

**ANALYSIS OF J CODE UTILIZATION AND SPENDING TRENDS IN
MEDICARE PART B FOR THE YEAR 2022**

Dissertation submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree

of Master of Business Administration (MBA)

in

Pharmaceutical Management

by

Kanika Birla

Under the Supervision and Guidance of

Dr. Sudhinder Singh Chowhan

Associate Professor, IIHMR University, Jaipur

ANALYSIS OF J CODE UTILIZATION AND SPENDING TRENDS IN MEDICARE PART B FOR THE YEAR 2022

Dissertation submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree

of Master of Business Administration (MBA)

in

Pharmaceutical Management

by

Kanika Birla

Under the Supervision and Guidance of

Dr. Sudhinder Singh Chowhan

Associate Professor, IIHMR University, Jaipur

DECLARATION BY STUDENT

I hereby declare that this dissertation titled Analysis of J code utilization and spending trends in Medicare Part B for the year 2022 is the bonafide record of my original researchwork. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Kanika Birla

Roll no. 0306

CERTIFICATE

This is to certify that Kanika Birla in partial fulfillment of the requirements for the award of the degree MBA (Pharmaceutical Management) from the IIHMR University, Jaipur has successfully completed her internship at Cognito analytics during March 1, 2020 - May 31, 2023.

Mr. Lalit Wangikar

Cognito Analytics

CERTIFICATE

This is to certify that dissertation titled “**Analysis of J code utilization and spending trends in Medicare Part B for the year 2022**” is a record of the research work undertaken by Kanika Birla in partial fulfillment of the requirements for the award of degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

Dr. Sudhinder Singh Chowhan
IIHMR University, Jaipur

Dr. Saurabh Kumar Banerjee
IIHMR University, Jaipur

ABSTRACT

The study focuses on achieving three main research goals by providing a thorough analysis of J code utilization and cost patterns in Medicare Part B for the year 2022. In order to determine the largest claim and spending category for outpatient treatments, the study first looks at the utilization patterns and spending trends connected with J codes in Medicare Part B.

Additionally, it compares the cost to the customer with an average selling price (ASP) for the purpose to bring some more clarity on how much the patient's financial burden. A examination takes into account methods that patients and decision-makers may leverage to mitigate the price of medicines with prescriptions that are paid for by Medicare Part B and invoiced using J codes.

A lot of data from several sources, including the Medicare payment data, Pharmacy claiming statistics, and the CMS (Centres for Medicare , & Medicaid Services), was leveraged to pursue these goals. The utilisation of J codes, pricing trends, and reimbursement percentages are all dealt with with great depth in the aforementioned data set. The data were profoundly evaluated using techniques from statistics including descriptive assessment and evaluation, in contrast interpretation, and expenditure analysis.

The study's findings offer important information regarding how Part B of Medicare will be paid in 2022 as well as the way J code will be utilised. By identifying the largest claim and spending category, the study provides additional insight into the areas wherein healthcare resources are most frequently allocated. This information can help healthcare stakeholders allocate resources more wisely and enhance the efficacy of care delivery.

Additionally, a comparison of client expenses and typical selling prices provides essential data on the financial impact on patients. The study identifies possible opportunities for cost reduction and increased affordability of healthcare services by analysing the differences between customer expenses and ASP. These findings are especially important to patients, healthcare professionals, and legislators because they help them make well-informed decisions and identify ways to lessen cost burdens.

The study also reveals hidden cost-saving options for patients and governments. The study identifies possible areas for cutting healthcare costs without sacrificing the standard of patient care by a thorough investigation of medications invoiced using J codes in Medicare Part B. These cost-saving potential

are highly valuable to policymakers because they may help them make decisions about how to best allocate resources and improve the sustainability of healthcare programs.

In conclusion, this dissertation offers a thorough examination of Medicare Part B cost and utilization patterns for the year 2022. The results lead to a better knowledge of the most common claim and expense types, the associated patient costs, and prospective cost-cutting options. This study addresses these research goals and provides insightful information that may help guide healthcare policy choices, improve resource optimization, and ultimately increase the effectiveness and affordability of care delivery under Medicare Part B.

ACKNOWLEDGEMENT

To everyone who helped finish my dissertation, I would like to offer my sincere gratitude and admiration.

First and foremost, I would like to express my deep gratitude to Dr. Sudhinder Singh Chowhan, who served as my mentor throughout the study process, for his advice, encouragement, and priceless insights. The direction and caliber of our investigation have greatly benefited from their knowledge and guidance.

I am extremely appreciative of the wisdom and inspiration provided by the instructors at IIHMR University, Jaipur. My comprehension of the topic has grown thanks to their lectures and conversations, which have also greatly increased the breadth of this investigation.

I'd like to thank everyone who took part in the research and contributed their time, expertise, and insights. Their contributions significantly increased the data's richness and were crucial to attaining the study's goals.

I also want to express my gratitude to my family and friends for their unflagging support and inspiration. Their confidence in me and patience with me during the challenging parts of this journey have been a continual source of inspiration.

Last but not least, I would like to thank all the academics and researchers whose works I have cited in my dissertation. They established the framework for this research and contributed significant background information.

Without the help and support of these people and organizations, it would not have been able to finish my dissertation. I really appreciate their assistance and their support of the significance of our study.

TABLE OF CONTENTS

Chapter 1: Introduction.....	14-22
1.1 Background and Context.....	14
1.2 Research Objectives.....	21
1.3 Research Questions.....	21
1.4 Significance of the Study.....	22
1.5 Scope and Limitations.....	22
Chapter 2: Literature Review.....	23-27
2.1 Overview of Medicare Part B and J Codes.....	23
2.2 Previous Studies on J Code Utilization and Spending Trends.....	24
2.3 Theoretical Frameworks and Models.....	26
2.4 Gaps in the Existing Literature.....	26
2.5 Summary.....	27
Chapter 3: Methodology.....	28-32
3.1 Hypothesis.....	28
3.2 Research methodology	29
3.3 Data Acquisition.....	30
3.4 Analytical methods	31
3.5 Parameters and Metrics.....	31
3.6 Ethical Considerations.....	31
3.7 Validity and Reliability.....	31
3.8 Limitatons and Assumptions.....	32
Chapter 4: Medicare Part B Utilization and Spending Trends for the Years 2017 –2021.....	33-40
4.1 Analysis of Categories of J codes (2017 -2021)	33
4.2 Analysis of Spending trends (2017 - 2021).....	34
4.3 Analysis of Total claims (2017 – 2021)	37
4.4 Summary of the findings.....	40
Chapter 5: Comparison of Client Cost with Average Selling Price.....	41- 51
5.1 Calculation of Average Selling Price.....	41
5.2 Calculation of Client cost.....	44
5.3 Findings and Data analysis.....	47

5.4 Findings of cost comparison.....	49
Chapter 6: Cost-Saving Opportunities for Policymakers and Patients.....	52-56
6.1 Calculation of Cost saving opportunity.....	52
6.2 Findings for Cost saving opportunity.....	53
6.3 Recommendations for Policymakers.....	53
6.4 Patient and healthcare provider implications.....	55
6.5 Consequences for Healthcare Professionals.....	56
Chapter 7: Conclusion and Future Directions.....	57-59
7.1 Summary of Results.....	57
7.2 Contributions to the Field.....	58
7.3 Implications for Policy and Practice.....	58
7.4 Limitations and Suggestions for Future Research.....	59
7.5 Concluding Remarks.....	59
References	

LIST OF GRAPHS

Graph 4.12: Categorization of J codes.....	33
Graph 4.26 : Spending trend from 2017-2021 as per the categories.....	36
Graph 4.36 : sum total claims 2017-2021 as per the categories.	39
Graph 5.32 : Categories count in Top 50 HCPCS codes 2022.....	47
Graph 5.33 : Highest spending category (2022) for top 50 HCPCS codes.....	48
Graph 5.46 : Top 10 J codes on the basis of percentage deviation.....	51

LIST OF TABLES

Table 1.2 Distribution models for comparison.....	14
Table: 2.1 Previous studies based on Medicare part B.....	24
Table: 4.1 Count of J codes from 2017-2021.....	33
Table 4.21 Sum of total spending 2017.....	34
Table 4.22 Sum of total spending 2018.....	34
Table 4.23 Sum of total spending 2019.....	35
Table 4.24 Sum of total spending 2020.....	35
Table 4.25 Sum of total spending 2021.....	36
Table 4.31 Sum of total claims 2017.....	37
Table 4.32 Sum of total claims 2018.....	37
Table 4.33 Sum of total claims 2019.....	38
Table 4.34 Sum of total claims 2020.....	38
Table 4.35 Sum of total claims 2021.....	39
Table 5.1: Calculation of Average ASP for the 4 quarters, 2022.....	42
Table 5.31: Categories in top 50 HCPCS codes.....	47
Table 5.34 Claims count per category, 2022.....	48
Table 5.41 : Client row level average UC > ASP)	49
Table 5.42 : Client row level average UC < ASP)	49

Table 5.43 : Median row level average UC >ASP.....	50
Table 5.44: Median row level average UC < ASP.....	50
Table 5.45 : Deviation Groups.....	51
Table 6.31 Cost saving opportunity.....	53
Table 6.32 Cost saving opportunity in highest categories.....	53

ABBREVIATIONS

- 1) CMS: Centers for Medicare & Medicaid Services
- 2) HCPCS: Healthcare Common Procedure Coding System
- 3) J Code: J Code refers to a subset of HCPCS Level II codes used for billing injectable drugs, biologicals, and other medications in outpatient settings.
- 4) Medicare Part B: The component of Medicare that covers outpatient services, including physician visits, diagnostic tests, and certain medications.
- 5) OIG: Office of Inspector General
- 6) AWP: Average Wholesale Price
- 7) NDC: National Drug Code
- 8) ASP: Average Selling Price
- 9) PBM: Pharmacy Benefit Manager
- 10) HCP: Healthcare Provider

Chapter 1: INTRODUCTION

1.1 Background and Context

Understanding the use and spending patterns in healthcare programmes is essential for optimizing resource allocation and enhancing the effectiveness of service delivery since the American healthcare system is always changing. Medicare Part B covers outpatient services, such as doctor visits, diagnostic testing, and some prescriptions. Medicare Part B is a part of the government health insurance programme for anyone aged 65 and over. J codes are used to charge for injectable pharmaceuticals, biologicals, and other medications given in outpatient settings under Medicare Part B. Healthcare costs and patient access to essential therapies are significantly impacted by the utilisation and spending patterns linked to J codes in Medicare Part B.

The goal of the study of J code utilization and expenditure trends in Medicare Part B for 2022 is to comprehend and assess the usage patterns and spending trends connected with J codes, which are used to charge medications and biologicals given in outpatient settings. The buy and bill concept, Medicare Part B, J codes, modifiers, National Drug Codes (NDCs), and the Average Selling Price (ASP) under Medicare Part B must all be explained in order for the analysis to make sense.

Distribution model comparison:

Factors	White bagging	Brown Bagging	Buy and Bill
Safety	Drug viability, storage, and handling risks for patient safety	higher danger to patient safety	By taking into account both integrity and the requirements of the patient, the provider may make sure the drug is in line with the present treatment route.
Price	less costly (less need for purchase, inventory)	less expenses	Most costly (in terms of acquisition, storage, and administrative costs) ☐ If the patient is admitted, lab tests are conducted, and a different drug or dose is required

Treatment	If required, therapy must be postponed, and the procedure must begin again.	requires more time	The patient may rest comfortable that even if a same-day evaluation identifies the need for a different drug or dose, the treatment will not need to be delayed and the patient won't need to return on a different day. drug is maintained in stock.
Supply chain security and integrity	Delivery timing, location, varying shipping temperatures, and product damage)	To administer the drug, patients must bring it to the location of service themselves and preserve it correctly.	To further guarantee the safety and security of the supply chain, the provider has access to the product's DSCSA tracing data.
Drug wastage	While the doctor adjusts the course of therapy, the drug comes on time. The medication is now useless, and the required treatment is not accessible.	drug wastage and prolonged treatment times	The onsite pharmacy can make that modification more easily.
Cost-sharing	paid for through pharmaceutical benefits	paid for through pharmaceutical benefits	paid for by medical insurance.
Purchase	When a prescription is shipped from an off-site specialty pharmacy to a physician for their pick-up, storage, and administration, the medication travels through extra supply chain channels.	Drug arrives at the patient's site for administration after which the patient carries it	drugs purchased by the provider straight from the producer or wholesaler

Table 1.1: Distribution models for comparison

Concept of Buy and bill:

In the healthcare system, Medicare Part B frequently uses the buying and bill idea as a reimbursement methodology. In this strategy, medical professionals buy pharmaceuticals and biologicals, store them, and then give them to patients.

