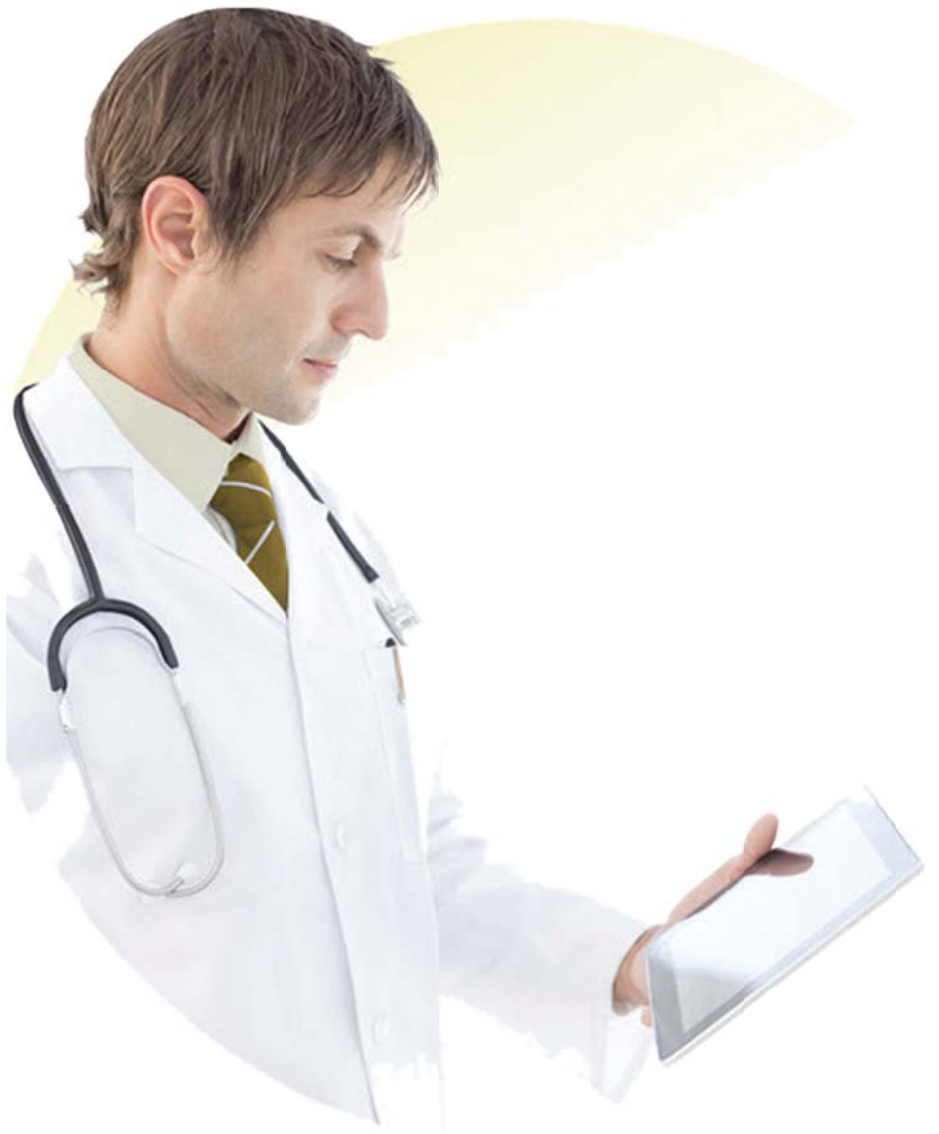




HIMSS Analytics

HIMSS Analytics Stage 7 Case Study

Cleveland Clinic

Profile

Cleveland Clinic is a nonprofit, multispecialty academic medical center that integrates clinical and hospital care with research and education. It was founded in 1921 by four physicians with a vision of providing outstanding patient care based upon the principles of cooperation, compassion and innovation. Today, with more than 1,440 beds at its main campus and more than 4,450 total beds throughout the system, the organization is led by a physician group of more than 4,000 employed staff. Cleveland Clinic's Institute model combines specialties around individual organs or disease systems, creating integrated practice units that facilitate the highest level of collaboration and patient-centered care. As one of the largest and most respected hospitals in the country, Cleveland Clinic is consistently named as one of the nation's best hospitals in U.S. News & World Report's "America's Best Hospitals" survey, with a heart and surgery program that has been ranked No. 1 each year since 1995. Cleveland Clinic attained HIMSS Analytics Ambulatory EMR Adoption ModelSM Stage 7 status in November of 2014.

The Challenge

One commonly sighted approach to achieving a more "value-based" healthcare model is to design and implement a series of provider-determined, evidence-based treatment standards that can help reduce unnecessary variation when applied to the care of specified patient populations. Without inhibiting the best judgment of experienced clinicians, standardized treatment plans can help ensure that quantified best practices are consistently applied while highlighting those instances where individual patient needs may vary according to situation and circumstance. Costs savings can be realized when providers safely minimize the potential for unnecessary or redundant testing, reduce time-to-treatment, and shorten the average length-of-stay associated with a patient's care cycle. And patient and provider satisfaction can be positively impacted when complications or other issues are reduced or avoided.

But to be effective, particularly in a large, multispecialty group practice, a standardized path of care must accurately reflect the accumulated experience and expertise of all the various medical professionals who participate in delivering care. These treatment plans must also be integrated into provider workflows with as little disruption as possible; enable effective care coordination over time and distance; and, for the purposes of quality measurement, continuous improvement, and payer reporting, promote accurate and detailed clinical documentation. Finally, these plans must be capable of streamlining provider communication while connecting patients to the kind of customized educational opportunities that can help reduce the anxiety caused by uncertainty and increase compliance by promoting a patient's sense of participating and engagement.

