

Organizational IS Budgeting Criteria/Solutions

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As part of the American Recovery and Reinvestment Act (ARRA) introduced in 2009, president Obama signed into law the Health Information Technology and Clinical Health Act (HITECH Act). According to Rouse (2009) the HITECH Act is “legislation created to stimulate the adoption of electronic health records (EHR) and supporting technology in the United States,” (Rouse, 2009, p. 1). The significant financial compensation offered through the HITECH Act is encouraging the move to electronic documentation. From single physician practices, large group practices, independent hospitals and multi-facility organizations. All are moving as quickly as possible to install the needed infrastructure and successfully implement their chosen EHR system. Focusing on physician practices, this paper will explore the budgeting criteria and common problems experienced by those choosing to implement an EHR; it will then offer some possible solutions.

Background

Currently EHR's are not mandatory although some believe that is only a matter of time. There are many positive reasons for moving to an electronic documentation system in healthcare for both the healthcare providers and the patients. Functionality such as, built-in medication administration safety checks, knowledge sharing, computerized physician order entry (CPOE), and a more complete patient “story” are some of the many advantages offered by the EHR's. Following hurricane Katrina and the loss of thousands of patients' paper medical charts the need to have EHR's became increasingly evident. As part of the ARRA (2009) stimulation package the HITECH Act “stipulates that, as of 2011, healthcare providers will be offered financial incentives for demonstrating meaningful use of electronic health records (EHRs),” (“HealthITnews,” 2014, p. 1). The EHR incentives to physicians and hospitals,

provided through Medicare and Medicaid programs for proving meaningful use of EHR's are as follows:

- Each eligible Physician can qualify for \$44,000 from the Medicare program or \$63,750 from the Medicaid program.
- Each eligible hospital can qualify for \$2 million or more ("HealthITGov," 2014).

Adoption of EHR's is just part of the HITECH Act; the EHR is the starting point for a health information exchange (HIE). This would vastly improve healthcare by having patients' up-to-date health information easily available anywhere the patient presented.

Preliminary Tasks

Prior to budget proposal, a thorough financial analysis of the project should be undertaken; evaluating if there be a return on investment. According to HealthIT.gov "Several studies estimate the cost of purchasing and installing an electronic health record (EHR) ranges from \$15,000 to \$70,000 per provider," ("HealthITGov," 2014). The site also provides the following comparison data for on-site and software as a service (SaaS) costs for an EHR implementation. The chart shows "estimated average upfront cost, yearly cost, and five year total cost of ownership (TCO)," ("HealthITGov," 2014).

Cost	In-Office			SaaS		
	Upfront Cost	Yearly Cost	5 Year TCO	Upfront Cost	Yearly Cost	5 Year TCO
Estimated Average Cost	\$33,000	\$4,000	\$48,000	\$26,000	\$8,000	\$58,000

With an idea of the overall costs involved the next step is evaluating return on investment (RIO). The U.S. Department of Health and Human Services web site cites a research study that concluded. "Practices were able to cover the cost of the EHR in approximately 2.5 years and then received an average of approximately \$23,000 per year per full-time employee in net benefits,"

("HRSA," 2014, p. 1). The study points to improved coding, and increased patient load due to efficiency of using the EHR as reasons for the increase in revenue. Taking all of this into consideration, once a decision is made to move ahead with the project a budget can be planned.