Challenges in Buy and bill:

financial risk for healthcare providers posed by expensive drug prices and the possibility for slow or denied payment is one of the main issues. To prevent waste and financial losses, providers must efficiently manage their medicine inventory. In addition, the buy-and-bill procedure necessitates that physicians stay on top of evolving coding guidelines, regulations for billing and payment, and documentation specifications.

Reimbursement process:

The buy-and-bill business model requires healthcare providers to provide claims to third-party payers in order to be reimbursed for the drugs and services they offer. The precise medicine, dosage, and the payers' chosen reimbursement rates are some of the aspects that decide what amount is paid. Physicians receive compensation for their assistance in addition to being paid for distributing the drug.

The upfront medication purchases and storage of the pharmaceuticals at their pharmacy or offices are the responsibility of the healthcare providers under the buy and bill strategy. The physician provides the patient with the medication that they require and then requests payment from the payer.

The acquisition cost, which is used to calculate the reimbursement that providers get reimbursed, is the sum that providers paid for buying prescription drugs from manufacturers, distributors, or distributors. In addition, doctors might receive more pay to compensate for the time, expertise, and knowledge required to provide the patient with the medication throughout the way.

The assistance provided must be carefully registered and classified in order to ensure sufficient reimbursement. In order to accurately depict the drug supplied and any accompanying services, healthcare providers are obliged to adhere to coding laws and employ the correct Health care Common Procedure Coding System (HCPCS) code and modifier. Correct coding decreases the likelihood of claim rejections or delay in payment and enables accurate compensation.

After examining the claim and establishing the amount of reimbursement, the payer proceeds executing the payment to be made to the provider of healthcare. The supplier may accept payments either directly or through intermediaries like clearing facilities or billing services.

The payer's particular guidelines, procedures, and due dates assess the reimbursement process. Finally, the payment process for buying and bill model involves medical professionals lodging claims to third-party insurers for the drugs and services they provide. The cost of procuring the medicine is frequently reimbursed to clinicians in addition to reimbursement for providing the prescription. Adequate record-keeping, conformance to standards of coding, and observance of payer regulations are necessary to ensure proper remuneration. The repayment is subject to the rules and regulations established by the payer in question.

"In the United States, Medicare is a comprehensive government health insurance programme that serves a number of target demographics, mostly older persons and those with certain impairments. The programme is divided into numerous sections to meet different healthcare needs:

- **Medicare Part A:** This section, which is focused on hospital services, pays for certain home healthcare services as well as inpatient hospital stays, skilled nursing facility care, and hospice care. It is frequently offered without charge to people who have paid into the Medicare system via their job and is mostly supported by payroll taxes.
- **Medicare Part B:** Part B mostly covers outpatient medical services, including doctor visits, lab testing, preventative care, durable medical equipment, and particular drugs used outside of a hospital environment. A monthly fee is needed of Part B beneficiaries, and it provides extensive coverage for a range of medical services and supplies.
- **Medicare Part C:** Also referred to as Medicare Advantage, Part C gives Medicare recipients an alternate method of receiving their healthcare benefits through private health insurance programmes. These Medicare-approved plans provide the same protections as Parts A and B, sometimes with the addition of extra benefits like prescription medication coverage or access to dental or eye care.
- **Medicare Part D:** Part D of Medicare focuses on providing beneficiaries with prescription medication coverage. It is given by privately owned insurance providers that Medicare has approved. Part D, which is offered as a stand-alone plan or as a component of a Medicare Advantage plan, helps people manage the expenses of prescription medications.

Modifiers :

In the area of medical billing, modifiers are essential since they offer more information about

the services or treatments provided. They serve as a safeguard for appropriate compensation and accurate recognition of special situations. These alphanumeric values are appended to procedure codes, such as the J codes used for pharmaceuticals covered by Medicare Part B, to offer details about the place, time, scope, or goal of the operation. Let's look at some of the main modifiers used in medical billing.

- **Modifiers for evaluation and management (E/M):** These modifiers give important information about the assessment and management services offered by healthcare providers. They signify a number of things, including actions taken on the same day, the difficulty of the evaluation, or certain needs for documentation. In order to ensure appropriate categorization and reimbursement for these services, E/M modifiers are crucial.
- **Anatomical modifiers** are utilised to identify the particular anatomical region where a surgery will take place. When a treatment can be connected to many sites, they are very helpful for assuring appropriate invoicing and documentation. These qualifiers offer clarification and eliminate any doubt regarding the precise location of the process.
- **Global Surgical Modifiers:** These modifiers are used to specify if a service falls within the umbrella of the global surgical package, which covers preoperative, intraoperative, and postoperative care. With the use of these modifiers, it is possible to distinguish between services that are bundled throughout the worldwide surgical period and those that demand separate reporting and payment.
- **HCPCS Modifiers:** The Healthcare Common Procedure Coding System (HCPCS)-specific HCPCS modifiers offer extra details about the invoiced services or procedures. To ensure appropriate categorization, billing, and reimbursement inside the HCPCS framework, they may highlight certain conditions or requirements related to the service.

Medical billing requires the use of modifiers because they enable accurate and thorough reporting of the services provided. They assist in the prevention of mistakes, the clarification of special conditions, and the assurance of proper payment based on particulars of the process or service rendered.

Let's examine some instances of frequent modifiers for J codes in Medicare Part B now:

- **JW Modifier:** This modifier denotes a decrease in the billed amount since some of the medication was rejected or wasn't given to any patients.

- **JA Modifier:** To differentiate intravenous drug delivery from other modes of administration, the JA modifier is used.
- **JG Modifier:** Used to indicate pharmaceuticals purchased at a reduced cost when a drug is procured under the 340B Drug Pricing Programme and provided for informative reasons.
- **TB Modifier:** For specific entities, this modifier offers further information regarding purchasing a medicine or biological under the 340B programme.
- **UD Modifier:** Helps identify the level of care provided for Medicaid patients by indicating that the medication administration is linked to Medicaid level of care 13, as determined by each state.
- **EA Modifier:** This specifies the goal of the medication administration when an erythropoietic stimulating agent (ESA) is given to treat anaemia brought on by anti-cancer treatment.
- **EC Modifier:** Defines the objective of an ESA administration while treating anaemia not brought on by chemotherapy or radiation for cancer.
- **AXE Modifier:** Highlights the supply of an item as a component of the dialysis treatment by indicating that it is supplied in conjunction with the provision of dialysis services.
- **JE Modifier:** It indicates ambulance services from a non-hospital-based dialysis centre to a residential, domiciliary, or custody institution and specifies the delivery of medication through dialysate.
- **ER Modifier:** Used to identify the nature and location of the service when delivering ambulance services from a residential/domiciliary/custodial facility to a dwelling or when providing goods and services by a provider-based, off-campus emergency department.

Benchmarks for medication Pricing:

To set medication costs and reimbursement rates, the healthcare sector uses a variety of benchmarks. Several frequently used benchmarks are as follows:

- **Average Selling Price (ASP):** The ASP is the typical sum that wholesalers pay to manufacturers in exchange for medicines that are covered by Medicare Part B. The Centres for Medicare and Medicaid Services (CMS) calculates ASP on a quarterly basis, accounting for discounts, rebates, and other price modifications.

- **Average Wholesale Price (AWP)** : The average price at which wholesalers sell pharmaceuticals to healthcare professionals acts as a benchmark in the pharmaceutical sector. Although it serves as a benchmark for pricing and reimbursement, it could not accurately reflect the actual costs incurred.
- **Wholesale Acquisition cost (WAC)** : Manufacturers create a list price for their pharmaceuticals when they sell them to the wholesalers or directly to the consumer. This is termed as the wholesale cost of acquisition (WAC). Before any price reductions or incentives are taken into account, this price—often described as the wholesalers cost of acquisition (WAC)—is the stated cost. It determines how much a drug will cost at first.

ASP persists to be the fundamental gauge for Part B of the Medicare programme reimbursement, even if AWP and WAC, may still be worthwhile in other situations, such as private insurer reimbursement or pricing disputes between manufacturers and payer. But ASP is seen as the most perfect baseline when it comes to parts B of Medicare pay upon account of affordability, forthrightness, and acceptance of Medicare rules of conduct.

It takes into account the agreed-upon discounts, credits, and other market changes. This strategy reflects real-world transactions and discounts, giving a more realistic picture of the prices paid by providers.

The revised ASP for Medicare Part B includes a 6% add-on payment from CMS to adjust reimbursement rates to reflect actual expenses. This ensures that providers are fairly reimbursed for their services by acknowledging the increased resources needed for handling and dispensing medications. To preserve the fairness and integrity of payment rates for medication administration in Medicare Part B, updates to ASP are made every quarter to reflect changes in drug prices.

National Drug Codes (NDCs):

Distinctive identifiers that the FDA has given to medications. Details about the producer, the product's potency, and the size of the container all aid in identifying certain pharmaceuticals. In the healthcare industry, NDCs are often used for activities including medication invoicing, inventory management, prescription monitoring, and adverse event reporting. They are

essential for correctly identifying and recording the medications given to patients or those who have been prescribed them.

For the purpose of examining J code utilization and spending patterns in Medicare Part B, it is crucial to comprehend the ideas of buy and bill, Medicare Part B, modifiers, NDCs, and benchmarks like ASP. Stakeholders may use this information to make informed decisions about policies, improve cost-effectiveness, and guarantee Medicare beneficiaries receive high-quality treatment.

1.2 Research Objectives:

This study's main objective is to undertake a thorough examination of the trends in J code utilization and cost in Medicare Part B. This investigation's precise research goals are as follows:

- 1) Examine past J code spending and usage statistics from 2017 to 2021 to spot patterns that have changed over time.
- 2) Determine the largest claim and cost category by tracking the utilization and spending patterns of J codes in Medicare Part B for the year 2022.
- 3) Compare the client's cost of medications charged using J codes with the anticipated average selling price for 2022.
- 4) Specify any possible drug-related Medicare Part B cost-saving possibilities for both policymakers and patients.

1.3 Research Questions:

The following research questions are addressed in this dissertation in order to meet the study goals:

- How will J codes be used and how much will they cost under Medicare Part B in 2022? Which category is the most expensive and has the highest claims?
- How does the cost to the patient for medications invoiced with J codes compare to the going rate?
- What options for cost reduction do policymakers and patients have in relation to medications invoiced with J codes under Medicare Part B?

1.4 Significance of the study:

This work is highly significant in a variety of ways. First off, it offers a thorough grasp of

resource allocation and financial consequences in outpatient treatment by looking at the utilization and spending patterns of J codes in Medicare Part B. The results can help healthcare managers and policymakers decide how best to allocate resources while maximizing the cost-effectiveness of healthcare services.

The financial hardship endured by patients getting pharmaceuticals that are invoiced using J codes is further revealed by contrasting client charges with typical selling prices. This research emphasizes the cost-effectiveness of medications and adds to the debate on prospective policies to increase accessibility and ease patient financial burden.

Last but not least, discovering cost-saving possibilities linked to medications billed under J codes in Medicare Part B has ramifications for decision-makers, patients, and healthcare professionals. It enables decision-makers to investigate methods for lowering healthcare costs without sacrificing treatment quality. Patients can win from potential cost-cutting initiatives that increase accessibility and affordability of vital pharmaceuticals, while healthcare professionals can learn how to use resources more effectively and increase efficiency.

1.5 Scope and Limitations:

The use and spending patterns for J codes in Medicare Part B for the year 2022 are the subject of this study. The research includes a thorough investigation of the most expensive claim and expense categories, a comparison of client costs with typical selling prices, and the identification of possible cost-saving measures for both patients and policymakers.

