True ROI from Clinical System Implementations: The Value of Optimization

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Historically, it has been difficult to identify and achieve a solid, measurable Return on Investment (ROI) following Electronic Health Records (EHR) or other clinical system implementation initiatives. The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 has motivated system implementations, and the associated incentive dollars have offered a simple measure of ROI on the revenue side of the ledger, but this represents only one aspect of the substantial benefits clinical systems can yield. A proper optimization program, with broader consideration for the projects comprising it, can bring a truly positive ROI to healthcare organizations over a 10-15 year period if properly considered and executed.

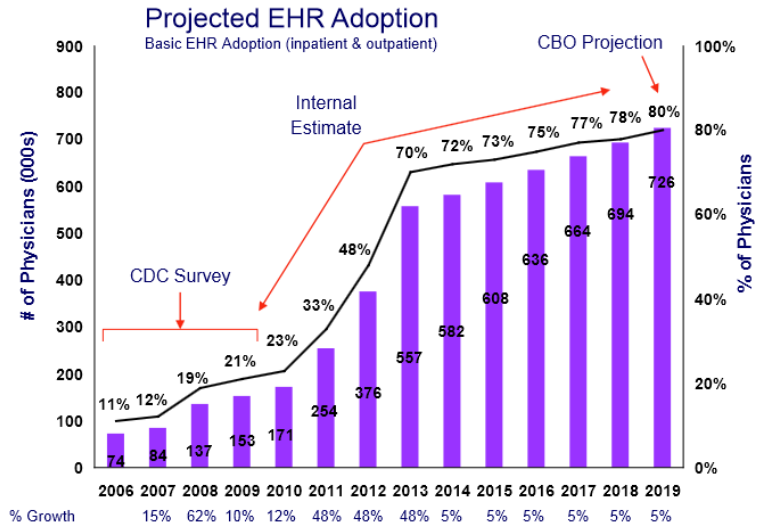
One of the unintended consequences of HITECH has been the emergence of highly accelerated clinical system implementation projects - some successful, some less so; most painful! These accelerated initiatives have spawned subsequent "optimization" efforts to fix original implementation mistakes and to achieve benefits that could not have been anticipated earlier. Optimization projects are yielding substantial financial, quality of care, patient safety and other intangible benefits.

The key lesson learned is that an overall program of work that includes a well-executed, relatively rapid initial clinical system implementation followed by a program of closely monitored optimization projects will maximize ROI and other benefits. Ironically, limiting objectives for benefits realization during the initial implementation and accomplishing the project aggressively actually opens the door for better overall ROI when looking at a longer-term program of work that includes optimization projects.

Clinical Information Systems Before and After HITECH

Many factors contributed to the healthcare industry's slow adoption of information technology prior to passage of HITECH. Given numerous resistance factors and the associated costs, both financial and otherwise, it is not surprising it took government incentives to force the industry toward automation.

The passage of HITECH resulted in the vast deployment of clinical information systems across the country. Though many people have strong opinions about the program, it has effectively served as a mandate on providers and early incentives have successfully pushed the U.S. healthcare industry past the tipping point of clinical workflow automation. As evidenced by the following Projected EHR Adoption graph, actual and projected adoption by physicians has been dramatic following HITECH.



Source: CDC/NCHS, National Ambulatory Medical Care Survey for 2006-2009. CBO projection for 2019
Note: Overall physician base grows from 745,000 in 2010 to 907,000 in 2019 based on BLS projected growth rates.

By attesting that they meet established Meaningful Use (MU) criteria, providers can receive up to $44,000, and hospitals as much as $2 million for implementing these technologies. Given these incentives, providers and healthcare organizations have substantially increased implementation activity. As of December 2012, HHS reports paying incentives to more than 74,000 health professionals and over 1,300 hospitals. If judged on the merits of simply moving the industry toward clinical automation, the program has been wildly successful. However, as with many programs of this type, questions are now being raised about the unintended consequences.

