Advanced AI in Healthcare Payment Integrity:
A Provider Centric Approach

Kisaco Research

4L Data Intelligence™

Powered by **Integr8 AI**™

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The Challenge: Limits of Legacy Claims Data-Centric Technologies

Pre-payment claims editing technology, alongside the application of general artificial intelligence (AI), has incrementally improved claims accuracy, detection of fraud, waste, and abuse (FWA), and operational efficiency for healthcare payers over the years. While these systems process billions of claims per year, they rely on a **narrow set of claims data-centric rules or general AI that is also centered on claims data** that limits healthcare payers' ability to detect dynamic FWA that every payer knows is present. As a result, payers miss pre-payment savings that stacks of claims data-centric editing technologies can't detect – which, even in small amounts, accounts for tens of billions of healthcare claims overpayments in the US annually.

In this report, Kisaco Research, in partnership with 4L Data Intelligence, explores how a provider-centric approach to claims editing, in combination with patented next generation AI technology, is revolutionizing FWA detection at multiple points across the claims workflow. This analysis aims to **provide insights for payers to challenge the status quo of legacy claims data-centric management to maximize cost savings.** [1]

> **To stop the fraud we all know is there, you have to see provider behavior and relationships in real-time.**
>
> - Fraud Prevention/SIU Director, Top 10 Largest Health Insurance Company

[1] See Appendix for Definitions and Research Sources

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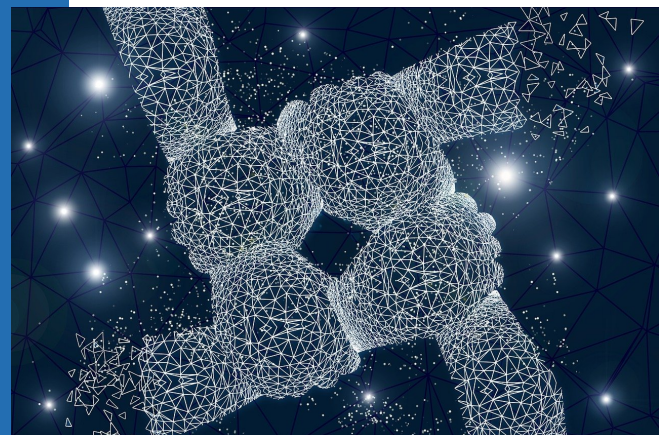
The Challenge: Limits of Legacy Claims Data-Centric Technologies

Limitations of claims data-centric editing approaches:

- Can't see dynamic real-time changes in provider behaviors and relationships fast enough to detect new FWA for prevention
- Unqualified providers are submitting claims/getting paid because credentialing is episodic and dependent on data input by the provider
- Not leveraging accessible structured and unstructured data outside of claims data that can identify suspicious behaviors and relationships
- Doesn't enable continuous near real-time identification of 'good' providers
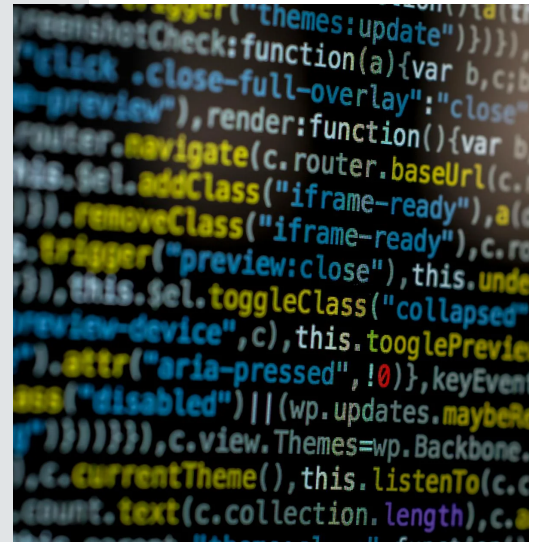
75%

of payers say that **ALL of these issues** are major challenges with current pre-payment claims editing technology in identifying FWA:

- Missing FWA that I know exists
- No real-time provider behaviors
- Ineligible providers getting paid

