Dr. Brenner, a part-time faculty member at the Department of Family Medicine at Robert Wood Johnson Medical School in Camden. He is also faculty advisor for student community service projects at this school and conducts research on urban health conditions in the Philadelphia suburb.

The simplified format also made it easier to get up and running faster. With a slim profit margin, he does not want to take up more staff time with extra training. "If I need to close my staff down [in order to receive training], I'm toast," he says.

Victoria Waltemath, office manager of ABCD Pediatrics in Austin, Tex., had different priorities when she began a year-long search for an EMR system in 2002. The practice's malpractice insurance carrier advises it to document every encounter, even telephone consultations, in the medical record, so that capability topped her wish list. She also wanted something geared to a pediatric practice. She finally chose EncounterPRO EMR, a product of EncounterPRO Healthcare Resources, an Atlanta company formerly known as JMJ Technologies. EncounterPRO was developed by a pediatrician, and it has a module to follow the pediatric telephone triage protocols of Barton Schmitt, MD, pediatrician and director of the Sleep Disorder and Encopresis-Enuresis clinics at The Children's Hospital in Denver, Colo.

Word-of-mouth from colleagues was the deciding factor for Toledo, Oh., otolaryngologist Afser Sharif, MD. He chose AllMeds, a specialty-specific EMR. "We picked AllMeds mainly because most of the ENTs that we talked with had given it a

good review and we had met with [the company] several times," Dr. Sharif explains. He, however, has struggled with the system.

Although many practices start with recommendations from colleagues, plenty of other resources exist for selecting technology (see list under "For More Information" in the back of this issue). State and specialty medical societies maintain lists of vendors, many of which are willing to offer discounts to society members. Dr. Bell advises calling your local hospital and malpractice insurance carrier about possible financial assistance or incentives for EHR adoption.

Joseph Sofianek, MD, was chief of staff at Deaconess Bozeman Hospital in Montana nearly four years ago when his own practice, Medical Associates, went to the hospital for help in putting together a request for proposal for an EMR after all 13 doctors in the group voted to go electronic. "They actually sponsored a vendor selection process," Dr. Sofianek says of hospital personnel.

At the time, Deaconess, the only full-service community hospital in Bozeman, was trying to get other practices in the area to purchase EMRs together. Doctors, nurses, office managers, and even the hospital's chief financial officer took part in the project. The group invited four or five vendors to give demonstrations before choosing NextGen Healthcare Information Systems. "This was a community effort," says Dr. Sofianek.

Economic pressures eventually caught up to Medical Associates, however, and the doctors sold their family practice, which includes obstetrics and pediatrics, to Deaconess Bozeman at the beginning of 2008. Even if they hadn't sold, the hospital would have been willing to help finance a substantial portion of the purchase for the doctors, thanks to an important change in Medicare anti-kickback and Stark rules governing physician self-referral. Exemptions that were finalized in August 2006 permit hospitals, health systems, and even insurers to cover up to 85 percent of the cost of EHR software for independent physician practices.

This may sound like a great deal, but it is important to understand how to evaluate the offer, since the technology provided may not be optimal for every situation and because this "donation" may entail serious costs for the practice anyway. For one thing, there are unresolved questions about tax liability for prac-

EMRs: An Alternative Point of View

Many physicians say they are so efficient with an EMR that they could never imagine working any other way. Toledo, Oh., otolaryngologist Afser Sharif, MD, is not one of them.

"I'm curious to know what they mean by efficient, because I'm still puzzled. Where are they getting their efficiencies from? Or were they so horribly inefficient to begin with that it's not a real comparison?" he wonders.

"If you've got your workflow down with paper really well, then the computer doesn't do anything," Dr. Sharif contends. "And the computer, in essence, serves more like an electronic filing cabinet than anything else. I mean, as far as building charges, I can tell you if it's going to be a Level 3 or Level 4 visit faster than the computer can."

He says he knows of doctors who no longer trust the coding functions in their EMRs because they fear being audited by payers. "If somebody actually goes into each individual chart in great detail and asks questions, it might be harder to defend," Dr. Sharif says.

Whether there are safety and quality improvements depends on getting the right data into the system as well. "We've had occasions where one of our assistants did not enter the information that we wanted; so it was only later when we were going through the chart that we realized, 'OK, this stuff is missing, somebody's got to go put that in,' whereas, with a paper chart, it's physically right in front of you, and you can see it," he reports

Dr. Sharif also is concerned about the practice of insurance companies' refusing to take a rule-out diagnosis for pre-authorization purposes, since his EMR is not optimized for working diagnoses. To order a sleep study to rule out obstructive sleep apnea for a patient, he had to enter OSP as a diagnosis. Even though the study showed the patient did not have OSP, it was on his record when he applied for life insurance renewal. The patient was refused because he was considered higher risk. Even after Dr. Sharif excluded sleep apnea, the information stayed on the patient's record.

