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AI and Algorithms: An Effective Approach to Medical Claims Processing

Authored by Corliss Collins, BSHIM, RHIT, CRCR, CSM, CCA, CBCS, CPDC
Founder, Principal and Managing Consultant

This is [Part 7 in a series of articles providing a general overview of Artificial Intelligence \(AI\) impacting the healthcare industry](#). This information is an overview of very basic suggestions on Standard Operating Procedures (SOP), Policies and Best Practices for smaller hospitals and provider organizations. This information is not designed to be all-inclusive, and is not intended as consulting or legal advice.

Introduction

The Health Leaders Media Report, [Final Denial Rate Increase](#), states that denials *increased* by 51% in 2021 and 2023 despite significant investments in Artificial Intelligence (AI) Automation and Revenue Cycle Management (RCM) Operations utilizing AI-Powered Medical Coding and Medical Claims Processing Software. *This pressing issue demands our attention!*

About the technology - Optical Character Recognition (OCR) and Natural Language Processing (NLP) are powered by AI Machine Learning (ML) and deep learning large language models (LLM). These technologies have become a core function in RCM Operations and have also been adopted by the Health Insurance, Health System, and Provider communities across the United States. Nonetheless, claim denials continue to show an alarming increase year over year.

So, why aren't the numbers of healthcare claim denials and rejections declining with all the automation and technology advancements?

Are Automated Coding Models Powered by AI Not Accurate Enough for Medical Coding?

This article delves into this complex and sometimes very confusing topic, briefly recapping Part 6, [AI and Algorithms: The Other Side of Medical Claims Processing](#), and then providing a general synopsis in Part 7AI and Algorithms: An Effective Approach to Medical Claims Processing.

Advancing RCM Operations

Every year, more than five billion medical claims are processed by Payers in the United States for reimbursement, according to the Centers for Medicare & Medicaid Service, [CMS.gov](#). Many of these claims are processed using the Healthcare Common Procedure Coding System (HCPCS) and the Current Procedural Terminology (CPT®) coding systems. These two coding systems are the backbone of our billing process. It is essential to comprehend the underlying causes of AI, algorithms, and Rule-Based Automation in order to reduce risks:

There are Three Primary Claim Edit Types to Pay Attention to:

1. Technical Edits are triggered by missing or incomplete claim information
2. Clinical Edits are directly associated with care or services rendered
3. Underpayments Claim amounts aren't being paid as the Contract Agrees to pay

Artificial Intelligence (AI) in the Medical Claims Process

AI leverages cutting-edge technology, including robotic process automation and AI machine learning, to improve the different medical claims adjudication activities that enable accurate billing for provided healthcare services.

These AI systems also use LLMs, which are machine learning models with the capacity to communicate in normal language with claim managers to evaluate substantial amounts of data. Complex patient data management, medical record administration, processing medical claims, collecting payments, and financial reporting are among the duties covered by *CMS AI Resources*.

There are hundreds of HIPAA-Compliant Medical Coding Software Applications on the market (see CMS for more on [HIPAA-Compliant Code Sets](#).) Using automation more and manual intervention less is supposed to lead to the reduction of errors and inefficiencies. If this is the case, why do claim rejection and denial rates seem to not be declining annually?

On another note, unautomated accounts are processed differently. Claims are routed to manual review work queues (WQs) to be analyzed, corrected and billed.

AI-Powered Challenges

Historically, rule-based algorithms for coding and claim adjustments (also known as coding-related edits) were created to streamline the claims adjudication and payment procedure for providers sending medical bills to payers. However, according to a 2022 Experian Report, rejections are still increasing year over year. Statistics on Healthcare Claim Denials [Healthcare Claim Denial Statistics](#) are provided below:

Claim Denials Statistic Examples:

- In 2009, there was an estimated \$210 billion rise in claim denials
- In 2019, a decade later, that number increased to \$265 billion

These technologies seek to transform coding quality, accuracy, and financial performance, even as artificial intelligence in medical claims processing is a game-changer. In order to determine why claim denial rates are still rising, it is imperative that automation accountability, compliance, and transparency (ACT) standards be established; criteria suggestions are provided below:

Key AI-Powered Automation Evaluations could start with the Challenge Areas below:

