

Clinical Transformation: IT Embraces Patient Care

EXECUTIVE SUMMARY

One of the most remarkable discussions from this year's Scottsdale Institute conference arose during the first day's CEO panel. Several executives noted that pressures on the healthcare system were so great that it was about ready to implode and that healthcare as we know it could cease to exist in the next two to five years. Our keynote speaker David Burik declared that healthcare was at a major crossroads.

We like to recall at such moments the fact that the Chinese symbol for crisis is the same as that for opportunity. Instead of bewailing the loss of the old framework, we can choose to celebrate the opportunity this moment offers for creative solutions. "Clinical Transformation," the topic of this month's report, is part of the overall business transformation that healthcare is undergoing. It represents the effort to transform healthcare from the inside out, focusing on the core business of patient care, better correlating that to business processes and work flow and then managing the business from the clinical core throughout all business and administrative processes, using all the tools at our disposal.

Transformation involves multidimensional change and is almost always cultural.

This report takes a look at how two organizations—Mayo Clinic Jacksonville and Trinity Health—are grappling with the issue of clinical transformation. While no single organization has achieved transformation, it's clear that it's a path that the industry has to take. The alternative may just be too dire to comprehend.



More than a slogan

Clinical transformation is a structured approach that uses technology, process improvement and evidence-based medicine to achieve clinical excellence, says Mitch Morris, MD, VP and managing director of clinical practices at First Consulting Group. Implicit in the strategy is the use of clinical outcomes to measure success.

What differentiates clinical transformation from being more than just a new slogan for something hospitals have been doing for years, he says, is that in the past, hospitals were simultaneously focused on two different approaches:

1. Installing clinical software without changing old work processes.
2. Enacting quality assurance programs that did not fundamentally change the way care was delivered.

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**Mitch Morris, MD,
VP and Managing Director
of Clinical Practices,
First Consulting Group**



We've been trying to solve the fundamental problems of health-care by overlaying approaches 1 and 2 on them. The real

problems are:

- We haven't known what the most effective practices were because the data was insufficient, and
- There has been a cultural unwillingness to deploy those practices in a standardized way (even when we did know what the best practices were).

While both advanced clinical software and improved work processes are necessary to achieving clinical excellence, they are insufficient. It's also critical to add a third component, evidence-based practice, to the mix. "An organization has to tackle the important question of how it assimilates evidence-based, best practices and incorporates them into the patterns of medical practice," says Morris, formerly at UTMD Anderson Cancer Center in Houston. Included in that strategy are physician order sets, interdisciplinary documentation and alerts and reminders associated with computerized physician order entry (CPOE).

Evidence-based medicine involves the use of protocols and guidelines for specific patient conditions. Those guidelines are distilled from a body of evidence that medical research has built up and is available in the scientific literature. For example, from research it's clear that a heart attack patient

should leave the hospital on beta blockers, yet studies have also shown that as many as 30% of those patients go home without beta blockers.

Under a clinical transformation scenario, this best practice would be incorporated into an automated reminder in the clinical information system (IS). The system would also include mechanisms for monitoring and follow-up to ensure compliance.

Favorable factors

An order set is a combination of best practices that answer questions like "What are the criteria for taking a patient off a respirator?" or "What is the best time to put a patient on an oral diet?" Packaged with the set of orders is the documentation of expected outcomes to make it possible to not only document care but document the outcome of it as well.

Take the example of pneumonia. Best practices would answer what type of antibiotics the patient should be given and when to switch them. An order set for pneumonia would stipulate best practices to be followed by the entire clinical team, including physician, pharmacist and nurse.

According to Morris, the reason clinical transformation is more than just a new name for an old strategy is that several favorable factors are now in play that weren't previously. Software, for example, wasn't capable until today of handling the complexity and scale necessary for evidence-based medicine. Also, from an operational perspective, the traditional silos that separated executives—CEOs, COOs, CMOs, CIOs and CNOs—and kept them from working together on an enterprise-wide solution, such as transforming the clinical environment, are dissolving.



Scottsdale Institute is proud to welcome new member Trinity Health.

