Identify, Predict, Prevent, Recover:

A Handbook for Medicaid Program Integrity

Best Practices for Using Predictive Analytics to Reduce Fraud, Waste and Abuse

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Contents

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Introduction:

The Complex Nature of Medicaid Programs

Public benefits programs such as Medicaid are multidimensional, complex and continuously evolving. Because of concerns about program size, growth, diversity and adequacy of fiscal oversight, the Government Accountability Office (GAO) first designated Medicaid at high risk for fraud, waste and abuse in 2003, and it remains a high-risk program 12 years later.[1] In fiscal year 2014, Medicaid distributed $508 billion, of which state governments shouldered $204 billion. With an overall improper payment rate of 6.7 percent, Medicaid lost more than $34 billion — and states bore the burden for about half that amount.[2]

Multiple state and federal organizations participate in Medicaid program fiscal oversight, but most of the burden falls to the states, which have the primary responsibility for funding and administering program integrity (PI) teams to minimize tax dollars lost to fraud, waste and abuse. Historically, state PI initiatives have focused on retrospective recovery of paid claims — the "pay and chase" effort to recover improper payments after they have been made.

Overpayments have the potential to increase as Medicaid becomes larger and more complex. It's common for providers to make coding mistakes or misunderstand ordering and billing rules, and criminals are growing more sophisticated. States must take their PI game to the next level by integrating cost avoidance activities — based on predictive analytics — into their fraud, waste and abuse strategies.

This handbook serves as a starting point for states seeking to re-invent and re-invigorate their Medicaid PI initiatives and processes with predictive analytics approaches and tools. It recommends a more integrated and comprehensive approach, including:

- ✓ Adding predictive analytics into the front end of the claims cycle to avoid overpayments
- ✓ Developing a comprehensive, analytics-based approach to screening and eliminating problem providers
- ✓ Supplementing conventional post-payment recovery efforts with predictive analytics

It begins with an overview of Medicaid PI and a discussion of the challenges of traditional approaches. This is followed by an introduction to cost avoidance using predictive analytics; suggestions for improving managed care PI; a review of required technology and technology architectures; and information about costs, funding and return on investment (ROI). Finally, the handbook summarizes best practices for integrating predictive analytics into Medicaid PI initiatives.

The High Costs of Medicaid Fraud, Waste and Abuse

In fiscal year 2014, Medicaid distributed **$508 billion,** of which state governments shouldered **$204 billion.**

With an overall improper payment rate of **6.7%,** Medicaid lost more than **$34 billion,** and states bore the burden for about half that amount.

Section 2:

Medicaid Program Integrity: Background and Overview

With nearly 67 million enrollees[3] — a number that is steadily growing due to eligibility expansion under the Affordable Care Act (ACA) — Medicaid is large and unwieldy. A diverse and expanding population of enrollees and providers, large overall payment sums, complex billing and coding systems, and fragmented federal and state policies and regulations are some of the reasons Medicaid is ripe for improper payments due to fraud, waste and abuse.

The Scope of the Problem

What exactly constitutes fraud, waste or abuse? Fraud involves willful deception. Abuse is related to poor fiscal, business or medical practices that increase costs, such as reimbursement for services that are not medically necessary, coding errors and other mistakes. Waste involves the misuse of services and resources, including overutilization of resources and inaccurate payments.[4]

Most Medicaid fraud, waste and abuse is committed by providers, including physicians and health care practitioners, suppliers of durable medical equipment (DME), managed care organizations (MCOs) or their employees. However, even though many unscrupulous providers, scam artists and even organized crime rings are bilking the Medicaid system, the Centers for Medicare and Medicaid Services (CMS) says most improper payments are caused by unintentional errors such as improper eligibility, documentation mistakes and failure to return records.[5]

To safeguard Medicaid PI, a complex and often confusing network of federal and state agencies and third-party vendors has evolved. States handle most day-to-day functions via PI offices or bureaus that are charged with preventing and recovering overpayments due to waste and abuse, and Medicaid Fraud Control Units (MFCUs) that are usually part of the state attorney general's office but funded, certified and supervised by the U.S. HHS Office of Inspector General (OIG). PI units refer any suspected fraudulent activity to MFCUs, which investigate and prosecute provider fraud and patient abuse and neglect.

State PI processes are supported by federal organizations that supervise, fund, audit and review their efforts and provider claims (see quick reference chart on page 5).

Fraud, Waste and Abuse Defined

✓ **Fraud** involves willful deception.

✓ **Abuse** is related to poor fiscal, business or medical practices that increase costs, such as reimbursement for services that are not medically necessary, coding errors and other mistakes.

✓ **Waste** involves the misuse of services and resources, including overutilization of resources and inaccurate payments.

