



Fear Not the Software

Fraud-fighting with Data Analysis Tools



FINDING THE FRAUD ‘NEEDLES’ IN THE HEALTH-CLAIMS HAYSTACK

By Richard B. Lanza, CFE, CPA/CITP, PMP and Si Nahra, Ph.D.

For this column, Rich Lanza is joined by coauthor, Si Nahra, Ph.D., president and cofounder of Health Decisions Inc. – ed.

Health-care fraud detection historically has focused on finding the criminals. However, fraud prevention is best done by addressing the underlying waste and abuse that pervades America’s health-benefits market, disguises fraud, and allows it to flourish.

Health-care claims are like a giant haystack riddled with needles of waste and abuse. However, some of those needles are bent – they’re fraudulent. Data mining acts like a giant magnet that pulls the needles out of the haystack so the fraud examiner can sort them, find the fraud, and reduce overall waste and abuse.

Of course, advances in computer technology and data-mining software have revolutionized fraud detection. Any interested health-plan fiduciary, manager, administrator, or internal auditor (as well as a fraud examiner) can now detect health-care fraud. Data mining narrows the field of suspects to a manageable number by categorizing them by standard criteria. This analysis (comple-

mented by human judgment) detects potential fraud that would have gone unnoticed. Fraud examiners can then begin their examinations.

Health-care fraud takes many forms. Here we’ll give some examples that illustrate how the tools of computerized data mining can be used to ferret out fraudulent behavior hiding in the midst of waste and abuse.

MAPPING UTILIZATION

Individuals might fraudulently utilize drugs covered under a medical plan to feed addictions or as kickback arrangements. Mapping networks of actual use of individuals in the haystack – showing associations with all providers they’ve seen over a period of time – can reveal this form of fraud. Mapping shows people who “hop” across different providers for no apparent reason. By itself, each provider visit might seem appropriate. But the total picture shows a map that differs markedly from other users in the same population and can exhibit potential fraudulent behavior that can be isolated and examined. Providers can’t do such cross-provider histories, and payers rarely complete them because they complicate their primary task of payment processing. Data-mining analyses can reveal these patterns.

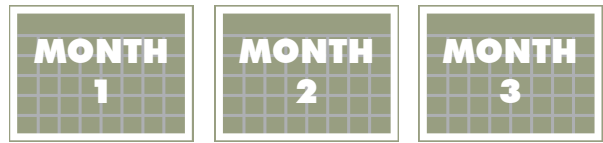
The Use Mapping illustration on page 16 shows a comparison of a “normal” person using providers and a provider hopper who might be revealed by mapping. Normal use shows a person in Month 1 going to a primary-care doctor who then refers that person to a specialist. In Month 2 the specialist directs the person to a hospital or diagnostic center. In Month 3 the person returns to the primary physician. Contrast this pattern

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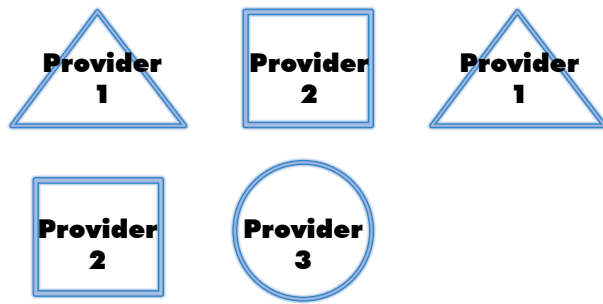
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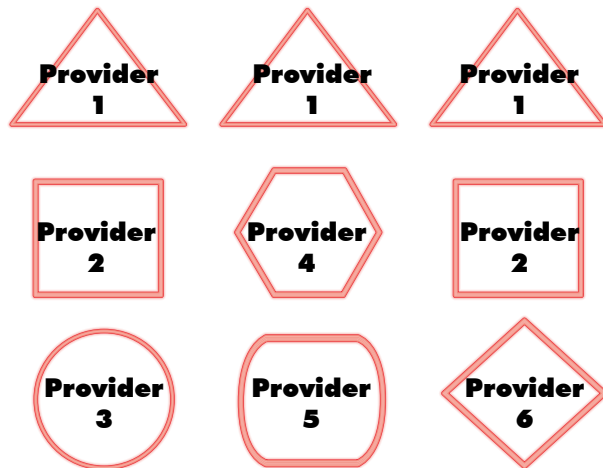
with the hopper's. Each month the person visits several different physicians with little rationale to the care patterns.