"With paper charts, you could simply draw a line through the suspected diagnosis, and with an EMR you have to make sure that somebody goes in and changes that whenever we get the report," Dr. Sharif laments. "The burden is constantly falling back on the doctor."

tices that receive EHR assistance from hospitals. The Internal Revenue Service (IRS) ruled in May 2007 that not-for-profit

hospitals can offer EHRs to independent physician practices without jeopardizing their tax-exempt status. What the IRS did not say, though, is whether the recipients of these systems are liable for taxes on the value of the EHR.

"It's a little complicated," says Stephen Bernstein, Boston-based partner in the healthcare practice of the law firm of McDermott Will & Emery. If a hospital is willing to pick up as much as 85 percent of the tab for software—the maximum allowed under the exemption—the recipient practice receives a

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valuable asset and saves a significant capital outlay, which would reflect on the bottom line. And the bottom line will usually affect the business's tax profile.

The word "donation" may be misleading in this context. "When you think of a donation, you think of a donation to a charity. This is not that," says Diane Signoracci, an attorney with Bricker & Eckler, in Columbus, Oh. Nor would an EHR qualify as a gift, she believes. "It's kind of like winning something," Ms. Signoracci says. A lottery prize is taxable, while a gift from a friend generally is not. "I think it's in [the lottery] basket, not in the birthday-gift basket," according to Ms. Signoracci, who represents the physician hospital organization of Lake Hospital System, Painesville, Oh. "The [physician] group would capitalize it and write it off," Ms. Signoracci says. Still, it is unlikely the deduction would cover the entire tax liability.

"It's not a perfect solution," admits Mr. Bernstein, "but the alternative is no software."

Until the IRS clarifies this issue, it likely will be up to hospitals whether to issue Form 1099—reporting nonemployee compensation—to practices that benefit from Stark assistance. Dr. Kolodner, the national coordinator for health IT, has indicated that his office has "a number of discussions underway with the

IRS…We know it's something that does have to be addressed," he says.

Even so, the tax question may turn out to be only a small part of the equation.

David Kibbe, MD, MBA, senior consultant to the American Academy of Family Physicians' (AAFP) Center for Health Information Technology, says some AAFP members brought up the issue of taxes when they first learned that hospitals might help them acquire EHRs, but he hasn't heard too much of late because physicians either realize that they are getting a significant benefit or because there are so many other issues involved.

"I think it's a set of negotiations that are more complex than people thought," Dr. Kibbe says. Doctors have to work out contracts not only with the hospital but also with the EHR vendor, and likely several other parties.

Perhaps more important to the average practice is the offer itself. First of all, the Stark safe harbor only applies to 85 percent of the cost of software and initial training, not hardware and ongoing maintenance costs, so the question of affordability must be considered.

And, perhaps most important, the system that hospitals provide may not be best for a specific practice's needs. In other words, physicians still have to research available systems and determine what's right for them and their businesses.

"If a hospital's got a generic system going in, that's going to function very differently in a surgeon's office from a psychiatrist's office, an internist's office," says Samuel M. Bierstock, MD, founder of Champions in Healthcare, a Delray Beach, Fla.-based consulting firm that seeks to improve health IT products by concentrating on how clinicians obtain, assess, prioritize, and act on information—a process he calls "thoughtflow."

"Thoughtflow determines workflow," Dr. Bierstock says. "And thoughtflow is different for different physicians in different specialties," and he believes only a clinician who has been in practice situations can understand these processes.

"If the hospital gives them the software, the physicians still have enormous disruption of the way they work and what's expected of their staff. Everybody's job in the office changes," Dr. Bierstock says.

The Need for Standards

Efforts are underway to ensure interoperability between clinical information systems as the country moves toward what HHS officials are calling the National Health Information Network. Most prominent among these efforts is certification of ambulatory electronic health records through a federally sanctioned, private, not-for-profit organization called the Certification Commission for Healthcare Information Technology (CCHIT). Since ambulatory certification began in 2006, more than 100 ambulatory products have been certified as meeting basic standards for interoperability. Commission Chairman Mark K. Leavitt, MD, PhD, says this represents at least half the vendors and three-quarters of the total EHR marketplace, based on the size of their collective customer bases.

