



Empower Your Decisions: Leveraging the Power of Healthcare Data

At Health Analytics Connect, our core mission is leveraging data analytics to empower healthcare stakeholders. We tailor our analysis to meet the distinct needs of each stakeholder, recognizing that the healthcare landscape is varied and multifaceted. Our approach goes beyond traditional data reporting. We delve into strategic insight generation, aiding stakeholders in making informed, forward-thinking decisions. Anticipating future market shifts is part of our expertise, and we equip our clients with the foresight needed to navigate the evolving healthcare arena.

Our proficiency extends to understanding the intricacies of policy and compliance, ensuring that our clients are not just equipped with data insights but are also well-guided in the regulatory aspects of healthcare.

At the heart of what we do is a commitment to cost-effectiveness. We strive to bridge the gap between quality patient care and financial efficiency. Our goal is to transform data into a powerful tool, one that enables healthcare stakeholders to make empowered, data-driven decisions. Health Analytics Connect isn't just about data analysis; we are about enabling transformation in healthcare through the power of data.

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Focused Healthcare Analytics in Key Areas

At Health Analytics Connect, our commitment is to the dynamic application of data analytics in empowering healthcare stakeholders. We appreciate the complexity of the healthcare field and tailor our analysis to suit the unique needs of each stakeholder. Our methodology extends beyond traditional data reporting; we delve into strategic insight generation, enabling stakeholders to make informed and visionary decisions. With a keen focus on anticipating future market trends, we are adept at equipping our clients with the foresight essential for navigating the evolving healthcare sector. Our upcoming areas of research include:

SITE OF SERVICE

The landscape of primary care has expanded, offering a range of settings that can be strategically utilized based on the required care level to ensure cost-effectiveness. The available service sites, ordered from least to most intensive, include:

- a. Home or self-care
- b. Virtual care
- c. Telehealth
- d. Clinician's office
- e. Retail clinic
- f. Urgent care
- g. Emergency Room

Analyzing the current use of these service sites and identifying opportunities to transition care to less intensive, more cost-efficient settings is a vital goal.

ADDRESSING HEALTH EQUITY AND SOCIAL DETERMINANTS OF HEALTH

Extensive research highlights the impact of social factors on health outcomes independent of clinical conditions. For instance, factors like residing in a food desert or having lower income and education levels can negatively affect patient outcomes. Analysts can use various publicly available data sources to categorize locations and infer patient-related information as well

as insights from administrative data accessible to health plans. The listed items highlight possible areas of interest for BCBSAZ.

- a. Utilize census data to help BCBSAZ identify communities facing social challenges, enabling the development of targeted programs to address these issues.
- b. Explore using Social Determinants of Health (SDOH) data from the Consortium Health Plan.
- c. Support Arizona in harnessing this information and accessing comprehensive data from the census for informed decision-making.

BEHAVIORAL HEALTH

Behavioral health conditions are the most pervasive in the US at nearly 30% of the overall population. These patients tend to have poorer outcomes including a higher mortality rate. In addition to these conditions being the primary condition for patients, patients with other serious conditions often are also facing behavioral health issues on top of other conditions. This is especially true for patients with chronic conditions as these patients can often be overwhelmed by the nature of the treatment for chronic conditions.

- a. Efficacy / Cost of Treatments / Cost-effectiveness Analysis
- b. Service Utilization: Managing care delivery for efficiency and cost control.
- c. Predictive Risk Modeling: Early intervention for high-risk members to reduce long-term costs.
- d. Medication Management: Ensuring adherence to reduce expenses and improve outcomes.
- e. Evaluating Impact of Socioeconomic Factors
- f. Integrated Care
- g. Telehealth and Digital Care Opportunities
- h. Patient Engagement and Satisfaction



Strategic Insights for Healthcare Stakeholders

In a landscape where fiscal prudence is as crucial as effective patient care, this analysis serves as a valuable tool for healthcare stakeholders. Through a detailed cohort analysis, we provide nuanced insights into the utilization patterns of GLP-1 and SGLT-2 drugs, helping payers and providers understand the implications of these trends for their financial strategies and patient care models.

The report's predictive modeling and trend analysis are particularly beneficial for stakeholders looking to anticipate future shifts in drug usage and costs. By offering a clear picture of the current state and potential future trajectory of GLP-1 and SGLT-2 drug utilization, we equip healthcare decision-makers with the knowledge needed to navigate the complexities of modern healthcare economics. This, in turn, enables the development of more informed, strategic approaches to healthcare management, ensuring both fiscal responsibility and optimal patient outcomes.



Analysis of Rising Pharmacy Costs and Trends in GLP-1 / SGLT-2 Drug Utilization

Rising Costs in Pharmacy: GLP-1 / SGLT-2 Analysis

This research report investigates the escalating pharmacy costs within the healthcare industry, focusing on the substantial increase in allowed pharmacy per member per month (PMPM) expenditures associated with GLP-1 and SGLT-2 drugs. These medications, initially designed for diabetes management, are now gaining popularity as effective tools for weight loss. Our study reveals a 16% rise in allowed pharmacy PMPM over the last two study periods, with GLP-1 and SGLT-2 drugs responsible for more than 40% of the net overall pharmacy trend. This report examines these drugs' demographic and usage patterns within different cohorts and sub-cohorts, highlighting the potential implications for healthcare costs and patient care.

INTRODUCTION

The relentless surge in pharmacy costs is a critical concern in the healthcare sector, impacting both payers and providers. This research delves into the dynamics of these escalating costs and the factors contributing to the rising utilization of GLP-1 and SGLT-2 drugs for weight loss, shedding light on their prevalence, demographics, and cost trends.

TRENDS IN GLP-1 AND SGLT-2 DRUG UTILIZATION Overall Trends

Our analysis revealed a 16% increase in allowed pharmacy PMPM over the last two study periods. GLP-1 and SGLT-2 drugs accounted for over 40% of

this increase. This indicates that nearly half of the PMPM cost escalation in pharmacy expenses can be attributed solely to these medications.

Impact on Expenditures

GLP-1 and SGLT-2 drugs transitioned from 2% of overall medical and pharmacy expenditures to 3% during the same period. Within pharmacy costs, their share increased from 8% to 13%. This expenditure surge highlights the growing significance of these drugs in healthcare budgets.

