1. Organization Overview

NTT DATA is a top 10 global business and IT services provider. It is headquartered in Tokyo, NTT DATA goes for long haul duty and consolidate Global reach and neighborhood closeness to give expert administrations through consultancy, framework Development and business IT outsourcing. Since 1967, NTT DATA has assumed an essential part in setting up and propelling IT framework.

An open organization Nippon Telegraph and Telephone Public Corporation since 1995, the organization expands on this demonstrated reputation of development by giving novel IT arrangements. NTT Group comprises of numerous organizations throughout the world.

- Nippon Telegraph and Telephone Corporation
- NTT Communications Corporation
- Dimension Data plc
- NTT DOCOMO.

Goal – "To create a foundation for future business by incorporating a number of overseas companies in order to establish a framework through which we can provide our diverse services, as typical Japanese courteous service, worldwide to support our customers' needs.

John W. McCain, Chief Executive Officer of NTT DATA Services headquartered in Dallas, Texas, USA. He is an individual from the NTT Holdings Global Strategy Committee and fills in as senior VP of NTT DATA Corporation**.**

Dan Allison President, Global Healthcare and Life Sciences. As leader of the organization's biggest industry fragment, Dan is in charge of driving the development, gainfulness and change of the worldwide social insurance business, which centers around supplier, doctor, wellbeing design and life sciences customers. Dan has over 30 years of initiative involvement in IT outsourcing and business process outsourcing administrations in different verticals, with a solid concentration in medicinal services

a) **North America**

NTT DATA partnered with a range of businesses and government agencies providing a flexible array of engagement options, including consulting, managed services, outsourcing& the cloud. The company is focused on getting faster results with less risk, so its clients can flex their businesses to respond to changing market dynamics and capitalize on growth opportunities.

a) **Latin America**

NTT DATA entered the Latin American market through the acquisition of the Value Team Group, a specialist in IT consulting and services. Today, the company provides a wide offering of customized services and end-to-end solutions. The aim is to enable customers to grow and stand out from the competition by adopting innovative IT concepts and technologies.

b) **Europe and Middle East**

Over the past few years, through the acquisition of a majority stake in intelligence, Cirquent, Value Team, Intelli group and Keane.NTT DATA Group offers best-in-class consulting services and enterprise solutions for industries in the manufacturing, banking, insurance, telecommunications, media, energy, retail, service and public sectors. Additional offerings include outsourcing, hosting and full-service solutions in the ERP environment.

c) **India**

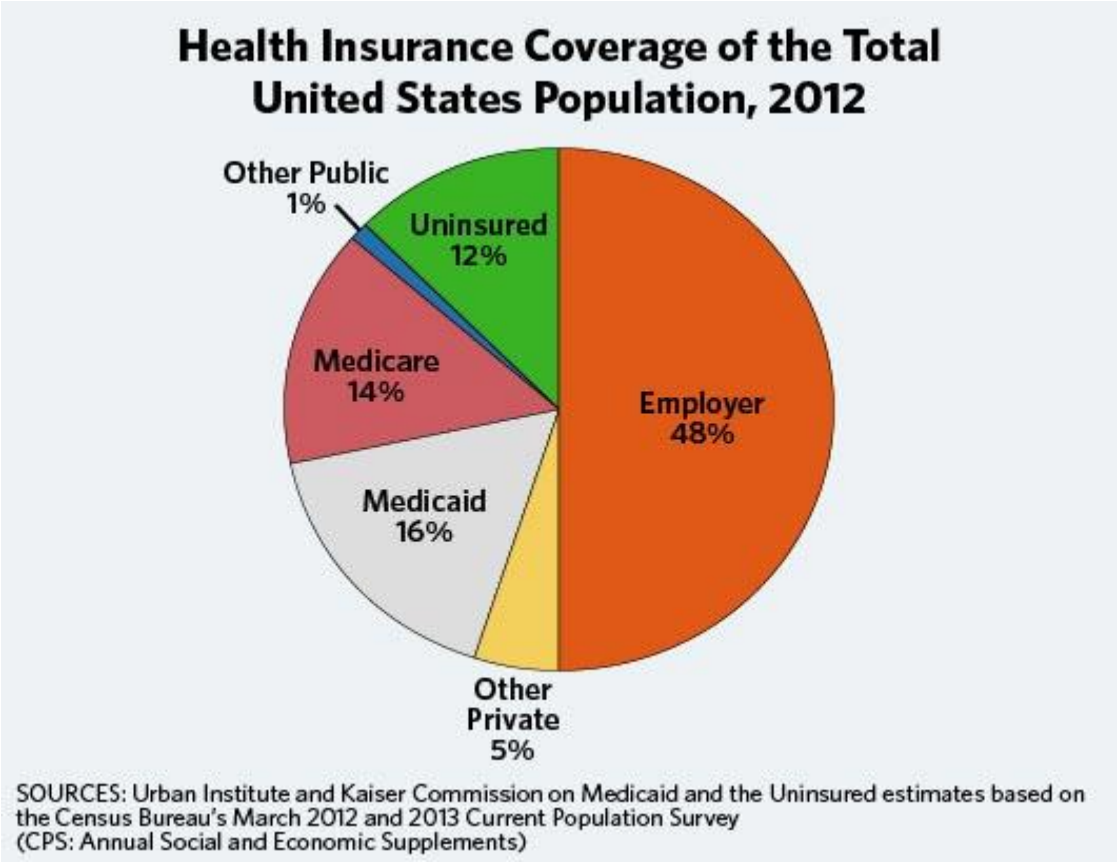
India region as both an emerging market and the delivery resource pool to provide cost competitive and high quality service in our global strategy. The company address both multinational corporations and local client in this region. With global capabilities, NTT DATA support multinational corporations, primarily in Healthcare, insurance, automotive and electronics industries in rapidly.

