Accident & Health

Market Report 2023

Enabling a more *resilient future*

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Providing affordable healthcare coverage for employees has grown into one of the biggest challenges employer groups face in today's economy. To attract top-quality talent and maximize productivity, employers must offer competitive health and benefit packages, while managing the rising cost of care to preserve a profitable business model.

In our 2023 QBE Accident & Health (A&H) Market Report, we examine the latest trends in health plan spending and provide practical insights that employers can draw upon while managing their self-funded healthcare plans.

We discuss the market trends for medical stop loss and related products including organ transplant and special risk accident. We examine cost containment strategies and captive structures, including our new segregated cell offering, Agora, which we are pleased to introduce to the market. We listened to the needs of our broker partners and customers to create this enhanced captive offering that enables employer groups to gain even greater autonomy over healthcare expenditures.

Overall, we're seeing medical stop loss claims rising at a faster rate in both frequency and severity than before the COVID-19 pandemic. Inflationary pressures have accelerated trends as providers seek to pass along higher labor and supply costs in healthcare network contract renewal negotiations.

In this increasing cost of care environment, medical stop loss insurance is even more important as a cost stabilization tool for employers with self-funded healthcare plans. Our industry-leading Claims and Risk Management Team is dedicated to helping our clients minimize unfavorable financial impacts. Specialty pharmacy continues to account for a growing share of health plan spending, and cell and gene therapies are staged for additional approvals over the next several years that offer the promise of treatment advances or even cures, but at an unprecedented expense to plan sponsors. As a result, we are continually researching advancements in care that offer new hope for patients but threaten to escalate employer costs at an extraordinary rate.

We also touch on several current healthcare market disruptors, including the widely debated and controversial elements of Artificial Intelligence (AI). Across the world, new questions and risks have emerged due to AI, including the possible displacement of large numbers of workers. While we recognize the benefits of AI, at QBE, we remain committed to maintaining personal connections in the belief that, as underwriters, there's no substitute for critical analysis of risk and close relationships with our valued partners.

We mention healthcare disparity challenges and the latest headlines in the drug manufacturing space, specifically those that impact supply and demand.

Finally, we cover what's happening at QBE. Our focus on environmental, social and corporate governance (ESG) efforts remains a priority. We continue to strengthen our awareness to identify improvements and opportunities that are meaningful to our customers, as well as our employees.

I hope this report provides new information and insights that will help you successfully navigate the shifting healthcare financing landscape and better support your employees.

Tara Krauss

Product offerings and market highlights

Medical stop loss *market highlights*

Employers who self-fund their healthcare plans are, first and foremost, running a business with unique risks to manage. Whether a financial institution, manufacturer, or university, each faces evolving challenges in today's economy, including inflation, a tight labor market and escalating healthcare costs.

With rising interest rates, the U.S. economy is showing signs of cooling. The "Big Quit" is also taking a toll. These current staffing conditions underscore the importance of an employer's healthcare plan as a key differentiator to attract and retain talent—the lifeblood of any business.

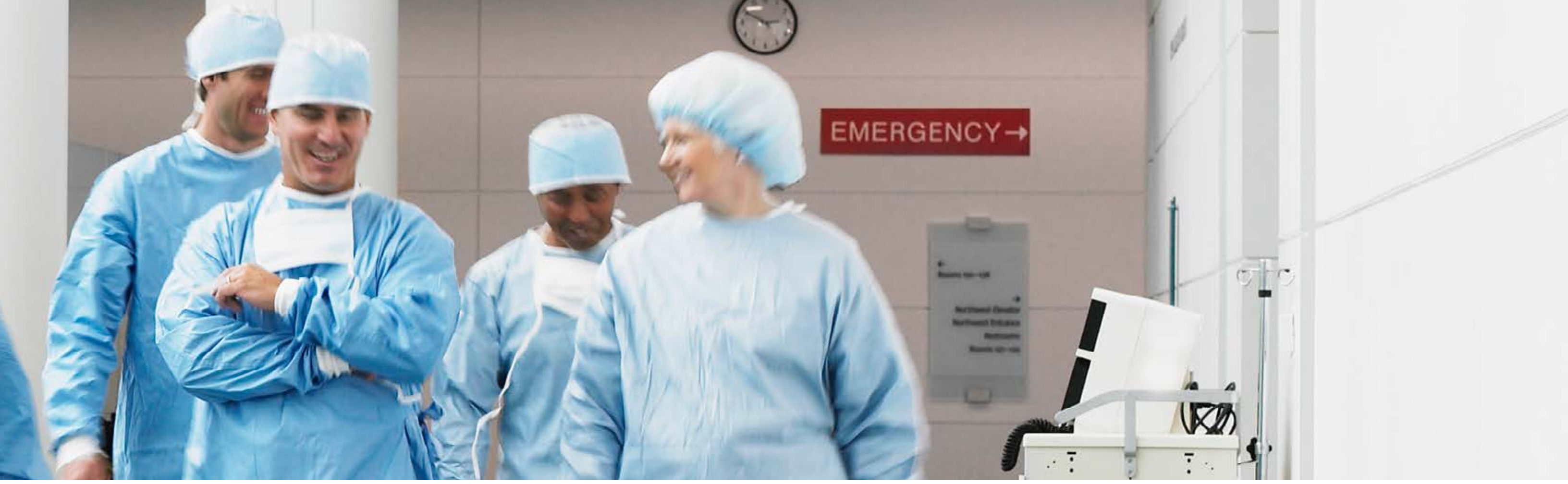
Following the pandemic's impact to our healthcare system, CFOs and CROs have never had a better appreciation of the risks their healthcare plans can face. These threats now include medical inflation, emerging cell and gene therapies, technological advancements in organ transplants, and an increasing reliance on behavioral health services.

