

Symphony

AYASDI

Improving Denial Management Using Machine Intelligence

WHITEPAPER

Rethink Manual, Costly Denial Management Workflows

Rejected or denied claims represent hundreds of billions of dollars in lost revenue for healthcare organizations each year, costing them about 5% of their net revenue stream. While the recommended rate of denials is under 4%, the actual rate for many healthcare organizations is around 20%. The most efficient way to reduce the amount of lost revenue is to target the root cause of denied claims – something that is very difficult to do using Excel and existing revenue cycle management solutions.

These tools provide hospitals with a high-level understanding of the sources and types of denied claims. However, they fall short when it comes to identifying the underlying reasons and characteristics of denied claims. The amount of data included in UB-04 forms along with associated 835 transactions create increasingly complex scenarios for individuals to analyze. As a result, medical billing teams spend a considerable amount of time and effort investigating the root causes for each denied or rejected claim. Researching, correcting, and resubmitting individual claims is an extremely manual process that does not scale. There is a tremendous opportunity for hospitals to prevent revenue loss with a deeper understanding of reasons for denied claims, using improved analytical solutions.

Ayasdi for Denials Management

Ayasdi for Denials Management is a purpose-built software application that helps healthcare providers rapidly uncover complex denial patterns and their precise drivers. Finding the precise combinations of procedures, physicians, and diagnosis codes that influence payment eligibility using conventional analytical tools is time-consuming and resource intensive. Ayasdi's application rapidly uncovers characteristics that can drive process improvements to minimize revenue loss from denied claims.

The Ayasdi application draws on the power of the underlying machine intelligence platform, that combines topological data analysis (TDA) with machine learning algorithms, to uncover all the patterns and relationships within a provider's claims-related data. The topological models, generated using TDA, visualize patterns in claims data that conventional analytics tools cannot bring to the surface. The Ayasdi application rapidly correlates and analyzes thousands of attributes (such as procedure codes, physician and payer-related information, as well as provider locations) and groups claims that are similar to reveal patterns and outliers. It automatically lists the statistically significant characteristics of these groups of claims and explains outliers.

Hospitals benefit from using Ayasdi for Denials Management to conduct a retrospective analysis of hotspots of denied claims and determine the root causes for denials. The uncovered drivers help them proactively optimize their processes to prevent future denials.

The Benefits

Gain A Holistic View of All Claims

Ayasdi for Denials Management helps uncover highly nuanced relationships and patterns hidden within historical claims data. The software ingests all the claims data, including UB-04 data elements and transactional information associated with the claims, and creates a visual network of all the claims based on a notion of similarity. Claims with similar characteristics are clustered closer together within the network, whereas claims that are less similar are further apart. Traditional reporting using dashboards and Excel sheets may show aggregate numbers, but they are unable to show the

relationships between similar claims. The topological model can then be colored by any attribute of interest, including the payer type, denial reason category (e.g., medical necessity, pre-certification required), diagnosis and procedure codes reported in the claim, or percent of claims denied, to surface subtle patterns in the claims data.

Surface Underlying Denial Patterns and Hotspots

Coloring the topological model by whether a claim was denied or rejected reveals hotspots, or dense clusters, of denied/ rejected claims within the network. These hotspots are generated without having to input any preconceived notions of the underlying reasons for denial, allowing for a true data-first methodology. It saves analysts and medical billing specialists from having to guess and check which procedures, providers, and reason codes are in common within groups of denied claims. Ayasdi for Denials Management easily identifies the subtle similarities within a group of claims. It surfaces the attributes in common along with possible recurring mistakes.

