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Prepayment Fraud, Abuse and Error Detection

Identifying Inappropriate Claims Before They Are Paid

» **Summary**

Insurers are effciently and accurately paying millions of claims that they should never pay at all. In fact, of all the key drivers of health care costs, losses from unnecessary payment is one of the few that insurers can immediately affect. In this white paper we define state-of-the-art prepayment analytic systems and explain how they differ from both claims edit and postpayment detection systems. We also explain how new prepayment solutions can complement and build on the capabilities of existing applications.

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» Introduction

Over the past decade health care insurers have achieved a very high level of efficiency in processing claims. Some 70% of claims are paid within two weeks of receipt, and 90% within three weeks.[1] Accuracy rates of 99.9% are not uncommon across the industry.

Yet a significant portion of the claims that insurers process so efficiently should never be paid at all. A 2001 audit of Medicare fee-for-service claims payments, for example, revealed that of the $191.8B in claims audited, 6.3%, or $12.1B were illegitimate or inappropriate.[2] Industry-wide in the US, estimates of fraud losses range from 3% to 10% of every health care dollar.[3]

Why, given concern about rising health care costs, haven't payers been able to stop these losses? One reason is that "prompt pay" laws have forced payers to make a trade-off between higher processing efficiency and lower losses. Claims must be paid within specified time ranges, and there are stiff penalties for noncompliance. Delaying processing for more in-depth detection is not an option. Another reason is that today's complex reimbursement methodologies have left loopholes— opportunities for billing and policy errors that go unnoticed by claims edit systems. In some cases, these loopholes are being intentionally exploited by savvy fraudsters.

The good news is that payer organizations no longer have to make unnecessary payments. The thorough analysis required to accurately detect fraudulent, abusive and erroneous claims can now be performed before checks are cut, without slowing claims processing. It can even be done in real time as claims are received.

Detecting fraud, abuse and error before payment—thereby avoiding expensive, inefficient "pay and chase"—is a clear, straightforward measure insurers can take to reduce operating costs. In fact, of all the key drivers rapidly inflating health care costs, losses from unnecessary payments is one of the few that insurers can directly and immediately affect. In addition, by focusing on fraud, abuse and error, payers achieve savings without adversely impacting patient care, provider relations or employer relations.

Benefits of prepayment analytics:
- **Reduce fraud, error and abuse losses** by improving detection accuracy
- **Reduce investigative, legal and administrative expenses** by avoiding "pay and chase"
- **Shape billing behavior** through denial of abusive claims, thereby building awareness of prepayment measures
- **Strengthen provider relations** by reducing the number of legitimate claims investigated
- **Improve quality of care** through improved visibility into trends and issues (for example, fraud schemes, which used to be focused around billing for services not rendered or unbundling of services, have moved toward billing for unnecessary services, such as paying patients to have procedures they do not need)
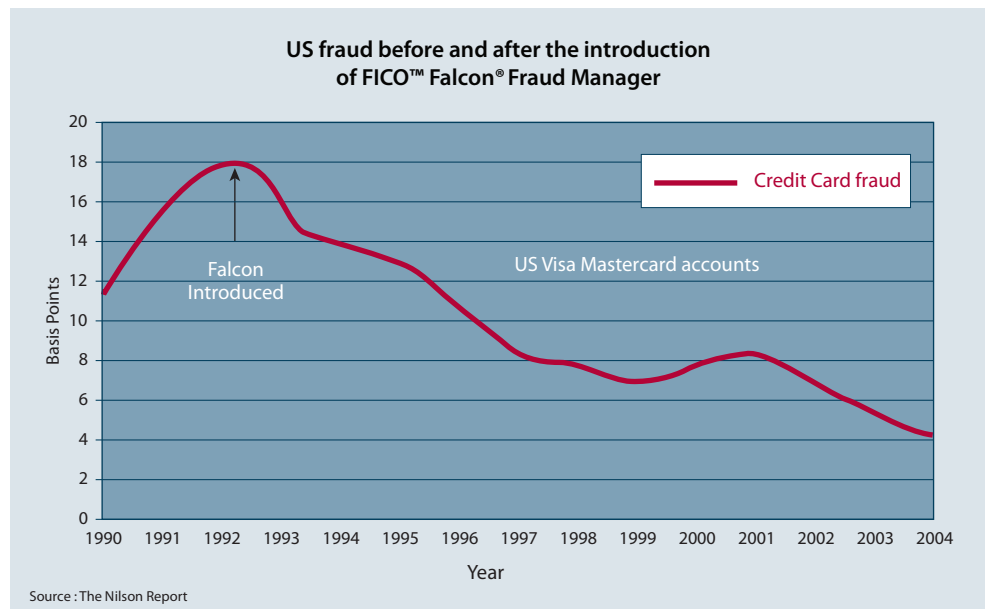
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1. Results from an HIAA Survey on Claims Payment Processes, March 2003