"Normal" Use



Provider "Hopping"



Use Mapping

UNIQUE PROVIDER-PROCEDURE COMBINATIONS

Providers love to maximize their income, but when do they cross the line and overbill? One way to tell is to examine each unique combination of provider and procedure. Because every health plan will have hundreds or thousands of providers each

billing hundreds or thousands of procedures, the number of these unique combinations can easily reach into the millions – well beyond the range of any traditional audit review process. However, computerized data mining makes it possible to document and review each of these millions of unique combinations.

This is a particularly effective technique for Preferred Provider Organization (PPO) health plans now popular throughout the country. In these arrangements, providers gain “preferred” status and additional patients by agreeing to accept significantly discounted fees as payment in full. Gaps in the claim payment process can occur especially when an outside “re-pricer” (that is, a service vendor that receives the original bill, applies the PPO discount, and forwards the re-priced claim to the health plan for payment) is used to assess the discount. Some providers fraudulently seek out and exploit these gaps in the claim discount process by evading discounts while still reaping the added patient volumes from their “preferred” status.

The table below is a simplified version of a “missed discount” analysis that can help reveal waste and expose potential fraud. Assume each provider is a “preferred” provider.

	Provider 1	Provider 2	Provider 3	Provider 4
Procedure 1	100%	0%	100%	10%
Procedure 2	100%	0%	80%	10%
Procedure 3	100%	0%	90%	10%
Procedure 4	100%	0%	80%	10%
Procedure 5	100%	0%	0%	10%

Percent of Claims Discounted by Procedure and Provider

Provider 1 is clearly no problem because *all procedures were discounted*. If Provider 2 weren't preferred this result might be acceptable; however, as a preferred provider, further investigation is clearly warranted. This is a preferred provider that has not had any discounts applied. Provider 3 shows a pattern indicative of contractual or administrative issues. The fact that a majority but not all claims were discounted would entail eliminating problems with re-pricing administration before questioning the provider. The pattern for Provider 4 concerns us because it might show a situation in which some discounting was done to determine how to evade further discounts. Further analyses to document the amounts of payment would also help focus any follow-up investigation.

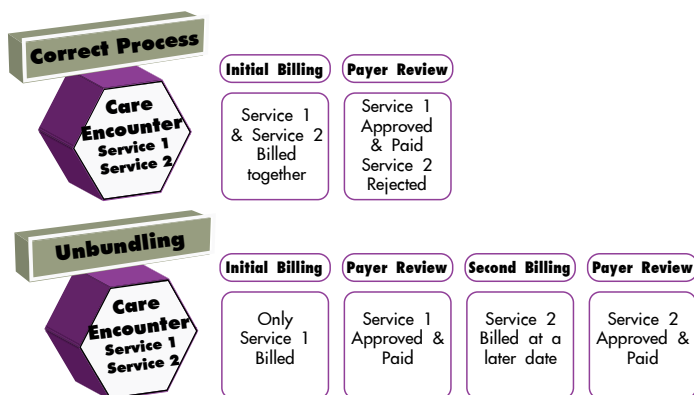
CONSTRUCTING CARE ENCOUNTERS

Providers also maximize income by billing for excessive services, which is sometimes referred to as “unbundling.” To detect this practice, you must find individual care “encounters.” An

encounter is an incident of care provided to the same person on the same day by the same provider. A provider that consciously spreads out billings for a single encounter over time can often evade standard detection techniques (if any are in use at all). You can detect these shady provider billing practices by compiling a claim history file covering several quarters or a year and constructing encounters from that history. The illustration below shows how unbundling can occur. In the Correct Process all services for an encounter are billed at the same time. Service 1, for example, might be a physical and Service 2 might be for supplies used during the physical. Because Service 1 covers Service 2, Service 2 is duplicative and should be denied. However, if Service 2 is held for a time and billed at a later date it can (and often is) viewed in isolation and not associated with the overall physical and paid in error. Providers who consciously and consistently engage in such billing manipulation warrant a closer examination for potential fraud.