The Opportunity: Know Your Provider

Credit card companies efficiently detect fraud by identifying changes in customer habits, enabled by an acute understanding of their customers' behaviors. But most payers don't leverage continuous **in-depth knowledge of providers** for claims editing and analysis. While payers have extensive amounts of claims data, they don't consider dynamic provider behaviors, relationships, and outliers beyond a single claim. They don't consider a **pre-payment claim in the context** of a claim, all claims, and a provider's relationship to other providers. As a result, claims analysis generally misses key questions such as:

- How does a claim fit into the pattern of claims behavior for a provider?
- What are the dynamic, near real-time shifts in provider behavior?
- 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 are provider behaviors around episodes of care?
- What do unstructured and disparate data sources (internal and external) tell us about a provider's behavior?
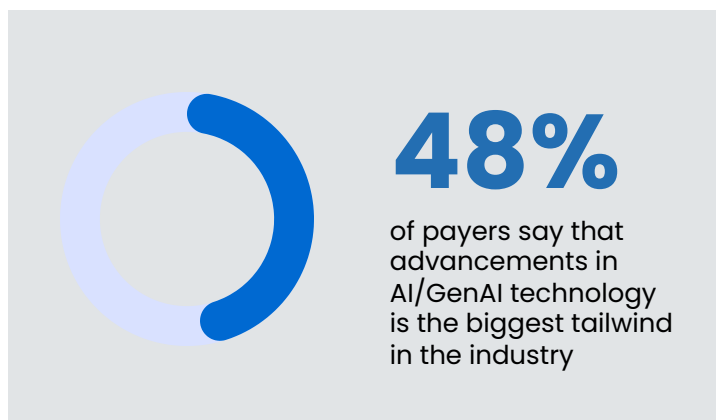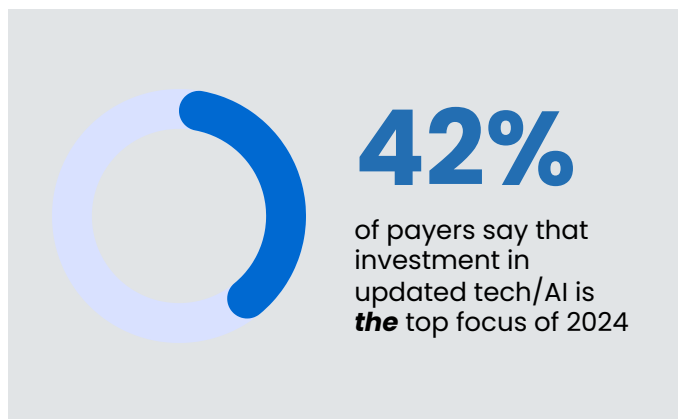
Given the importance of provider behavior for pre-pay claims adjudication, why are most payers still using claims data-centric approaches? **A provider-centric approach requires a mental shift from the legacy approach to claims editing**, but not necessarily a significant change in claims workflow. A provider-centric approach can be seamlessly layered on top of existing claims data-centric technology stacks to get started.

The Opportunity: Advanced AI

Artificial Intelligence (AI) has revolutionized data analysis through real-time automation of the processing of large volumes of data. AI identifies complex data trends, enhances predictive analytics, and analyzes unstructured data, more quickly and accurately than manual methods.

Applied to payment integrity, AI has improved claims payment accuracy and FWA detection, but not yet transformed it to maximize detection of behaviors, relationships, outliers, and schemes beyond a set of structured rules.

42%
of payers say that investment in updated tech/AI is *the* top focus of 2024

48%
of payers say that advancements in AI/GenAI technology is the biggest tailwind in the industry

NOW is the time for transformation since the technology has evolved to revolutionize pre-pay FWA detection.
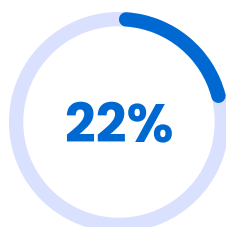
The Opportunity: Advanced AI

