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Employee Health Trends

2023

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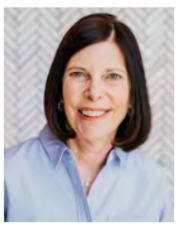
Meet the Springbuk Experts



Janet Young, M.D. | Lead Clinical Scientist

With more than 30 years of experience, Janet Young has provided clinical expertise to the development of healthcare analytics used in provider, payer, employer, and government sectors. Previously, Janet served as a Lead Clinical Scientist at IBM Watson Health, guiding clinical content development related to new models, methods, and analytics using claims, EMR, Health Risk Assessment, and socio-demographic data. Janet joined the Data Science and Methods team at Springbuk in Dec. 2019, and has been responsible for clinical oversight of methods and models. Janet received her M.D. from Yale University School of Medicine.

Chris Gagen | Senior Director Professional Services

For the last 20 years, Chris Gagen has worked with benefits leaders and clients analyzing their healthcare claims data with a focus on financial and plan design modeling. He's gathered experience across collaborations with business leaders, product managers, data scientists, and software engineers to define and solve healthcare business problems.

Jennifer Jones, MSM, RD | Enterprise Practice Leader

Jennifer Jones, MSM, RD, is an experienced healthcare professional with with over 20 years of experience in clinical dietetics, wellness programming, and employer health, and is a certified Corporate Wellness Specialist. She has worked in various settings including health care systems, occupational health organizations, and a health and welfare benefits advisory firm.

Industry Voices

PHM | Private Health Management

PHM is a distinctive healthcare company providing clinically sophisticated care management and health risk advisory services. Whether addressing serious or complex conditions or taking steps to optimize your health, PHM's rigorous integrated approach facilitates access to the latest information, top specialists, advanced diagnostics, and cutting-edge treatments. PHM consistently delivers better care and outcomes helping people live healthier, longer lives.

Natalya Gertsik, Ph.D. with PHM
Vice President, ClearCancer Solution Management

Natalya Gertsik, Ph.D., advises employers on emerging and chronic health risks, providing actionable guidance to optimize cancer care at both the individual and organizational level. She advises on strategies to improve cancer outcomes and reduce wasteful medical spend, including benefits and formulary design, precision medicine adoption, case management approaches, and the use of the latest early detection technologies. Gertsik received her Ph.D. in Biochemistry from the Weill Cornell Graduate School of Medical Sciences.

BGH | Business Group on Health

Business Group on Health is a community of members, a team of experts, an ally for large employers, a health and benefits authority, and a tenacious voice in health care policy.

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Employee Health Trends

Gain the Insight You Need to Optimize Your Impact

Each year, Springbuk publishes the Employee Health Trends report based on aggregate data in our health data analytics platform. For 2023, that comprised data from more than 4,300 employer customers.

Since Springbuk's inception, our team's goal has been to equip employers and their benefits advisors with easy-to-use information to improve employee health, manage costs, and understand program impact. To help accomplish this, our expert data scientists, clinicians, and population health leaders dedicate significant amounts of time and resources to provide our community, customers, and partners with trend analyses that **go beyond the "what" is driving costs in their population by delivering insight into the "why."**

Increased Emphasis on Health and Well-being in Overall Workforce Strategy

When we released the 2022 Employee Health Trends report, the pandemic-moving-toward-endemic had become the ringmaster in how we would return to work, adapt to a new normal, and navigate "The Great Resignation." And while uncertainty loomed around every corner, **employers made one thing abundantly clear: they are dedicated to the health and well-being of their employees.**

A NOTE FROM JENNIFER

"When we incorporate data from the Business Group on Health's Large Employer Survey, **we see that even before the pandemic, there is a noticeably steady increase in employers that recognize their health and well-being strategy as an integral part of their overall workforce strategy.**

However, the most dramatic increase occurred between 2021 and 2022. Effects from the pandemic (such as mental health, delayed care, increase in disability claims, increasing chronic conditions) likely played into this."

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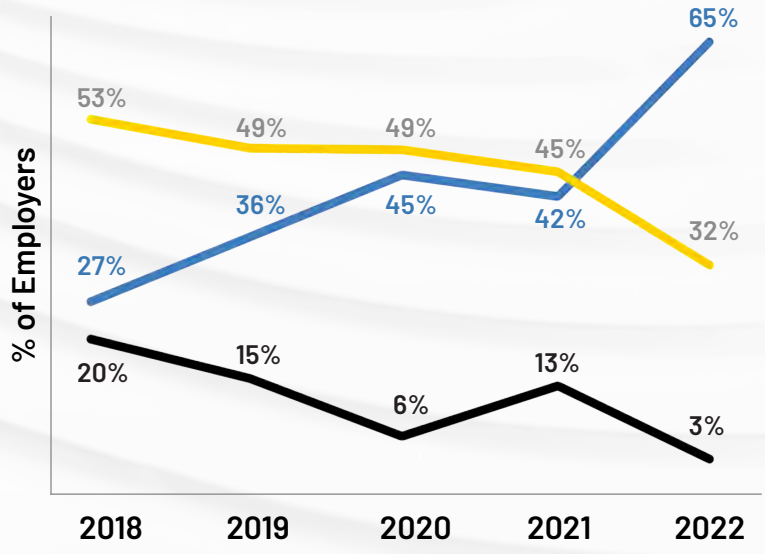
Business Group on Health

Business Group on Health's Large Employers Survey:
The Role of Health and Well-being in Large Employers' Workforce Strategy
2018-2022



Our health and well-being strategy is an **integral part** of our workforce strategy.

Our health and well-being strategy is a **consideration** of our workforce strategy.

Our health and well-being strategy is viewed **separately** from our workforce strategy.

Yet as the workplace settled into 2022, a looming recession consumed news headlines, and employers began grappling with how they would protect their organization's bottom line while still giving the same level of commitment to employee health and well-being.

Through times shrouded in distress, our team has found that **data can serve as a north star**, helping to illuminate a path forward for employers.

When "Business-As-Usual" Isn't "Business-As-Usual"

With each annual report, we've had the opportunity to present findings on various types of care trends. One of the most intertwined topics that will undoubtedly continue to shape trends for years to come: the impact of COVID-19.

Now is the time to direct our attention back to all areas of care impacting member populations and how to balance costs in order to maximize financial investment.

In today's workplace landscape, employers are no longer bracing for the aftershocks of a pandemic; rather, they are riding its ripple effects as they try to make sense of:

- Return-to-work options
- Workforce strategies to combat the Great Resignation
- Challenges with inflation
- A looming recession

Through each line item above, a common predicament presents itself: **how can employers provide the best experience possible while protecting their financial bottom line?**

Trends and Concerns

To help employers understand the last few years' influence on today's benefits costs, our team began looking at historic PMPM. They found that from 2019-2020, **the PMPM increase was modest, less than 1% overall.** Furthermore, data revealed the median trend among Springbuk employers was a 0.4% **decrease** during this time period.

Fast forward to 2022 and into 2023, employers are seeing more traditional PMPM trends but are also **juggling concerns of:**

- Overall employee well-being
- Prices of services
- Long COVID
- The value of virtual care solutions

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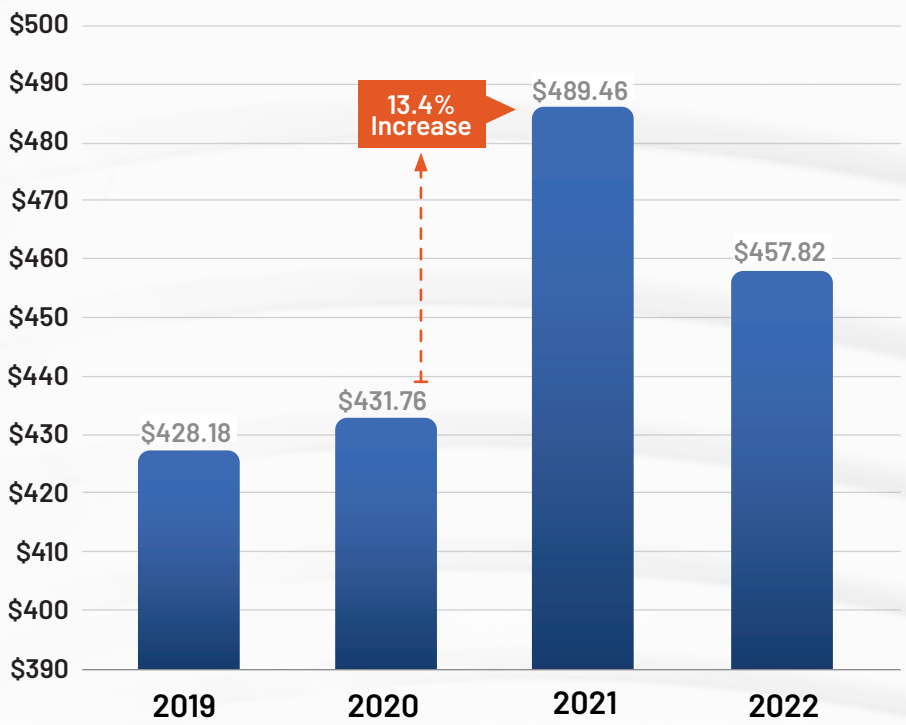
The Service Trend Boomerang

A NOTE FROM CHRIS

"Although incurred data through June 2022 may look promising, it is important to recall that **employer spend traditionally increases more in the second half of the year.**

For example, last year through June, the **PMPM was $453 and ended at $489** due mostly to the seasonality of plan design and a year-end spike in COVID-19 cost."

Total Plan Paid PMPM Incurred Years
(2022 Through June)

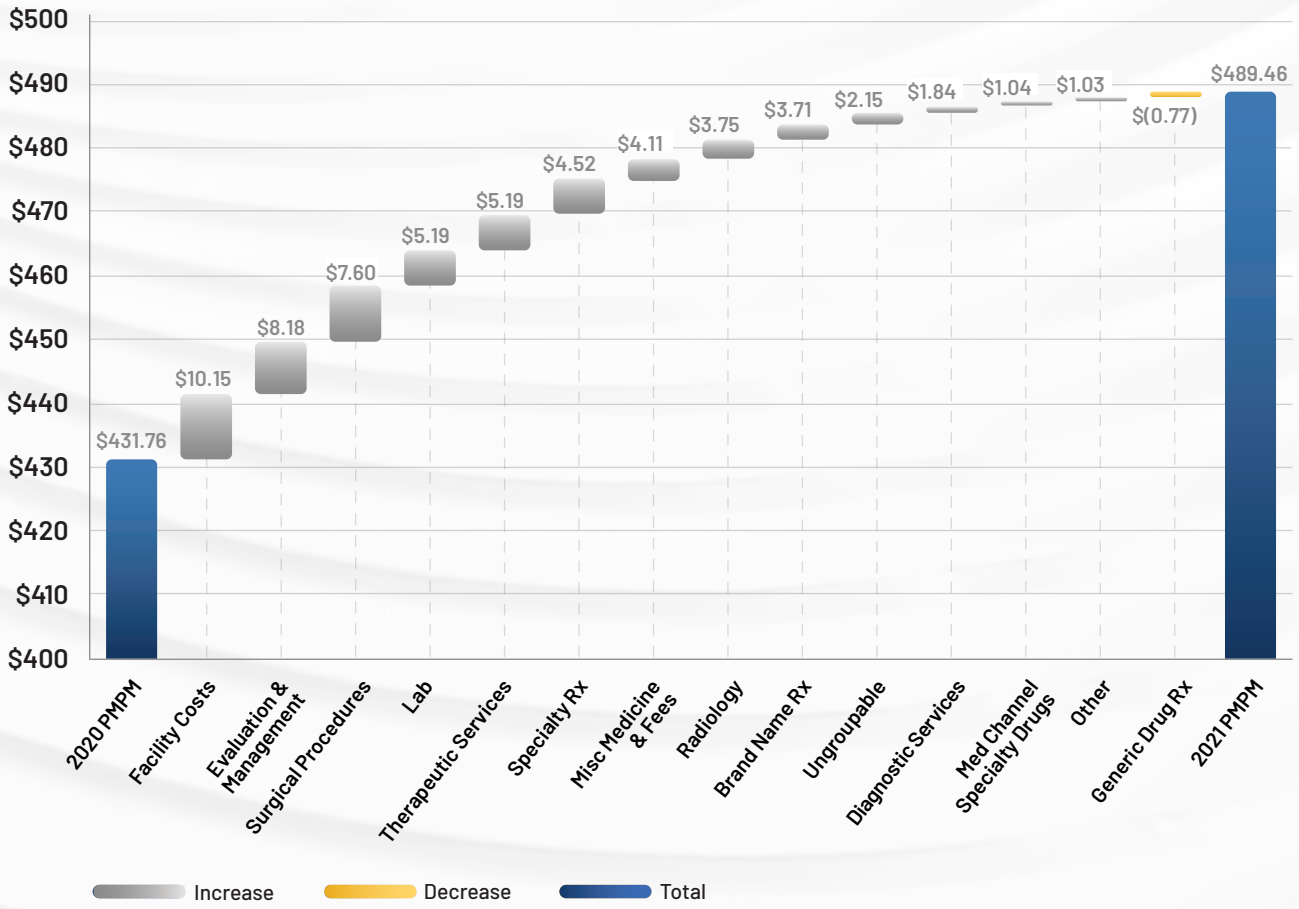


The spending increase from 2020 to 2021 was for services across the board, however the largest driver was the surge in facility costs, accounting for $10.15 (~17.6%) of the $57.70 increase:

- Roughly **90%** of the facility cost increase was driven by room and board charges
- Roughly **55%** of the evaluation and management increase came from an increase in PCP visits
- Surgical procedure **increases** were driven primarily by MSK and gastrointestinal procedures

2020 Gave Many Employers A Break From Traditional Trend Increases — In 2021 All Types Of Services Increased (Some More Than Others)

2020–2021 PMPM Change by Service Classification



A NOTE FROM CHRIS

"It is important to understand that we are analyzing components of the 2021 trend, and not necessarily the overall spend. For example, **there is much more spent on medical channel specialty drugs than diagnostic services,** but that high spend was consistent between 2020 and 2021."

Recognizing spending traditionally increases during the second half of the year, employers should use the PMPM information available now to plan, rather than adopt a conservative "wait and see" approach.

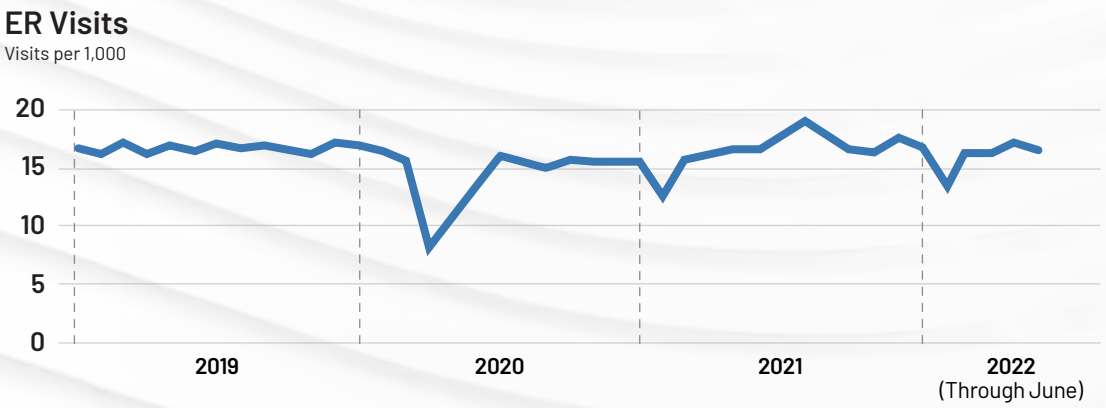
There are **three trends that stand out among the rest** when comparing the **first half of 2021** to where we are after the **first half of 2022:**

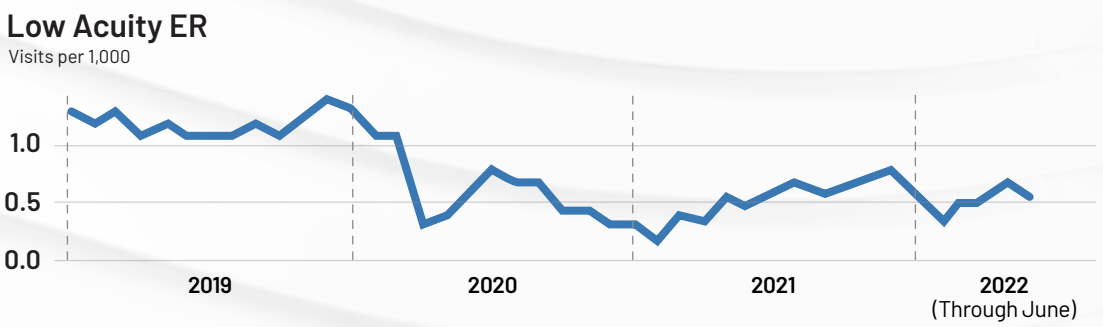
- Prescription drugs, both specialty and brand, **are up: +$10 PMPM**
- COVID-19 related spending is **down: -$7 PMPM**
- Cancer is the top condition for spend for the first half of both years, **roughly 11% of all spend**

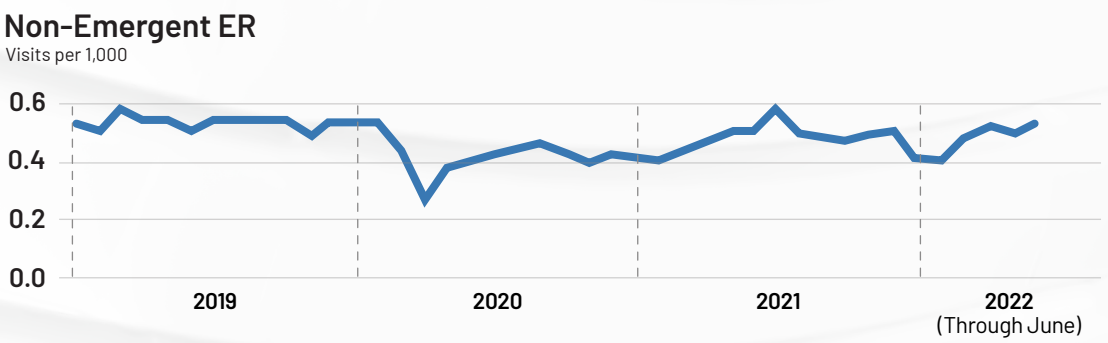
While layering on different components to their analysis, our team found that **costs of services are rebounding to pre-pandemic levels, which made us wonder** what other service trends were emerging in comparison to years past.

