Sophisticated data analytics can process billions of claim code line edits through the course of the day, helping payers identify hundreds of providers with aberrant billing patterns with each pass of the data. However, this is just the first step in a resource-intensive process to determine whether fraud, waste, and abuse (FWA) have actually occurred—and then, what to do about it. The next step is to answer several challenging questions: How egregious is the behavior? Are some behaviors worse than others? What’s the proper course of action to take in each instance?

When it comes to answering these critical questions, a provider decision quadrant can help.
the status quo of FWA detection and reaction

For many years and with limited special investigative unit (SIU) resources, the fight against FWA has dictated the prioritization of only the most egregious and expensive cases—those that, if successfully investigated, could be expected to deliver the most significant return. There are two main issues with this investigative “business as usual”:

- Detection analytics that linearly focus on only fraud risk patterns may underplay true positives or overplay false positives.
- Aberrant providers at lower levels of dollar exposure are often left to continue their activity of “death by a thousand paper cuts.”

FWA detection

All FWA allegations start out as highly prioritized leads, and that prioritization process begins with determining a fraud risk score for each provider. Although this type of score is not new to fraud detection analytics, the science behind it has evolved over the years and is based on a multidimensional model that analyzes provider patterns over time. Health plans can analyze physicians, labs, durable medical equipment providers, and other healthcare providers according to the same criteria.

Typically, the fraud likelihood score has five major components:

- Billing history
- Fraud history
- Claims edit history
- Geographic risk
- Specialty risk

Each component has specific predictor variables that influence a provider’s overall fraud likelihood score—for example, primary line-of-business patterns within his or her billing history or one or more suspect behaviors triggered over the last three months within his or her fraud history. Results are plotted on a scale of 0 to 1,000, where 1,000 represents the highest level of suspicious activity (see Figure 1). As with all predictive models, an individual’s score changes as his or her patterns change.

The prioritization process should not end with determining each provider’s fraud likelihood score, however. By simply adding the dimension of annual billings, plans can receive more strategic answers to their FWA questions.

Adding this second dimension is important for two reasons. First, frequent, substantial billing increases a health plan’s potential risk exposure—that is, the more money paid out to the provider annually, the higher the potential pain for the health plan if that provider starts billing aberrantly. Second, one year of billing history enables a more accurate prediction of future billing patterns and suspect behavior based on a wealth of past activity, providing a clearer roadmap for the SIU.

FWA reaction

After detection scoring, a health plan must decide what action to take. Typically tight resources mean most plans act on only the providers with the highest scores, leaving the rest alone.

<table>
<thead>
<tr>
<th>score</th>
<th>risk</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>900+</td>
<td>high</td>
<td>suspect billing patterns expected</td>
</tr>
<tr>
<td>700-899</td>
<td>elevated</td>
<td>several suspect billing patterns likely</td>
</tr>
<tr>
<td>500-699</td>
<td>moderate</td>
<td>some suspect billing patterns likely</td>
</tr>
<tr>
<td>0-499</td>
<td>low</td>
<td>billing patterns mostly reasonable</td>
</tr>
</tbody>
</table>

Figure 1. Typical provider fraud likelihood score levels
The problem with this singular approach, however, is two-fold:

- First, and most obvious, what about all of those providers that fall into the low- and moderate-risk categories? What is happening in those areas, and what is it costing the health plan to not know?
- Conversely, for those plans that do try to look at each category, how do they avoid wasting resources without greater insight?

**the provider decision quadrant defined**

A provider decision quadrant is a visual decision-making framework that can help a health plan increase both its SIU’s operational efficiency and claim payment accuracy without adding staff. By applying both fraud risk and exposure risk to a provider’s behavior, then plotting that behavior into one of four quadrants, a plan’s SIU, claim operations, and provider relations departments can team up to:

- Take meaningful action with true-positive leads
- Prioritize potential cases for evaluation
- Make decisions earlier in the investigation process

Figure 2 depicts the provider decision quadrant and its two main axes of fraud risk and dollar exposure.

How does this quadrant approach change the prioritization process?