Based in Novi, Mich., and with annual revenue of \$4.5 billion, Trinity was created by the consolidation of Holy Cross Health System and Mercy Health Services and is the 3rd largest Catholic health system in the U.S. based on net patient revenue. It has 43,100 full-time equivalent employees, 7,000 physicians and 26 member and service organizations encompassing 47 hospitals (some are owned, some managed), 366 outpatient clinics, numerous long-term care facilities, home health and hospice programs, and senior housing communities in 7 states.

Welcome President and CEO Judith Pelham, Chief Operating Officer Edgar Carlson, Chief Financial Officer James Combes, Senior Vice President, Mission Integration Sister M. Gretchen Elliott, RSM, Executive Vice President Western Division Marsha Casey, Executive Vice President – Michigan Michael A. Slubowski, Executive Vice President, Clinical and Physician Services Bruce Van Cleve, MD, Senior Vice President and CIO Jim Elert, Vice President of Project Management Office Paul Browne and the entire Trinity Health team.

George Conklin, Sr. VP and CIO at CHRISTUS Health in Houston, says, “True, we didn’t have a lot of the computing power and software techniques needed to do what we can do today, but where there has been a will there has been a way. Witness LDS Hospital [in Salt Lake City] and the [homegrown] HELP system. There is a much greater readiness now to accept these systems, hence the heightened interest. That readiness is driven by outside forces such as Leapfrog, JCAHO and the IOM report, but it is the cultural transformation that is leading to more and more acceptance of these tools.”

Some obstacles dissolving

“Some of the flaws in the healthcare system that posed obstacles to transformation are being corrected,” Morris says, adding that there are also new and stronger quality mandates from professional and accrediting groups like JCAHO and the California Medical Association. However, band-aid solutions won’t work; ultimately the system requires transformation.

Hospital CEOs have become aware of the need to achieve clinical excellence and quality and that technology is an integral aspect of that task. “Where they struggle is in finding a methodology and tool set. They also often find that their organizations are not always structured right or do not have the resources to accomplish the goal,” says Morris. It’s important that the CEO become the inspired executive sponsor of the transformation effort, not in terms of day-to-day responsibility but in terms of overall direction and emphasis. Short of that support, it’s unlikely such a long-term change can take root, he says. The change will require a long, sustained effort and will not come easy, which is why top-executive leadership is required.

The benefits are worth the effort:

- Improved clinical outcomes
- Decreased variability in practice
- Improved efficiency
- Improved revenue cycle
- Improved patient, staff and physician satisfaction
- Better information for executive decision-makers
- Increased market share
- Potentially higher staff productivity and more meaningful work

No single organization has achieved complete clinical transformation. However, many are on their way. Unfortunately, many cash-strapped organizations decide they can’t afford a complete transformation program and opt to just implement the software. “That’s not a good idea. What they end up doing is just locking in old work processes, eventually having to rip everything out and start over,” says Morris.

A case in point is CPOE, which many organizations find prohibitively expensive. “The question is, can you afford not to do CPOE? You’ve got to do it because of requirements coming out of JCAHO alone. It doesn’t mean transformation must be achieved in the next six months, but it must be in the next two to four years if you understand the pressures, including having to do more with less revenue, labor shortages and patient safety and regulatory issues. Technology is a major tool to address those challenges.”

Trinity Health

Novi, Mich.-based Trinity Health, an IDN with 30-plus owned hospitals scattered across the country, is spending about \$120 million to replace much of its clinical and administrative

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information systems, according to Paul Browne, VP of project management. The effort began soon after Mercy Health Services and Holy Cross Health Services merged to form Trinity in 2000 and developed a strategic plan focused on improving clinical quality to benchmark levels.

TRINITY HEALTH



Paul Browne, Vice President of Project Management Office, Trinity Health

The organization selected about 20 nationally-recognized clinical quality indicators with the goal that Trinity hospitals would achieve a ranking of the 75th percentile or better within three to five years, measured on

a regular basis over all the hospitals. Trinity developed a color-coded monitoring report to depict each hospital's progress, with green designating hospitals that meet or exceed the goal, yellow meaning close but not quite at the goal and red for those still off target.

A team within clinical and physician services, including clinical data analysts, collects the required data and reviews the indicators. If more hospitals are red than green for a particular indicator, the group gathers Trinity experts from that area and builds clinical performance toolkits specifically targeted at improving quality as measured by the indicators.