It's crucial to recognize the limits of this study, though. First off, the research is based on Medicare claims data, which has inherent flaws including coding mistakes or missing data. Furthermore, this study's focus is restricted to the year 2022, making extra research necessary to generalize the results to other historical periods. Additionally, the suggested cost-saving potential is based on data that is currently available and could not take future changes in healthcare laws or market dynamics into consideration.

Despite these drawbacks, this study offers insightful information on the usage and spending trends connected to J codes in Medicare Part B, providing a basis for further investigation and evidence-based decisions in healthcare policy and practice.

Chapter 2: LITERATURE OF REVIEW

2.1 Overview of Medicare Part B and J Codes

In the US government health insurance programme, Medicare Part B is essential since it provides coverage for outpatient services including doctor visits, diagnostic testing, and medicines. J codes are used in this programme to charge for biologicals, injectable medicines, and other outpatient pharmaceuticals. For resource allocation to be optimised and to guarantee that healthcare services are affordable, it is crucial to analyse the spending and usage trends associated with J codes.

For the purpose of calculating Medicare Part B payment rates for pharmaceuticals and biologicals, the Average Selling Price (ASP) is a crucial benchmark. The ASP data is used into the quarterly updates to reimbursement rates to account for changes in market pricing. The information utilised to determine these rates has a latency, though.

This deliberate delay gives the Centres for Medicare and Medicaid Services (CMS) and manufacturers enough time to submit accurate ASP data and establish payment rates that are precise. It guarantees that the reimbursement rates are established using the most recent sales data.

The data that was utilised to determine the ASP rates had a two-quarter lag. For instance, the payment rate for the third quarter is determined by the first quarter's sales information. This delay allows for data gathering and analysis while giving manufacturers a chance to supply correct ASP data.

CMS wants to make sure that reimbursement rates appropriately reflect the state of the market and medication pricing by factoring this lag. It enables modifications based on the most recent sales information available, resulting in a more accurate portrayal of the expenses related to these items.

It is essential to remember that the ASP rates are simply one element of the Medicare Part B reimbursement process. The total amount of compensation also takes into account additional elements like patient coinsurance or copayment. In order to cover the typical handling and administration expenses of these pharmaceuticals, an extra 6% is added in the ASP prices.

J code use and cost trends in Medicare Part B have been the subject of several prior research that provide insight on trends, causes, and consequences.

2.2 Previous Studies on J Code Utilization and Spending Trends

Title	Publisher	Year of Publishing	Observation
Trends in Prescription Drug Use and Expenses in the US Medicare Population, 2000-2018	JAMA Network Open	2021	The study discovered that prescription drug spending was a substantial contributor to overall healthcare cost and that the usage of speciality medications, especially those invoiced with J codes, increased significantly over the course of the study period.
An Analysis of Medicare Part B Oncology Drug Spending, Trends, and Innovation	American Journal of Managed Care	2019	According to the study, Medicare Part B spending on prescription pharmaceuticals accounted for a sizeable and rising portion of spending on cancer drugs that were billed using J codes. Policies that support value-based treatment and market competition may assist to keep prices under control.
Medicare Beneficiaries with Diabetes: Trends in Prescription Drug Spending and Use, 2010–2015	American Journal of Managed Care	2018	The study discovered that prescription drug use and spending among Medicare beneficiaries with diabetes varied significantly, with some beneficiaries paying high prices for speciality medications that are billed using J codes. The authors contend that initiatives to encourage the use of generic medications and pricing transparency may aid in cost restraint.
A Study of Medicare Part B Drug Spending Trends and Spending Growth Factors	Health Affairs	2017	The study discovered that the rise in the usage of pricey speciality pharmaceuticals was a significant contributor to this trend, as did the spending on drugs covered by Medicare Part B that were billed using J

			codes. According to the authors, policies that promote value-based care and address medication price may aid in cost control.
The High Cost of Prescription Drugs in the US: Causes and Reform Prospects	Journal of the American Medical Association	2016	The article gives a thorough explanation of the elements, such as Medicare's function and the use of J codes to charge for specialty pharmaceuticals, that contribute to the high cost of drugs in the US. Policies to boost price transparency, foster competition, and address medication pricing are recommended by the authors.
"Impact of ASP Changes on Medicare Part B Reimbursement and Cost"	Journal of Managed Care & Specialty Pharmacy	2017	This study evaluated the effects of changes in Average Selling Price (ASP) on Medicare Part B reimbursement and expenditures. It examined the connection between changes in the ASP and payment rates, as well as what this meant for patient out-of-pocket expenses. The study demonstrated the ASP's flexibility and its impact on programme spending..
International Journal of Pharmaceutical Pricing and Policy, "Comparative Analysis of ASP, AWP, and WAC Pricing Models"	International Journal of Pharmaceutical Pricing and Policy	2020	For medications covered by Medicare Part B, this study examined the Average Selling Price (ASP), Average Wholesale Price (AWP), and Wholesale Acquisition Cost (WAC) pricing models. It explored the effects on medication reimbursement and assessed the benefits and drawbacks of each pricing model. The conclusions emphasised the requirement for an open and uniform pricing regime.
A study titled "Modifiers in Medicare Part B Claims: Trends and Impact"Medical Services Analysis	Health Services Research	2018	In this study, the use of modifiers in Medicare Part B claims was explored, and their usage patterns and effects on payment were examined. It examined the function of

			modifiers in modifying payment rates and found patterns in their application. For effective compensation, the research emphasised the significance of precise modifier reporting.
Journal of Health Economics article titled "Analysis of Medicare Part B Drug Reimbursement and ASP Rates"	Journal of Health Economics	2019	This research looked at the Average Selling Price (ASP) methodology and payment rates for Medicare Part B medications. It evaluated the connection between ASP and medicine costs as well as the effect of ASP rates on reimbursement. The conclusions showed that in order to guarantee appropriate compensation, the ASP rates must be updated often.

Table: 2.2 Previous studies based on medicare part B

2.3 Theoretical Frameworks and Models:

J code usage and spending patterns have been examined using a variety of theoretical frameworks and methodologies. The "Triple Aim" framework, which prioritises boosting the patient care experience, promoting population health, and decreasing healthcare expenditures, is one extensively used approach. This thorough method offers a framework for appreciating and assessing J code use trends in Medicare Part B. Additionally, economic approaches like budget impact analysis and cost-effectiveness analysis have been used to evaluate the importance of J code usage and its influence on healthcare expenses. These models assess the value of certain pharmaceuticals in relation to their related costs by taking into consideration variables including drug efficacy, safety, and cost-effectiveness.

2.4 Gaps in the existing Literature:

There are still several gaps that require more investigation, despite the fact that the available literature provides insightful information about J code usage and spending patterns. The following gaps stand out:

Discreet study on specific medicine costs that can be reduced when Medicare Part B J codes are used.

J code usage's effects on patient outcomes and access to critical pharmaceuticals haven't been

sufficiently studied.

inadequate analysis of the impact of reimbursement structures and policy initiatives on J code usage trends. By filling in these gaps, we may gain a more complete picture of J code cost and usage patterns, which will help policymakers, healthcare executives, and researchers improve the efficacy and efficiency of healthcare services.

2.5 summary

The relevance of Medicare Part B and J codes within the healthcare system is briefly discussed in this research study. It summarizes earlier research on J code usage and expenditure patterns, proposes theoretical frameworks and analytical models, and identifies gaps in the field. This study seeks to advance our knowledge of J code utilization and expenditure patterns in Medicare Part B for the year 2022, providing new information that may be used to make well-informed decisions about healthcare policy and practice.

Chapter 3: Methodology

3.1 Hypothesis

The study's hypothesis states that the average selling price (ASP) obtained from the Centers for Medicare and Medicaid Services (CMS) will not cover the cost spent by customers for J codes. This theory is based on the buy-and-bill paradigm, in which healthcare professionals buy pharmaceuticals, give them to patients, and then file claims for payment. Given the roles that healthcare providers must play in this process, it is anticipated that client costs will be higher than ASP. The next measures were conducted in order to test this theory:

Trends in J code expenditure and usage from 2017 to 2021 are examined: The examination of CMS data revealed information about previous J code spending and usage trends, including the greatest spending and claim categories and variations in these patterns.

- Comprehensive examination of the buy-and-bill model: To provide a common reference point for comparison, a thorough investigation of the buy-and-bill model was carried out. This benchmark was used as a point of comparison for determining how much the client cost varied from the ASP.
- Calculation of the average ASP: To get the average ASP, the ASP for each quarter of 2022 was taken from CMS data. This typical value used as a benchmark for evaluating customer costs.
- Client cost and average ASP comparison: The client cost and average ASP for the top 50 HCPCS codes were compared. The cost deviation and percentage deviation were calculated using a variety of criteria, including overall unit cost, row-level unit cost, and median client cost. This investigation shed light on how much the client cost was more than the ASP.
- Modifier and National Drug Code (NDC) identification: Pharmacy claims data was used to identify modifiers and NDCs connected to J codes. This data was utilised to evaluate each drug's potency and determine the ASP for various accessible potencies.
- Calculation of cost-saving opportunities: For the top 50 HCPCS codes, prospective cost-saving opportunities were determined using the expected ASP and client cost. The goal of this research was to find policies that may result in cost reductions.

3.2 Research methodology:

This study uses a mixed-methods research methodology that combines quantitative and qualitative techniques. The study design intends to examine the trends in J code use and cost in Medicare Part B in 2022. It covers a range of topics, including data gathering, data analysis, ethical issues, validity and dependability, as well as restrictions and presumptions.

- 1) **Quantitative Analysis:** To determine J code usage and cost trends, the quantitative analysis comprises evaluating data from the Centres for Medicare and Medicaid Services (CMS) and client records. It entails computing cost variances and percentage deviations as well as contrasting client expenses with the CMS-derived Average Selling Price (ASP). To get a complete knowledge of the data, range groups and percentile distributions will also be computed.
 - J Code Utilisation and Spending Trends: Examine CMS data to pinpoint the J code subsets with the greatest claim and expenditure rates. Check to see if there have been any significant differences between 2021 and other years in these categories.
 - Calculate the average ASP for the year by extracting the ASP data from CMS for each quarter of 2022 and comparing it to the client costs. Compare the top 50 HCPCS codes' client expenses to the average ASP. To determine how much a client's costs surpass the ASP, compute cost and percentage deviations. Investigate variables like median client cost in comparison to average ASP, overall unit cost, and row level unit cost.
 - Identification of Cost Deviations: Calculate the cost variances that are most and least from the average ASP and client expenses. To examine the distribution pattern, arrange these deviations into ranges.
 - Percentile Distribution Analysis: To obtain insight into the data distribution and spot any noteworthy patterns or outliers, compute the percentile distribution of the permitted amounts and claims.
- 2) **Qualitative Analysis:** Using pharmacy claims data, the qualitative analysis component focuses on finding modifiers and National Drug Codes (NDCs) connected to J codes. The traits and potency of each medicine falling within the J code group are determined by this examination. Additionally, expected ASP and client expenses will be used to determine cost-saving potential for the top 50 HCPCS codes.

- 3) **Retrospective Observational Study:** The research uses a retrospective observational study design to examine current data from 2022, including client records and Medicare Part B claims data.
- 4) **Longitudinal analytic:** The study strategy uses a longitudinal analytic technique to look at data from 2017 to 2021 in order to analyse J code utilisation and spending patterns. This strategy makes it possible to spot trends and changes over time, giving a thorough picture of J code usage patterns.
- 5) **Comparative Analysis:** The study evaluates the Average Selling Price (ASP) determined by CMS against the customer costs. For comparison, different metrics including median client cost, overall unit cost, and row level unit cost will be employed. Calculations will be made to determine the variations between client costs and ASP using cost deviations and percentage deviations.

J codes will be sorted and classified according to therapeutic subcategories or other pertinent standards. This grouping permits the investigation of cost distribution across various J codes and makes it easier to identify the categories with the greatest expenditure levels.