- Most providers reside in the low-risk/low-dollar quadrant, which means health plans should view them positively while monitoring them for future aberrations. Should they occur, they are most likely to be simple billing errors.
- The plan should also view low-risk/high-dollar providers relatively favorably. They are delivering a high volume of services for plan members while exhibiting very few aberrant billing behavior patterns.
- Providers that land in either of the top two quadrants need to be watched carefully but potentially handled differently.

The provider decision quadrant serves as an organizing framework for directing resources and messaging. An additional benefit is that health plans can profile providers within each quadrant and glean insight into behavior patterns that may lead them to move from one quadrant to another.

**detecting and taking action on low-risk providers**

Let’s take a closer look at the bottom two quadrants to understand the difference that paid-claim exposure makes on low-risk providers. Often ignored in the prioritization process, these providers can and should be addressed with a realistic, informed, and carefully considered approach to behavior change.

**low dollars versus high dollars**

According to Verscend’s research, most providers reside in the low-risk/low-dollar quadrant. These providers do not have a history that suggests fraudulent behavior, and they have relatively low billing exposure to the plan. Health plans should view providers in this quadrant positively while monitoring them for future aberrations.

Providers in the low-risk/high-dollar quadrant perform a high volume of services for the health plan’s members, so their billing exposure is much higher than those in the other low-risk quadrant. While classified as low-risk, these providers should be monitored because this volume gives them more opportunity to exhibit FWA behaviors. Yet the health plan should take
considerable care in its outreach efforts to these providers to avoid abrasion. Again, aberrations are likely to be errors more than intentional behavior.

a closer look

Comparing both quadrants using a standard set of metrics helps a health plan gain additional insights into the differences between them, and therefore determine how best to adjust its approach. Across our series of fraud models, Verscend has identified the following five high-level metrics as the most critical:

- Average visits per patient
- Percentage of edited claims
- Percentage of providers with recent fraud triggers
- Percentage of providers with one or more recent claim edits
- Average claim edit appeal rate

Why do these measures matter? By viewing key measures within each quadrant, we can understand aspects of the provider profile that give indication—an early warning flag—of aberrant billing payment patterns. When we look at the differences between low- and high-risk quadrants, these measures reveal helpful nuances.

Figure 3 takes a closer look at Verscend’s analysis of non-facility provider data.

Low-risk/high-dollar providers will attract more attention due to their higher numbers in the categories of visits, triggers, and claim edits.

<table>
<thead>
<tr>
<th>metric</th>
<th>low-risk high-dollar providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average visits per patient</td>
<td>2.3</td>
</tr>
<tr>
<td>Percentage of edited claims</td>
<td>0.4%</td>
</tr>
<tr>
<td>Percentage of providers with fraud triggers</td>
<td>3.9%</td>
</tr>
<tr>
<td>Percentage of providers with one or more claim edits</td>
<td>20.9%</td>
</tr>
<tr>
<td>Average claim edit appeal rate</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

Figure 3. Understanding the value of key quadrant metrics for low-risk providers

taking action

A health plan looking at the two low-risk quadrants and the key provider metrics can draw a few conclusions.

First, a light touch makes sense for both quadrants, as opposed to no touch or perhaps an excessively heavy touch. The higher appeal rates in the low-risk/low-dollar quadrant, for example, suggests a potential provider abrasion pain point. Provider communications should offer positive reinforcement about following proper billing guidelines, along with education where errors are observed. This outreach does not take a lot of effort but can yield significant impact, particularly with strong data support, and is better tailored to the potential issues that are arising. SIUs could gain help from the provider relations department, which may be able to correct the behavior before it becomes a bigger concern, especially if it is only a billing error.

Plans should think carefully about what extra effort may be directed toward providers with higher billing exposure. Although their high billings—and their associated billing patterns—may lead health plans to target them for investigation, their low fraud scores suggest that investigations are unlikely to be fruitful. Moreover, investigation can spark significant provider abrasion. A traditional approach may have resulted in a plan stopping payment and holding claims. A new approach would have the plan periodically review these providers’ billings for upwardly aberrant trends without having to reach out, allowing the plan to react more quickly the instant a provider crosses a risk threshold. Proactive management of these providers will help health plans mitigate future conversations around fraud and abuse.

