MDCLONE

Case Studies

Unlock Endless Possibilities

Pharma

- Enable top-five global clinical company to identify eligible patients for several cancer-drug clinical trials at Israeli hospital
- Cross organization real world evidence study by top-five global pharmaceutical company of outcomes for lung cancer patients by stage and treatment

Research

- Insulin Detemir Use Is Associated With Higher Occurrence of Hypoglycemia in Hospitalized Patients With Hypoalbuminemia *(Hochberg, Diabetes Care)*
- Negligible Risk of Acute Renal Failure Among Hospitalized Patients After Contrast-Enhanced Imaging With Iodinated Versus Gadolinium-Based Agents *(Gorelik, Investigative Radiology)*

Population Management

- Understand the benefits of different therapies on intestinal health in Crohn's Disease patients
- Understand the relationship between socioeconomic status and the occurrence of common diseases including heart disease, type 2 diabetes and cancer

Quality of Care

- Identify mistakes in dosage prescription for Methotrexate
- Evaluate the effectiveness of current influenza vaccine in preventing influenza-associated hospitalization and death
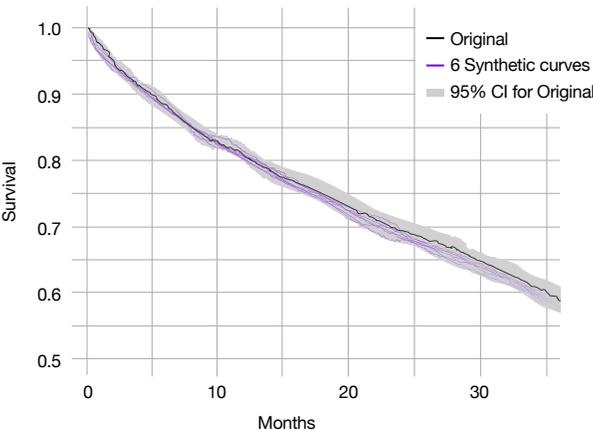
Operational Cost Reduction

- Impact of new facilities on length of stay and survival rate for ICU neurosurgery patients
- Evaluate syphilis screening guidelines for pregnant women to recommend ongoing screening for entire population or focus on high risk population only
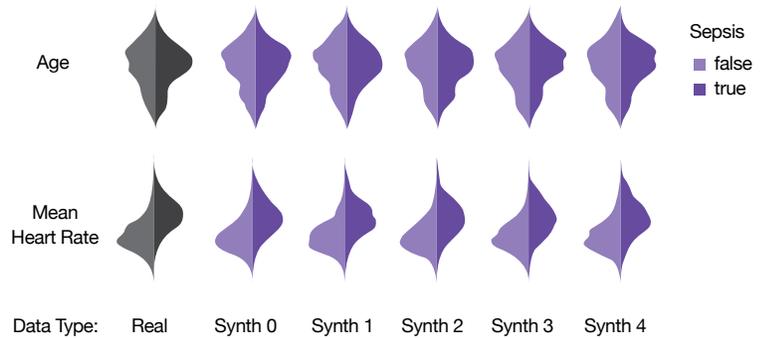
Prediction of sepsis six hours ahead of onset

Washington University in St. Louis

The entire research cycle is transformed using MDClone and synthetic data, which is accessible even without an IRB. In this example, several multivariate machine learning algorithms were developed and tested using both original and synthetic data to predict sepsis, a life threatening inflammatory response in which fast diagnosis significantly increases survival rate. Those included SVM, multivariate logistic regression and KNN. Synthetic data was as good as original to develop the models.

Sepsis Prediction (comparison of continuous data distributions)

Sepsis
- false
- true

Data Type: Real Synth 0 Synth 1 Synth 2 Synth 3 Synth 4

Survival vs Months chart. Legend:
- Original
- 6 Synthetic curves
- 95% CI for Original

Survival after Primary Coronary Intervention (PCI)

Rambam Health Care Campus, Israel

Many studies have shown the longer it takes to perform PCI for STEMI patients in the hospital the higher the death rate and this study examined the effect of time to PCI for STEMI patients on survival outcomes. Using MDClone's Sandbox, quality improvement analysts interacted with the data and had final results to share with hospital administration in days - a process which would have taken months without MDClone. This example shows the power of synthetic data as the survival rate presented is the same for analysis based on five different synthetic files as well as the smoothed mean from 1000 synthetic files: all fall well within the 95% confidence interval of the original result.

Creating public health dashboard visualizing STI rates by demographics

Washington University in St. Louis

Population management can easily become a reality with MDClone, as the Query Engine enables patient groups to be stratified in any number of demographic variables. In this example patient groups stratified on different demographic variables were accurately recovered to build elaborate dashboard visualizations on sexually transmitted infection (STI) rates in an urban environment. Synthetic data allows instant sharing and public presentation of the data and results.

Original Data 2015   Synthetic Data 2015

About MDClone

MDClone introduces the world's first Healthcare Data Sandbox, unlocking healthcare data to enable limitless exploration, discovery and collaboration. The Sandbox is a big data platform that eliminates the barriers between data and those who can use it to transform care. Powered by its breakthrough Synthetic Data Engine, the Sandbox overcomes patient privacy restrictions, and together with its robust analytic capabilities data and insights are now at anyone's fingertips.

Get in touch

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