Budgeting Criteria

Budgeting Criteria for an EHR implementation include; both capital funds and operating funds. Capital funds encompass, hardware, software, network access and project resources such as analysts, engineers, IT personnel and project management teams. Operating funds cover project start-up expenses, training expenses, and miscellaneous operating costs. One criteria that is not always expressed in the budget proposal but ought to be is ongoing support cost for both software and hardware maintenance. Ongoing support costs usually commence one year after the project starts as year one, maintenance is included in the purchase of the software and hardware. The project scope and time-line are also a budgeting criterion; only with a firm time-line can resources needed to complete the project be accurately forecast

Budgeting for the right amount of software and hardware is dependent upon a clear project scope, what is included and excluded. Upon the initiation of the project its scope must be established, without it the budget will be unstable from the on-set. EHR systems differ greatly in functionality, from simple documentation and billing packages to sophisticated multi-module enterprise software systems. Choosing a system has great impact on budgeting, not solely due to the software costs. Many enterprise EHR systems have the capability to work with existing systems such as a laboratory system through interfaces. So identifying which if any interfaces will be in scope is vital, as these will need to be supported through the implementation. Some physician practices closely associated with a particular hospital may chose (at an added expense) a system that can be integrated into "a hospital information system for demographic data

exchange, orders and results, medication reconciliation and continuity of care,” (Healthcare information and Management Systems Society (HIMSS) [HIMSS1], 2008, p. 6). Other considerations for scope can include technical options such as upgrading existing network infrastructure and addition of new telecommunications system to integrate with the chosen EHR. Once a project scope is defined then a project plan can be made and actual costs can be estimated. For the project plan a time-line is essential, the following is a sample of a project timeline:

Lakeland Medical Group EHR implementation Timeline

Description	Complete Date
Create project proposal and request funding	March 14, 2014
Project Start	July 1, 2014
Create steering committee & define governance process	July 8, 2014
Develop project plan	July 15, 2014
Define EHR business requirements	July 30, 2014
Define "as is" and "to be" business processes	August 8, 2014
Identify IT solutions - hardware, software and infrastructure	August 8, 2014
Negotiate pricing with vendor and purchase equipment	August 15, 2014
Redesign business process	August 15, 2014
Develop and test solutions	September 15, 2014
Develop training program and train users	October 15, 2014
Implement EHR system (go live)	November 1, 2014
Post implementation support	November 30, 2014
Monitor and track results to ensure return on investment	March 1, 2015

The timeline is an important budgeting criteria as internal and external resources are budgeted by the length of time they are needed to complete the allotted tasks. Other budgetary factors dependent upon the timeline are, vendor compensation, and highly paid contractors. Also guided by the project timeline are internal resources. They are assigned to various projects based on the amount of time they are needed, employees work back-to-back projects so an accurate timeline is essential.

Capital Expenses

Hardware is a large part of any EHR budget and accuracy with estimated needs will go along way to keeping any project within budget. A full inventory of existing equipment and assessment of its reusability with any new software should occur before new hardware purchasing is planned. Hardware typically includes, printers, scanners, database servers, desktop and/or laptop computers, and increasing more tablets. Decisions around which type of workstation to use should be made carefully, taking into consideration the environment in which they will be used. For instance an exam room may have limited space for a desktop computer, a wall mounted workstation, laptop or tablet may be a better option. An alternative portable option commonly used in medical environments is the Workstation on Wheels (WOW). This option can be cost-saving as it reduces the need to have fixed computer in every exam and procedure room. Regular desktop computers – the cheaper option- are regularly used in scheduling, billing, physician offices, and nursing stations. The amount of printers and scanners needed is dependent upon the size of the practice. The size of database servers is also dependent on the size of the practice. There are alternative options surrounding database servers which will be discussed later in this paper.

Commonly network infrastructure installations or improvements such as wi-fi or high speed internet access are needed to support the incoming EHR hardware and software. This is captured as a capital expense.

Software is the center of the whole EHR implementation project and there are many considerations to take into account. With so many options out there it can be difficult decision to make when choosing which software best suits the practices needs. Each practice must evaluate

both their current and future needs so as not to invest in a system that will be redundant before it is paid for. Factors that influence the cost of an EHR software package include:

- Size and type of the practice
- The amount of modules selected which may include but not be limited to; clinical documentation, scheduling, billing, reporting, pharmacy, lab, radiology, etc.
- Customization of the software, this can be very costly.
- The amount of interfaces needed, to integrate with existing systems, or another associated practice or hospital's EHR.
- Sophistication of the system build (HIMSS, 2008, p 6).

