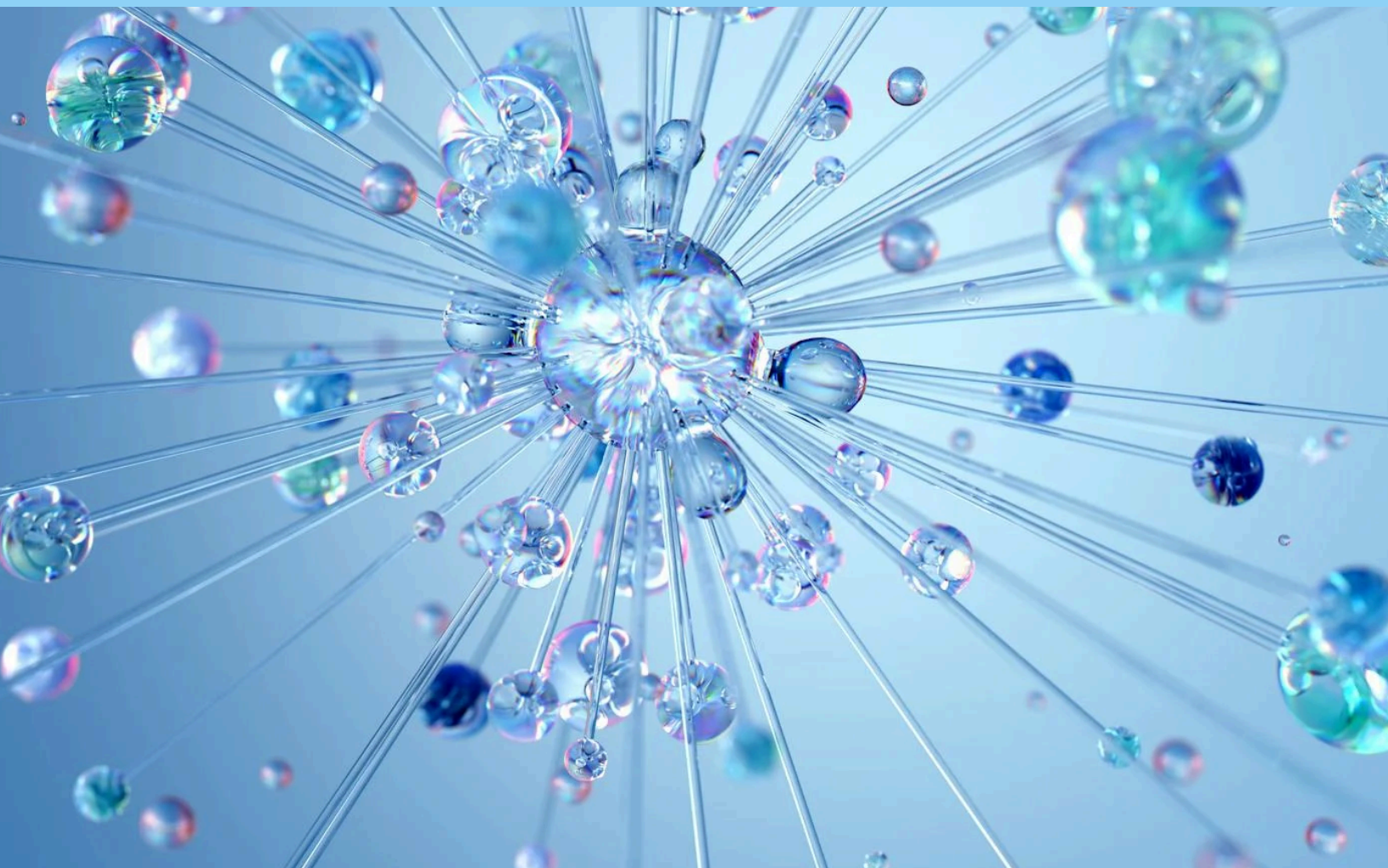# Leveraging AI in Healthcare Payment Integrity
Transforming Data Overload into Actionable Intelligence

Kisaco Research

4L Data Intelligence™

Powered by Integr8 AI™

Table of Contents

Kisaco Research

4L Data Intelligence™

Powered by Integr8 AI

AI for Fraud Detection: A Paradigm Shift

The escalating complexity of healthcare fraud, waste, and abuse (FWA) behaviors and schemes demands a paradigm shift in how payers approach detection and prevention. Healthcare FWA losses are estimated to be at least $144B annually in the United States which represents 3–10% of total healthcare expenditures. Now, however, health plans can leverage artificial intelligence (AI) technology-based strategies to mitigate financial risks and improve both the volume and investigative efficiency of fraud detection. [1]

Payers recognize the potential of AI to improve FWA outcomes, with FWA being considered one of the most significant opportunities for payment integrity cost savings, alongside data mining and complex audits.