Quick Reference Chart: Federal Support for Medicaid PI

Agency	Lead Agency	Tasks	Additional Info
Medicaid Integrity Group (MIG)	CMS	Reviews provider activities, audits claims, identifies overpayments, educates providers, supports state PI teams and MFCUs	Activities completed by vendors known as Medicaid Integrity Contractors (MICs)
Payment Error Rate Measurement (PERM) Program	CMS	Conducts audits to measure error rates of improper payments for Medicaid and Children's Health Insurance Program (CHIP)	17 states are audited each year using random sampling techniques to calculate payment error rates
Medicare-Medicaid (Medi-Medi) Data Match Program	CMS	Helps states analyze billing patterns across Medicare and Medicaid	Participation is optional
Office of the Inspector General (OIG)	HHS	Audits, investigates and assesses all HHS programs	Funds and oversees state MFCUs
Department of Justice (DOJ)	DOJ	Monitors and enforces federal laws and prosecutes criminals	Directs law enforcement agencies, including the Offices of the U.S. Attorneys, the Criminal Division and the Federal Bureau of Investigation (FBI)
Medicaid Integrity Institute (MII)	CMS/DOJ	Provides customized training, technical assistance and support to state Medicaid PI employees	National Medicaid PI training center for states located at DOJ's National Advocacy Center in Columbia, S.C.
Health Care Fraud and Abuse Control (HCFAC) Program's Health Care Fraud Prevention and Enforcement Action Team (HEAT)	DOJ/HHS	HCFAC coordinates federal, state and local law enforcement activities related to investigating and prosecuting criminal activity; HEAT investigates suspicious Medicare and Medicaid providers	Staff includes law enforcement agents, prosecutors, attorneys, auditors and evaluators
Government Accountability Office (GAO)	Congress	Audits federal agencies, evaluates programs and makes recommendations for improvements	Congressional agency investigates spending and fraud across federal programs

Challenges of Pay and Chase

In response to "prompt pay" laws that require payers to reimburse provider claims in a set time period, state PI initiatives have traditionally followed a pay-first-ask-questions-later approach to claim reimbursement. In this model, known as retrospective recovery or "pay and chase," Medicaid agencies pay recipients' medical bills and then review the claim, identify and investigate discrepancies, and attempt to recover any overpayments.

State Medicaid management information systems (MMISs) include a mandatory surveillance and utilization review subsystem (SURS) component that helps states retrospectively analyze and evaluate paid claims to detect patterns of inappropriate use. But SURS uses older profiling technologies to find outlier providers, so it's relatively simple for fraudulent providers to game it. By spreading claims over multiple provider numbers, they can mimic their peers' billing patterns.

Common Retrospective Recovery Methods

✓ **The surveillance and utilization review subsystem (SURS)** component of state MMISs helps states retrospectively analyze and evaluate paid claims to detect patterns of inappropriate use.

✓ **Predictive analytics-based fraud and abuse detection systems (FADS)** help expose suspicious trends and outlying behavior in the retrospective recovery phase and allow analysts to explore data using sophisticated querying and reporting tools.

✓ **The CMS Recovery Audit Contractor (RAC) program** requires states to contract with vendors known as Medicaid RACs, which assist with post-payment activities such as reviewing claims data in an automated fashion, requesting provider records for review, identifying over and underpayments, and collecting overpayments.

In the last decade, many states have adopted predictive analytics-based fraud and abuse detection systems (FADS) or other analytical tools that are more precise. States that supplement the traditional profiling technologies used by SURS for the more powerful predictive algorithms of FADS make it harder for criminals to game the system. FADS expose suspicious trends and outlying behavior in the retrospective recovery phase and allow analysts to explore data using sophisticated querying and reporting tools. Building on previous findings, FADS integrate knowledge gained about overpayments into future analyses.

Pay and chase is challenging because it can be time consuming and labor intensive — often involving audits of paper records and files — and can be prolonged by provider appeals.

An additional resource for retrospectively finding errors — but not fraud or abuse — is the mandatory CMS Recovery Audit Contractor (RAC) program. The RAC program requires states to contract with vendors known as Medicaid RACs, which assist with post-payment activities such as reviewing claims data in an automated fashion, requesting provider records for review, identifying over and underpayments, and collecting overpayments.

Pay and chase is challenging because it can be time consuming and labor intensive — often involving audits of paper records and files — and can be prolonged by provider appeals. In many waste and abuse cases, authorities elect to educate providers on proper practices rather than alienate them by trying to collect large sums. Fraud cases — often involving large criminal rings, stolen patient or provider identities, claims for services that were never delivered and non-existent clinics — are complex and difficult to recover, so arrest and prosecution may not result in the return of stolen funds. And budget-strapped states often don't have resources to recover smaller amounts, leaving scammers with latitude to manipulate the system for lesser sums.

Section 3:

Predictive Analytics and the Shift to Cost Avoidance

Unlike data mining techniques that report on past events and trends, predictive analytics forecast the probability of future events and call attention to behaviors and practices that deviate from the norm. Like fraud detection tools used by the credit card and banking industries to detect potentially fraudulent financial transactions, pre-payment predictive analytics technologies help PI teams recognize the possibility of future suspicious activity.