Benefits of Clinical Information Systems

There are many benefits of EHR technology:

- Improved access to clinical information across the enterprise
- Reduction in costs related to paper, records transport and storage, dictation and transcription services
- Improved patient safety and care quality
- Simplified compliance with regulatory requirements, such as quality reporting through Physician Quality Reporting Initiative (PQRI)
- Better care through standardization of order sets, terminology, etc.
- Improved communication between providers and across care settings
- Improved patient satisfaction through access to Personal Health Information via web-based EHR patient components
- Cash payments through the HITECH MU incentive program for eligible providers and facilities
- Cost-effective jump-start on ICD-10 and ICD-11 compliance

From a revenue standpoint, these components can contribute to a healthcare organization's financial position. As Bell and Thornton point out in their February 2011 *Healthcare Financial Management* (HFM) article "From Promise to Reality – Achieving the Value of an EHR " – "Many of the positive outcomes identified above also have a positive impact on a hospital's fiscal bottom line in the form of cost reductions, cost avoidance, top-line revenue growth and cash-flow increases. Based on the size of the health system and the scope of the implementation, benefits for a large hospital can range from $37 million to $59 million over the five-year period following an EHR implementation." They also point out that these figures are exclusive of HITECH incentive payments.

Unfortunately, too many organizations look at these clinical system implementation initiatives exactly the wrong way. In many cases, baseline implementations focused on moving from manual to automated workflows, typically with the goal of hitting HITECH deadlines and the misconception that the project is completed once the system is in place.

Nothing could be further from the truth. The real value comes after the system is live, and results only from executing a monitored optimization and benefits realization program. When implemented effectively, enterprise automation provides a significant ROI to healthcare provider organizations well beyond the "cost of doing business." The key is gaining an understanding of what truly goes into an effective implementation.

Controversy Associated with EHRs

On September 21, 2012, an article entitled "Medicare Bills Rise as Records Turn Electronic" was published in the *New York Times*. The focus was data that suggests healthcare providers who had implemented EHR solutions and were receiving HITECH incentives, were subsequently billing at a higher level than prior to the implementation.

One passage of note reads: "Overall, hospitals that received government incentives to adopt electronic records showed a 47 percent rise in Medicare payments at higher levels from 2006 to 2010, the latest year for which data are available, compared with a 32 percent rise in hospitals that have not received any government incentives, according to the analysis by *The Times*."

Issues believed to be behind this were many and varied, but the most common of them included:

- "Upcoding" services such as emergency department visits to a higher level than appropriate or accurate, via the EHR's prompts related to evaluation and management codes
- "Cloning" or copying and pasting examination details from one patient record to another when such an exam was not performed
- Mechanisms, such as checkboxes in the EHR, that make it very easy to document a higher level examination took place than actually performed

The article notes two sides to each of these claims. On one hand, many providers felt their coding and billing practices were insufficient until the EHR tools were in place, which facilitate appropriate compensation for services rendered. In contrast, Dr. David J. Brailer (best known as the nation's first "health information czar" during the George W. Bush administration), an early proponent of health information technology, suggests that the use of EHR technology "makes it faster and easier to be fraudulent." While abuse is always a concern, these trends also demonstrate that there is an efficiency payback on the introduction of technology that also benefits the legitimate user.

Baseline Implementations: Comme Ci, Comme Ca

There is no doubt that the industry has responded to HITECH and significant implementation activity has occurred. The quality of this activity has naturally varied, with some providers taking a strategic approach focused on broader workflow and clinical quality goals, and others taking a more tactical approach targeted toward achieving minimal Meaningful Use and maximizing HITECH incentive payments.