3.3 Data Acquisition:

The investigation's primary data source is from the Centres for Medicare and Medicaid Services (CMS). The statistics on J code use and cost patterns that will be accumulated from the CMS for the period from 2017 to 2021 will give a full understanding of historical trends. This data includes details on divisions, claims that spending, and and other relevant characteristics.

- a) acquire data on J code usage and cost trends extracted from the Centres for Medicare and Medicaid Services, better known as CMS, for the years 2017 to 2021. This data's statistics will cast information about the typical usage of J code as well as historically spending trends.
- b) a) Client Statistics: Obtaining data on client costs in 2022 from legitimate sources. Such information will be in comparison to the Average Selling Price (ASP) stumbled upon by CMS.

3.4 Analytical Methods:

The research design includes a detailed assessment of data process that employs the most appropriate statistical approaches and techniques. A variety of calculations in order including medians, the variations, percentages as well, fluctuated groups, percentile patterns of distribution, and potential cost savings, will be performed. The objective of these analyses is to find established patterns, trends, and substantial insights on the implementation of J codes and consumption for Part B of the Medicare system.

3.5 Parameters and Metrics:

J code categories, claims, expenditures, client costs, and average selling price (ASP) are a few of the factors that are the subject of the study. While ASP is the average selling price determined from CMS data, client cost is the expense incurred by the customer or patient. In order to evaluate the potency and makeup of the medications, the research also takes modifiers and National Drug Codes (NDCs) connected to J codes into account.

3.6 Ethical Considerations:

This study's approach recognises several restrictions, including possible biases and data availability restrictions. The privacy and security of the data sources are safeguarded, norms are followed, and ethical issues are carefully taken into account.

3.7 Validity and Reliability:

Multiple data sources will be used to enable triangulation of results, enhancing the validity of the findings. The study design uses appropriate sample methods that have been carefully planned. During data analysis, dependable statistical techniques will be used to guarantee precision and consistency.

3.8 Limitatons and Assumptions:

The study is aware of several restrictions and presumptions. These can include restrictions on the quantity and quality of data from CMS and client sources. The unique demographic and time period under research may restrict the findings' capacity to be generalised. Additionally, the analysis makes the assumption that the data it has gathered appropriately depicts the usage and expenditure patterns of J codes under Medicare Part B in 2022.

This study seeks to give a thorough knowledge of J code use and spending patterns in Medicare

Part B for the year 2022 by utilising a research strategy that combines quantitative and qualitative methodologies, integrating retrospective observational and longitudinal analyses. A significant insight into cost variances and potential cost-saving opportunities is provided by the examination of client costs in relation to average selling price.

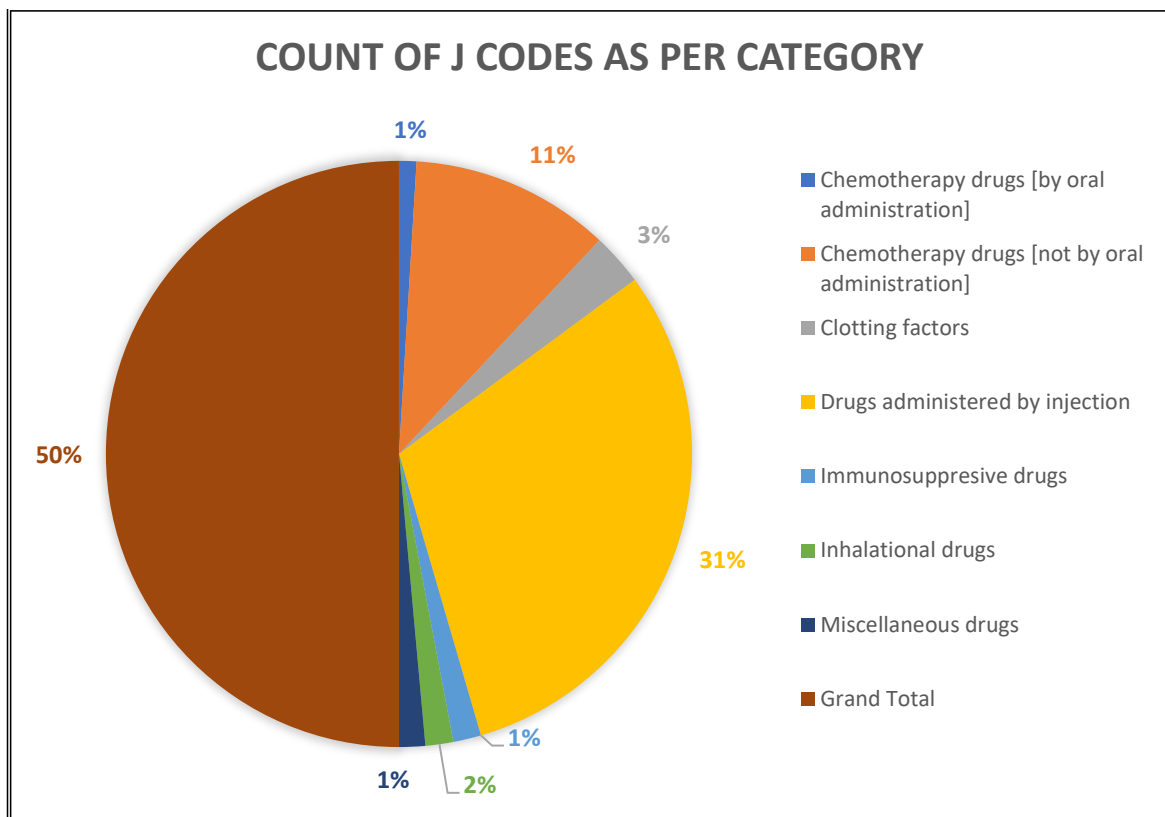
Chapter 4: Medicare Part B Utilization and Spending

Trends for the Years 2017 – 2021

4.1 Analysis of Categories of J codes (2017 -2021)

Category	Count of J codes 2017	Count of J codes 2018	Count of J codes 2019	Count of J codes 2020	Count of J codes 2021
Chemotherapy drugs [by oral administration]	10	10	10	10	10
Chemotherapy drugs [not by oral administration]	115	115	115	115	115
Clotting factors	30	30	30	30	30
Drugs administered by injection	319	319	319	319	319
Immunosuppressive drugs	16	16	16	16	16
Inhalational drugs	16	16	16	16	16
Miscellaneous drugs	15	15	15	15	15

Table: 4.1 Count of J codes from 2017-2021



Graph 4.12: Categorization of J codes

Findings:

Maximum J codes count falls under the category of Drug administered by injection followed by Chemotherapy drugs [not by oral administration]

50% of J codes comes under the category “drug administered by injection”

4.2 Analysis of Spending trends (2017 - 2021)

Table 4.21 : Sum of total spending for the year 2017

Categories	Sum of total spending 2017	Percentage
Drugs administered by injection	\$ 10,48,45,982.00	57.87%
Chemotherapy drugs [not by oral administration]	\$ 8,91,97,92,905.00	33.30%
Inhalational drugs	\$ 68,12,15,190.00	2.72%
Clotting factors	\$ 15,50,29,10,873.00	2.54%
Miscellaneous drugs	\$ 34,17,68,442.00	1.90%
Immunosuppressive drugs	\$ 72,78,16,738.00	1.28%
Chemotherapy drugs [by oral administration]	\$ 50,91,04,062.00	0.39%
Grand Total	\$ 26,78,74,54,192.00	100.00%

Categories	Sum of total spending 2018	Percentage
Drugs administered by injection	\$ 6,27,41,132.00	56.99%
Chemotherapy drugs [not by oral administration]	\$ 10,37,66,31,258.00	35.27%
Inhalational drugs	\$ 63,08,05,790.00	2.47%
Clotting factors	\$ 16,76,61,44,955.00	2.14%
Miscellaneous drugs	\$ 38,54,52,465.00	1.60%
Immunosuppressive drugs	\$ 72,68,39,940.00	1.31%
Chemotherapy drugs [by oral administration]	\$ 47,18,54,768.00	0.21%
Grand Total	\$ 29,42,04,70,308.00	100.00%

Table 4.22 : Sum of total spending for the year 2018

Categories	Sum of total spending 2019	
Drugs administered by injection	\$ 4,64,17,098.00	52.10%
Chemotherapy drugs [not by oral administration]	\$ 14,30,74,08,386.00	41.10%
Inhalational drugs	\$ 60,41,97,727.00	2.05%
Miscellaneous drugs	\$ 18,13,97,77,349.00	1.79%
Clotting factors	\$ 37,86,02,237.00	1.74%
Immunosuppressive drugs	\$ 71,46,28,738.00	1.09%
Chemotherapy drugs [by oral administration]	\$ 62,32,84,324.00	0.13%
Grand Total	\$ 34,81,43,15,859.00	100.00%

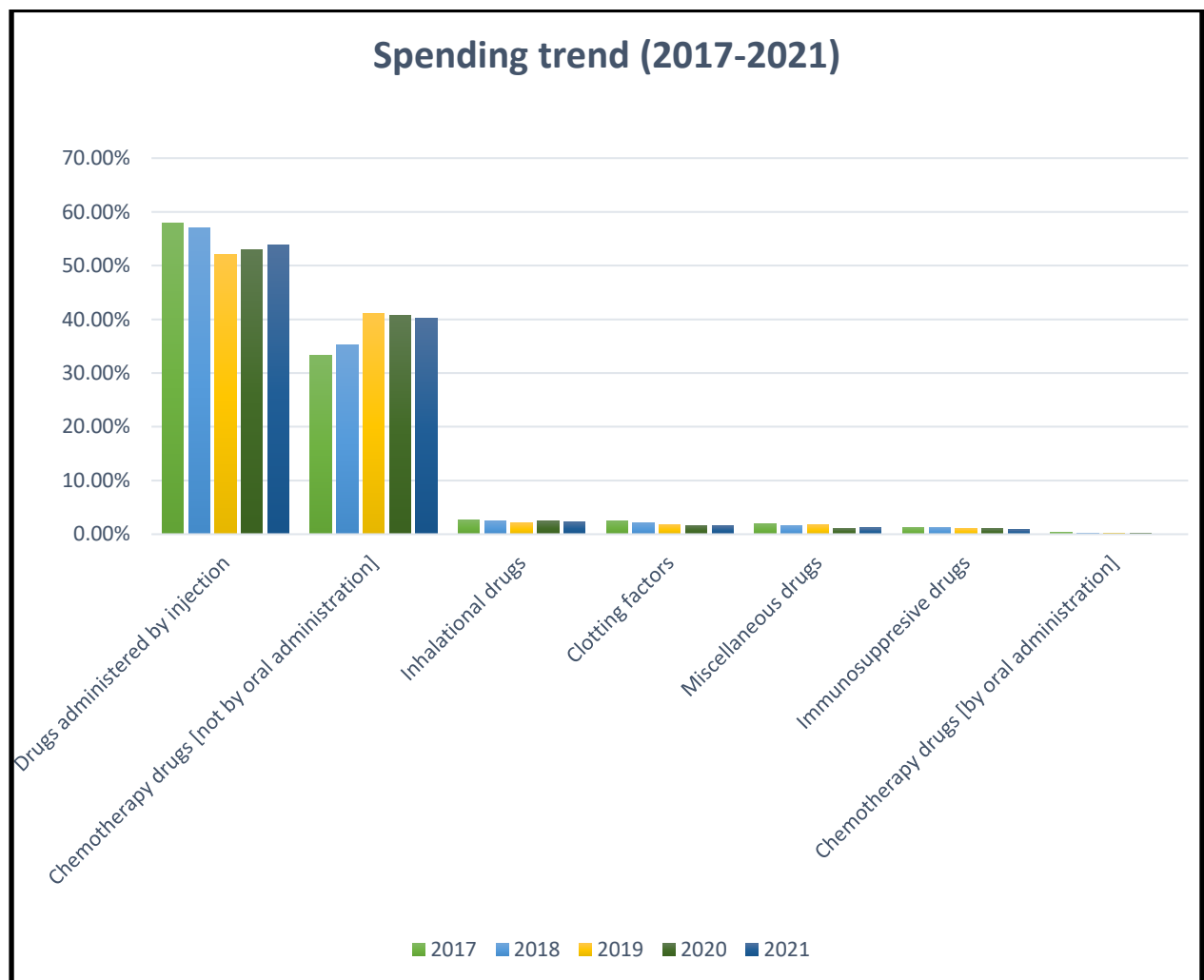
Table 4.23 : Sum of total spending for the year 2019