By applying sophisticated computational algorithms to patient and provider data that has been captured via MMISs and other public and private data sources — such as the Social Security Administration, state tax and business data, and federal and local law enforcement organizations — predictive analytics systems allow states to categorize similar providers using data-driven methods. These methods help create more precise peer-based statistical comparisons and identify a wider range of conventional patterns in medical, billing and business practices.

As these technologies examine provider billing, use patterns and other historical data over time, certain patterns will emerge and be confirmed as dependable predictors of improper billing, which can prevent similar errors or fraudulent activity in the future. Outlying behaviors are automatically flagged for review. Using this cumulative intelligence, states can implement more effective system edits, improve claim review, close policy loopholes, and develop and maintain more relevant provider education.[6]

The most effective, comprehensive approach to PI utilizes predictive analytics throughout the claims cycle — from provider screening to the retrospective recovery and pre-payment processes. The pre-payment approach has the potential to reap significant benefits because it helps states avoid costs. By applying predictive analytics throughout the claims cycle, states can build multiple layers of protection into their PI programs.

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A Data-Driven Approach to Cost Avoidance

In the face of significantly increasing enrollee and provider populations, the ACA includes many provisions to improve Medicaid PI. The ACA charged CMS with consolidating federal Medicare and Medicaid PI groups into a single centralized unit, enabling the agency to coordinate policies and activities.

For Medicare PI, which is solely managed by CMS, the re-invention under ACA shifts the focus from retrospective recovery to cost avoidance. As mandated by the Small Business Jobs Act of 2010, CMS implemented a Fraud Prevention System (FPS) that uses predictive analytics to examine Medicare claims, billing and utilization patterns to recognize potentially fraudulent claims before payment.

The shift from retrospective recovery is more complex for Medicaid, with its separate state PI initiatives and budgets and a variety of often-overlapping federal support agencies. But given Medicaid's overwhelming financial impact on their budgets, forward-thinking states have embraced the cost avoidance model as an important way to ensure

their Medicaid programs are fiscally sustainable without reducing benefits. Cost avoidance involves the application of predictive analytics to data about claims and providers with the goal of preventing improper payments.

Predictive analytics systems examine Medicaid claims using algorithmic models that automatically alert data analysts to provider and patient data that doesn't meet expected patterns. When a provider makes a claim, factors such as type and frequency of visits, diagnoses, referrals and prescriptions are compared across provider peer groups and evaluated against validated benchmarks. When it comes to patients, predictive analytics systems look at things such as their history of previous illnesses and diagnoses and prevalence of provider visits. They also take into account multi-level associations such as patient to provider groups (e.g., clinics).

Depending on the technology the state uses for its MMIS, predictive analytics may be integrated with payment processing to create an automatic hold on a suspect claim. State PI analysts prioritize flagged claims for provider education or further review and investigation, and if needed, refer providers to the MFCU.

Some providers worry that predictive analytics-based cost avoidance means that computers may misinterpret legitimate claims or judge honest mistakes as attempted fraud. Not so, says CMS: Although a predictive analytics system may automatically suspend or hold a claim, data analysts are generally required to interpret results and investigate and adjudicate the claim.[7]

Another way states can avoid unnecessary costs is to apply these same technologies to providers. Predictive analytics makes it easier to screen providers, allowing PI staff to categorically "score" them according to risk to determine the level of screening that each provider type receives (e.g., background check, site visit, etc.). By drawing attention to suspicious linkages among providers, organizations and beneficiaries, predictive analytics can also help states identify and investigate fraudulent or ineligible providers, remove them from the system or even prevent them from ever enrolling.

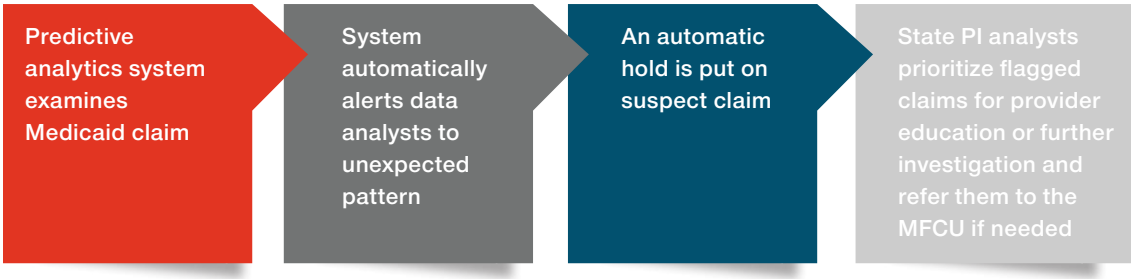
Overview of Predictive Analytics Techniques

Predictive analytics encompasses a number of approaches and tools for assessing and analyzing data. After a claim passes through a state's MMIS for verification, the integrated system quickly applies one or more of these tools to the claim. Following are some of the most valuable techniques used for Medicaid PI.