ENROLLMENT FRAUD

With data mining, you can detect enrollment fraud perpetrated by employees or covered persons. It's not uncommon to find 5 percent to 15 percent ineligible persons enrolled in a health plan. Some of these might be innocent mistakes or administrative glitches, but others are conscious attempts to defraud. You can find this type of fraud only by mining the data to compare employment rosters to enrollment rosters, cross-reference enrollment rosters across payers, or accumulate documentation that corroborates eligibility via enrollee surveys or other follow-up.



How Unbundling Occurs

CASE STUDY: SUSPICIOUSLY HIGH COSTS

The national Health Plan X noticed that one state had unusually high costs. The company performed a variety of statistical analyses that confirmed this, but the analysts couldn't explain why it was happening.

Benefit managers dug beneath the statistics to reveal that the high costs were localized in one community but not within the whole state. Within that community there was a small group of people that had excessive levels of use associated with these providers. Plan representatives contacted these providers. Use levels quickly fell and costs in that community came into line with expected values. The company realized the possibility of fraud but didn't pursue it because they didn't have any fraud examiners on staff.

CASE STUDY: MASSIVE UNBUNDLING

Health Plan Z noticed that the volume of service billings was increasing dramatically even though the care episodes weren't. This led the company to question billing patterns and to conduct data mining that reconstructed care encounters over the prior 15-month period. The data mining documented massive amounts of unbundling. Investigation into the cause revealed that the plan administrator had stopped monitoring for unbundling and that providers had become aware of this gap. The claim administrator was terminated and procedures for monitoring excess billings were put in place.

WHAT IS DATA MINING?

There is no single definition of data mining. Nor is there any available “off-the-shelf” software for conducting data mining. The process is equal measures of technical ability and human judgment. Unlike statistical analyses that use defined calculations with known documents and data pattern descriptions, data mining is more intuitive.

Generally, data mining entails three steps:

1. **Preparation:** This is largely technical and entails data acquisition, standardization, and conversion. While many techniques exist for performing these tasks, it’s preferable to have them result in a new data asset that is compatible with Microsoft® products. Structured Query Language (SQL) is a proven tool for supporting data mining, and produces findings that can be communicated to any user with Microsoft® Office or similar software.
2. **Mining:** The actual conduct of data mining starts with a problem statement expressed in words by any interested party. This is then interpreted and

expressed in the form of programming logic. Initial results of this program are reviewed to determine if they accurately capture the intent of the problem statement. Adjustments to the program are then made to bring it into alignment with the intent and purpose of the problem statement.

3. **Action:** Once the program is refined, results can be reviewed and interpreted. Often one of the greatest benefits of data mining is the ability to focus review activity on problem areas and quantify the overall magnitude of a perceived issue. Unlike statistical samples that review a representative selection of cases (most of which will be correct), data mining uses human judgment and analysis to review “problem” cases and decide if follow-up is warranted.

Data mining is a powerful tool in examining health-care statistics. However, it’s only as useful as the personnel available to review and act on its results. This is an ideal role for fraud examiners.

FINDING HEALTH-CARE FRAUD ONLY WITH DATA MINING

In each of these examples, you can use data mining to expose previously undetected areas of potential fraud and find waste and abuse, which really is “fraud” without the criminal intent. Just the act of looking for such inappropriate behavior can have a chilling effect on fraudsters or would-be fraudsters; they’re likely to move on if they fear detection. Even when fraud isn’t present, identifying and quantifying waste and abuse levels can help focus management priorities and provide the basis for quality improvement monitoring.

In the past, America’s self-funded health plans and group health insurers have been able to exert a collective influence on the health-care system. They can do it again by insisting that all post-payment data be mined to expose the root causes of fraud and the waste and abuse that provide its cover. 🔍

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