The toolkits, which reside on Trinity's intranet, consist of several components and may include:

- Protocols or pathways
- Educational materials

- Documentation forms
- Databases to track performance

Toolkit for broken hearts

For example, a toolkit for congestive heart failure (CHF) patients might include tools for tracking weight changes of those patients after they've left the hospital. "The toolkits are positioned as a consultative approach rather than as forced compliance," Browne notes.

"From an IT perspective, we're implementing a single, integrated clinical IS in order to improve safety and quality through an integrated, longitudinal patient record. Our goal is to use the clinical system to reinforce the toolkit." In another example, a toolkit whose clinical indicator stipulated that a heart attack patient should receive beta blockers within a certain period would involve flashing alerts to that effect on a screen whenever a physician makes orders.

"Trinity Health is trying to differentiate itself through quality care and patient safety," says Browne. It helps that computer use is penetrating the population of nurses and physicians more and more to the point where it's almost become routine. "People expect computers to be part of daily business, they're seen as an integral part of the process."

The first site will go live on the new clinical system in March 2003. As a precursor, Trinity installed a clinical data repository (CDR) last May, which is operational today at two-thirds of its hospitals. "The way physicians use it is just to view information, they're not yet entering orders. We put the CDR and viewer in place ahead of time so people can get accustomed to seeing a holistic view and so a year from now will proactively enter information into the system."

So far, so good. The system is being well received. “From a clinician’s perspective, it’s possible to go to one location and see all of a patient’s information rather than have to go to multiple systems.”

Mayo Jacksonville

In 1992, Mayo Clinic in Jacksonville, Fla. launched a clinical transformation initiative aimed at increasing efficiency and cutting costs while improving quality. The organization decided the best platform upon which to achieve those goals was a single integrated IT architecture that would link Mayo’s 300 Jacksonville physicians and 130 residents and accommodate the clinic’s 60,000 annual patient registrations, 400,000 patient visits, 12,000 surgeries and 15,000 in-patient admissions at its 289-bed hospital. Most of those patients come from the southeastern United States.

Since 1996, all outpatient ordering, billing and medical records at Mayo Jacksonville have been paperless. All reports created before 1996 are now scanned and converted to digital documents as necessary. About three years ago the clinic moved all its paper medical records to a warehouse. “Today, the medical records department’s primary roles are the release of information to patients and insurers, scanning, and handling signed releases, which are still paper,” says John Mentel, MD, chair of the department of applied informatics.

Mayo Jacksonville is bringing its hospital up to par with the outpatient systems in stages. Currently, the hospital is approximately 50% automated.

“Radiology has been filmless for years,” says Mentel.



**John Mentel, MD,
Chair - Department of
Applied Informatics,
Mayo Clinic
Jacksonville**

All dictation is online. “The only nut we haven’t cracked is the physician’s progress notes at the hospital during daily rounds. PDAs [personal digital assistants] have too small a screen display. For the moment we’re staying with the handwritten note, which we scan into the computer,” Mentel says.

Eliminating blobs of data

The system is being designed around discrete data, meaning that a doctor “builds” a note using certain data elements. For example, the term “substernal,” can be used to describe a pain site associated with specific conditions or complaints of chest pain. All tests, including those for routine physicals, are handled the same way. A physician can point and click to predetermined elements that put the clinical notes into a structured format, thus facilitating later outcomes research.

“By eliminating rambling text, which is just a blob of data, we can automate the research process. For example, we can track all data related to chest pain or MIs [myocardial infarctions],” Mentel explains.

All applications, including medical records, registration, scheduling—everything except billing interfaces—have been integrated into the clinical system. Even the

The main cultural hurdle to clinical transformation at the hospital involves CPOE, which is expected to be fully implemented this summer. “We’ve piloted CPOE but we need to refine the applications,” he says.

Trinity developed a color-coded monitoring report to depict each hospital’s progress in terms of clinical quality indicators, with green designating hospitals that meet or exceed the goal, yellow meaning close but not quite at the goal and red for those still off target.

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Siemens radiology system, which uses electronic images as well as voice-recognition technology for typed reports, is integrated into the core clinical system.