Predictive modeling is an umbrella term for a variety of methods that analyze relevant historical data to create a statistical model of future behavior. Analysts make predictions based on the model, "train" it to recognize the probability of a behavior and then apply it to incoming claims. In general, pre-payment predictive modeling takes into consideration a variety of factors such as patient and provider behavior, hospital stays, specific transactions and office visits; post-payment predictive modeling more specifically focuses on patient and provider behavior.

Risk scoring, like a consumer credit score, is used to assess providers based on a predictive model that analyzes billing, claims, and other relevant public and private data. A risk scoring model might evaluate providers based on 15 variables (or pattern detectors) and develop scores between 0 to 1,000, with the riskiest providers scoring over 900. The overall risk score is a single metric that provides an at-a-glance evaluation and

An Ideal Cost Avoidance Model



allows providers to be categorized according to risk level, but an analyst can dig deeper and look at individual scores for each of the variables.

Link analysis, an innovative predictive modeling approach that identifies unusual or hidden relationships, helps expose fraudulent providers. Link analysis can examine the various components of false identities, including provider names, aliases, Social Security numbers, locations, addresses and phone numbers to find links among providers, suppliers, employees and beneficiaries. Using algorithms to evaluate these connections, link analysis generates visualizations that map this network, reveal relationships among providers and known criminals, and simplify the process of data interpretation.

Trend analysis is an analysis of behavior or activity over time to identify trends and project future direction. For example, if abnormal provider activity raises a red flag, trend analysis can explore historical behavior. Or it might be used to analyze a less specific query for random or geographic audits, and to predict future trends or behavior. Trend analysis can help states evaluate Medicaid policy, which is especially important as the Medicaid population grows and changes under the ACA.

Spike analysis recognizes more obvious behavioral changes by illustrating them as "spikes" that stand out from normal behavior. Spikes may not be out of the ordinary depending on location, time of year or other developments, and they can be used to predict future spikes. On the other hand, a provider's billing behavior might look flat or normal when viewed historically. But if her identity and credentials are stolen and used illegally, a spike in the number of claims, patients or services will be obvious to data analysts.

Cluster analysis, or clustering, is a type of predictive modeling in which common data objects are automatically grouped into discrete clusters based on pre-determined parameters. Clusters of providers can be compared to determine normal billing behavior and indicate trends. Multiple algorithms can be used to create clusters depending on the type of model needed. Analysts may experiment with many different clustering algorithms to find the model that best answers a particular question.

Tips from the Trenches: Working with Law Enforcement

Data can be a boon for law enforcers tasked with investigating fraud, says Jacob Schunk, Assistant U.S. Attorney with the U.S. Attorney's Office for the Northern District of Iowa. "We use data analytics in nearly all of our cases to find targets, test hypotheses, identify relevant sample populations and calculate estimated damages," he says.[8]

State PI teams' data capabilities and experience can be a tremendous resource for investigators, says Schunk. "Data can often appear confusing and difficult to understand, even to highly skilled and experienced litigators," he advises. "PI teams can help by preparing understandable, easy-to-read charts and spreadsheets, and anticipating questions. So the PI team should provide not just the initial data pull or the initial spreadsheets, but also data responsive to the inevitable follow-up questions."

Schunk says that it's helpful when PI teams chart a possible path forward for the investigation. "For example, rather than just allowing law enforcement to come up with the idea to do a targeted medical review, PI teams should raise the idea and indicate how easy or difficult it would be to accomplish the task given the specific characteristics of the investigation," he explains. "In that way, the people with some of the most expertise in the subject area — the PI teams — contribute to every facet of the investigation."

The state of Iowa's PI staff gets high praise from Schunk. He says they typically provide data with short summary descriptions, an indication of how to use it and what it means. Often, those spreadsheets result in phone calls for further elaboration and collaboration on next steps. "The Iowa PI unit does an exceptional job of providing data with an eye for its intended use," he says. "They provide the data in an understandable format and with all of the detail necessary to understand the investigation, but not so much data so as to make the information burdensome."

"They do an extraordinary job of ferreting out the unimportant from the important, so the subsequent conversations and investigation are not hampered with unimportant information or details," Schunk adds. "The Iowa PI team fully utilizes its incredible amount of expertise during an investigation."

Section 4:

MCOs and Medicaid PI: Integrating Managed Care into State Processes

Nationally, approximately 71 percent of Medicaid beneficiaries are enrolled in MCO programs, although the most costly patients — the elderly and disabled, who account for 68 percent of Medicaid spending — are served primarily through traditional fee-for-service (FFS) programs.[9] The growth of MCOs that contract with state Medicaid agencies is a huge challenge. MCOs can help states reduce Medicaid costs and provide better patient care, and many states want to expand MCO coverage of the more costly populations.

Nationally, approximately 71% of Medicaid beneficiaries are enrolled in MCO programs, although the most costly patients — the elderly and disabled, who account for 68% of Medicaid spending — are served primarily through traditional FFS programs.

But state PI groups haven't developed a consistent approach for dealing with MCOs. Some states working on MCO claims focus on provider and member fraud and expect the MCO to find waste and abuse. Still others haven't quite settled on how best to divide the work between state PI teams and MCO internal compliance and investigative organizations.

