

BY BARRY P. CHAIKEN, MD

Clinical Transformation

Leveraging Health IT to *deliver safe, efficient care.*

Healthcare organizations implement clinical healthcare information technology (HIT) to achieve similar objectives: improve the quality of care, enhance patient safety, and eliminate inefficiencies in order to reduce the cost of care. Irrespective of the technology solution selected, however, implementing an expensive, comprehensive HIT system is nothing short of immensely disruptive to any organization. Senior management teams stake hard-earned reputations on the successful deployment of these very complex technology platforms.

Failure not only wastes millions of dollars of scarce investment resources,

but it also poisons, for a period of time, the goodwill among clinicians needed to implement these critical information technology tools. A successful implementation starts with a comprehensive implementation plan that accounts for the needs and workflow of physicians and other healthcare providers.

As each organization has its own “personality,” it is important for senior management to draw from its deep well of administrative, management, and technical expertise to construct a unique plan that secures a successful project. As individual systems are seldom implemented in isolation, the chosen HIT applications must

complement each other and work to enhance the new workflow required by these core clinical IT systems.

The deployment of one system significantly impacts other systems as the information flow of healthcare embraces great complexity. For example, laboratory systems that direct the flow of information usually just fit the needs of information flow within the laboratory department rather than that of the clinicians who are using the information for patient care. Such disparate goals and supporting IT structures exist throughout all clinical settings and must be overcome through clinical transformation to achieve a successful HIT deployment.



Just Building Interfaces Not Enough

Building interfaces that link the data from one system to another do not completely meet the needs of clinical information flow. The complexity of the data requires it to be exchanged with some level of context (e.g., laboratory ranges for a result, time of result, previous results, alerts) to make it meaningful. For example, within EMRs the external data may trigger an event (e.g., clinical guideline reminder triggered by a medication order – “check kidney function daily”). Therefore, all these systems, whether clinical or non-clinical require careful analysis to fully understand their relationship to each other. It is the quality of the designed workflow of the clinicians coupled with the capabilities of the HIT system that delivers the outcomes achieved. When well done the results can be outstanding. When done poorly, the results can be terrifying.

Below are some suggestions on what to think about both before, during, and after clinical HIT implementation. In addition, evaluation of an implementation does not end once the technical process is completed. Surveillance of results must continue for the life of the system in an effort to continually improve outcomes.

Current State Vs. Future State Implementation

Most organizations choose to minimize disruptions caused by HIT implementation by applying new technology to the current state of how clinicians deliver care. Current state describes, through diagrams and descriptive text, what activities are presently done. Documentation of the current state comes from clinicians and staff, at

every level, who perform these activities and follow the workflow of the current state.

Processes and workflows are redesigned once the technology is installed. Organizations often choose to implement before processes and workflows are revised for several reasons including: 1) Desire for a shorter length of time to go live, 2) Limited resources available to complete process redesigns, and 3) Unclear links between potential redesigns and overarching organization objectives.

A few organizations, however, decide to reengineer clinical processes based upon their desired future state before implementing the system. Future state defines what the current processes and workflows would look like after relevant changes took place in those current processes and workflows. This is usually developed with the involvement of those who participate in the current state (e.g., clinicians), experts in any new technology introduced, and trained professionals in quality improvement and process redesign.

Organizations that decide to utilize current state for implementation must study their current processes and understand the impact new HIT tools will have on those processes. In this instance, processes are not actively changed in anticipation of the new capabilities afforded by the HIT tools, but the new tools are used to facilitate current processes. For example, pharmacy orders that were formerly hand written are now generated by an order entry system and printed at the nurse station for delivery to the hospital pharmacy. There is no electronic transfer of drug orders to the pharmacy.

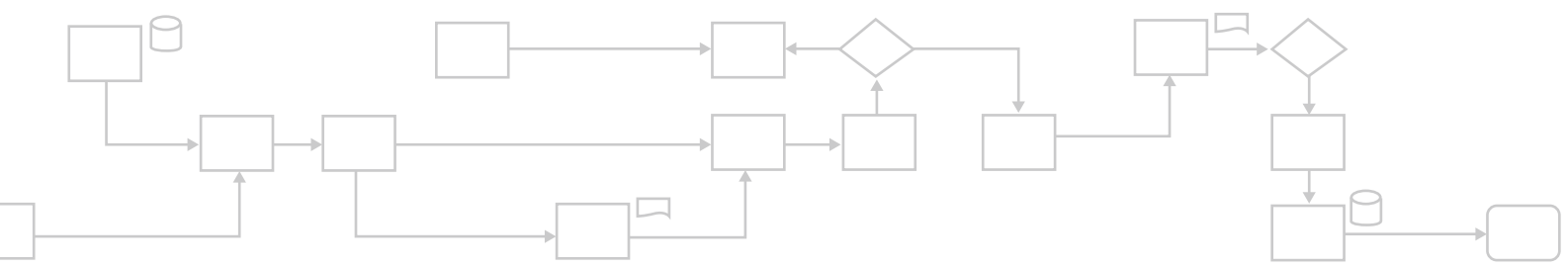
An alternative approach is to study existing processes but also creatively design new processes

that best leverage the capabilities of the HIT tools to deliver better processes, workflows, and outcomes. Unfortunately, the development of these best processes and workflows cannot be universally applied across any healthcare organization. Each institution is different requiring documentation of current state and development of a best future state that considers the realities of plant, people and resources. Finally, an organization's choice of either a current or future state implementation is greatly driven by organizational goals, administrative leadership and existing change management capabilities.