How are ER utilization rates holding up?

- In 2021, we noted that ER visit rates were down for low acuity and non-emergent conditions, while general ER visits were creeping back up
- 2022 data indicate ER rates are back up to pre-pandemic levels, as are non-emergent visits
- **Low acuity** ER visits visits have remained low, hovering around 50% of what they were in 2019







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At first glance, the odds appear to continue to stack themselves against employers with the potential to derail all the effort dedicated to employee health and well-being. **But throughout the chaos, we're reminded there is opportunity.**

The 2023 Employee Health Trends report focuses more closely on capturing employees' current health needs and building confidence to take on tomorrow's ever-changing healthcare landscape by **answering questions such as:**

- How is COVID-19 still impacting costs?
- What services are driving the increase in cancer costs?
- Will new specialty drugs have a major effect on treatments and costs?
- What is the "new normal" with telemedicine?

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CHAPTER ONE

Lingering Effects of COVID-19: Overall Costs & How Long COVID Impacts Health

Throughout 2021 and 2022, as variant cases ebbed and flowed like rollercoaster hills and vaccine booster shots became a common best practice, a missing piece to the COVID-19 puzzle still lingered: **Long COVID**.

Since a specific diagnosis code for the Post-COVID-19 condition was not introduced until Oct. 2021, we were unable to determine the incidence of this condition or its impact on costs in last year's Employee Health Trends report.

Fast forward one year, and we now had a diagnosis code for Long COVID.

However, with reported rates of Long COVID varying widely from source to source, we hoped this year's data could provide us with a clearer picture of the magnitude of Long COVID's effect on employee health and costs.

As we began our analysis, **we discovered that uncovering who has been impacted by the long-term effects of COVID-19 may not be as simple as finding members with a Long COVID diagnosis.** We looked at all the data at our disposal to visualize the full story of COVID-19's post-acute effects to come closer to completing the puzzle.

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Spending on COVID-19 PMPM

In knowing the rampant cost implications of COVID-19 diagnosis and treatment over the last few years, we broke down spend by category and location of initial treatment (e.g. hospitalized, non-hospitalized).

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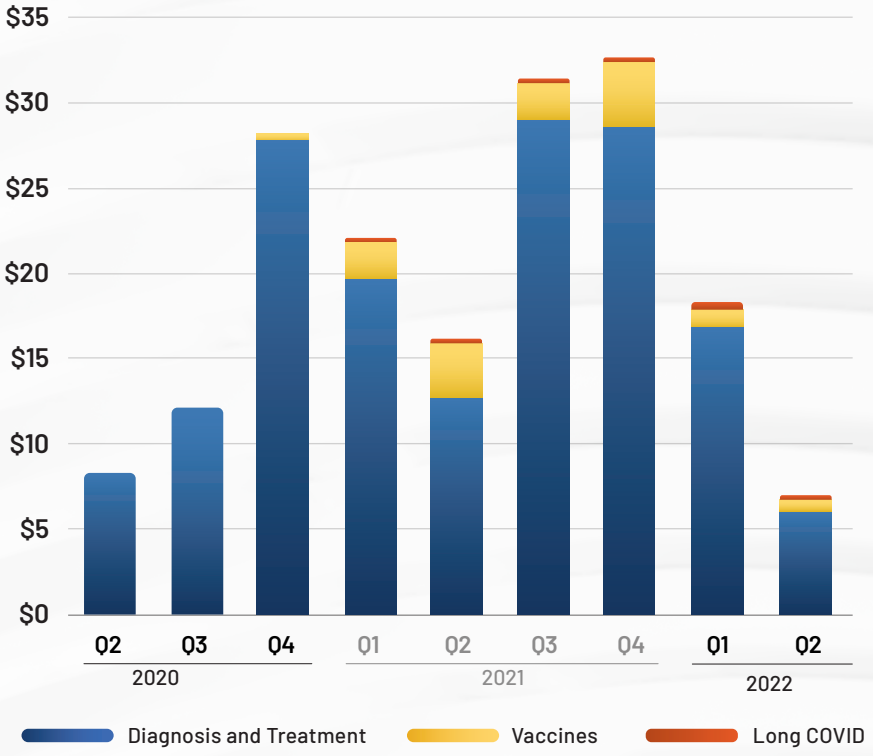
Across the Springbuk book of business, we found employer spending on COVID-19 over the last two and a half years can be broken down into **three main categories:**

1. **Diagnosis and treatment of COVID-19**
2. **Prevention through vaccinations and Evusheld**
3. **Treatment of Long COVID**

COVID-19: Average Plan Paid PMPM for Diagnosis, Treatment, and Prevention



When reviewing costs per quarter per year, data indicated:

- Q2 2022 has the lowest PMPM cost since the onset of COVID-19
- Very little cost attributable to Long COVID based on ICD-10-CM diagnosis coding

Upon initial analysis, we noticed **rates of Long COVID in Springbuk data have been much lower than reported,** suggesting that Long COVID related spending and the number of impacted individuals may also be underreported.

Which made us wonder: Are there members with undiagnosed or undocumented Long COVID contributing to increased healthcare costs following COVID-19 infection?

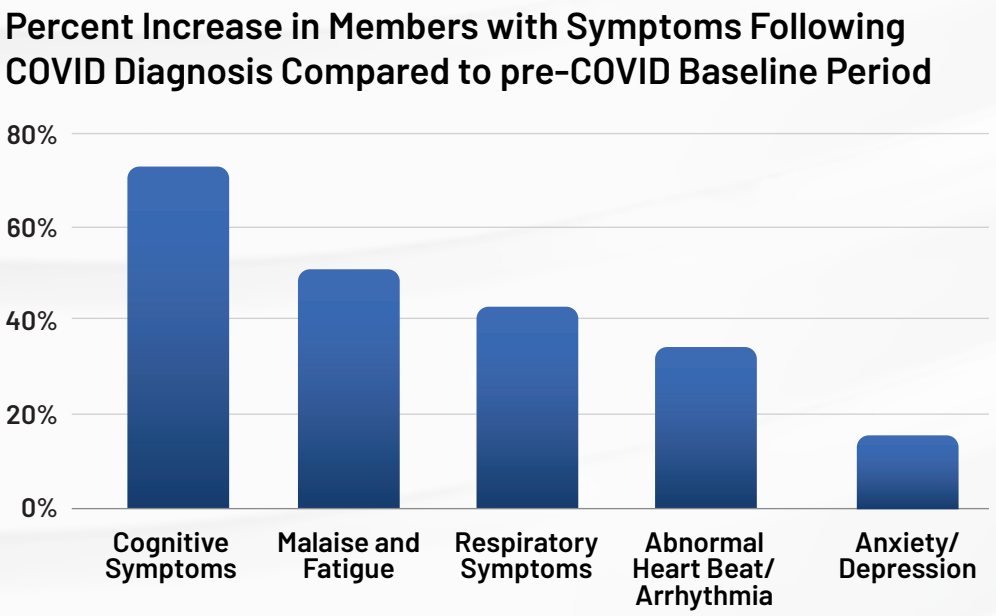
To gain a better understanding of health conditions experienced following a COVID-19 infection, **we analyzed the percent increase in members with top symptoms/conditions** associated with Long COVID 90-180 days after COVID-19 diagnosis compared to a similar time period in the prior year.

CDC and WHO definitions related to Long COVID differ. For our analysis purposes, we look at the period 90–180 days post-COVID diagnosis, which is the more conservative definition of symptoms that continue for three or more months following infection.

5 of the Top Long COVID Symptoms

For this analysis, due to the many symptoms and conditions associated with Long COVID, we confined our analysis to five of the most commonly reported symptoms:

1. **Respiratory symptoms (shortness of breath, chest pain)**
2. **Cardiac arrhythmias/abnormal heartbeat**
3. **Anxiety and depression**
4. **Malaise and fatigue**
5. **Cognitive symptoms (e.g., "Brain Fog")**



This chart indicates the % increase in symptoms, NOT the % of individuals with these diagnoses.

** Current symptoms measured 90 - 180 days following diagnosis. Pre-COVID baseline period is same 90 day period 1 year earlier.**

Springbuk data indicated all five symptoms exhibited increases, with the greatest increases in cognitive symptoms and malaise and fatigue:

70% increase in cognitive symptoms
(e.g., "Brain Fog")

50% increase in malaise and fatigue

40% increase in cardiac arrhythmias/abnormal heartbeat

30% increase in respiratory symptoms
(shortness of breath, chest pain)

15% increase in anxiety and depression

With surges in these symptoms exceeding what we would expect based on rates from Long COVID diagnostic coding, **it was impossible to ignore the potential under-diagnosis or reporting of Long COVID.**

The next component we wanted to determine was whether these symptoms were a harbinger of issues that adversely impact healthcare costs.

For the framework of this analysis, we looked at Median Plan Paid based on:

- Hospitalized vs. Non-Hospitalized at the time of initial COVID-19 diagnosis
- Long COVID diagnosis vs. without Long COVID diagnosis
- For those without a Long COVID diagnosis, we look at the impact on the cost of having one or more of the five symptoms 90-180 days following a COVID-19 diagnosis

Our data scientists and clinicians found that only **16.0% of inpatients** and **1.6% of outpatients** had a Long COVID diagnosis. This is less than what has been reported (about 19%) in CDC survey data from June, 2022.

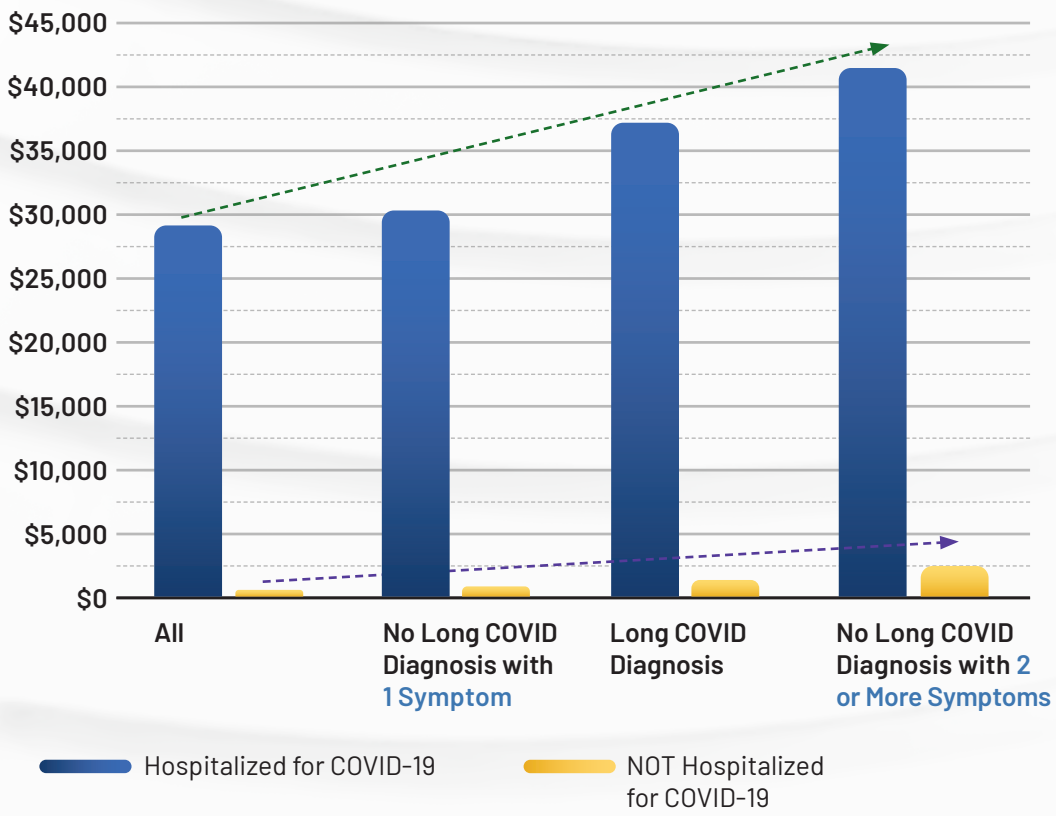
But an **additional 22.1% of inpatients** and **18.0% of outpatients** have claims with one or more of the five symptoms 90-180 days after their COVID-19 diagnosis.

The high rate of individuals with ongoing symptoms and the associated increase in plan paid amounts for these members **suggests both an underreporting of Long COVID and an additional cost burden** that may not be captured based on Long COVID diagnosis.

Members with two or more symptoms without a Long COVID diagnosis are associated with the **highest increases in median plan paid** amounts six months post-diagnosis, with increases in plan paid amounts of over $42,000 for hospitalized members, and over $2,600 for non-hospitalized.

Increase in Median Plan Paid Amounts

During Initial 6 Months Following COVID-19 Diagnosis

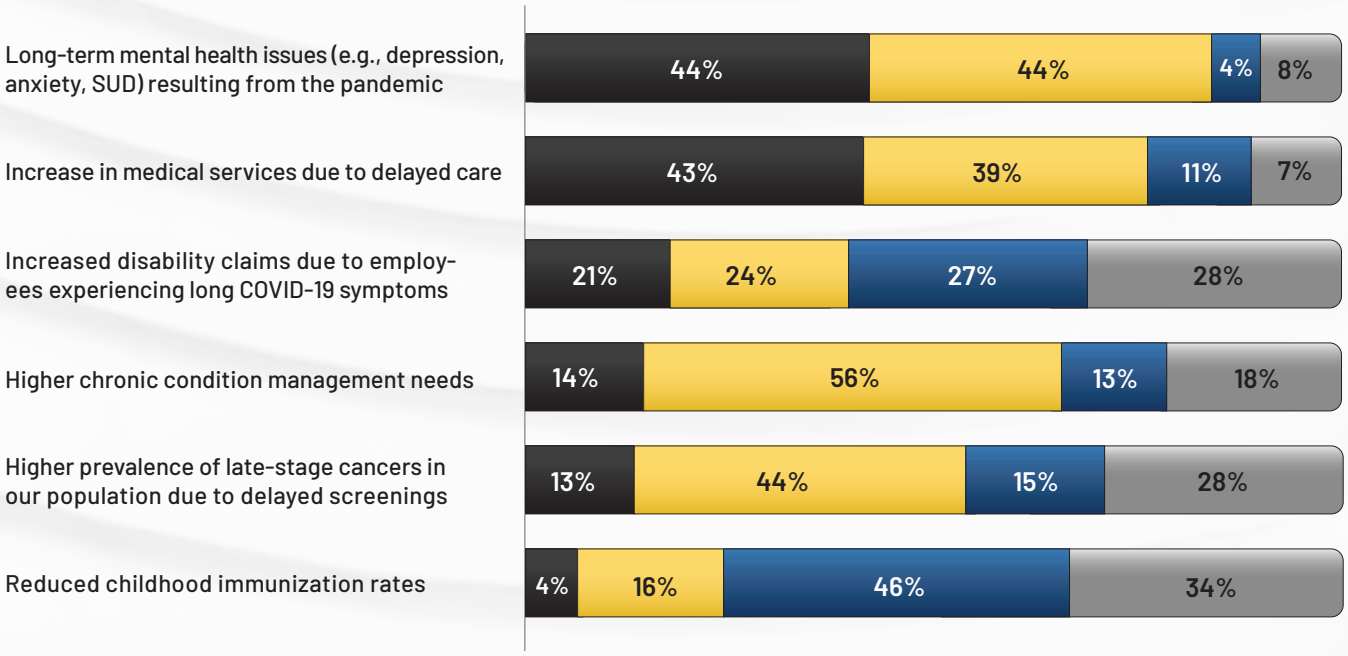


Increase in median plan paid represents the difference between median plan paid in 6 months following COVID-19 diagnosis compared to median plan paid for the same members and time period 1 year earlier

Many members without a Long COVID diagnosis have symptoms 90-180 days later.

Plan paid **increases** for members without a Long COVID diagnosis with the number of ongoing symptoms recorded.

Business Group on Health's Large Employers Survey: Impact of COVID-19 on Health and Well-being, 2022



When reviewing data from the 2023 BGH LE Survey in regards to the impact of COVID-19 on health and well-being, we see:

- Even though the acute effects of COVID-19 may be decreasing, employers still expect to see long-term effects that will have an impact on health plan costs/employer costs
- Some of those are already seeing long-term effects now, like mental health issues and delayed care, but many also anticipate future cost from chronic condition management and late stage cancers both resulting from delayed care at the onset of the pandemic

Action Items and Key Takeaways

- COVID-19-related diagnosis and treatment costs were at their **lowest levels** since the beginning of the pandemic in Q2 2022.
    - We expect overall costs related to COVID-19 diagnosis, treatment, and prevention will continue to remain lower than what we saw in 2021.
    - Be sure that members at risk for severe disease are aware of drugs (e.g. Paxlovid) that can be administered within five days of a COVID-19 diagnosis to reduce their risk. In some geographic areas, these drugs can be prescribed by pharmacists.
- **Do not underestimate the impact of COVID-19 on the long-term health of your members.** Long COVID may be undercoded due to ambiguity in defining the condition.
- Many members without a Long COVID diagnosis **still have symptoms consistent with long COVID 90–180 days later,** impacting healthcare needs and costs.
- In addition to healthcare costs, ongoing symptoms may impact the ability to work and productivity. **Employers may continue to see an uptick in disability claims related to Long COVID.**
- **Employers can assist employees** with ongoing symptoms by helping them navigate in-network multidisciplinary COVID-19 clinics that have greater experience and expertise in treating Long COVID patients.