2. Introduction

2.1 Sources of Health Insurance

Health Insurance is provided either by Private Health Insurance Company or by Government Funded welfare Program. (According to Census Bureau March 2012 and 2013 CPS) - 48% Americans obtain Insurance through an employer, while about 5% purchase it directly. - About 30% of Americans are enrolled in a public health insurance program (Medicare, Medicaid, Military Health Insurance) rest of the Americans are insured through Private Health Insurance.

2.2 Health Insurance coverage



2.3 Reasons for rising Healthcare Cost in US

- Increase prevalence of chronic disease
- Shift in cost from uninsured to the insured
- A pre-dominant third party payer system
- Un-necessary patient care
- More Corrective treatment in place of preventive
- Inefficient coordination among Provider, Payer, Patient
- High Administrative costs
- Americans receive more medical intensive care than people do in other countries

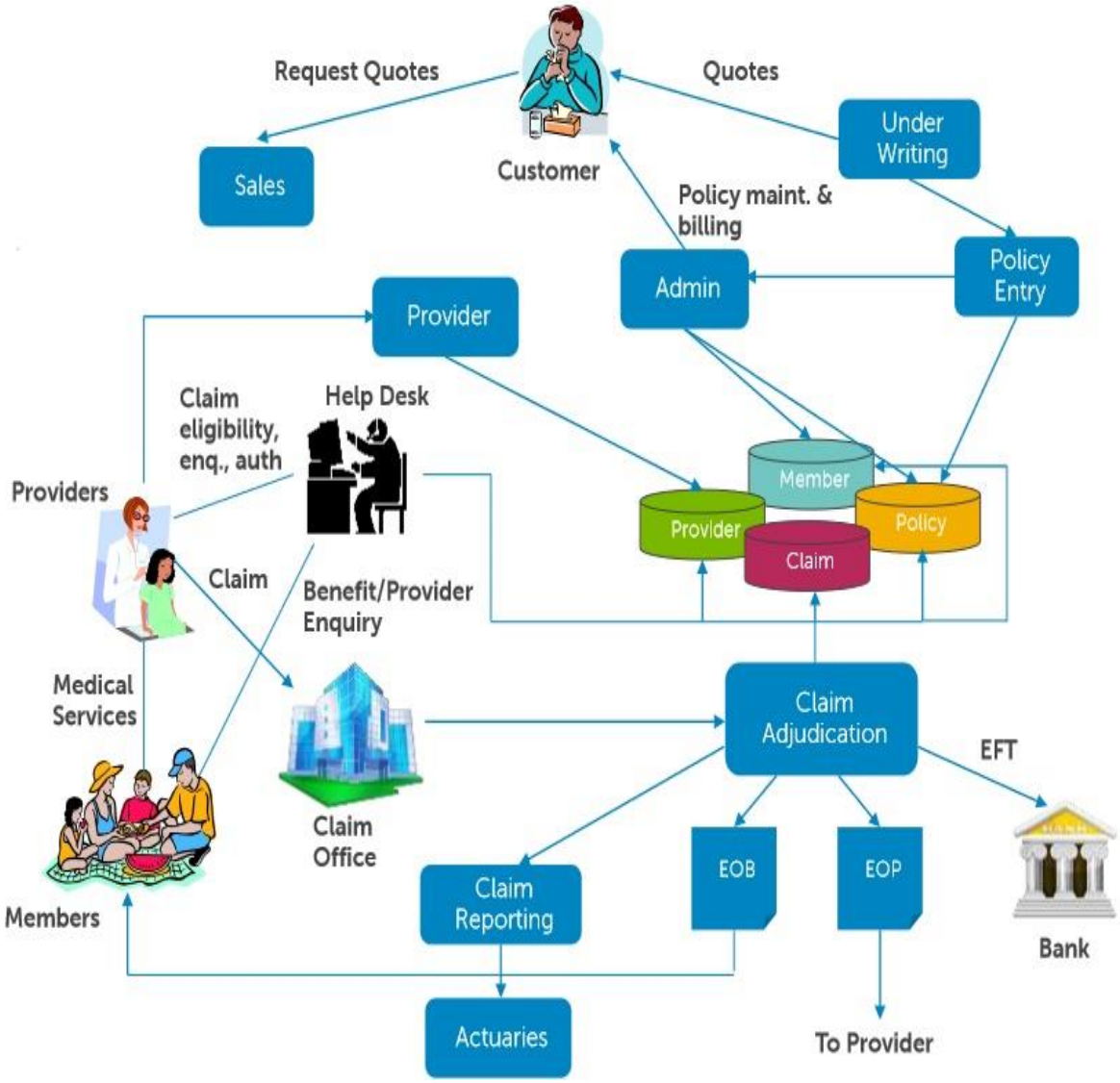


Figure2.1 US Healthcare Flow Chart

2.4 Healthcare Payer Concept

In healthcare, Payer are the organizations which reimburse the cost of health services rendered by the provider. Mostly which are, Insurance carriers, other third party payers, or employers.

This is further subdivided into the following sub-sections:

-Insurance Concepts

-Patient Responsibilities

-Claim Concepts

2.4.1 Insurance Concepts:

a) Self-Insured Plan

In these kind of plans Employers/groups usually pay all the claim amounts and pays an administration fees for each claim processing.

b) Fully Insured Plan

In these plans premium is paid by employer to an insurance company for coverage of employee and dependents enrolled in the plan..

2.4.2 Patient's Responsibilities

Patient responsibility is the portion of allowed amount that patient has to pay the provider for his service or claim. Based on the requirements and budget, a subscriber will choose the policy that matches him in terms of ratio between premium, insurance payment and patient responsibility.

