Case Study: Real World Evidence (RWE) Analytics for Comparative Effectiveness

Client Requirements

Client is a pharmaceutical major providing therapeutic products and drugs. The client wanted to leverage real world evidence data, to compare the cost and benefits of its drug against competing products. Key objective was to identify patient cohorts based on drug usage and use clinical outcomes such as clinical quality measures, readmissions, length of stay etc., to compare the cohorts.

Given its expertise in comparative effectiveness research (CER) and life sciences domain, CitiusTech was selected by the client to develop an advanced analytics solution. BI-Clinical was used as the underlying platform to aggregate and analyze large amounts of diverse patient data and provide clinical and cost-related insights.
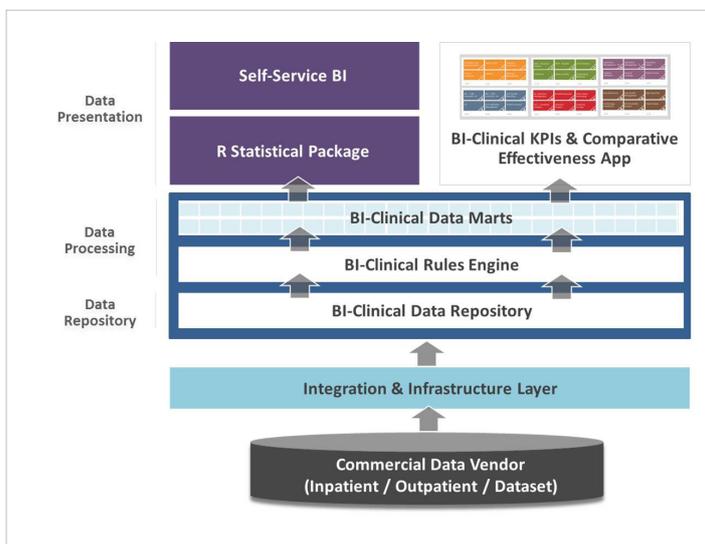
CitiusTech Solution

CitiusTech's life sciences team defined the hypothesis and business case for the client and designed the solution that leveraged BI-Clinical and R statistical tool.

BI-Clinical Implementation
A cross-functional team of clinical informatics, healthcare consultants, data scientists, integration analysts and healthcare BI engineers worked closely with the client to understand problem requirements, implement pre-built BI-Clinical components and provide customized tools. BI-Clinical implementation included:

- BI-Clinical data adaptors for data acquisition and parsing of diverse datasets
- BI-Clinical rule authoring tool to define multiple patient cohorts based on clinical conditions and concepts (e.g. diagnosis, procedures, labs, medication, etc.)
- Identifying outcomes and utilization measures to assess quality and efficacy of each patient cohort (e.g. readmissions, etc.)
- Developing an interactive report for comparing multiple patient cohorts based on pre-defined parameters, and database views for statistical processing

Statistical Analysis Using R
CitiusTech used R statistical tool, which enabled the solution to:
- Integrate with BI-Clinical database views to receive patient profile and risk variables
- Define consolidated patient profile based on 84 out-of-the-box patient markers, along with additionally-derived variables to feed into R statistical module
- Define and execute statistical models and algorithms for outcomes use cases such as readmissions, length of stay, etc.
- Validate models/ algorithms based on available test data
- Push analysis results such as predicted risk scores, confidence level, risk coefficient, etc., back into BI-Clinical

Value Delivered

By partnering with CitiusTech, the client was able to:
- Use out-of-the-box capabilities of BI-Clinical to expedite key use cases such as cohort development, quality measure definitions, etc.
- Utilize real world evidence to compare competing products across quality and efficacy of care
- Leverage CitiusTech's strong experience in clinical data and BI/ analytics to provide actionable insights
- Leverage CitiusTech's strong statistical modeling and predictive analytics expertise to identify important patterns and associations to implement key use cases effectively

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About BI-Clinical

BI-Clinical, CitiusTech's healthcare BI and analytics platform, demystifies clinical quality reporting by offering a range of configurable apps that cover 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 2016 measures and covers a wide range of quality measures including MIPS , PQRS, ACO, CMS Star, VBP etc.

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