Where do you think AI has the most potential to improve cost savings in payment integrity?

- Data Mining Audits — 31%
- Clinical/Coding/Complex Audit — 31%
- FWA — 23%
- Claim Edits — 15%
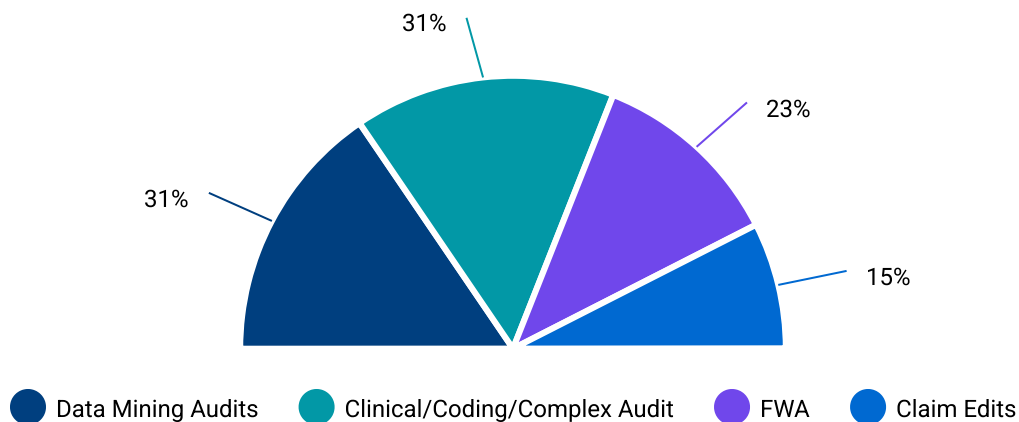
To understand how to best leverage AI for FWA, this report provides basic guidance regarding how to tackle implementation barriers and capitalize on AI capabilities – enabling payers to identify fraud in real-time that they traditionally would have missed.

[1] See Appendix for data sources.

The New Paradigm: Real-Time, Pre-Pay Fraud Detection

AI accelerates the shift from costly and ineffective post-payment recoveries to pre-payment detection, investigation and prevention by analyzing claims in near real-time. This new capability enables two critical capabilities to drive savings: 1) flags on potential errors, abuses and fraud before payment occurs; and 2) continuous, rapid, and near real-time analysis of current claims in the context of historical claims to detect overpayments and big schemes before the losses get substantial.

72%

of payers' technology investments are shifting more toward pre-pay vs. post-pay

"Easier to put the pre-payment edit in because we have identified the [fraudulent] behavior much faster than finding out after."

- Medical Director, Fraud Prevention

This transformation extends beyond simple automation, as AI systems continuously learn from new data, adapt to emerging schemes, and perform many of the investigative steps so human investigators can focus on high-level tasks.
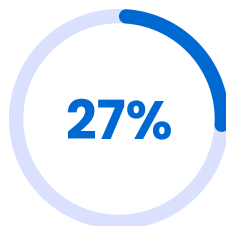
Fraud Detection Hurdles: Data Overload, Quality Shortfalls

Payment integrity leaders are overwhelmed with data, struggling to efficiently manage, assess, and apply data insights for the right use cases. When payers are asked about their greatest challenge in generating leads for fraud detection, "complex and overwhelming data" is their primary obstacle. Along with the challenge of managing data, payers struggle with accessing quality data, saying that "inaccurate leads" is also a top issue for fraud detection.
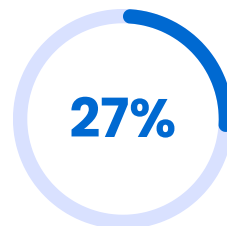
What is your greatest challenge in generating leads for fraud detection?
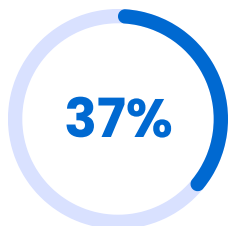
37%
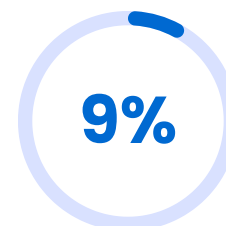Complex & overwhelming data

27%
Inaccurate leads

27%
Not enough investigators

9%
Time sorting through alerts

> *I can't take any more leads, but I could take some more good ones...80% are poor leads.*
>
> – SIU Director, Large Health Plan

HPRI
HEALTHCARE PAYMENT & REVENUE
INTEGRITY SERIES

4L Data
Intelligence™
Powered by Integr8 AI

Fraud Detection Hurdles:
Data Overload, Quality Shortfalls

Payers are also being required to do more data analysis – with fewer resources. Nearly one third of payers say that "not enough investigators" is the leading investigation bottleneck. This results in extreme investigation timeframes with cases taking years to close.