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CHAPTER TWO

Surges in Cost of Treating Cancer

Delayed care and screenings have been a top concern for employers over the last few years for a multitude of reasons. In last year's report, we highlighted results from The Business Group on Health's Large Employer (BGH LE) Survey that indicated **68% of employer participants anticipated a higher prevalence of late-stage cancers and costs due to delayed screenings.**

Based on this year's BGH LE Survey results, their concerns and anticipations were warranted.

> **The 2023 BGH LE Survey found that cancer had overtaken musculoskeletal conditions as the top driver of large companies' healthcare costs.**

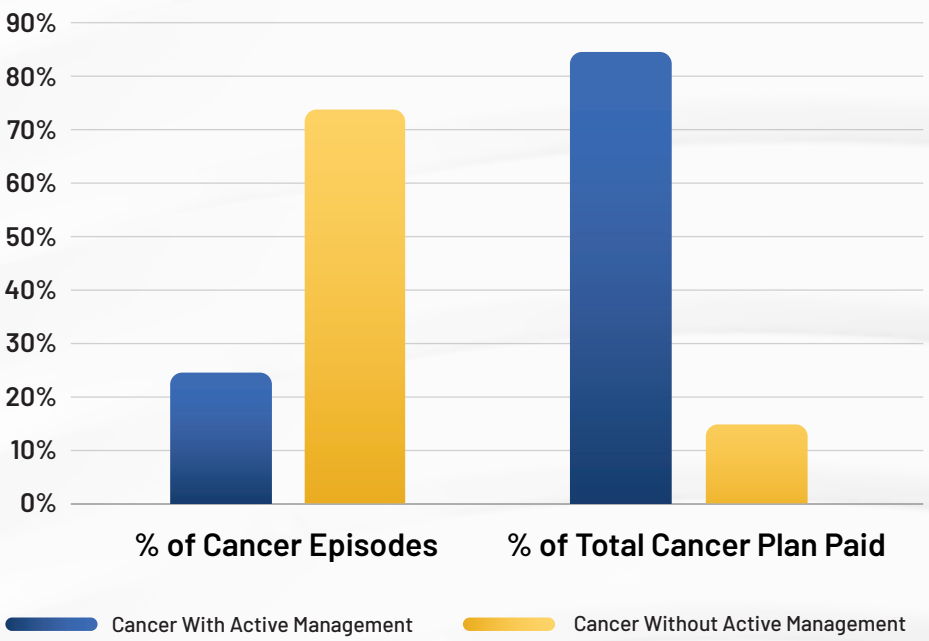
Our data scientists and clinicians looked deeper into the data to uncover what was driving the surge in **spending**, including whether rising costs were due to increased cancer rates or costs of treatment.

Springbuk also consulted with cancer care experts at PHM to provide insights. PHM equips employers with the latest medical research and care management for employees to achieve the best possible outcome.

Bringing Costs into Focus – **Cancer with Active Management**

When digging into the data, we narrowed our focus to **cancer with active management** (members currently being treated with chemotherapy, radiation therapy, or bone marrow transplant). Analysis results showed that **while cancer without active management makes up the majority of cancer episodes, cancer with active management accounts for about 85% of cancer costs.**

Cancer Episodes
With & Without Active Management

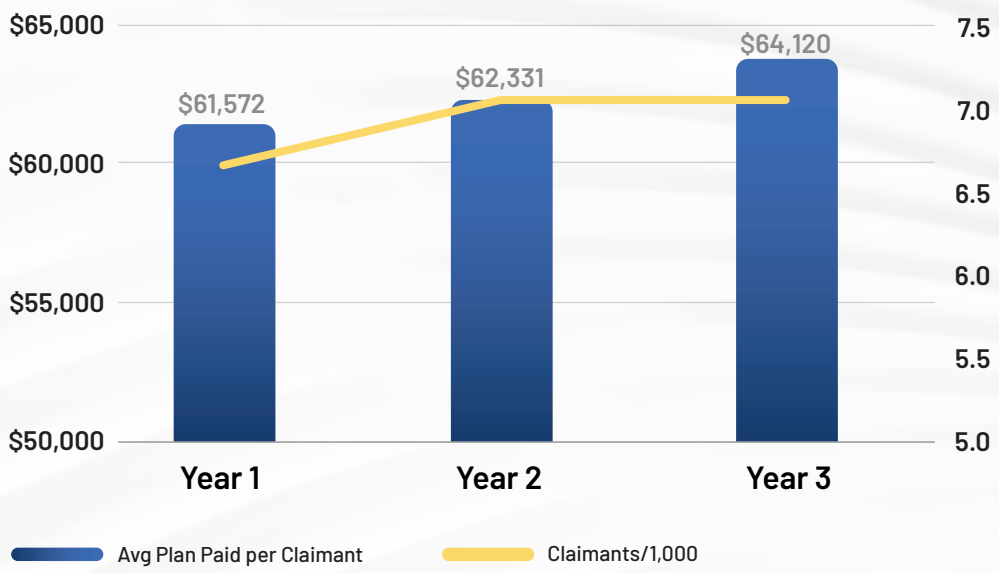


Note:
Those without active management include members who have been diagnosed but haven't started treatment yet and members who have completed treatment and are being monitored.

The years in this chapter are defined as:

Year 1: July 2019-June 2020
Year 2: July 2020-June 2021
Year 3: July 2021-June 2022

Cancer with Active Management
Average Plan Paid per Claimant & Claimants per 1,000



The Data Story

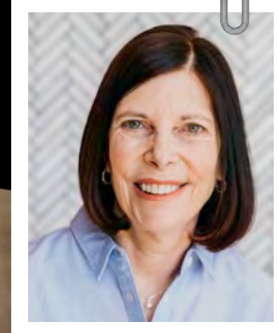
To continue to build out the story of what this data insight could tell us, further analysis across all cancers with active management provided the following data insights:

- **Rate per 1,000 has increased by 4.6% between Year 1 and Year 3**

  Note: Rate per 1,000 peaked in Year 2, likely due to delayed detection and treatment of cancer as a result of COVID-19 restrictions in Year 1

- **Increase in rates varied by underlying cancer type and demographics**
  - We saw particularly high rates of increase in Year 2 compared to Year 1 for lymphoma, leukemia, colon cancer, and breast cancer, **with 9.9%, 8.1%, 6.3%, and 5.3% increases,** respectively
  - Rates for all of these cancer types **diminished between Year 2 and Year 3**, but still remained higher than in Year 1
  - The group with the greatest increase in members being actively managed for cancer was women ages 45–55, whose **rate went up by 8.0% between Year 1 and Year 3**

- **Plan paid per claimant has increased 4.1% between Year 1 and Year 3**



A NOTE FROM JANET

"Increase in cancer spending for cancer with active management is due to both an **increase in the rate** of members being actively managed for cancer and an **increase in spending** on each of these members."

phm INSIGHT

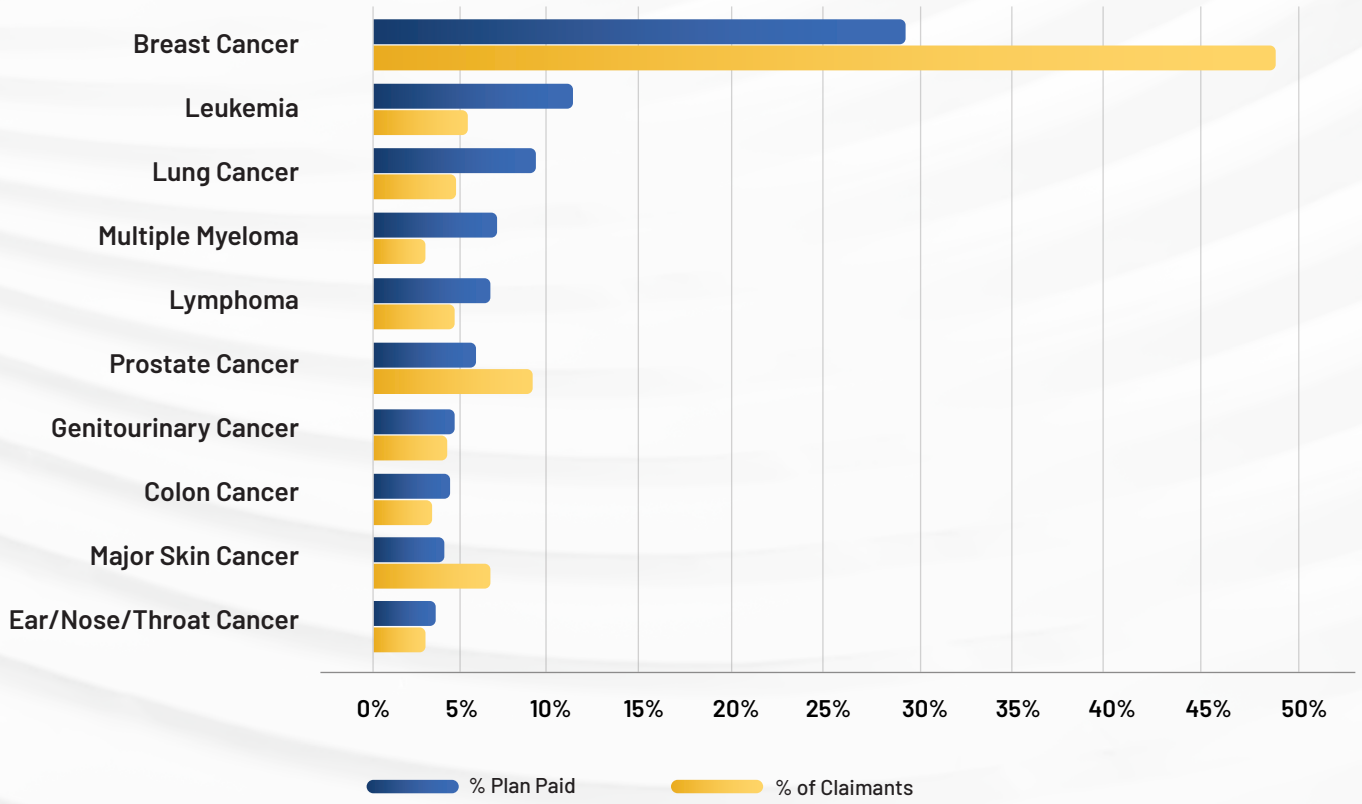
With the **recent advent and commercialization of early detection technology,** in the form of blood-based cancer screening, the number of cancer cases with and without active management may grow even higher over the coming years, particularly once the technology gains FDA approval. The identification of cancers earlier may lead to better outcomes, less aggressive treatment requirements, a faster path to remission, and **may ultimately result in a reduction of the cancer burden.**

While some organizations offer these cancer screenings as an employer-sponsored benefit, **we expect uptake of these technologies to be limited** until they obtain FDA approval and insurance coverage. The regulatory decisions regarding these technologies are worth paying attention to, as the details of the approval (e.g., age, risk factors, etc.) will impact the way in which employers deploy these tools within their populations.

A NOTE FROM NATALYA

"The next few years will be a proving ground for blood-based early detection technologies as they attempt to demonstrate their ability to not only identify cancer earlier, but also improve outcomes, save lives, and reduce cancer-related spending."

Top 10 Cancers by Plan Paid (with Active Management)



With the initial finding that cancer with active management is driving cancer costs, our data scientists and clinicians knew we needed to add another layer to the analysis by looking at active management by cancer type.

While we often think of cancer as a single disease, it is really many different diseases; **employers need access to information tailored to their members' needs** based on individual diagnoses to understand typical treatment costs and potential opportunities.

To Sharpen Focus, We Concentrated On The Top Five Cancers By Spending

Aggregate Springbuk data indicated that **five cancers make up about 60% of cancer spending** in the most recent year: breast cancer, leukemia, lung cancer, multiple myeloma, and lymphoma.

It's important to note: the most common cancers are not always responsible for the highest plan spending on cancer.

Multiple myeloma is not among the top ten cancers based on members, but it is fourth on the list of cancers based on the percent of plan paid for cancer with active management.

Springbuk data showed that **members with breast cancer account for 44% of members actively treated for cancer, but only 24% of the plan paid for cancer with active management.** This relatively high percentage of members with breast cancer compared to spending is likely driven by drugs like tamoxifen that are part of active management but are relatively inexpensive and may be continued for five or more years.

Top 10 Cancers with Active Management (Year 3)

Breast cancer prevalence is high due to a combination of many women being affected by the disease, and also long survival and treatment cycles, therefore capturing more actively managed breast cancer patients. Given that women are living many years with this diagnosis and undergoing treatment for extended periods of time, employers should consider providing benefits that:

1) Enable access and adherence to cancer surveillance in order to detect a cancer recurrence early and avoid the devastating consequences of a late stage recurrence.

2) Support the mental and emotional well-being of individuals who are living with this chronic condition.

Breast cancer is not only the most common cancer type for employers, it is also the cancer that appears to be growing at the fastest pace (on an absolute number basis). Employers should consider enhancing benefit packages to address breast cancer detection, management, surveillance, and support.

Lung cancer is the third most expensive cancer by plan spend. The costs of this disease are driven by the immunotherapies (i.e., checkpoint inhibitors) and targeted therapies that are approved in the first-line setting. Employers should aim to reduce the obstacles to receiving the right molecular diagnostics and treatments, both of which are key to achieving better outcomes, particularly in non-small cell lung cancer (NSCLC), where there are many subtypes and targetable mutations, each with its own unique treatment guidelines.

The under-utilization of molecular diagnostics in **NSCLC** does nothing to lower employer spend. A range of molecular diagnostics are standard of care for this disease, and employers should ensure those are covered by their plans. Studies have repeatedly **shown** that patients are not receiving the appropriate molecular diagnostics and are missing out on the benefits of precision medicine. Molecular diagnostics make up a small proportion of cancer spend, and they have a substantial impact on patient care. When used properly, precision medicine saves lives, and is expected to also save costs.

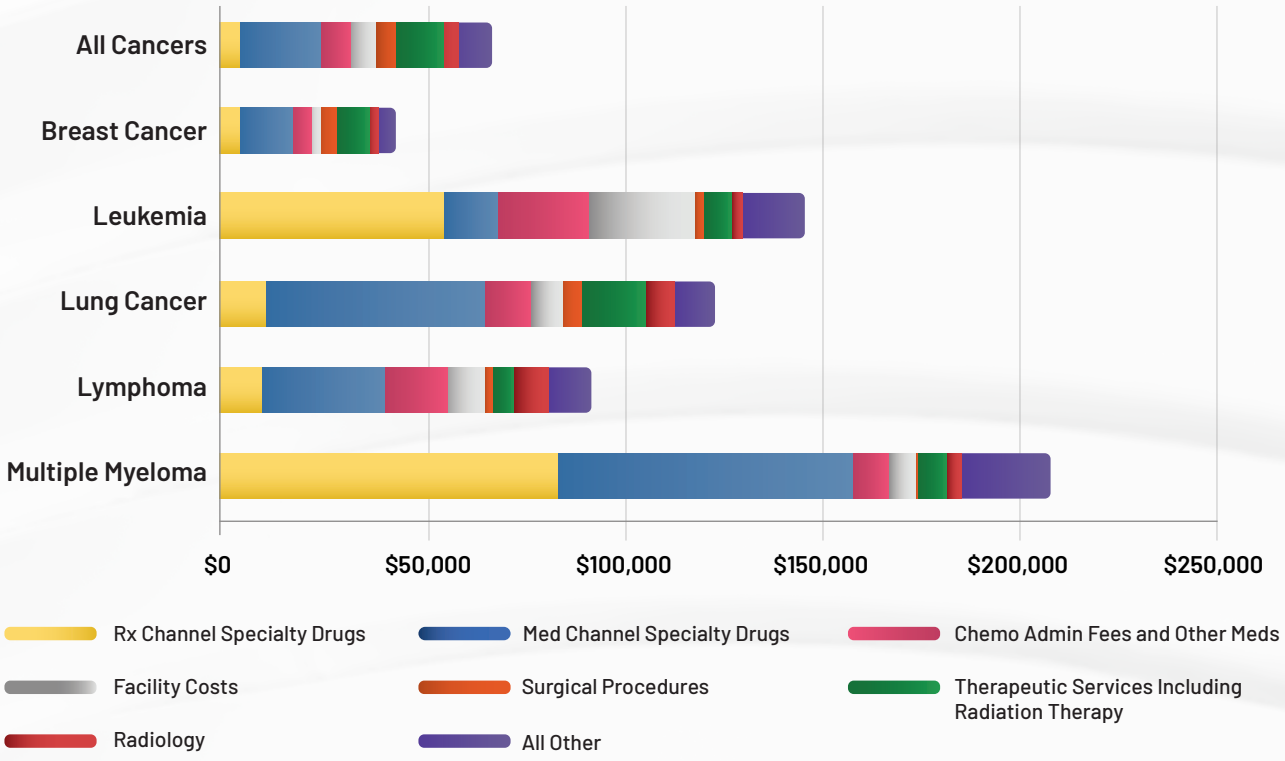
Providing Access to the Most Effective Treatment at the Lowest Cost

In knowing the top cancers by spend, we began to look for components of treatment that contribute to high costs, particularly those that appear to be driving continued spend. We also looked for alternatives employers can offer to ensure their **members still receive the best possible care without having to continue to exhaust budgets.**

Our team identified specialty drugs as the largest cost driver in cancer treatment, and the main driver of the upward trend in spending in cancer on a per claimant basis for many cancer types. While there is no industry-standard definition for specialty drugs, they typically have one or more of the following attributes:

- **High cost**
- **Biologic in nature**
- **Used in the treatment of rare or complex chronic conditions**
- **Require special handling or administration**

Average Plan Paid per Claimant by Service Class* — Year 3 (July 2021-June 2022)



*This classification is a Springbuk proprietary method

Note that plan paid and services utilized are likely to vary within each general cancer type based on factors that are not typically available in administrative data – including the more specific type of cancer, based on pathology and cancer stage.