- Co-pay
- Deductible
- Coinsurance
- Out of Pocket Expenses (OOP)

a) Copay

Amount fixed by the insurance company, for certain types of service and places of service. This amount can be paid by the patient to the provider at the time of service. So it is also as "Time of Service" payment.

b) Deductible

Amount determined by the insurance companies which patient has to pay to clinician/ Hospital towards their initial medical expenditure. Only after meeting the deductible the Insurance Company would pay a subscriber's claim based on reimbursement% Deductible cannot be paid at the time of service.

c) Coinsurance

The healthcare costs may be shared between subscriber and the Insurance Company in a specific ratio or percentage.

d) Out of Pocket

This is the total amount member has paid in a benefit/calendar year towards copayments, deductible and coinsurance. In some of the health plans copay may not be considered towards OOP. This is done to protect member from financial loss, when he has to avail high cost or

multiple medical services within benefit /calendar year. Once OOP is reached, health plan reimburses 100% claim till the end of benefit/calendar year until life time maximum is reached.

2.4.3 Claim Concepts

A claim is a reimbursement request for medical service rendered under the terms of a health plan. The request is made by a provider or member to Health Insurance Company. It's EDI-837.

2.5 Payer Processes

- Enrollment
- Under writing
- Benefit Configuration
- Fulfillment
- RCM
- Claims Entry and Proc.
- Claim Management

2.5.1 Enrollment

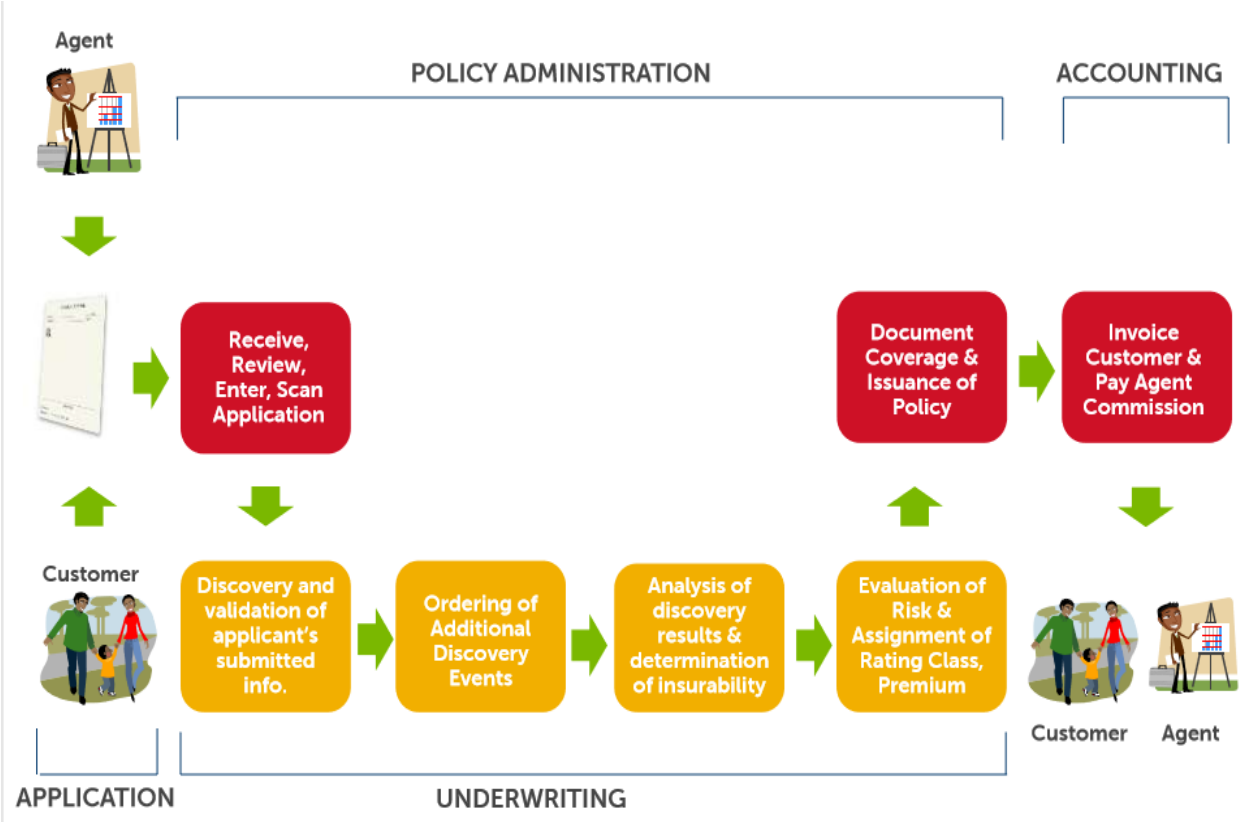
Enrollment is the process of adding a new member to an insurance plan. Various functions involved are:-

- Enrollment (Adding a member to a plan)
- Disenrollment (Removing an existing member from a plan)
- Plan Change (Changing the plan for an existing member)

2.5.2 Underwriting

It involves the calculation of risk amongst individuals or groups. A health plan cannot assume that each proposed risk is the same. The task of the underwriter is to analyze each individual or group applying for insurance in order to identify the characteristics that contribute to risk, measure the amount of risk, and determine whether the amount of risk is acceptable

Underwriting Process Flow



2.5.3 Fulfillment

Fulfillment is a process which decides to approve or decline the plan to the member, Based on the inputs of the underwriter

2.5.4 Benefit Configuration

The attributes that comprise a benefit, once consolidated contain aspects of some of the following:

- Group of eligible medical codes (procedure group)
- Group of eligible/ineligible diagnosis codes (diagnosis group)

2.5.5 Revenue Cycle Management

RCM is a term that includes the management of revenue throughout the whole life cycle from admission to payment for the services rendered by physician.