Purchasing medical stop loss coverage as a mechanism to protect both an employer's financial and human capital is a key component in protecting an organization's balance sheet from catastrophic claims. Medical stop loss coverage acts as a fail-safe for an employer's self-funded health insurance plan, as the coverage insulates the plan from unforeseen large expenses and preserves the ability to offer choice benefits to retain top talent.

Alarming upward trend:

QBE's percentage of employers with at least one member that had over $1M in claims.

2018	3.5%
2019	6.4%
2020	7.9%
2021	11.6%
2022	12.4%



The top 20 stop loss insurers represent **80%** of the total market ($32B in premium).

The top 20 medical stop loss insurers represent 80% of the market. The total market is approximately $32B in annual premiums and has been growing about 8% annually over the last three years. The growth in the medical stop loss market parallels the significant rise in healthcare costs over the last three years. In 2000, U.S. health expenditures reached about $1.4T, and by 2021, the amount spent on health tripled to $4.3T.[1] An estimated 25% of that $4.3T is attributed to waste. Stop loss coverage is a foundational element in managing both risk and cost for self-funded plans, and a solid medical stop loss carrier can partner with employer groups to provide knowledge and suggestions on mitigating erroneous charges.

As of 2022, 65% of U.S. covered workers are in plans that are self-funded. For all employer sponsored plans covering 200 or more employees, 82% of all U.S. workers and their dependents are insured in a self-funded plan.[2]

A March 2022 poll found that

43% of adults reported that they themselves or a family member in their household postponed necessary healthcare due to cost.[3]

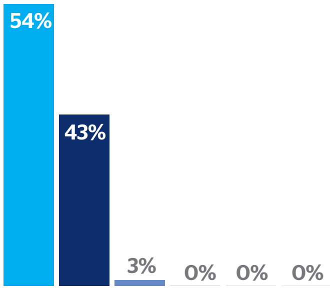
[1] How has U.S. spending on healthcare changed over time? - Peterson-KFF Health System Tracker
[2] Section 10: Plan Funding – 10020 | KFF
[3] Americans' Challenges with Health Care Costs | KFF

2022: QBE's top medical stop loss customers *by industry*

Rank	Industry
1	Wholesale trade: durable goods
2	Services (engineering, architect, accounting, research)
3	Hospitals
4	Educational services
5	General government
6	Health services
7	Computer services
8	Wholesale trade: non-durable goods
9	Machinery
10	Holding, other investment companies
11	Fabricated metal products
12	Business services
13	Instruments
14	Electrical machinery and equipment
15	Social services
16	Banking
17	Insurance agents and brokers
18	Transportation equipment
19	Nonprofits
20	Rubber and miscellaneous plastic products

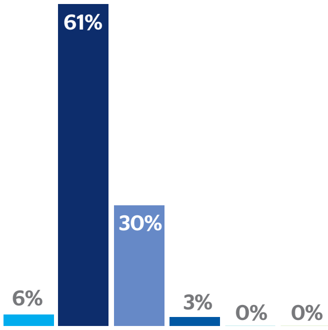
Specific deductible selections *by employer size*

Under 200 employees



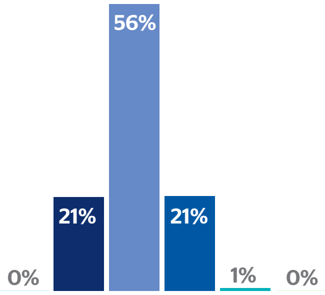
- Groups under 200 have the highest combination at 97% within the two lowest deductible ranges.