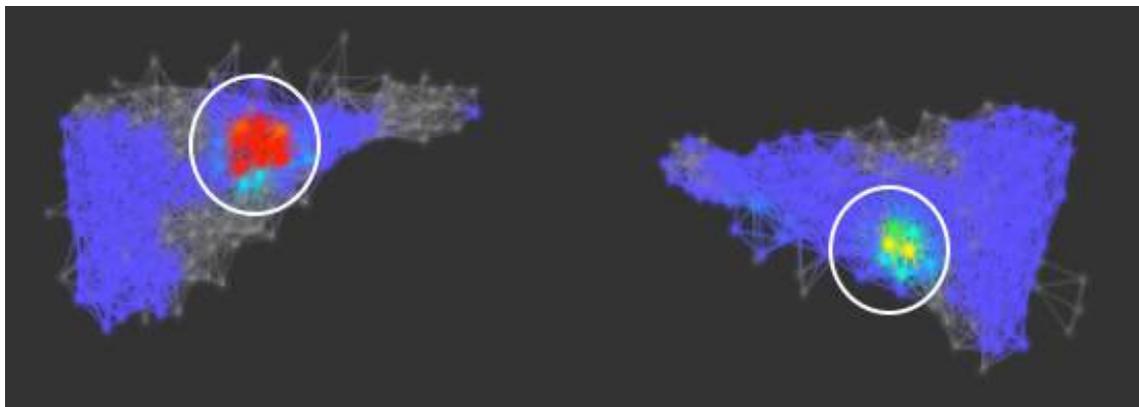


Figure 1. Two hotspots surface within a network of claims showing high concentration of denials.

By drilling into a hotspot, an analyst can determine the characteristics that drive denials and that differentiate them from the rest of the claims. The software application efficiently distinguishes denied claims by surfacing the unique combination of diagnosis codes, payer, and procedure attributes that characterize these denied claims. Based on these attributes, claim analysts can create profiles of claims known to have a high risk of denial.

Speed Payment Reimbursement

The average cost of re-working a claim is \$25. With hundreds of denied claims pouring in each day, providers need an efficient way of prioritizing claims for resubmission. If a newly denied claim is recognized to have similar attributes as the claims reviewed in a hotspot, it can be quickly categorized and prioritized for correction. The reason for denial is likely to be the same, which limits the investigation effort required to determine the root cause of the denial to fix the claim. This greatly improves the efficiency of the billing team and the overall claims denial management process.

Proactively Prevent Denials

The insights discovered by analyzing denied claims can be used to proactively improve upstream coding changes by the medical staff that will avoid future denials. Instead of evaluating individual denied claims, a domain expert evaluates groups of similarly denied claims and suggests process improvements using the underlying characteristics of each of these groups. By identifying, modifying,

and fixing processes upstream, hospitals can minimize the number of claims that are rejected or denied.

Ayasdi Case Study: A major healthcare provider improves denial management with AyasdiAI's software

The Background

A significant increase in the percentage of denied claims prompted a \$3 billion healthcare system to reevaluate their claims denial management processes. The provider estimated that 90 percent of denied claims fell into one of three categories: medical necessities, reauthorizations, and timely filing. However, despite well-developed Excel reporting, they were not in a position to pinpoint the exact drivers of denials. The volume of denied claims in these categories continued to rise each year. The provider recognized that they needed an advanced analytical solution to help them determine the precise reasons that resulted in a claim getting denied or rejected.

Ayasdi Value

The provider used Ayasdi for Denials Management to tackle the problem by generating hotspots from the hospital's claims data. The software application helped create precise profiles of groups of denied claims, impossible to identify with a high-level trends' analysis using Excel.

Figure 2 is a visual representation of the provider's claims using Ayasdi's application. Each node in the topological model represents claims with similar characteristics. Nodes that share a claim are