At Cleveland Clinic, our challenge was to create a process that would allow multiple providers to devise, build and deliver non-proscriptive standardized care to identified patient populations. We wanted to do this in a way that would promote best practices, create a dynamic data set to guide ongoing knowledge generation, and bring

clinicians and patients together through a common set of tools. We call our solution to this challenge “Cleveland Clinic Technology-enabled Care Paths.”

Implementation Overview

Cleveland Clinic technology-enabled Care Paths are an example of our group practice’s effort to positively redefine our 21st century model of care. Reflecting our organization’s multidisciplinary team approach and “patients first” Institute alignment structure, our technology-enabled Care Path development process includes people, process and technologies engineered to accomplish real clinical outcome, financial, and patient experience improvements. Connecting the various coordinated processes, functional requirements and information management components of each Care Path is a common information technology infrastructure that is available in all Cleveland Clinic locations and facilities. While implementation of our ambulatory Epic electronic health record (EHR) platform occurred over a decade ago, and our inpatient platform was implemented over eight years ago, our physician-led advisory teams continue guiding ongoing system modifications designed to help our caregivers deliver the highest care possible.

For our first defined technology-enabled Care Path, a total hip and total knee replacement, we assembled a multidisciplinary team that included direct care providers from our Orthopedic and Rheumatologic Institute, various application, technology and analytics experts, and administrative representatives with experience in multiple operational environments. Redesign of the care process began with the creation of a clinical Care Guide developed around best practices for these target conditions. Care redesign started in the ambulatory setting where a patient’s eligibility for a procedure is determined through a standardized pre-operative patient assessment and evaluation that captures a combination of patient- and nursing-entered data. This discrete information is used to calculate a Skilled Nursing Facility (SNF) Risk Score which helps determine the likelihood that a patient will require discharge to a SNF post-operatively.

EHR tools were also developed to facilitate the standardization of care and reduction in care variation efforts, including, but not limited to documentation templates, flow sheets, and order sets. Finally, analytic outcome measures were developed in four areas: process of care; quality; patient experience; and financial and other structured reporting interactions. A transparent dashboard of all providers now functions as a management tool.

Resulting Value / ROI

Initially, there was a progressive implementation of our technology-enabled Care Paths. Patients were captured either on or off the Care Path in the EHR and measured independently. In general, patients who have been placed on a Care Path show improved outcomes when compared to patients not on a Care Path in almost all

measures. While identical measures were captured for both total hip and total knee replacement patients and similar results were observed, the following information is reported for total hip replacement patients only.

- **Process of Care**

One measure inside the process of care relates to blood utilization, and another involves the use of standardized documentation. Pre-operative assessment of anemia was determined and with other standardization efforts there was an overall 48% drop in blood utilization, and a 400% improvement in use of structured template documentation from the time the Care Path went live in 2013 through the end of 2014.

- **Quality**

Among several metrics in this area, peri-operative measures, including those in the National Surgical Quality Improvement Program (NSQIP[®]) group, all-cause 30 day readmission rates, average length of stay (LOS), and percent of patients discharged home are measured as part of the Care Path experience. Of note are the 11% reduction in LOS, and 7% increase in home-going patients without significant change in readmission rates recorded for patients following a technology-enabled Care Path.

- **Patient Experience**

Important to patients are their pain management plans and their ability to communicate with their care team. Both of these measures have remained stable for Care Path patients, despite the pressure on the quality measures above.

- **Financial**

The final group of measures involves the overall cost of care. From 2013 to 2014, streamlining the care process efforts has afforded an average 9% per case overall cost reduction with a 3% per case drop in implant cost.

- **Service Improvements**

Understandably, there are multiple other service improvements which accompany Cleveland Clinic's Care Path effort, including:

- o A team of care coordinators follow the patients throughout their course of care, helping to communicate and facilitate the various steps in the care process
- o Hip and Knee outcome scores (Hip Disability and Osteoarthritis Outcome [HOOS] and Knee Injury and Osteoarthritis Outcome [KOOS]) are obtained from patient input at various intervals to track overall progress

Lessons Learned

Building on the success of the first of Cleveland Clinic's technology-enabled Care Path initiatives, which involved the focused effort of our Orthopedic and Rheumatologic Institute, other Institutes and specialties have initiated

similar development projects. Some significant lessons learned from these ongoing efforts include:

- The need to integrate technology teams directly into the operational dynamic of a multidisciplinary practice so that the clinical functions and processes that clinicians use can be translated through the EHR in the ways that the clinicians themselves determine will be most useful
- The inestimable value of close cooperation and partnership inside the multidisciplinary teams of clinicians and technology professionals who are called upon to accomplish true care redesign
- The realization that technology-enabled components of an effectively Care Path must accurately reflect the practical and dynamic clinical processes that are most effectively expressed in the best practices and collective expertise of experienced clinician caregivers

The final lesson learned during Cleveland Clinic's Care Path experience was the critical value of communication between team members, leadership, management, administration and patients. One of the greatest benefits of integrated technology systems is the connectivity created between groups and individuals. By leveraging this connectivity, and including communication efforts throughout the development, implementation, and application processes, caregivers and patients can make the patient / physician relationship the central concern of further patient-centered, technology-enabled care model redesign.

I think of bringing together multiple caregivers with a range of skills and experience to design, build, and implement a Cleveland Clinic technology enabled Care Path as our team approach to individualized care. It effectively aligns functional IT capabilities with the practical needs of busy clinicians, as expressed by the clinicians themselves. That level of collaboration is, I believe, a model for success in any complex, demanding endeavor.

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