

Improving Quality Through Automated Chart Abstraction:

Reading Hospital Launches Soarian® Quality Measures

Case Study

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Reading Hospital

The Reading Hospital and Medical Center (Reading) located in West Reading, Pennsylvania, is a leader in tertiary care and provides comprehensive acute care, post-acute rehabilitation, behavioral, and occupational health services. Reading focuses on compassionate, accessible, high quality, and cost effective healthcare for the community.

A regional referral center for cardiac, cancer, neonatology, behavioral health, and orthopedic services, Reading perennially ranks among the top four Pennsylvania hospitals in patient admissions, surgical procedures, emergency care volume, and outpatient services.

Known for its clinical excellence, Reading experiences approximately 32,000 admissions and provides more than 3.7 million outpatient services each year. It is also a state leader in surgical volume, with nearly 27,000 procedures annually.

As an 800-bed facility, the medical staff exceeds 600 physicians in 50 clinical specialties. Additionally, Reading employs more than 5,400 men and women in both clinical and support services.

Background

The Documentation and Quality Review (DQR) department at Reading Hospital is responsible for abstracting and reporting the core measures from the Centers for Medicare & Medicaid Services (CMS) and The Joint Commission. The DQR team has 10 full-time abstractors, two data entry specialists and one supervisor. For core measures, the team abstracts and reports on Congestive Heart Failure (CHF), Acute Myocardial Infarction (AMI), Community Acquired Pneumonia (CAP), and the Surgical Care Improvement Project (SCIP).

Per hospital guidelines, the time allotted for medical staff to submit all clinical documentation is 30 days from the date of discharge. The record is then reviewed by the coding department, where all procedures and conditions are identified. Upon completion of coding, patient records that qualify for core measure abstraction are routed to DQR.

The DQR team abstracts records on a month-by-month basis. The process requires the abstractor to carefully review each patient record, manually locating proper evidence to respond to each core measure data element. Paper forms are

filled out, entering information such as patient demographics, diagnosis and procedure codes, and drug administration details. After the abstraction of all charts for a given month is completed, subsets of records are selected for a pre-submission clinical review as part of an internal audit process at Reading. The DQR team has the responsibility to participate in these reviews, contributing its expertise and knowledge of the core measure guidelines. Once the clinical review is completed, the abstraction results are manually entered into Reading's submission vendor software, checked for errors and submitted to CMS and The Joint Commission. If errors are detected during data entry, the record is sent back to the abstraction team for further review. Additionally, any error found in diagnosis or procedure codes is returned to coding for correction. These modifications can add considerable delay in processing the data for submission.

