

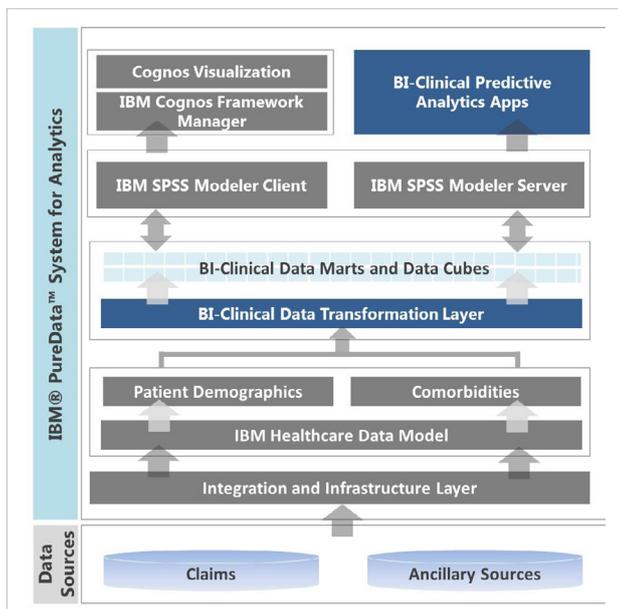
# Case Study: Readmission Management for Leading Hospital Network

## Client Requirements

Client is a leading health system, managing over 3 million patients across regional and rural communities.

Client was faced with very high readmission rates for its congestive heart failure (CHF) patients across multiple facilities. In order to control readmission rates, client wanted to optimize its existing readmission management processes. To achieve this, it required powerful predictive analytics capabilities that could derive actionable intelligence from CHF patient data.

CitiusTech's BI-Clinical platform for advanced analytics, along with its data scientist team, enabled the client to effectively predict risk of readmission for CHF patients during the care delivery process.



## CitiusTech Solution

### Requirement Analysis

The CitiusTech team assessed the requirements to predict high risk CHF patients. This included:

- **Identification of High Risk Hospitals**
  - Identification of facilities that were underperforming w.r.t to CHF readmissions

- Analysis of current readmission tracking and clinical process for CHF treatment

- **Predictive Model Development**

- Development of statistical model using IBM SPSS to predict hospital readmission risks
- Validation of model using de-identified production like test data repository

- **Data Analysis and Preparation**

- Analysis of live clinical data needed to effectively predict readmissions
- Assessment of clinical data for completeness and availability across care settings, e.g. registration, admission, treatment, discharge, etc.

## Solution Design and Development

A cross-functional team of healthcare data scientists, clinical informatics and healthcare BI / data warehouse engineers, developed and implemented the solution to predict risk of readmissions using CitiusTech's BI-Clinical platform integrated with IBM SPSS in the PureData environment.

CitiusTech data scientists used large amounts of existing clinical and claims data (historic load) to train and validate the model. The team Identified over 15,000 CHF patients and more than 3,000 readmissions across 50+ facilities to achieve this. The predictive model classified patients into various predicted risk bands with an accuracy of 80% based on which patient specific risk indicators were identified for appropriate interventions, for a patient at admission or at discharge.

## Value Delivered

By partnering with CitiusTech, the client was able to:

- Improve care management processes through early and effective prediction of readmission risk
- Utilize the readmission predictions and patient specific risk indicators to identify the factors responsible for CHF readmissions and design appropriate clinical interventions
- Optimize cost and performance across all facilities, with significant improvements at facilities with high rates of readmissions

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## About BI-Clinical

BI-Clinical, CitiusTech's healthcare BI and analytics platform, demystifies clinical quality reporting by offering an extensive suite of pre-built apps and 600+ KPIs around clinical, financial, operational and regulatory areas – the largest in the industry. BI-Clinical enables healthcare technology companies, providers, payers and life sciences organizations to generate actionable BI and build integrated clinical and financial analytics. BI-Clinical is certified for all Meaningful Use and HEDIS 2015 measures and covers a wide range of quality measures including PQRS, ACO, HCC, CMS Star, VBP, PCMH, etc.

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