Note that the top three specialties in the low-risk/low-dollar quadrant were internal medicine,
family practice, and diagnostic radiology, whereas the top three in the low-risk/high-dollar quadrant were obstetrics/gynecology, family practice, and hematology/oncology. This information is important because the frequency of claim edits typically differs significantly by specialty, causing this metric to become a significant variable in the calculation of any fraud likelihood score; therefore, health plans can focus attention on provider specialties that have a higher percentage of claim edits.

**detecting and taking action on high-risk providers**

Now, let’s zero in on the high-risk quadrants, where payers already focus most of their efforts, to determine how the provider decision quadrant influences a health plan’s anti-FWA activities.

**low dollars versus high dollars**

Providers who fall in the upper two quadrants are a higher risk to the health plan because of their fraud likelihood scores, which are derived from variables such as billing history, past fraud behavior, claim edit history, geographic risk, and specialty risk. Based on historical patterns, these providers are more likely to have a higher percentage of claims with “modifier 59,” for example, or a higher percentage of allowed dollars from edit-flagged lines than the geographic average over a set period. Leading indicators such as these allow plans to better target providers for SIU attention.

Verscend has found that the second largest group of providers lands in the high-risk/low-dollar quadrant. Although providers in this second group tend to exhibit fraudulent or abusive behavior, the financial implications to the health plan are relatively insubstantial—a fact that should influence health plan interventions.

The prime targets for SIU attention are providers situated within the high-risk/high-dollar quadrant. Although the investigative effort here is high, so is the potential for financial return given the claim exposure.

**a closer look**

To understand the nuances between these two high-risk quadrants, we’ll compare them using the same critical metrics that we examined for low-risk providers. See Figure 4 for Verscend’s analysis of non-facility provider data.

The analysis yields some expected and some unexpected results. First, high-dollar providers have twice the number of average visits per patient and generate fraud triggers at nearly five times the rate of their low-dollar counterparts. Both findings are not only consistent with the high-risk behaviors of providers in this quadrant but likely also contributors to their more significant financial impact on the health plan. Couple that with the fact that these providers are less likely to appeal a claim edit, suggesting an awareness of their behavior, and SIUs have clear direction when it comes to prioritizing providers for an open case.

A closer look at the metrics for high-risk/low-dollar providers, however, starts to reveal how all risk is not created equal. These providers are generating a higher percentage of claim edits, but relatively few have recent fraud triggers.

<table>
<thead>
<tr>
<th>metric</th>
<th>high-risk low-dollar providers</th>
<th>high-risk high-dollar providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average visits per patient</td>
<td>2.1</td>
<td>4.3</td>
</tr>
<tr>
<td>Percentage of edited claims</td>
<td>10.5%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Percentage of providers with recent fraud triggers</td>
<td>9.8%</td>
<td>48.9%</td>
</tr>
<tr>
<td>Percentage of providers with one or more recent claim edits</td>
<td>88.0%</td>
<td>93.0%</td>
</tr>
<tr>
<td>Average claim edit appeal rate</td>
<td>5.9%</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

Figure 4. Understanding the value of key quadrant metrics for high-risk providers
In addition, the average claim edit appeal rate is significantly higher. Taken together, these metrics suggest that the behavior of some providers may be potentially less intentional at the same time it has less financial impact. Many others may be testing health plan claim systems, spreading small dollar amounts over many different types of procedures or treatments. They may be trying to increase their revenue without raising alarms, or they may believe that their experimental treatments should be covered. In the case of the latter, patient safety becomes a real issue for the health plan. A provider in this quadrant needs some SIU outreach to convey the seriousness of the situation, but it’s typically not quite time to bring in the SIU’s big guns.

**taking action**

Given the differences between low-dollar and high-dollar providers, what critical action steps should health plans take?

For high-risk/high-dollar providers, the action plan is clear. Plans need to take the immediate action of opening a case and launching a full-on investigation, including possible law enforcement intervention. These providers represent the greatest amount of exposure and the most tangible opportunity to halt poor or illegal billing payment patterns.