Across all cancers with active treatment, almost 44% of plan paid is for specialty drugs:

- Medical channel specialty drugs are the biggest drivers of cost for breast cancer, lung cancer, and lymphoma
- Rx channel specialty drugs are the biggest driver for leukemia
- Multiple myeloma costs are driven by both medical channel specialty drugs and Rx channel specialty drugs

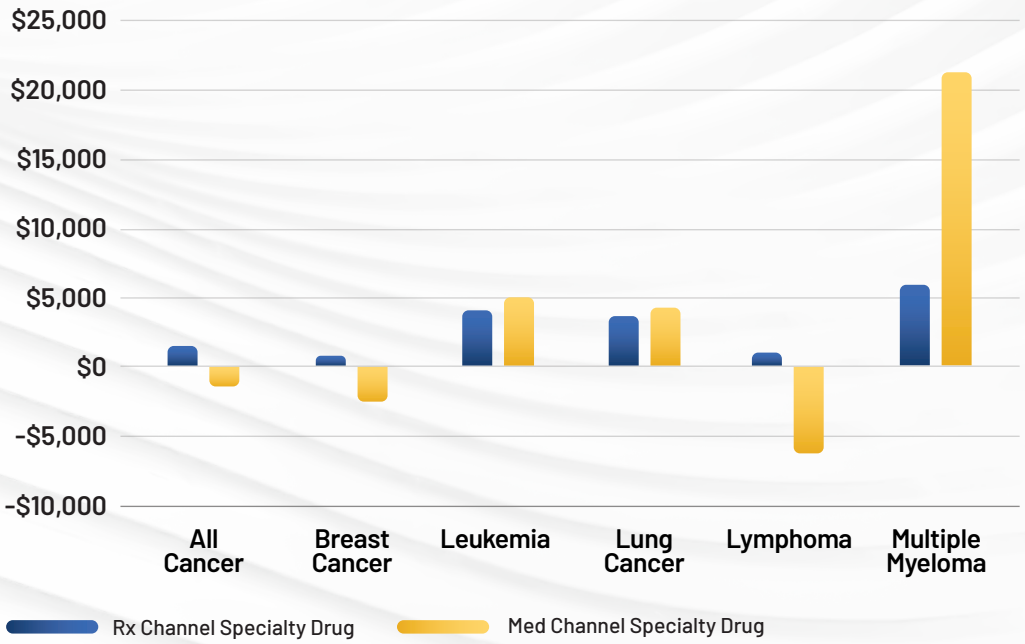
Other drivers of cost include:

- **Breast cancer and lung cancer:**
  Therapeutic Services – Radiation Therapy
- **Leukemia:**
  Facility costs

Springbuk Data Indicated That the Main Driver of Changes in Plan Paid (Both Increase and Decrease) Is Also Related to Specialty Drugs

Change in Specialty Drug Plan Paid per Cancer Claimant

Year 3 vs. Year 1



The years in this chapter are defined as:

Year 1: July 2019-June 2020
Year 2: July 2020-June 2021
Year 3: July 2021-June 2022

Across each employer's plan, year-over-year spending on specialty drugs is impacted by the specific drugs used in treatment (switching to or away from more expensive drugs), and the increase or decrease in the cost of each specific drug over time:

- Lymphoma and breast cancer saw drops in medical specialty drug costs, largely due to the use of biosimilars
- Multiple myeloma, leukemia, and lung cancer show large increases in cost related to medical channel specialty drugs and Rx channel specialty drugs

Specialty drugs play a key role in treating many forms of cancer; however, many of these drugs come at a very high price. Employers should be aware of ways to provide necessary drugs at the lowest cost.

To help provide the best treatment at the lowest cost, the use of biosimilars, in place of biologic reference products, is an option for several cancer treatments.

Drugs used in cancer treatment that have biosimilars include:

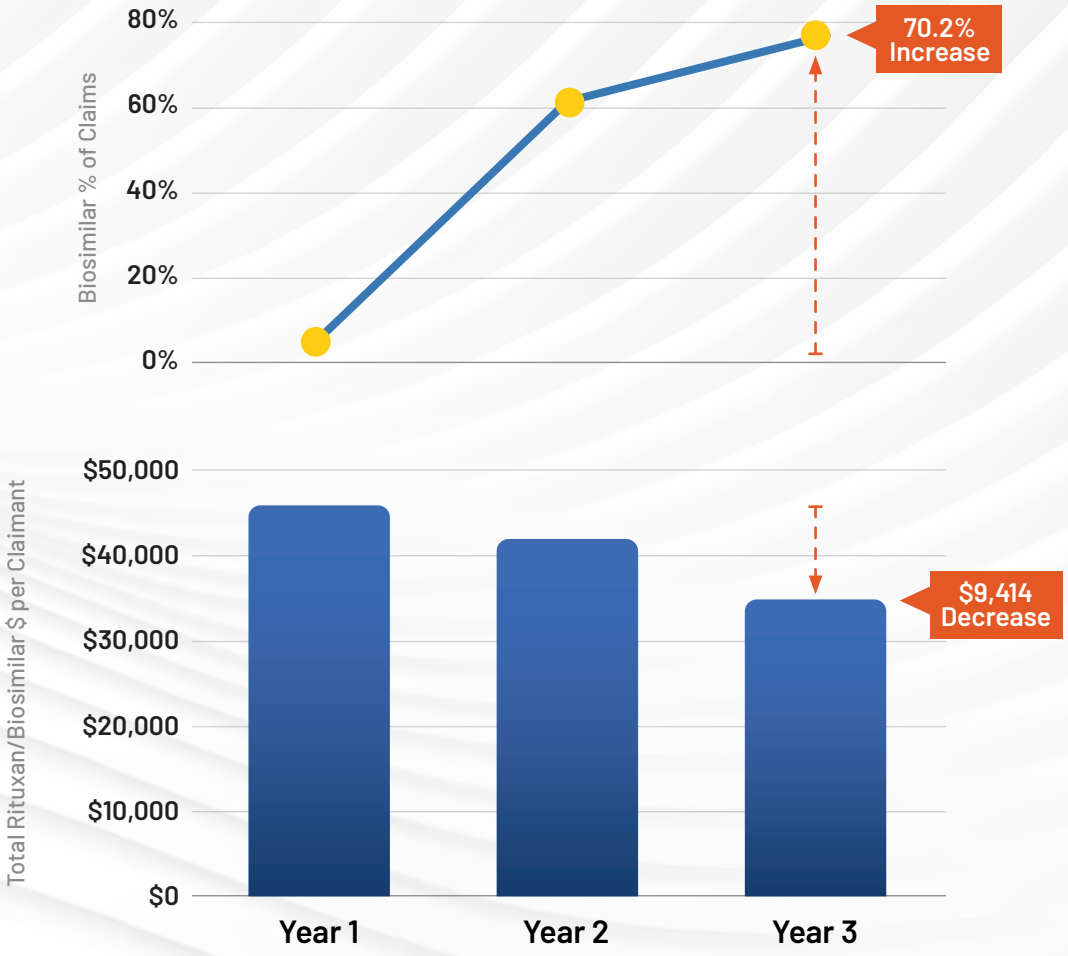
- **Rituxan** - used in the treatment of some forms of lymphoma and leukemia
- **Herceptin** - used in the treatment of some forms of breast and stomach cancer
- **Avastin** - used in the treatment of some forms of colorectal, ovarian, cervical, brain, lung and renal cancers
- **Neulasta and Neupogen** - both are used in decreasing risk of infection in individuals receiving chemotherapy

Biosimilar:

A biologic drug that is very much like another biological drug (called the reference drug) that has already been approved by the U.S. Food and Drug Administration (FDA). To be called a biosimilar drug, a biological drug must be shown to be as safe as, work as well as, and work in the same way as its reference drug. It must also be used in the same way, at the same dose, and for the same condition as the reference drug. (From NCI)

Lymphoma: Members Receiving Rituxan or Rituxan Biosimilar

Biosimilar Uptake Impact on Plan Paid per Claimant

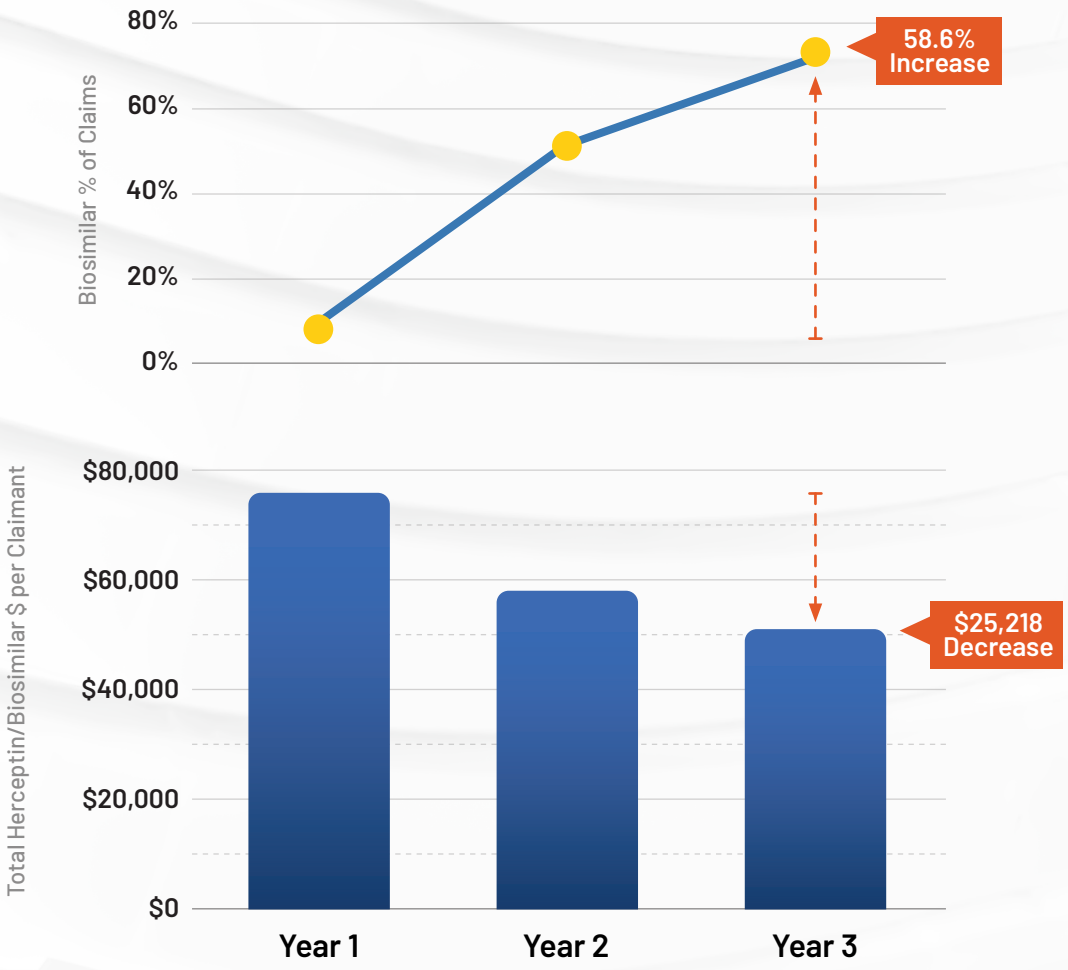


The years in this chapter are defined as:

Year 1: July 2019-June 2020
Year 2: July 2020-June 2021
Year 3: July 2021-June 2022

Breast Cancer: Members Receiving Herceptin or Herceptin Biosimilar

Biosimilar Uptake Impact on Plan Paid per Claimant



Increased adoption of biosimilars for Rituxan and Herceptin has led to decreased treatment costs for members being treated with these drugs.

The impact of biosimilar use is exemplified by decreases in medical channel drug spending for both breast cancer and lymphoma.

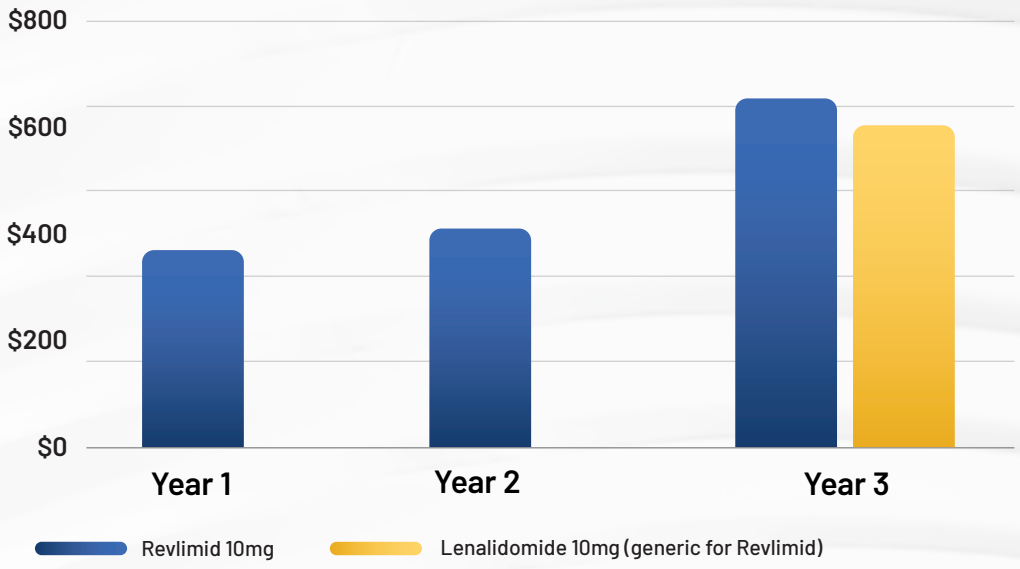
The top drug used in breast cancer treatment by plan paid in Year 1 was Herceptin, a drug used in treating a specific form of breast cancer - HER2 receptor positive.

- Adoption of biosimilars over the three-year period resulted in an almost $25,000 savings per patient treated with Herceptin and/or its biosimilars
- Spreading the savings across all breast cancer patients accounted for over $2,000 in savings per breast cancer claimant

The top drug used in lymphoma treatment in Year 1 was Rituxan, a drug sometimes used in the treatment of non-Hodgkin lymphoma.

- Adoption of biosimilars over the three-year period resulted in an almost **$10,000 savings** per patient treated with Rituxan and/or its biosimilars
- Spreading the savings across all lymphoma patients accounted for about **$1,500 in savings** per lymphoma claimant

Revlimid vs. Generic: Plan Paid per Day



While many of the top drugs used in cancer treatment are biologics, **some are non-biologic drugs that still come at a high price.**

Data show us that about half of members with multiple myeloma take Revlimid, or its generic equivalent, Lenalidomide, which was launched in March 2022.

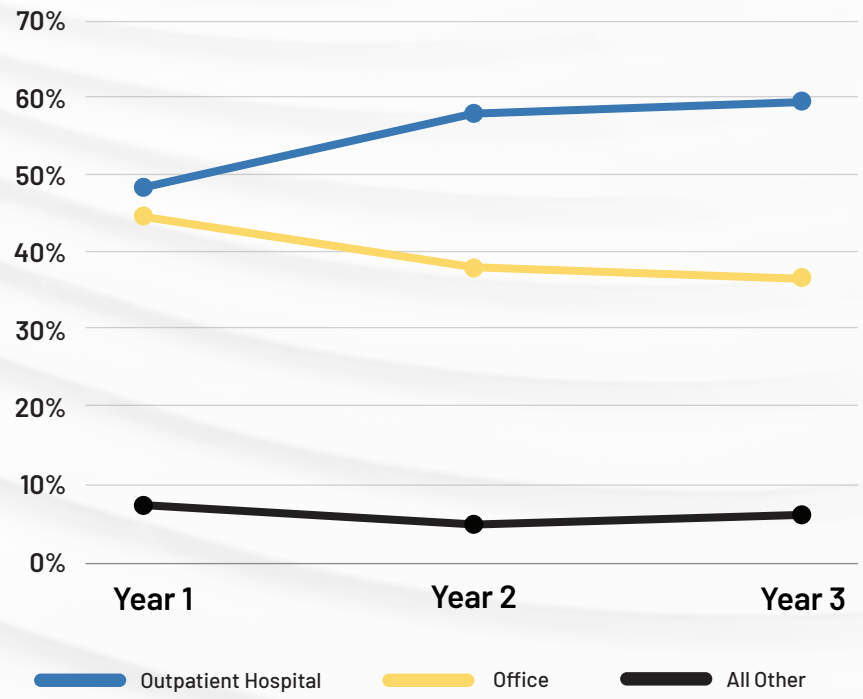
- Revlimid is a costly drug, with **an average plan paid of over $600/day** in the most recent time period
- A recently released generic form is also costly, but results in a **savings of about $1,000 per month** compared to Revlimid

For multiple myeloma, the increase in the cost per days supply is one of the drivers of increased spending per member.

- The plan paid per day for a 10 mg dose (the most common dose in Springbuk data) has **increased by about 24%** from Year 1 to Year 3

There is a savings of $33/day by switching to the generic form of Revlimid (Lenalidomide). Unfortunately, the generic form is volume-limited (only allowed to dispense a small percentage of doses relative to Revlimid). This restriction will be removed in 2026.

Percentage of Keytruda Claims by Place of Service



Data indicates that **Keytruda is the top specialty drug by plan paid used in the treatment of cancer,** having potential application in a wide variety of cancer types. It accounts for about **12% overall** of specialty drug spending in cancer and **about 1/3** of specialty drug spending for lung cancer.

phm INSIGHT

There has been a shift from office to outpatient hospital settings for the administration of Keytruda in recent years. Employers should consider steering employees back to in-office settings where cost savings can be substantial.

Site of service for Keytruda, which is administered through an intravenous infusion, has a large impact on the cost of this drug. **There may be savings opportunities when it is feasible to administer this drug in an office setting.**

Despite the potential savings of administering this drug in an office setting, **the percentage of Keytruda claims identified as having outpatient hospital settings have increased since Year 1 from about 49% of claims to 59% of Keytruda claims.** It's possible that COVID-19 may have had an impact on the place of service utilized in early 2020.

When looking at claims from the most recent time period for the most common Keytruda dose in the Springbuk book of business (200 mg), there is a 43% savings when administered in an office setting rather than an outpatient hospital setting ($10,364 compared to $18,051).

