

BJC Healthcare

BJC is one of the largest nonprofit integrated delivery healthcare organizations in the country. BJC delivers services in the greater St. Louis, southern Illinois, and mid-Missouri regions. BJC includes 15 hospitals and provides outpatient, primary care, community and workplace health, home health, mental health, rehabilitation, long-term care, and hospice care.



BJC participates in multiple government and industry programs, and is party to contracts that monitor and track measures in support of improved quality and safety. These programs and contracts impact reimbursement across BJC's multi-entity, healthcare delivery system. The measures for the existing programs and contracts were managed, captured, aggregated, and submitted to various entities from disparate sources of accountability and systems across BJC. BJC had two separate Electronic Health Record (EHR) systems: their community hospitals had one EHR system, and their academic medical centers had another. BJC made the decision to move to a single EHR system across the organization. The move to a single EHR will occur over a multiple year timeline.

In 2014, BJC began evaluating their approach to capturing, aggregating, managing, and reporting quality for the eventual transition to Electronic Clinical Quality Measures (eCQMs) with a view toward centralizing the process, and potentially consolidating the number of systems used for quality measurement and reporting. Due to the complexity of their situation, BJC decided to move to a single eMeasure calculator for calculating eCQMs. After evaluating several alternatives, BJC decided to implement Encore's eMeasure calculator – CoreANALYTICS™.

BJC asked Encore to partner with the BJC team to implement the CoreANALYTICS™ platform for calculating eCQMs. The benefits of the CoreANALYTICS™ platform is that it is certified by the Office of the National Coordinator (ONC) and provides BJC with eCQM reporting consistency across the organization. In addition, the CoreANALYTICS™ platform affords BJC the flexibility to pull data from a variety of sources regardless of clinical workflow.

The CoreANALYTICS™ implementation was a 10-month project divided into five phases. Encore used our structured framework for the implementation plan. In the first phase, Discovery, Encore's technical and clinical analysts worked with BJC's technical and clinical Subject Matter Experts (SMEs) to understand the data and the clinical workflows. In the technical discovery, Encore's technical and measure specialists partnered with BJC's team to delineate the data elements required for each measure and identify potential data sources for each. In the clinical discovery sessions, Encore's clinical and measure specialists worked with BJC's clinical and eCQM SMEs to deconstruct the measures, delineate the required data elements, and identify the point in the clinical work flow where the data element was captured and where the data element was documented in the EHR. Measure findings from the discovery sessions were documented in Encore's CoreGPS™ tool. Encore also completed a risk assessment for each eCQM for academic and community hospitals. The risk assessment evaluated each eCQM on system functionality, workflow, adoption, content, data, and reporting.

In the second phase of the implementation, Encore worked with the BJC to understand the data sourcing. Encore also advised and supported the BJC team on the design of the Extract Transfer Load (ETL files) that would pull the data from BJC source systems, format the data (if needed), and populate the file that would be sent to CoreANALYTICS™.

In the third phase, which ran concurrently with the second phase, Encore's data analysts reviewed and analyzed data from identified sources. In many cases, multiple sources were identified for a single data element, some with standard terms and some without. Encore's deep measure knowledge was required

for providing guidance on developing the technical structure of the data and on identifying the correct data source.

In some cases, existing extracts were profiled to evaluate the ability to re-purpose the data as a source for CoreANALYTICS. Encore used a data profiling methodology to evaluate the data from a source system or existing source extract for the quality and completeness of the data, and the adherence to the required standard terminology codes. Additionally, clinical data analysts reviewed the profiling results to ensure that the data was relevant and meaningful for the measure calculations. The data profiling was an iterative process. A data source may have initially been identified for a data element; however, once profiled, the Encore data analyst could find that the data source was not populated or the data quality was not sufficient. The Encore data analysts would then work with the BJC technical and clinical SMEs to identify an alternate data source, and the process would begin again until the appropriate data source was identified.

Additionally, multiple data sources may have been recommended to enhance clinical accuracy (e.g., sourced diagnoses from both the billing system and the clinical problem lists within the EHR). The Encore data analysts also evaluated the BJC data element code mappings (standard terminology) against the standard value codes identified by the Value Set Authority Center (VSAC) required for measure calculation, including LOINC, SNOMEDCT, and RxNorm. The data analysts provided applicable standard codes needed for measure calculation and advised BJC business owners on producing the required terminology translations. When no existing source system standard translations were available, Encore mapped local codes to standard codes within CoreANALYTICS. During this phase, the Encore data analysts documented the detailed data source for each data element in the CoreGPS™ data guide.

The fourth phase involved testing in the SaaS server environment. Encore worked closely with BJC to ensure that the environment was configured properly and communications were configured to ensure that data pathways were functional for ETL to, and results from, SaaS. Several cycles of integration testing were conducted to ensure that the source data was properly processed and measures calculated by CoreANALYTICS™. In addition, the ETL process was automated. Encore and BJC conducted Quality Assurance testing to validate the measure calculation, and identified and corrected data anomalies inherent in larger systems.

The final phase was production roll out and support. Once data was populated in CoreANALYTICS™ and metrics were calculated, Encore began sending result data to CoreIQ (Encore's dashboard solution) for BJC to use to monitor their eQCM results. Post-production, a critical step in providing sustainable value from CoreANALYTICS™ was the ongoing monitoring of the data flowing into the engine and the metrics being calculated. Our clinical, data, and measures specialists worked hand-in-hand with BJC in its live environment, understanding that BJC's quality measures production process was ever changing.

CoreANALYTICS™ was able to incorporate data from seven EHR systems, four registration systems, and three data repositories across 11 hospitals to calculate their inpatient eQCMs. Additionally, Encore partnered with BJC to successfully cultivate a measures management program to centralize monitoring, improvement, and management of eQCMs the system.

Implementing CoreANALYTICS™ allowed BJC to use a single platform to calculate, monitor, and report eQCMs across their system. This robust tool provided BJC with the flexibility to use any available data source from any system to support their eQCM calculations. Additionally, the CoreANALYTICS implementation provided BJC with a clear understanding of their data and a transparent calculation of the eQCMs, resulting in the most accurate eQCM measure performance. CoreANALYTICS also provided BJC with a mechanism to successfully participate in various government-based quality reporting programs

given BJC's complex technical landscape as they transition from multiple EHR systems to a single EHR system over the course of several years.