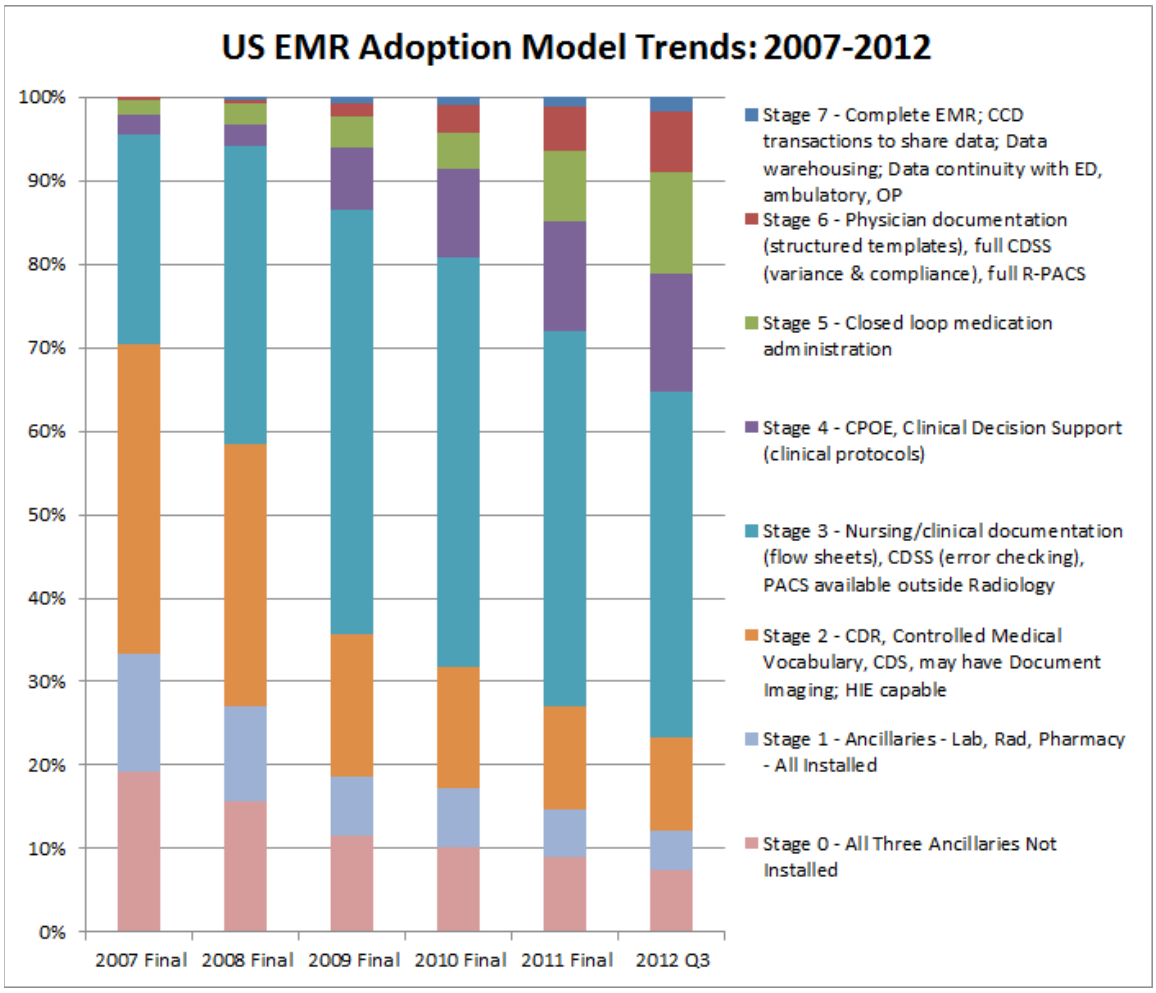
The February 2011 issue of *HFM* featured an article entitled "Meaningful Abuse – The Rush toward EHR Implementation." Here, authors Ames, Ciotti and Mathis discuss problems several healthcare provider organizations encountered in their rush to implement these systems. While fast doesn't always mean bad, and slow doesn't always mean good when it comes to implementations, this article discusses the dangers of poor planning, increasingly limited vendor capabilities to meet growing demand and key basic implementation issues, such as training, data conversion and support.

Poorly planned implementations are often characterized by:

- Limited emphasis on clinical workflow process improvement
- Limited emphasis on change management
- Heavy focus on MU criteria as project objectives
- Heavy focus on MU Stage 1 deadlines for attestation
- Limited focus on the ROI elements of the initiative

A measure many organizations use as a guideline is the HIMSS Analytics EMR Adoption Model. In 2005, the Healthcare Information and Management Systems Society (HIMSS) launched the model to track the progress of EMR adoption throughout hospitals and health systems. The model outlines eight stages of adoption (0-7), with the goal of reaching Stage 7 – the pinnacle of an environment in which paper charts are no longer used to deliver patient care.

The graphic that follows illustrates the rates at which the various stages of EMR adoption have been achieved from 2007 to 2012. While this is very good progress in the introduction of base technology, it is interesting to note the significant room for improvement in Stages 4-7, where much of the benefit can be realized.



Data from HIMSS Analytics™ Database © 2013

Whether or not an organization approaches its baseline implementation in a strategic or tactical fashion is unimportant in the broader scheme of things. Accelerated implementation projects, both successful and troubled, have spawned subsequent optimization efforts, some focused on resolving original implementation issues and some focused on achieving benefits that could not have been anticipated earlier and became evident only after a wide audience of end users was actively working within the system. Importantly, though, there is not one correct approach to implementation. The approach really depends on the organization, its capabilities and objectives. However, limiting the scope of any given initiative can be an important factor in bringing about a successful conclusion.