2. 2002 Annual Report on Health Care Fraud and Abuse Control Program, DHHS & DOJ

3. Health Care Fraud—A Serious and Costly Reality for All Americans, NHCAA

Fortunately, there are successful precedents for applying analytics to not only slow the growth of fraud, abuse and error losses, but also to reverse the trend industry wide (see Figure 1). Moreover, if implemented correctly, such measures can reduce recovery costs, shape billing behavior, strengthen provider and member relations and increase quality of care.

FIGURE 1: PLUMMETING FRAUD RATES IN THE CREDIT CARD INDUSTRY

US fraud before and after the introduction of FICO™ Falcon® Fraud Manager

Source : The Nilson Report

Fraud rates, as a percentage of sales, and resulting administrative expenses were once out of control in the credit card industry—but were turned around dramatically by Falcon® Fraud Manager. In fact, it's reasonable to say that the widespread adoption of this product changed the economics of the industry. The same powerful analytics are now available in software and services designed for the health care insurance industry.

» Payment Integrity

The goal of prepayment analytics is to improve payment integrity—that is, to pay only those claims that should be paid.

Consider a laboratory bill erroneously or fraudulently charging for the performance of a number of tests. The claim has been correctly submitted with all of the proper codes and customer billing numbers, so it flies through the insurer's extremely efficient processing operation. The check is cut, and the insurer has now paid for services never actually performed, taking an entirely unnecessary loss.

Billing and policy errors can also cause unnecessary losses. In one case, for example, an advanced prepayment analytics system discovered that claims from a particular provider departed from the usual patterns of similar providers by including a fee for reading the results of straightforward lab tests. Once aware of the problem, the insurer was able to establish a policy excluding these types of payments for certain lab codes.

All health care payers know they process inappropriate claims every day, but effective methods to stop these losses have been unavailable until recently. Widely deployed claims edit systems are ineffectual at discovering the often intricate and subtle patterns of fraud and abuse. Even among those insurers using more sophisticated detection systems (about 45% industry wide), 80% are using only postpayment detection.[4]

Once payment has been made, it's difficult to recoup losses. Postpayment investigation and recovery are costly processes, and months or years may go by before the insurer gets any money back. In 2001, for example, federal and state government agencies recovered only $1.6 billion of the estimated $12 billion lost to Medicare billing fraud and error. [5]

Industry leaders, however, are beginning to deploy prepayment fraud, abuse and error detection systems with the ability to analyze massive amounts of data in a fraction of a second. Payers implementing this type of technology can therefore focus a high degree of scrutiny on each and every claim that comes in. To a large extent, therefore, they are able to pay only those claims that should rightly be paid.

Figure 2 below highlights some additional differences between analyzing claims at the prepayment or postpayment stage, and the impact on health care payers.

