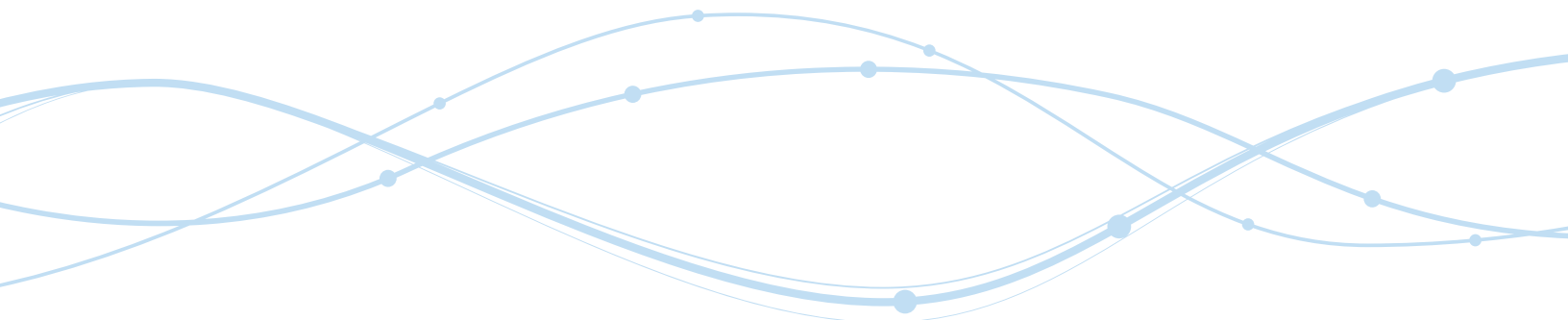Ssas

Achieving program integrity
for health care cost containment

How analytics transforms health care costs for payer programs

Contents

Health care cost containment is a social and business imperative

"Fixing health care" is an urgent and pervasive priority for governments, businesses and citizens. In many countries, costs are out of control, which reduces access to quality care for those who need it, leads to higher taxes and insurance costs, and results in poorer health outcomes.

What's driving the exploding cost of care? In most cases, it's lack of program integrity, which results in unacceptably high levels of fraud, waste and abuse.
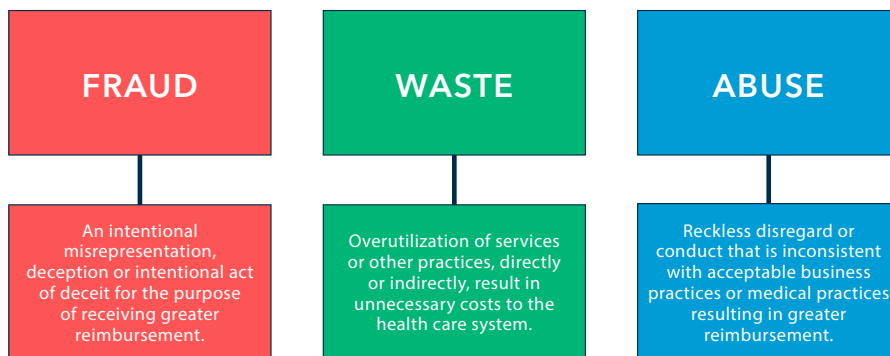
FRAUD	WASTE	ABUSE
An intentional misrepresentation, deception or intentional act of deceit for the purpose of receiving greater reimbursement.	Overutilization of services or other practices, directly or indirectly, result in unnecessary costs to the health care system.	Reckless disregard or conduct that is inconsistent with acceptable business practices or medical practices resulting in greater reimbursement.

Figure 1: Drivers of rising health care costs.

Consider the US health care system as a case in point. **Many sources estimate** that fraud, waste and abuse are involved in about 3% of the nation's health care spending and as much as 10% of annual health care expenditures. **According to the Journal of the American Medical Association (JAMA)**, the US spends more on health care than any other country, with costs approaching 18% of the total gross domestic product. Studies from JAMA indicate that approximately 30% of total health care spending in America may be considered waste.

These trends are not exclusive to the US. Globally, as health care fraud, waste and abuse spiral to colossal heights, the need for powerful analytics becomes clear. **According to Verified Market Research**, the global health care fraud analytics market size was valued at approximately $5.1 million in 2020 and is projected to reach approximately $24.2 million by 2028, growing at a CAGR of 20.95% from 2021 to 2028.