Category	Sum of total spending 2020	percentage
Drugs administered by injection	\$ 18,61,52,66,597.00	52.91%
Chemotherapy drugs [not by oral administration]	\$ 14,32,46,47,791.00	40.72%
Inhalational drugs	\$ 85,18,69,595.00	2.42%
Clotting factors	\$ 58,49,69,187.00	1.66%
Miscellaneous drugs	\$ 39,37,10,218.00	1.12%
Immunosuppressive drugs	\$ 37,72,70,535.00	1.07%
Chemotherapy drugs [by oral administration]	\$ 3,44,66,283.00	0.10%
Grand Total	\$ 35,18,22,00,206.00	100%

Table 4.24 : Sum of total spending for the year 2020

Category	Sum of total spendings 2021	Percentage
Drugs administered by injection	\$ 19,70,93,13,376.00	53.86%
Chemotherapy drugs [not by oral administration]	\$ 14,70,43,65,388.00	40.19%
Inhalational drugs	\$ 83,07,47,016.00	2.27%
Clotting factors	\$ 57,39,11,832.00	1.57%
Miscellaneous drugs	\$ 42,24,26,685.00	1.15%
Immunosuppressive drugs	\$ 32,25,10,883.00	0.88%
Chemotherapy drugs [by oral administration]	\$ 2,71,47,818.00	0.07%
Grand Total	\$ 36,59,04,22,998.00	100.00%

Table 4.25 : Sum of total spending for the year 2021



Graph 4.26 Spending trend from 2017-2021 as per the categories

Findings:

- Year 2017 has the highest spending for the category of Drug administered by injection.
- Year 2019 has the highest spending for the category of chemotherapy drugs (not by oral administration)

4.3 Analysis of Total claims (2017 – 2021)

Category	Sum of total Claims 2017	Percentage
Drugs administered by injection	29218409	68.86%
Inhalational drugs	4761913	11.22%
Chemotherapy drugs [not by oral administration]	4516371	10.64%
Immunosuppressive drugs	1984523	4.68%
Miscellaneous drugs	1764299	4.16%
Chemotherapy drugs [by oral administration]	167776	0.40%

Table 4.31: Sum of total claims for the year 2017

Category	Sum of total claims 2018	Percentage
Drugs administered by injection	28761348	68.58%
Inhalational drugs	4643529	11.07%
Chemotherapy drugs [not by oral administration]	4610476	10.99%
Immunosuppressive drugs	2129109	5.08%
Miscellaneous drugs	1599181	3.81%
Chemotherapy drugs [by oral administration]	173615	0.41%
Clotting factors	19565	0.05%
Grand Total	41936823	100.00%

Table 4.32: Sum of total claims for the year 2018

Category	Sum of total claims 2019	percentage
Drugs administered by injection	29277026	68.42%
Chemotherapy drugs [not by oral administration]	5111553	11.95%
Inhalational drugs	4453770	10.41%
Immunosuppressive drugs	2232910	5.22%
Miscellaneous drugs	1527757	3.57%
Chemotherapy drugs [by oral administration]	167143	0.39%
Clotting factors	19424	0.05%
Grand Total	42789583	100.00%

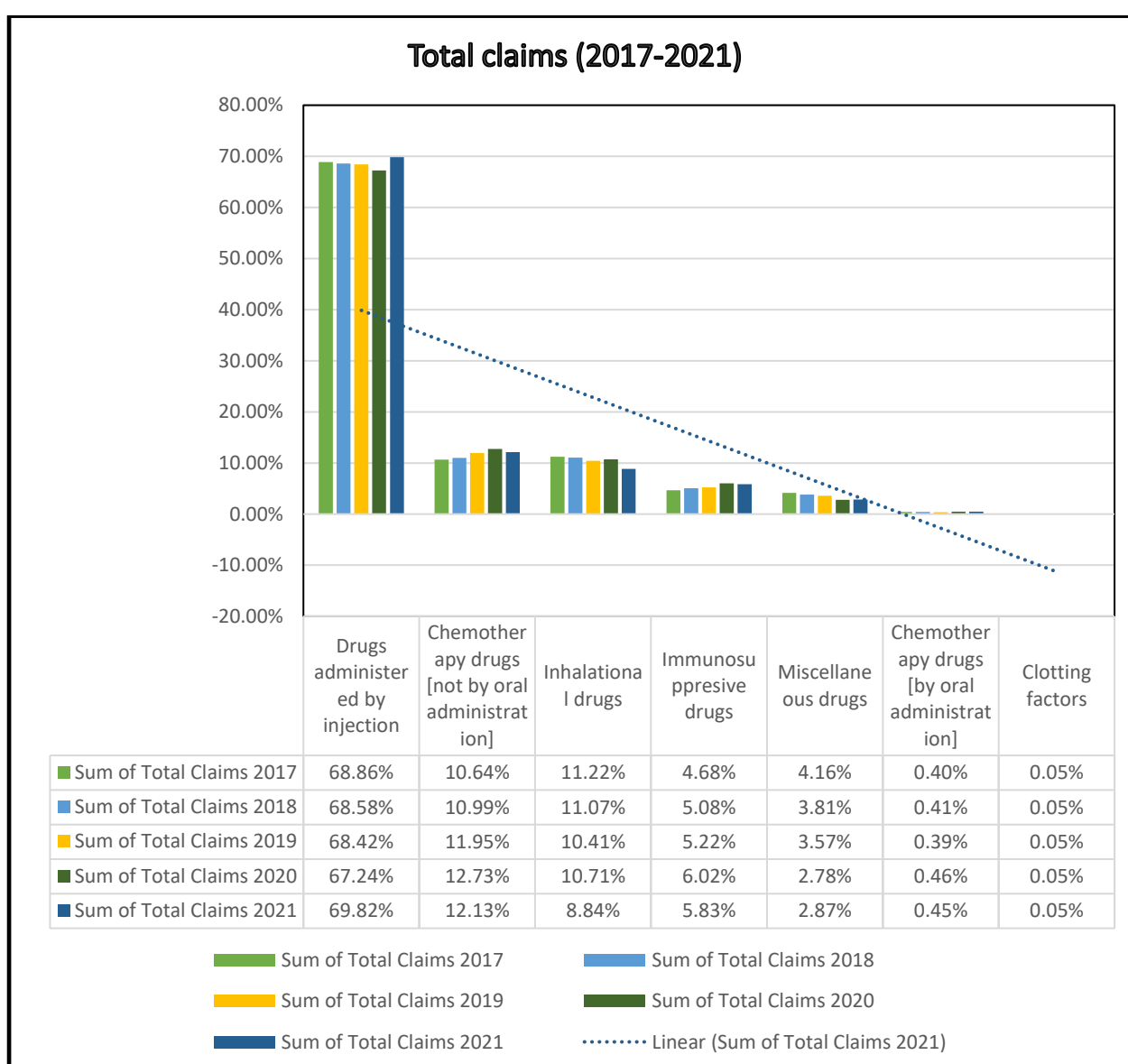
Table 4.33 Sum of total claims for the year 2019

Category	Sum of Total Claims 2020	Percentage
Drugs administered by injection	24908230	67.24%
Chemotherapy drugs [not by oral administration]	4715697	12.73%
Inhalational drugs	3968357	10.71%
Immunosuppressive drugs	2230926	6.02%
Miscellaneous drugs	1030907	2.78%
Chemotherapy drugs [by oral administration]	170440	0.46%
Clotting factors	17573	0.05%
Grand Total	37042130	100.00%

Table 4.34 : Sum of total claims for the year 2020

Category	Sum of Total Claims 2021	Percentage
Drugs administered by injection	2,55,62,976.00	69.82%
Chemotherapy drugs [not by oral administration]	44,40,266.00	12.13%
Inhalational drugs	32,37,389.00	8.84%
Immunosuppressive drugs	21,35,665.00	5.83%
Miscellaneous drugs	10,50,921.00	2.87%
Chemotherapy drugs [by oral administration]	1,65,507.00	0.45%
Clotting factors	17,724.00	0.05%
Grand Total	3,66,10,448.00	100.00%

Table 4.35 Sum of total claims for the year 2021



Graph 4.36 : sum total claims 2017-2021 as per the categories.

Findings:

- The highest claim category in all the years was Drug administered by injection, followed by Chemotherapy (not by oral administration) and Inhalation drugs which accounts for equal distribution.
- Year 2021 has the highest number of claims for the highest category.

4.4 Summary of the findings:

- From the J code utilisation trend analysis from the year 2017-2021, The highest spending category as well as the highest claim category both belong to Drug administered by injection.
- Provide insights into the areas with the largest volume of claims and expenditures are provided, assisting administrators in resource allocation and budget management.
- The highest claim and spending categories are used as a benchmark for determining the relative cost of a certain medicine or therapy. The cost of the client is in line with the typical cost seen in Medicare Part B if it comes inside or very similar to these categories. If, however, the client's cost is materially outside of any of these ranges.
- Finding probable cost outliers: The results of the top claim and spending categories aid in this task. If a client's cost is greater than the highest claim category or highest expenditure category for a certain medication or therapy, it indicates that additional research is necessary to determine the causes of the higher cost. It may reveal elements that contribute to the greater cost, such as overutilization, disparities in price, or exceptional conditions.
- Overall, the results of the highest claim category and highest expenditure category from the years 2017 to 2021 offer useful benchmarks, comparison points, and insights for evaluating the client's expense against the Average Sales Price (ASP) for the year 2022. It supports cost management techniques, makes accurate forecasting and budgeting possible, and aids in the identification of cost outliers.
-

Chapter 5: Comparison of Client Cost with Average Selling Price

5.1 Calculation of Average Selling Price

- ASP for all the 4 quarters of 2022 were extracted from CMS website.
- Then after cleaning the data, Average ASP for top 50 HCPCS code were calculated by using the formula:

$$\text{Average ASP} = \text{Sum of all the quarters} / 4$$

- Categories were taken from AAPC website and assigned to each j code by using VLOOKUP.
- Also, ASP were analyzed quarter wise to know the deviation of the prices updated by CMS every quarter.