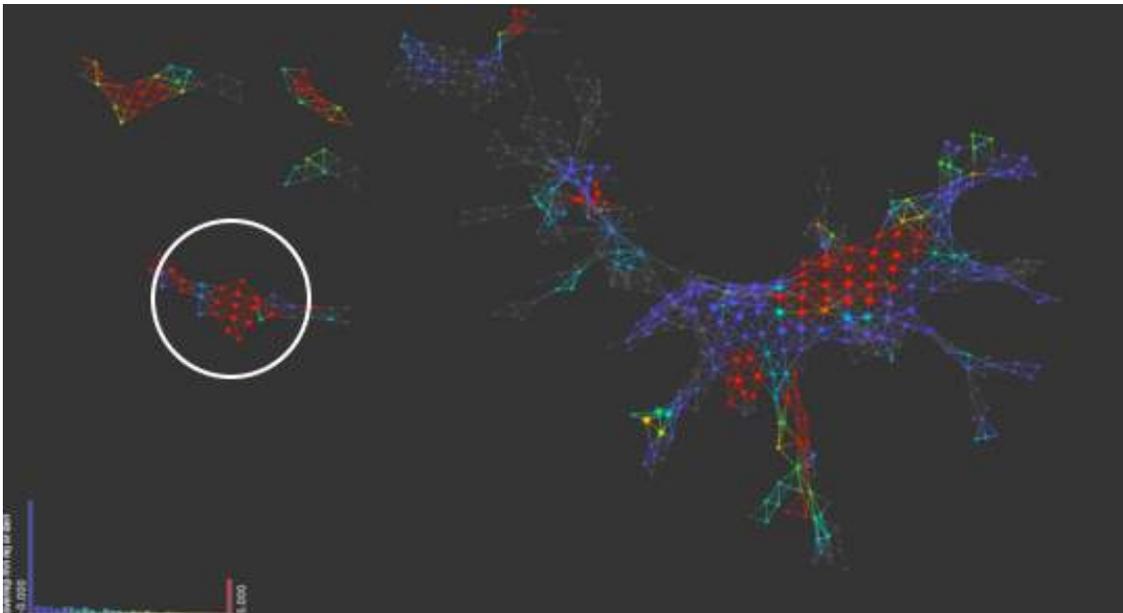


Figure 2. A hotspot surfacing a group of similar claims around colonoscopy procedures.

connected to each other. Coloring the network to highlight high concentrations of denied claims surfaces hotspots (regions in red) that warrant deeper investigation.

For example, one of the identified hotspots surfaced a cluster of denied claims around colonoscopy screening procedures. Colonoscopy claims are notorious for being rejected on the grounds of lack of medical necessity and providers regularly run afoul of complex coding guidelines. A provider is typically faced with a variety of coding scenarios each of which is often susceptible to inconsistent interpretation of the guidelines by the adjudicator:

- Screening colonoscopy for Medicare patients
- Screening colonoscopy for non-Medicare patients
- Screening colonoscopy for Medicare patients that becomes diagnostic or therapeutic
- Screening colonoscopy for non-Medicare patients that becomes diagnostic or therapeutic

However, using Ayasdi's application the provider was able to surface a coding scenario and treatment procedures that were common in this group of denials.

Further investigation of the identified features for this hotspot revealed that the issue involved the ordering of the diagnoses codes in the claim and the selection of an inappropriate "G" code or HCPCS code for each colonoscopy scenario. The sequencing of codes triggers the screening colonoscopy as "diagnostic", thereby impacting how much of the payment is covered or deferred to the patient's out-of-pocket expense. The provider anticipates that the use of Ayasdi for Denials Management to influence process changes will help address 70 percent of all denials, thus saving millions of dollars annually.

Rapid Root Cause Identification. Ayasdi for Denials Management helped the provider identify denial hotspots and the root cause of commonly denied claims within weeks of the analysis. Traditional approaches to uncovering patterns by analyzing and aggregating denial codes for each individual claim would have taken months.

Comprehensive Examination. Ayasdi's data-first approach eliminated the need to limit the analysis to a predetermined set of features or algorithms. This allowed the provider's data scientists the ability to analyze all potential attributes of the claim and identify the ones that were highly correlated with denials.

Intelligent Prioritization of Improvements. The Ayasdi application uses the shape of claims data to discover subtle signals as well as small segments of similar claims with a high percentage of denials. By discovering groups of claims with similar reasons for denials, the claims management team can prioritize process improvements based on the revenue impact.

Summary

Ayasdi for Denials Management draws on the power of a machine intelligence platform to expedite the discovery of denial patterns within a hospital's claims data and improve revenue cycle management. The Ayasdi software application helps healthcare providers identify groups of commonly denied and rejected claims, surface the characteristics of these groups, and use these insights to influence process improvement. Traditional approaches to identifying the causes of denial are rudimentary and require manual investigation of individual claims. Ayasdi for Denials Management provides hospitals with a holistic view of all of their claims data. It discovers highly nuanced relationships between all the variables within claims and their correlation to denials. With a complete picture of the causes for denials, organizations can go beyond just managing denials. They can prevent them.

About Symphony AyasdiAI

Symphony AyasdiAI, part of the SymphonyAI Group, is the world's most advanced artificial intelligence software company. Symphony AyasdiAI helps organizations discover new and valuable insights in enterprise data. With unprecedented accuracy, transparency, and speed. Built upon over a decade of research and experience, Symphony AyasdiAI delivers insights to Fortune 500 companies and public sector organizations to capture growth, avoid risks and manage inefficiencies.

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