The remaining part of capital expenses are resources, the man-power side of the implementation. Large healthcare organizations generally have an information systems (IS) department from which to draw the necessary staff for an EHR implementation. Smaller stand-alone hospitals and physician practices may have a handful of analyst/engineers depending on how much technology they already use. During an implementation project they will likely utilize outside contracted engineers, consultant analysts and project managers, and rely on a large amount of vendor support.

Operating Expenses

Start-up costs for this type of project might include, replacing income lost due to time spent researching EHR's and meeting with vendors. Travel expenses for site visits to observe various EHR's in action while deciding which to buy. Accountancy expenses while evaluating the ROI of the proposed project. Training expenses also fall under the operational umbrella. Once a system has been chosen, selected staff may be sent for in-depth training to the vendor site or the trainer may come to the practice. Either way these staff commonly known as 'super users' are

then utilized to train other staff and support the implementation. They are taken out of the normal work schedule at a cost to the project. Any other incidental project costs will be added to the operating budget.

The following is a sample of a project budget for a four physician medical group:

Lakeland Medical Group EHR Project Budget

Description	Amount
Capital Funds	
Hardware	
- 8 desktop PC's (monitors, headsets)	\$ 12,000
- 4 workstation on wheels	20,000
- 4 laptops	4,000
- 2 printer/scanner combo's	5,000
- 1 network server	3,000
- Facility expenses to install equipment	8,000
Subtotal	<u>\$ 52,000</u>
Software	16,000
Project Resources *	85,350
Project Contingency (5%)	7,180
Total Capital Funds	<u>\$ 160,530</u>
Operating Funds	
- Project Startup Expenses	\$ 7,500
- Training Expenses	7,500
- Misc. Operating Expenses	10,000
Total Operating Funds	<u>\$ 25,000</u>
Total Operating Budget (Capital and Operating)	<u>\$ 185,530</u>
Ongoing Support Costs	
- Software/Hardware maintenance	\$ 13,000
*Project Resources	
	Amount
Sr. IS Analyst 400 hours @ \$50/hr	\$ 20,000
IS Analyst 350 hours @ \$45/hr	15,750
Project Manager 480 hours @ \$60/hr	28,800
Trainer 240 hours @ \$30/hr	7,200
IT Infrastructure (as needed) 120 hours @ \$60/hr	7,200
IT Communications (as needed) 160 hours @ \$60/hr	6,400
Total Project Resources	<u>\$ 85,530</u>

Budgeting Problems and Solutions

Rarely does any project finish on or under budget, but it is possible. Research shows there are some common EHR implementation issues that can be learned from. Many of these issues are the same for any type of project not just the type focused on in this paper. One of the biggest issues is not having ‘user buy-in.’ According to Laudon & Laudon “system implementation generally benefits from high levels of user involvement and management support,” (Laudon & Laudon, 2012, p 541). Involving end users at the onset of the project, in the system design will have positive results that will keep the budget on track. It is very important that management is very supportive of the project and transfers positive communications downstream to staff.

Whatever the size of the practice only one internal staff member, possibly a physician or more likely an office manager, should be appointed to work with the project management team. “This will help streamline the process, eliminate confusion, and increase efficiency. The importance of having a single point person cannot be overstated.” (Healthcare information and management systems society [HIMSS2], 2007, p. 1). Training is one aspect of an EHR implementation that is not always well budgeted for. Post implementation vendor support cannot always be relied upon, if offered at all. Better trained users will be more comfortable and effective with the system. Budgeting for extra staff during the implementation and for the post implementation period (usually 2-4) weeks is frequently overlooked or under estimated. When the system goes live users will not be experts immediately, they will need time and assistance to become proficient. To help the implementation go smoothly, each work shift or day should have a proportionate amount of ‘super users’ on hand to help regular staff with the system. This time should be budgeted for in the initial project budget.