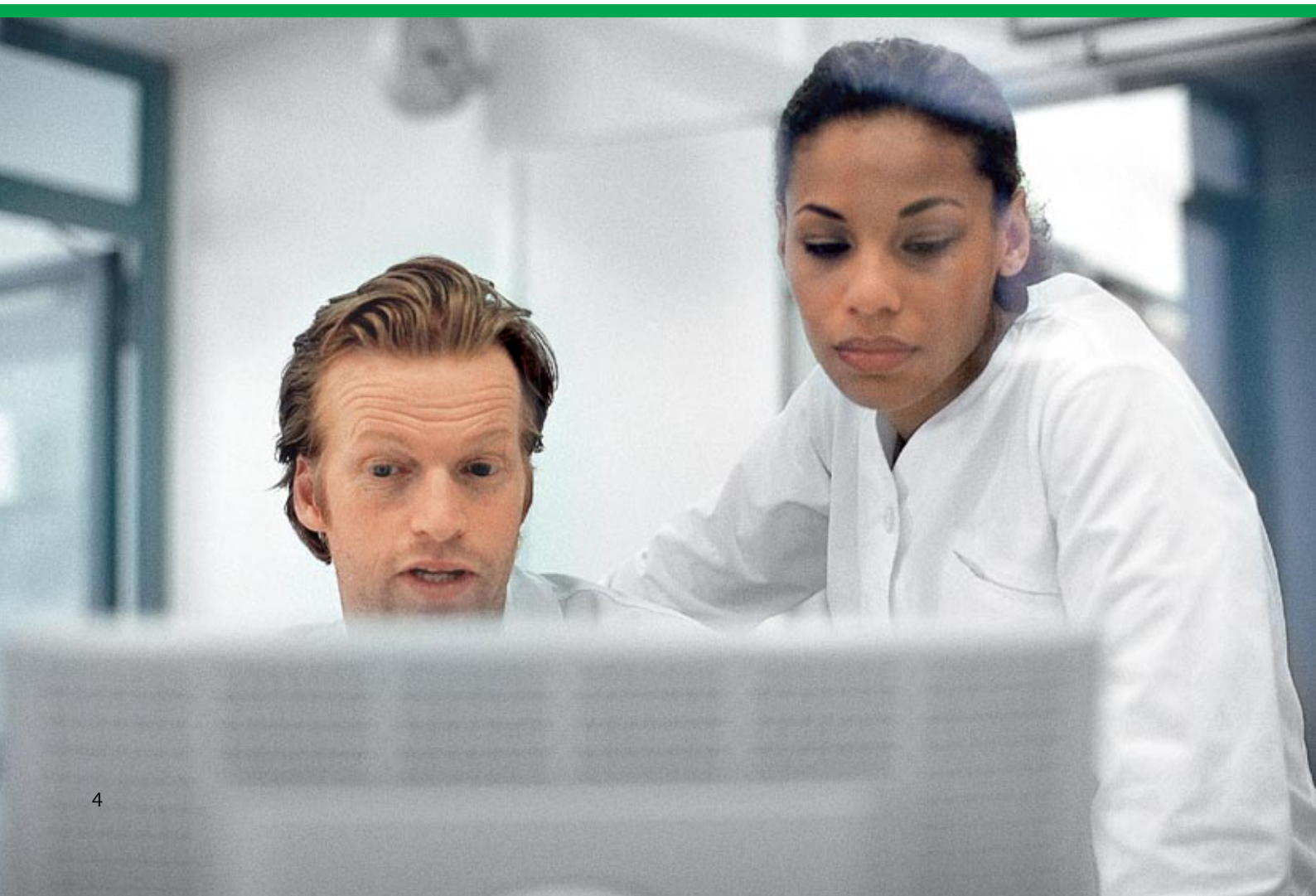
Challenge

CMS continues to encourage the delivery of high quality care with an additional emphasis on the transparency of hospital results and reporting, creating a link to payment incentives. This dynamic transformation is supported and dependent upon an ever-increasing number of quality measures. In order to address this ongoing challenge, effective and efficient reporting is critical.

As with many institutions, Reading's manual abstraction process was very labor intensive and it sought to alleviate the burden on the DQR staff. The

process required a significant time investment to abstract and document the quality of care data, as well as continually retrain the staff every six months to adhere to the new quality guidelines.

The two major challenges for Reading were to increase process efficiencies and decrease the time from abstraction to data submission. Its target was to complete all core measure abstractions, providing results to the clinical review team within 30 days after patient discharge.



Solution/Implementation

To overcome these challenges and improve efficiencies in data reporting, Reading implemented Soarian® Quality Measures, a data analysis tool designed specifically to automatically extract core measure information from an electronic patient record. Soarian Quality Measures is powered by the patented, award-winning REMIND™ (Reliable Extraction and Meaningful Inference from Non-structured Data) Platform, which utilizes natural language processing, data combination, and probabilistic inference to analyze data. This REMIND platform allows Soarian Quality Measures to search through a patient record and automatically extract information specific to core measure reporting. Analysis is performed on structured data, such as ICD9-CM codes and patient demographics, in addition to unstructured free text found in documents such as history and physical, discharge summary, and radiology reports. The analysis generates conclusions and provides a pre-defined response to each core measure data element. By using Soarian Quality Measures, the abstractor is freed from the tedious task of manually searching through records to locate relevant information, as the pertinent data is automatically identified by the application, significantly saving time during data collection.

Although Reading did not have a fully digital patient record, a variety of data were stored electronically that could be utilized by Soarian Quality Measures. Reading's data sources included INVISION® COR and LCR for recording billing data, demographics, physician consults and other transcribed reports, lab results, and drug administration records. Data from the Operating Room were stored in third-party systems. Nursing notes, physician orders, and discharge information were not available electronically, and documented in paper form only.

Reading's utilization of Soarian Quality Measures for abstraction began in May 2007, starting with Heart Failure and AMI, and followed by CAP and SCIP. As part of the installation process, Reading established a schedule where visit information was automatically extracted from INVISION and other available data sources on a weekly basis. Analysis of the extracted data by Soarian Quality Measures determined which patients qualified for each core measure set, and also pre-determined the response to each data element based on evidence found in the patient record. The results of the analysis were available for review by the abstraction staff every Monday morning. As part of the weekly extraction, any new data found in previously abstracted records were noted by Soarian Quality Measures, alerting the abstractor that updated information was available for a particular patient record.

Throughout the process, the Siemens Soarian Quality Measures team worked closely with Connie Fioravanti, manager of the Documentation Quality Review team, under the guidance of Jay Raman, chief information officer (CIO), and Cindy Henry, director of Quality, to ensure the project was yielding positive results. The Soarian Quality Measures team reviewed each core measurement set individually with the assigned Reading abstractor, verifying functionality and ensuring performance expectations were met.

Ms. Fioravanti, who served as the main liaison between both teams praised the Siemens team for the quick installation of Soarian Quality Measures. She stated, "The personalized service and strength of our relationship with our Siemens consultant led to an efficient installation. The team worked with us to understand our infrastructure and seamlessly integrate Soarian Quality Measures."

Outcomes

Immediately, Reading benefited from a substantial reduction in abstraction time, resulting in considerable efficiency gains. Below are quantified examples of the time-savings recognized at Reading through the use of Soarian Quality Measures.

In addition to efficiency gains, the abstractors felt reassured knowing that Soarian Quality Measures provided a consistent, independent analysis of the data. They commented the application worked as a “second set of eyes” when reviewing the record. This eased the burden on the abstractors while simultaneously allowing them to perform their jobs more efficiently.

As a result, the DQR team met its goal of delivering core measure abstraction results for clinical team review within 30 days after patient discharge. Within the first two months of using Soarian Quality Measures, the team received internal recognition from the QI department for timely provision of data.

“We are excited about the abstraction time improvements garnered through the use of Soarian Quality Measures,” said Raman, CIO. “The application further reduces the dependency on manual chart abstraction, while improving the accuracy and speed of abstraction.”

Siemens continues to work with Reading to automate the collection of data and measure outcomes. The team is looking forward to additional improvements, by effectively positioning Reading to address new quality measures in the future and streamline its processes.

	Core Measurement Set	Average abstraction time Pre-Soarian Quality Measures	Average abstraction time Post-Soarian Quality Measures	Improvement (%)	
	SCIP	20:37 min.	11:15 min.	200%	
	CHF	22:45 min.	6:51 min.	332%	
	AMI	33:44 min.	10:10 min.	331%	

To learn more about how Siemens can help you optimize your abstraction process to meet your quality reporting obligations, contact your Siemens representative or call us at 1-888-826-9702.



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