

CLAIMS SCORING SYSTEM

AI powered Provider and Payer Billing Solution

In the last four years, providers saw a 23 percent increase in claim denials and the rate is increasing. Organizations have been trying to reduce claim denials by training staff on coding and billing processes, educating patients about medical costs, and investing in software that automates coding and insurance verification.

However, are we utilizing AI to yield the best results?

We can use AI technology with deep learning to predict denials before transmitting a claim.



Employers, government agencies and insurance companies provide patients with health insurance coverage needed to receive necessary health care services. Individuals can also purchase their own insurance coverage. The provider or the patient submits a medical claim to a payer to receive reimbursement for the services rendered to the patients. This claim has information about that incident otherwise known as an encounter which can be at a physician's office, outpatient facility, or an inpatient setting.

The medical claims data set from providing these services can be used to generate helpful insights about the usage of services, the frequency of such services, and what is paid, denied, or rejected.



THE PROBLEM FROM PROVIDER'S PERSPECTIVE

Getting paid on time for submitted claims is critical for medical providers and is also critical for an efficient revenue cycle management (RCM) process. Proper revenue cycle management ensures that billing errors are reduced so that reimbursements from insurance companies are maximized. The issue becomes more critical for Medicare and Medicaid claims given the reimbursement rates.

RCM is a complex process. Claims can be denied for a variety of reasons including lack of preauthorization, improper coding, improper documentation and lack of insurance coverage. How does a provider know for sure before submitting a claim that it will be paid? Are they willing to wait up to 30 days to find out if their claim is denied or rejected?

There is of course the critical issue of cash flow. For example, a claim that is submitted and gets denied or rejected can take up to 30 days to come back to the billing department. Once rebilled, it can take another 30 days to get paid. Hypothetically, if the total value of resubmitted claims is \$300M and the rejection rate is 15% rate (on \$2B in revenue), the impact on cash flow is \$7,500,000. That amount can be saved if the billing department gets an advance warning of the likelihood that the claim will be denied or rejected by the payer. In addition, the provider saves on administrative costs associated with the resubmission of claims.



THE PROBLEM FROM PAYERS PERSPECTIVE

In order to create a credible reputation and maintain goodwill in a difficult environment among providers, regulators and patients it is incumbent upon payers to pay claims in an expeditious manner. Additionally, payers constantly strive to reduce costs by avoiding the need to repeatedly rework claims.

ILLUSTRATIVE EXAMPLE

A health plan that has 500,000 members, with 6,000,000 claims a year, an average of \$250 an outpatient/ physician claim, with a 70% reimbursement rate and a 2% rejection rate would have \$21,000,000 in rejected claims. On average, the costs to rework and manually intervene to resolve these claims would far outweigh interest earned from holding the amounts in reserves.

Artificial Intelligence and Machine Learning Predictive Models can change this.

THE SOLUTION



Claims Scoring System from BigRio does precisely that. It is an AI-based Predictive Model built from claims history so that providers can find out if a claim is likely to get paid before submission. We go far beyond rules-based engines, we find relationships between data that can predict the outcome. The more claims that are ingested by the model, the better it gets.

We have tested this on CMS data (85 million Professional and 15 million Outpatient claims) and our system is accurate almost 95% of the time. On an ongoing basis, the model will need a history of claims submissions and payments to make the model more effective.

AI SOLUTION

BigRio's data science team has developed an AI-based solution, Claims Scoring System to enable the following:



- Build a Predictive Model based on the claims history of professional, inpatient, and outpatient claims.
- The system can be programmed to identify denials due to coding, lack of preauthorization, coverage issues under managed care plans, fraud or other user defined issues.
- Identify non-deterministic relationships between data elements of CMS-1500, UB 04 forms, and claims denial history (full or partial).
- Assign a score to a first-time claim which simplifies the probability for the claim to get fully or partially denied by a health plan.

DATA INTAKE

The Data needed for building the predictive model is:

- 5+ years of claims submission and payment history
- 5+ years of resubmissions/ corrected (adjusted) claims history

On an ongoing basis, the model will need a history of claims submissions and payments to make the model more effective. Adjustment data from claims operations will improve the efficacy of the model further.

THE VALIDATION

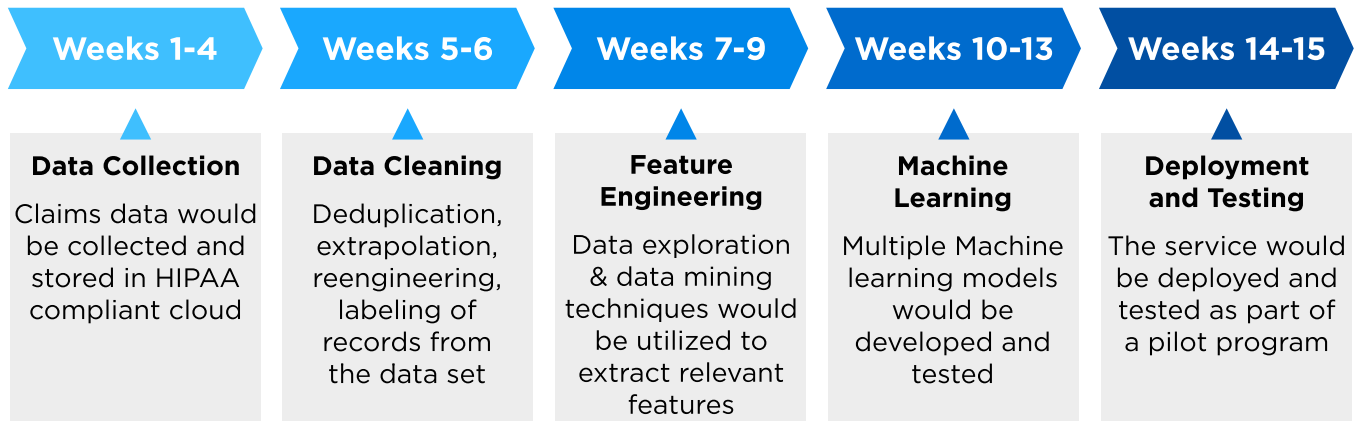
BigRio's Claims Scoring System solution has been tested using CMS's claims synthetic data. We used professional claims over a three-year time window to build the model and we were able to accurately predict approximately 95% of denials and rejections. In essence, the Deep Learning based model is highly accurate in predicting claims that will be denied or rejected even before those have been adjudicated.

Health Plans then have the option to utilize this information to reach out to the providers and prevent member abrasion.



PROCESS FLOW AND TIMELINES

While using BigRio's solution, the model efficacy will significantly improve by using a large volume of real-life de-identified claims data from provider and payer companies. The POC process flow for the model is as seen as below:



If you are a Provider or Payer you are looking at for an effective billing solution, and want to know more about our Claims Scoring System or working together for a PoC, please write to us at info@bigr.io

