Understanding Costs and Return on Investment

While the qualitative benefits of adopting an Electronic Health Record ("EHR") system (i.e., reduced opportunity for medical error, improved access to information, increased clinical efficiency and improved satisfaction by physicians, practice staff and patients) are generally well understood and accepted by physicians and other practice leadership, the quantitative benefits (i.e., reduced administrative and clinical costs, increased revenue) associated with EHR adoption are commonly undervalued and often disputed. At the same time, cost is cited as the leading barrier by small practices preventing their movement toward EHR systems. Looking at EHR costs without addressing the EHR cost savings is similar to adding up the costs associated with moving to a new job in a new city without including considerations for the financial gain, perquisites, opportunities, etc. that the new job will yield. The plusses and minuses must be tallied together to get a full understanding of costs and make an accurate assessment about affordability and longer term returns.

In order to fully understand your practice's ability to "afford" an EHR system, it is critical to have a full and accurate understanding of total costs associated with buying and implementing the system balanced against the true and achievable return on investment (ROI) you can expect from the system.

The following provides a list of the key components of cost and benefit that are most often used in quantifying EHR system Return on Investment (ROI).

The Costs

A recent article by the Lewin Group, Wang et. al[1] document EHR costs over a five year period to be approximately $43,000 per provider. Calculating the exact costs for your practice requires a stratification of costs into two categories:

❑ Initial, one-time costs – Costs that the practice will incur for the initial acquisition of the system and implementation including both vendor charges and other practice costs associated with resource time, renovation, medical record conversion, etc.

❑ On-going support costs – Annual maintenance and system upgrade fees for EHR system hardware, devices and software applications.

Initial, one-time vendor costs should be quoted by your EHR vendor of choice. However, to gain a full picture of total costs, you will need to request a full disclosure of all system acquisition and implementation costs. Vendor EHR quotes should delineate costs for:

❑ License fees for the application software and system utilities. Often vendors have separate licensing fees for the different system modules/applications. It is important to request license fees for all modules/applications necessary to provide the full complement of capabilities shown to you during product demonstrations. These are the capabilities upon which you based your purchase decision and, therefore, should be what you receive once the contract is complete.

❑ Custom interface costs, if any, for interfaces with all practice systems (e.g., practice management, internal ancillary systems or diagnostic equipment) and external entities (e.g., hospitals, ancillary vendors, specialists, Web reference sites, etc.). Again, your purchase decision was most likely made with an understanding that specific interfaces and interface functionality (e.g., two-way, real time interfacing; one-way batch interfacing) would be in place. Unless specifically designated in your initial

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[1] Source: Wang et al., A Cost-Benefit Analysis of Electronic Medical Records in Primary Care. The American Journal of Medicine, 2003; 114:397-403.
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agreement, these interfaces may be considered by the vendor as additional-cost add-ons that need to be contracted for separately.

❑ Other software customizations, if any, that you may have asked the vendor to develop specifically for your practice.

❑ Clinical documentation templates are sometimes included in the license fee calculation, but can be an additional cost. Also, some vendors provide some basic templates as part of the licensing cost, but have additional charges for a more extensive set of clinical templates or vendor customizations to templates you request. It is important to clearly define which templates you are expecting the vendor to provide and the cost, if any, associated with each.

❑ Hardware and device costs should be delineated for CPU, network/communication servers and equipment, PCs and other input devices (e.g., pen tablets, PDAs, scanners, etc.), output devices (e.g., printers, fax server). Operating systems (e.g., Microsoft Windows, Unix) license fees should also be defined.

❑ Other systems and third party software should include license fees for other software including database engines (e.g., SQL Server, Oracle) and integration tools used for interface mapping. These may also include third party software license fees and costs for special tools you plan to use for charting support (e.g., voice or hand-writing recognition software), report writing, or data bases to support diagnosis and procedure coding.

❑ Medical records conversion costs should be included if you have asked the vendor to assume responsibility for scanning or abstracting any portion of your paper record information to the EHR application. Including automated conversion of patient demographics from your practice management application or laboratory history.

❑ Implementation fees and expenses will include the "consulting" fees and related travel expenses for the vendor's implementation project manager and other vendor resources assigned to help you with implementing your system. At the time of contracting, the vendor will estimate the hours needed to assist your practice with implementation activities and will calculate implementation fees based on this estimate. It is very important to fully understand the estimates used by the vendor and validate the assumptions behind these estimates to see if they are aligned with your timeline, practice resource assumptions and overall plans. Implementation fees and expenses are a common area of cost overrun for practices. For more information on estimating the level of work and costs associated with implementing your EHR system, both for vendor resources and your own practice resources, please refer to the "Implementation Planning – Tips for Success" handout available from your QIO.

❑ Training fees and expenses, like implementation fees and expenses, are estimates based on the level of training the vendor assumes your practice's project team or users will need to gain proficiency with the intended use of the EHR system. Typically training fees are based on a per day or per hour charge for the vendor trainer to come to your facility (or for you to go to the vendor) to provide educational sessions to key users (or sometimes, all users) within your practice. Training expenses should include the travel costs associated with those sessions and may be expensed separately. Again, you will want to understand the assumptions (e.g., number of days, number of people to be trained, schedules) used by the vendor in estimating training fees and expenses to validate whether these are in line with your expectations and plans.

❑ Taxes are commonly forgotten when estimating system costs. Uncle Sam, your state and, in some cases, your city will remember this cost component.