Much of the traditional AI used for FWA detection and payment integrity functions like an advanced Excel spreadsheet. Many technology companies throw around the term 'AI' when referring to a structured machine learning (ML) approach - which is more effective than rudimentary database analyses - but **misses dynamic trends, patterns, and outliers identified by unsupervised ML** and other more advanced AI capabilities. In short, unsupervised ML, the use of Large Language Models, and other forms of advanced AI can detect and prevent fraudulent and abusive behaviors that continuously evolve beyond any payer's ability to program every scheme and scenario into a rule.
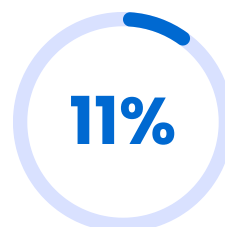
Which of these abusive behaviors is most important for PI and SIU teams to be able to detect automatically in near real-time, pre-payment?
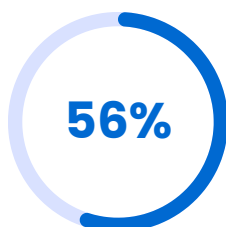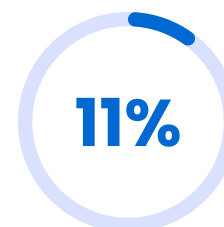
56%	**22%**	**11%**	**11%**
Claims Billing Spike Themes	Ineligible Providers with Claims	Billing for Routine CMS Edits	Related Party Collusion

When applied to claims management, advanced AI allows payers to adopt a provider-centric approach that includes detection of dynamic, near real-time claims billing spike schemes - one of the most important abusive behaviors to be able to detect.

The Opportunity: Adaptive AI

In order to maximize the benefits of advanced AI for claims management, payers must demand full transparency when it comes to data being used to train AI models. They also need to ensure that the AI technology is independently adaptive with both structured and unstructured data including disparate data sources. Key questions when thinking about AI and payment integrity include:

Data

- What is **the job** I need to do?
- What is the **data I am using**?
- What data do I have that I'm **not using**?
- What data **am I missing**?
- What is the **data I need to use** in near real-time, on every claim, on every provider, across the claims editing workflow?

Technology

- How can **advanced AI help** with these jobs?
- What are the **characteristics of the type of AI** that I need to deploy?
- What is the **relationship between AI and its data**?
- How much data can the AI access in near real-time to ensure that every claim is **evaluated in its fullest possible context**?
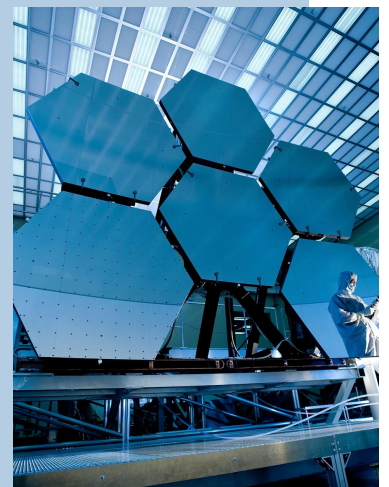
The Solution: Know Your Provider + Adaptive AI

Seven years ago, Theja Birur began developing predictive analytics to identify healthcare fraud. She had spent 20 years in analytics and AI, focused on solving payment challenges for healthcare payers and public health agencies, including work at IBM, the Ontario Ministry of Health, and in the workers compensation industry.

In 2017 Theja founded what is now 4L Data Intelligence, and invented the Integr8 AI Risk Detection™ technology platform, a new generation of advanced AI that is patented for the detection of a wide range of operational threats. Integr8 AI™ approaches real-time FWA detection and prevention from a provider-centric point of view, enabling payers to see dynamic provider behaviors and relationships around a claim and all claims. **This technology has proven to increase FWA detection by 2x to 10x** in initial commercial use, all because it can "see" FWA activity that rules-based claims technologies will never detect, and in a way that doesn't slow down the claims analysis process.