2.5.6 Demo & Charge entry

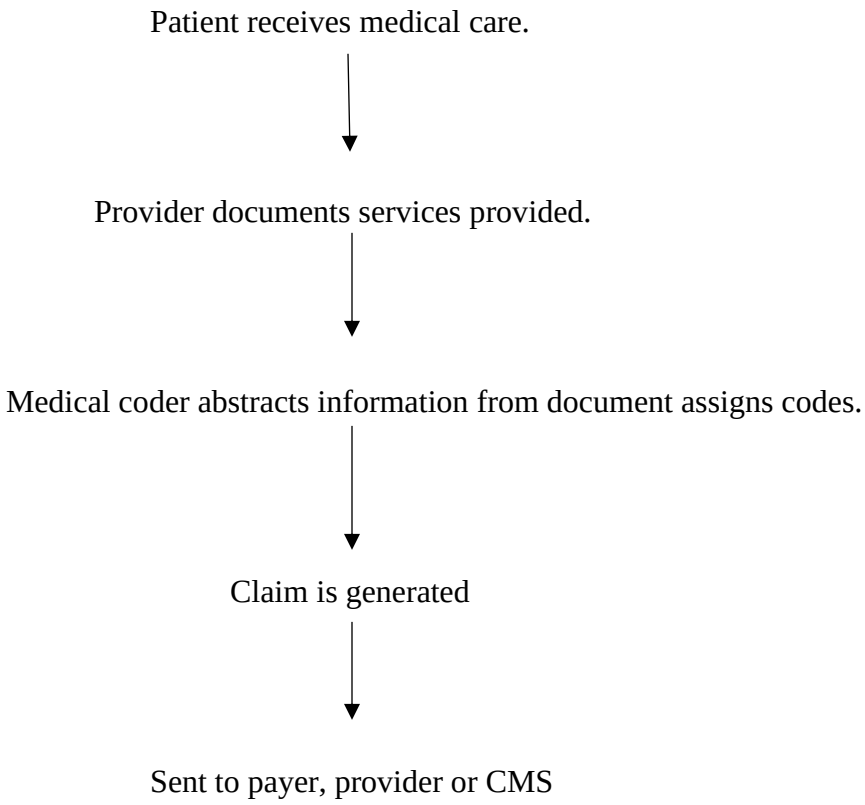
Demo Entry - Entering of demographic and insurance information in provider's billing software.

Charge Entry - Entering of Codes and treatment details from charge sheet in provider's billing software Using different Coding Systems usually Known as Medical Coding.

Medical Coding:

Assigning pre-defined numeric or alpha-numeric codes to a patient's medical condition and provider's treatment. Diagnosis and Procedures could be taken from an assortment of sources inside the medicinal services record, for example, the doctor's notes, research center outcomes, radiologic comes about, drug store and so on.

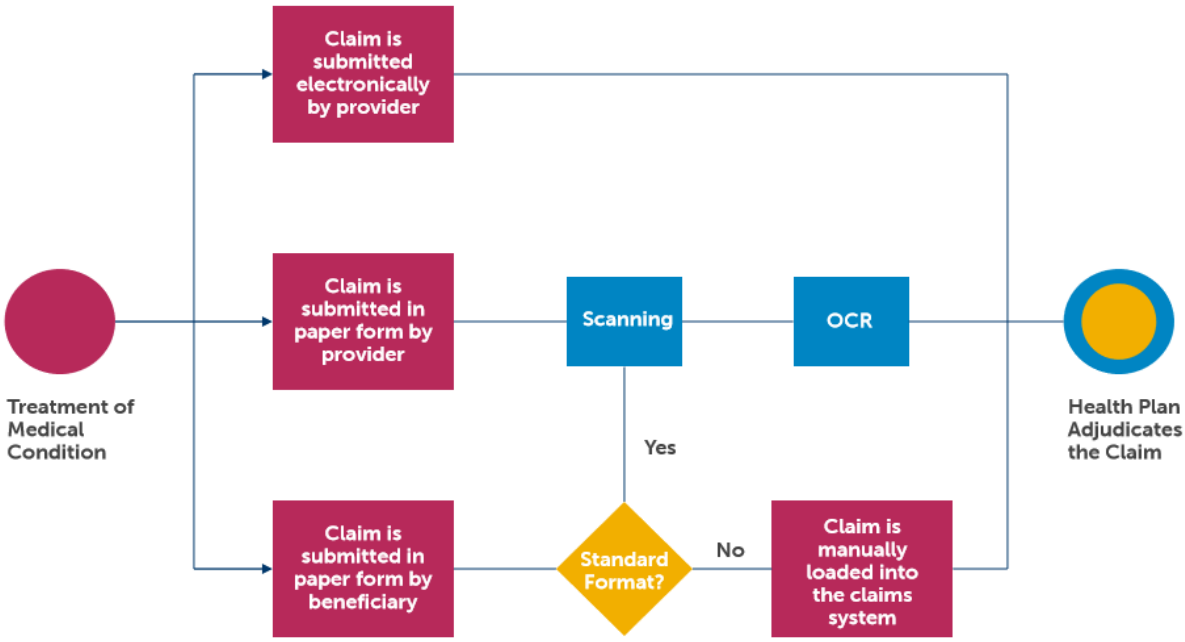
How Coding works:



Types of Medical Codes:-

ICD	HCPC	CPT	DRG	Revenue	Modifier
-Diagnosis codes -Includes inpatient procedure code	-codes for services rendered, usually outpatient(CPT) -Codes for items and non-physician services	-Codes for Services Rendered, usually Outpatient(CPT)	-Codes to represent a package instead of individual medical service or item	-Codes used in Hospital claims to provide additional information on medical service.	-codes used to provide additional information in order to accommodate those services which cannot be represented by standard CPT or HCPC
7 Characters in version 10.Alpha Numeric	5 Characters. Alpha Numeric	5 Digits, Numeric	3 Digit, Numeric	3 Digit, Numeric	2 Character. Alpha Numeric