These are big numbers – money that could be redirected to improve the quality of care, provide coverage to those unable to pay for insurance, bolster the bottom line for shareholders, reduce taxpayer burdens and more. At the same time, the damage caused by program integrity breaches goes beyond losses and spiraling health care costs. Breaches can also:

- Put payers at constant risk for noncompliance and financial losses, threatening their organization's integrity.
- Erode customer and investor confidence in the business – and in the case of government programs, result in taxpayer distrust and frustration.
- Make it difficult for payers to proactively take the right steps to optimize costs and health care outcomes – or even determine what to change to save money, spend more effectively and provide better, more cost-effective services to more people.

There's clearly a pressing need for better health care payer program integrity. To get there, payer programs need to prevent fraud and eliminate wasteful, duplicative and unnecessary administrative processes and uses of medical care.

How did we get here?

Fixing the health care cost problem isn't easy because the root of the problem is multifaceted. Over time, the issues have become overwhelming and increasingly complex. Payers have not been able to effectively use technology to see through this complexity and detect fraud or patterns of waste and abuse.

Constant change and increasing complexity

In the health care payment world, massive amounts of data are created in disparate systems from fragmented sources – and tumultuous change is happening in health care markets. These circumstances make it difficult for payers to see how effectively money is being spent or if claims are proper and should be paid.

In the US, for example, it is increasingly difficult for private insurance providers to strategize for profitability and growth. And public health agencies – like Medicaid and Medicare – struggle to rein in spending and adhere to budgets. Consider that:

- New care providers are constantly added to and removed from insurance plans. This is due in part to the increasing consumerization of health care, which has prompted newer types of care providers such as urgent care centers, virtual care websites and telehealth, and primary clinics located in pharmacies.
- New technologies, procedures and medications are constantly introduced, evaluated and added to plans.
- Fraudsters actively test rules and thresholds – and constantly change strategies and elements of their identities – making it hard to match a claim with a known fraudster.
- Government agencies are stepping in and increasing pressure to improve health outcomes relative to investments in treatment.

Traditional legacy systems and approaches are unfit for today

Traditional legacy approaches to program integrity are fraught with inefficiencies, resource constraints and fragmented data. This makes them structurally unfit to deal with complexity. For instance, most payers are burdened with:

- **Siloed business units.** Different departments often use disparate legacy and niche solutions that don't talk to each other, making it almost impossible to share information and spot suspicious activity.
- **Staff limitations.** There aren't enough analysts to manually investigate all suspicious activity, and scoring based on rules alone generates too many false positives.
- **Poor data quality, data timeliness and detail.** Data used in analytics is often incomplete and unreliable. Complicating matters, the data is also manipulated, altered or summarized and then stored in data warehouses, far from its point of creation.
- **Narrow scope in data models.** Current data models rarely produce a view beyond a single patient identity or even a patient encounter. As a result, it's hard to spot high-risk relationships; get a full picture of a patient, claims and all related entities; or detect patterns revealing organized crime rings that generate large volumes of claims.
- **Limited analytics.** Tools focus on investigation and driving retrospective recovery, or "pay and chase." This limits recovery and never addresses the root causes of fraud.

Given these limitations, payer organizations often don't detect fraud, waste and abuse early enough to prevent it. They typically make these discoveries after claims are paid and recovery of funds is unlikely.

What's needed: A comprehensive approach to program integrity

One thing is clear: Payers can't afford to continue conducting business as usual. As with other industries, data scientists for health care payer organizations spend an inordinate amount of time – **around 45% of their time** – preparing data for analytics rather than applying analytical insights. This behind-the-scenes work includes tasks like accessing, integrating, cleansing and formatting the data.

Advanced analytics tools that include automated data management and preparation capabilities can reverse this reality, freeing investigators to spend more time on practical analysis. In turn, they can uncover:

- Unnecessary services provision and billing for services not rendered.
- The unbundling or upgrading of services.
- Fictitious providers and billing agents.
- False referrals and illegal kickbacks.

Prime Therapeutics slashes fraud, waste and abuse using artificial intelligence

Prime Therapeutics is a pharmacy benefit manager (PBM) that manages prescription drug benefits on behalf of health insurers by negotiating with drug manufacturers and pharmacies. While PBMs are adept at detecting fraud, waste and abuse in drug dispensing, they tend to lack visibility on the medical benefit side.