200-499 employees



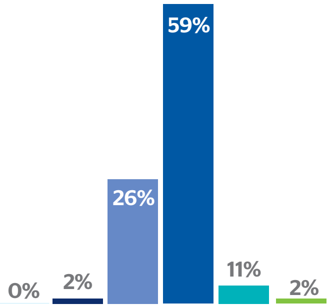
- 61% of organizations that have between 200-499 employees select specific deductibles between $76K and $149K.

500-999 employees



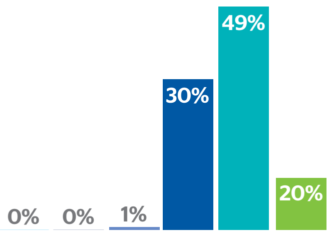
- 56% of groups between 500–999 chose a mid-range specific deductible and equal percentage for ranges of $76K–$149K and $250K–$499K.

1,000-4,999 employees



- 59% of companies with between 1K–4.9K employees choose the $250K–$499K deductible.

5,000+ employees



- At the over 5K+ employee level, the higher range deductibles increase to 20%.

Specific deductible levels

- $0-$75K
- $76-$149K
- $150-$249K
- $250-$499K
- $500-$999K
- $1M

NEW!

QBE's new captive solution, Agora, is now available

Captive medical stop loss *market highlights*

Medical stop loss captives are here to stay

Employers have been using medical stop loss to protect their health plan risk for generations. Over the past 15 years, medical stop loss has become an increasingly popular consideration for risk managers of self insured health plans. It's imperative to protect the solvency of a self-funded employer because of new high-cost gene and cell therapies hitting the market, the inflexible nature of healthcare economics, and post-pandemic healthcare trends.

With pressure to control costs at an all-time high, many health plan sponsors, creative risk advisors and entrepreneurs have been using medical stop loss captives to inject value in the marketplace. This strategy has been effective as employers now have an incentive to procure cost containment solutions that are proven to manage their higher level of retained risk typically transferred to a stop loss carrier.

AM Best's Market Segment Report titled U.S. Captive Insurance: Stepping in Amid Capacity and Pricing Challenges, states,

> "Since AM Best began annually reporting on the captive segment more than two decades ago, **the operating performance of U.S. captives it rates has readily surpassed that of their commercial market peers.**"

Group captives have also proven to self-manage adverse selection in the market as they often identify misaligned interests and poor risk exposures before agreeing to an employer participating in their program. Today, single parent and group captives have shown to successfully reduce fixed insurance expenses, deliver transparency and often capture underwriting profits and investment returns that would otherwise revert to an insurance company, ultimately reducing the cost of risk.

QBE has seen significant interest in captives over the past 10 years because of these proven value propositions. Due to this demand, QBE has responded with additional resources and support for our clients through the launch of our captive service model, **The QBE Captive Curve, and in-house captive program, Agora.**

The QBE Captive Curve was constructed with producer feedback in mind. QBE listened and can now deliver an all-encompassing captive offering that removes barriers to entry and provides improved efficiencies by eliminating unnecessary costs, long-term commitments and other potentially restrictive contract terms. Available to employers in need of value-based catastrophic risk financing, to employers looking for an open group captive program and anything in between. QBE's Agora is a great starting point for advisors and employers to gather as they begin their self-funded and captive journeys.

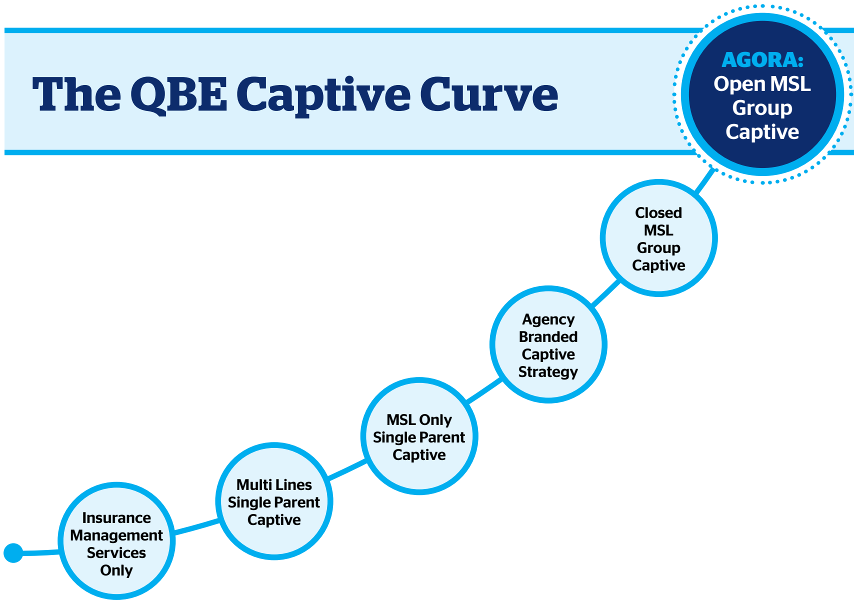
QBE's captive medical stop loss

- Participating and segregated cell solutions available
- Group and single parent captive structures
- Dedicated captive support team
- Reinsurance and insurance coverage for a variety of captive structures

Pick your position:
QBE has a medical stop loss solution for you.