COHORT ANALYSIS

To gain deeper insights into the profile and patterns of GLP-1/SGLT-2 drug utilization, we segmented the population into cohorts and sub-cohorts for comprehensive analysis. These included:

- Members with EITHER one or the other (but not both)
- Diabetic members (no diagnosis of obesity or overweight)
- Overweight or obese members (no diabetes episodes)
- Members with BOTH obesity and diabetes
- Members with NO record of either condition

Key Measures of GLP/SGLT Utilizers

The table below summarizes key findings from the cohort analysis:

Cohort	Demographics			Prevalence Trend*	Prevalence % of PMPM	% of Overall PMPM Trend	GLP PMPM Trend*
	% of Population	Age	% Female				
Either Condition	2.7%	52.7	49.6%	178.4%	11.7%	6.7%	171.6%
<i>Diabetes</i>	1.3%	54.1	46.0%	136.4%	5.5%	2.8%	137.4%
<i>Obesity or Overweight</i>	0.4%	47.2	70.2%	938.6%	1.0%	0.8%	759.1%
<i>Both Conditions</i>	1.1%	52.3	51.4%	170.7%	5.2%	3.0%	179.4%
<i>Neither Condition</i>	0.4%	50.2	56.2%	-45.0%	1.1%	-2.1%	-60.2%
Total Population	3.2%	52.0	46.8%	77.2%	12.8%	4.6%	80.2%

*Trends reflect a two-year trend (prior 2 to current)



Health Analytics Connect: Your Partner in GLP-1 / SGLT-2 Drug Cost Analyses

Health Analytics Connect serves as an indispensable resource for employers and insurers tackling the complex challenges associated with the costs of GLP-1 and SGLT-2 drugs. Our advanced data analytics platform offers deep insights into the usage trends, efficacy, and financial impacts of these medications, vital for navigating the evolving healthcare landscape. Equipped with predictive modeling and comprehensive trend analysis capabilities, we empower you with the tools necessary for informed decision-making, strategic policy development, and effective cost management.

Our suite of analytical tools is specifically designed to identify risk patterns, understand demographic impacts, and quantify the financial implications of GLP-1 and SGLT-2 drug utilization. This enables the development of targeted health initiatives and cost-effective strategies. By partnering with Health Analytics Connect, you can proactively address the challenges posed by these drugs, ensuring optimized healthcare spending and improved patient care outcomes. Our commitment is to provide you with the actionable insights and support needed to effectively manage these critical aspects of modern healthcare.



IMPACT ON TARGET POPULATION

The cohort of individuals with diabetes, obesity, or overweight diagnoses experienced substantial increases in both the number of people taking these drugs (178%) and overall costs (172%). This group accounted for more than 90% of the total GLP-1/SGLT-2 costs.

On the other hand, the population taking these drugs without diagnostic indications for any of these target conditions reduced significantly – with a more than 60% decrease in allowed PMPM costs and a 45% reduction in the number of drug takers. This suggests increased accuracy in coding for these diagnoses, fewer instances of other off-label use, or individuals actively under healthcare provider care are more likely to be prescribed these drugs.

SUB-COHORT ANALYSIS

Parsing out the condition categories (diabetes only, obesity/overweight only, both conditions), we observed significant variations among these groups.

Notable Findings for the "Obese Only" Sub-Cohort

The sub-cohort of individuals categorized as "Obese Only" exhibited several noteworthy trends:

- A staggering 760% increase in GLP-1 or SGLT-2 PMPM spending.
- A 900% increase in the number of claimants.
- Despite being a minor contributor in proportion to the total allowed (7.5% of the total GLP/SGLT), this group's impact is projected to increase significantly if historical trends persist.
- A predominantly female population, younger by a few years compared to other groups, which were evenly split between genders.

INDUSTRY AND DEMOGRAPHIC IMPACT

These impacts extend across various industries, age groups, and gender mixes. While there are minor variations, the services and construction industries recorded over 80% increases in costs associated with these drugs among groups with representative population sizes.

OVERALL IMPACT AND OPPORTUNITIES

Despite the recent surge, only 28% of the current diabetic population and 11% of obese or overweight individuals are currently using these drugs. This represents a substantial untapped market potential with significant cost implications.

Payers are increasingly implementing prior authorization requirements and other steps to manage the approval of these drugs. While this limits access for individuals seeking these drugs solely for weight loss, growing clinical evidence supporting their benefits suggests that usage trends will continue to rise significantly.

A new trend is emerging where an increasing number of digital companies are advertising subscription services for these drugs at a fraction of the brand name costs, which could further impact usage patterns. These lower-cost alternative drugs are usually compounded medications made from the same ingredients and explicitly advertised for weight loss. Since these are rarely, if ever, paid for through insurance programs, it is still being determined how much these will affect trends and findings from this analysis.

In conclusion, understanding and managing the rising utilization of GLP-1 and SGLT-2 drugs is crucial for healthcare stakeholders. Health Analytics Connect offers tailored analysis and insights to help organizations navigate these trends and prepare for the evolving healthcare landscape.

THE ROLE OF DATA ANALYTICS

This research report highlights the crucial role of data analytics, including predictive modeling, in understanding the escalating pharmacy costs in the healthcare industry, specifically focusing on the substantial rise in expenditures associated with GLP-1 and SGLT-2 drugs. Initially developed for diabetes management, these drugs are increasingly used for weight loss, leading to a 16% increase in pharmacy per member per month (PMPM) costs. Over 40% of this increase is directly attributed to GLP-1 and SGLT-2 drugs. Our comprehensive analysis, which delves into the demographic and usage patterns across various cohorts, sheds light on current trends and employs predictive modeling to anticipate future implications for healthcare costs and patient care. This forward-looking approach is crucial for healthcare stakeholders, enabling them to navigate the complexities of healthcare economics and optimize patient treatment strategies in a rapidly evolving landscape.

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Childhood Obesity in the United States: A Complex Challenge Requiring Multifaceted Solutions

Childhood Obesity: A Growing Public Health Challenge

Childhood obesity has emerged as a critical public health concern in the United States, affecting millions of children and posing severe health risks. Alarming statistics from the Centers for Disease Control and Prevention (CDC) reveal a distressing threefold increase in childhood obesity rates over the past three decades, and this upward trend shows no signs of slowing down. Currently, over 20% of children between the ages of 2 and 19 grapple with the challenges of obesity, but the prevalence is not uniform. It varies dramatically across racial, ethnic, and socioeconomic lines, making it a complex issue that demands multifaceted solutions.

HISTORICAL APPROACHES AND EVOLVING STRATEGIES

Historical approaches to combating childhood obesity have usually centered around three key components. Firstly, nutritional recommendations were a primary focus, with efforts to promote healthy eating habits, reduce calorie intake, and increase the consumption of fruits, vegetables, and whole grains. These recommendations were often delivered through educational programs within schools and healthcare settings. Secondly, behavioral modifications played a crucial role. Programs aimed to educate children and their families about portion control, mindful eating, and the importance of regular meals. Additionally, these interventions encouraged increased physical activity to manage weight. Lastly, school-based initiatives were at the forefront of addressing childhood obesity. These efforts included initiatives to enhance the quality of food served in schools, implementing nutrition education, and improving physical education programs to ensure that students exercise regularly.

Modern strategies to combat childhood obesity are characterized by a holistic approach, acknowledging that this issue requires multifaceted solutions. This means addressing individual behaviors and the environmental and systemic factors contributing to obesity. Promoting physical activity is central in these strategies, extending beyond school-based physical education to creating safe and accessible public spaces

like parks, playgrounds, and walking/biking paths. Furthermore, after-school programs and community initiatives encourage physical activity. Governments and public health agencies have implemented regulatory measures to limit the marketing of unhealthy foods and beverages to children, mainly through television and digital media. Efforts to reduce the consumption of sugary drinks through taxation have also been made. Recognizing that childhood obesity often affects entire families, family-centric interventions have gained prominence. These programs educate parents and caregivers about nutrition, healthy cooking, and ways to promote physical activity in their children.