Originally, Prime kept data in multiple databases and data stores. Because it couldn't effectively connect and analyze all relevant data sources, it was difficult to stop fraud committed by prescribers and members.

With an advanced analytics solution from SAS, Prime consolidates data from pharmacies, medical drug claims and medical services. Applying AI and machine-learning capabilities to this comprehensive data set enables the organization to detect and prevent fraud, regardless of source. And visual link analysis shows connections between providers, members and pharmacies – making it easier for Prime investigators to share evidence with law enforcement.

$355 million saved

in 18 months through recovered payments and cost avoidance

Components of a comprehensive advanced analytics infrastructure

To shift to a more effective model, payers need a program integrity solution that supports core disciplines in a single, complete platform. These disciplines include:

- **Data management.** With these techniques, payers can normalize and incorporate multiple data sets to create a single, trustworthy source of truth for analytics and reports.

- **Behavioral analytics.** By incorporating modern analytical techniques – such as link analysis and data visualization – payers can identify fraud, risk and abuse early and maximize revenue lift.

- **Claim analytics.** Employing advanced claim analytics at the line-item claim level reveals quickly whether a claim is legitimate and if it should be paid. Users can answer questions like: Is this claim coded correctly and properly submitted? Should it be paid? Should it be moved to a special investigations unit for further handling?

- **Clinical targeting.** This approach helps identify where and when fraud, waste and abuse might be happening by providing a better understanding of the medical necessity of claims. It's particularly valuable for detecting waste and abuse (e.g., when providers are overcharging or conducting unnecessary procedures to increase revenues). Payers can also use this approach to uncover short stay and readmit trends, conduct ER reviews, assess levels of care and identify unusually high-cost claims.
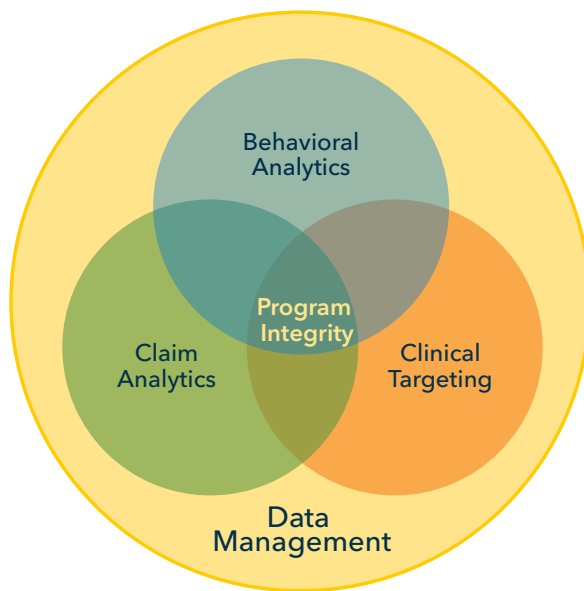

Figure 2. The four core elements of a comprehensive program integrity solution can be deployed as an integrated suite of deliverables or as separate capabilities.

Enabling technologies for health care payer program integrity

A comprehensive approach to health care payer program integrity is possible in large part because of big data availability and computing power, data management capabilities and advanced analytics.

Big data and computing power

With today's easy access to diverse types of big data and massive computing power, payers can bring together more contextual information than ever before. It's easier to assess risk and differentiate behavior when you can put fraud, waste and abuse into context by incorporating diverse data – from provider contracts and company policies, comparative behavior and performance data, and external data.

When all this data is analyzed together using a big data analytics platform, payers can detect patterns and anomalies as never before. By combining big, diverse data with high-performance computing capabilities to crunch it at lightning speed, payers gain deeper, faster insights. This approach enables them to:

- More fully understand the behavior of an individual across all the activities in which they are involved.
- Receive timely alerts when questionable behavior, events and patterns are first detected.
- Take preventive measures where the greatest losses are accumulating, to maximize the business impact of limited investigative resources.
- Find savings, improve processes and solve problems that are too small for investigators or centers of excellence to uncover and address. These savings add up quickly, boosting the bottom line in health care cost containment.

Advanced analytics at work: Combating fraud, waste and abuse

A large state health insurer with several million members had been relying on outdated technology to detect fraud, waste and abuse. It had little insight into who was committing the fraud, how they were doing it or how prevalent it was.