In an examination of seven state PI programs, the GAO found that PI and MFCU teams focused primarily on Medicaid FFS claims — even though states are required by CMS to ensure the integrity of MCO payments. And GAO took CMS and other federal agencies to task for not adequately addressing Medicaid MCO PI.[10]

The HHS OIG consistently reports an overall lack of fraud referrals from Medicaid MCOs, noting that many managed care entities have no incentive to make fraud referrals because their contracts don't allow them a share of fraud-related recoveries or include consequences for failing to refer fraud.[11] Instead, many MCOs simply remove fraudulent providers from their networks. Still others simply ignore providers with questionable practices, because MCOs must have enough providers in their network to meet coverage requirements for medical specialties.

To address these challenges, CMS proposed to modernize Medicaid managed care regulations and align them more closely with Medicare plans.[12] Under the recommendations, which were announced in May 2015 and at this writing are in the public comment phase, Medicaid MCOs will be required to take steps to strengthen Medicaid managed care PI, such as:

- Reporting identified and recovered improper payments and potential fraud, waste and abuse, including those made to providers excluded from Medicaid participation
- Developing a process for network providers to report and repay overpayments
- Turning over the screening and enrolling of MCO network providers to the state to ensure providers meet state standards
- Certifying that it has committed a "reasonably diligent review" of data, documentation and information submitted to the state[13,14]

More Data, More Context, More Value

These rules will evolve as they go through the CMS feedback and finalization process, but regardless of their final form, they will be pivotal in bringing clarity and consistency to the MCO PI process. Moving forward, it's clear states will need to become much more involved in overseeing and measuring MCO PI. MCOs will no

longer be able to operate in a vacuum. For example, the commonwealth of Kentucky has already implemented a centralized provider enrollment process that allows the state to verify and audit all providers.

Communication between participating MCOs and states will become a PI imperative. "Communication is the key to effective oversight," says Veronica Cecil, Kentucky's Medicaid Chief of Staff and Director of Program Integrity.[15] "We meet with key officials from each MCO on a quarterly basis to review fraud cases and discuss important issues and trends. It's another opportunity for us to monitor, educate and guide MCO activities."

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Many vendors and states are working to adapt the predictive analytics tools that are being applied to FFS PI for use in MCO programs. As PI comes to rely more on predictive analytics, communication must improve not only between MCOs and the state, but among competing MCOs.

Because predictive analytics tools and models become more accurate as they ingest more data and "learn" from it, states and MCOs will achieve the best results when they share flagged provider lists, claims information and other relevant data. MCOs may use different analytics technologies, but in partnership with the state and each other, they can develop solutions to pool claims, billing and provider data — adding more context that will enhance the value of their separate analytics solutions. It can be likened to creating a centralized fraud alliance among all stakeholders to promote transparency.

But getting MCO competitors to share — especially when they have little or no incentive to fight fraud — is no small feat. It's a little easier in states with high percentages of Medicaid members enrolled in mature MCO programs. States that have made recent moves to managed care programs may have to experiment with ways to fast-track a spirit of cooperation among competing plans.

In the meantime, states can work to develop incentives and mandates, especially since the new CMS rules will eventually force their hand. Some of these "carrots and sticks" should encourage sharing of claims, billing and provider data among MCOs and the state.

As the new CMS MCO rules go through the review process, state PI and MFCU organizations must ensure they have enough resources to handle an influx of MCO fraud referrals and new referral processes may need to be developed. For example, who will determine if the MFCU should investigate a lead? Will the PI unit be a clearinghouse for all leads, or will referrals go directly to the MFCU? Finally, the state will need to consider how to audit and measure the success of MCO PI efforts.

Best Practices for Working with MCOs

- ☑ **1.** Review the CMS proposed guidelines for Medicaid MCOs and begin planning to integrate them into state PI efforts.
- ☑ **2.** As the new CMS proposal suggests, require providers serving only MCO beneficiaries to enroll with the state so they can be vetted by the state and integrated into its auditing process.
- ☑ **3.** Work closely with MCOs to develop efficient processes for fraud referral and auditing and monitoring their PI efforts.
- ☑ **4.** Develop a culture of cooperation among MCOs and the state to include regularly scheduled meetings, ongoing communication and collaboration.
- ☑ **5.** Encourage or even mandate the sharing of claims, provider and relevant external data.
- ☑ **6.** Partner with MCOs to determine processes for the collective application of predictive analytics and other tools that reduce or prevent fraud, waste and abuse.
- ☑ **7.** Establish national and state-specific benchmarks for particular services. Compare the MCOs' data submissions to these benchmark averages.
- ☑ **8.** Mandate that MCOs submit their results on a monthly basis, emphasizing data transparency and data normalization across all MCOs.
- ☑ **9.** Rewrite MCO contracts to clearly delineate responsibilities for fraud, waste and abuse activities, and to allow the state to investigate and act against providers if MCOs do not.
- ☑ **10.** Monitor underutilization of services, which not only impacts quality of care but also is a form of fraud often found in capitated environments.
- ☑ **11.** Ensure the state has enough resources to handle an increase in MCO fraud referrals.

