AI in Health Care Claim Processing

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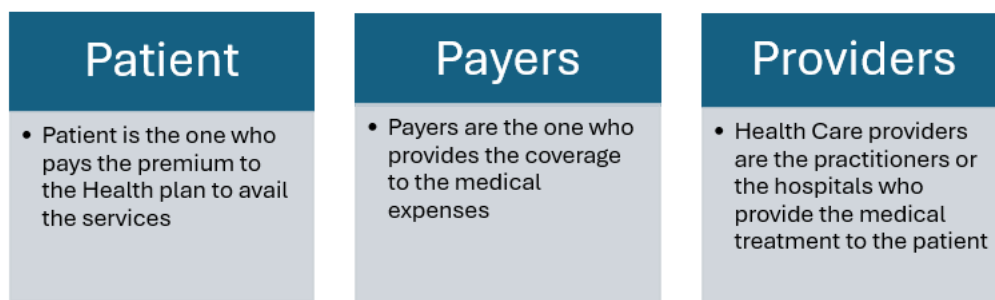**Introduction:**

Health care plays an important role in everybody's life, The Health Care revolution increasedthe life expectancy. Prior to the COVID-19 pandemic, global life expectancy has increased by more than 6 years between 2000 and 2019. However, in just two years, the COVID-19 pandemic reversed about a decade of gains in both life expectancy at birth. By 2020, both global life expectancy and HALE had rolled back to 2016 levels (72.5 years and 62.8 years, respectively). A Healthy Individual can help the society by increasing the economic productivity, Reducing Health Care costs, Outshine students etc…Health Insurance plays an important role in Health care. Health Insuranceis a medical plan where the member should pay the monthly premium for the medical plan based on the plan the member chose. The member's medical expenses related to hospital visit, inpatient care, outpatient care, preventative care will be covered based on the deductibles and there will be a co payment for the members based on the plan.The payment between the payers, providers and members are processed as claims. Claim processing goes through various stages and enhanced processing can be achieved through artificial intelligence

Keywords: Health Insurance, Claims Processing, AI in claim processing, Predictive analysis

Health Insurance:

As the Health Insurance plays an important role and the below three characterizes are majorly involved in the process. The patient/members should enroll for the health plan and pay premiums to the payers to avail the medical treatment services. The payers provides the coverage for the medical treatment based on the plan chosen by the patient. The providers are the registered health care professionals who provides the medical treatment to the patients and claims the payers for the medical services provided.

Patient	Payers	Providers
• Patient is the one who pays the premium to the Health plan to avail the services	• Payers are the one who provides the coverage to the medical expenses	• Health Care providers are the practitioners or the hospitals who provide the medical treatment to the patient

The various terminologies used in Health Insurance:

- Enrollment

- Benefits
- Coverage
- Premium
- Deductible
- Co pays
- Claims
- Appeals
- Producers

Enrollment: It refers to the period when one can enroll for a new health plan or renew an existing one to avail the services. The enrollment period can happen during specific period

Benefits: It refers to the different premium or plan and the services additional benefits that can be availed through the plan

Coverage: It refers to the extent of protection afforded by the plan

Premium: Premium is the periodic payment the member must pay to the payer

Deductible: Deductible is a cost sharing or the amount of money the member pay before the payer starts the covering

Copay: It refers to the standard fee the member will be paying for a basic health services

Claims: It refers to the formal request or submission on bills to the payers for the medical services provided to the patient/member

Appeals: Denied claims can be appeal again with correct information or justification to the insurance provider/payer

Producer: A health care agents who helps the member to chose the plan

Claim Processing:

Claims processing in health care involves several phases , where the health care providers will be submitting the bills for the medical services provided to the patients

Phases of claim processing:

- Claim Initiation
- Review or verification
- Claim assessment
- Adjudication
- Payment processing
- Appeals

Challenges in Claim processing:

1. Claim Handling

Claim handling is essential to members and providers. It includes several stages prompt, smooth/efficient intake, accurate amounts, and timely payments. While payments are made to providers, if there becomes an issue with timeliness or accuracy, providers miss filing deadlines and could miss

payments potentially resulting in provider loss, they may stop accepting your plan, or even take legal action. This negatively impacts your customers/members, causing dissatisfaction. Claims needs to get proceed on time and in an effectively .This is an end-to-end process that encompasses a smooth intake, the accuracy and completeness of the claims handling and getting payments to the provider as expeditiously as possible.