Action Items and Key Takeaways

Cost of treating cancer is increasing due to an **increase in the rate of cancer with active management and increased cost to treat each cancer claimant.**

- **The main driver of the cost to treat cancer is related to specialty drug costs.** Specialty drugs are important in achieving better clinical outcomes. When feasible, the use of biosimilars/generics and administration in an office setting rather than an outpatient hospital setting can reduce costs.

- **Consider the use of Centers of Excellence and expert clinical guidance, navigation, and support** to ensure members are receiving the best treatment and to avoid the use of costly, ineffective treatments. Furthermore, employers should enhance access to the appropriate molecular diagnostics, which will aid in facilitating personalized treatment and lead to better outcomes.

- **Employers should continue to emphasize timely preventive screenings to identify cancers early** and promote lifestyle changes that will reduce cancer risk, such as eating a healthy diet, reducing environmental toxin exposure, maintaining or attaining a healthy weight, tobacco cessation, reducing alcohol consumption, exercising, and using sunscreen.

3

CHAPTER THREE

Specialty Drug Use

Over the last few years, employers have navigated a minefield of pandemic-centric challenges, day-to-day employee needs, and inflation running rampant. With so much noise and pressure, they need resources that take the guesswork out of what to do next.

To help alleviate employers from sifting through actionless information, this year we again looked at trends in **specialty drug spending along with top conditions and drugs contributing to this spending.** We also saw the opportunity to cast a wider net and take a deeper dive into how biosimilars have impacted medical claim specialty drug spending. And, with the **upcoming launch** of the first Humira biosimilar in January 2023, we prioritized looking at different factors impacting biosimilar uptake through pharmacy claims.

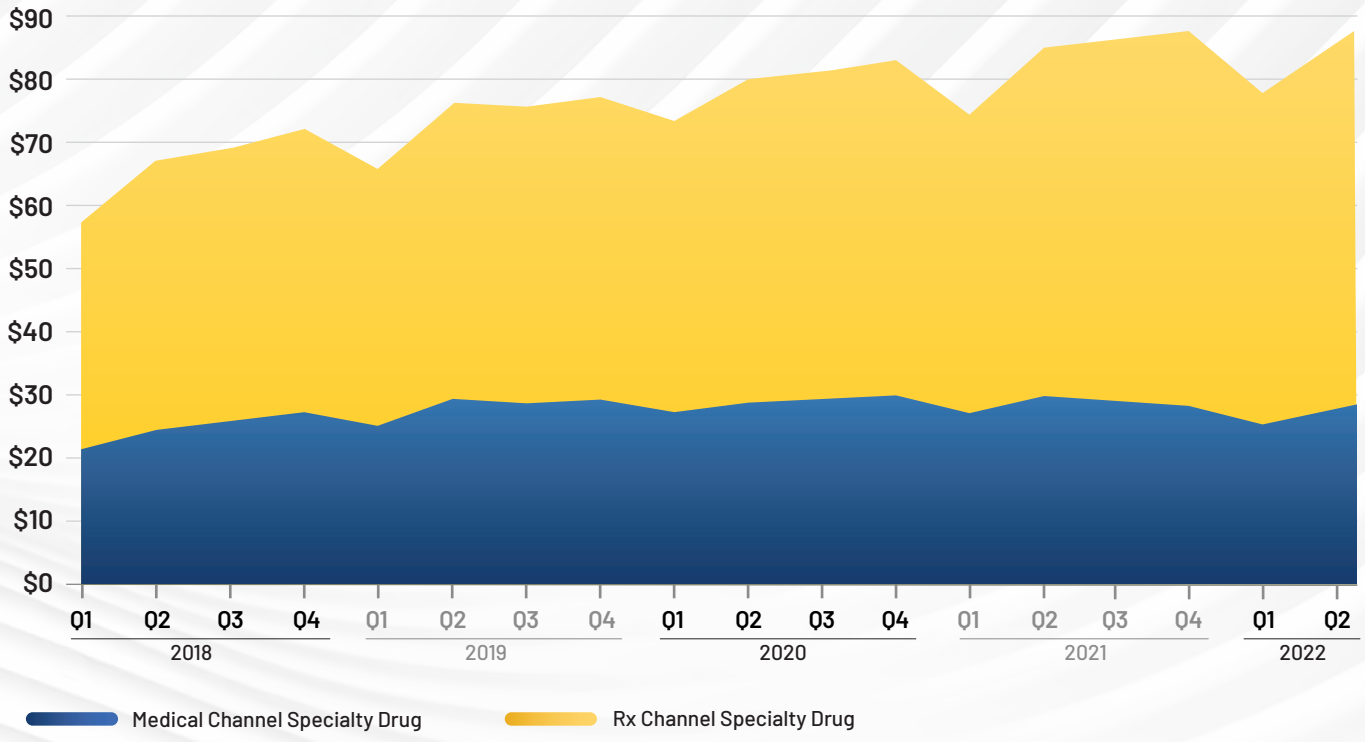
When our team began reviewing the most recent data, **we found that there has been an increase in the plan paid for specialty drugs of about 4.6% in the last year compared to the previous year.** This increase contributes to the almost 20% increase over the last four years (since July 2018-June 2022).

This increase contributes to the almost

20%

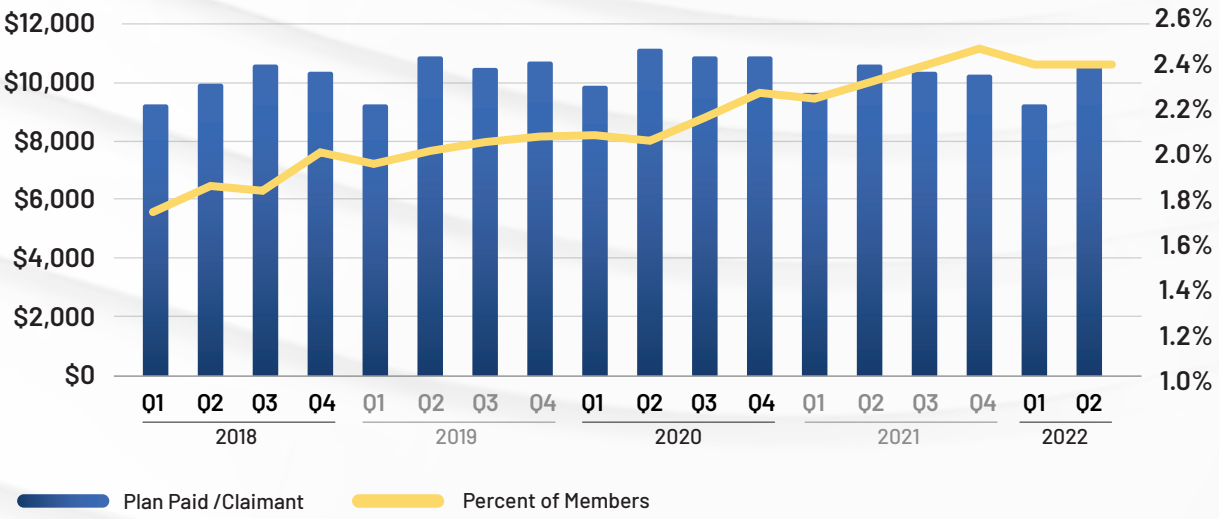
increase over the last 4 years

Average Plan Paid PMPM Spending on Specialty Drugs



- The percentage of total spending on specialty drugs coming through the **Rx channel has been increasing over the last three years** and now represents about **2/3 of total spending** on specialty drugs
- The percent increase in spending is much larger for Rx specialty drugs compared to specialty drugs through the medical channel: **31%** **compared to** **2%** between July 2018-June 2022

Trend in Specialty Drug Plan Paid per Claimant and Percent of Members Receiving



Over the past four years, we see most of the increase in specialty drug spending has been due to more members receiving specialty drugs. Our analysis showed that while both the percentage of members receiving specialty drugs and the cost/claimant have increased, **the percentage of members receiving specialty drugs is the bigger driver of increased specialty drug costs:**

- We found about **2.4% of members are currently taking at least one specialty drug** compared to 1.8% in Q2 2018
- Compared to Q2 2018, we see a **4.7% increase** in the specialty drug cost per claimant taking at least one specialty drug

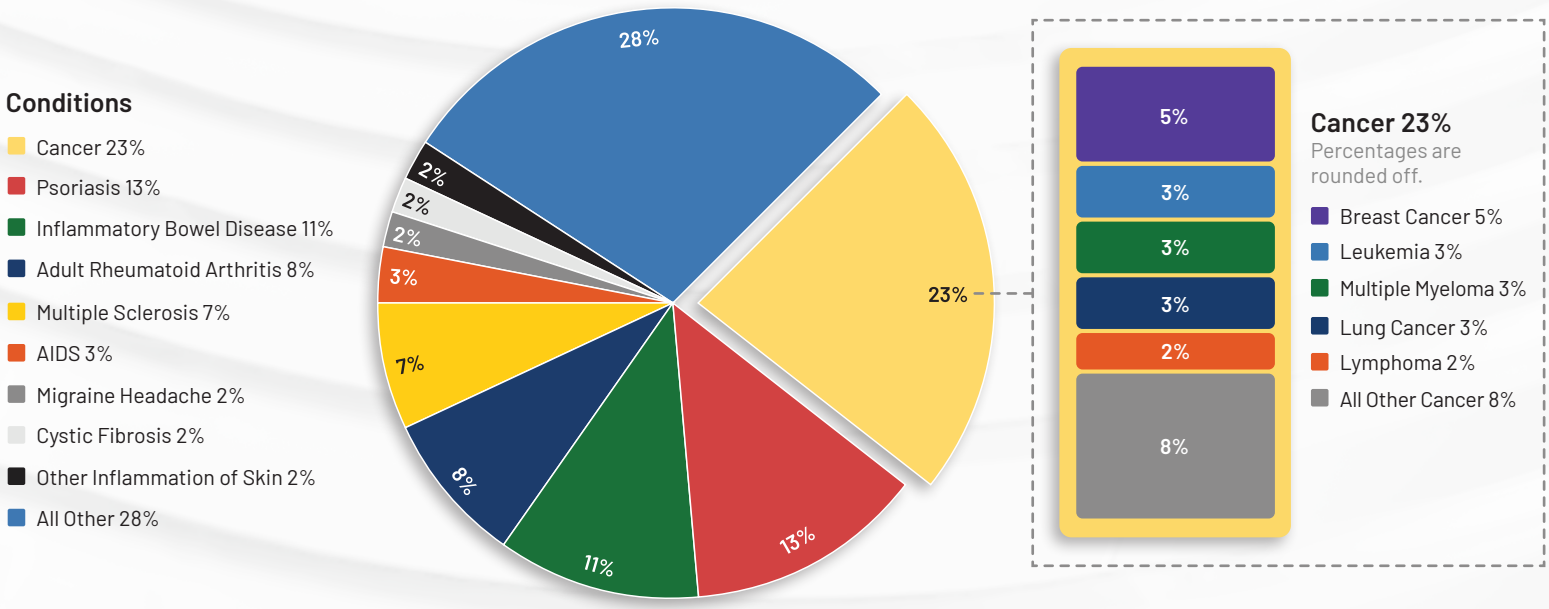
An increase of over 30% in the percent of members taking at least one specialty drug since Q2 2018.

Specialty Drug Spend

Springbuk data indicates that **cancer is the largest category for specialty drug use**, followed by inflammatory conditions including psoriasis, adult rheumatoid arthritis and inflammatory bowel disease.

Specialty Drug Spending Attributable to Condition

July 2021 - June 2022



Further breakdown by category allows us to see the top conditions based on contribution to total specialty drug spend include:

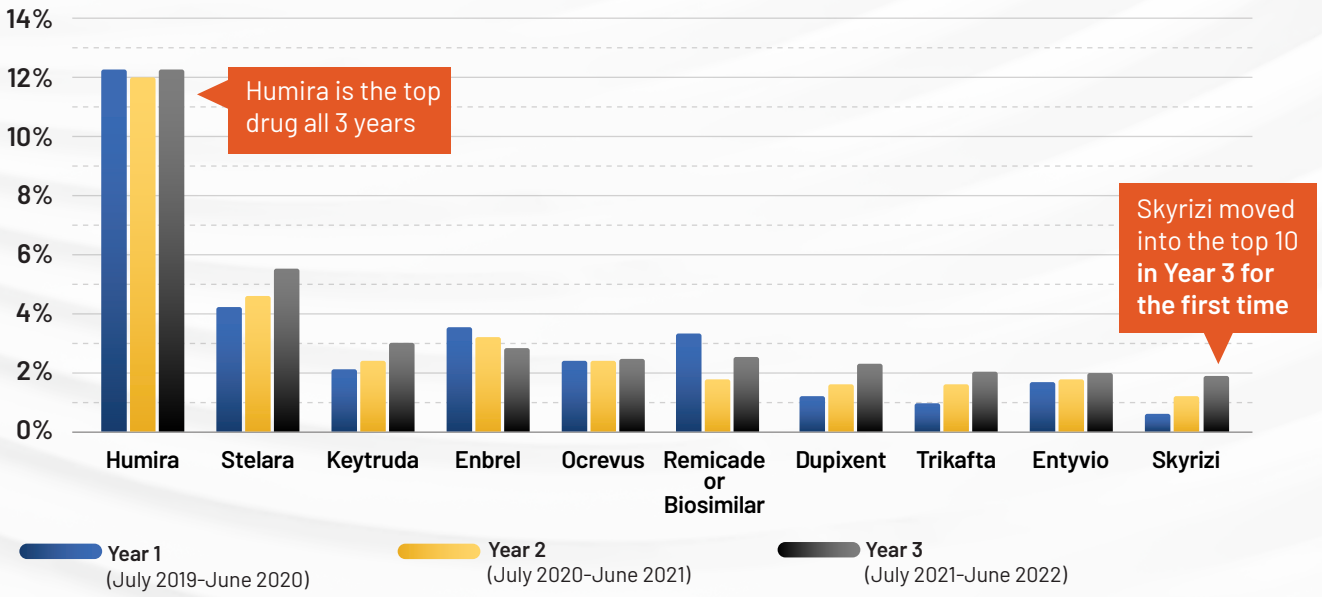
- Cancer
- Inflammatory conditions including psoriasis, inflammatory bowel disease, rheumatoid arthritis, and other inflammation of skin (e.g., eczema)

Other top categories that account for at least 2% of specialty drug spending include:

- Multiple sclerosis
- AIDS
- Cystic fibrosis
- Migraine headache

Note: All other conditions contribute less than 2% to the 28% "All Other" category.

Top 10 Specialty Drugs by % of Specialty Drug Plan Paid



With US Sales of over $17.3 billion in 2021, Humira continues its dominance as the top specialty drug by dollars in the pharmacy channel.

Humira has also been responsible for 12% of specialty drug spending across the Springbuk book of business over the last three years, largely due to its use in treating plaque psoriasis, psoriatic arthritis, rheumatoid arthritis, and inflammatory bowel disease.

And for the first time, **Skyrizi is now in the top 10 specialty drugs by plan paid, rising from 40th in Year 1 and 17th in Year 2.** It is likely that Skyrizi, which has many of the same indications as Humira and is made by the same manufacturer, will be marketed to offset the expected decrease in Humira sales in 2023.

The first Humira biosimilar is expected to launch in January 2023, with several more entering the market in July 2023 and after.

For employers who are frustrated with their stagnant plan and looking for additional cost-saving opportunities – this change is important, as they may need to work with their PBMs to ensure that these biosimilars are included in their formularies and employ strategies to encourage member adoption of these drugs.

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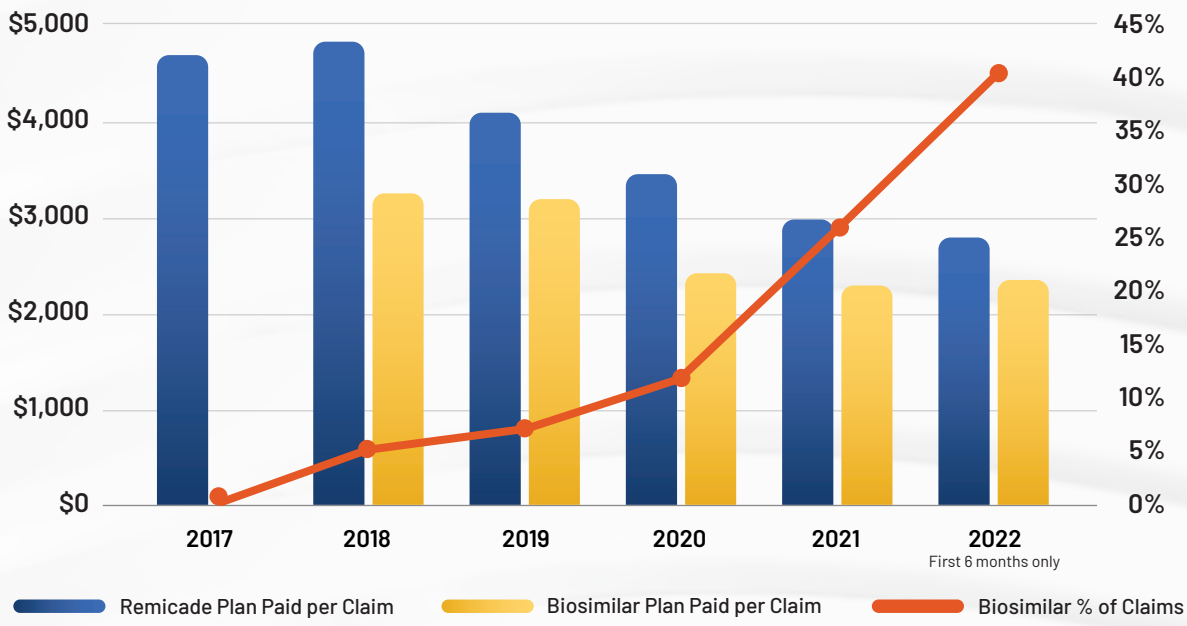
What Do We Know About Other Drugs With Biosimilars?

Biosimilars may help reduce specialty drug spending. In addition to costing less, they often drive down the cost of the reference product through competition. **Historically, most biosimilars have been administered through the medical channel.**

Biosimilars have driven down the cost of the originator drug through competition.