There is tremendous value and opportunity in extending the power of information systems in clinical workflows. Organizations that have taken the first step are a good

deal closer to achieving those benefits than those that have not. But, there is little doubt that the quality of implementation activity incited by HITECH has been mixed.

Measuring ROI from HIT Investments

There has been some debate about the ROI associated with investments in advanced clinical systems and other clinical automation initiatives. Carla Smith emphasized in her September 2012 HIMSS blog that healthcare organizations have struggled to identify the ROI for these investments in part because they have not considered the right categories of return and that classic economic models related to ROI do not appropriately reflect the healthcare business.

She writes: "HIMSS recommends that health providers use the following areas to evaluate ROI:

- Efficiency savings
- Improved outcomes of care compared to pre-health IT implementation
- Additional revenue generated as a result of an IT implementation
- Non-financial gains, such as but not limited to, increased patient satisfaction with care encounters, decreased provider time at work, and higher levels of employee satisfaction
- Increased knowledge of providers about the patient population they serve."

The right model and associated categories of return will vary from organization to organization, but the ROI is absolutely there for most organizations over a 10-15 year period. However, no organization will get there without a rigorous focus on optimization.

What Is Optimization?

While any good software implementation will endeavor to use technology to improve the underlying business processes, we are learning, particularly with EHR implementations, that there is merit in viewing the performance improvement agenda as a multi-stage initiative that begins with the base implementation of the associated technology. Baseline implementations provide an important springboard from which organizations can meet future requirements. The continued improvement and extension of these systems and the processes they support is fundamental to the growth and future of most healthcare businesses, and is considered optimization. The Merriam-Webster dictionary defines optimization as "an act, process, or methodology of making something as fully perfect, functional, or effective as possible."

The thinking around optimization is new to most healthcare organizations and developing a structured approach to addressing this is prudent. Early adopters of EHRs are already experiencing the benefits of a structured optimization process firsthand. In an April 2012 HIMSS *Clinical Informatics Insight*, Thomas Smith, CIO of one of the first organizations to implement a complete EHR, credits several successful changes

and enhancements within his health system to the work of a dedicated optimization team. As an organization begins to think about the way in which it operationalizes optimization, it is important to consider two methods by which optimization can be addressed – reactive and proactive.

Reactive optimization (i.e., problem solving) is something with which most healthcare IT departments are familiar. The process of end-users calling the Help Desk with issues and questions is a mature one. However, this process typically deals only with issues related to the underlying technology, and calls are often funneled to systems analysts and rarely reviewed outside of the IT organization. In the future, organizations will need to utilize this process to capture information not only about technology-related issues, but also process-related issues. The pool of analysts solving problems should be broadened to include both process engineers and systems analysts. Ideally, the analysts responding to these issues would have both the process and systems knowledge necessary to resolve the issues at hand.

Proactive optimization is new to many organizations and is rooted in the principles of Total Quality Management (TQM), Continuous Quality Improvement (CQI), LEAN, etc. This new structure will systematically visit, review, assess, plan and modify application functions and processes to improve the overall effectiveness of healthcare workers, improve patient safety and address issues of cost.

A plan to visit each practice, department or facility is vital. Optimization analysts will re-educate staff on how to most effectively use application functions and will be in a position to evaluate how staff members adhere to the workflows established during the baseline implementation. In a 2012 study "Approaches and Challenges to Optimizing the Use of the Electronic Health Record in Primary Care," researchers identified the advantages optimization analysts saw using different approaches when working with leadership, primary care teams and individuals.

Optimization analysts will be in a unique position to make comparisons across like departments or practices and give practical tips to enhance the effectiveness of healthcare workers. Furthermore, their exposure to members from all levels of the organization will enable them to address the often difficult-to-manage tension between standardization and customization.

Optimization in Quality and Utilization Management Functions

When baseline implementations are complete and discreet clinical data that can be directly tied to utilization data is being collected, it becomes possible to base analysis of physician resource utilization on clinical outcomes and reinforce practice patterns and evidence-based medicine. The ability to work with your medical staff will be a powerful tool, not only from a position of utilization of resources but also in being able to tie that data

directly with clinical outcomes and variation to best practice, evidence-based medicine.