Public health campaigns play a pivotal role in raising awareness about childhood obesity and its consequences, with schools, healthcare providers, and communities collaborating to educate children and their families about the importance of a balanced diet and regular physical activity. Collaborative efforts involving public-private partnerships have been established, bringing together government agencies, healthcare providers, schools, and the private industry to develop comprehensive strategies, pooling resources, knowledge, and expertise to address childhood obesity effectively.

Data-driven approaches have become invaluable for identifying target populations needing intervention, with data analytics firms collecting and analyzing relevant data to understand the socioeconomic determinants of obesity prevalence. For children with severe obesity, medical and behavioral interventions are available, including weight management programs, counseling, and, in extreme cases, drug therapy and bariatric surgery when lifestyle changes alone are insufficient.

In summary, the historical approaches to combat childhood obesity have evolved from simplistic dietary recommendations and behavioral



Health Analytics Connect: Data- Driven Strategies in Combatting Childhood Obesity

Health Analytics Connect emerges as a vital partner for employers and insurers in navigating these complexities. The rising trend of childhood obesity in the United States, affecting over 20% of children aged 2 to 19, is a significant public health concern. This complex issue varies across different demographics, requiring multifaceted and tailored strategies. Modern approaches have shifted from traditional nutrition and behavior-focused methods to holistic strategies that include regulating food marketing and family-centric programs.

Data analytics plays a crucial role in this fight against childhood obesity. It helps in identifying at-risk populations through the analysis of health records and socioeconomic data, leading to more targeted and effective interventions. Additionally, data analytics is vital in evaluating the impact and success of these strategies, ensuring they are adaptable and efficient.

Overall, the combination of traditional approaches with advanced data-driven solutions is key in addressing the multifaceted nature of childhood obesity and reducing its long-term health implications.

modifications to a multifaceted strategy considering environmental, systemic, and genetic factors. The focus is on creating healthier environments, promoting physical activity, regulating marketing, and educating families. Nevertheless, as the severity of childhood obesity cases continues to rise, there is a growing interest in exploring advanced treatment options akin to those used for adults with obesity. Data-driven insights and collaborative efforts play a vital role in these evolving strategies.

THE ROLE OF ADVANCED TREATMENTS

As the prevalence of severe childhood obesity grows, healthcare providers and researchers are investigating advanced treatment modalities. These approaches include surgical and pharmacological interventions to promote weight loss and control. It's worth noting that while these treatments have shown promise in adults, their use in children and adolescents should be approached with care due to potential unintended consequences, such as those raised by Glucagon-like Peptide-1 Agonists (GLP-1 agonists) medication. Four weight loss drugs are approved for use in adolescents as young as 12 -- Wegovy, Saxenda, orlistat, and Qsymia. Wegovy and Saxenda are part of a newer class of drugs called GLP-1 agonists that have soared in popularity in the past year. Understanding the overall health impact and benefit-risk profile of these drugs is crucial. While they can contribute to weight loss and potentially address comorbidities associated with obesity, such as type 2 diabetes, their benefits must be weighed against potential risks, side effects, and the individual's overall health status. Concerns exist regarding their cost, insurance coverage, long-term efficacy, side effects, health impact, weight regain, and the need for lifestyle modifications.

HEALTH IMPLICATIONS AND FACTORS INFLUENCING CHILDHOOD OBESITY

Childhood obesity is more than just an issue of aesthetics; it is intricately linked to various health complications. Chronic childhood obesity often paves the way for developing conditions such as diabetes, asthma, sleep apnea, musculoskeletal issues, and behavioral problems, including depression and self-esteem issues. This chronic nature of childhood obesity means it acts as a catalyst for developing a wide range of debilitating comorbidities that can significantly impact a child's quality of life. Therefore, proactive measures are essential during childhood to prevent the emergence of these debilitating conditions. While genetics undeniably play a role in childhood obesity, socioeconomic factors have emerged as critical determinants of its prevalence. Identifying children who stand to benefit the most from programs tailored to address the socioeconomic disparities associated with obesity prevalence is essential. Furthermore, childhood obesity often manifests as a familial issue, underscoring the need for comprehensive family-oriented interventions to achieve optimal results.

THE ROLE OF DATA IN IDENTIFYING TARGET POPULATIONS

Data analytics is crucial in addressing childhood obesity by leveraging data-driven insights to combat this complex public health issue. It plays a pivotal role in identifying target populations most at risk of childhood obesity, drawing from various data sources, including health records and socioeconomic data. By understanding the socioeconomic determinants of obesity, such as income disparities and access to healthy food, data analytics enables tailored interventions that address specific community needs. Moreover, analytics aids in assessing the effectiveness of intervention programs over time, ensuring that initiatives are data-driven and adaptive. Predictive modeling anticipates future trends, enabling proactive planning to combat obesity before it becomes more widespread. Personalized interventions for children at risk of obesity, efficient resource allocation, and informed public health campaigns are also benefits of data analytics. Furthermore, data-sharing and collaboration among healthcare providers, researchers, and public health agencies ensure a comprehensive, evidence-based approach to reducing childhood obesity rates. In essence, data analytics empowers stakeholders to make informed decisions and develop targeted strategies, ultimately contributing to reducing childhood obesity on a broad scale.

CONCLUSION: A CALL FOR COMPREHENSIVE ACTION

Childhood obesity is a pressing public health issue in the United States, necessitating a multifaceted approach to address its complex etiology and consequences. The rising prevalence of childhood obesity, coupled with its associated health risks, demands innovative solutions. While traditional dietary and behavioral interventions remain crucial, exploring advanced treatment modalities offers hope for children with severe obesity. Understanding the role of genetics and socioeconomic factors in childhood obesity is pivotal in tailoring effective interventions. Collaborative efforts can significantly contribute to identifying and addressing the diverse needs of children and families affected by this pressing public health issue. Targeted analysis can help organizations navigate these trends and prepare for the evolving landscape.

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Health Analytics Connect delivers specialized data analytics to aid employers in understanding the impact of vaping on health insurance and employee well-being. Our expertise in predictive modeling and trend analysis provides essential insights for strategic health management decisions.

The need for our services is underscored by the high costs associated with vaping. In 2018, healthcare expenses related to e-cigarette use reached \$15.1 billion, with \$1.3 billion from exclusive e-cigarette users and \$13.8 billion from dual/poly users. This highlights the critical importance of addressing vaping in workplace health initiatives.

Our role is to equip employers with comprehensive data analysis, uncovering trends and behaviors related to vaping within their workforce. This understanding allows employers to make informed decisions about their health management strategies, including identifying the need for education and cessation support programs. While we focus solely on providing analytics, the insights we offer are instrumental in guiding employers to manage health risks effectively and control insurance costs in response to the challenges posed by vaping.