Hardware is another area that often falls short of meeting the budget. “Outdated, slow, or sub-standard (low memory) devices will cause extreme frustration in the long run. Always follow the “recommended” (not “minimum standard”) guidelines when purchasing hardware.” (HIMSS2, 2007, p 3). Strategies for accurate equipment needs can include, using a floor map to identify where all workstations will be needed. Also following daily workflow to assess the type of equipment that will best meet the user’s needs (such as WOW/laptop/static workstation).

At the completion of a project, customers often receive unexpected bills from software vendors. Have the vendor list their fees up front for training, upgrades, support, licensing, installation, data migration, interfaces, template creation, and maintenance, (Lynn, 2011). Customization and modification of the software can send the project over budget very quickly. Many practices attempt to adapt the software to fit existing processes and workflow rather than adapting their workflow to work with the system. It will be more cost-effective for the practice to follow the recommended workflows of the system. One mistake customers make to keep the initial budget low is buying substandard or outdated software. The initial savings will end up costing a lot more in the future, older software will need to be upgraded at an added expense sooner. A substandard system may not have the functionality needed to meet the meaningful use requirements. Leaving the physicians unable to apply for the Medicare/Medicaid incentives, a very costly loss. Thoroughly researching software is essential both for project budgeting and future costs. Make sure the software is suitable for the practices current needs and that the vendor will be able to meet future needs. Long-term it pays to invest in the best software system the practice can afford.

EHR Software Model Options

There are three EHR model options to choose from that will impact the project budget.

Firstly there is the Application Service Provider (ASP) model “a remotely hosted software system accessed via an Internet Web browser. This remotely hosted system is accessed by paying a rental or service fee” (HIMSS1, 2008, p 16). This option offers off-site secure servers, remote access, online backup service, regular enhancements, and technical management. These services can be attractive to smaller practices with little IS support. The upside financially is initial savings realized by not having to invest in servers or software packages and low startup costs. The downside is that as there is a monthly fee, long term this option could end up costing more. Although the ease of maintenance and enhancements at no added expense can prove worth the monthly fee.

Secondly there is the Client-Server which is a locally hosted system. Allowing for “quicker response times in the application as the data from the server to the client is transmitted much faster,” (HIMSS1, 2008, p 17). This option gives the customer more control over their data, but they are required to maintain it too. A favorable choice for a practice with an IS department to support it. Financially, the positive, is once the system is implemented it is paid for. The negatives include a high initial expenditure, upgrades and new releases are an additional expense.

The third option is the Software as a Service (SaaS) model. “SaaS refers to a type of software deployment in which all of the system’s software and data is hosted and managed at a central data center operated by the software vendor,” (HIMSS1, 2008, p 18). This model is accessed through the internet, so computers, an excellent internet connection and training are all that is needed to get this model up and running. The vendor hosts, operates and maintains the software at a central data center, often cloud-based. The practice will pay a monthly subscription fee for this model, moving this expense from a capital one to an operational cost. The pros and

cons financially are similar to the ASP model. Low up-front costs is the positive while monthly fees long-term can end up being more expensive.

Conclusion

EHR software is not something new; systems have been around since the 1960's. In the last 12 years, since the signing of the HITECH ACT the interest in implementing has increased exponentially. The EHR software business is now a lucrative and competitive marketplace. For eligible physicians and hospital to receive the Medicare and/or Medicaid incentives they must attest to the meaningful use criteria. Consequently EHR software builders are constantly updating and improving their product to meet the customer's needs. While all of this is good for the customer, there are also downsides for the practices wanting to get started.

Budgeting for any new venture is difficult; the EHR implementation budget is compounded by the ever changing technology. Software must be researched thoroughly, finding the 'best bang for the buck' can be challenging. The largest influence on an EHR implementation budget is the model the practice chooses ASP, Client/Server or SaaS.

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