

Using analytics to detect fraud, waste and abuse in health insurance



Mr Hatim Maskawala of **Badri Management Consultancy** looks at how analytics can be used to detect fraud, waste and abuse, and makes the case for a structured approach to fraud control.

Health insurance is the fastest-growing line of business by premium volume in the Middle East insurance industry. A key growth driver is the introduction of mandatory medical coverage by various regulators.

As the volume of health insurance grows, so do the pains of administering it. Given the increasing volume of claims being processed by insurance companies and third-party administrators (TPAs), they are busy ensuring that there is no back log and have less time to adjudicate the claim.

The task of checking and adjudicating claims has now been passed onto rule engines. The rule engine has the ability of adjudicating millions of claims based on the rules inbuilt. I see the rule engine as being similar to a child's toy where the triangle has to go through the triangle hole and the star has to go through the star hole. In the case of the rule engine, there are thousands of combinations rather than a few. However, this means that as long as the combinations match, the claim will go through.

Generally, doctors and healthcare professions are one of the most respected professions that exist. However, as with all professions, there are an unscrupulous few which try to benefit from the loopholes and weaknesses of the system, either due to personal gain or due to profitability pressures from their seniors. This has led to an increase in fraud, waste and abuse (FWA) cases.

The traditional way of combating health insurance fraud was by random audit of claims. Given the increased volume of claims and electronic submission of claims, random audit is not a practical way of detecting fraud.

Fraud detection using analytics

Fraud detection and investigation is an area where analytics are useful. Finding fraud is like finding a needle in the haystack. With big data, it is a big haystack.

When using analytics for fraud, we need to start with simple historic reports and keep increasing the complications as we go forward.

Historical reports can be standard reports or statistical reports. Some examples are utilisation per provider, top claims per diagnosis group, and so on. Statistical reports look at various distributions and averages, minimum, maximum, outliers, and so on. Once these are built, they will lead to more complex reports.

Table 1: Some simple historic reports and the types of fraud and abuse that can be detected from them

Number of claims per clinician	If a doctor is racking up, say, 200 claims a month, it means that he is consulting roughly 10 patients per day. Remember that the data being analysed is only for one organisation.
Number of tests per claim or patient by clinician – analysed by speciality	If for a similar speciality, a specific clinician is requesting more tests than the average or, say, 75th percentile, then this needs to be investigated.
Number of medicines per claim or patient by clinician – analysed by speciality	This will highlight the clinicians who have a habit of over-prescribing.
Utilisation per member and then by month of service	If a member is visiting a doctor on, say, a monthly basis, then this needs to be investigated. Most of the time, these are for genuine medical needs. However, sometimes, the medical card may be reused by the provider without an actual visit.
Gaps between consultations	There may be consultation visits happening on the eighth or ninth day (when follow-up within seven days is free). If this is happening quite frequently for a particular provider/ clinician, it is worth investigating.
Claims per clinician per pharmacy	Useful in detecting pharmacy-clinician collusion. There may be cases in which, say, 60% of the pharmacy claims of a clinician are coming from one pharmacy. If that pharmacy is in the same building or nearby, then it is understandable. However, many times we have noticed that the pharmacy is more than, say, 3 km away.
Utilisation amongst family members	At times, I have seen all members of a family having high utilisation. For example, in one instance, I saw a whole family getting expensive dental treatment. The question arose as to whether all the members needed that treatment within a short period of time or was it just a visit by one member that led the clinician to persuade others to provide their cards also. Also, I have seen cases whereby, since the limit for a certain member was reached, the provider billed it on the spouse's card.

Data discovery meetings

To have an effective fraud prevention system, one needs to have regular data discovery meetings. These could be between the actuary, claim and provider audit unit to get the right tools. There are many complex tools available but they come with a big price tag. I am not advocating spending millions without a business case. Start small with a simple analytical tool and the right expertise, let it reap value and then scale up. If, by using a low cost solution you can save a million or two in claims, then you will have greater buy-in from management to expand.

In these meetings, we can start by selecting a provider and then examining other relevant charts for that provider. How do the values for that provider look, compared to the average for similar providers? Then we would pick up, say, the top diagnosis for that provider. Are the patterns familiar like other providers? For example, if it is a hospital we are talking about, then in the UAE, one would expect the top diagnosis to be hypertension, diabetes and similar chronic conditions. However, if you get an unfamiliar diagnosis like gastro, then it might require future investigation. So then we would see what percentage this diagnosis makes up for other providers as compared to the one in question.

Another example is to select a pharmacy and see the types of medicines it is discharging. If, all of sudden, we see a medicine which comes up in the top 20 list and is normally not there, this could warrant further investigations.

As the name suggests, these are data discovery sessions. Start selecting something and see where the trail leads you. At the end of these sessions, we would end up with a list of claims which require physical audit. Many of these may be genuine claims but they have a higher probability of being fraudulent as compared to others.

So the problem is finding a needle in a hay stack. What is the solution?

The FWA process needs to be handled in a structured manner. Give analytics the attention it deserves. You need to have people who are expert in analytics and not just those who can multi-task. I have heard people say our doctors are so good that they can run SQL queries. No doubt they

are good, but they are not statisticians. I have seen so many claims that I can start prescribing medicines. But that's not my expertise. You need appropriate subject matter experts.

Moving from simple to complex reports


As mentioned earlier, the first step is to develop the right historical reports. These will help us create rules which are either deterministic or complex probabilistic rules which can work on scores and so on. These rules then help develop predictive rules which alert you real time when processing the claim or giving approvals.

It is better to start small and simple and then become complex. Don't aim for complex from day one. In many instances, I have seen companies invest heavily in extremely expensive solutions which promise to reach the complex stage from day one. However, these take time to implement and then they discover that the data is not available or in the correct format and hence the implementation will be delayed. Eventually, the return on investment is not as great as expected.

Every journey starts with a single step

This is a journey that the company has to go through. In this journey, you will learn more about your data, data structures, and processes. You cannot have complex probabilistic rules without having deterministic rules. You cannot have deterministic rules without statistical reports, and for statistical reports you first need standard reports. The reports mature along with the analytical maturity of a company and the users.

Recently, we undertook an analysis and saw that the return on equity (ROE) for listed insurance companies in UAE for first half of 2015 was around 1%. Medical was one of the key reasons for this low ROE.

It is important for companies to start somewhere. Many times, I have seen companies evaluating, debating and undertaking cost-benefit analysis for months without starting the actual process. Small investments in time and effort in analytics and immediate action can save large amounts in claim outgo and improve their profitability. 

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