> *Payers are mired in claims data, but aren't looking at the bigger picture context like provider behaviors. I recognized that aggregating credentialed provider data and applying advanced AI to understand behaviors, relationships, and trends had huge untapped potential to transform FWA detection to prevention.*

- Theja Birur, CTO, 4L Data Inteliigence

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The Solution: Know Your Provider + Adaptive AI

Integr8 AI Risk Detection™ technology serves as the framework for two other 4L Data Intelligence products in healthcare and one focused on property and casualty insurance fraud prevention that aggregate provider data across claims analysis applications:

Four Integr8 AI™ Powered Claims Analysis Categories
FOR PRE- AND POST-PAYMENT DETECTION, PREVENTION, AUDIT, ANALYSIS, AND RECOVERY

1. Provider Integrity Edits
2. Adaptive Claims Edits
3. Billing Behavior Claims Edits
4. Provider Schemes

(1) 4L FWA Prevention™ Solution: Integr8 AI powered claims analysis categories (provider integrity edits, adaptive claims edits, billing behavior claims edits, provider schemes) for pre-pre payment, pre-payment, and continuous post-payment analysis.
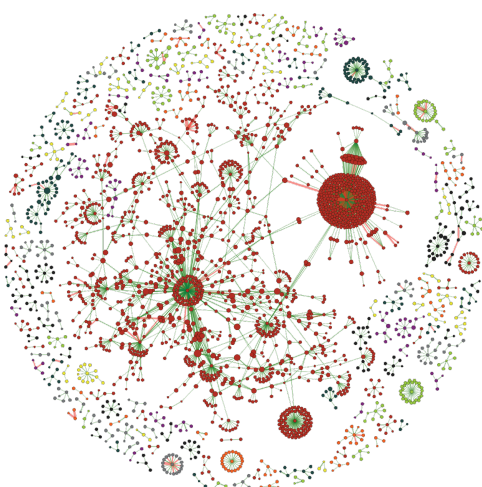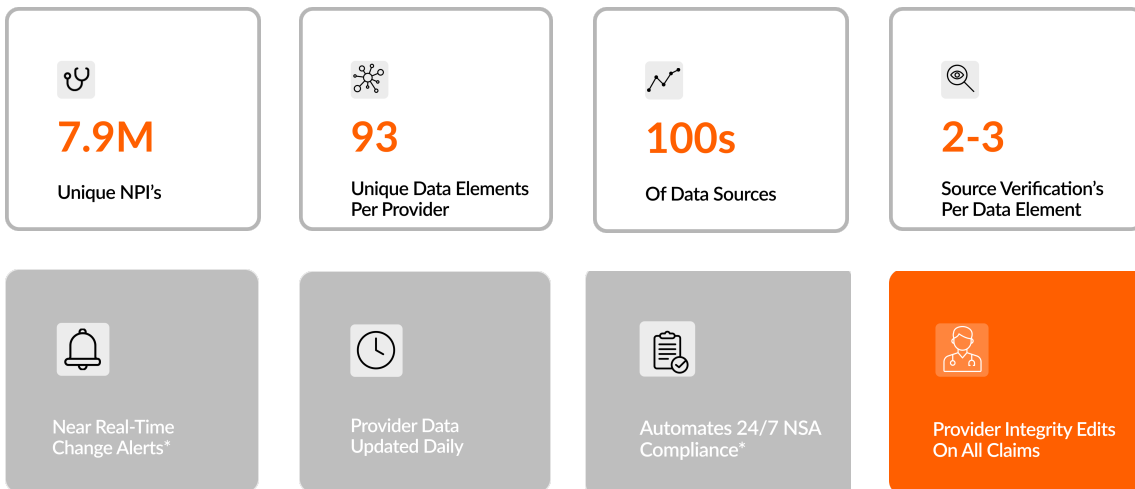