FIGURE 2: COMPARISON OF PREPAYMENT AND POSTPAYMENT ANALYTICS

Postpayment analytics	Prepayment analytics
Delayed response to risk results in costly "pay and chase"	Same-day or even real-time analysis prevents checks from being cut for suspicious or erroneous claims
Requires stable, complete data	Risk can be analyzed accurately even when data is incomplete
Action is cost-justifiable only where there is a big dollar impact	Action is cost-justifiable even for small instances of fraud, abuse and error (which add up!)
Results in disciplinary and legal proceedings against perpetrators	Billing behaviors are shaped on a broad scale, reducing the need for disciplinary and legal proceedings

The "Big Picture"—A Prepayment Breakthrough

State-of-the art prepayment analytic systems are fundamentally different from traditional claims edit systems as well as from most postpayment and even prepayment systems in use today. Existing systems rely primarily on rules mixed, in some cases, with statistical analytics. State-of-the-art prepayment systems combine rules and statistical analyses with sophisticated predictive models capable of processing far more complex data interrelationships.

For example, a claims edit system might have a rule that says: IF there are claims for two or more services for the same patient on the same day with place of service at two distant geographical locations, THEN the claims are suspicious.

4. Fraud and Abuse Applications Pique Payers' Interest, Gartner Group Research Note, 10/7/2003

5. DHHS & DOJ 2002 Annual Report, previously cited

But what the claims edit system does not see is a myriad of other factors—the nature and severity of the illness being treated, the location of service resources within the health care network—in light of which the claim may be entirely legitimate. On the other hand, claims editing may pass over an inappropriate claim that appears legitimate, such as a bill from a pharmacist for insulin. The system doesn't know the patient taking the drug has no history of receiving medical care for diabetes, and thus does not identify the claim as suspicious.

The problem is that while a rule-based system may invoke any number of rules, it analyzes, at any moment in time, a very limited amount of data. Imagine trying to understand a painting by looking at just a couple of brushstrokes.

Now imagine zooming way out so that the entire painting is visible. Innumerable brushstrokes make up a whole picture that conveys meaning. This is how a state-of-the-art prepayment system looks at a claim.

The more advanced system is able to determine, for example, if a claim that doesn't meet a specific rule is still low risk in the context of all the other information known about it. In addition, it notices industry and regional trends that may affect norms. Suppose a flu epidemic strikes, causing unusual numbers of claims of a certain type from local providers. An advanced prepayment system will adjust its analysis accordingly, without need for human intervention. In the same situation, rule-based systems are likely to flag large numbers of claims, overwhelming investigative staff, increasing administrative costs and delaying legitimate payments. By the time the problem is discovered and the rule revised, the situation may have already changed.

Best-in-class prepayment systems can analyze claims in the context of vast amounts of historical and health care network-wide data in a fraction of a second.

In fact, today's best-in-class prepayment systems may consider as much as several terabytes of data when making a risk decision. Their analysis reaches deep (related historical data going back any number of years) and wide (related data from the entire network of health care providers), and can take into account:

- Current and historical data about the patient relevant to the claim
- Current and historical data about other patients who should be behaving the same way
- Data about the provider(s) associated with the claim, including their history of caregiving and the history of other providers like them
- Data about providers who have rendered services to the patient in the past

This big-picture analysis enables new prepayment systems to perform on a level conventional approaches can't match. Best-in-class systems can:

- **Detect fraud and abuse in claims that appear legitimate.** A bill from a cardiac specialist, for example, may seem fine, except that the provider's patients aren't seeing any other doctors. This type of problem is invisible to most rule-based systems since they're looking at such a limited set of data points.
- **Detect complex and subtle schemes.** Fraudsters, including those involved in organized crime, can be extremely clever and devious. They know how to avoid running afoul of the rules most insurers use to screen claims. One group, for example, submitted millions of dollars of MRI claims in a single day, distributed across many providers. Most rule-based systems wouldn't have picked this up since each claim was submitted correctly and appeared to be an isolated instance. Intelligent prepayment systems catch this kind of scheme because they look at data from multiple sources simultaneously.

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- **Detect unknown and new fraud patterns.** Fraud perpetrators are creative and resourceful, continuously modifying their schemes to escape detection. Because intelligent analytical systems recognize not only fraudulent and abusive billing behavior, but expected billing behavior as well, they're able to detect anything that doesn't fit these patterns. They can, therefore, spot behaviors never before seen. Rule-based systems, in contrast, can detect only known fraud—since you can't write a rule for something you know nothing about.