- 1. Patient Registration and Scheduling:**
 - **Chatbots and Virtual Assistants:** AI-driven chatbots assist patients with scheduling appointments
 - **Automated Data Entry:** AI tools can automatically populate patient information from various sources, ensuring data consistency.
- 2. Claims Processing and Billing:**
 - **Claims Scrubbing:** AI systems can review claims for errors or omissions before submission.
 - **Predictive Analytics:** AI can predict the likelihood of claim approval based on historical data.
- 3. Denial Management:**
 - **Root Cause Analysis:** AI can analyze denial patterns to identify common causes and suggest process improvements.
 - **Automated Appeals:** AI-driven tools can generate and submit appeals for denied claims.
- 4. Payment Posting and Reconciliation:**
 - **Automated Payment Posting:** AI can automate the posting of payments received from payers.
 - **Discrepancy Detection:** AI systems can identify and flag discrepancies between expected and received payments.
- 5. Patient Engagement and Collections:**
 - **Predictive Payment Models:** AI can analyze patient payment behaviors to predict the likelihood of payments.
 - **Automated Reminders:** AI can send personalized payment reminders to patients.
- 6. Financial Reporting and Analysis:**
 - **Revenue Forecasting:** AI models can predict future revenue based on current and historical data.
 - **Insights and Analytics:** AI provides real-time analytics and dashboards, offering insights into key performance indicators (KPIs).

7. Compliance and Risk Management:

- **Fraud Detection:** AI systems can identify unusual patterns that may indicate fraudulent activities.
- **Regulatory Compliance:** AI helps ensure billing and coding practices comply with current healthcare regulations.

AI-Powered Algorithmic Opportunities Can be Leveraged

Best Practices for resolving discrepancies, recoding, and resubmitting rejected claims, and appealing denials are outlined in the Six Key Mitigation and Remediation guidelines below:

Rejected or Denied Claims Review Strategy

1. Claim Rejections

1.1 Opportunity: One or more edits caused the entire claim to be rejected

1.2 Solution: Identify the edit error, correct it, and resubmit the claim for payment

2. Line-Item Rejections

2.1 Opportunity: One or more edits caused individual line items to be rejected

2.2 Solution: Identify claim edit line-item error, correct it, and resubmit it for payment

3. Claim Denials

3.1 Opportunity: One or more edits have caused the entire claim to be denied

3.2 Solution: The provider must submit a letter with documented medical necessity

4. Line-Item Denials

4.1 Opportunity: One or more edits caused individual line items on a claim to be denied

4.2 Solution: The claim line item that was denied must be appealed.

5. Return-to-Provider

5.1 Opportunity: One or more edits caused the entire claim to be returned to the provider

5.2 Solution: The Provider should correct the claim edit error and resubmit it for payment

6. Suspension

6.1 Opportunity: One or more edits caused the entire claim to be suspended

6.2 Solution: The MAC must review the claim and determine if it will be paid

The Time to ACT is Now

It is estimated that the Medical Coding AI business will invest around \$8.5 billion between 2024 and 2033, a period of nine years. The first step in reimagining a successful medical claims processing strategy is to set up and implement Accountability, Compliance, and Transparency (ACT) Best Practices.

The Department of Health and Human Services (HHS) has produced and distributed a trustworthy AI ([TAI](#)) playbook, which assists Healthcare Leaders and Staff in developing TAI-specific Standard Operating Procedures (SOP), Policies, AI Playbooks, and Process Optimization Solutions.

HHS TAI Playbook Objectives

1. Promote understanding of TAI Principles in the Playbook
2. Provide guidance and frameworks for applying TAI Principles
3. Centralize relevant federal and non-federal resources on TAI
4. Serve as a framework for future HHS Policies on TAI acquisition, development, and use

The HHS TAI Playbook provides a great Blueprint for improving AI, Algorithms, Medical Claims Processing, and Revenue Cycle Management (RCM) Operational outcomes.

REFERENCES:

- Health Leaders Media [Click Here](#)
- AI and Algorithms, Part 6 [Click Here](#)
- CMS.gov [Click Here](#)
- CMS AI Resources [Click Here](#)
- HIPAA Compliant Code Sets [Click Here](#)
- Healthcare Claim Denial Statistics [Click Here](#)
- Trustworthy AI (TAI) Playbook [Click Here](#)