As implementation is disruptive to physician workflow, approaches that disrupt the physician workflow through measurable changes just once encourage higher levels of physician adoption of those changes when compared to implementations that deliver step-wise workflow re-engineering. Therefore, future state implementations offer higher rates of overall physician adoption if an organization intends to include clinical process redesign in their plans for HIT system implementation.

Measure Both Clinical and Non-Clinical Outcomes

Change in workflow and processes require continual monitoring of outcomes. This feedback loop allows for the evaluation of best practices and the implementation of necessary modification of processes and workflows to achieve organizational quality and cost targets. In addition, added features and functions of upgraded system applications may offer opportunities for improvement of outcomes. Only through continual evaluation of outcomes and



frequent analysis of processes can allow an organization take advantage of the opportunities presented by any new system capabilities.

It is important to align IT department goals with overall project goals. Due to their professional training, IT departments often become focused on getting the hardware and software “right” rather than the entire project. Successful deployments are not measured by installation timelines, response times, or number of working systems. Measurements for successful deployment of HIT systems must be linked to an organization’s specific patient care goals and objectives. These invari-

ably include quality of care, patient safety, and cost metrics. ahead with a new system, often allow their enthusiasm to overwhelm their professional judgment. In more rational moments, both know that extended and detailed planning greatly increases the likelihood that a deployment ends successfully. Although physicians and nurses, after viewing a demonstration of a clinical system, may be wowed by its capabilities, organizations need to realize that live production systems do not match the flexibility and response time of demonstration systems that are tweaked to deliver the best performance.

Budgeting a minimum of four to five months to plan a deployment is

exemplary team leadership, and organization-wide patience to coordinate all the people critical to the project. Nevertheless, establishing a project’s overriding goals and objectives, and communicating those clearly to every person involved in the clinical HIT deployment, sets a meaningful direction for the project that can be followed by everyone.

Processes and workflows drive outcomes with or without HIT. Irrespective whether these processes and workflows are redesigned before or after deployment to take advantage of the capabilities of an HIT system, the processes and workflows will require revision. Therefore, it is

Successful deployment of HIT systems must be linked to an organization’s *specific patient care goals and objectives*

ably include quality of care, patient safety, and cost metrics.

Clinical departments may use medical error rates, clinician efficiency, and billing accuracy as their metrics. In parallel, IT departments may use percent of clinicians as users, user satisfaction, and average time using the system as surrogate metrics to measure success. The development of a comprehensive deployment plan that includes rework of clinical processes and revised workflow driven by HIT, in addition to the obvious hardware installation activities, greatly increases the likelihood of securing expected outcomes from clinical HIT deployment.

Practice Patience To Achieve a Successful Implementation

Both healthcare organizations and vendors, excited about forging

both prudent and necessary. During this time information is collected to better understand how the HIT system fits into the existing technology infrastructure, physical plant, and most importantly, clinical processes. In addition to planning, this pre-implementation time can be used to stage the necessary equipment (e.g., computers, desks, electrical supply, etc.) while securing the additional IT services (e.g., data center for backup) to guarantee a reliable system. Lastly, when developing an implementation timeline, consider all forces that may be driving both your organization and the vendor at a particular speed down a deployment path.

Summary and Recommendation

Without question, successful deployment of a clinical HIT system requires comprehensive planning,

recommended to include the revision of clinical processes and workflows in the pre-deployment planning so that a major change process occurs only once rather than twice. Although this may extend the planning period, it decreases any post-deployment rework of clinical processes and workflows. In addition, this approach will prove less confusing to the clinical users as they are required to only change their clinical habits once.

It is tempting to organizations to exclude the difficult task of revising clinical processes and workflows during the deployment planning and schedule it for the post-deployment time period. Such a decision greatly increases the probability that this later revision will prove problematic or not even get done. Therefore, when implementing a clinical HIT system take a comprehensive, visionary approach, care-

fully plan the change management for revised processes and workflows, and stay focused on the overarching project goals and objectives linked to patient care. Only then can an organization achieve true clinical transformation. ♦

FURTHER READING

Chaiken BP. Revolutionary HIT: Cure for Insanity. *Patient Safety and Quality Healthcare*. 2007;4(6):10-11.

Chaiken BP. Eyes Wide Open: Buying Clinical IT. *Patient Safety and Quality Healthcare*. 2007;4(1):6-7.

Chaiken BP. Patient Flow: A Powerful Tool that Transforms Care. *Patient Safety and Quality Healthcare*. 2007;4(3):6-7.

Chaiken BP, Christian CE, Johnson L. Quality and efficiency successes leveraging IT and new processes. *Journal of Health Information Management*. 2007;24(1):48-53.

Chaiken BP. Path Innovation: Transcending Automation. *Patient Safety and Quality Healthcare*. 2005;2(3):46-47.

Chaiken BP. Healthcare IT solutions. In K. H. Cohn and D. E. Hough (Eds.), *The Business of Healthcare, Vol. 3, Improving systems of care*. p.119-141.

Praeger, Westport, CT.
Chaiken BP. Business Intelligence: Mining for Information. *Patient Safety and Quality Healthcare*. 2007;4(4):6-7.



WELCOME TO EVOLVENT'S HEALTHCARE TEAM