Dr. Leavitt says certification aims to bring some clarity to a muddled marketplace. "We're trying to just create a level playing field with some good, clear information," he says.

It is not clear, however, whether potential customers understand the full meaning of certification. "It does indicate that a product's been inspected against all of our criteria, which include what it does—functionality—how it connects up—that's interoperability—and how securely it protects the data," Dr. Leavitt says.

But physicians still have to conduct their own evaluations. "There are still things [physicians] have to do before they buy the product," Dr. Leavitt says. "They need to make sure that product fits their practice. We can't certify that this product fits your practice best because there are over 100 products certified, so there's still plenty of selecting to do."

But the certification process does narrow the field to some degree. "If you were starting and you didn't have the possibility of certification, you'd have 200 products to look at," Dr. Leavitt explains. "You would just waste days and days and thousands of dollars of evaluation just to get to what are three or five qualified products. We do that first stage of screening for them." Practices can move straight into searching for a product that fits their specific workflow, features beyond the baseline requirements, and they can decide on their own whether the company is one they want to do business with. "We can't really comment on the company and its finances and service, since we're only testing

the product. That's something that the buyer needs to do his or her own due diligence on," Dr. Leavitt says.

Some pay-for-performance programs may require participating physicians to use certified software, and in the future it may become a requirement for participating in Medicare or state Medicaid programs, as well as for quality reporting. If you wish to take advantage of the Stark and Medicare anti-kickback safe harbor to receive EHR assistance from a hospital, look for the CCHIT seal of approval. As written, the exemption safe harbor requires that the software being provided to physician offices be

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certified as interoperable by a recognized testing body—and CCHIT is the only such organization HHS has recognized to date—in the 12 months prior to making the donation.

The certification program is not without its critics, however.

For one, it's expensive. It costs $28,000 for certification testing and $4,800 to renew a certification for the second and third years. As the program got underway in 2006, many small vendors complained that it might drive them out of the market or, at the very least, force them to raise prices.

"There are too many exceptions. There are too many products out there that are not yet certified, especially for specialists," Don Fornes, founder and chief executive of Software Advice, an advertising-supported service that profiles EMR, practice management, and healthcare scheduling products, says, He particularly mentions oncologists. "You might really be pulling them away from products they really need."

ASP vs Client-server

Even before the Stark exemption came through nearly two years ago, Dr. Sofianek was negotiating with the hospital to supply a NextGen EMR to his and other local practices.

The hospital signed a contract with NextGen in the spring of 2007, after Stark was in force, and then forged separate deals with outside practices, agreeing to cover 85 percent of the cost for software licensing, training, and implementation. Still, each practice had to come up with $8,000 to $10,000 per physician, and be responsible for hardware costs as well as ongoing maintenance. The ongoing cost comes to about $1,000 per physician per month

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for the tightly integrated EMR and practice management system right now. The hospital chose to support the upfront costs only.

There are 101 physicians benefitting from the project now, with the potential for that number to go to 120, Dr. Sofianek says. About 60 percent are in independent practices.

"Of the docs who could use this, 85 percent participated," Dr. Sofianek says. The other 15 percent already had their own plans to acquire technology, and one practice had an EMR in place.

Deaconess Bozeman is acting as an ASP, hosting the NextGen server for the practices, a format that is becoming ever more popular, in large part due to safer broadband Internet service to help secure sensitive healthcare data.

The ASP model is gaining ground among medical practices. Allen Wenner, MD, recently helped his practice, Twelve Mile Creek Family Medicine, Lexington, S.C., switch from a client-server setup to an ASP. The practice went with a system from Cerner, hosted by a local hospital.

Dr. Wenner says one of the factors in changing to an ASP was the MGMA physician safety accreditation program called the Physician Practice Patient Safety Assessment. (For $200, the Website www.physiciansafetytool.org offers a detailed assessment of your practice's performance on dozens of safety measures in five domains: medications, handoffs and transitions, surgery and anesthesia, personnel, practice management and cul-

ture, and patient education and communication.)

"The reason we changed our infrastructure is that we looked at each one of those questions last year and determined we couldn't meet several of those unless we integrated more tightly with an integrated delivery system," Dr. Wenner says. "We could not do those things under the client-server model."

His practice has outsourced claims management because they could no longer handle the burden. "They have so many rules and so many ways to deny claims that it exceeds the ability of a small office," Dr. Wenner says.