- **Improve investigative efficiency.** The new prepayment systems are extremely accurate in identifying cases warranting investigation of possible fraud or abuse. At one of the nation's largest health plans for federal employees, for example, only 1 in 48 claims investigated returned hard dollar savings. After implementation of advanced prepayment analytics, the number jumped to 1 out of 8—a 600% improvement. More accurate detection reduces costs and improves investigative productivity by eliminating time wasted on "false positives" (i.e., legitimate claims erroneously identified as suspicious). Investigators and recovery teams are able to produce higher returns because they focus their efforts on claims where the likelihood of fraud, abuse or error is clearly high.

- **Accurately assess risk even when information is incomplete.** Rule-based postpayment systems generally work effectively only with a complete set of information. There may be a rule, for example, that looks for transportation to and from a hospital without an associated medical service. Such a rule won't work well in prepayment mode because it will cull out numerous legitimate claims simply because the bill for the medical service hasn't yet arrived. More sophisticated prepayment systems, in contrast, are designed to function in the imperfect world of ongoing health care activity. Their analysis will see that there is no bill for medical service, but it will also look at other factors that indicate low risk (e.g., previous involvement in fraud or abuse, the kinds of procedures the patient has had in the past, whether they indicate a likelihood the patient would be going to a hospital at all or what the expected lag time is for incoming claims on the types of treatments the patient is likely to undergo).

- **Flexibly adapt detection methods to payer requirements.** Advanced prepayment systems can operate in different modes, depending on business conditions. For example, although best results are achieved when systems have access to provider and patient data, both types of data are not always available. One large health plan, as a case in point, had a low concentration of claims per provider, making it difficult to establish usual patterns of care and billing—and thus deviations from them. Their health plan members, however, exhibited a high degree of loyalty, remaining with the plan for years and therefore providing plenty of data. The prepayment system was able to make the most of this data to perform very accurate detection.

But how can sophisticated analytics possibly look at all this information and make complex judgments about claims fast enough to perform in prepayment mode, without delaying payments? After all, you can't perform a database query against a couple trillion pieces of data in just a fraction of a second!

No, you can't, which is why state-of-the-art prepayment systems do not rely on standard database queries. Let's take a look at how prepayment systems actually work.

» The 3 Key Requirements for Effective Prepayment Fraud, Abuse and Error Detection

An intelligent prepayment system should be able to "learn" about normal and abnormal billing behavior from every single transaction it analyzes.

1. **Dynamic profiling—condensing vast amounts of up-to-date data into its essential informational value.** The leading prepayment systems use dynamic profiling to bring the full weight of all relevant historical and health care-network-wide data to bear on each incoming claim. Sophisticated mathematical functions condense trillions of bytes of data down to about a thousand very potent and meaningful numbers. When the claim comes in, this compact, efficient information package can then be accessed instantaneously and analyzed with the new billing data.

   A significant advantage of this approach is that with the new data from each incoming claim, profiles can be dynamically updated. Day by day, or even second by second in the case of real-time operations, the mathematical descriptions become richer, more complete and more accurate representations of legitimate and illegitimate care delivery and billing behavior patterns. This is one reason why the software is often described as being capable of "learning."
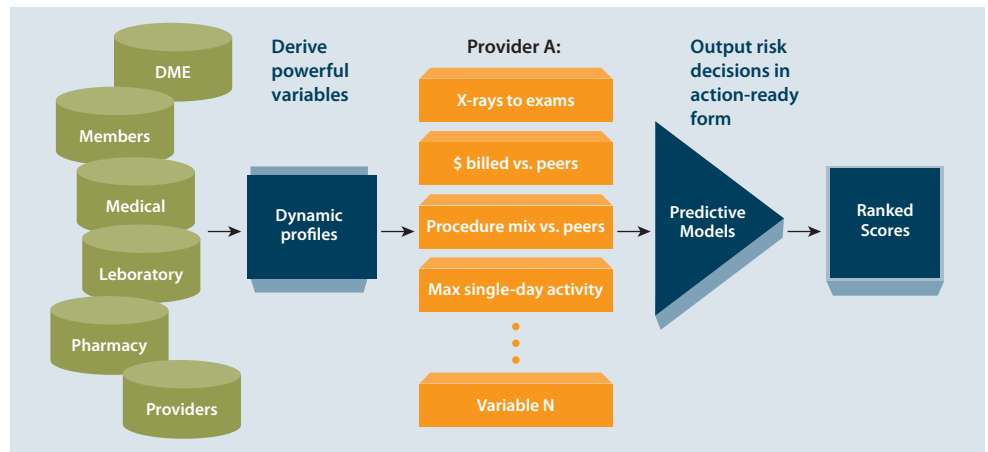
   Another advantage is that dynamic profiles are extremely objective, since they are created from the data itself. Rules, in contrast, are written by people, who must draw conclusions—always to some degree subjective—from the data they have observed.