2.6 Claims Submission Flow:

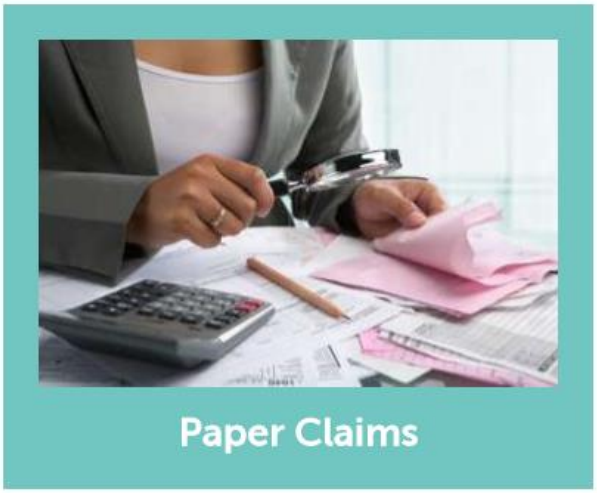


Medical cost management in United States health insurance

1. Introduction

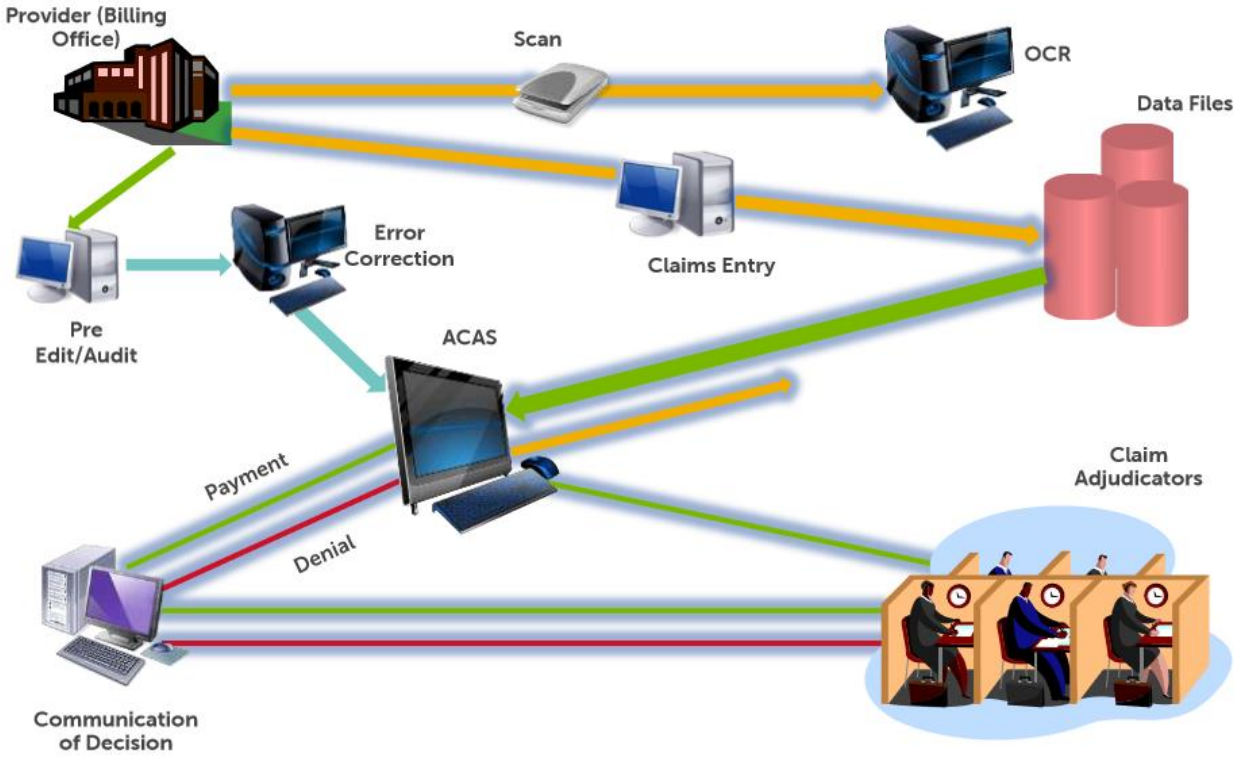
When insurance agency gets the correct paperwork, it chooses whether or not the services you received are covered in your plan, how much amount will be paid to the specialist by the insurance agency, and how much amount subscriber will pay.

1.1 Healthcare claims may be broadly classified as:



Paper Claims: Paper claims are usually submitted by subscribers directly when the insured patient has paid the full amount of the services to the provider and wants to claim the medical reimbursement from the insurance company.

Paperless Claims: Paperless claims are submitted by providers or clearing houses and are required to be submitted to insurance companies in electronic standard format i.e. HIPAA EDI-837.


Provider (Billing Office)
Scan
OCR
Data Files
Error Correction
Claims Entry
Pre Edit/Audit
ACAS
Payment
Denial
Claim Adjudicators
Communication of Decision

1.2 Paper Claim Processing – Steps

Step 1. Scanning

The paper claims reaches the insurance companies from the provider in form of hard copies. The hard copies are first scanned into the system.

Step 2. OCR – Optical Character Recognition

The checked duplicates are changed over into electronic claims by the OCR. Post filtering of printed pages on a flatbed scanner the OCR programming is utilized to perceive the letters as ASCII content. The OCR software has tools for both acquiring the image from a scanner and recognizing the text. However OCR doesn't read characters like forms having check boxes, very small text, blurry copies, mathematical formulas, fancy text, handwritten Text.

Step 3: Claims Entry

It is the process where a paper claim is being converted into electronic format by entering into the Adjudication software. It is converted by, manually entering the details available on the paper claim (CMS 1500) in to the system. The claims which are not converted by OCR can also be entered manually. The purpose of claims entry is to facilitate the Adjudication process.

Step 4: Automated Claims Adjudication System (ACAS)

Here is where the entered claims are auto adjudicated. Payment or denial is made if the claims are successfully adjudicated here. While sending those claims, ACAS assigns a reason code (which would give the reason for pending) to the claim. This reason code is also called as “Hold Code” or “Pend Code”. The Adjudicator would process the claim based on the hold code or pend code. Various claim adjudication engines are available in the market like – Facet, OHI, AMISYS, AMISYS Advance, LRSP, Xcyles etc.