Integr8 AI Risk Detection™ technology enables continuous detection of a range of billing schemes and suspicious relationships including Provider Referral Schemes (shown at left) that alert investigators to dynamic new collusion nodes forming at a trend level to rapidly investigate and shut down potentially fraudulent or abusive billing schemes.
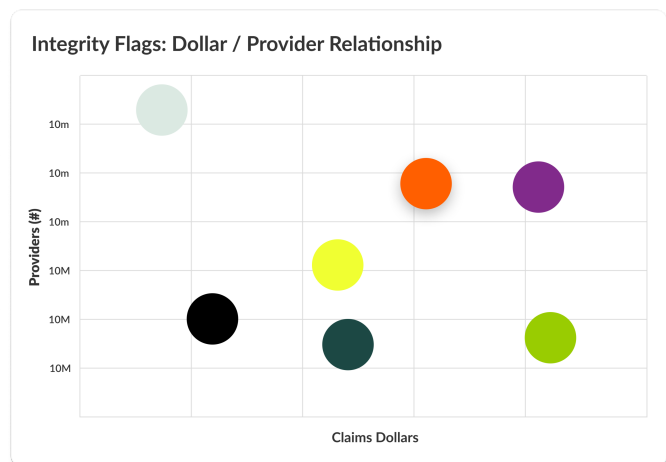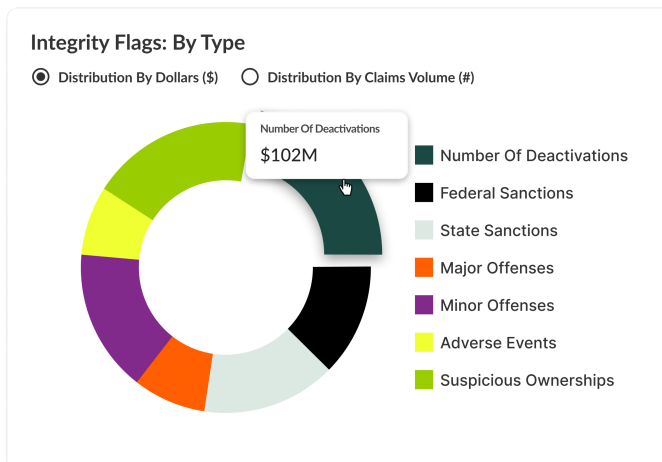
The Solution: Know Your Provider + Adaptive AI

(2) 4L Provider Intelligence™ Solution: Enables payers to 'know their provider' on every claim and all claims across the claims workflow.

|			
7.9M Unique NPI's	**93** Unique Data Elements Per Provider	**100s** Of Data Sources	**2-3** Source Verification's Per Data Element
Near Real-Time Change Alerts*	Provider Data Updated Daily	Automates 24/7 NSA Compliance*	Provider Integrity Edits On All Claims

4L Provider Intelligence™ Solution identifies provider integrity issues such as deactivated NPI, federal sanctions, state sanctions, and other major or minor offenses based on claims dollars.

Integrity Flags: By Type

◉ Distribution By Dollars ($)   ○ Distribution By Claims Volume (#)

Number Of Deactivations
$102M

- ■ Number Of Deactivations
- ■ Federal Sanctions
- ■ State Sanctions
- ■ Major Offenses
- ■ Minor Offenses
- ■ Adverse Events
- ■ Suspicious Ownerships

Integrity Flags: Dollar / Provider Relationship

Providers (#)

10m / 10m / 10m / 10M / 10M / 10M

Claims Dollars

Conclusion

Integr8 AI Risk Detection™ technology and the use of continuously credentialed provider data has significant potential to transform FWA detection, but it requires a shift in legacy processes and mindsets. **But this shift doesn't have to be disruptive or complex.** 4L Data Intelligence takes a consultative approach with partners, working side by side with payment integrity and SIU teams to ensure seamless integration and application of the technology within existing workflows.
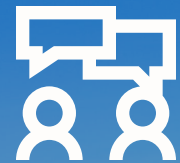
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Appendix

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)
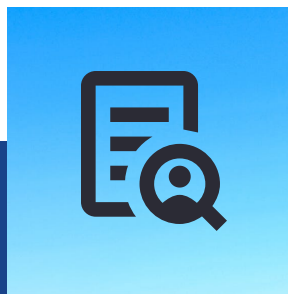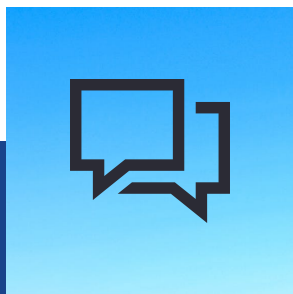
Research Methodology

The statistics noted in this report are based on Kisaco Research HPRI Profiling and Industry Trends Surveys, January – June 2024, and custom online polls conducted in July and August 2024. Respondents included 60 healthcare payment integrity executives.