Using SAS®, the insurer was able to detect and combat complex schemes of fraud, waste and abuse. The organization deployed several elements of SAS Detection and Investigation, including out-of-the-box models that delivered immediate value and tools to create new models when needs changed. Now it can:

- Identify targets for investigation by analyzing all related activities and relationships at a network dimension.
- Detect previously hidden linkages and uncover organized fraud rings.
- Prioritize efforts to chase down larger, more complex fraud schemes.
- Counter fraud by detecting areas that have a high degree of waste.
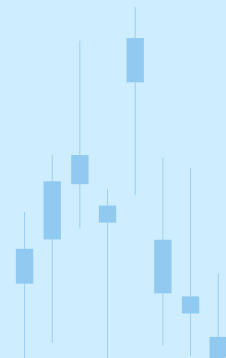
Data management

Data management capabilities from SAS help payers integrate and prepare data on health plans, pharmacies, care management, diagnostic coding and other third-party external data in such a way that it's always optimized and ready for analytics. First, the data is accessed from multiple internal and external data sources, then cleansed and normalized to prepare it for analytics. Multiple data sets combined into one data set show a comprehensive view of recipients, providers, financial information, services and other types of information.

By deploying advanced data management and analytics on a single platform, payers can not only prevent errors and fraud – they can also tackle waste and abuse on a larger scale. Such an approach starts with a foundation of all relevant data sources – internal and external, monetary and nonmonetary – to establish a baseline of "normal" for users and peer groups. It then applies a variety of descriptive and predictive models, rules engines and entity link analysis against that data to identify anomalies with high accuracy and speed.

Data management from SAS provides:

- **Comprehensive data integration and data quality capabilities** designed to handle diverse big data.
- **The ability to use and analyze unstructured data**, such as claims notes, customer service logs, police reports and medical records.
- **Automated, easy-to-use data management tools and models**, such as a payer-specific fraud data model and prebuilt data management capabilities.
- **Analytics, reporting and results management capabilities** based on internal and external data sources that have been aggregated and normalized.
- **Entity resolution capabilities**, which provide a more complete picture of the entities within the system (both providers and members) – making it easier to pinpoint and match identities.
- **Analytics results based on a single version of the truth**. It's easier to detect new and hidden relationships between data because SAS combines data from unrelated sources, ensures data quality by eliminating or reducing data inconsistencies, and automatically validates data as part of the data integration process.

Advanced analytics

Many of the same analytics techniques used for fraud detection (such as anomaly detection, trend analysis, regression and predictive techniques) can be used to identify gaps in program integrity. For example, analytics can examine the payment process itself in an end-to-end, holistic way and generate insights about what's working and what's not.

These analytics can be used to perform clinical targeting, which helps to identify where and when fraud, waste and abuse might be happening. Such insights go beyond traditional claim fraud detection. For example, advanced analytics can help payers assess the medical necessity of short stays (e.g., an observation rate that's a much lower claim than admission rate) and the appropriateness of claims as they are received.

> Making informed decisions and streamlining claims processing and payment operations are paramount initiatives for health care payers. To succeed, payers must improve the quality of the claims data received and use top-notch payment integrity tools.
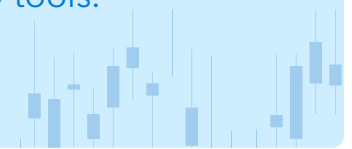
SAS provides powerful, yet easy-to-use advanced analytics, such as:

- **Automated forecasting.** The software automatically selects the most appropriate forecasting method to suit the data, enabling even novice users to forecast reliably.

- **Scenario analysis.** Users can identify important variables and how changes to them influence forecasts.

- **Decision trees.** These tree-like visualizations illustrate the most likely outcomes and consequences.

- **Network diagrams.** Payers can see how complex data is interconnected.

- **Text analysis.** By applying sentiment analysis to data or customer comments, payers can get fast insight into communications.

- **Alert management.** Alerts for potentially fraudulent claims are routed to special investigation units where investigators can use case management tools to rapidly investigate suspicious claims.

- **Case management.** Once a claim is scored and prioritized, an investigator can perform a more in-depth review of the claim characteristics to determine if that claim is fraudulent (or if any associated historical claims are fraudulent).

