



CASE STUDY

PREVENT MEDICAL FRAUD



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INTRODUCTION

A leading health insurer uses big data analytics to detect fraudulent claims. Implementing both rule-based and probabilistic algorithms revealed that 12% of claim amounts seemed very suspicious. This translates to potential savings when the same method is incorporated in the decision support system.

CHALLENGE

Flag suspicious transactions among the volume of legitimate transactions that occur every second.

SOLUTION

Embed rule-based and probabilistic algorithms in the authorization decision-support system.

IMPACT

Intelligent verification and exception-based human intervention prevents fraud while minimizing processing cost

CHALLENGE

Flag suspicious transactions among the volume of legitimate transactions that occur every second.

With the unparalleled increase in automation comes the inevitable rise of blind spots due to the volume of simultaneous transactions that originate from different locations. The executives of one of the leading health insurers noticed that the increase in member utilization was disproportionate to the growth of their member bases. More alarmingly, auditors are identifying more fraudulent cases arising from internal control issues or provider fraud.

To compound the issue, there is also a serious lack of trained medical allied personnel who could review the transactions. Furthermore, manual screening of each transaction would result in long wait times for members, which would spawn customer service concerns.

SOLUTION

Embed rule-based and probabilistic algorithms in the authorization decision-support system.

Our client was excited to extend their use of big data. They were early adopters of MediLink's data visualization and forecasting services. In collaboration with our client's medical director, we identified absolute rules and limits for detecting medical fraud. Then, we examined five years of data and identified the important features, such as demographic information, geo-location, transaction date and time, diagnosis, procedure code, hospital level, physician specialization and claim cost.

Patterns were detected using advanced statistical techniques. Next, we set thresholds for measures like time interval, frequency of claims, amount incurred, and distance between facilities. Likelihood of feature combination were also assessed with the use of probability distribution.

The team identified strategies and applied them to different segment, such as:

- ⚡ Intervals between consecutive transactions
- ⚡ Detection of outliers
- ⚡ Unlikely incidence within a group
- ⚡ Impossible or unlikely feature combination

The rule-based and probabilistic algorithms were incorporated in the authorization decision-support system, warning a user whenever one of the rules or thresholds were breached.

IMPACT

Intelligent verification and exception-based human intervention prevents fraud while minimizing processing cost

Our client anticipates saving 12% of utilization expenses from avoidance of fraudulent claims, as well as improved customer satisfaction arising from instant response to authorization requests. Savings are estimated at hundreds of millions monthly.

More importantly, fraud analytics is helping this company lower the cost of healthcare and make healthcare coverage more affordable.