However, the technology is only part—and perhaps the easiest part—of the equation. “You could house schools of sociology, psychology and business here with all the lessons we’ve learned in the process,” declares Mentel. “There are so many challenges, so many parts to this animal.”

Pushing the automation envelope

One challenge: the scale of Mayo Jacksonville is stressing the core system. “Our transaction volume is really pushing the automation,” says Mentel, adding that the way the database is populated and the bandwidth of the network are among the factors that can slow information sharing. “A CT scan here is about 400 images and we’re talking about doing 3-D reconstructions, which require a great deal of bandwidth,” he says.

To handle that kind of data-intensive traffic, Mayo Jacksonville has built a gigabit-speed, fiber-optic network backbone. Despite the technological aggressiveness, however, there’s regular demand for more advanced IT. “Users are usually faster than we are,” acknowledges Mentel. That means there’s a continual effort to upgrade network technology to stay abreast of user needs.

Mayo Jacksonville has emphasized enterprise infrastructure for a reason. “The fear was that if we became too focused on the components of automation - departments like GI, hematology and so on - we’d never get to the enterprise level. We said, ‘Let’s get the infrastructure done this summer, and in the second tier, we’ll focus on departmental

automation, which will also involve developing rule sets based on pathways and guidelines’. Those rules sets can occupy an army,” Mentel warns.

“The lingua franca is improving quality and reducing errors, but if you don’t integrate everything, if you don’t have a framework and infrastructure built up, then all you’ve got is an ordering system,” he says.

We are the champions

“Change is the really hard part, especially nowadays with declining reimbursement and staff shortages. If you can find a champion, a visionary in a specialized clinical area, include them in the process and they convince the others that the reward is higher quality at a lower cost, then it becomes hard to argue with that person.”

Every implementation team also has a leader from IS, an executive champion and a person representing the vendor.

There are two components to savings resulting from the initiative:

1. Measured savings, from FTEs eliminated, for example.
2. Measured and estimated savings (more difficult to identify) from factors such as captured lost charges, improved coding of services and improved physician productivity.

Mentel estimates that Mayo Jacksonville has seen an internal rate of return from measured savings of around 20%, and if one uses the measured and estimated savings data, around 30%. “It’s got to pay for itself, period,” Mentel says.

“The Leapfrog Group standards are the easy ones, the low-hanging fruit. It will take years [to standardize care]. This is a much bigger task than people realize.”

Conclusion: Profound and lasting



Jeff Rose, MD
Chief Medical Officer,
Cerner Corporation

Jeff Rose, MD, chief medical officer for Cerner Corp., defines transformation as “A state of *profound, lasting* individual and organization behavior, enabled by *strategic acceptance* of informa-

tion systems, resulting in health practices of optimum value, safety and appropriateness.”

Transformation implies adopting a different belief system about care than is currently the status quo, a willingness to provide care in new and unique ways. According to Rose, transformed healthcare systems:

- Have a knowledge of and perform *all* interventions that have a demonstrable positive impact on health status of individuals and populations (*VALUE*);
- Have a knowledge of and perform *no* interventions that have a demonstrably negative impact on the health of individuals or populations (*SAFETY*);
- Have knowledge of and perform *no* interventions that have no demonstrably

positive impact on the health status of individuals and populations (*APPROPRIATENESS*).

To get there requires IT tools, but they alone are insufficient. “There’s a huge cultural piece. The problem is not with technology in most of these cases, it is with leadership and human change management,” says Rose.

He cites statistics showing that nearly a third of IT projects are cancelled before completion, more than 50% overrun cost estimates by 200% and less than 2% of healthcare CIOs have succeeded in putting in comprehensive clinical information systems. Nearly two-thirds of major organizational change efforts of all kinds fail because organizations underestimate the required effort, expertise and intensity of “change management.” This is especially true in clinical transformation because clinicians fear IT initiatives will:

- Waste their time;
- Cost them money;
- Interfere with their autonomy;
- Interrupt their work or thought processes;
- Make them ‘change.’

Understanding and sharing this threat is the critical step in managing the transition, says Rose. “It’s critical to convey to physicians that IT in clinical practice is the key to their recovered autonomy as well as improved safety, appropriateness and quality in medical practice. It is arguably the most significant beneficial medical advance since antisepsis.”

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HOLD THE DATES:

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