To learn more, contact us at contactus@healthanalyticsconnect.com



Unmasking the Vape Cloud: Navigating the Impact of Vaping on Employers, Health Insurance and Data Analytics

Why Employers Should Pay Attention

In the evolving terrain of employer-sponsored health plans, the ascent of vaping has become a focal point due to its intricate financial and health repercussions. Vaping, increasingly implicated in a host of serious health conditions such as lung injuries, cardiovascular disorders, and respiratory complications, poses significant risks. This troubling trend is mirrored in the escalating healthcare costs burdening employers, evident in the rising tide of medical claims and treatment expenditures for employees suffering from vaping-related ailments. Data from the 2015-2018 National Health Interview Surveys starkly illustrates this scenario, revealing an alarming \$15.1 billion in healthcare expenses linked to e-cigarette use, encompassing \$1.3 billion for exclusive e-cigarette users and a more significant \$13.8 billion for those combining e-cigarettes with other tobacco products.

The impact of vaping extends beyond the realm of direct medical costs, significantly impinging upon workplace productivity. Employees who vape are increasingly prone to health issues, leading to heightened absenteeism and diminished work efficiency. Without timely and effective intervention, these health problems can detrimentally affect the workforce's productivity and operational efficacy, amplifying the challenges confronting employers.

The vaping industry is marked by a rapidly shifting regulatory landscape, with new policies and legal challenges continually emerging. This dynamic environment necessitates that employers stay alert and well-informed to remain compliant with the evolving legal framework. Such changes carry profound implications for workplace policies and procedures, demanding continuous adaptability and responsiveness.

Addressing the dual challenge of vaping, which encompasses both health risks and financial implications, is now a critical agenda for employer health plans. The considerable healthcare costs, as

highlighted by the \$15.1 billion expenditure in 2018, underscore the significant economic impact of vaping-related health issues. Employers are thus compelled to proactively tackle these challenges, keeping pace with regulatory changes, and adapting workplace policies to effectively manage the health and legal aspects of vaping within their organizations.

In recent years, the surge in vaping's popularity, initially touted as a smoke-free alternative to traditional tobacco, has significantly altered public health perceptions and impacted employer-provided health insurance plans. Its appeal, particularly among younger demographics, has been fueled by innovative technology and diverse flavors. However, the growing popularity of vaping has also raised concerns over its safety, potential for nicotine addiction, and respiratory health impacts, leading to increased regulatory scrutiny and public health initiatives. The EVALI outbreak in 2019 marked a turning point, intensifying concerns and triggering stricter regulations, thereby heightening awareness of the associated risks.

Currently, the vaping landscape stands at a critical juncture, characterized by product diversification and ongoing debates over its role in harm reduction and smoking cessation strategies. Continuous research into the long-term health effects of vaping is shaping public health policies and practices within the insurance industry.

The Financial and Health Implications of Vaping

From a financial standpoint, the health complications linked to vaping are poised to impose a substantial burden on employer health plans. As these issues become more prevalent, there is a potential for a corresponding increase in healthcare costs. This escalation may lead to higher insurance premiums for employers and employees, challenging the sustainability and affordability of offered health benefits.

Health Analytics Connect: Your Partner in Vaping Trend Analysis

Health Analytics Connect emerges as a vital partner for employers and insurers in navigating these complexities. Leveraging the power of cutting-edge data analytics, Health Analytics Connect provides comprehensive insights into vaping trends within your workforce. Our platform enables predictive modeling and trend analysis, equipping you with the tools for informed decision-making and effective policy development.

With Health Analytics Connect, you can access a suite of analytical tools tailored to identify risk patterns, quantify financial implications, and support the development of targeted health initiatives. Our solutions are designed to help you stay ahead of the curve in understanding the evolving landscape of vaping and its impact on employee health and your bottom line.

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Emerging data, including from the 2015-2018 National Health Interview Surveys, indicate healthcare costs linked to vaping reaching \$15.1 billion.

These costs stem from increased medical claims and treatment expenses for vaping-related illnesses, including lung injuries, cardiovascular disorders, and respiratory complications. Such trends present significant financial and health risks to employer-sponsored health plans.

The Challenge of Underreporting and Cost Implications in Vaping Data

A key challenge identified in our research is the significant underreporting of vaping within insurance claims, which obscures its comprehensive impact on healthcare costs and employee well-being. Our analysis, categorizing individuals into groups of vaping, nicotine dependence, and others, reveals a notable trend: vaping-related health issues, though less commonly reported, are associated with higher medical costs compared to traditional nicotine use. This trend raises concerns about the accuracy of data capture in vaping behavior and its subsequent health effects.

Our research analyzed average healthcare costs across various categories, such as respiratory, psychiatric, and cardiovascular conditions. We observed that individuals identified as vaping users incurred higher costs in all these categories compared to those with nicotine dependence. Notably, the vaping group was, on average, younger than the nicotine-dependent group, which further underscores the potential long-term healthcare implications. This age disparity was particularly evident when we focused our analysis on the 19-39 age group. However, the limited size of the vaping group in our dataset warrants caution in drawing definitive conclusions, indicating the need for broader data for more comprehensive insights.

The underreporting phenomenon with vaping, which mirrors trends seen in behaviors like smoking and alcohol consumption, poses a unique challenge due to vaping's more recent emergence and evolving product landscape. Consequently, this situation calls for the development of more robust data collection methods. Comprehensive strategies, such as detailed employee health surveys and thorough electronic medical records (EMRs) reviews, are suggested to assess vaping-related health risks more accurately. These improved methodologies could provide a clearer picture of the true scope and impact of vaping, aiding employers and healthcare providers in developing more effective health interventions and policies.

SDoH Analysis: NCBI National Health Interview Study

Integrating the NCBI National Health Interview Study into our analysis offers valuable insights into tobacco use trends among young adults. The study shows a significant shift from conventional cigarette smoking to e-cigarette use, particularly among specific demographics like non-Hispanic white male youth and individuals with lower educational attainment or living below the poverty level. These trends underline the need for employers to design targeted smoking cessation

programs and health initiatives, especially tailored to these disparities.

Comparative Analysis and Recognizing Red Flags

Comparative analysis suggests that vaping might be significantly more underreported than other behaviors. When vaping appears in claims data, it often indicates severe health issues, such as respiratory and mental health problems, signaling the need for targeted health interventions and support within the workplace.

These insights are vital for employer health plans. The shifting preference towards e-cigarette use among young adults signals a change in the types of health risks and associated costs. Understanding these trends can aid employers in designing effective smoking cessation programs and health initiatives, especially tailored to address the highlighted disparities.

Moreover, the linkage between initial e-cigarette use and later cigarette smoking emphasizes the need for early intervention. Educating younger employees about the risks associated with e-cigarette use could be key in mitigating long-term health risks and controlling associated costs within employer health plans.

Employers must consider these evolving tobacco use dynamics in their workplace health policies and insurance plans. Customizing tobacco control programs and interventions to align with these trends and disparities can significantly contribute to creating healthier work environments and managing healthcare costs more effectively.

The Role of Data Analytics

Data analytics, as showcased by platforms like Health Analytics Connect, is pivotal in understanding vaping trends. Employers can use data-driven insights for informed decision-making and developing targeted interventions and educational programs.

In navigating the vaping challenge, data analytics plays a pivotal role. By harnessing the power of data, employers can gain insights into the prevalence and impact of vaping within their workforce. Data analytics can help identify trends, pinpoint areas of concern, and quantify the financial implications of vaping-related health issues.