Step 5: Manual Adjudication

Here the cases are mediated physically. These are claims which were not ready to auto settle by the framework, which needs to experience few checks physically. On the off chance that issues result from the robotized mediation, the claim is suspended and put aside for "advancement"— the term utilized by payers to show that more data is required for assert preparing. These cases are sent to the restorative survey division, where a cases inspector audits the claim. The inspector may approach the supplier for more clinical documentation. This progression is generally taken after, for instance, to survey the therapeutic need of an unlisted system.

Step 6: Communication of Decision

This is the final step in any claims processing wherein the decision as to whether the claim is paid or denied is communicated to the provider using a document called the EOP – Explanation of Payment (EDI-835). Once the adjudication is over, the communication of decision (payment or denial) in form of EOP is sent to the Billing Office. EOP could be called by several names such as Remittance advice. Statement of account, Provider voucher etc. EOP is used to as a mode of communication from the payer to the provider

1.3 Electronic Claims Processing - Steps

The E claims from the clearing house are received by the insurance companies where the claim processing starts

Step 1: Pre Edit and Audit

This editing system is used to check if the claim has any insurance specific format errors Edits are the criteria when unmet, result in a claim is being "kicked out" of the process and "pended"—that is, the claim is not automatically processed, but instead payment is delayed while the claim is scrutinized and concerns addressed.

For example: An electronic system generally includes an edit that identifies a claim in which the service provided is not generally associated with the diagnosis reported. Such a claim would be kicked out and reviewed to see if the service was in fact appropriate

Step 2: ACAS

Similar to ACAS in Paper claims processing, It has the ability to auto adjudicate and decides to pay or deny the claim.

Step 3: Manual adjudication

Similar to manual adjudication process in Paper claims processing, Complex claims which require manual intervention is held by ACAS and is sent to Manual Adjudication.

- Was the individual who received healthcare services a member of the health plan and eligible for benefits when the services were provided?
- Was the provider enrolled in the plan's claims system? Was the provider in the health plan's network when the services were provided?
- Has the claim been submitted in a timely manner?
- Is the claimed medical service covered in the health plan?
- Was the claimed service medically necessary and appropriate?
- Was an authorization or referral required for the claimed service, and if so, was it obtained, and submitted with authorization code?

Step 4: COD

Similar to communication of decision process in Paper claims processing, this is the final step in any claims processing wherein the decision as to whether the claim is paid or denied is communicated to the provider.

1.4 Healthcare Claim Status

On completion of claim adjudication, the claim can usually have one of the following statuses

Approved/Paid:

Signifies that the claim is adjudicated successfully and either some or all service lines are paid. However paid doesn't mean 100% payment.

Deny:

Signifies that the claim is adjudicated successfully and all the service lines are denied. In this case Provider gets zero reimbursement.

Pend/Hold:

This means that the claim has been put on hold for some manual review/corrections. Once the review is completed the claim will be re-adjudicated.

1.5 Healthcare Claims Re-Adjudication

When an already adjudicated claim is subjected to reprocessing in-order to change a previous adjudication outcome or other specific reasons, the term is often called 'Claim Re-Adjudication.

- Back dated correction in the pricing arrangements, benefits or business rule changes due to regulatory changes.
- Provider/subscriber challenged the processed claim. **Analysis** confirmed the issue in claim processing. This can happen due to a technical glitch in the adjudication software.
- Provider submitted the claim with incorrect information and request insurance company to readjudicate.

2. Review of Literature

- David. M. Cutler, Richard J in Anatomy of Insurance proposes that medical coverage is a mixed blessing due to adverse selection – as the propensity of wiped out and old will be to purchase an arrangement which covers more. When sick and healthy enroll in different plans, plans disproportionately composed of poor risks have to charge more than they would if they insured an average mix of people. Article concludes by comparing medical coverage with the restorative care consumptions .Studies to date are not clear on which ways to deal with health care coverage advance and wellbeing in the most cost-productive way.
- Richard Todd Welter et al in Optimizing Coding and Reimbursement to Improve Management of Alzheimer's Disease and Related Dementias suggest proceeding with doctor instruction on the significance of early determination and care administration of AD acknowledgment of the requirement for time-intensive administrations by ADRD patients that outcome in a higher recurrence of utilization of complex CPT codes, and repayment for CPT codes that cover ADRD mind administration administrations.
- Hideki Funatsu in (Dec., 1986) - conducts a positive investigation on a few imperative parts of fare credit protection. His investigation demonstrates that fare credit protection is a valuable gadget to ensure residential sending out firms against different political dangers and default hazard in the outside market. Notwithstanding, the creator brings up that the administration can use send out credit protection forcefully to advance fares by purposefully setting a more-than-great premium rate. Under such a rating strategy the legislature is financing sending out firms through fare credit protection.

3. Objectives

3.1 General Objective

To study Medical cost management by payer in United States Health insurance.

3.2 Specific Objective

- To Determine the reimbursement optimization opportunities for the payer
- To Analyze and calculate the financial impact in different Reimbursement Optimization Opportunities for the payer.

4. Methodology

Study Design: Prospective quantitative study

Data collection period: February 2018 to April 2018

Method: Convenience Sampling

Sample Size: 4565 claims

Exclusion Criteria: Data with unspecified fields or incomplete data.

Data Collection Tools and technique**:**

A working Excel sheet, containing all the fields present in Claim Data was designed and analysis was carried on that data through SQL tool and MS excel 2013

6. Result and Findings

In the study a total of 4565 claims were analyzed (after exclusion).In which 3604 were the claims which were falling in the predefined classification of Reimbursement optimization Categories which were-

- Configuration Issue-21 claims,
- Contract Optimization Opportunity-2398 claims,
- Requires Medical Documentation Audit-58 claims,
- Scrubber Optimization Opportunity-662 claims
- System Issue-465 claims

All these affected claims were charged at Total $ 19,569,045 and the allowed amount for these claims were $ 7,136,522 and Paid amount was $ 6, 513, 537, after analysis it was seen that the Impacted amount comes out to be $ 1, 024, 553, that reflects optimization opportunities for the impacted amount which could be suggested to the payers to fix the loop holes in the cost management.