Achieving program integrity with SAS® Payment Integrity for Health Care

SAS Payment Integrity for Health Care is a comprehensive solution for program integrity. Its common technology framework gives payer organizations the visibility and control they need to drive better outcomes. This ranges from detecting fraud earlier to revealing hidden inefficiencies and uncovering unnecessary waste. With SAS, multiple disciplines can work together in a unified way to support an analytics-driven approach to health care cost containment.
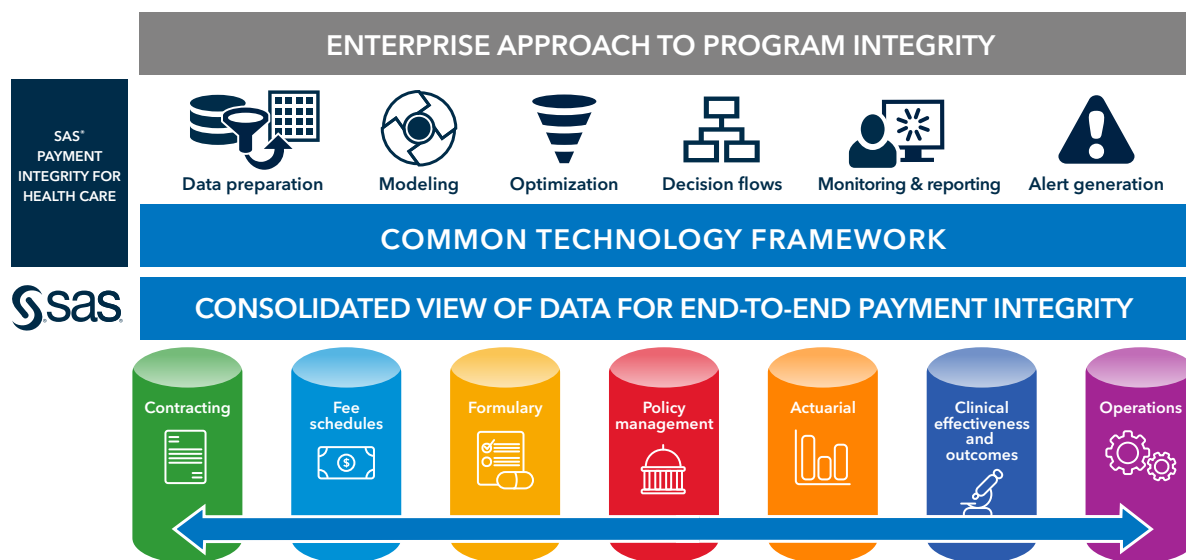

Figure 3. The SAS approach to program integrity proactively and continuously optimizes cost containment and enables multiple disciplines to work together toward common goals. It can be deployed as a full solution or as separate products to support specific functional areas.

Data investigation and reporting

SAS Payment Integrity for Health Care includes powerful data visualization and reporting tools tailored to help payers address specific business challenges. The software makes it quick and easy to combine and visually present large, disparate, structured and unstructured data sources in an easily understood form by:

- Surfacing advanced analytics results and automating and streamlining the decision process.
- Defining, creating, triaging and managing alerts.
- Performing detailed investigations.
- Managing cases.
- Defining surveillance scenarios.
- Defining and using business rules to detect patterns of interest.
- Generating alerts based on the results of analytics.
- Performing exploratory analysis using social network analysis, temporal analysis, geospatial analysis, and search and discovery.
- Initiating workflows and automating mundane tasks within a governed framework.
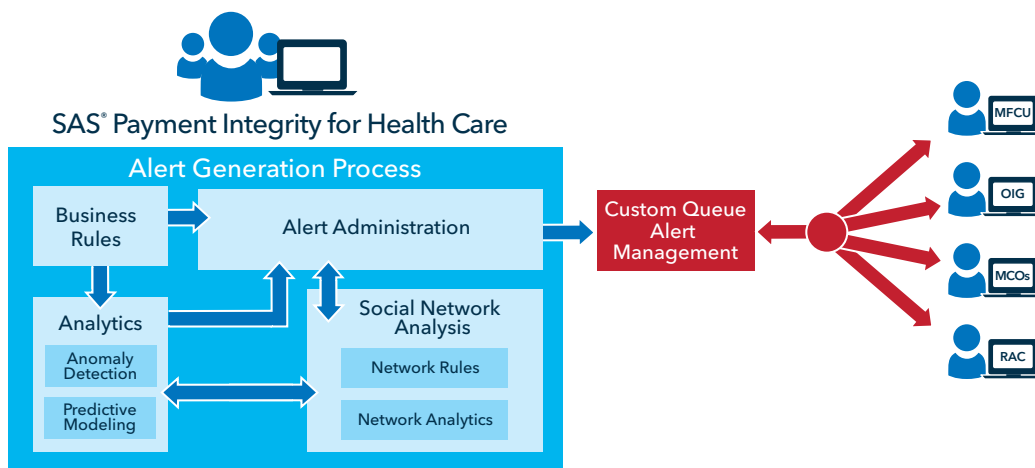

