

THE TOTAL COST OF OWNERSHIP OF EHR IN A MEANINGFUL USE WORLD

By Don McDaniel

Industry wide adoption of electronic health records (EHRs) is moving closer to fruition, largely due to the Health Information Technology for Economic and Clinical Health Act (HITECH), part of the Obama administration's 2009 American Recovery and Reinvestment Act (ARRA). This legislation will trigger unprecedented investments and incentives in health information technology, creating an opportunity to drive new levels of EHR adoption and health information exchange across an interoperable ecosystem.

Given this initiative, physician practices of all sizes face the reality of migrating from a paper-based environment to a digital office. Physicians' most common question — "How much will this cost?" — has no simple answer. What is the real cost of EHR ownership, including hardware, software, training, change management, and organizational readiness? The concept of total cost of ownership, a method utilized to measure universal technology implementation costs, provides a framework for answering the "cost" question.

The central theme of industry wide adoption of EHRs is based on the concept of "meaningful use," which by design is a metric that will connect all the moving parts of this complicated initiative into a system that communicates and delivers high-grade electronic healthcare services. To qualify as a "meaningful user," eligible providers must demonstrate use of a "qualified EHR" in a "meaningful manner." It is a lofty and worthwhile goal. This white



paper examines the total cost of ownership for "meaningful" EHR adoption in a physician practice.

BEYOND THE BOTTOM LINE

A total cost of ownership (TCO) model provides benefits beyond the bottom-line price. Economic costs, as opposed to accounting costs, account not only for the entity's direct costs but also the opportunity cost incorporated into every economic transaction. Opportunity cost represents the value of the next best alternative foregone, and recognizes that all resources are scarce and finite, requiring prioritization of choices among otherwise desirable activities. Therefore, opportunity cost is really a barometer that governs our choices yet does not reveal itself in a formal or explicit way.

Physicians who are thinking about purchasing an EHR system need to fully understand the principle cost

drivers, both explicit and hidden, in order to make a value-based decision. Like medical practices themselves, EHRs are complex, multi-factorial systems that function interdependently. Buying an EHR system requires a stepwise thinking process that thoroughly analyzes the practice's clinical and business dynamics.

With EHR adoption in the United States still in its early stages, robust health information cost data are relatively low and asymmetric. Therefore, purchasers will often focus on the least common denominator, i.e. the EHR's "sticker price." However, licensing costs are only one component of total enterprise costs; a total accounting of costs requires a systematic approach. One approach to analyze the enterprise cost of health information technology is to assess the costs inherent in the various stages of ownership — the EHR lifecycle.

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SYSTEM SELECTION AND PRE-PURCHASE

Once a decision to implement an EHR is made, the next step is to conduct a formal vendor selection process. Selecting and purchasing an EHR system is complex and involves key organizational decision makers, including governance, management, administrative staff, clinical staff, IT resources, and most important of all, the practicing physicians. Prior to engaging vendors, practices should fully understand their technology infrastructure, assess staff computer skills, budget for temporary productivity losses, and identify structured decision making processes. The systems' technology architecture should be practice-specific, as it has a major impact on the scope and cost of implementation: needs should be determined by practice size and type.

Reaching a decision to move from a paper-based office to a fully or partially electronic office is the first step. But to initiate an EHR system into a busy medical practice requires extensive time, labor, and a necessary learning curve to successfully handle the up-front planning and pilot development. Therefore, many busy practices seek guidance from consultants, vendors, and manufacturers. The proper technical support team ultimately helps the practice make informed decisions about operations, cost sharing, and healthy financing opportunities. Often, a top-end vendor will have a tool-kit approach to help negotiate the technical and financial components of the implementation and financing process.

As it relates to system selection, practices need to recognize that they are not only selecting an application, but also a vendor-partner. Given many practices' experiences with information technology vendors in the past, the use of the term "partner" may be a surprise, or elicit a skeptical reaction.

However, the unprecedented investment and incentives in health information technology with its concomitant

expectation of meaningful use requires practices to engage vendors that act as collaborative partners and advocates. Key vendor attributes include:

- Sufficient financial wherewithal to fully fund investments in research and development, acquire new technologies, and withstand competition;
- Ability to navigate government's certification and regulatory requirements;
- Industry thought leadership and an ability to drive policy and standards development at the highest levels;
- Superior on-going support resources and capabilities;
- Management expertise in process and organizational needs; and
- Ready adaptation to technological changes in the market.

