Medidata AI Uses Machine Learning and Advanced Analytics to Optimize Physician Outreach

ABOUT THE CUSTOMER

This midsized biopharmaceutical company develops life-transforming medicines for patients with serious and rare diseases. Their FDA-approved treatment is a specialty medicine for patients with a rare bacterial lung infection.

After experiencing a slowdown in new prescribers post-launch, the company wanted to understand how multiple factors contribute to new prescriptions based on advanced analytics and data modeling.

THE CHALLENGE

Since receiving FDA approval and launching a few years ago, the company noticed a slowdown in new prescribers. Though a slowdown was expected, the commercial team was very interested to understand which prescribers were affecting the decline and how to address it. After purchasing third-party lab data, the company found that there is a significant population of physicians who test for this lung infection but have not prescribed their treatment.

The nature of this disease area makes it difficult for treatment to reach key specialty groups because the infection is often misdiagnosed as a condition presenting similar symptoms and progression. There are likely a higher number of patients going without proper treatment than known to physicians due to this complication.

These factors made it challenging to gain an accurate understanding of prescription patterns. Although the company had some theories about what influences a prescriber, they wanted to definitively understand how multiple factors contribute to a new prescription based on advanced analytics and data modeling.

THE SOLUTION

The company partnered with Medidata AI to perform advanced commercial analytics in order to gain deeper insight into the prescriber journey. The Commercial Analytics team at Medidata AI uses a data-agnostic approach, integrating data from multiple, disparate sources to provide meaningful insights for field sales, market access, and commercial leadership teams.

Commercial Analytics

A huge part of maintaining post-launch momentum is developing an evidence-based marketing strategy, particularly for physician outreach. The first step to optimizing strategy is having the right guiding information. Some questions companies may have are:

- Who is prescribing my medication? Are marketing and sales activities reaching them?

- What factors influence a prescriber to give a patient my medication?

- Are there untapped educational channels we can leverage to increase physician disease and therapy awareness?

First, Medidata AI's team of in-house data scientists and statisticians compiled a list of every possible factor that could affect a prescriber's decision. Next, the team created advanced machine learning (ML) algorithms to search the client's expansive data repository spanning 40 features, including specialty pharmacy (SP), labs, call, email, and trigger data, to test their hypotheses and uncover trends. With the power of the robust Medidata AI data platform and innovative commercial data model, **the Commercial Analytics team delivered granular insights that greatly improved the client's physician outreach strategy in just two months**.

THE RESULTS

Medidata AI's analysis found some crucial factors that influence prescribers, including some findings that the client had not previously considered. Here is a sampling of the findings:

- As the client predicted, a higher number of sales calls indicated whether a physician would likely prescribe the medication.

- Although sales calls were an effective marketing method, the data suggested that approximately 20 calls was the saturation point. After 20 calls, the likelihood of prescribing no longer changes.

- Infectious disease specialists are more likely to prescribe the medication than pulmonologists.

- As infectious disease experts receive more calls, their likelihood of prescribing the medication goes down, though they are the majority of prescribers.

Armed with these insights, the sponsor is now able to refine their physician outreach strategy to optimize effectiveness and resource efficiency. These insights can help them target the right physicians most likely to prescribe their medication in order to increase sales.

SHAP values for top 15 features in XGBOOST model
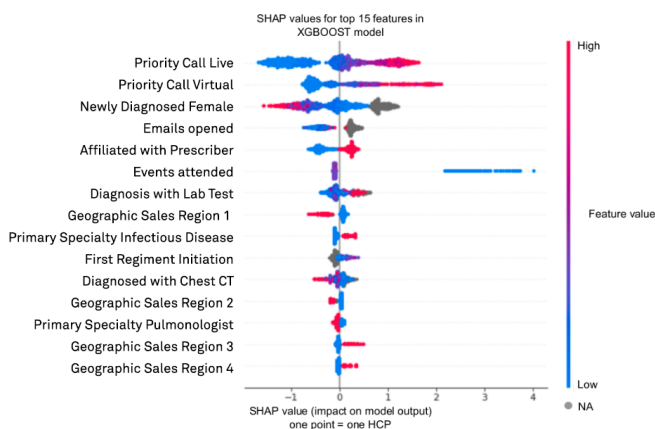
This graph shows us the top 15 features that were most important when predicting the outcome for new prescribers. The features are ranked from top to bottom by order of importance. The graph shows that calls and emails opened from newly diagnosed patients are highly indicative of a physician prescribing the drug.

360⁰
view into performance from Day 1

Medidata AI's Commercial Analytics team provides clients with advanced analytics capabilities and insights that give drug manufacturers a 360-degree view into the performance of their product from day one, ensuring the right patient gets the right treatment at the right time.

Whether launching a new product or supporting a mature one, Commercial teams need powerful AI and ML capabilities that quickly ingest data and deliver fast, accurate insights to stakeholders across the organization—no matter where they are in the product life cycle.

Medidata has been the preferred partner for over 50 brand launches, enabling emerging pharma and biotech companies to launch drugs with confidence, exceed forecasts, and ensure brand success. Our data agnostic philosophy, in addition to deep life sciences domain and data ecosystem expertise, lets pharma and biotech companies turn their data into a competitive advantage and reach peak sales faster