Case TAT (open to close): average time is 270-300 days!

- Senior Director of Compliance Operations
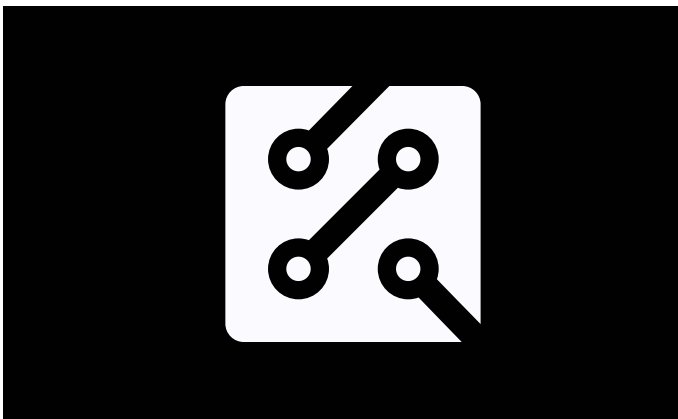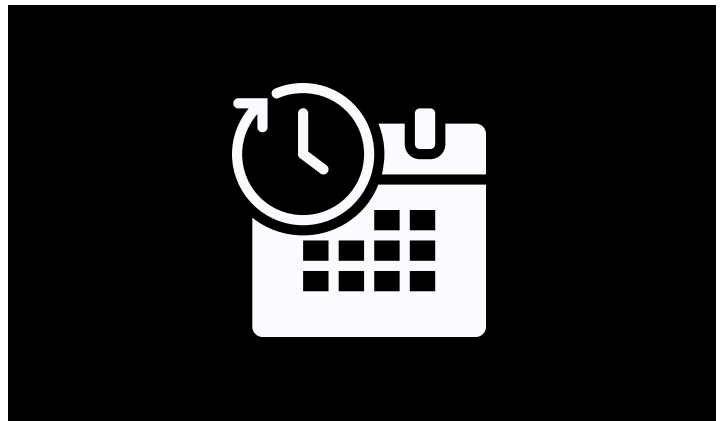
*2.5 years average for government!*

- Former Special Agent, US Dept. HHS, when commenting on time required to close investigations

Enhancing Fraud Detection: AI for Data Efficiency

AI plays a crucial role in managing overwhelming data to detect fraud – and making the data actionable. Machine learning (ML) models can analyze historical claims data and identify patterns of illegitimate transactions, such as excessive billing, upcoding, or duplicate claims, which deviate from normal patterns. AI enables the critical shift from post-pay to pre-pay fraud identification, analyzing claims in real-time to identify potential fraud before payment is made.
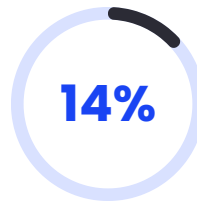
What is the most important FWA detection problem you NEED AI to solve?
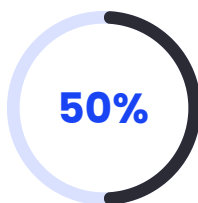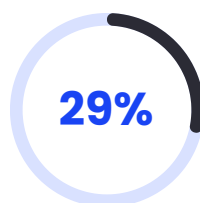
50%	29%	14%	7%
Reduced false positives	Increased prevention rate	Faster investigation time	Higher recovery amounts
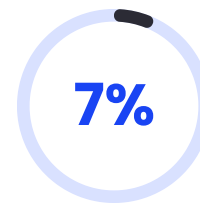
Along with more efficient data management, AI also improves detection accuracy and a reduction in false positives compared to traditional methods. According to payers, "reduced false positives" is the one most important FWA detection problem that AI needs to solve. Traditional fraud detection often results in many false positives, overwhelming investigators; AI refines fraud detection by reducing false positives, ensuring only high-risk cases get escalated.