Finally, experience has shown that a practice cannot over-emphasize engaging all stakeholders and building a change management process and governance model that heads off the gridlock so problematic in many significant change initiatives — often due to poor communication and conflicting or convoluted objectives. An effective governance model for decision making and change management will use participatory assessment and decision approaches, such as a steering committee and workgroups, surveys, and product and project education sessions. Such an approach can help build consensus, but more importantly gain shared support of a decision model for when not everyone agrees — thus reducing TCO.

PRE-IMPLEMENTATION READINESS

Prior to EHR implementation, thoughtful readiness planning is required to ensure a smooth business transition and optimal use of the application. This planning begins with identifying the individuals in the practice that will be intimately involved in the implementation process. Each implementation effort requires its own "chain

of command" — in other words, staff already occupying full-time roles now must also double and play a central role in the implementation and training required with the new EHR.

Prior to powering up the system, there are myriad organizational decisions to consider, including work flow analysis and planning, training approach, chart migration strategy, and privacy and security implications. Done well, these activities may require several weeks of iterative discussion, testing, and decision making. This investment of time does not show up on your vendor software and hardware quote, but it is essential for successful implementations.

IMPLEMENTATION AND OPERATIONS

Primary direct costs include software licensing, hardware expenditures, facilities expenses if using an outside hosting facility, and professional services if using consulting support. This is where the budget developed during system selection bears fruit — a good cost model will analyze expenses related to work flow redesign. The project manager and team can make changes to the projected budget; the project budget should be reviewed on a regular basis.

It is important to note that the largest hidden cost of EHR implementation is the time spent by mission-critical staff away from "normal" duties. Most practices recognize that while staff resource needs are heightened during the implementation phase, they ultimately return to steady state; therefore it does not make economic sense to add permanent staff to support a temporary initiative.

To optimize their EHR investment, some practices find that they need to build domain expertise in the EHR arena. For example, they may hire a new super-user, a training resource, or even a nurse informaticist, recognizing the value in building and leveraging clinical decision support capabilities.

However, prior to hiring a new employee, it makes sense to explore internal resources, such as a “physician champion,” someone intimate with the practice culture and needs. This approach not only saves money, it creates a sense of self-reliance. A practice champion should have certain defined skills:

- Respect of others in the organization;
- A vision for automating healthcare;
- The ability to lead a multidisciplinary feedback team;
- An understanding of work flow and workflow designs;
- The ability to mentor; and
- A central knowledge of technology.

THE WILD CARD — MEANINGFUL USE

Under the HITECH Act, approximately \$20 billion of federal incentive dollars are priming the EHR adoption pump; constituents of all stripes have a vested interest in a successful take-up of the technology. Given the impetus to implement electronic health records, we’d like to introduce a third-leg to the TCO stool, a wild card called “meaningful use.” Much talked about since the release of HITECH, meaningful use is an as yet formally defined “state of being” in healthcare provider settings. As such, the incentives available to providers cannot be accessed simply by purchasing, or even deploying a certified EHR (product certification is but one requirement of meaningful use), but rather the meaningful *use* of said technology. Providers will be held to standards against defined quality measures in their fields of practice, and expected to validate meaningful use principally through a heightened data and quality reporting scheme.

As of today, we do not completely know what will be required of practices to achieve meaningful use; we are operating in a world of uncertainty. However, we believe, based on experience, market insight, and the already completed work of the various federal health information technology work

Best-practice cost modeling establishes accurate budget forecasts, setting the stage for doable financing arrangements.

groups tasked with driving EHR adoption, that several trends are incontrovertible:

- Meaningful use requirements will require provider organizations to achieve three different, increasingly difficult sets of standards over the next five to seven years — with each adoption year requiring increasingly better use of decision support information technology and greater sophistication within the provider entity.
- As the meaningful use regulations ratchet up over the full adoption period, pro-active change management will become a necessary competency.
- Meaningful use will ultimately require healthcare providers to participate, in a significant way, in electronic commerce by and between caregivers, modalities, purchasers, payers, consumers, and public sector sponsors and participants. This commerce will be guided by standards that facilitate true “plug and play” capability.
- Collection and reporting of clinical outcomes data will become a mission-critical process of any viable provider entity. This will require easy end-user reporting tools, and software/service vendor-partners that deliver reporting that is simple to manage yet robust. Reporting will initially be driven, in a real way, by meaningful use requirements, but will ultimately be a requirement of all purchasers (or their proxies) of healthcare services.