Rank	HCPCS code	Description	Jan-22	Apr-22	Jul-22	Oct-22	Avg ASP
1	J2350	Injection, ocrelizumab, 1 mg	\$ 58.91	\$ 58.49	\$ 60.49	\$ 60.08	\$ 59.49
2	J9271	Inj pembrolizumab	\$ 52.30	\$ 53.70	\$ 53.14	\$ 54.55	\$ 53.42
3	J1745	Infliximab not biosimil 10mg	\$ 37.68	\$ 36.51	\$ 35.71	\$ 35.02	\$ 36.23
4	J3380	Injection, vedolizumab	\$ 21.29	\$ 21.72	\$ 22.76	\$ 22.30	\$ 22.02
5	J9306	Injection, pertuzumab, 1 mg	\$ 13.56	\$ 13.56	\$ 14.15	\$ 14.44	\$ 13.92
6	J9299	Injection, nivolumab	\$ 29.25	\$ 29.24	\$ 29.69	\$ 29.55	\$ 29.43
7	J9144	Daratumumab, hyaluronidase	\$ 45.03	\$ 44.88	\$ 46.58	\$ 46.76	\$ 45.81
8	J2323	Natalizumab injection	\$ 23.25	\$ 23.06	\$ 24.17	\$ 24.03	\$ 23.63
9	J0567	Injection, cerliponase alfa, 1 mg	NA	NA	NA	NA	NA
10	J1300	Eculizumab injection	\$ 228.94	\$ 228.52	\$ 228.02	\$ 227.70	\$ 228.30
11	J0585	Injection, onabotulinumtoxin A	\$ 6.17	\$ 6.19	\$ 6.21	\$ 6.23	\$ 6.20
12	J2326	Injection, nusinersen, 0.1 mg	NA	NA	NA	NA	NA
13	J1569	Gammagard liquid injection	\$ 46.67	\$ 43.88	\$ 45.00	\$ 45.23	\$ 45.19
14	J2506	Inj pegfilgrast ex bio 0.5mg	\$ 182.03	\$ 167.68	\$ 155.83	\$ 131.41	\$ 159.24
15	J3241	Inj. teprotumumab-trbw 10 mg	\$ 315.88	\$ 315.88	\$ 321.37	\$ 321.88	\$ 318.75
16	J9354	Inj, ado-trastuzumab emt 1mg	\$ 34.15	\$ 34.14	\$ 35.62	\$ 35.70	\$ 34.90
17	J0897	Denosumab injection	\$ 21.21	\$ 21.26	\$ 22.26	\$ 22.51	\$ 21.81
18	J0178	Aflibercept injection	\$ 915.75	\$ 914.20	\$ 912.89	\$ 903.00	\$ 911.46
19	J9312	Inj., rituximab, 10 mg	\$ 85.63	\$ 85.44	\$ 84.17	\$ 82.25	\$ 84.37
20	J9228	Ipilimumab injection	\$ 160.70	\$ 160.83	\$ 163.66	\$ 163.10	\$ 162.07
21	J1568	Octagam injection	\$ 41.61	\$ 41.82	\$ 42.02	\$ 42.10	\$ 41.89
22	J7298	levonorgestrel-releasing intrauterine contraceptive system (mirena), 52 mg	NA	NA	NA	NA	NA
23	J1599	Injection, immune globulin, intravenous, non-lyophilized (e.g., liquid), not otherwise specified, 500 mg	NA	NA	NA	NA	NA

24	J9303	Panitumumab injection	\$ 130.41	\$ 130.79	\$ 136.97	\$ 139.67	\$ 134.46
25	J1557	Gammaplex injection	\$ 50.80	\$ 50.73	\$ 48.34	\$ 51.07	\$ 50.24
26	J1561	Gamunex-c/gammaked	\$ 46.51	\$ 43.04	\$ 43.39	\$ 44.67	\$ 44.40
27	J2357	Omalizumab injection	\$ 37.51	\$ 37.27	\$ 38.12	\$ 38.65	\$ 37.89
28	J9047	Injection, carfilzomib, 1 mg	\$ 41.11	\$ 41.34	\$ 43.24	\$ 44.03	\$ 42.43
29	J1439	Inj ferric carboxymaltos 1mg	\$ 1.12	\$ 1.14	\$ 1.11	\$ 1.14	\$ 1.13
30	J9022	Inj, atezolizumab,10 mg	\$ 79.58	\$ 79.27	\$ 82.27	\$ 82.07	\$ 80.79
31	J1303	Inj., ravulizumab-cwvz 10 mg	\$ 224.63	\$ 224.77	\$ 224.09	\$ 223.36	\$ 224.21
32	J3490	Unclassified	NA	NA	NA	NA	NA
33	J1602	Golimumab for iv use 1mg	\$ 16.07	\$ 15.01	\$ 14.69	\$ 14.08	\$ 14.96
34	J2796	Romiplostim injection	\$ 83.62	\$ 83.90	\$ 87.74	\$ 89.00	\$ 86.06
35	J0490	Belimumab injection	\$ 48.23	\$ 48.25	\$ 49.44	\$ 49.47	\$ 48.85
36	J9042	Brentuximab vedotin inj	\$ 196.55	\$ 196.65	\$ 205.56	\$ 205.76	\$ 201.13
37	J2507	Pegloticase injection	\$ 2,968.61	\$ 2,985.85	\$ 3,110.56	\$ 3,143.50	\$ 3,052.13
38	J9395	Injection, fulvestrant	\$ 15.65	\$ 11.61	\$ 14.02	\$ 11.05	\$ 13.08
39	Q4116	AlloDerm, per square centimeter	NA	NA	NA	NA	NA
40	J9301	Obinutuzumab inj	\$ 64.11	\$ 63.82	\$ 66.01	\$ 67.35	\$ 65.32
41	J9305	Inj. pemetrexed nos 10mg	\$ 76.04	\$ 76.38	\$ 78.39	\$ 47.75	\$ 69.64
42	J9217	Leuprolide acetate suspnsion	\$ 200.38	\$ 168.84	\$ 179.27	\$ 166.08	\$ 178.64
43	J7307	Etonogestrel (contraceptive) implant system, including implant and supplies	NA	NA	NA	NA	NA
44	J9035	Bevacizumab injection	\$ 67.86	\$ 69.49	\$ 69.23	\$ 69.72	\$ 69.07
45	J9041	Inj., velcade 0.1 mg	\$ 44.79	\$ 44.70	\$ 44.01	\$ 24.66	\$ 39.54
46	J1950	Leuprolide acetate /3.75 mg	\$ 1,366.01	\$ 1,421.56	\$ 1,495.37	\$ 1,477.55	\$ 1,440.12
47	J0129	Abatacept injection	\$ 44.52	\$ 43.90	\$ 44.22	\$ 43.25	\$ 43.97
48	J1559	Hizentra injection	\$ 11.79	\$ 11.79	\$ 12.35	\$ 12.36	\$ 12.07

49	J2704	Inj, propofol, 10 mg	\$ 0.14	\$ 0.13	\$ 0.12	\$ 0.14	\$ 0.13
50	J0741	Inj, cabote rilpivir 2mg 3mg	\$ 20.56	\$ 20.54	\$ 21.05	\$ 21.06	\$ 20.80

Table 5.1: Calculation of Average ASP for the 4 quarters, 2022

Findings:

- 7 J codes prices are not available on CMS.
- J codes have sharp variation over the quarters:
- J2506 with a sharp difference of \$50.62 over the quarters.
- J2507 with a sharp difference of \$174.89 over the quarters
- J1950 with a sharp difference of \$12899 over the quarters

5.2 Calculation of Client cost:

To calculate the Client cost for HCPCS codes, the following steps were undertaken:

1) Calculation of Client Unit Cost:

The sum of allowed amounts (Actual client spend) for a specific HCPCS code was divided by the sum of service unit counts associated with that HCPCS code. The Client Unit Cost for each row, representing the cost for a specific HCPCS code, was determined.

2) Calculation of Client Row Level Unit Cost:

The Client Unit Cost row level average was determined by averaging the values of the Client Unit Cost across all rows.

For each HCPCS code, the average of the Client Unit Costs over all rows associated with that code was determined, yielding the row level average unit cost for each HCPCS code.

3) Median Client Row Level Unit Cost Calculation:

- To get the row level average unit cost for each HCPCS code, the average of the Client Unit Costs over all rows related to that code was computed.
- The computed row level average unit costs from the previous step were gathered.
- The middle value in the distribution, when sorted in ascending order, was determined as the median of the row level average unit prices.

4) Percentile Distribution:

- To comprehend the range of the row level average unit prices and to pinpoint certain locations in the distribution, the percentile distribution was generated.
- This made it possible to examine pricing patterns, spot outliers, and acquire understanding of the cost diversity across various HCPCS codes.

These metrics offer several viewpoints when evaluating expenses. The Client Unit Cost concentrates on discrete events and can pinpoint certain high- or low-cost processes or services. The Client Row Level Average Unit Cost gives a more comprehensive view of common cost patterns by providing an average cost per HCPCS code. When there are large variances in the dataset, the median of the row level average unit cost might be beneficial since it is less affected by extreme values.

The following actions were conducted in order to evaluate the strength and quantity of National Drug Codes (NDCs) linked to each HCPCS code:

Strength and modifier Analysis:

- The dataset was filtered such that only rows associated with the chosen HCPCS code were included.
- The dataset's NDC values for the chosen HCPCS code were taken out, and any duplicates were eliminated so that each NDC could only be counted once.
- The total number of distinct NDCs connected to the HCPCS code was tallied.
- To comprehend variances in strengths for that HCPCS code, the strength information linked with each NDC was examined.
- The actions below were taken in order to look for modifiers in the dataset:
- Modifier Recognition
- The filtered dataset's column holding information on modifiers was looked at. Top of Form
- The mentioned modifiers for the particular J code were located and retrieved.
- In order to comprehend extra services or changes related to the J code, the descriptions or explanations of the modifiers were studied.
- In order to get insight into the specific operations or services that may be provided in combination with the J code, notes on the modifiers and their meanings were gathered.

Numerous computations can be performed when comparing the Client Cost with the Average Selling Price in order to examine cost deviation and variations between the two. The procedure is outlined in the following steps:

1) Cost variance:

For each related HCPCS code or service, figure out the discrepancy between Client Cost and Average Selling Price.

This was done by deducting the client cost from the average selling price.

2) Percentage variation:

Using the formula: $\text{Percentage Deviation} = ((\text{Client Cost} - \text{Average Selling Price}) / \text{Average Selling Price}) * 100$, get the percentage variation between the Client Cost and Average Selling Price.

3) Times Client Cost is Higher:

Calculate the proportion of times the Client Cost value exceeds the Average Selling Price value.

The number of times the client cost is higher than the average selling price.

4) Negative Deviation (ASP > Client Cost):

Determine the cases in which the Average Selling Price exceeds the Client Cost.

Subtract the client cost from the average selling price to determine the negative variance.

5) Positive Deviation (Client Cost > ASP):

Locate situations in which the Client Cost is higher than the Average Selling Price.

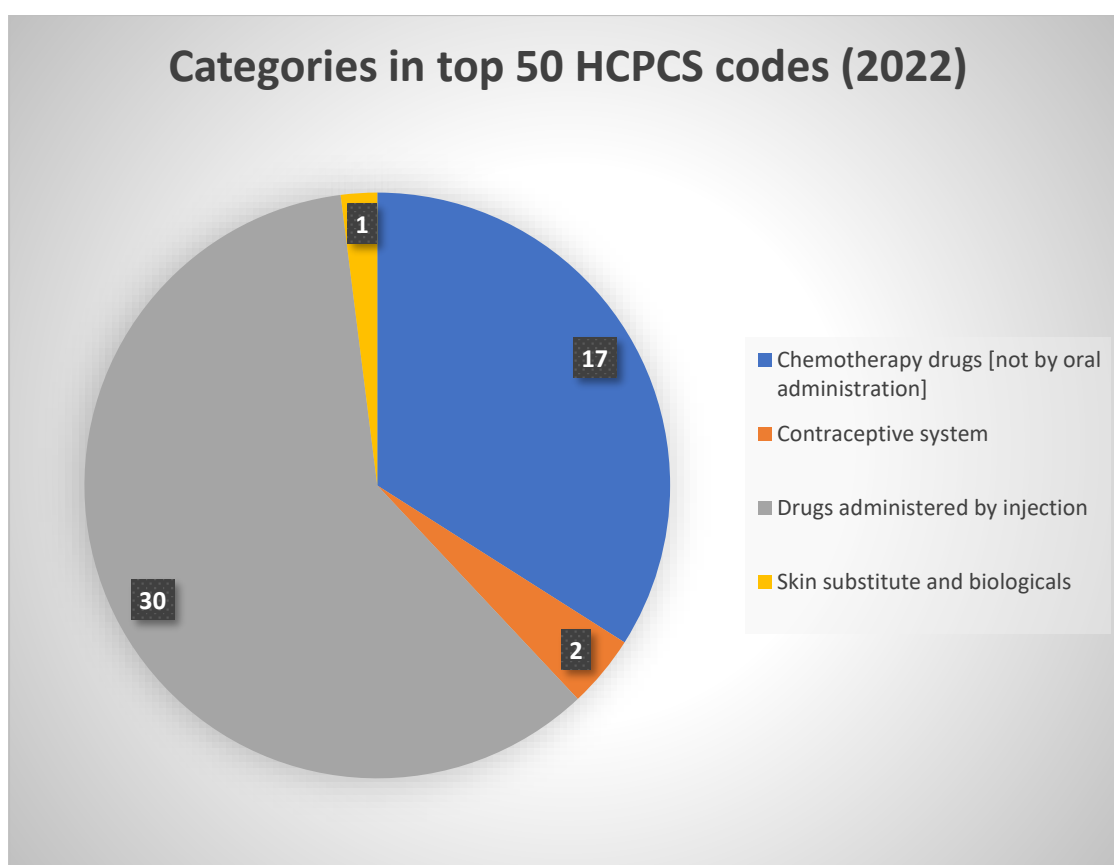
Subtract the Client Cost from the Average Selling Price to determine the positive variance.