6.1 Optimization Areas for Claims

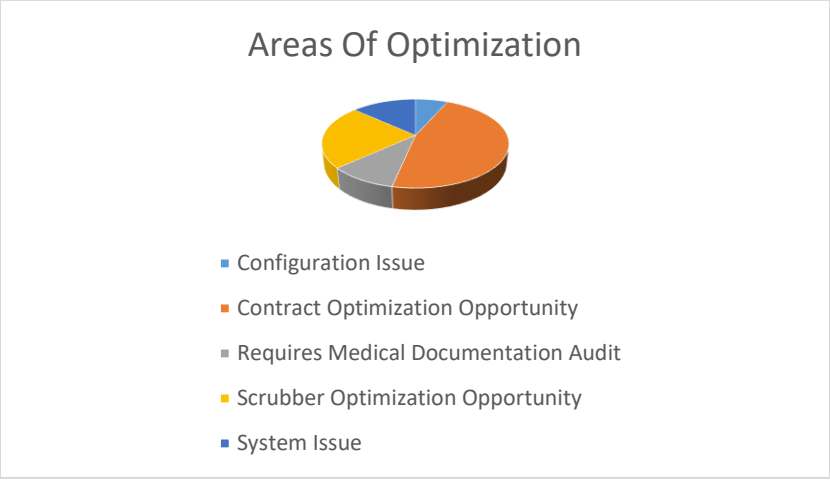


Figure 6.1 The Pie chart represents the Distribution of claims for Different areas of optimization

6.2 Total and Affected Number of Claims:

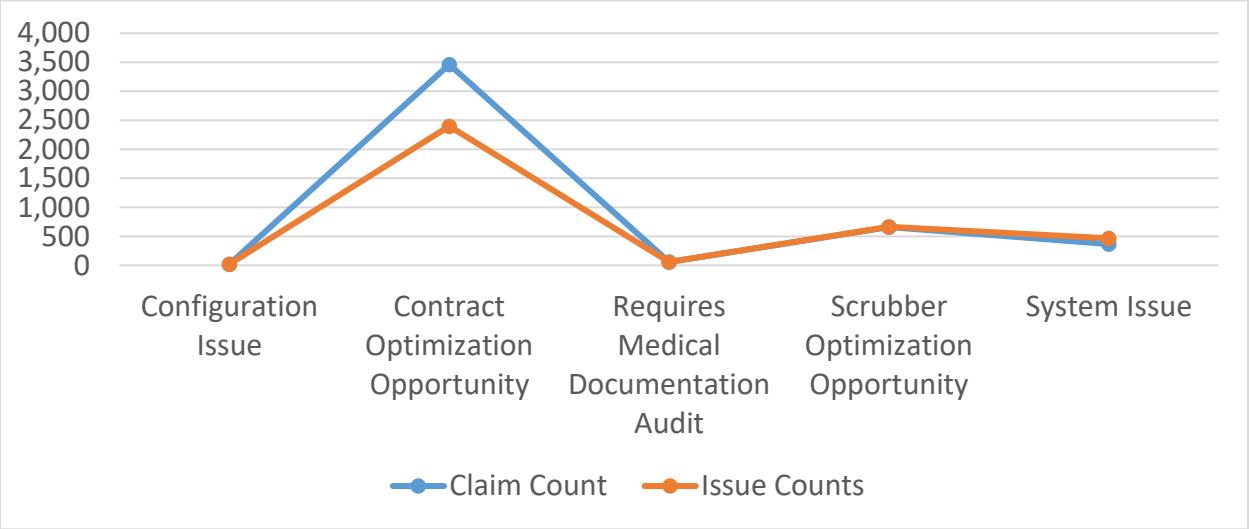


Figure 6.2: Graph showing variation in total and affected number of claims

The Above graphs depict the affected number of claims which were 3604 and total number of claims which were 4565 claims.

6.3 Total Allowed amount and Total Paid amount

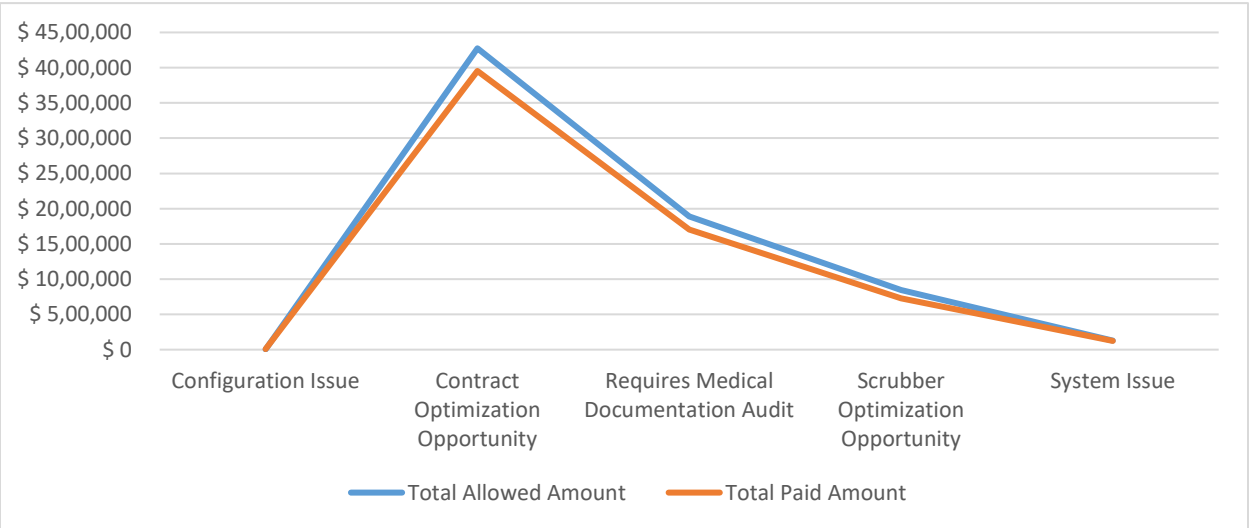


Figure 6.3: Graph showing variation in Total allowed and Total paid Amount

The above line graph shows a small variation in total allowed and total paid amount which are $ 7136522 and $ 6513537 respectively.