While large vendors are offering warranties or guarantees that certified software will be meaningful use capable, meeting these criteria will consume substantial resources from the practice. Currently, these intangible expendi-

tures cannot be specifically quantified, but it is essential that practices are aware of these critical considerations. Given these imperatives, practices should heed the following advice:

- First and foremost, invest in people that help you build better processes that drive better outcomes. Ideally your application support staff will be information exchange aware and savvy regarding clinical quality reporting needs. Depending on the size of your practice, you will need dedicated resources, so called subject matter experts (SMEs) that are focused on policy development, provider training, compliance monitoring, and outcomes reporting.
- Anticipate additional skill set needs in certain key areas to achieve and maintain meaningful use. For example, expect costs associated with interface development and maintenance, secure portal support, and technical electronic file transfer and reporting to be needed competencies.
- Recognize that there may be some additional costs required for the purchase of technology and applications, or participation in networks to accomplish meaningful use. For example, providers will ultimately have to connect to a health information exchange, incurring subscription fees, transaction fees, or a mix of both.
- Participation in these information networks will, however, allow a practice to completely immerse itself in electronic commerce, and possibly lower the significant opportunity costs inherent in a number of traditional medical office work flows — referrals, orders, communication, etc. A careful discussion with potential vendors will assure that

additional modules, interfaces, electronic transactions, and support resources are in your budget.

- Finally, the sun will rise and set with the organization's ability to scale — both up and down. Historically, scalability has referred specifically to information technology and other fixed, or capital assets. However, Mike McShea, writing in *IT Pro* (July/August 2009), suggests, "This philosophy can also extend beyond architecture and technologies to operational models, vendor relationships, and even personnel."

The evolving healthcare environment that includes increasing complexity, growing costs of operations for most physician entities, significant new information exchange standards, and a heightening regulatory environment will likely promote a growth trend in both information technology and business process partnering in the healthcare provider arena. These synergistic relationships provide physician entities EHR application hosting, business process management, and infrastructure management. Moreover, a single vendor relationship can provide valuable downstream growth, such as an interoperability engine that allows seamless data exchange between the healthcare and stakeholder communities.

Many small and mid-sized physician practices may find this model extremely helpful in that it enables them to forego current and future technology and human capital investment in return for more scalable relationships. This results in variable cost commitments that scale only as the practice

needs scale. However, this model requires new, different competencies in the practice — namely the ability to select, monitor, and manage relationships with third-party service and support vendors.

THE TRAIN IS LEAVING THE STATION

The healthcare ecosystem is changing and providers will be at a disadvantage if they cannot communicate electronically with trading partners and consumers. As consumers become more invested in personal health records and interact with providers via patient portals, and as purchasers and payers drive more clinical quality reporting, EHRs will extend beyond simply an emerging technology and become a truly transformational tool.

While TCO is a central component in the global discussion of EHR adoption, the inherent value of this exponentially growing technology far outstrips the costs and initial work flow obstacles. EHRs save valuable time and resources by streamlining work flow. Practice management systems enhance billing and collections, interacting with all stakeholders. Moreover, EHRs provide physicians with decision support tools, such as clinical guidelines and checks for drug interactions, and generate printed post-visit summaries for patients. The technical business and clinical applications of an EHR provide seamless continuity between provider, patient, and payer.

The goal of the HITECH Act is to drive greater adoption of EHRs, but it is also focused on creating a standards-based technology environment that

will facilitate communication, lower switching costs, enable real-time clinical reporting, and ultimately improve both patient safety and outcomes. This standards drive is not dissimilar to what happened in banking and financial services a generation ago — namely that standard exchange protocols allowed banks to offer automated teller machines that could be of service to *anyone*, not just their customers.

A well-designed cost model presents a full gamut of options that empowers practitioners to make decisions that affect all aspects of EHR interaction. Moreover, best-practice cost modeling not only helps establish solid budget forecasts, it prepares physicians for the changes ahead, enables all parties to negotiate fair cost sharing, and sets the stage for various financing arrangements.

Today's practices will have to build, or have access to an interoperable infrastructure, which will enable them to access a robust healthcare information ecosystem. With the right degree of thoughtful, disciplined planning and an eye toward understanding the total cost of ownership, winning physician entities will not only be able to survive the meaningful use era, but thrive and participate in the changing face of our healthcare system. ■

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