The percentage difference between the two numbers is provided by this formula.

5.3 Findings and Data analysis:

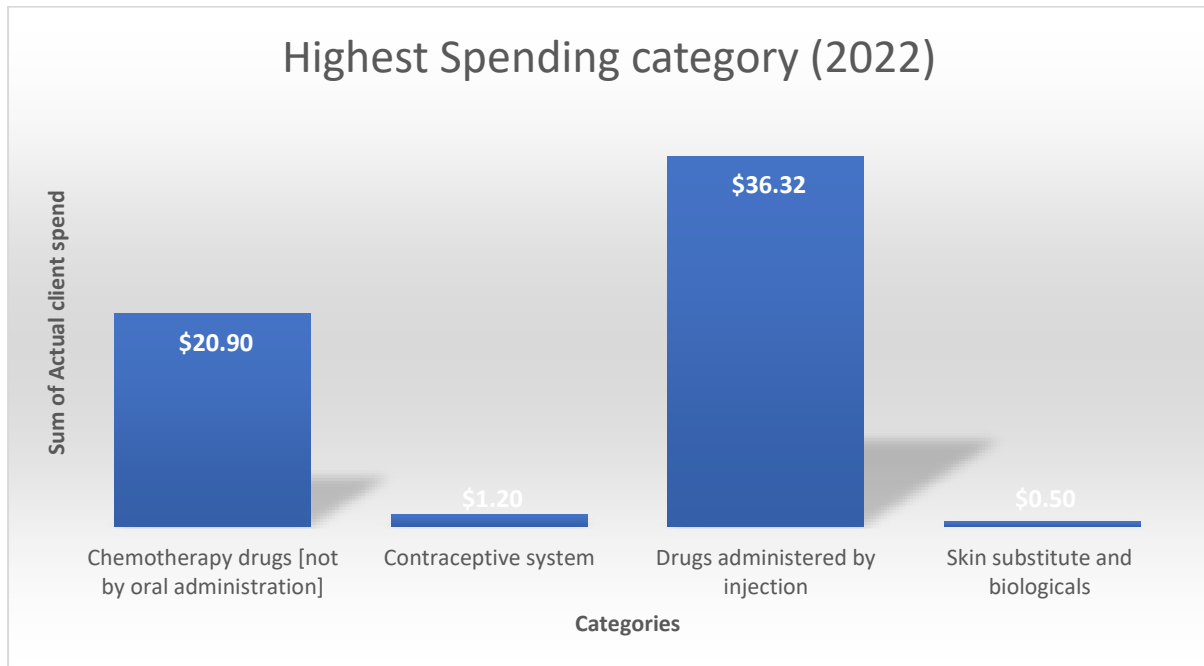
Categories in top 50 HCPCS codes (2022)	Count of HCPCS code
Chemotherapy drugs [not by oral administration]	17
Contraceptive system	2
Drugs administered by injection	30
Skin substitute and biologicals	1
Grand total	50

Table 5.31: Categories in top 50 HCPCS codes, 2022



Graph 5.32 : Categories count in Top 50 HCPCS codes 2022

Spending pattern in 2022:



Graph 5.33 : Highest spending category (2022) for top 50 HCPCS codes

Findings:

- The highest spending category for top 50 HCPCS codes in 2022 is Drug administered by injection followed by Chemotherapy drugs (not by oral administration).
- The pattern in 2017 – 2021 is followed in 2022 for the spending and utilization of medicare part B drugs.

Claims count per category in 2022:

Category	Sum of count(DISTINCT claims)
Drugs administered by injection	24753
Chemotherapy drugs [not by oral administration]	2546
Contraceptive system	1182
Skin substitute and biologicals	28
Grand Total	28509

Table 5.34 Claims count per category, 2022

Findings:

As analysed in 2017-2021 data, The highest spending and claim category for 2022 is also drug administered by injection followed by chemotherapy drugs (not by oral administration)

5.4 Findings of cost comparison

1) Comparing Client UC with the Average ASP

- 8 - sharp difference in cost deviation (ASP and client UC)
- In 11 HCPCS codes, [ASP 22 > Client UC]
- Highest percentage deviation is 645.65% [HCPCS code - J9395]
- Lowest percentage deviation is 0.02% [HCPCS code - J1303]

2) Comparing Client Row level average UC with the Average ASP

Case 1: Client Row level average UC > ASP 22

	HCPCS code	Client Row level average UC compared with ASP 22
Highest cost deviation	J9217	\$ 369.40
Lowest cost deviation	J2704	\$ 0.69

Table 5.41 : Client row level average UC > ASP

Case 2 Client Row level average UC < ASP 22

	HCPCS code	Client Row level average UC compared with ASP 22
Highest cost deviation	J1950	\$ 866.73
Lowest cost deviation	J0585	\$ 0.43

Table 5.42 : Client row level average UC < ASP

Findings:

- 12 Sharp diff (Client Row level average UC and ASP)
- In 15 HCPCS codes, [ASP 22 > Client Row level average UC]
- Highest percentage deviation is 727.76% [HCPCS code - J2704]
- Lowest percentage deviation is 6.19% [HCPCS code -J9228]

3) Comparing Client Row level average Median with the Average ASP

Case 1: Client Row level average Median > ASP 22

	HCPCS code	Median Row level average compared with ASP
Highest cost deviation	J0585	\$ 232.74
Lowest cost deviation	J2704	\$ 0.07

Table 5.43 : Median row level average UC >ASP

Case 2: Client Row level average Median < ASP 22

	HCPCS code	Median Row level average compared with ASP
Highest cost deviation	J1950	\$ 1,640.12
Lowest cost deviation	J0490	\$ 0.70

Table 5.44 : Median row level average UC < ASP

Findings:

- 5 Sharp diff (Client Row level average Median and ASP)
- In 12 HCPCS code, [ASP 22 > Client Row level average Median]
- Highest percentage deviation is 3593.77% [HCPCS code - J0585]
- Lowest percentage deviation is 0.30% [HCPCS code - J0178]

4) Times client Row level average UC > ASP

- Maximum HCPCS codes i.e., 17 are present in which client Row level average UC > ASP 22 by '1- 1.5 times'.
- Minimum 3 HCPCS codes are present in which client Row level average UC >ASP 22 by '2 to 2.5 times'.

5) Times client Row level average Median > ASP

- Maximum HCPCS codes i.e., 32 are present in which client Row level average Median > ASP 22 by '1 to 1.5 times'.

- A minimum of 3 HCPCS codes are present in which client Row level average Median >ASP 22 by '1.5 to 2 times'.

Deviation Groups on the basis of percentage:

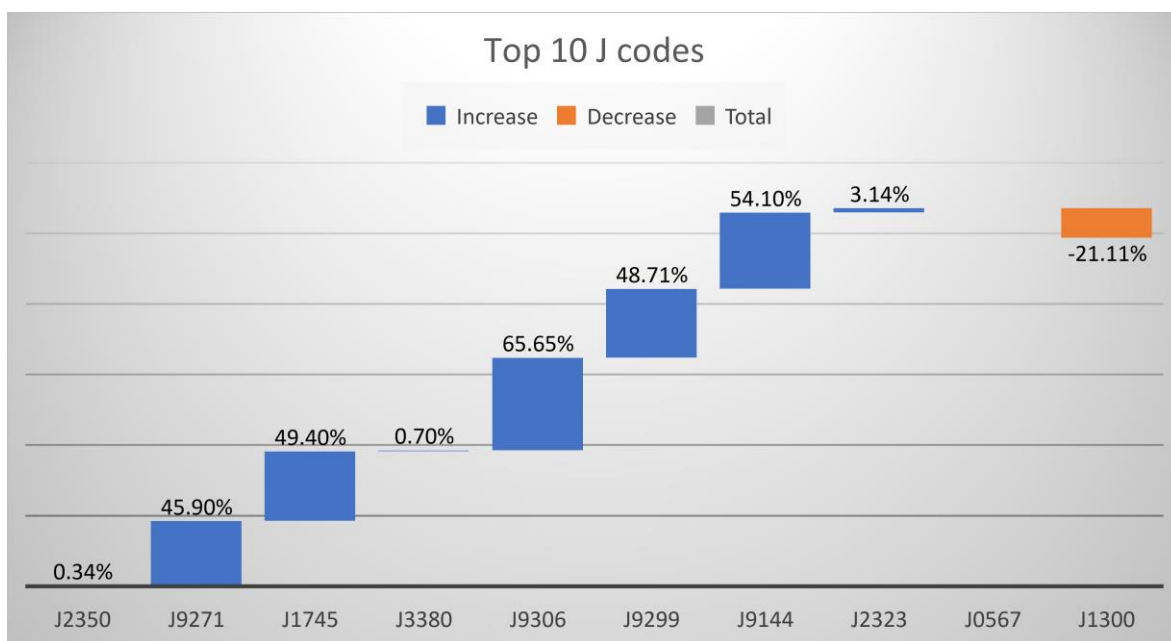
Range	Count of J codes
-40 to -20	3
-20 to 0	8
0 to 50	20
50 to 100	7
100 to 200	3
200+	2

Table 5.45 : Deviation Groups

Findings:

Max. HCPCS codes (20 codes) were found in the '0 to 50' percentage deviation range and max are drug administered by injection.

Analysis of top 10 J codes on the basis of percentage deviation:



Graph 5.46 : Top 10 J codes on the basis of percentage deviation

Findings:

- Maximum J codes fall in the range of (0 – 50%) that is max cost deviation between the Average ASP and client cost is between 0-50%.
- The J codes with highest deviation are Drug administered by injection.

Chapter 6: Cost-Saving Opportunities for Policymakers and Patients

6.1 Calculation of Cost saving opportunity:

An extensive investigation of the underlying causes of high healthcare expenses is essential to pinpointing possible cost-saving solutions. Policymakers may learn a great deal about the precise areas where cost-saving measures can be successfully adopted by looking at data on HCPCS codes, service unit counts, average ASP, and actual client expenditure.

The subsequent actions were conducted to evaluate potential cost-saving opportunities:

1) Service unit count:

- The top 50 HCPCS codes were divided into several groups or categories for the purpose of categorization and service unit counting.
- The service unit count for each HCPCS code was gathered, showing how frequently that code is used or billed.

2) Calculation of Projected ASP Spend:

- The following equation was used to determine the anticipated ASP spend for each HCPCS code: $\text{ASP projected expenditure} = \text{Service unit count} * \text{ASP}$. Based on the average selling price per service unit, this calculation helps to comprehend the overall cost.

3) Actual Client expenditure:

- For each HCPCS code, the actual client expenditure was gathered.

4) Calculating Cost-Saving Opportunity:

- $\text{Saving opportunity} = \text{Actual Client spend} - \text{expected ASP spend}$. This calculation indicates the potential savings that might be realised if the actual client spending is in line with the expected ASP spend. $\text{Saving opportunity} = \text{Actual Client spend} - \text{Projected ASP spend}$.

Policymakers can pinpoint certain categories that provide considerable cost-saving potential by completing this study. The actual client spend and the anticipated ASP spend differ substantially in categories such medications supplied by injection and chemotherapy drugs not administered orally. These data show the focus areas for policymakers to implement focused

cost-saving actions and solutions.

6.2 Findings for Cost saving opportunity:

Cost Saving opportunity:

Saving opportunity	Description
\$ 14,35,574.92	Cumulative amount in which Client spend < ASP i.e., amount that client is already saving.
\$ 1,05,19,939.17	Cumulative amount in which Client spend > Projected ASP and has been identified as cost saving opportunity area.