Through predictive modeling and trend analysis, data analytics equips employers with essential information for informed decision-making. Employers can develop targeted interventions, such as smoking cessation programs, based on data-driven insights to mitigate the impact of vaping on both employee health and the financial stability of health insurance plans.

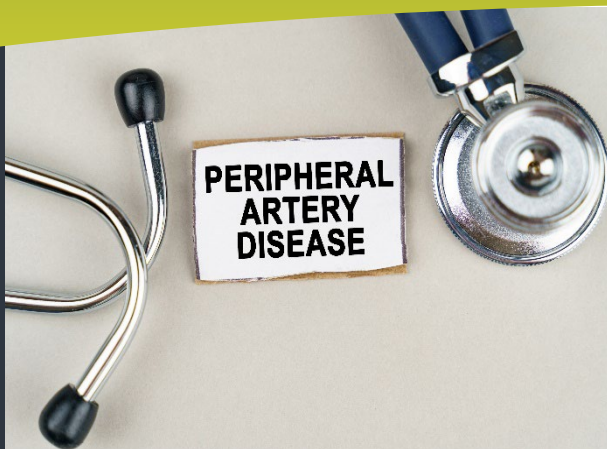
Managing the vaping challenge requires a multifaceted approach incorporating data analytics. It is essential to understand the complexities of vaping trends and their impact on health insurance and employee well-being. Employers who proactively address vaping-related issues, guided by data analytics, are more likely to cultivate a healthy and productive workforce while effectively managing the financial and regulatory aspects of the vaping phenomenon.

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Harnessing Data Analytics to Combat Peripheral Artery Disease (PAD): A Blueprint for Health Plans and Employers

Understanding PAD: Prevalence and Impact in the US

Peripheral Artery Disease (PAD) is a growing concern, now affecting an estimated 7% of the U.S. population, according to publicly available statistics. This condition, characterized by the narrowing of peripheral arteries due to atherosclerosis, has seen a significant increase in prevalence. The surge in PAD is attributed to the increasing incidence of diabetes, obesity, and hypertension. The consequences of PAD, without prompt and appropriate management, can be severe, leading to amputation and a markedly higher mortality rate. It underscores the critical need for early diagnosis and a comprehensive treatment approach that includes lifestyle modifications and medical interventions to slow PAD's progression.

The economic and health ramifications of PAD, as illustrated by our research, are staggering. Approximately 1% of the commercial population is diagnosed with PAD, and of these, 2.5% undergo leg amputation each year. The condition becomes more complex with the addition of comorbidities. Our findings show that 85% of individuals with PAD are managing at least two additional chronic conditions, and half are dealing with four or more. These additional health issues significantly drive up the cost of care. Specifically, our analysis indicates that the cost of managing patients with PAD and multiple chronic conditions is roughly five times greater than for those with PAD alone. Furthermore, the overall healthcare expenditures for PAD patients are twice that of the average healthcare member, with costs quadrupling in cases involving amputation.

This comprehensive analysis from our dataset not only highlights the increasing burden of PAD on individuals and the healthcare system but also emphasizes the importance of proactive management and the potential benefits of targeted interventions to mitigate the impact of this disease.

Strategic Use of Data Analytics

The fight against Peripheral Artery Disease (PAD) can significantly benefit from the strategic application of data analytics, encompassing a range of innovative techniques and approaches that enhance patient care and management efficiency. Here's how:

- **Predictive Modeling:** By harnessing machine learning algorithms to sift through historical health data, patterns indicating the potential onset or progression of PAD in patients can be identified. This predictive capability allows healthcare providers to address risks preemptively, potentially staving off severe complications and improving patient outcomes.
- **Geospatial Analysis:** Utilizing geospatial data analysis to pinpoint areas with elevated PAD incidence or key risk factors, such as obesity and diabetes, offers a powerful tool for public health strategy. This insight can drive targeted health initiatives and informed allocation of healthcare resources, addressing PAD at a community level.
- **Patient Segmentation:** Segmenting the patient population by risk factors, disease severity, and other criteria enables the creation of personalized care plans. This

Key Insights into the Burden of PAD on Patients and Healthcare Systems

PAD's impact on patients and healthcare systems is profound, with certain observations highlighting the economic and health-related challenges it presents:

- Roughly 1% of the commercial population is diagnosed with PAD, with about 2.5% of these patients undergoing leg amputation annually.
- A significant majority, approximately 85% of PAD patients, suffer from two or more chronic conditions, with half of them dealing with four or more comorbidities.
- The cost of managing PAD patients with additional chronic conditions escalates rapidly, being approximately five times higher than for those with PAD alone.
- PAD patients incur overall claimant costs that are double those of the average member, which quadruples in cases involving amputation.

Given the condition's prevalence and the potential to avoid amputation and a poor overall outcome, you may want to identify patients with this condition and assess which patients may benefit from a management program that works with the patients to achieve the best results.

approach tailors interventions to the unique needs of each patient group, optimizing the effectiveness of treatments and improving patient experiences.

- **Telehealth and Remote Monitoring:** Integrating telehealth services and remote monitoring technologies offers a continuous connection between patients and healthcare providers. This real-time monitoring of health metrics facilitates timely medical interventions, bolsters patient engagement, and ensures ongoing management of PAD, even from a distance.
- **Healthcare Provider Performance Analysis:** Evaluating healthcare providers' performance in treating PAD—considering patient outcomes, satisfaction, and adherence to clinical guidelines—provides valuable insights. These assessments can guide network management decisions, spotlight areas for provider education, and enhance overall care quality.
- **Social Determinants of Health (SDOH) Analysis:** Exploring the impact of social determinants on health provides valuable insights into the broader circumstances affecting individuals with Peripheral Artery Disease (PAD). Recognizing the role of socioeconomic factors, environmental conditions, and the availability of healthcare resources enables the development of more nuanced and effective intervention strategies. This holistic approach facilitates improved outcomes by addressing the varied needs of patients. Research highlighted by the American Heart Association reveals that Black individuals are more than twice as likely to suffer from PAD compared to their White counterparts, a disparity that persists across different ages and genders. Similarly, adults from all racial backgrounds facing socioeconomic challenges—such as low income, limited education, and residing in areas of high deprivation—are at a greater risk of developing PAD. Furthermore, approximately 56% of zip codes reporting the highest amputation rates fall within the Southern United States, underscoring the geographic disparities in PAD outcomes. This data underscores the critical need for tailored healthcare strategies that consider the full spectrum of factors influencing patient health.

- **Patient Education and Engagement Platforms:** Developing digital platforms that educate patients on PAD prevention and management empowers individuals in their healthcare journey. Personalizing content delivery based on each patient's specific condition, preferences, and behavior patterns can increase engagement and adherence to prescribed prevention and treatment protocols.

By expanding the strategic use of data analytics across these areas, health plans and employers can transform the management of PAD. This comprehensive approach improves patient health outcomes and contributes to the sustainability of healthcare systems by optimizing resource use, reducing costs, and ensuring that patients receive the most effective, personalized care possible.