Section 5:

What You Need and How to Afford It

Technical systems and hardware, mountains of data, analytical tools and staff expertise — these comprise the foundation of predictive analytics-based Medicaid PI. This section will review these components and address funding and ROI issues.

5 Foundational Tools for Advancing Program Integrity

Key components of predictive analytics-based PI approaches include:

- ✓ MMIS
- ✓ Data repository
- ✓ Pre- and post-payment predictive analytics
- ✓ External data sources
- ✓ Skilled staff

MMIS. MMIS edits are the front line of defense against fraud, waste and abuse. System edits reject obviously erroneous claims, and CMS requires states to integrate certain edits into their MMIS (e.g., codes that shouldn't be billed in combination, or an excess of units of service billed on a single day by a single provider). PI staff may review such claims and modify or reject them as necessary so the claim can be paid or denied.

Pre- and post-payment predictive analytics can be used to inform system edits. Analysts may recommend policy changes or edits based on observable trends, so the MMIS — and especially its system edit capabilities — must be compatible with predictive analytics tools. An MMIS that complies with the Medicaid Information Technology Architecture (MITA) — the federal IT framework that's intended to improve Medicaid administration by ensuring standardization and interoperability among technology systems — will be flexible enough to incorporate predictive analytics.

Data repository. Most states already have a data warehouse or data mart for Medicaid claims data that's migrated from its MMIS on a daily or weekly basis; it may be housed at a state data center or hosted externally. The data repository can be configured to quickly deliver review recommendations with a data interface that's capable of receiving pre- and post-payment claims information and integrating disparate external and reference datasets. The data intake system should be MITA compliant.

Pre- and post-payment predictive analytics. Depending on budget and needs, invest in a broad array of analytics and modeling tools for both pre- and post-payment claims reviews. Customizable business intelligence reports help analysts identify savings, track progress on cases, determine model accuracy and display other key system metrics. The system's user interface should support exploration of scored results, identification of trends and patterns in historical data, and analysis of billing and usage patterns.

As states redesign their MMISs to be MITA compliant, they should re-evaluate their post-payment SURS technology and consider replacing or supplementing it with FADS or

other predictive analytics technology that's integrated with pre-payment tools to retrospectively identify potentially inappropriate payments and track case investigations.

Analytics software should be securely integrated with the Medicaid data warehouse or data mart for in-database processing. Look for FADS and analytics packages that can be tailored and fine-tuned to meet the state's specific needs.

External data sources. Integrating and analyzing external (non-Medicaid) datasets improves the identification of fraud and improper payments and supports increased financial recoveries. External data includes any data not generated and archived by the Medicaid system, such as records from other state departments, federal information, public data and private records. Examples include corrections data, criminal records, financial information such as loans and bankruptcy declarations, business licenses, property and income tax data, marriage and divorce information, business ownership and affiliations, voter records, public utility data and death records.

Precise data matching to ensure the identity of providers and other program participants is critical. A third-party vendor can assist with providing, cleansing and integrating numerous types of external data with state Medicaid data.

Skilled staff. CMS recommends states maintain proper procedures and skilled staff to ensure predictive analytics are used appropriately.[16] States will need access to investigations and support staff skilled in data analytics, law enforcement, fraud, billing, coding, auditing, Medicaid policy, and clinical and health care knowledge.

Where appropriate, staff should maintain relevant clinical expertise, licensure and certification designations such as Registered Nurse (RN), Certified Professional Coder (CPC) and Certified Coding Specialist (CCS), and Certified Fraud Examiner (CFE). Some or all of this expertise may be contracted externally from RACs or other third-party vendors.

3 Options for Technology Architecture

Integrating predictive analytics into a Medicaid claims processing is not a "slam dunk" — it's more complex than simply procuring and deploying analytics software. Much depends on the flexibility of the state's existing MMIS and other technology platforms, the expertise of its PI staff and the capability of its vendors. Servers, computers, data storage, case management systems and other components may need to be purchased or upgraded and will need to be supported by internal staff or an external contractor.

States must decide if they will manage the predictive analytics system from their own data center using state resources, or outsource some or part of the functionality and professional expertise to an outside contractor. Here are three primary scenarios:

1. In-house program. The state houses the data warehouse in a state-run data center and deploys and manages predictive analytics tools, investigations, audits and other business processes on site with in-house expertise. The exception is retrospective recovery (because all states are required to contract with a Medicaid RAC to perform post-payment activities). The state is responsible for data backup and disaster recovery.

2. Business process outsourcing. The state houses the data warehouse in a state-run data center, and implements secure transfer of data to and from a third-party vendor that will apply and manage predictive analytics tools, investigations, audits and/or other business processes. The contractor may or may not be the same one used by the state as its Medicaid RAC. The state is responsible for data backup and disaster recovery.