Best Practices for Preparing Data for AI Application

Standardizing the vast amount of data and optimizing data quality is critical to preparing data for AI application and the reduction of false positives. Best practices include:

Standardize

- **Data standardization and integration:** Unify data sources and adopt industry standards for interoperability
- **Data cleaning and deduplication:** Remove inconsistencies, duplicates, or outdated records; fix missing or incomplete data; standardize formats
- **Data accuracy and validation:** Verify claims details with provider records, apply AI to detect anomalies

Structure

- **Data enrichment:** Augment with external data, improve structured vs. unstructured data
- **Data governance and compliance:** Use secure data handling procedures, manage data access, manage audit trails
- **Data labeling for AI training:** Annotate data for AI models, use human-in-the-loop verification

Enhancing Fraud Detection: AI for Pre-Pay Provider Insights

Payers are mired in claims data but aren't looking at the data in the context of provider behaviors. Aggregating credentialed provider data and applying advanced AI to understand provider behaviors, relationships, and trends has the potential to transform FWA detection to prevention. *As payers acknowledge, both pre-pay provider verification and real-time claims analysis would most benefit from AI automation.*

Which FWA process would benefit the most from AI automation?

46%

46%

8%

● Pre-Pay Provider Verification   ● Real-Time Claims Analysis   ● Post-Payment Investigation
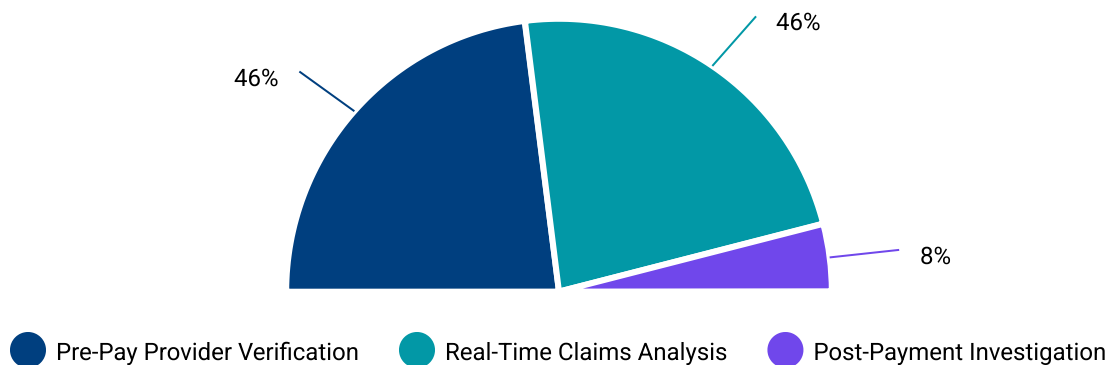
AI coupled with real-time daily updates of provider data (demographic, directory, integrity) enables ineligible providers to be flagged and removed, and detects suspicious provider relationships around every claim. This approach answers key questions including:

- Has a provider submitted an unrealistic number of claims or referrals?
- Is a provider eligible today to be practicing and submitting claims?
- What is a provider's relationship to other providers?
- What do unstructured and disparate data sources (internal and external) tell us about a provider's behavior?

Enhancing Fraud Detection: Optimizing Limited Resources

A shortage of investigators is one of the most significant challenges for fraud detection - but technology can now be the first investigator. AI can be trained to perform first and second level automated investigations, packaging suspicious providers with all of their claims, integrity, ownership, location, and other data in one place for fast initial triage and investigation decisions. This enables SIU teams to dedicate most of their time to high-value, more complex activities such as forensic audits and provider education.

50%

Reduction in the manual workload of SIU teams when implementing AI [2]
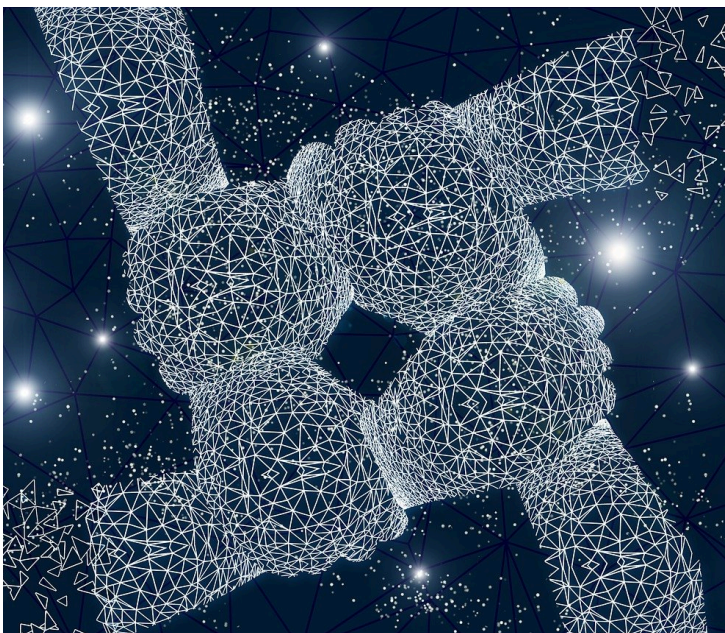
An example of effective human-AI collaboration for fraud detection is the 4L Data Intelligence SIU hub. Using AI technology to conduct the initial investigation, leads are packaged and communicated on a simple, intuitive interface - leaving higher order tasks for investigators. This approach creates an ongoing feedback loop, with AI models improving over time by continuously learning from investigator feedback, new data, and regulatory changes. Applying this technology has demonstrated a 5-15% total claims cost reduction compared to a legacy claims data-centric approach. [3]

