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AMITECH
A NAVIANT COMPANY

Customer **Story**

Finding Healthcare's "Needle in the Haystack"– Uncovering Fraud with Predictive Analytics

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OBJECTIVES

+ Identify fraudulent claims proactively using machine learning and predictive analytics
+ Reduce manual workload for fraud investigation teams by streamlining data analysis and reporting
+ Improve fraud detection accuracy and operational efficiency with healthcare claims

RESULTS*

+ Analyzed 19M claims
+ Uncovered >244 valid FWA cases
+ Achieved $500K in savings and avoided losses
+ Delivered a 7x ROI within the first 7 months of implementation

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About

Fraud, waste, and abuse (FWA) in healthcare services is a significant issue, leading to millions in losses annually. Common FWA activities include duplicate or unauthorized payments, upcoding, prescription forgery, and false claims.

To address the most egregious forms of FWA, healthcare organizations implement various preventive measures:

+ **Automated Auditing Tools:** Automated systems review claims for accuracy and compliance before submission, reducing errors and catching fraud early.
+ **Routine and Random Audits Transferred:** Conducting both scheduled and unannounced audits, sometimes with third-party auditors, to identify and address irregularities in billing practices.
+ **Regular Reconciliation:** Routinely matching billing records with patient services to catch discrepancies early.
+ **Healthcare Fraud Prevention Partnership (HFPP):** Public-private partnerships like the HFPP promote data sharing, cross-payer analytics, and collective action to identify and prevent fraud across healthcare.

Despite the effectiveness of these methods, they may not be sufficient to counter increasingly sophisticated fraud methodologies.

* Results recorded from Oct. 2024 - May 2025

> With millions of dollars at stake, our customer recognized the need for a more efficient way to provide their fraud investigations team with a comprehensive view of every claim, enabling a more proactive and effective approach to combat FWA across their vast network of transactions.

The Challenge

Our customer processes tens of millions of claims annually, making the management of FWA a complex and ongoing challenge. Despite implementing a wide range of preventative measures, the sheer volume of transactions can overwhelm investigative capabilities. As a result, identifying fraudulent claims becomes increasingly difficult, rather "like trying to find a needle in a haystack." With millions of dollars at stake, our customer recognized the need for a more efficient way to provide their fraud investigations team with a comprehensive view of every claim, enabling a more proactive and effective approach to combat FWA across their vast network of transactions.

The Solution

Harnessing Machine Learning for Proactive Fraud Detection

Amitech, a Naviant Company, partnered with a growing healthcare organization to implement a data-driven machine learning (ML) model, which anticipates and identifies potentially fraudulent activity. While the immense volume of data overwhelms manual reviewers, it provides an ideal source for the Fraud Prediction Model. By employing machine-learning algorithms trained on historical claim data, the model analyzes datasets to identify subtle patterns of fraudulent activity that might escape human detection.

Once identified, the claim is escalated for manual review by the fraud investigation team to verify the fraudulent activity and take appropriate action. Those investigation results are then seamlessly fed back to the ML model for retraining, enabling improvement with each training iteration.

Our Approach & Implementation

The process and method for implementing the solution is as follows:

1. **Technical Evaluation of Claim Data:** Our team assessed all available claim data and its correlation with historical fraudulent claims to identify key indicators of fraud.
2. **Operational Process Review:** We conducted a review of known FWA categories and use cases to ensure alignment with the claim data, maximizing the identification of potential fraud.
3. **Model Development and Training:** Data from the technical evaluation and operational review were incorporated into a machine learning model, trained using both fraudulent and clean historical claims.

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The Fraud Prevention Model transformed our customer's approach to combating FWA in healthcare – from reactive to proactive and preventative.

WHO WE ARE

Naviant helps customers reimagine work and harness intelligence to deliver exceptional outcomes.

4. **Fraud Team Workflow Integration:** In parallel with model training, we mapped the fraud investigation team's end-to-end FWA identification process to ensure seamless integration into their existing workflows.

5. **Dashboard Creation for the Fraud Team:** A custom dashboard was developed to:

   - Output machine-learning results and key data points to assist the team in follow-up investigations.
   - Track model performance and outcomes from investigations.
   - Facilitate easy transfer of results into the organization's native FWA system, minimizing manual data entry.

6. **Model Validation and Implementation:** Once trained, the model was validated by the fraud investigation team and other operational stakeholders, then implemented into production.

7. **Ongoing Retraining and Improvement:** The model is regularly retrained and refined based on new data, changing processes, and feedback from the fraud team, ensuring continuous optimization.

Value Added

Some additional benefits of this implementation include:

+ Prevention of future fraudulent claims.
+ Highlighting past fraudulent activities.
+ Uncovering new fraud cases and larger fraud networks.
+ Development of new dashboards to identify and monitor high-risk individuals/organizations.

Conclusion

The Fraud Prevention Model transformed our customer's approach to combating FWA in healthcare – from reactive to proactive and preventative. With the estimated annual savings valued at almost $1M, this organization is now reaping the benefits of improved operational efficiency and service integrity.

This success demonstrates how predictive analytics models can be tailored to serve any organization's fraud prevention needs. By following a structured approach, Amitech can help organizations develop customized solutions that address their unique challenges.