CONCLUSION: A CALL FOR COMPREHENSIVE ACTION

The increasing challenge posed by Peripheral Artery Disease (PAD), both in prevalence and associated healthcare costs, necessitates a comprehensive and collaborative effort from health plans and employers. This collaboration, particularly with data analytics firms like Health Analytics Connect, is crucial not for direct healthcare delivery but for harnessing the power of data to inform and optimize PAD management strategies. Leveraging the specialized capabilities of data analytics firms, health plans, and employers can gain valuable insights into risk identification, healthcare utilization, and the effectiveness of various treatment pathways. Such insights are instrumental in developing targeted interventions, enhancing patient engagement, and ultimately reducing the overall burden of PAD. Through strategic partnerships that combine healthcare knowledge with analytical expertise, we can achieve a more proactive, data-driven approach to managing PAD, improving patient outcomes while achieving greater efficiency and cost-effectiveness in healthcare systems.

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At Health Analytics Connect, our core mission is leveraging data analytics to empower healthcare stakeholders. We tailor our analysis to meet the distinct needs of each stakeholder, recognizing that the healthcare landscape is varied and multifaceted. Our approach goes beyond traditional data reporting. We delve into strategic insight generation, aiding stakeholders in making informed, forward-thinking decisions. Anticipating future market shifts is part of our expertise, and we equip our clients with the foresight needed to navigate the evolving healthcare arena.

Our proficiency extends to understanding the intricacies of policy and compliance, ensuring that our clients are not just equipped with data insights but are also well-guided in the regulatory aspects of healthcare.

At the heart of what we do is a commitment to cost-effectiveness. We strive to bridge the gap between quality patient care and financial efficiency. Our goal is to transform data into a powerful tool, one that enables healthcare stakeholders to make empowered, data-driven decisions. Health Analytics Connect isn't just about data analysis; we are about enabling transformation in healthcare through the power of data.

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The Interplay of Musculoskeletal Disorders and Mental Health

Analyzing Costs and Prevalence in Employer Populations

INTRODUCTION

Chronic conditions like diabetes, hypertension, musculoskeletal (MSK) disorders, and obesity are prevalent in the workforce, significantly impacting mental health, driving up healthcare costs, and posing challenges for employers and health plans. Among these, musculoskeletal (MSK) disorders and mental health conditions such as depression and anxiety are particularly burdensome. These conditions not only coexist frequently but also exacerbate each other, creating a compounded impact on healthcare costs and employee well-being.

According to the U.S. Bone and Joint Initiative, musculoskeletal disorders, including arthritis and back pain, affect almost 50% of all adults in the United States, making them one of the leading causes of disability and significantly contributing to healthcare costs. The National Institute of Mental Health (NIMH) reports that about one in five adults experience mental health conditions each year, with depression and anxiety among the most prevalent. These mental health issues often co-occur with chronic physical conditions like musculoskeletal disorders, compounding their impact on individuals' health and well-being.

The economic burden of MSK disorders is substantial, with estimates from the American Academy of Orthopaedic Surgeons (AAOS) indicating that these conditions account for over \$213 billion in direct and indirect costs annually in the U.S. Similarly, the National Institute of Mental Health (NIMH) reports that mental health conditions contribute to over \$300 billion in lost productivity each year, primarily due to absenteeism and reduced work performance.

Given their prevalence and associated costs, it is critical to closely examine these conditions. This Analytic RecipeSM by Health Analytics Connect (HAC) examines the costs and prevalence of MSK disorders and mental health conditions within employer populations.

By understanding the complex interplay between these conditions and their impact on healthcare expenditures, HAC provides strategies to help employers manage costs and improve employee health outcomes.

WHY MUSCULOSKELETAL CONDITIONS MATTER

Musculoskeletal (MSK) conditions, particularly osteoarthritis and spinal disorders, are significant drivers of healthcare costs in employer populations. The severity of these conditions is linked to higher costs, particularly for those also seeking care for depression. Importantly, data suggests that mental health support could mitigate some of these costs, making it a crucial consideration for employers.

INTERPLAY BETWEEN MUSCULOSKELETAL DISORDERS AND MENTAL HEALTH

Musculoskeletal (MSK) disorders are particularly burdensome among chronic conditions due to their high prevalence and significant impact on employees. MSK conditions, ranging from acute injuries to chronic ailments, often lead to increased healthcare utilization and costs. The overall expenses associated with MSK disorders include direct medical costs, such as physician visits, physical therapy, and medications, as well as indirect costs like lost productivity and disability claims. Understanding the prevalence and monetary impact of MSK disorders is essential for developing targeted interventions and managing costs.

Mental health conditions, such as depression and anxiety, significantly affect the management and outcomes of chronic illnesses, including MSK disorders. Employees with severe and complicated MSK conditions often exhibit higher rates of depression and anxiety. Addressing mental health issues plays a crucial role in managing and reducing the overall burden of MSK disorders in the workforce. Employees suffering from both chronic physical and mental health conditions often require comprehensive and coordinated care, driving up overall healthcare expenditures.



HAC Findings: MSK and Mental Health Data Overview

- MSK Claims Impact:** 28% of the commercial population has an MSK diagnosis, but these claimants represent 54% of total healthcare costs, underscoring the financial burden of chronic MSK conditions.
- Age and Cost Disparity:** MSK claimants are on average three years older and incur costs twice as high as non-MSK claimants.
- Leading MSK Conditions:** Osteoarthritis is the costliest MSK condition, accounting for 24% of total charges despite being middle ranked in risk. Rheumatoid arthritis, though less common, carries the highest risk and a significant cost burden (10% of costs from 1.5% of episodes).

These findings highlight the need for targeted strategies to manage the high costs associated with MSK conditions, particularly through early intervention and tailored care.

HAC FINDINGS: Data Overview

This analysis utilizes healthcare claims data from a diverse set of employer-sponsored health plans. The dataset offers detailed insights into musculoskeletal (MSK) and mental health claims, enabling a comprehensive evaluation of costs, prevalence, and the interplay between these conditions.

In the commercial population aged 18 and over, 28% have an MSK diagnosis. As shown in Table 1 below, MSK claimants represent just over a quarter of the population and account for 54% of total claims cost, highlighting the substantial financial burden of managing chronic MSK conditions. The average age of claimants with MSK disorders is three years older than that of the average commercial population, and their average cost per claimant is twice as high as that of the average commercial claimant.

Table 1: MSK Claimants: Overall Breakdown

MSK Claimants: Overall Breakdown	Average Age	Percent of All Claimants	Percent of Allowed Expenses	Average Cost / Claimant Ratio
MSK Claimants	49	28%	54%	2.0
Non-MSK Claimants	44	72%	46%	0.7
All Commercial Claimants	46	100%	100%	1.0

LEADING MUSCULOSKELETAL CONDITIONS BY COST

As shown Table 2 below, the MSK category is comprised of a diverse range of acute and chronic conditions. Using episodes of care as the unit of analysis Osteoarthritis leads the way, making up almost a quarter of the total allowed charges and over 12 percent of the episodes. Interestingly, this condition falls right in the middle when it comes to risk among all MSK episodes in the sample. The wide range of conditions within the MSK category is noteworthy. For instance, rheumatoid arthritis stands out because it accounts for over 10 percent of the costs but less than two percent of the episodes, with a relative risk more than twice the average for MSK disorders. This underscores the need for tailored health management strategies.