Enhancing Fraud Detection: Taking Action Now

AI adoption for fraud detection is accelerating; 2025 will be the year that nearly all major health plans have implemented AI for payment integrity. Approximately 30% have already adopted AI, with another 60% saying they plan to do so in the next 6-12 months. Among those who've already implemented it, nearly all plan on expanding its implementation across the payment integrity value chain. [4]

Along with the need to keep up with competitors, health plans can't afford to wait. More time means more money lost to unidentified fraud and false positives.

While payers understand the value of applying AI for fraud detection, they're still unsure how to effectively implement it for the optimum use cases. Following these best practices will enhance fraud detection and address major implementation challenges – ultimately leading to more cost savings:

- **Prepare Data for AI Application:** Unify, clean, enrich, and annotate data to optimize accuracy and AI training
- **Know What Your Providers are Doing Now:** Apply advanced AI with proprietary provider insights to identify fraud in near real-time
- **Human and AI Collaboration:** Delegate high-order tasks to investigators, using a simple cloud-based interface to streamline investigations
- **Ethical AI Use and Compliance:** Implement safeguards to prevent misuse of AI and mitigate biases in data and algorithms. Conduct regular bias testing on algorithms handling sensitive claims
- **Future Proofing Strategies:** Invest in continuous learning systems that adapt to new billing codes and fraud patterns. Leverage advanced AI to focus on pre-pay fraud identification

Conclusion

Applying AI for FWA is one of the most significant opportunities for payment integrity cost savings, and 2025 is the tipping point of adoption. But payers are overwhelmed by too much data, too many false positives, and too few investigators. **By establishing processes for managing data quality, delegating basic triage tasks to AI, and leveraging AI to identify near real-time provider behaviors in pre-pay, payers can identify fraud more quickly and accurately than ever before.**

Kisaco Research

**4L Data Intelligence**™

Powered by **Integr8 AI**

Appendix

Research Sources

[1] NHCAA
[2] Thompson Reuters, November 2024
[3] 4L Data Intelligence
[4] Kisaco Research AI Payer Survey, February 2025

Definitions

This report relies on the following definitions when talking about AI and related terms:

- Artificial Intelligence (AI): Technology that enables machines to simulate human intelligence and problem-solving including data analysis that exceeds what humans can analyze
- Machine Learning (ML): A subset of AI that can detect patterns and learn how to make predictions by processing data, rather than by receiving programming instruction
- Generative AI (GenAI): A subset of AI where algorithms are used to interpret and create content (text, audio, code, videos, and images)
- Natural Language Processing (NLP): A machine learning technology that gives computers the ability to interpret, manipulate, and comprehend human language (e.g. ChatGPT)
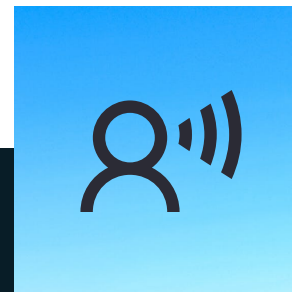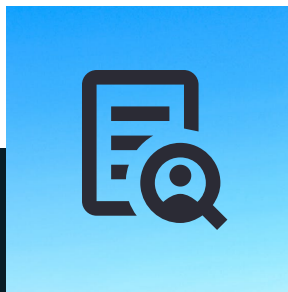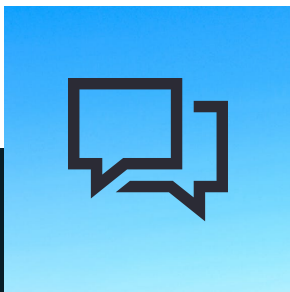
Research Methodology

The perspectives in this report are based on Kisaco Research surveys, custom online polls, and executive interviews conducted December 2024 – February 2025. Respondents included 60+ healthcare payment integrity executives.