Figure 4. With SAS Payment Integrity for Health Care, it's possible to identify opportunities by claim source, send referrals to internal and external business partners, and receive input back from the business partners.

Automation, surveillance and alert creation

Using SAS, payers can author customized scenarios and business rules to uncover anomalous events for triage. Automated decisions are informed by analytical models and governed by business rules, which are often jointly engineered by business and IT. Key capabilities include:

- **Alert and event management.** This helps to intelligently prioritize and route alerts for prompt triage, investigation and disposition.
- **Search and discovery.** Users can search and uncover relevant data and patterns using powerful search capabilities, including free text and geospatial search; filters and facets for refining results; and visualization options such as network views, maps and timelines.
- **Entity analytics.** Network and entity generation processes use the latest documents and data to automatically build networks, resolve entities and identify communities.

Reporting and decision support

SAS meets payers' multifaceted reporting needs while providing deep analytical insights to guide decisions regarding usage, eligibility, costs, quality of care, outcomes and fraud prevention. Our solution also helps payers make informed decisions about administrative performance and finance – including forecasting, budgeting and taxes.

Outcome analysis

Outcome-based analytics is an approach that helps payers compare costs across different service delivery settings, such as fee-for-service, managed care and carve-outs. For example, it can integrate all managed care organization MCO data, forecast budgets and analyze by delivery setting or member. In turn, payers can drive outcomes in ways that influence policy, member health, provider effectiveness and cost efficiency. Payers can also calculate future cost trending data to assist with budget projections.

Once implemented, the platform systematically improves results by enabling a cyclical feedback loop. Policies are based on data about real outcomes. The software learns from the latest results, which are continuously fed back into the system as an additional data source to drive continuous improvements in plans.
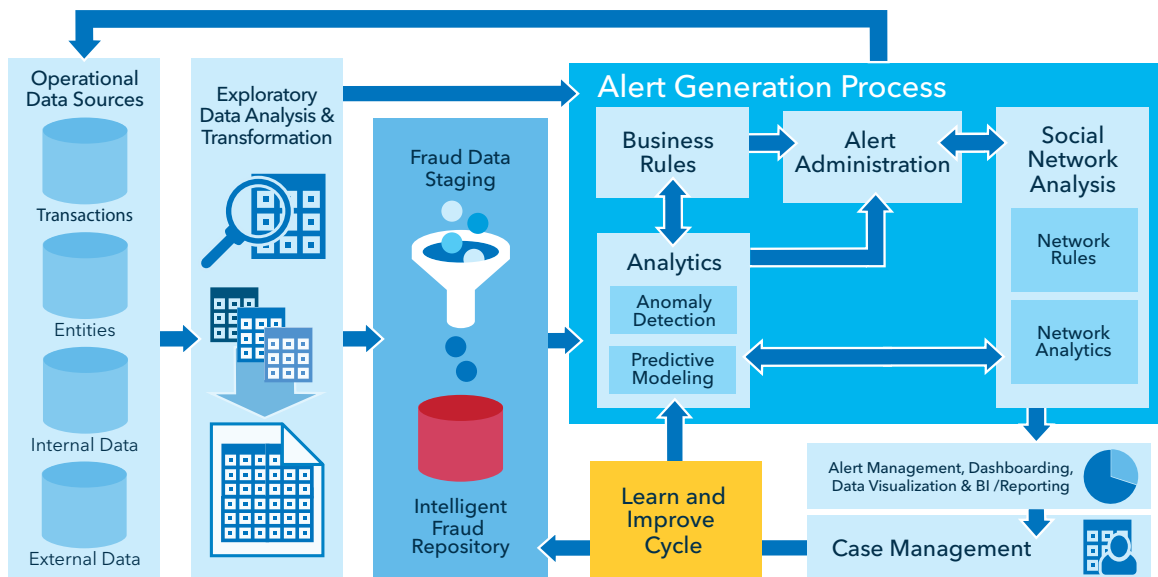

Figure 5. Process flows and feedback loops drive better decisions over time.

