Finding Healthcare's "Needle in the Haystack"

Uncovering Fraud with Predictive Analytics

Automation, AI, and Data Analytics for better healthcare

Background

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.

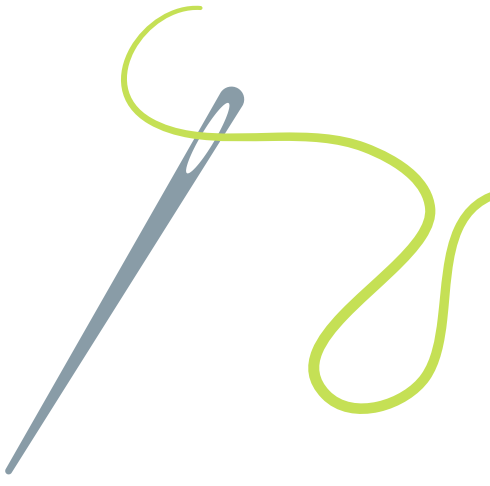
To address the most egregious forms of FWA, healthcare organizations implement various preventive measures:

- **Automated Auditing Tools:** Automated systems review claims for accuracy and compliance before submission, reducing errors and catching fraud early
- **Routine and Random Audits:** 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. .

CHALLENGE

Our client processes 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 client 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.

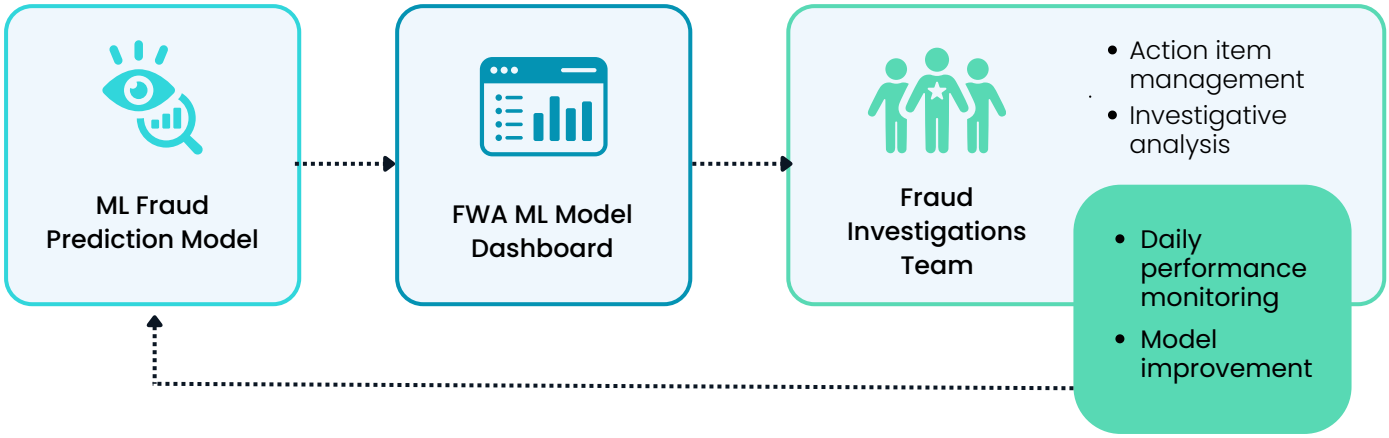


SOLUTION

Harnessing Machine Learning for Proactive Fraud Detection

Amitech Solutions 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

1. **Technical Evaluation of Claim Data**
   Amitech assessed all available claim data and its correlation with historical fraudulent claims to identify key indicators of fraud.

2. **Operational Process Review**
   Amitech 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.

4. **Fraud Team Workflow Integration**
   In parallel with model training, Amitech 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 organizations 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.

RESULTS AND IMPACT

Results recorded from October 2024 - May 2025

19M Claims Analyzed

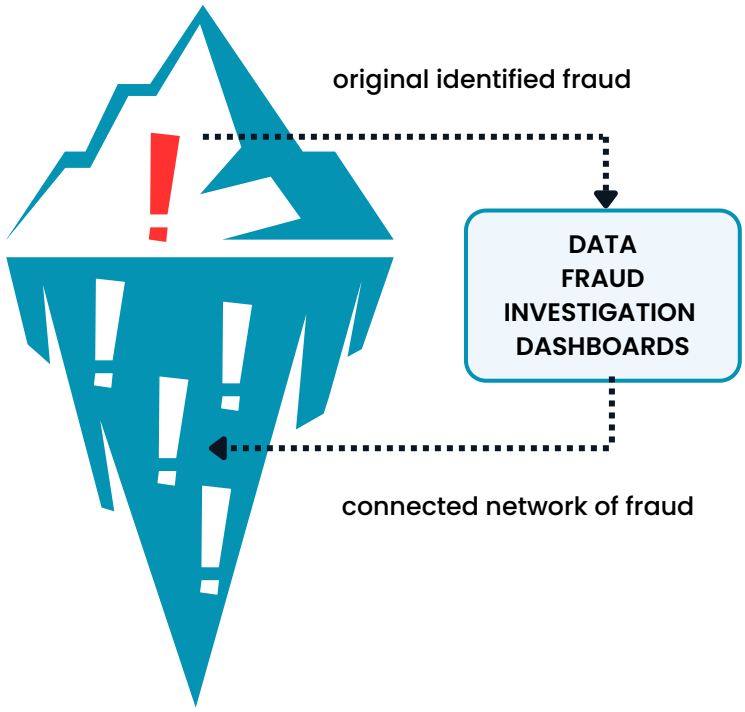
>244 Valid FWA Investigations

$500K In Savings and Avoided Losses

~$1M Estimated financial Benefit for 2025

Additional Benefits:

- 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 client'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.

AMITECH

Amitech Solutions is an award-winning data, analytics, and automation healthcare consulting firm committed to making healthcare better. We partner with our customers to deliver strategies and solutions that make healthcare more proactive, higher quality, and less expensive. Our healthcare experts use automation, AI, and digital workers to solve today's pressing healthcare problems, such as soaring expenses and labor shortages. We focus on value, combining people, process, culture, and technology to drive real and lasting change through improved efficiency and outcomes. By eliminating and streamlining tedious, manual work, we enable the healthcare workforce to focus on providing better care and experience for their members and patients, inspiring a new era in care delivery.

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