If your practice selects an EHR system that operates via an Application Service Provider (ASP) hosted environment (i.e., you will use the vendor's application via and internet connection without owning or maintaining the hardware and software within your practice), one-time vendor costs will be similar in many area, however, the following differences should be expected:

- ❑ <u>License fees</u> are typically not charged. Monthly charges for usage of the software are included in your monthly service costs (see on-going fee discussion below).
- ❑ <u>Hardware and device costs</u> include only network and device costs. CPU costs remain the responsibility of the ASP vendor and are factored into your monthly service costs (see on-going fee discussion below).
- ❑ <u>Operating systems and third party software</u> are typically not charged.
- ❑ <u>Implementation fees and expenses</u> are typically less than those associated with in-practice implementations since much of the vendor-required set up work is completed at the vendor's hardware site.
- ❑ <u>Taxes</u> are not typically charged for services, but may be a consideration based on your state and local tax laws.

On-going vendor support costs are also quoted by your vendor at the time of system purchase. This typically includes only:
- ❑ <u>Maintenance fees</u> which represent the costs charged annually by the vendor for scheduled system upgrades and vendor initiated enhancement, third party software and customer support for the applications and equipment purchased.

Again, if your practice selects and ASP solution, on-going support is included as part of the monthly service costs entitling you to system support and vendor initiated software enhancements.

Initial, one-time other practice costs include a set of fees and expenses associated with the initial implementation that are separate from the vendor contractual arrangement, but are key to the success of the system. These typically include:
- ❑ <u>Facility expenses</u> associated with remodeling the practice for the new workflows, devices and inter-office communication.
- ❑ <u>Technical support</u> for implementing wiring or wireless communication within the practice for EHR devices.
- ❑ <u>Custom interface costs</u>, if any, for interfaces with all practice systems (e.g., practice management, internal ancillary systems or diagnostic equipment) and external entities (e.g., hospitals, ancillary vendors, specialists, Web reference sites, etc.). These costs reflect the cost from the vendor who's system the EHR is interfacing to.
- ❑ <u>Temporary labor or overtime</u> for medical chart conversion and "back filling" critical office functions while staff focuses on implementation project activities.
- ❑ <u>Overtime</u> during system training and testing periods.
- ❑ <u>Consulting support</u> for project management and/or other implementation resources to supplement practice resources during initial implementation.
- ❑ <u>Lower visit volumes/productivity during the initial implementation period</u> will have a direct impact on billing revenues for your practice. The extent of this impact can often be mitigated by good planning, effective training and an incremental approach to introducing EHR system functions and/or users.

Other on-going support costs in addition to vendor maintenance/support costs should be minimal. These costs will typically be occasional costs, versus monthly recurring fees, and will be for items such as:
- ❑ <u>Technical support fees</u> associated with support for devices and network trouble shooting for any equipment not purchased through the vendor or included in your maintenance contract with your vendor.

❑ Ongoing configuration, training and testing expense for significant vendor upgrades or training of new staff.

The Cost Savings and Quantifiable Gains

Adopting a good, well-integrated EHR system can result in significant direct cost savings for your practice. Additionally, effectively using key functionality with the EHR system can result in notable opportunities for increased revenue for your practice. By comparing direct cost reductions and increased revenue with the cost of an EHR system, the Lewin Group, estimates the five year savings of an EHR to be approximately $86,000 per provider. It is important to understand, however, that both of these sets of quantifiable benefits are achieved after an initial "adjustment period" when everyone within the practice has had sufficient time to:

❑ Gain confidence in the use of new technology and tools.
❑ Adapt to changed processes and work flows.
❑ Become proficient with new data formats and codes.

With good implementation planning and effective change management the practice can begin to see quantifiable gains in a few short months. Financial gains achievable through adoption of an EHR system take two forms:

❑ Direct cost reductions
❑ Increased revenue gains

Direct cost reductions result from reduction or elimination of material, labor and other expenses associated with managing paper-based medical charts. These can include:

❑ Transcription costs
❑ Medical records labor costs for staff responsible for:

- Chart filing and retrieval

- Searching for missing/mis-filed charts

- Copying and faxing

- Maintenance of manual service/order logs

❑ Data entry labor costs associated with entering encounter data.
❑ Form, copier/fax paper, and paper chart material costs (e.g., folders, dividers, labels)
❑ Courier expense
❑ Fax machine and maintenance reduction through the use of EHR auto-fax and email capabilities will reduce the number of fax devices supporting outgoing transmissions. Move to electronic interfaces with ancillary vendors, consultant physicians and other parties will also reduce the number of fax devices supporting incoming transmissions.
❑ Copier machine and maintenance reduction
❑ Chart storage fees associated with off-site storing of paper charts will decrease over time as retention dates for pre-EHR records expire.
❑ Reduce malpractice fees available from some malpractice insurers for effective use of EHR features that reduce the risk of medical error.

Increased revenue gains result from improved efficiencies and use of system features that allow a practice to increase patient visit volumes and from use of other key features and capabilities that allow the practice to improve billing accuracy.

❑ <u>Increased patient visit volumes</u> achieved through:

- Increased clinical time for physicians/clinicians due to the use of standardized templates and ordering panels.
- Better leveraging of nurse and MA time due to ease of prescription refills, lab and consult ordering and follow-up.
- Floor space gain for additional exam/treatment rooms to accommodate more patients.
- Efficient methods for identifying patients needing follow-up care with easier, automated support for patient recalls and reminders.

❑ <u>Increased billing revenues</u> achieved through:

- Automated support for mapping charted care to billable transactions resulting in less missed charges.
- Elimination of missing encounter forms and the associated missing charges.
- Automated coding support for justifying higher coding levels based on fully documented assessments, reviews and treatment.