3. Program outsourcing. The state implements the secure transfer of MMIS data to a third-party vendor who builds and manages the data warehouse, predictive analytics tools, investigations, audits and other business processes. The contractor may or may not be the same one used by the state as its Medicaid RAC, and is responsible for data backup and disaster recovery.

Best Practices for Working with Third-Party Contractors

Every state has different needs, goals, resources and a unique starting point that should be considered when determining the scenario that works best. Regardless, you will be working with at least one outside vendor (the Medicaid RAC) on retrospective recovery.

Quick Reference Chart: Comparison of Vendor Compensation Models

Compensation Model	Description	Pros	Cons
Contingency	• Vendors keep a defined portion/ percentage of what they save/recover • Medicaid RACs must be paid on a contingency fee basis	• Guaranteed high ROI on vendor payments • No payments without results	• Vendors have more incentive to work on cases that have the highest potential for economic gain and may not investigate smaller claims • Vendors may be overly aggressive in pursuing cases, causing friction with providers • Unpredictable payments
Pay-for-performance	• Fixed fee plus a bonus for meeting targets, or a penalty for missing them	• Predictable payments • Allows vendor to look more widely at overall PI compared to contingency model • Lower friction with providers	• State pays even if vendor doesn't perform • Vendors have slightly less incentive to produce savings than in other compensation models
Fixed fee	• Fixed fee based on the monthly number of program enrollees or other fixed price mechanism (such as cost plus)	• Predictable payments • Allows vendor to look more widely at overall PI compared to contingency model • Lower friction with providers	• State pays even if vendor doesn't perform • Vendors have less incentive to produce savings than in other compensation models

Predictive analytics are not one-size-fits-all solutions. Work with flexible vendors that can leverage technologies and resources to identify and recover more funds to the state and operate the program more efficiently at a reduced cost structure. "Our program integrity staff work closely with the contractors to develop very specific analytics tailored to Kentucky's policy and reimbursement rules," says Kentucky's Cecil.

There are three types of vendor compensation models, each with distinct advantages and disadvantages. The quick reference chart on this page can help your team decide which is best for your program.

In working with external contractors, consider the following best practices, compiled with help from CMS.

1. When required, outsource some or all PI components to vendors, including technology development, maintenance and management, and business processes such as investigations and data analysis.
2. Clearly and appropriately align program design and vendor compensation structure with program requirements, state budgets and expectations for ROI.
3. Clearly define vendor and state responsibilities as well as analysis workflow and process.
4. Ensure the vendor complies with federal and state privacy laws.
5. Ascertain prior experience with Medicaid PI predictive analytics systems, including details about successful deployments.
6. Require results delivered in a format or output that meets state needs and easily integrates with existing systems.
7. Select a vendor with expertise in modeling, analysis and a clear understanding of business, medical and billing patterns.
8. Understand how the vendor will ensure high-quality external data sources are incorporated into the system.
9. Clarify staffing and training expectations.

Create a communication-based process to ensure open and ongoing dialogue between the PI team and contractor from the beginning of the relationship.[17]

Securing Funding: Is ROI Guaranteed?

The technology needed to evolve state PI units beyond pay and chase is not inexpensive. Costs vary greatly, depending on the amount of data you have, the desired amount of external data, whether you must replace existing systems, the type of output you want, the type of analytical tools you require and your access to staff expertise. Additionally, staff will spend significant time learning how to use the tools and familiarizing vendors with processes and systems.

The good news? CMS encourages states to enhance PI programs by offering matching federal funds for developing and implementing technologies that help combat fraud, waste and abuse, including predictive analytics systems. Federal matching funds range from 50/50 to 90/10.[18]

And there's more good news — states implementing this approach have realized a positive ROI through recoveries, savings and payment prevention, in many cases far exceeding their initial investment. The state of Iowa and the commonwealth of Kentucky have different approaches to modernizing their PI initiatives and each have realized a positive ROI based on funds saved and recovered.

Iowa. A leader in Medicaid PI, the state of Iowa has applied predictive analytics across the entire Medicaid claims process since 2011. Iowa's PI unit outsources its complete PI program, including pre- and post-payment analytics, SURS, FADS, investigations, RAC services and other components to a single vendor, paying a contingency fee for RAC services and a fixed fee for the remaining services.

Iowa integrated its MMIS and all claims data into a data warehouse that was built and is hosted and managed by its vendor who handles all data analysis and investigations. The PI unit works in partnership with state MFCU and state and federal law enforcers to successfully prosecute, suspend and terminate fraudulent providers.

ROI on Iowa's PI program is 7.5 to 1 (for every dollar spent, the state earns $7.50). It has exceeded overall recovery and cost avoidance targets by more than $30 million since 2011 — 7 times the cost of the contract. In 4 years, the state has saved nearly $129 million. Approximately 40 percent of the savings were due to cost avoidance activities; the remainder is due to retrospective recoveries.[19] Iowa has received multiple best practice citations from CMS for the creative use of external datasets and cost savings methodology calculations.