Enormous processing data: Every claim involves a significant amount of data, including patient information for eligibility, Plan coverage, Diagnosis,Specialist visit, medical codes, plan codes, and billing details. Managing and processing this data accurately and efficiently is a major challenge

Multiple Touchpoints: Claims processing often pass through various departments and personnel, increasing the chances of errors and delays due to lack of information,miscommunication or lack of a information when handling by the nurses, laboratory people, hospitals and practitioners.

Regulatory Compliance: Health insurance claims must comply with various regulations and standards. Ensuring compliance adds another layer of complexity to the process. Health plans or their third-party administrators should include policies and procedures for providing notices and disclosures, regular training, and education for staff on the importance of compliance, and regular audits to ensure that notices and disclosures are being provided promptly and accurately. It is also important for healthcare organizations to stay current with changes in laws and regulations related to required notices and disclosures and to adjust their department programs accordingly.

Fraudulent Claims: Identifying and preventing fraudulent claims is a significant challenge. Fraudulent activities can lead to substantial financial losses for insurers. The federal government received almost $1.9 billion in healthcare fraud settlements and judgments in fiscal year 2021, according to a report from the HHS Office of Inspector General (OIG).. Fraud is defined as any intentional deception or misrepresentation resulting in financial gain. These can include a range of activities such as billing for services not provided, upcoding (billing for a more expensive service than was provided), kickbacks, and overutilization of services.

Benefits of Implementing AI in Claim processing:

Automated Claims Processing: Automation of the entire claims process, from initial submission to final settlement. This reduces the time required to process claims and minimizes human error

Fraud Discovery: Based on the historical data AI algorithm cananalyze patterns and detect anomalies that may indicate fraudulent claims.

Predictive Analytics: AI can predict claim outcomes based on historical data, helping insurers make informed decisions and manage risks better

Document Processing: AI can instinctively extract and process evidence from documents, reducing the manual intervention and fastening up the claims process

Overview of Algorithms in AI:

AI algorithms for fault discovery are designed to recognize and detectfaults in various systems efficiently. Here are some common approaches and techniques used:

Supervised Learning: Algorithms like Support Vector Machines Decision Trees, and Neural Networks are trained on labeled data to classify and predict faults

Unsupervised Learning: Techniques like clustering and anomaly detection identify unusual patterns in data

Deep Learning: Convolutional Neural Networks and Recurrent Neural Networks are used for more complex fault detection tasks, such as image-based fault detection and time-series analysis

Rule-Based Systems: These systems use predefined rules and logic to detect faults. They are often used in combination with machine learning to enhance accuracy.

Implementing AI in Claim Processing:

Automated Claims Submission: AI can automatically capture, verify, and submit claims to insurance companies. This reduces human errors, speeds up claim approvals, and ensures faster reimbursements.

Claims Assessment: AI solutions can evaluate claims instantly by analyzing photos, videos, and documents. With the Patient Care, Services requested, Lab Results based on the diagnosis code

Fraud Detection: AI uses advanced algorithms to analyze patterns from historical data and anomalies in claims data, identifying potential fraud in real-time.

Claims Triage and Routing: AI enhances efficiency by categorizing and routing claims based on their complexity and priority based on claims data used for submission. This ensures that simpler claims are processed quickly, while more complex cases receive the necessary attention

Data Validation and Decision Making: AI systems can validate data, flagging any errors or inconsistencies. They can also make decisions on straightforward claims, allowing human adjusters to focus on more complex cases

Predictive Analytics: AI utilizes historical data and patterns to predict risks and optimize premium pricing and claims reserves. This simplifies financial planning and strengthens competitiveness in the insurance market

Conclusion:

The complexity of claim handling, the number of stakeholders associated with it, and the massive amount of data that used for processing involves a plenty of challenges of the claims process. Small practices and corporations deal with multiple touchpoints case reviews, massive amounts of data to process before submitting, adjudicating, and resolving the claims.

To overcome these challenges and improve the quality of claim handling, many businesses opt for digital solutions that help to streamline the claim processing workflow and eliminate inaccuracies, errors, and mistakes associated with the human factor.Overall, preventing fraud and abuse requires a comprehensive and proactive approach involving all healthcare claims processing ecosystem stakeholders. By prioritizing compliance and ethics and investing in effective monitoring and oversight, healthcare insurers can reduce the risk of financial losses, government program contracts, and reputational damage while ensuring members' highest quality of care.The federal government received almost $1.9 billion in healthcare fraud settlements and judgments in fiscal year 2021, according to

a report from the HHS Office of Inspector General (OIG). By Implementing AI in claims processing helps in preventing the financial loss and provides customer satisfaction.

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