6.4 Variation in Charged and Allowed amount

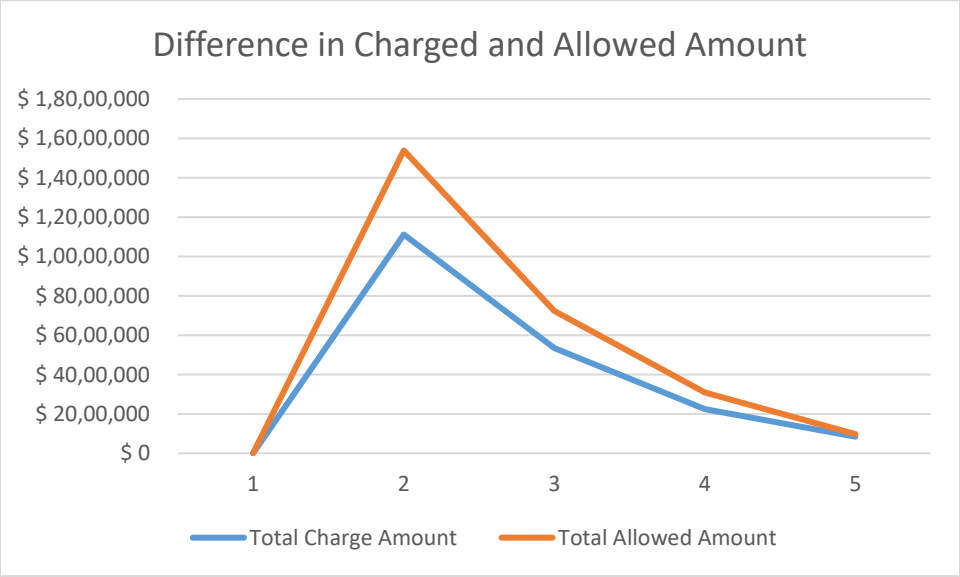


Figure 6.3 line Graph of total charge and total allowed Amount

The Above line graph depicts the variation in total charge amount $19,569,045 and Total Allowed amount of $ 7,136,522

6.5 Impacted amount in various optimization categories

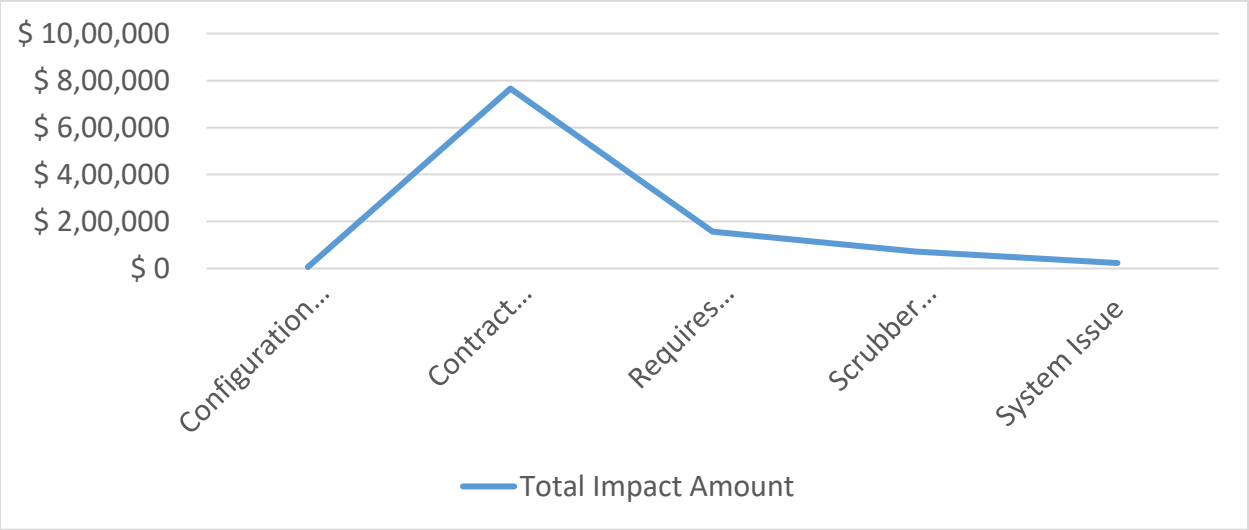


Figure 6.4 variation in impacted amount in different optimization categories

7. Recommendations

Apart from the pre-defined optimization categories to control cost several other untapped areas are present in the claim management process which can reduce revenue loss of the Payer, These areas could be

- To underwrite a group or Individual effectively
- Increased examination on Patient's Responsibility
- Reshaping the advantage configuration to address the present issues
- Revisiting the capitation fee and contracts and keep upgrading them as per the market.

8. Conclusions

Insurers are working in an unpredictable and liquid condition today. Government has instituted new enactment that could change the way benefits are supported and conveyed. Thus, there are numerous new pressures on Healthcare Insurers.

- To bring down premiums
- To increment advantages to address the necessities of changing socioeconomics
- Shrinking business sector for large employers
- Trend towards private company and independently employed
- Need to have a more current and accurate view of their business performance

Increased competitiveness in the market of insurance, combined with increased health care costs, along with change in health policies and acts introduced in the Health Insurance sector, have forced healthcare insurers to charge higher premiums on managing administrative expenses. With escalation of complexity in product offerings, understanding product line and market segment, cost becomes an important information for managing the business cost and profitability as well.

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5. Hideki Funatsu, Export Credit Insurance, the Journal of Risk and Insurance Vol. 53, No. 4 (Dec., 1986), pp. 679-692 Published by: American Risk and Insurance Association

6. Census Bureau March 2012 and 2013 CPS