

PluralSoft has built a team of professionals with a cross section of relevant experiences who are qualified to deliver unparalleled end-to-end solutions for our customers.

Data Warehouse for a Healthcare Provider

Business Problem

The customer provides care through over 40,000 inpatient admissions, 100,000 emergency room visits, and 250,000 visits to its ambulatory care facilities annually. The data warehouse project was initiated to integrate the isolated islands of information, thus providing a cross-functional reporting and analytical tool to all functional units of the health system.

The group had a Quality Improvement initiative with an objective of understanding current and enhancing standard-of-care practices.

The healthcare provider wanted the data warehouse to:

- Serve as central repository of clinical and administrative data
- Reduce time for chart pulls
- Identify effective clinical treatment protocols to support evidence-based care
- Enable quality reporting to regulatory authorities
- Identify effectiveness of a drug regimen by DRG grouping
- Analyze trends in inpatient admissions by DRG groupings
- Enable disease surveillance by reporting on acute episodes by a time period
- Identify practice pattern variations for a clinical episode
- Enable Master Data Management by incorporating controlled medical vocabulary
- Position the healthcare provider for eventual text mining of discharge summaries
- Trending of Key Performance Indicators such as Bed Utilization, Inpatient admissions, Outpatient admissions and Average revenue per visit.

PluralSoft delivery methods include:

Onsite

Offsite

Offshore

Combination of All

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Engagement

PluralSoft's team of functional and technology experts performed the following tasks:

- Analyzed the current and future information requirements of the healthcare provider and developed a roadmap for information integration
- Mapped the information flows across participating source systems
- Analyzed the source data quality in the source systems
- Created logical, physical and semantic models for staging area, data warehouse and data marts
- Created source-to-target mappings for enabling information flow
- Implemented audit and control procedures for information processing
- Implemented UMLS (Universal Medical Language System) repository to serve as a central hub for master data management
- Designed and developed canned reports, ad-hoc reports and OLAP cubes for analysis

Result

Patient records are requested by physicians, statistical analysis, and quality control analysis groups for various studies. The search for a patient's medical record was taking about 17 minutes per chart. Through the implementation of the data warehouse, accessing the patient record was reduced to 2 minutes. While this reduced cost and time, the major benefit was not from the time saved in accessing the charts.

The significant benefit achieved was in providing the analytical community with the time necessary to analyze the data content of the medical records. For example, for a quality survey conducted by the Joint Commission for the Accreditation of Health Care Organizations (JCAHO), 7,500 patient medical records were accessed in a few hours using the data warehouse. Manually this typically took 3 to 4 days for many people. This one request alone saved about 875 person-hours. The speed of access allowed the medical records department the time needed to fully analyze the charts and prepare for the survey. The health care provider was rewarded with a score of 99 out of 100 in this JCAHO survey.

The enablement of practice pattern variations resulted in significant savings as the healthcare provider had the information required to create treatment protocols based on demographics and comorbid conditions. Having the trending on drug regimen efficiency not only helped the assessment of effectiveness of a drug cocktail, it also provided the insight necessary for purchasing drugs on a just-in-time basis. The KPIs provided the much needed insight on the delivery of care and allowed the management to allocate limited budgetary amounts to much needed services. The disease surveillance capability enabled the hospital to identify and react to acute cases based on facts as opposed to anecdotal evidence.

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