Table 6.31 Cost saving opportunity

Based on the analysis, the following findings have been identified for the cost-saving opportunities in different categories:

S.no	Category	Saving Opportunity
1	Drugs administered by injection	\$38,45,174.45
2	Chemotherapy drugs [not by oral administration]	\$66,74,764.72

Table 6.32 Cost saving opportunity in highest categories

The possible cost-saving opportunity for clients in each area is shown in the "Saving Opportunity" column. This research identifies certain groups that offer chances for putting cost-cutting measures in place, with a focus on medications given by injection and chemotherapy medications not taken orally. These are the areas where clients may prioritise cost optimisation and significant expense reductions.

6.3 Recommendations for Policymakers:

The recommendations below are made for policymakers who want to reduce healthcare expenses specifically based on the cost-saving potential found in this research:

1) Improve cost comparison and pricing transparency tools:

- Enforce laws mandating pricing disclosures from healthcare providers for services, treatments, and procedures.
- Create and spread user-friendly cost comparison tools so that patients may decide

wisely based on information about prices and quality.

- Encourage the use of healthcare technology that gives patients access to real-time cost estimates so they may make informed decisions.

2) Promote value-based treatment and outcomes:

- Align reimbursement strategies with the provision of high-quality care and successful patient outcomes by rewarding healthcare providers who meet these goals.
- Create outcome-based incentives and quality indicators to promote economical and effective healthcare practises. Top of Form
- Encourage healthcare professionals to work together to coordinate treatment, enhance patient outcomes, and cut wasteful spending.

3) Promote the use of generic medications and formulary management:

- Create regulations that encourage medical professionals to recommend and deliver generic medications when appropriate and available.
- Create educational programmes to inform patients and medical professionals about the therapeutic comparability and cost-savings of generic medications.
- Work with payers and pharmacy benefit managers to create thorough formularies that give the best value to generic choices.

4) Put payment changes into action to match incentives:

- Examine cutting-edge payment methods that encourage the provision of cost-effective healthcare, such as bundled payments, episode-based payments, or accountable care organisations.
- Encourage payers and healthcare providers to enter into value-based buying agreements in order to negotiate lower costs for high-value treatments.
- Create alternative payment schemes that encourage cost-effective procedures, care coordination, and preventative care.

5) Encourage market competition in the healthcare sector:

- Encourage competitive policies among healthcare providers, insurers, and pharmaceutical firms to reduce costs and foster innovation.
- Discard anti-competitive behaviour that restricts market competitiveness and raises

healthcare prices.

- Encourage new players to enter the healthcare industry, such as telemedicine companies, walk-in clinics, and alternative care delivery models.

6.4 Patient and healthcare provider implications:

Policymakers may establish policies that prioritise patient affordability and the sustainability of the healthcare system by understanding these consequences and making educated decisions.

1) Implications for Patients:

Increased Access to Cost-Effective Treatment alternatives: Implementing cost-saving strategies can increase the affordability of healthcare services for patients by lowering out-of-pocket costs, insurance premiums, and improving access to affordable treatment alternatives.

2) Improved Patient Access to inexpensive Medications:

Finding cost-saving possibilities, especially in the area of generic medicine use, can enhance patient access to inexpensive meds. Promoting the use of generic medications through informational campaigns and thorough formularies can ease financial constraints and guarantee patients' access to vital care.

3) Greater Transparency:

Patients are better equipped to choose their healthcare services when there is greater price transparency in the industry. Patients may compare prices and choose more economical solutions thanks to transparent pricing information, ensuring they get the most value for their medical expenses.

4) Value-Based Care as a Priority:

Stressing value-based care draws attention to the significance of patient outcomes and quality indicators. Receiving high-quality, cost-effective treatment can benefit patients by enhancing their health outcomes and improving their entire healthcare experience.

5) Patient-Centered Care:

Putting cost-cutting measures into place helps to make healthcare more patient-centered. Patients can obtain individualized, coordinated care that matches their unique requirements while minimizing wasteful costs by motivating providers to provide high-quality, cost-effective care.

6.5 Consequences for Healthcare Professionals:

- 1) **Financial Stability:** Finding cost-cutting options helps healthcare providers maintain their financial stability. Enhancing financial stability through cost-effective healthcare enables for investments in infrastructure, resources, and care quality.
- 2) **Financial Incentives for Efficiency:** Aligning reimbursement with cost-effective practises and value-based care gives providers financial incentives to offer quick, high-quality service. This motivates healthcare professionals to concentrate on enhancing patient outcomes and cutting wasteful healthcare costs.
- 3) **Care Coordination and Collaboration:** Promoting provider collaboration and care coordination results in better patient outcomes and lower costs. Providers may maximise resource usage and improve patient care by cooperating to simplify care delivery, do away with service overlap, and increase care transitions.
- 4) **An improved provider-patient connection** is brought on by cost-cutting techniques that increase accessibility and transparency. Patients may have open, well-informed talks with their healthcare providers and make better decisions when they have access to cost information.
- 5) **Innovation and Efficiency:** Promoting competition in the healthcare industry and implementing payment reforms encourage innovation and efficiency among providers. In order to provide care that is both effective and affordable, it is necessary to explore new technologies, care models, and process enhancements.

Chapter 7: Conclusion and Future Directions

7.1 Summary of Results:

Utilization patterns, expenditure trends, and possible cost-saving possibilities have all been revealed by the examination of J code utilization and spending trends in Medicare Part B from 2017 to 2021. The results show that the greatest claim and spending categories during the course of the study were medications provided by injection and chemotherapy drugs (excluding those administered orally).

The data also showed that the Average Selling Price (ASP) for specific J codes varied significantly across various quarters. Notably, J codes like J2506, J2507, and J1950 showed significant cost fluctuations over the course of the quarters. These variations underline how crucial it is to pay close attention to pricing adjustments in order to guarantee precise reimbursement and efficient cost control.

Additionally, comparing the median and average unit costs (UC) at the client row level to ASP 22 indicated differences in cost variances between various HCPCS codes. Some HCPCS codes showed notable variations, both positive and negative, pointing to possible areas for cost-saving possibilities or instances where the client's expenses were higher than the going rate in the market.

Findings also highlighted cases when the median and average UC at the client row level regularly exceeded ASP 22. This investigation uncovered several HCPCS codes that often cost more than the average market price, pointing to possible places for cost-cutting measures.

The use and spending patterns of J codes in Medicare Part B have been examined, and the results have given important insights into the dominating categories, cost variances, and possible cost-saving options.

The results highlight the significance of regularly monitoring medication costs, changes in ASP, and pinpointing areas for budget allocation optimisation. Utilising these information can help the customer improve cost control, increase the accuracy of reimbursements, and maximize healthcare spending.

7.2 Contributions to the Field:

Analysis of Medicare Part B healthcare cost and utilisation has benefited greatly from this study. It has been possible to get important knowledge about the predominate categories and how their effects on healthcare costs have changed by researching the use patterns and spending trends of J codes. The data highlight the relevance of chemotherapeutic treatments (excluding oral administration) and injection-only medications as the biggest claim and cost categories in Medicare Part B. With the right planning and resource allocation, healthcare professionals and legislators can guarantee patient access to necessary therapies while efficiently controlling costs.

The investigation also revealed variations in Average Selling Price (ASP) for particular J codes throughout several quarters, underscoring the necessity of regularly tracking price changes for precise reimbursement and cost control. The examination of cost differences between the client and the typical market pricing also helps to spot areas that might use additional interventions as well as chances to reduce costs.

7.3 Implications for Policy and Practice:

The results of this study have important ramifications for healthcare industry policy and practice. First off, the prevalence of medications given intravenously and chemotherapeutic treatments (apart from those given orally) highlights the need for effective monitoring and reimbursement mechanisms for these categories. To reduce financial risks associated with expensive pharmaceuticals and potential reimbursement delays or rejections, healthcare providers should place a strong priority on appropriate inventory management and invoicing procedures.

These findings emphasize the significance of keeping medications in Medicare Part B accessible and affordable from a policy standpoint. The supply of important therapies should be supported by suitable reimbursement rates, which should be carefully considered by policymakers. Reimbursement rates may benefit from regular assessments that take into account market dynamics and changing healthcare environments.

The examination of cost variations between the customer and the typical market price can also influence contractual procedures and price discussions. With the use of this information, healthcare providers may bargain more affordable prices with vendors and pharmaceutical

firms, which might result in cost savings and increased financial viability.

7.4 Limitations and Suggestions for Future Research:

Even though this study offers insightful information, it's crucial to recognise its limits. First off, because Medicare Part B was the only situation in which J codes were analysed, this may restrict how broadly the results may be applied to other healthcare programmes and environments. To develop a more thorough grasp of the whole ecosystem, future study should take into account examining usage and expenditure patterns in various healthcare programmes. The investigation also depended on readily accessible data and coding methods, which by their very nature have constraints and variances in terms of data quality and accuracy. Future assessments might be made more accurate and reliable by using alternate data sources or cutting-edge data analytics methods, according to academics.

Furthermore, this study excluded measurements of clinical efficacy or patient outcomes in favour of concentrating solely on changes in spending and utilisation. Clinical outcomes data might be included into future studies to evaluate the benefits and effects of various medication categories on patient health and wellbeing.

7.5 Concluding Remarks:

This work offers important new understandings of the utilization and spending patterns of J codes in Medicare Part B. The largest claim and expenditure categories for chemotherapy and injection-administered medications respectively highlight their importance in terms of healthcare spending and patient access to life-saving therapies. The investigation of cost variances between customers and the typical market pricing identifies areas that require more involvement as well as possible cost-saving options.

These findings have consequences for both practice and policy, highlighting the need of effective management, precise reimbursement procedures, and regulatory measures to guarantee the availability and cost of medications. This research has several limitations, but by examining other healthcare programmes, including clinical outcomes data, and utilising cutting-edge analytics approaches, future studies can build on these findings. Researchers and decision-makers will be able to improve healthcare resource allocation, cost management, and patient outcomes by filling up these gaps.

References

- 1) Cohen AM, Blumberg JD, Finkelstein AS. A decade of increases in Medicare Part B pharmaceutical spending: What are the drivers? *Health Aff (Millwood)*. 2019 Mar;38(3):531-9. doi: 10.1377/hlthaff.2018.02761.
- 2) Office of Inspector General. Medicare Part B spending on lab tests increased in 2021, driven by higher volume of tests. 2022 [Internet]. Available from: <https://oig.hhs.gov/oei/reports/OEI-09-22-00400.pdf>
- 3) Finkelstein AS, Cohen AM, Blumberg JD. Medicare Part B drugs: Trends in spending and utilization, 2006-2017. *Health Aff (Millwood)*. 2018 Dec;37(12):2342-50. doi: 10.1377/hlthaff.2018.0674.
- 4) Centers for Medicare & Medicaid Services. Part B National Summary Data File (Previously known as BESS). 2022 [Internet]. Available from: <https://www.cms.gov/research-statistics-data-and-systems/downloadable-public-use-files/part-b-national-summary-data-file/overview>
- 5) Fein, Ph.D., A. J. (2021, October 26). Follow the Vial: The Buy-and-Bill System for Distributing and Reimbursing Provider-Administered Outpatient Drugs. Drug Channels: Follow the Vial: The Buy-and-Bill System for Distributing and Reimbursing Provider-Administered Outpatient Drugs. <https://www.drugchannels.net/2021/10/follow-vial-buy-and-bill-system-for.html>
- 6) Curto, V., Einav, L., Finkelstein, A., Levin, J., & Bhattacharya, J. (n.d.). Health Care Spending and Utilization in Public and Private Medicare - American Economic Association. Health Care Spending and Utilization in Public and Private Medicare - American Economic Association. <https://doi.org/10.1257/app.20170295>
- 7) Deb, P., & Norton, E. C. (2018). Modeling Health Care Expenditures and Use. *Annual Review of Public Health*, 39(1), 489–505. <https://doi.org/10.1146/annurev-publhealth-040617-013517>

- 8) Chernew, M., DeCicca, P., & Town, R. (2008). Managed care and medical expenditures of Medicare beneficiaries. *Journal of Health Economics*, 27(6), 1451–1461. <https://doi.org/10.1016/j.jhealeco.2008.07.014>
- 9) Home - Centers for Medicare & Medicaid Services | CMS. (2023, May 23). Home - Centers for Medicare & Medicaid Services | CMS. <https://www.cms.gov/>