For high-risk/low-dollar providers, a health plan may choose to pend payment of all future claims related to the suspicious billing behavior while it is reviewed and approved by clinical analysts prior to any SIU referral. Although this increases the risk of abrasion, plans need to take appropriate steps to indicate a problem with low-dollar provider billings that could develop into something far more serious later. Whether the behavior is intentional or not, a heightened degree of communication between payer and provider needs to occur to prevent the need for investigation in the future, when the dollar exposure may have increased. Further action might also include the updating of claim editing rules once a known vulnerability is verified.

**monitoring provider network stability**

Finally, let’s examine the movement of providers between quadrants. Predictability is an actuary’s best friend. This axiom is especially true within the payment world, where volatility can influence the financial forecast of a health plan. Providers who are consistent in their billing patterns over time are easier to manage and more predictable for health plans and their respective SIUs as they track their payments—fewer human eyes are needed on them. And, as you would expect, the opposite is true for providers whose billing patterns are more volatile; they require better detection, more focused analytics, and more human review to monitor overall behavior.

By examining some simple but critical metrics within the context of the provider decision quadrant, health plans gain an additional level of insight to inform their FWA initiatives and regain some network stability. Identifying and going after high-risk/high-dollar providers are necessary, but catching a provider who is on an upward trajectory of risk is easier and more effective, particularly because it limits long-term exposure.

**negative migration patterns**

The health plan’s goal for its provider network is to keep as many providers as possible in the low-risk category, particularly those with significant billings. Providers should be plotted on the provider decision quadrant at least every quarter, if not monthly, so that plans can be alerted to detrimental migration patterns.
Provider migration to either of the high-risk quadrants serves as an early warning sign of providers potentially growing emboldened in their FWA activities.

**taking action**

When providers move from the low-risk/low-dollar quadrant to the high-risk/low-dollar quadrant, a plan may see an increase in a provider’s claim edit scoring and claims suspected for FWA. The increased fraud risk score, coupled with the continuation of low exposure, could suggest that the provider is “testing the waters” by spreading out the exposure with more low-dollar treatments that are outside of policy yet not outright fraudulent.

The plan should look at the provider’s billing patterns over an extended period versus simply comparing the provider’s more recent patterns to that of his or her peers. A sustained length of time in the quadrant means it may be time the plan move from monitoring to action. The SIU team may choose to pend payment of all future claims related to the suspicious billing behavior, for example, while the behavior is reviewed by clinical analysts. Stopping short of SIU referral saves valuable time and resources while successfully preventing aberrance that could develop into something far more serious.

Providers moving from the low-risk/high-dollar quadrant to the high-risk/high-dollar quadrant may have successfully discovered chinks in the plan’s armor, resulting in higher risk scores at higher levels of exposure. Plans may discover billing spikes, perhaps the provider’s attempt to make up for revenue lost somewhere else in his or her business.

In these instances, the plan needs to take the immediate action of opening a case and launching a full-on investigation, including possible law enforcement intervention. These are the providers on which SIUs have traditionally focused and must continue to focus. Weeding out lower exposure or lower risk providers from their workloads only makes the SIU better at tackling provider FWA in this quadrant.

**a smarter approach to FWA mitigation**

The U.S. Government Accountability Office estimates that $1 out of every $7 spent on Medicare is lost to fraud and abuse, and commercial payers feel a similar sting. While a good portion of that loss certainly happens in the high-risk/high-dollar quadrant, focusing only on these providers is not enough. Health plans can cover more ground, better match outreach to risk, and nip many behaviors in the bud if they use analytic models with both fraud risk and annual claim exposure to plot provider behavior on a provider decision quadrant.

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**about the author**

As chief analytics officer, David Costello works closely with product, consulting, data operations, and client services teams to ensure that Verscend’s proprietary analytics help our clients meet their business objectives and remain relevant in the industry. Before joining Verscend, David was chief analytic officer at Press Ganey, where he was responsible for building a set of analytic products that allowed hospitals and provider groups to enhance the patient experience, solidify their reimbursements, and identify areas for process improvement and revenue enhancements. David also previously served as senior vice president of consumer segmentation and engagement strategies at Health Dialog. He holds a BA in business administration and sociology from Northern Michigan University and a MA/PhD in sociology from the University of Delaware. He also served in the United States Air Force.
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