Healthcare organizations will need to consider how to position and staff an operational unit to accomplish the goals of optimization. Looking across the organization, optimization will touch many different existing departments. Focusing on the hospital environment, components of optimization will impact: IT Help Desk, IT systems analysis, Clinical Informatics and Quality Assurance/Utilization Management (QA/UM).

In order to take full advantage of these new tools, organizations should consider bringing together some facets of Clinical Informatics and QA/UM under a single department and re-chartering them to the work of optimization. Organizations will also need to look over Medical Staff bylaws and structures to determine if modifications are needed to accommodate the new concepts of optimization. In a future in which clinical processes and workflows are largely automated, the structures and people in place to support them will need to change accordingly.

Establishing a Monitored Optimization and Benefits Realization Program

Monitored optimization and benefits realization should be established as an ongoing program focused on identifying benefit objectives, setting specific targets and instituting processes, regular monitoring and tracking to ensure that these objectives are achieved. As a starting point, healthcare organizations should establish a baseline for key organizational metrics, then work across the organization to define objectives for each metric going forward, including timeframes and accountability by individual and/or department.

Deciding which measures to institute is an important first step. The organization can look in many different areas for potential objectives and measures. Starting with a plan that includes a current-state assessment and future-state design is critical. Pre-implementation planning will establish the limited scope of the implementation program and determine which initiatives can be better accomplished as part of an ongoing optimization program. Optimization planning following an EHR implementation should include an objective evaluation of the completed implementation project and establish initiatives to correct implementation problems and launch improvement initiatives. These initiatives can be folded into the Optimization framework and enhanced with better and more plentiful data collected. Organizations have the opportunity to revamp these quality initiatives to include actual data collected at the point of care, as opposed to proxies for this data, such as case mix and /or charge data.

Once the organization establishes the objectives and measures to pursue, the next step

is to put tools and procedures in place for status and tracking, overarching governance and project structure. Like any set of improvement projects, ongoing monitoring and reporting is necessary so the organization can adjust the mix of opportunities it is undertaking. Fundamental project management rigor is required to produce status reports and measurement tools that enable clinical and organizational leadership to evaluate and communicate project results and determine ongoing efforts in these spaces.

Because many system enhancements that enable more efficient and safer operations are not recognized until a wide audience of end users is actively working within the EHR, optimization efforts should be underscored as a significant undertaking to embark upon and maintain operational/resource investment. Optimization efforts should take on a form similar to the overall implementation project, whereby the regimented design, system build, testing, and change management processes adhered to during the initial implementation are facilitated with the same rigor.

A key component of any optimization program is working with clinicians to ensure effective system adoption and utilization, efficiencies in productivity and ease of use. However, many benefits of optimization are related to revenue cycle and operational efficiencies in addition to clinical effectiveness. Successful optimization initiatives typically span beyond clinical workflows and require resources well-versed in both clinical and revenue cycle operations working together to shape and reinforce the intended organizational change.

Many organizations view optimization through the limited lens of the individual provider's use of an EHR. It should be viewed much more broadly, and should be ROI-focused to maximize the benefits and return on the substantial investment these large clinical system projects represent.

Conclusion: To Find the ROI on HIT Investments, Optimization is Critical

Implementing clinical information systems is a significant investment that brings significant value. Healthcare providers should be responsible stewards of the funds they invest to ensure that they are maximizing their return on these initiatives. Models to accurately reflect both the costs and the return on these technologies are still developing, but the ROI is there.

To truly maximize ROI, healthcare organizations planning for technology implementation projects must view the implementation effort broadly and include a multi-stage, monitored optimization effort in their budgets and resourcing plans. Organizations that have completed base technology implementations should consider follow-up projects to achieve enhanced ROI by making optimization an ongoing organizational operation.

ABOUT CUMBERLAND CONSULTING GROUP

Cumberland Consulting Group is a national technology implementation and project management firm serving ambulatory, acute and post-acute healthcare providers. Through the implementation of new technologies, we help the nation's largest health systems advance the quality of patient care they deliver and improve overall business performance.

Our approach to IT planning is based on years of experience gained in dozens of successful implementations. We believe that proven methods combined with disciplined, rigorous but pragmatic project management delivers successful projects.

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