AYASDI

Addressing the Dynamic Nature of Fraud with Machine Intelligence

How one of the world's largest payers applied AI to multiple fraud instances.

UnitedHealthcare (UHC) is one of the world's largest healthcare insurance companies, processing more than one half trillion dollars in gross billed charges in 2016, processing more than 750 billion digital transactions annually. Fortune Magazine has named the company to its Most Admired list for seven consecutive years.

Challenges

Healthcare fraud, waste, and abuse costs exceed hundreds of billions of dollars annually in the U.S. Payers like UHC are consistently challenged to identify new patterns of aberrant behavior, requiring many analysts to compare reports from different sources before they can confirm a new trend. This allows sophisticated fraudsters to rapidly evolve their strategies and outpace current detection models.

Current fraud detection models are primarily rule-based and incorporate well-known indicators of fraud. However, the more subtle and evolving indicators of suspicious behavior are scattered throughout complex, medical claims data and may be missed by traditional analytical techniques.

Even with their sophisticated techniques and deep data science capabilities, UHC found it increasingly difficult to stay ahead of the continuously evolving FWA threat. This challenge was compounded as they diversified into new insurance products and acquired smaller insurer plan portfolios. As the number of claims increased, uncovering patterns and anomalies within them became increasingly difficult.

CHALLENGE
- Reduce costs associated with fraud, waste, and abuse
- Identify new patterns of aberrant behavior quickly and without adding resources
- Determine combinations of characteristics that signal fraud

SOLUTION
Ayasdi Counter Fraud application

PROJECTED BENEFITS
- Identify errors in existing models
- Source leads in 1/5th the time
- Proactively identify fraud and prevent unnecessary payments
- Create new models in days or weeks rather than months

UnitedHealthcare®

The fraud detection unit was charged with determining the combinations of characteristics (e.g. codes, providers, procedures, and drugs) that signal fraud or overpayment and were accustomed to using a hypothesis-driven approach. They were heavily reliant on business analysts and special investigation units (SIUs) using their experience to determine the features to incorporate into their fraud detection rules and models. Their experience using conventional machine learning techniques tended to over-fit their models as they attempted to incorporate all the underlying claims data parameters.

Solution

Model Improvement

To augment and replace some of their traditional methods, UHC selected Ayasdi to identify fraud within their provider network. Ayasdi's software identified errors in existing models by comparing visual networks that represent the outcomes predicted by the existing model and the actual ground truth (i.e., were the transactions fraudulent or not). This allows, UHC to quickly focus on the subgroups of transactions in the network where the model made mistakes. The software automatically generates a list of statistically significant variables associated with each subgroup, helping payers identify combinations of attributes that indicate fraud previously undetected, incorporatating them into existing models.

Lead Prioritization

Ayasdi's software helps to prioritize leads for Special Investigative Units (SIU). Claims that are connected to identified regions of fraud, waste, or abuse will, by definition, contain similar aberrant characteristics. These leads can be grouped and ranked for the SIU teams for additional investigation. The result is that UHC can now source the leads in one-fifth the time compared to previous methods. With improved lead scoring, the SIU dedicates their time and resources to investigating higher quality leads that will result in greater returns.

Faster Time to Insight

Payers like UHC typically spend 2-3 months on a single model to detect overpayment for a designated specialty. Using Ayasdi, the payer is now able to quickly surface combinations of features that represent overpayment and create new models within just 2 weeks.

UnitedHealth since 2014 has used AI capabilities from Ayasdi to root our fraud. The insurer seeks to prevent fraudulent claims from being paid instead of trying to recoup funds after the fact.

"We think AI in general is going to continue to make it easier for us to find fraud, waste and abuse."

- Patrick Stamm, Chief Operating Officer, Shared Services for UnitedHealthcare

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