2. **Advanced analytic modeling—understanding what the information means.** The predictive models used in state-of-the-art prepayment systems analyze the information in the profiles to determine what it means in regard to the claim at hand. The model combines the thousand or so potent profile numbers with the claim information in complex ways, looking at multiple relationships between many pieces of data simultaneously. This powerful pattern recognition capability enables the model to see how all the pieces form a unified picture of the fraud, abuse or error risk of the claim.

   The sophistication of this analysis can't be overemphasized. Seemingly, simple questions such as "which procedures, when delivered together to the same patient, are indicative of fraud/abuse risk?" are actually very complex. Every patient is different, and factors such as severity of illness, where patients live relative to their provider(s), the services they've received in the past, their ages and gender, and their abilities to comply with treatment regimes must be considered by the model in assessing the validity of the services billed. In addition, thousands of factors within the health care system, such as differences between urban and rural health care delivery and hyper-specialization within provider groups, must also be taken into account.

3. **Ranked scoring—delivering action-ready results.** This unified picture of risk is represented by a score. For example, on a scale of 0 to 1000, a claim scoring 200 would indicate a lower risk than one scoring 800. Insurers can set thresholds, using rules to automatically route all claims scoring above a certain number to investigative staff. Score levels can also serve to quickly prioritize claims, enabling analysts to focus on the most risky cases first and take fast action. State-of-the-art systems can provide explanations for why claims scored as they did, enabling analysts to quickly understand the problem.

FIGURE 3: HOW INTELLIGENT PREPAYMENT SYSTEMS WORK

Vast amounts of up-to-date data are brought to bear instantly on an incoming claim. Dynamic profiles transform terabytes of data into powerful model inputs. Predictive models use these inputs to analyze the riskiness of the claim, outputting action-ready risk scores.

» Beyond Loss and Cost Reduction—Other Benefits of Today's Prepayment Analytics

Prepayment using advanced analytics can produce a substantial reduction in losses. (Using similar predictive technology, for example, the credit card industry was able to reduce its loss rate by 50% in a decade.) In addition, while postpayment systems drive savings through a small number of large-dollar legal cases (since action cannot be cost-justified for smaller infractions), prepayment analytics also save money by detecting and deterring a large number of less serious infractions.

In addition to such quantifiable results, there are at least two important qualitative benefits to be obtained from implementing a state-of-the-art prepayment system.

Strengthened provider relations. Advanced prepayment analytics can shape billing behaviors on a broad scale. Through denials of erroneous and abusive claims, the provider community becomes aware of the high level of precision being applied to claims review and adjusts its behavior accordingly.

Also, since prepayment systems reduce the number of legitimate claims delayed for investigation, providers submitting correct and justifiable bills can count on prompt payment. Fewer claims hassles for honest providers, vastly in the majority, enable health care providers to focus on practicing medicine.

Better health care. As a valuable by-product, prepayment analytics can also reveal general payment logic vulnerabilities, plan coverage weaknesses and quality-of-care issues. The deep and wide analysis performed by these new systems provides plentiful information for addressing shortcomings and improving service to patients.

Complex Analytics Mean Simplified Operations

Today's prepayment systems simplify claims processing for insurers. They perform their highly complex analyses in the background, in a fraction of a second, producing a single score—a clear and unambiguous evaluation of risk.