Table 2: Leading Episode Summary Groups

Leading Episode Summary Groups	Episode Type	Percent of Episodes	Percent of Allowed	Relative Risk
Osteoarthritis	Chronic	12.49%	24.27%	1.01
Spinal/Back Disorder, Low Back	Acute	12.21%	10.91%	0.91
Rheumatoid Arthritis	Chronic	1.48%	10.42%	2.22
Arthropathies/Joint Disorder NEC	Acute	27.77%	9.75%	0.90
Fracture/Dislocation - Upper Extremities	Acute	6.08%	7.59%	0.63
Spinal/Back Disorder, Ex Low	Acute	7.93%	5.28%	0.93
Injury - MSK, NEC	Acute	7.92%	3.53%	0.86
MSK Disorder, Autoimmune	Chronic	1.38%	3.25%	1.67
Fracture/Dislocation - Ankle/Foot	Acute	3.96%	3.15%	0.65
Bursitis	Acute	5.40%	3.13%	0.78
All Other MSK	Both	13.37%	18.72%	0.37

FOCUS ON OSTEOARTHRITIS

Given the importance of Osteoarthritis to overall MSK costs, a more detailed investigation of this condition was undertaken. Table 3, shown on the following page, profiles Osteoarthritis episodes by disease stage. The disease stages are defined as follows: Stage 0 involves exposure or history, Stage 1 is disease presence without complications, Stage 2 includes local complications, Stage 3 has systemic complications or multiple sites involved, and Stage 4 results in death. A closer look at the progression of musculoskeletal (MSK) conditions by stage shows how costs and claimants are distributed.

The data in Figure 1: *Percent of Osteoarthritis by Disease Stage*, displayed on the following page, shows that a large majority of claimants (70%) are in the initial stages (0 & 1), yet these stages account for half (46%) of the total costs. In Stage 2 (local complications), both the percentage of claimants and associated costs decrease. In the advanced stages (3 & 4), only 5% of claimants remain, but they still account for 20% of the costs. Due to limited claims data, costs for Stage 3 (involving multiple sites or systemic complications) and Stage 4 (death) were combined. Cost per claimant increases markedly by stage; while Stage 1 claimants cost 65% of the overall average, those in Stages 3 & 4 are over four times the average.

Key Insights: Osteoarthritis by Disease Stage

- **Cost Distribution:** Early stages (Stage 0 & 1) account for 70% of osteoarthritis episodes but only 46% of total costs, suggesting cost-effective early management.
- **Cost Escalation:** Costs per claimant significantly increase in later stages, with a greater than 6x rise from Stage 0 & 1 to Stages 3 & 4.
- **Age and Progression:** Average age increases with disease severity, from 54.4 years in early stages to 58.1 years in advanced stages.
- **Mental Health Impact:** The prevalence of depression and anxiety rises with osteoarthritis progression, from 12% in early stages to 18% in advanced stages. However, the proportion of costs related to depression decreases, indicating potential underutilization of mental health services in more severe cases.

These findings highlight the importance of early intervention and integrated care models to manage both osteoarthritis and associated mental health conditions, reducing long-term costs and improving outcomes.

Table 3: Osteoarthritis by Disease Stage

Disease Stage	Percent of Osteoarthritis Costs	Percent of Osteoarthritis Episodes	Average Cost / Claimant Ratio	Average Age
Stage 0 & 1	46%	70%	0.65	54.4
Stage 2	34%	25%	1.36	55.9
Stage 3 & 4	20%	5%	4.27	58.1

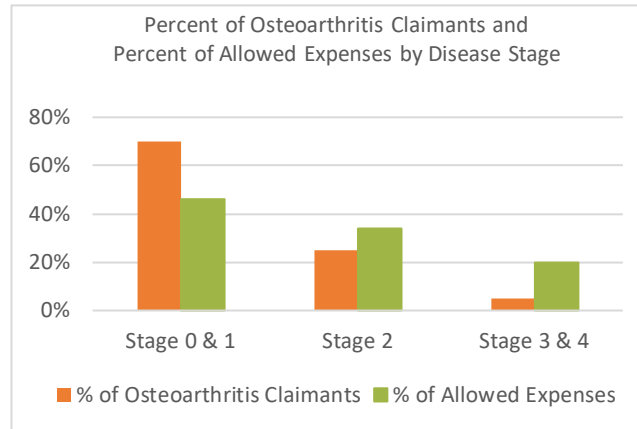


Figure 1: Percent of Osteoarthritis by Disease Stage

THE RELATIONSHIP BETWEEN OSTEOARTHRITIS AND DEPRESSION & ANXIETY

The connection between osteoarthritis and mental health, particularly depression and anxiety, is significant in the working population. In our analysis, we focused on depression and anxiety as they are the most prevalent and impactful mental health issues within the working population, especially among individuals with musculoskeletal (MSK) disorders. These conditions are prioritized due to their considerable influence on overall health outcomes and healthcare costs.

- **Depression:** This condition often results in absenteeism, reduced productivity, and worsened health outcomes. It also leads to increased healthcare utilization among those with MSK conditions, as these individuals typically require more frequent medical visits and additional care.
- **Anxiety:** Anxiety can impair concentration and decision-making and intensify the perception of pain, making MSK conditions more challenging to manage. The interaction between MSK disorders and anxiety or depression creates a feedback loop where physical pain exacerbates mental health issues, and vice versa. This cycle leads to higher healthcare costs and more complex treatment needs.

By focusing on depression and anxiety, we recognize the need for integrated care models that address both mental and physical health. Early intervention in these mental health issues could mitigate their impact on MSK disorders, leading to better health outcomes and reduced costs.

Our findings reveal a clear pattern: for Osteoarthritis, members with more severe or complex manifestations of the condition have higher use of depression & anxiety services: only 12% of osteoarthritis claimants Stage 1 utilized depression services compared to 18% of those in Stages 3 and 4 (see Table 4 below). The percentage of costs anxiety and depression of overall cost for these patients lowered as disease stage became higher, indicating that depression-related expenses remained relatively flat regardless of disease stage.

Table 4: Claimants and Costs by Disease Stage

Stage	Percent of Claimants With Depression	Percent of Costs Associated with Depression
Stage 0 & 1	12%	1.6%
Stage 2	16%	1.0%
Stage 3 & 4	18%	0.3%

Key Differences Between Osteoarthritis Claimants With and Without Depression Services:

- Higher Risk Scores:** Claimants using mental health services generally have higher Risk Scores, indicating greater health risks and anticipated higher healthcare utilization.
- Younger Demographics:** Those utilizing depression services are younger, with a lower average age than non-users.
- Gender Utilization Patterns:** Females use depression and anxiety services at twice the rate of males (18% vs. 9%). Despite lower utilization, males have higher Risk Scores and Average Costs.
- Increased Healthcare Utilization:** Higher use of mental health services is associated with more complex or severe osteoarthritis, as indicated in Disease Stage.

These insights emphasize that younger, higher-risk claimants with depression services require more comprehensive care strategies.