Flexible architecture options

SAS software runs anywhere and can analyze data wherever it lives – on public or private clouds, or on-site. And our multithreaded, distributed architecture can shrink processing times from hours to minutes.

Leading technologies make a difference

SAS Payment Integrity for Health Care is built on integrated, leading-edge analytics and AI technologies that deliver exceptional results for health care payer programs. Our approach incorporates:

- **A single, powerful platform.** Our solution combines data manipulation, exploration, visualization and modern statistical, data mining and machine-learning techniques in a single, in-memory processing environment. The result is faster, more accurate answers to complex payer problems, along with deployment flexibility. SAS creates a fluid, easy-to-administer IT environment that boosts efficiency of payer organizations that have limited analytical resources.

- **Data mining and machine learning.** Our comprehensive approach to program integrity mines, cleanses, aggregates and analyzes data, then feeds the results back into the system for refinement. Neural networks learn from past results to keep improving over time, which fosters better decision making and outcomes. Results are automatically triaged and fed into a centralized case management system that tracks down issues and generates alerts for the most serious cases.

- **Entity (or link) network analysis.** Payers can detect and prevent organized claims fraud by going beyond transaction and account views to analyze all related activities and relationships at a network dimension. Investigators can uncover previously unknown relationships and conduct more efficient investigations using a unique network visualization interface that lets them see network connections.

- **Data visualizations.** Through data visualizations, SAS provides a holistic view of fraudulent activity (including the identities of related perpetrators) and a much clearer understanding of provider and patient behavior. An intuitive, drag-and-drop GUI allows everyone, even nontechnical users, to investigate and visualize data in multiple ways, create reports and dashboards, and share information and insights. Anyone can use SAS to create meaningful analyses through preconfigured reports or on an ad hoc basis.
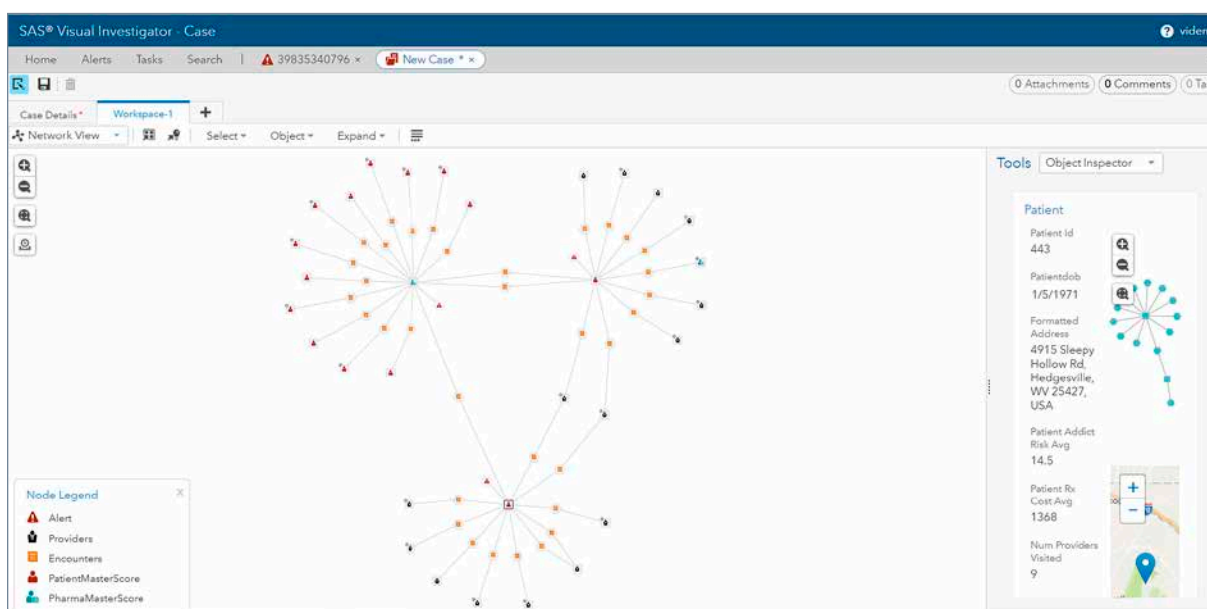

Figure 6. Investigators can gain a consolidated view of fraud risk with intuitive visualizations that go beyond individual and account views to analyze all related activities and relationships at a network level.