The outsourcing firm athenahealth reports that half of the myriad payer rules the company tracks are new within the previous six months. In addition, athenahealth has been advertising its view that "software is dead." Many in the IT world, inside and outside healthcare, have taken ASP even further with software as a service (SaaS). With a client-server or ASP setup, there is software on premises. The software is off-site with SaaS. "All you need is a Web page and you have one central database," says Mr. Fornes, of Software Advice.

Mr. Fornes says that there are some good SaaS practice management products, but vendors have been slower to develop similar EMRs. He says AdvancedMD is the "biggest brand in Web services," but he says that company is much stronger on the practice management side than in clinical information systems. (It has a "Best in KLAS" award for medical billing and scheduling from research firm KLAS Enterprises.)

"I think more and more physicians are coming around to the idea that Web-based is a good thing, but the vendors are slower at moving there," Mr. Fornes says.

Dr. Crow and his Village Health Partners have that sort of setup in their new office, with a unique kind of "thin client" computer—it lacks a hard drive—called a JackPC. Thin-client terminals can turn client-server installations into Web-enabled systems to simplify network expansion.

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and nurses prefer portable equipment?

Drop-down menus and macros can streamline documentation and order entry, but "pick lists" do not cover everything. "The user needs to know how to type," Dr. Brenner says unequivocally.

Village Health Partners rely on a combination of typing, macros, drop-down menus, and pick lists for data entry. "We mix and match it," Dr. Crow says.

Speech recognition is another option for information input. Quality has improved greatly in recent years, to the point that accuracy is above 97 or even 98 percent, say some experts, but it takes time to "train" the system to recognize the idiosyncrasies of the user's voice and speech patterns.

Dr. Peter Nutson of the Austin, Tex., practice of McHorse Foster and Nutson prefers a portable, tablet-style PC that he controls with a stylus because he can set it up for "personal quirks." All three doctors and the nurses in the practice have tablet PCs, but they use them differently. Dr. Nutson, for one, prefers to use the desktop PC in his office for a lot of his documentation. "I'm a typist, but others are pen operators. It gives you options either way," he says.

Dr. Bierstock thinks Web-enabled data aggregators that pull in information from multiple sources may represent the future of integration. "If they'll extract the data from the disparate systems, then that's good," he says. That is the point behind Azyxxi, a program Microsoft purchased from MedStar Health in Washington, D.C., in 2006 and has since renamed Amalga.

"I think that's the direction that's going to be important," Dr. Bierstock says. "But look at what's happened with cellphone technology, with GPS technology, with the music technology, the MP3 players, and with the iPhone. These things are not only exponentially accepted in the last decade, people stand in line to get them. And why is that?" The answer is simple: They are easy to use.

Learning Curves

Learning curves remain fairly steep in healthcare, but there are plenty of ways to mitigate the pain during the transition from paper to computers.

Timing is as important as the process itself. "When do you

want to do the implementation? If you're in primary care, you probably don't want to do it during flu season," Dr. Bell advises.

At Medical Associates in Bozeman, the doctors and office staff alike had to attend 12 hours of classroom training in the week prior to the "go-live" date, plus another four hours in each of the following four weeks.

The Center for Women's Health in Indiana closed the office on Friday, March 14, for mandatory staff training. The following Monday, the go-live day, the two doctors scheduled just 25 percent of their normal patient load. They went up to 50 percent on Tuesday and 75 percent on Wednesday, before resuming a full schedule on Day 4.

They still are taking the implementation fairly slowly. Nurses and mammogram technicians chart patient history directly in the EMR, while the doctors mix direct data input and dictation into a speech-recognition engine. The interface to the practice management system had not been completed more than a month after the switch to the EMR, so office staff still have double data entry.

Despite these minor issues, practice manager Amanda Wood says she could not be happier. "It's been phenomenal," she says of the new system.

A practice should consider accelerating the integration between clinical and administrative, based on the opinion of Mr. Hudson. The practice management industry analyst notes that providers with integrated systems can check to see if they are getting paid all that they are entitled to by comparing payer contracts with explanations of benefits that accompany reimbursements.

"People have to get involved," says Mr. Hudson. He recommends setting up the practice management system for alerts when EOBs and electronic payments come in. "If an EOB is electronic, when it gets into your practice management system, you will get an alert," he says. The EOB should also be tied to the payer's rules for easy reference while reviewing.

"It's a little like having a baby," Dr. Bell says. "It's not an easy process, but once it's done, you can't imagine life without it."