Iowa Medicaid PI By the Numbers

The program has exceeded overall recovery and cost avoidance targets by more than **$30 million** since 2011 — 7x the cost of the contract.

For every $1 spent, the state earns **$7.50.**

In 4 years, the state has saved nearly **$129 million.**

Kentucky. The commonwealth of Kentucky has enhanced its internal resources to identify, audit and investigate fraud, waste and abuse, and recover overpayments through a third-party contractor since 2010. The contractor uses predictive analytics tools to detect abusive practices, conduct on site and desk audits, identify underpayments and recover overpayments.[20]

Since 2010, Kentucky has recovered approximately $43 million in overpayments and identified $3.1 million in underpayments through its contractor. The contingency fee-based contract pays the vendor 12.5 percent for overpayments and 5 percent for underpayments.

The contractor is also responsible for identifying policy and system issues, making recommendations for improvement, communicating federal regulations changes to the state's Department for Medicaid Services and serving as the commonwealth's RAC. "We build lists of providers to review, generate leads and follow up with investigations," says PI Chief Cecil. "[The vendor] helps us handle specific policy-related audits and investigates complex issues."

Since 2010, Kentucky has recovered approximately $43 million in overpayments and identified $3.1 million in underpayments, greatly exceeding contract objectives. The contingency fee-based contract pays the vendor 12.5 percent for overpayments and 5 percent for underpayments.

Section 6:

The Top 10 Medicaid PI Best Practices

This handbook has provided numerous recommendations for improving Medicaid PI by integrating comprehensive predictive analytics tools to combat fraud, waste and abuse. Here are the top 10 best practices to keep in mind.

1.

Integrate multiple layers of protection against fraud, waste and abuse — including provider screening and pre- and post-payment approaches — into a comprehensive, strategic PI initiative, rather than a collection of tactical activities.

2.

Leverage federal matching funds to procure and deploy predictive analytics to reduce fraud, waste and abuse via cost avoidance and fraud prevention, provider screening and ongoing retrospective recovery.

3.

Use predictive modeling and/or other predictive tools to avoid unnecessary cost and catch fraud, waste and abuse before the overpayment is made.

4.

Use link analysis, risk scoring and/or other predictive analytics tools to identify fraudulent providers, and develop a process to keep known fraudulent providers out of the system.

5.

Improve the retrospective recovery process by replacing or supplementing SURS with FADS or other modern analytical tools.

6.

Use the intelligence delivered by predictive analytics systems to inform and improve system edits, claims review, Medicaid policy, audit and recovery, and provider education.

7.

Expand Medicaid PI to include clean, high-quality data from other state and federal agencies, as well as public and private data.

8.

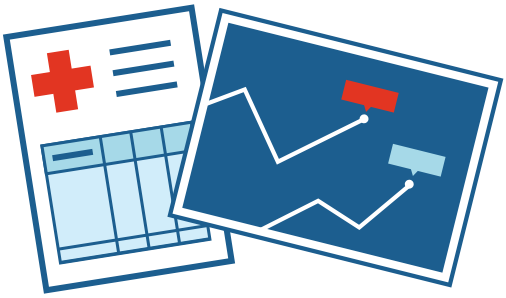
When working with law enforcement, promptly provide data in clear, comprehensible reports and formats, with an eye for its intended use by investigators.

9.

Choose predictive analytics solutions that can be customized to meet the state's specific needs.

10.

Ensure the program maintains proper procedures and skilled staff so predictive analytics are used appropriately.



Conclusion:

Adopting a New Approach

Responsible stewardship of billions of federal and state taxpayer dollars — not to mention the health care of Medicaid recipients — compels states to maintain comprehensive PI initiatives to ensure the effective and appropriate allocation of resources. But due to the complexity of Medicaid programs, their expansion under the ACA and the growing sophistication of criminals, it's more challenging than ever for states to minimize tax dollars lost to fraud, waste and abuse.

A new approach for Medicaid PI, based on predictive analytics technologies, is required. The re-invented PI process applies predictive analytics across the claims cycle. By integrating the front end of the claims cycle into the PI process, states can create a more comprehensive strategy for addressing fraud, waste and abuse that's more efficient and effective than standalone pay and chase efforts.

Complex analytics and data modeling deliver actionable information to states, helping to root out suspicious claims; prevent wasteful overpayments before they are made; revoke billing privileges for fraudulent providers and criminals; streamline the post-payment recovery process and increase recoveries; simplify criminal investigations and prosecutions; and improve program transparency, accountability and compliance.

By integrating the front end of the claims cycle into the PI process, states can create a more comprehensive strategy for addressing fraud, waste and abuse that's more efficient and effective than standalone pay and chase efforts.

Medicaid PI will always require the knowledge of data analysts and other professional experts to evaluate, adjudicate, and investigate claims and providers. But having the right tools at their fingertips simplifies their jobs and saves budget dollars in the process.

Endnotes

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