SAS: Helping payers move beyond basic fraud detection and prevention

Leading-edge technologies like AI, machine learning and natural language processing have converged to make data more valuable to payers than ever before. SAS has always been at the forefront of these technologies and has used them for years to solve customer problems.

With SAS, payers can move beyond fraud detection and prevention – and work simultaneously to improve patient treatment and outcomes while lowering costs. Our open, cloud-native platform enables everyone, from data scientists and software developers to business analysts and executives, to collaborate and achieve innovative results faster. The SAS solution fits with any infrastructure and delivers the advanced analytics and processing power payers need, without added complexity. In turn, payers can conquer every analytics challenge – from experimental to mission critical.
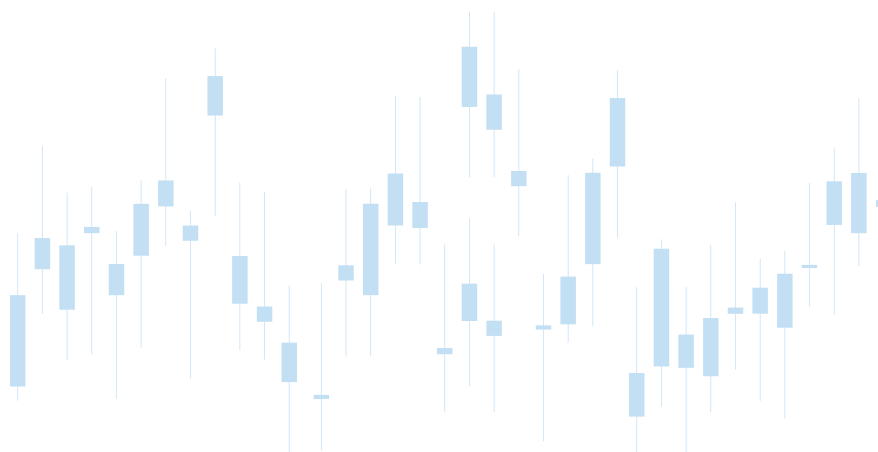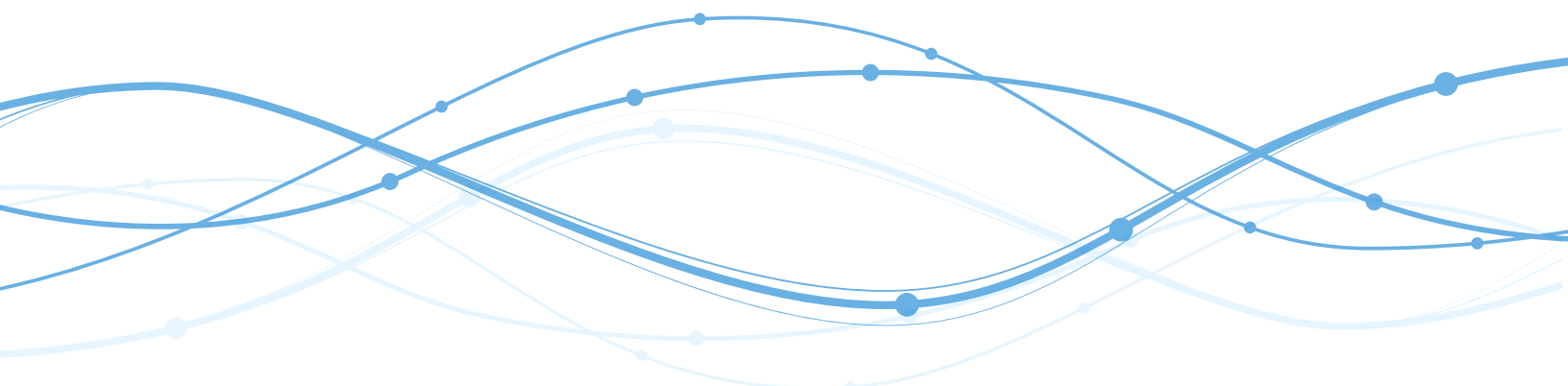
Learn more about SAS health care solutions for fraud, waste and abuse.