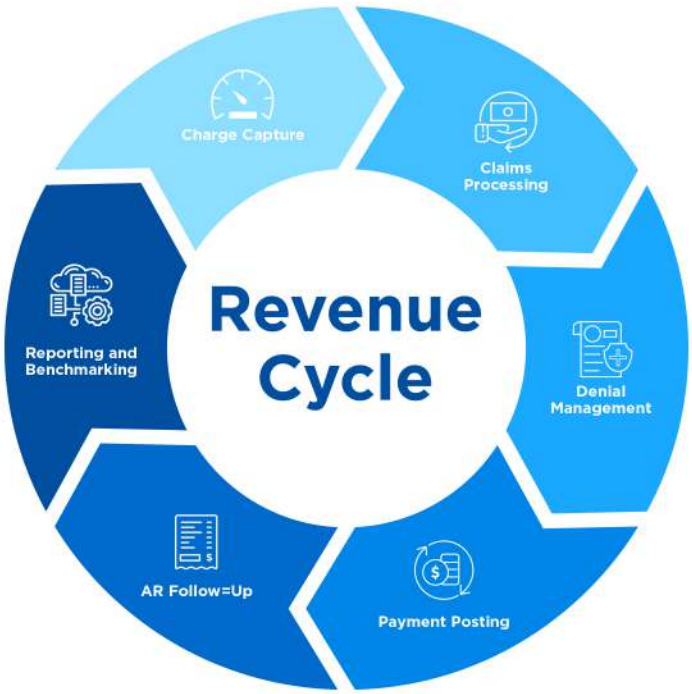
PROVIDER BILLING SOLUTION POWERED BY AI – CLAIMS ACUMEN

From 2016 to 2020, Hospitals saw a 23 percent increase in claim denials and the rate is only rising. 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, what they are not doing is using technology to predict denials before transmitting a claim.

THE PROBLEM

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 the insurance companies are maximized. The issue becomes more critical for Medicare and Medicaid claims given the reimbursement rates.



In RCM, there is a lot of focus on ensuring proper coding is done on the claims to ensure faster processing and minimizing rejections or denials. However, widespread use of Computer Aided Coding (CAC) systems has left companies asking, 'how do provider billing departments know which rejection/denial needs the attention of a professional coder?' How does a provider know for sure before submitting a claim that it would 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. So, if the total value of resubmitted claims is $300M a year (15% rejection rate on $2B in revenue), the working capital cost for that is $2,500,000. 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 a health insurer. In addition, the health system saves on administrative costs associated with resubmission of claims.

Artificial Intelligence and Machine Learning predictive models can change this.

THE SOLUTION

ClaimsAcumen® from BigRio does precisely that. It is a 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.

We are now looking for launch partners and health systems who will partner with us to do Proofs of Concept. The first few partners will receive a substantially discounted rate after successful POC and implementation of our ClaimsAcumen®.

DATA SCIENCE SOLUTIONING

BigRio Data Science team has built a solution which will enable the following:

- Build a predictive model based on claims history of professional, inpatient, and outpatient claims
- Look for 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 signifies the probability for the claim to get fully or partially denied by a health plan.

DATA INTAKE

Data needed for building the predictive model

- 5 years + of claims submission and payment history
- 5 years + of resubmission/corrected claims history

On an ongoing basis, the model will need history of claims submissions and payments to make the model more effective.

THE VALIDATION

BigRio's Claims Acumen solution is being built using CMS's synthetic data for outpatient as well as professional claims.

We used 16M outpatient claims and 85M professional claims from a 3-year window to build the model. Our threshold is set at 95% (i.e. looking at claims scoring more than 95% probability of being denied) which allowed us to accurately predict 90%-95% of denials.

VALUE PROPOSITION

We believe that the model efficacy will significantly improve by using large volume of real-life deidentified claims submissions. With that in mind, we are looking for collaboration partners to run Proofs of Concept. These POCs will take 15 weeks to run at a total investment of $150,000.

Weeks 1-4	Weeks 5-6	Weeks 7-9	Weeks 10-13	Weeks 14-15
Data Collection Claims data would be collected and stored in HIPAA compliant cloud	**Data Cleaning** Deduplication, extrapolation, reengineering, labeling of records from the data set	**Feature Engineering** Data exploration & data mining techniques would be utilized to extract relevant features	**Machine Learning** Multiple Machine learning models would be developed and tested	**Deployment and Testing** The service would be deployed and tested as part of a pilot program

Collaboration partners will receive favorable transaction pricing for participating in the pilot POCs (discounts ranging from 25% - 50% depending on the length of contract) and the amount paid for the POC will be adjusted according to the implementation fees.

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