Key differences, as displayed in Table 5 below, between osteoarthritis claimants with and without depression services include:

- Risk Score:** Claimants who use mental health services typically have higher Risk Scores than those who do not. Risk Scores are calculated based on a combination of demographic and clinical factors, and they reflect the expected healthcare costs or resource use for an individual. Higher scores indicate greater health risks and anticipated higher healthcare utilization.
- Average Age:** Claimants utilizing depression services tend to be younger, with a slightly lower average age than non-depression claimants.
- Gender Differences:** Females utilize depression and anxiety services at twice the rate of males (18% for females vs. 9% for males). However, despite being less likely to use mental health services, males have higher Risk Scores and Average Costs compared to their female counterparts.
- Healthcare Utilization:** Claimants using mental health services typically show higher overall healthcare utilization (as indicated by the Average Cost Ratio), reflecting the complexity and severity of their conditions.

This indicates that higher use of depression services is associated with younger, higher-risk claimants with greater overall healthcare needs.

Table 5: Comparative Analysis of Osteoarthritis Claimants with and without Depression Services

Stage	AVERAGE AGE		AVERAGE RISK		AVERAGE COST RATIO	
	With Depression	Without Depression	With Depression	Without Depression	With Depression	Without Depression
Stage 0 & 1	51.3	55.3	1.94	1.43	0.9	0.6
Stage 2	52.4	57.2	3.24	2.65	1.7	1.3
Stage 3 & 4	55.7	59.1	10.43	8.42	5.2	3.9

KEY INSIGHTS

From the data, several key insights emerge that can guide strategies for managing MSK conditions like Osteoarthritis and associated mental health issues like depression and anxiety.

- High Prevalence in Early Stages:** A substantial portion (70%) of osteoarthritis claimants is in the early disease stages (Stage 0-1). However, these stages account for only 46% of total allowed expenses, indicating that early-stage management is less costly. This presents an opportunity to implement interventions that could prevent progression to more costly stages.
- Sharp Cost Increase in Later Stages:** As osteoarthritis progresses to Stage 2 and beyond, the cost per claimant escalates significantly. Expenses double from Stage 0-1 to Stage 2, and in Stage 3 (combining previous Stages 3 and 4), costs more than quadruple. This highlights the monetary impact of late-stage osteoarthritis, making early and effective management crucial for controlling long-term costs.
- Rising Prevalence of Depression with Disease Progression:** The prevalence of depression and anxiety increases from 12% in Stage 0-1 to 18% in Stage 3. This trend underscores the need for integrated care strategies that address both physical and mental health, particularly as the disease advances. Effective mental health support can play a vital role in managing overall healthcare costs and improving member outcomes.
- Lower Proportion of Depression-Related Costs in Later Stages:** Despite the increased prevalence of depression and anxiety in later stages, the percentage of costs attributed to depression and anxiety decreases from 1.6% in Stage 0-1 to 0.3% in Stage 3. This suggests potential underutilization of mental health services as osteoarthritis becomes more severe, not because of a decrease in mental health spending, but since the rising costs of other healthcare services overshadow the consistent costs of mental health care. Enhancing support in this area could still benefit more claimants.
- The Case for Early Intervention:** The data highlights the importance of early intervention in managing both osteoarthritis and associated mental health conditions. By addressing these issues proactively, employers and health plans can prevent the escalation of costs and the worsening of member health outcomes, leading to more sustainable healthcare expenditures.
- Patient Engagement:** Osteoarthritis patients who seek out treatment for depression and anxiety are more likely to be female, younger, have higher risk scores and higher average costs. This suggests that there may be a fruitful way to engage these patients and direct them to high quality and efficient providers and networks.

Questions Raised for Further Research

The findings from this analysis raise several important questions for further research:

- What specific interventions can effectively address the interplay between MSK disorders and mental health conditions?
- How can employers implement targeted programs to manage the costs associated with these conditions?
- What roles do workplace wellness programs play in mitigating the impact of MSK and mental health conditions on employees?
- How can integrated care models be optimized to provide comprehensive and coordinated care for employees with both MSK and mental health issues?

KEY STRATEGIES FOR EMPLOYERS

Employers play a crucial role in supporting the mental health of their workforce by taking proactive steps to increase awareness and utilization of available services, expanding the range of support offered, and regularly evaluating the effectiveness of these programs. By integrating mental health into broader wellness initiatives and focusing on preventative care, employers can foster a healthier, more resilient workforce.

1. **Increase Awareness and Utilization**
 - Employers should focus on educating employees about the availability and benefits of mental health services. This could involve regular communications, workshops, and integrating mental health discussions into broader wellness programs. The goal is to ensure that employees understand the importance of mental health and feel encouraged to seek help when needed.
2. **Expand the Range of Services**
 - To cater to diverse needs, employers might consider expanding the scope of mental health services offered. This could include offering virtual therapy sessions, stress management programs, and resources for managing anxiety and depression. By broadening the range of services, employers can provide more comprehensive support, which could prevent more severe health issues down the line.
3. **Regularly Evaluate and Optimize Services**
 - Continuous evaluation of mental health programs is critical to ensure they are meeting the needs of employees. Employers should gather feedback, analyze utilization data, and adjust as needed to improve the effectiveness of these services. This could involve incorporating innovative technologies, refining the delivery of services, or adjusting the types of support offered based on employee feedback and emerging trends in mental health care.
4. **Integrate Mental Health with Other Wellness Initiatives**
 - Mental health should not be viewed in isolation but rather as an integral part of overall wellness. Employers can achieve this by integrating mental health resources with other wellness initiatives, such as physical fitness programs, nutritional counseling, and stress management workshops. This comprehensive approach addresses the full spectrum of employee health, leading to better outcomes and a healthier workforce.
5. **Focus on Preventative Care**
 - Preventative mental health care can reduce the need for more intensive services later. Employers should consider offering resources that help employees manage stress, build resilience, and maintain a positive work-life balance. This might include mindfulness training, resilience-building workshops, and providing access to self-help resources that promote mental well-being.

CONCLUSION

The interplay between musculoskeletal (MSK) disorders and mental health conditions presents a significant challenge for employer-sponsored health plans. The substantial costs and high prevalence of these conditions necessitate a comprehensive approach to managing healthcare expenditures and improving employee health outcomes. To address these challenges, employers should consider implementing targeted strategies that integrate both physical and mental health care. Early intervention in MSK conditions, coupled with robust mental health support, can prevent the escalation of costs, and improve overall employee well-being.

Health Analytics Connect (HAC) offers a powerful solution through its Analytic RecipesSM. These data-driven frameworks enable employers and health plans to analyze and understand the complex interactions between various health conditions, including MSK disorders and mental health issues. By leveraging HAC's Analytic Recipes, employers can gain actionable insights into their healthcare data, identify key cost drivers, and develop evidence-based strategies that effectively manage these conditions. Additionally, health plans can incorporate these Analytic Recipes into their account reporting packages, providing more comprehensive and insightful reporting to their clients.

Employers and health plans are encouraged to integrate HAC's Analytic Recipes into their existing health strategies. By doing so, they can proactively address the dual burden of MSK and mental health conditions, optimize healthcare outcomes, and achieve more sustainable healthcare costs. Taking these proactive steps will not only enhance employee health but also contribute to long-term financial stability and success for the organization.

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