Remicade Plan Paid per Claim

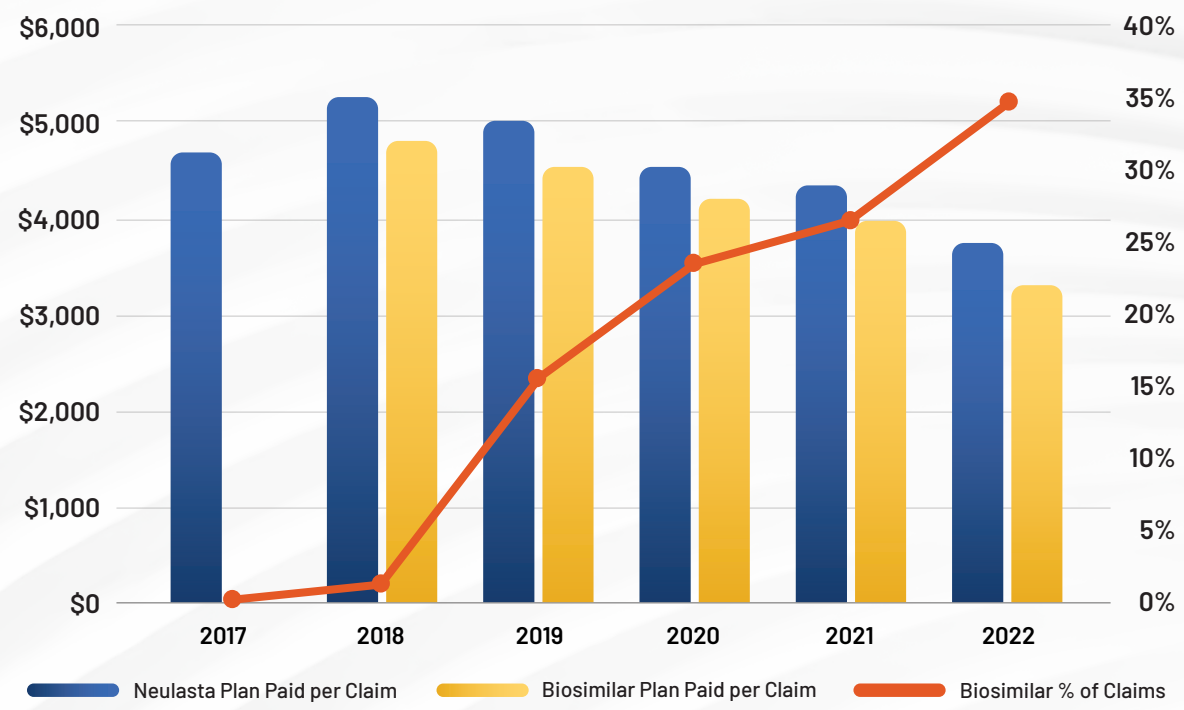
In the example year of 2021, the Biosimilar Savings was $684/Claim



Average cost per claim for **Remicade fell by $1,577** between 2017 and 2021, a 34% decrease

Neulasta Plan Paid per Claim

In the example year of 2021, the Biosimilar Savings was $347/Claim

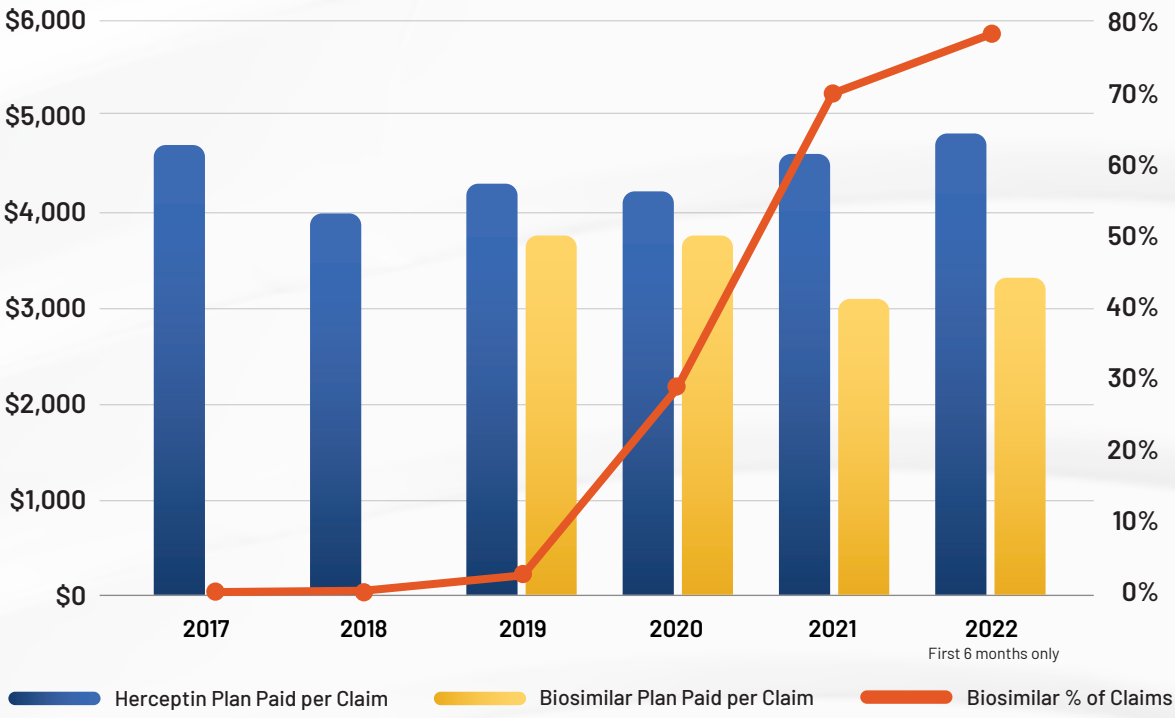


Average claim for **Neulasta dropped by $356** between 2017 and 2021, an 8% decrease

There was rapid adoption of biosimilars for Herceptin and Rituxan.

Herceptin Plan Paid per Claim

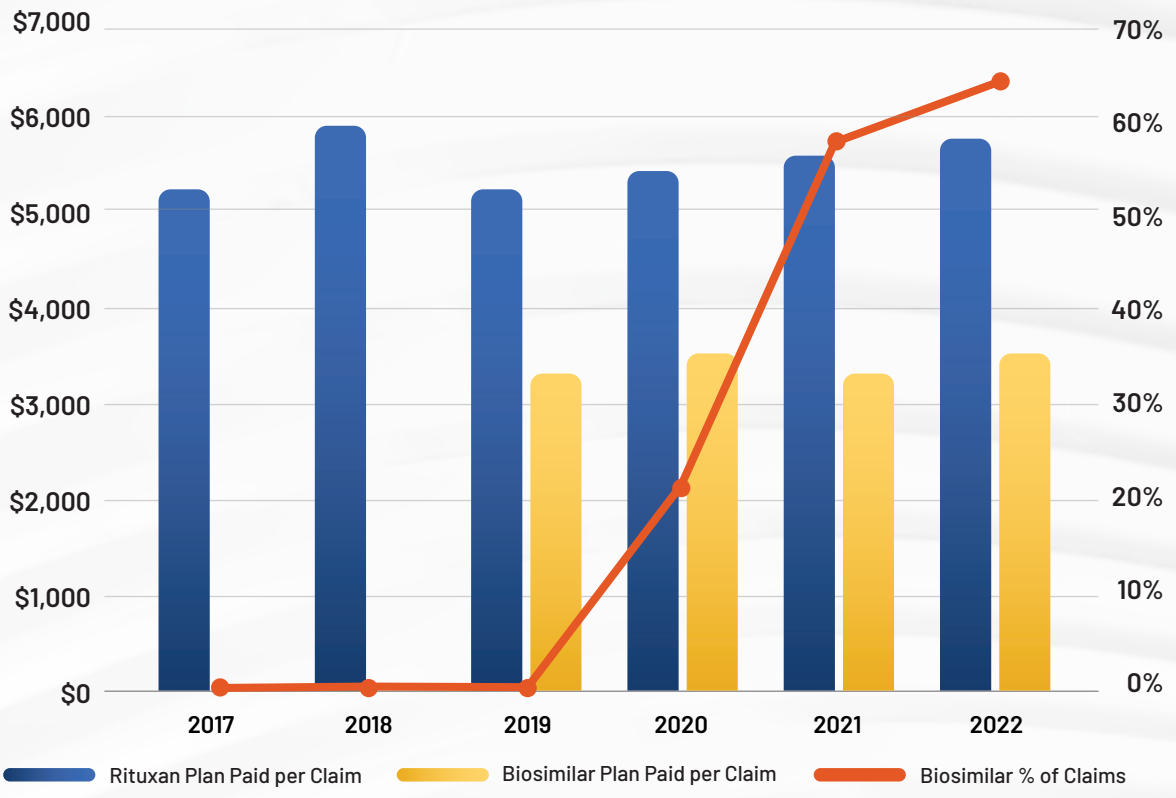
In the example year of 2021, the Biosimilar Savings was $1,444/Claim



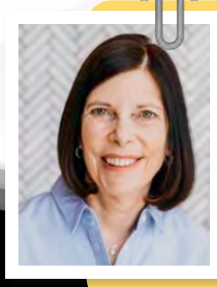
Rapid biosimilar adoption resulted in **76% share** of claims in first half of 2022

Rituxan Plan Paid per Claim

In the example year of 2021, the Biosimilar Savings was $2,205/Claim



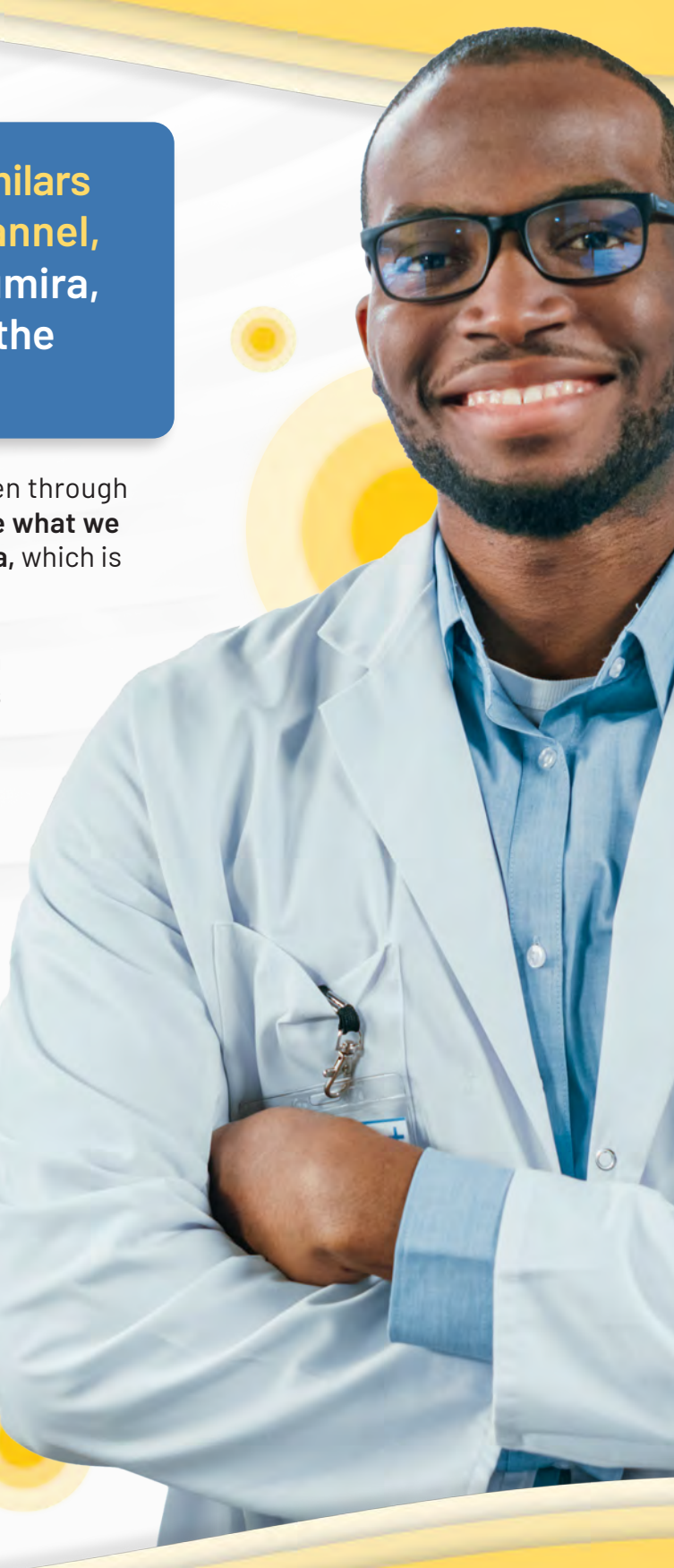
Rapid biosimilar adoption resulted in **63% share** of claims in first half of 2022



A NOTE FROM JANET

"Market penetration for biosimilars for Herceptin and Rituxan occurred quickly, with large savings on a per-claim basis. While there has been slower market uptake of Remicade and Neulasta biosimilars, **they appear to have created competition, driving down the price of both the reference product and biosimilars."**

Most of the spending on drugs with biosimilars to date has been through the medical channel, making findings hard to generalize to Humira, which is administered primarily through the Rx channel.



Because most of the spending on drugs with biosimilars has been through the medical channel, **we believe it may be hard to generalize what we see for Rituxan, Herceptin, Neulasta, and Remicade to Humira,** which is administered almost exclusively through the Rx channel.

Within the medical channel, drug selection is typically based on provider preference. But, within the pharmacy channel, access to specific drugs is restricted by the formulary. Members are incentivized to use drugs on lower tiers within the formulary, which typically require smaller member contributions.

Biosimilars will only be adopted if they are on the formulary, and have a greater chance of adoption if they are available at a lower price point for members. But, manufacturer programs that provide rebates directly to members may reduce out-of-pocket costs for drugs that would otherwise be more costly, potentially reducing the incentive to use a drug with a lower net cost for the employer.

Because members are unlikely to be familiar with biosimilars, **education will be necessary** to ensure the adoption of biosimilars. Understanding that biosimilars are as safe and effective as the originator drug will also be key to successful adoption.

Pharmacists and physicians will also play a central role in adoption. Unless a biosimilar has been classified as interchangeable by the FDA, pharmacists will only be able to substitute a biosimilar for a reference product (original drug) with physician approval.

Humira savings will be highly dependent on the actions of PBMs/insurers who control biosimilar inclusion on the formulary and tier placement.

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A Deeper Understanding In Biosimilars' Adoption

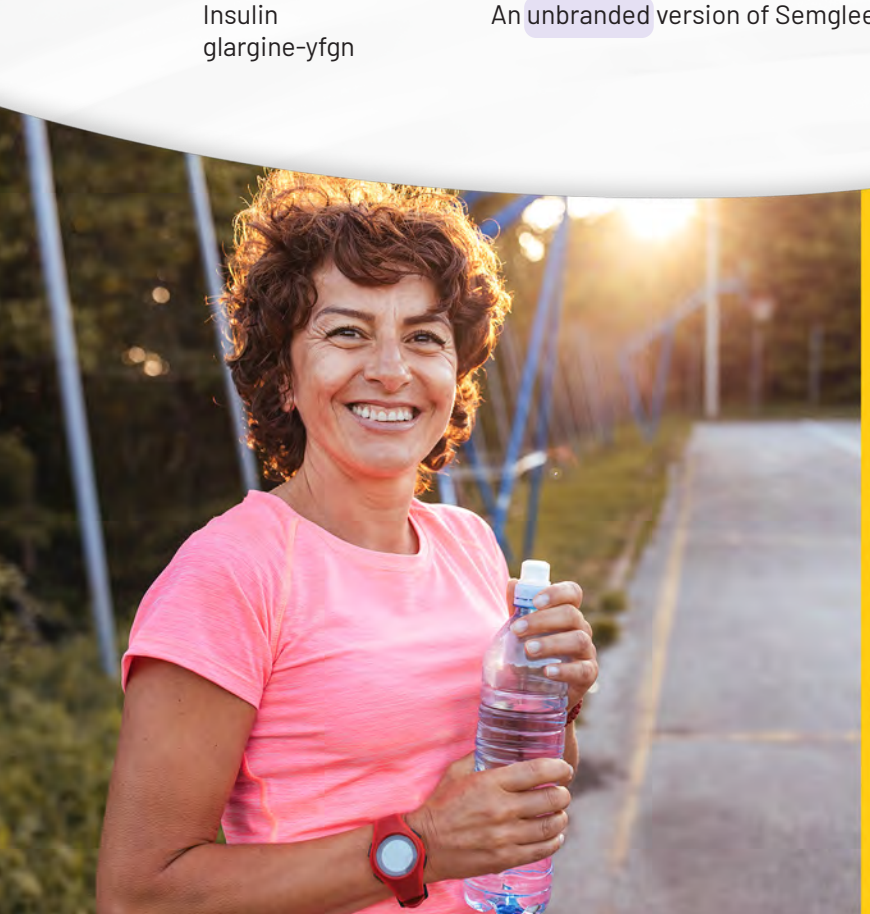
While insulin is a biologic, it was developed many years before the FDA started a separate approval process for biologics, and was considered a drug.

