

Case Study: Predicting High-risk Chronic Kidney Disease (CKD) Patients

Client Requirements

The client is a leading provider of renal care solutions, with more than 35,000 employees and serving nearly 150,000 patients annually worldwide. Client wanted to leverage predictive analytics to identify high-risk chronic kidney disease (CKD) patients progressing rapidly towards end-stage renal failure (ESRD).

Given its expertise in statistical mining, predictive modelling and optimization techniques, CitiusTech was selected to build the solution.

Input Parameters

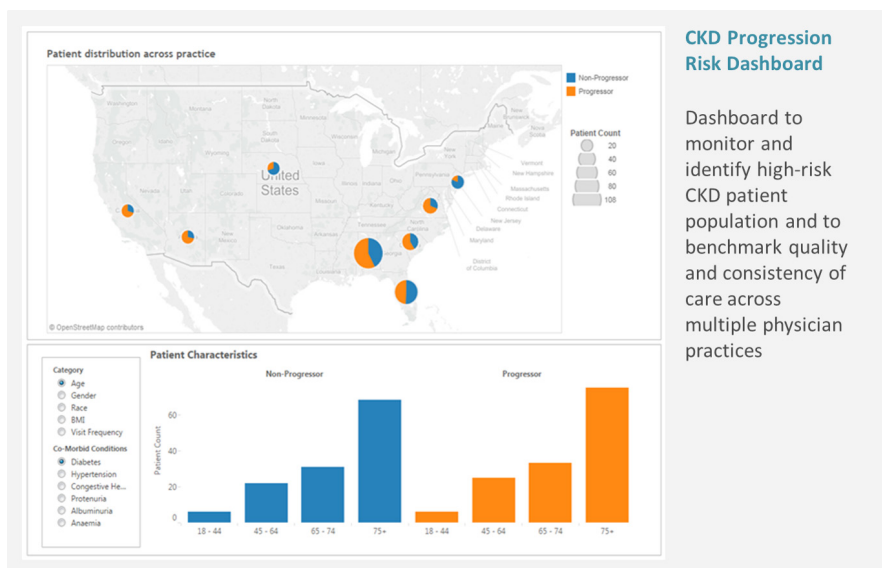
- 3-5 years of longitudinal lab data for CKD Stage 3 patients
- Data of patients aged 18-99 years

Techniques/ Algorithms

Linear regression models to classify patients according to risk of progression

Output

Insights delivered through real-time data quality, data profiling and disease progression risk tableau dashboards



Medictiv for High-risk CKD Patients

Client partnered with the Medictiv team comprising of data scientists, statisticians, BI/ DWH engineers, data architects and clinical informatics to -

- Identify relevant use cases that would be most impactful for nephrologists by enabling them to intervene early in disease progression
- Identify key analytics features required by nephrologists
- Build a technological roadmap for analytics
- Implement data cleansing, transformation and quality checks to build data confidence
- Build predictive models and deploy them in physician workflows to be used by nephrologists

Value Delivered

- By partnering with CitiusTech, the client was able to:
- Identify relevant use cases and understand their utility from a physician perspective
 - Design a prediction model for CKD progression using initial laboratory values reflecting metabolic status
 - Develop real-time score cards to track data quality, cleanse and profile data for different use cases
 - Utilize data quality dashboard to give physicians a tool to build data confidence
 - Develop and validate clinical models with accuracy upto 74%
 - Publish insights by mining historical clinical data and identify novel combination of clinical markers with predictive value

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About CitiusTech

CitiusTech is a specialist provider of healthcare technology services and solutions to medical technology companies, providers, payers and life sciences organizations, with over 2,700 professionals worldwide. CitiusTech's services and solutions include healthcare software development, healthcare interoperability, regulatory compliance, BI/analytics, consumer engagement, care coordination and population health management. CitiusTech helps customers accelerate innovation in healthcare through a number of solutions and accelerators for clinical quality reporting, healthcare big data, cloud computing, mobile health and predictive analytics. With cutting-edge technology expertise, world-class service quality and a global resource base, CitiusTech consistently delivers best-in-class solutions and an unmatched cost advantage to healthcare clients worldwide.

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