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Scores enable immediate action, either through automated processes or by analysts. As an objective, empirical measure and basis for decisioning, results supporting the scores are also available for auditing and legal purposes. In aggregate, they are a rich source of data for trends analysis, policy refinement and continuous improvement.

Layers of Protection—Using Prepayment Fraud Detection with Other Systems

Protection provided by advanced prepayment detection complements that of claims edit systems and postpayment review systems already in place. Each of these approaches has specific strengths and limitations, and a complete solution includes aspects of all of them. Intelligent analytics, for example, can be invoked before, after or in conjunction with rules. The outcomes of rule-based processing can also be used to adjust or supplement the risk scores produced by advanced analytics.

Moreover, in an effective overall solution, lessons learned in one component help improve the effectiveness of the others. High-risk claims identified by analytics, for example, may lead insurers to implement new prepayment edit rules, which strengthen their claims payment logic.

» FICO™ Insurance Fraud Manager—Health Care Edition

Insurance Fraud Manager represents the state-of-the-art in prepayment fraud, abuse and error detection. Available as installable software or ASP, Insurance Fraud Manager incorporates patented dynamic profiling technology, which captures a vast range of data from many sources, packaging it for very rapid (even real-time) claims analysis. The system's sophisticated predictive models analyze every incoming claim transaction in the context of this mass of historical and health care-network-wide data, scoring and ranking the transaction for risk.

Prepayment or real-time prepayment—insurers control the timeframe
Insurance Fraud Manager is fully capable of real-time operation—and has a track record of success to prove it. The core predictive analytics of Insurance Fraud Manager have been used successfully in real time for nearly a decade in the credit card industry, where the FICO product is used to screen 85% of US transactions for fraud.

"What we discovered was that FICO's fraud solution is very effective in revealing all types of aberrant behavior—payment or billing error, suspected fraud and abuse, or indications of clinical inappropriateness."
—*Bob Green,*
Mgr., Data Analysis,
Government Employees
Hospital Association (GEHA)

Insurance Fraud Manager can also operate, of course, in prepayment batch mode, analyzing claims overnight in advance of the next day's check run. Most health care insurers may prefer to implement prepayment detection initially in this way, moving to real time at their own pace.

When choosing a prepayment system, however, all insurers should make sure their solution will be able to detect fraud, abuse and error, with no loss of accuracy, as processing cycles accelerate and business volume increases.

A system that relies on database queries, for example, may not be able to perform well when given just a fraction of a second to analyze an incoming claim. Most insurers, no doubt, will want to avoid investing in systems that become rapidly obsolete as the industry moves to real time.

» Conclusion:
The Health Care Industry Can, and Will, Solve Its Fraud Problem

There is no doubt that health care insurers will be successful in their efforts to reduce losses due to fraud, abuse and error. The will to do it has existed for some time; the necessary technology is now available.

As in other industries, once the leaders implement state-of-the-art analytics, the resulting competitive advantage will compel others to follow. Over the next few years, more and more insurers will refuse to accept high fraud, abuse and error losses as a necessary cost of operations. The results will be positive for everyone: lower operating costs for insurers, stronger payer-provider relations and improved quality of care and patient satisfaction.

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about FICO

FICO (NYSE:FICO) delivers superior predictive analytics solutions that drive smarter decisions. The company's groundbreaking use of mathematics to predict consumer behavior has transformed entire industries and revolutionized the way risk is managed and products are marketed. FICO's innovative solutions include the FICO® Score—the standard measure of consumer credit risk in the United States—along with industry-leading solutions for managing credit accounts, identifying and minimizing the impact of fraud, and customizing consumer offers with pinpoint accuracy. Most of the world's top banks, as well as leading insurers, retailers, pharmaceutical companies and government agencies, rely on FICO solutions to accelerate growth, control risk, boost profits and meet regulatory and competitive demands. FICO also helps millions of individuals manage their personal credit health through *www.myFICO.com.* Learn more at *www.fico.com*.

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