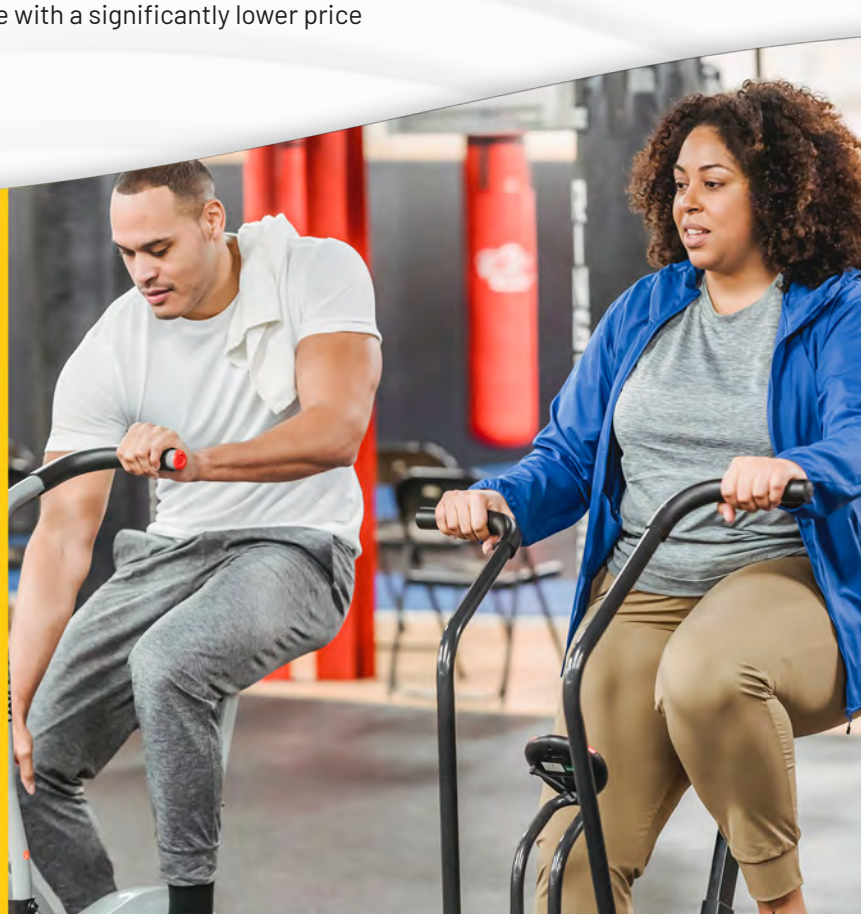
But in 2020, it was moved so that **approval of new forms of insulin is now under the biologic regulatory framework.**

The recent launch of a biosimilar for Lantus (insulin glargine) may help us understand biosimilar adoption in the Rx channel.

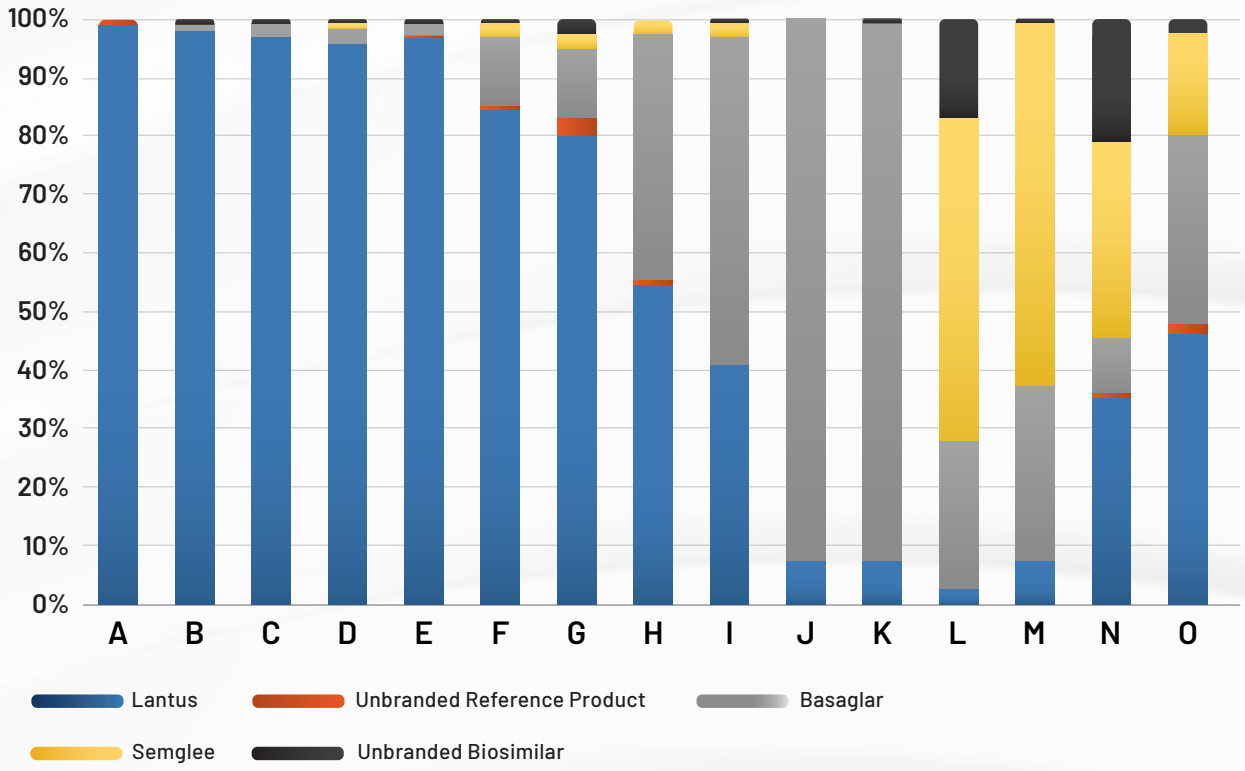
We reviewed claims related to Lantus and its biosimilars from 15 large carriers for Jan. 2022-Sept. 2022.

Drug	Description
Lantus (insulin glargine)	The reference product
Insulin glargine	An unbranded version of Lantus
Basaglar	A "follow-on drug" to Lantus, launched in 2016. It is essentially a biosimilar, but was launched prior to insulin being within the biologic regulatory framework.
Semglee	An interchangeable biosimilar for Lantus, launched in November 2021. It was approved in 2020 as a "follow-on drug" to Lantus, but later approved under the biologic regulatory framework in 2021 as an interchangeable biosimilar.
Insulin glargine-yfgn	An unbranded version of Semglee with a significantly lower price





Use of Lantus vs. Biosimilars for Carriers A to O



Note: All drugs shown are insulin glargine or biosimilar. Lantus is the reference product.
*Unbranded reference product is insulin glargine and unbranded biosimilar is Insulin glargine-yfgn.

A NOTE FROM JANET

"Very low use of a particular product is most likely a **result of a product not being on the insurer's formulary,** while very high use of a product is likely to occur when the product is the only one on the formulary. It's important to understand which drugs are on the formulary for your population. **Biosimilar adoption will only occur if they are included in the formulary, and being on a lower tier than the reference product creates greater incentive for their use."**

When reviewing the percent of claims for insulin glargine by brand for top carriers based on the number of insulin glargine claims, Springbuk data indicated:

Insurers A-E:	Members receive mainly Lantus
Insurers F-I:	Members receive Lantus or Basaglar
Insurers J-K:	Members receive mainly Basaglar
Insurer L:	Members receive mainly Semglee or Unbranded Biosimilar
Insurer M:	Members receive mainly Semglee or Basaglar
Insurer N:	Members receive mainly Semglee, Unbranded Biosimilar, or Lantus
Insurer O:	Members may receive Lantus, Basaglar, or Semglee

If carriers were not influencing whether Lantus or another form of insulin glargine was selected, we would expect the distribution of products used by each carrier to be similar. **We can clearly see that different carriers prefer different drugs.** While list prices for Lantus biosimilars are typically less than Lantus, preference may be influenced by price after discounts and rebates.

Despite being designated as interchangeable with Lantus, Semglee's low utilization by most insurers suggests that many plans did not include it on their formulary in 2022.

As Humira biosimilars enter the market, it will be important for employers to work with PBMs to understand which of these drugs offer the lowest net cost, and to ensure that they are on the formulary. In 2023, drugs offering the lowest net cost may be a fluid situation as market pressure increases with an influx of Humira biosimilars in the second half of the year.

Action Items and Key Takeaways

- **Increased spending on specialty drugs is largely due to an increase in the percent of members taking at least one specialty drug.** Most specialty drug spending is on cancer drugs and drugs related to inflammatory conditions.

- **Use of biosimilars in the medical channel has resulted in savings** due to the lower cost of biosimilars and market pressure on reference drug pricing. Lowering cost not only results in savings for employers but can increase access for members by lowering their financial burden.

- **Experience with the use of biosimilars is limited in the Rx channel,** but the use of Semglee (a biosimilar for Lantus) by carrier shows the influence of PBM/insurer on the adoption of biosimilars.

- **Employers need to work with PBMs to understand which drugs result in the lowest net cost.** Because the market for Humira and its biosimilars will be rapidly changing in 2023, with an influx of biosimilars in the second half of the year, revisiting which of these drugs offers the lowest net cost will be important.

- **To realize savings from biosimilars in the Rx channel, those drugs need to be on the formulary.** Placement on a lower tier than the reference product provides greater incentives for their adoption.

- While members are likely to be aware of generic drugs, most are not familiar with biosimilars. **Educating members to understand that these drugs are as safe and effective as the originator drug, but generally less costly, is likely to improve adoption rates.**

4

CHAPTER FOUR

Telemedicine & Mental Health Services

Throughout the pandemic, employers have relied heavily on various point solutions and telemedicine options in addition to traditional benefits to support employee needs.

After a few years post-implementation, employers are wondering:

Are employees using these options?

Do they know what is available?

Are the point solutions and virtual options making any real impact?

Despite the unconventional benefits landscape, participation and utilization data have remained a prominent metric in gauging the success of a health or wellness initiative. It's here where **the integration of data presents us with the opportunity to understand how employees are engaging with programs and influencing overall costs** to provide the best experience possible.

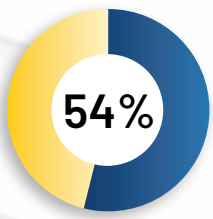
Telemedicine Has Claimed a Permanent Seat at the Benefits Table

Based on analysis of utilization, telemedicine seems to be here to stay, especially given the increased need for mental health visits and the value it provides related to access, affordability, and situational context.

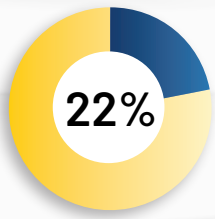
Data from the 2023 BGH LE Survey shows a majority of employers feel telemedicine/virtual care will have a significant impact on how care is delivered in the future. **They also indicated that this vehicle of care is one benefit/offering that has remained in place within their strategy and is likely to continue:**

- In 2019, only 37% said virtual care has a significant impact on care delivery compared to 74% in 2022 (BGH)
- In looking at the top 5 programs offered as part of their well-being strategy, 93% of Healthiest Employers offered telemedicine options in 2022: telemedicine was not in the top 5 in 2019
- Per previous Employee Health Trends reports – the ongoing top use of virtual care is for mental health/behavioral health – EAPs and behavioral health programs are also in the top 5 programs offered by Healthiest Employers employers for 2022
- Of the top health care initiatives for 2023, implementing more virtual health options was the top priority (54%) of BGH respondents

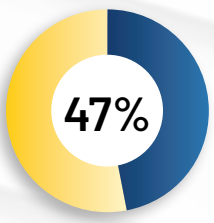
Business Group on Health **Data From Business Group on Health Large Employer Survey**



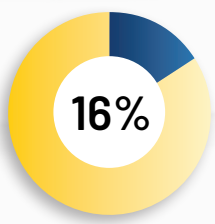
Implement More Virtual Health Opportunities (e.g. Mental Health, Physical Therapy, and Digital Coaching)



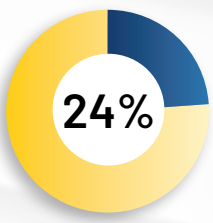
More Focused Strategy on High-Cost Claims



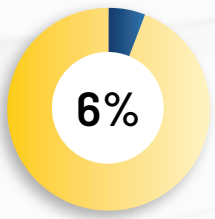
Expand Access to Mental Health Services



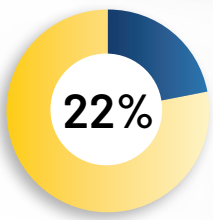
Implement High-Performance Networks



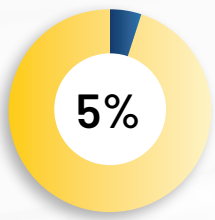
Implement Initiatives to Reduce Health Inequities Within Health Plans



Eliminate Out-of-Network Coverage for Select Services



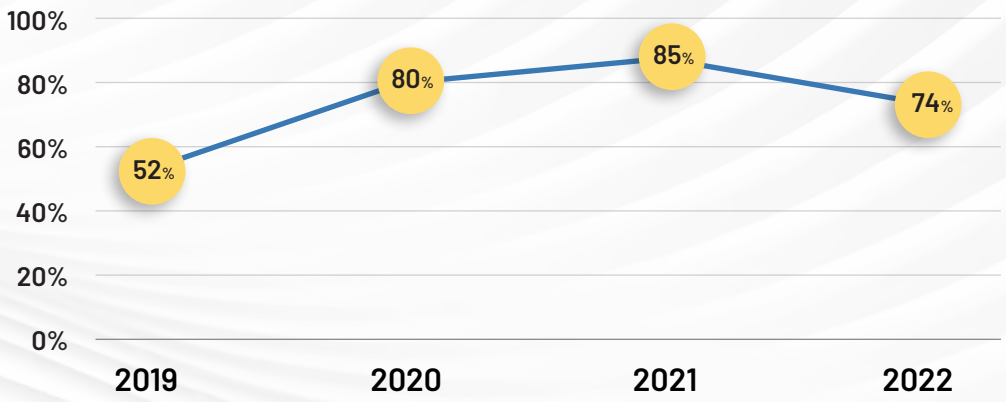
Expand Centers of Excellence to Include Additional Conditions (e.g. Cancer and Infertility)



Consolidate/Reduce the Number of Virtual Health Solutions Offered

Large Employer Views of Virtual Health

2019-2022



Note:
The figures on the graph are the percent of employers that believe virtual health will have a significant impact on how care is delivered in the future.

The surge in telemedicine adoption and innovation has introduced opportunities for members to receive care and treatment in ways unlike ever before. When we look back and review pre-pandemic telemedicine utilization rates, **Springbuk data shows the top three conditions for telemedicine were:**

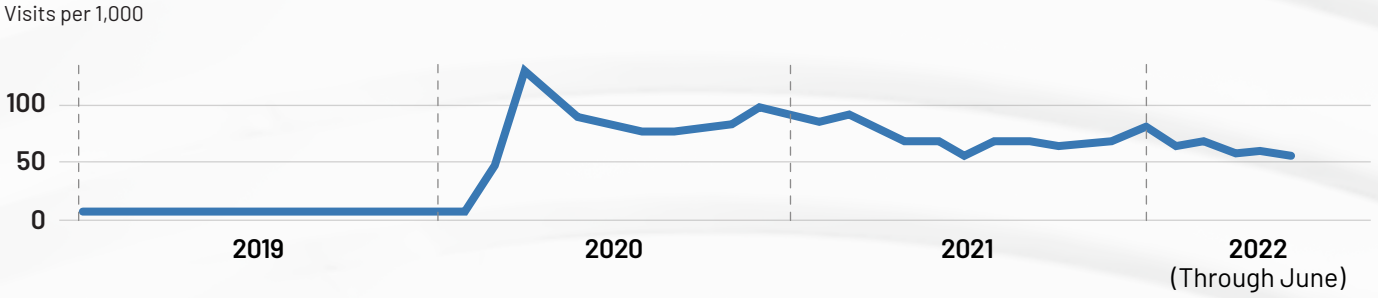
Mild & Moderate Infections (17.4 encounters/1,000 members)

Signs & Symptoms (4.4 encounters/1,000 members)

Preventative & Wellness (3.9 encounters/1,000 members)

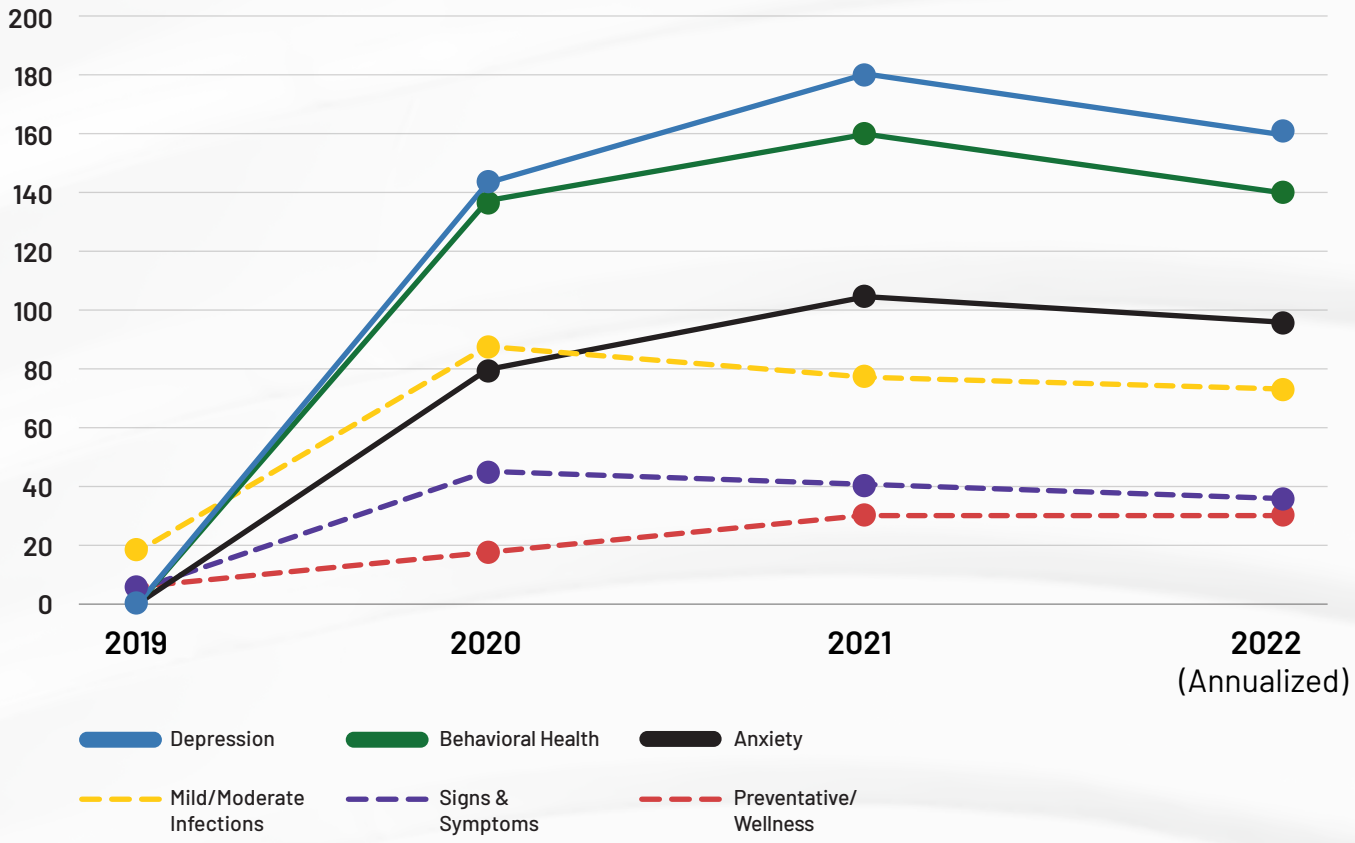
Has telemedicine remained in its "new normal"?

- Last year we noted **the April 2020 peak in telemedicine** brought on by the pandemic, and watched it **decline by June 2021**. At that point we wondered what the future might hold.
- As we review 2022 data, telemedicine has continued to decline but remains above 2019 levels and continues to stabilize for mental health patients – suggesting it to be **a sustainable care method** for the foreseeable future.



Top Condition Groups for Telemedicine

(Per 1,000 Members)



Since our inaugural report, Springbuk data has continuously surfaced an ongoing demand for digital mental health support. And while telemedicine encounters for top conditions pre-pandemic increased substantially and are still being used at elevated rates, it was no surprise when our team found the **new top three conditions are all related to mental health:**

(Note: Figures below represent 2021, as 2022 is currently an annualized rate.)

Depression (179.4 encounters/1,000)

Behavioral health conditions (159.8 encounters/1,000)

Note: These conditions include but are not limited to substance abuse, autism spectrum disorders, attention deficit disorder, and bipolar disorder.

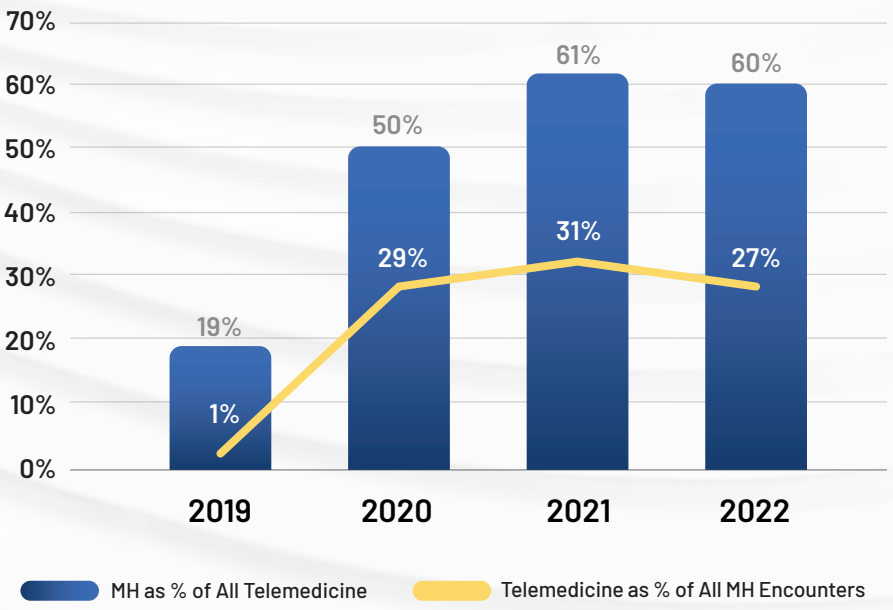
Anxiety (103.1 encounters/1,000)

Yet, despite the historical demand, when we look back to 2019, mental health conditions were not in the top three for this vehicle of care:

- Represented just 19% of all telemedicine encounters
- Only 1% of mental health encounters were conducted virtually

Starting in 2020, mental health conditions accounted for over half of all telemedicine encounters.

Mental Health (MH) and Telemedicine Trends



Using 2021 as an example:

Mental health related encounters represented **61%** of all telemedicine encounters.

Only **31%** of all mental health encounters were conducted via telemedicine, indicating an opportunity for continued growth and savings.

Today, we see that roughly 30% of all mental health encounters are through virtual visits. Through June of 2022, the adoption rate has decreased by roughly 4% points, which could suggest an increase in spend for these services might be coming.

It's important to note: **not all aspects of mental health can be treated virtually,** so we would not expect the 30% to increase to 100%, but it does indicate there is still room to grow.

Our analysis indicates that the PMPM (medical and Rx) for mental health conditions increased by 16.4% from 2020 to 2021, even with the savings that employers saw from the increase in telemedicine services.

In 2021, almost **a quarter** of all members (23.7%) were suffering from some sort of mental health condition. **As mental health conditions become more prevalent, and cost pressures continue to grow, we believe employers can benefit from the lower cost and increased access and efficiency that telemedicine provides.** By continuing to offer these to members, employers have an incredible opportunity to show their population they are dedicated to the mental well-being of their members.

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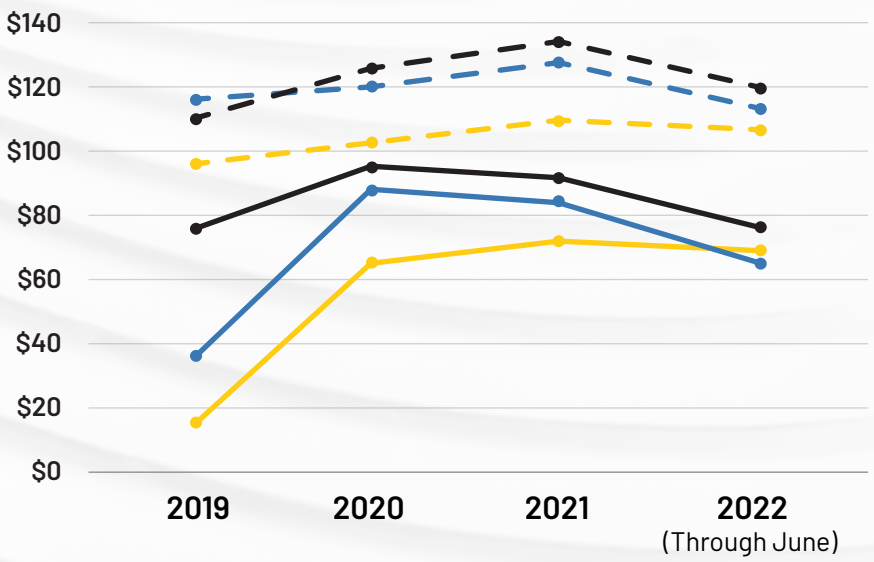
Telemedicine vs. Non-Telemedicine by Service Classification

(Plan Paid per Encounter)



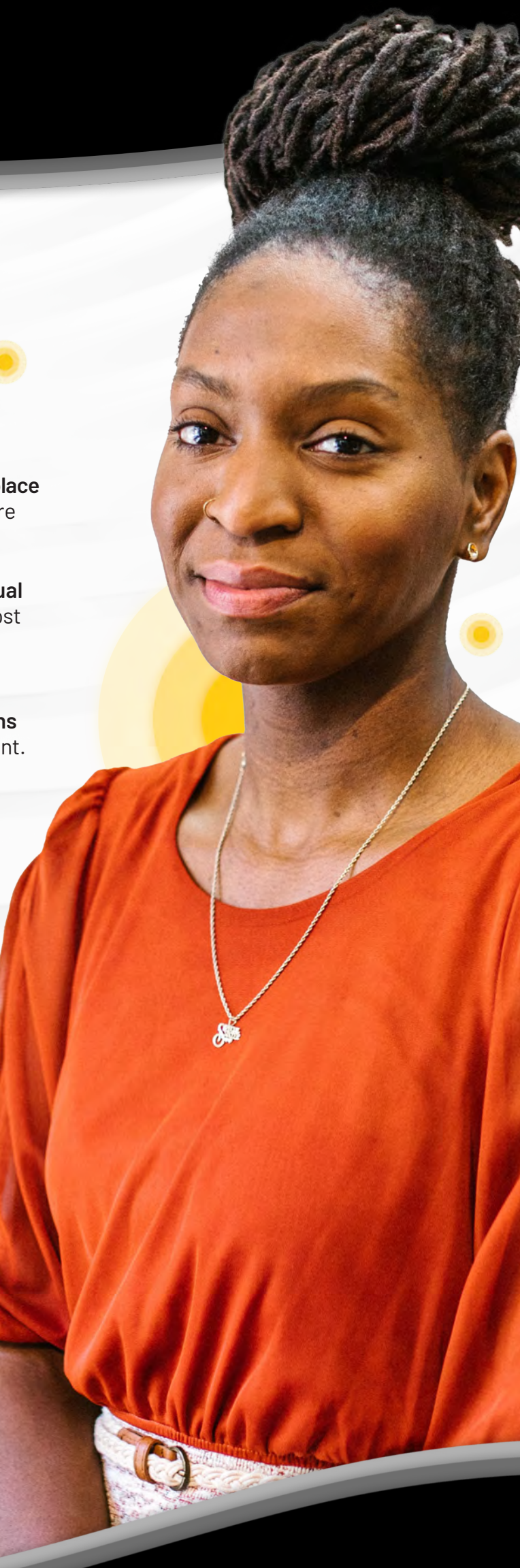
The potential savings opportunities that present themselves when incorporating telemental alternatives are important for employers to keep in mind, given that **mental health is now a top-five driver of plan paid cost** (along with cancer, MSK, infections, and gastrointestinal diseases).

But, the cost savings do not stop there. We also see potential spending relief associated with treating mental health conditions. According to the **NIH, "Research suggests that people who have depression and another medical illness tend to have more severe symptoms of both illnesses. They may have more difficulty adapting to their medical condition, and they may have higher medical costs than those who do not have both depression and a medical illness. Many people with depression may have less access to good medical care. They may have a harder time caring for their health — for example, seeking care, taking prescribed medication, eating well, and exercising."**

It's here we see an opportunity for employers to make a tremendous impact by looking for alternatives that take employees' physical, emotional, mental, and financial well-being into consideration.

Action Items and Key Takeaways

- **Telemedicine and virtual treatment have cemented their place as viable options for care,** particularly mental health care (depression, behavioral health, and anxiety).
- **Employers remain focused on implementing more virtual health options** for the ease of use/access, and potential cost savings of virtual visits vs. traditional visits.
- **Employers should explore solutions that address the connection of mental health and other medical conditions** to assist in driving positive outcomes and medical treatment.



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What You Can Do From Here

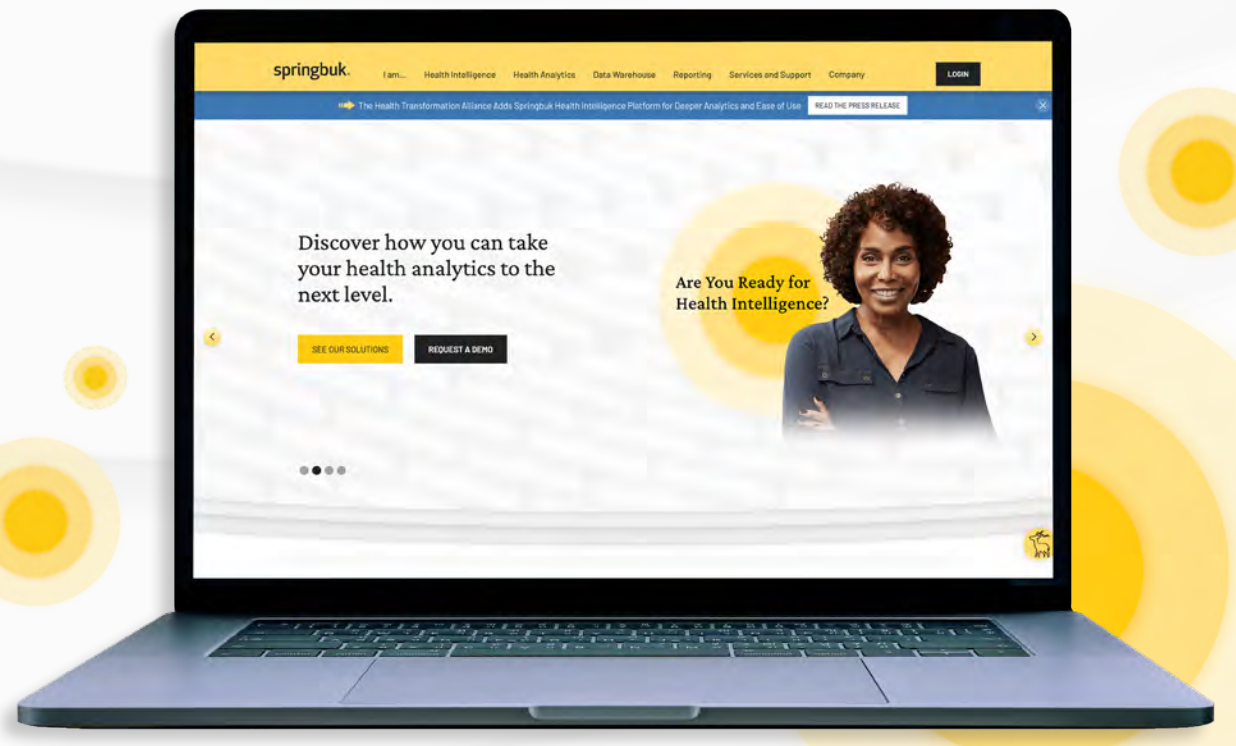
Your health data holds the key to providing the unique mix of benefits your employees need, without sacrificing your organization's bottom line.

To maximize the impact of your health benefits investment, you need the tools and insights to efficiently identify opportunities and meaningfully direct your resources. **These care and cost trends can take the guesswork out of where to start** and provide a framework for you to begin tailoring plans and programs with confidence.

By putting all your data to work, you can stay ahead of trends and make the best possible decisions for your people and business.

Let us show you how Springbuk can deliver the health data analytics and health intelligence you need to improve the health of your employee outcomes and maximize the value and potential of your programs.

Visit springbuk.com to learn more.



Copywriter: Nicole Anderson
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Glossary

Click the glossary word to return to its first use within the report

Biologics	Large molecules made by living cells. It is not possible to make an exact copy.
Biosimilar	A biological drug that is very much like another biological drug (called the reference drug) that has already been approved by the U.S. Food and Drug Administration (FDA). To be called a biosimilar drug, a biological drug must be shown to be as safe as, work as well as, and work in the same way as its reference drug. It must also be used in the same way, at the same dose, and for the same condition as the reference drug. (From NCI)
Cancer with Active Management	Member with a cancer diagnosis who is receiving chemotherapy and/or radiation therapy or who had a bone marrow transplant during the time period.
Cancer without Active Management	Member with a cancer diagnosis who did NOT receive chemotherapy, radiation therapy, or a bone marrow transplant during the time period.
Cost	The plan paid amount
Evusheld	A drug that may reduce risk of severe COVID-19 infection in immunocompromised individuals.
Follow-on Biologic	Prior to regulating new insulins under the FDA biologic path, when a company created its own version of another company's insulin, these drugs were considered to be follow-on drugs. Basaglar is considered a follow-on drug for Lantus, and Admelog is a follow-on for Humalog. These drugs cannot be substituted for the original product.
Interchangeable	An interchangeable biosimilar product is a biosimilar that meets additional requirements outlined by the law that allows for the FDA to approve biosimilar and interchangeable biosimilar medications. "An interchangeable biosimilar product may be substituted without the intervention of the health care professional who prescribed the reference product, much like how generic drugs are routinely substituted for brand name drugs. This is commonly called pharmacy-level substitution and is subject to state pharmacy laws." (From FDA)
Long COVID	There is no universal definition of this condition, but most definitions include a wide range of signs and symptoms that occur or continue after the acute phase of COVID-19, and are not explained by an alternative diagnosis. Within the analysis, we look at symptoms that are present 90+ days after the initial COVID-19 diagnosis, which is consistent with the WHO definition of symptoms that develop or continue 3 months following the initial infection.
Low Acuity	Care for patients with less severe health problems
NSCLC	Any type of epithelial lung cancer other than small cell lung cancer (SCLC)
PMPM	Per Member Per Month
Reference Product	The original biologic drug
Specialty Drug	One that typically has one or more of the following attributes: high cost, biologic in nature, used in the treatment of rare or complex chronic conditions, and requires special handling or administration.
Spending	The plan paid amount
Unbranded	Made by the same manufacturer as the original product but purchased under the generic name. Unbranded biologics can be substituted for the manufacturer's original product.

Appendix

Date of Launch of First Biosimilar by Reference Product

* Reference Product name in Italics

- **Nov. 2013** | *Neupogen* | Reduce infections after cancer treatment
- **Nov. 2016** | *Remicade* | Treatment of rheumatoid arthritis, psoriasis, inflammatory bowel disease
- **July 2018** | *Neulasta* | Reduce infections after cancer treatment
- **Sep. 2018** | *Epogen/Procrit* | Treatment of severe anemia
- **July 2019** | *Avastin* | Cancer treatment (chemotherapy)
- **July 2019** | *Herceptin* | Cancer treatment (chemotherapy)
- **Nov. 2019** | *Rituxan* | Hematologic cancers, rheumatoid arthritis
- **Nov. 2021** | ***Lantus* | Diabetes
- **July 2022** | *Lucentis* | Macular degeneration
- **Jan. 2023** | ****Humira* | Treatment of rheumatoid arthritis, psoriasis, inflammatory bowel disease

*First insulin launched as an interchangeable biosimilar. Originally launched in 2020 as a follow-on drug, but a new interchangeable form became available in Nov. 2021.

Basaglar is also a biosimilar but was launched earlier as a "follow-on drug" to Lantus in Dec. 2016.

**Expected launch date for first Humira Biosimilar