The QBE Captive Curve

AGORA: your captive solution providing stability and ease.



The future is strong and the captive insurance market is here to stay.

Organ transplant *market highlights*

QBE provides self-funded employers with stand-alone, fully insured first dollar organ transplant coverage to protect against potentially catastrophic medical expenses that threaten the self-funded plan.

While our healthcare system celebrated lifesaving milestones in 2022, the costs for organ transplants continue to put stress on healthcare plans throughout the U.S. Although transplant outcomes have significantly improved due to modern technology and medical advancements, the availability for those wait-listed is a challenge that providers and networks are working to resolve. The current total waitlist sits at 100K patients and disputes threaten to disrupt flow of organs to transplant hospitals,[6] slightly below the historical high of almost 120K in 2021.[2,3] With so much pent-up demand, we can expect the number of transplant procedures to set record highs each year.

Too many organs are discarded, damaged in transit or simply not collected due to faulty technology or poor performers that face little accountability. Because of this, it's critically important for employers to consider an organ transplant policy, such as the one offered by QBE to help direct members to centers of excellence with the best outcomes and costs.[6]

Technology advances, including the use of AI, are creating efficiencies in managing donor lists for faster, more reliable organ matches. This overall modernization in the organ transplant eco-system should increase the frequency of procedures. However, with more transplantation, healthcare plans will shoulder higher costs.

A well-placed organ transplant carve-out policy can reduce volatility. Transferring risk to a fully insured policy offering first dollar claims coverage can provide significant protection to self-funded healthcare plans.

- In 2022, the U.S. surpassed 1M organ transplants since the first transplant in 1954.[4]
- The U.S. set a record for organ transplants in one year at just under 43K.[5]
- On any given day in the U.S., there are over 100K people awaiting a transplant at one of 63 transplant centers.[4]
- Half of all organ transplants in the U.S. occurred in the past 15 years.[4]
- More than 400K people are alive today thanks to a successful organ transplant.[4]

Expenses associated with North American organ transplants

are expected to double from

$5.2B

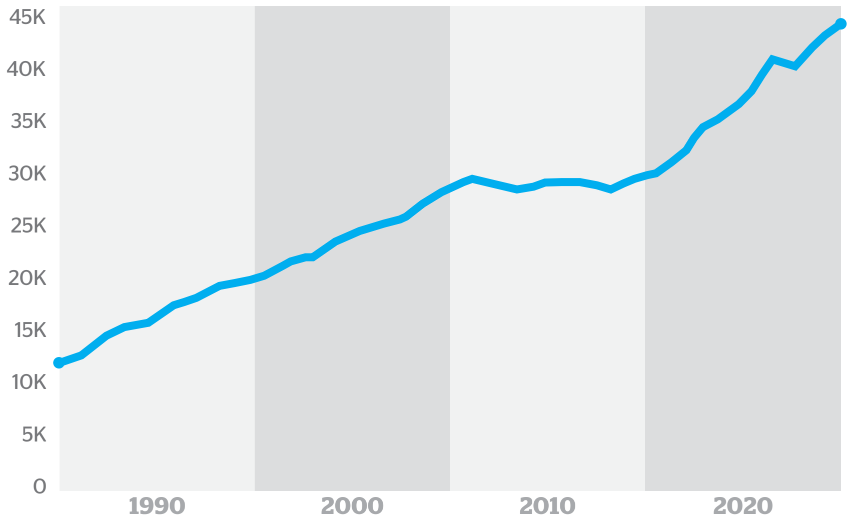
in 2021 to

$10.7B

in 2030.[1]

[1] https://www.globenewswire.com/news-release/2022/08/11/2497067/0/en/Transplantation-Market-Size-is-projected-to-reach-USD-29-73-Billion-by-2030-growing-at-a-CAGR-of-9-55-Straits-Research.html
[2] UNOS Data and Transplant Statistics | Organ Donation Data
[3] Chart: Organ Transplant Waiting Lists in the U.S. | Statista
[4] https://unos.org/news/u-s-reaches-1-million-transplants/
[5] 2022 organ transplants again set annual records - Transplant Living
[6] https://www.washingtonpost.com/health/2023/07/03/organ-transplant-dispute/

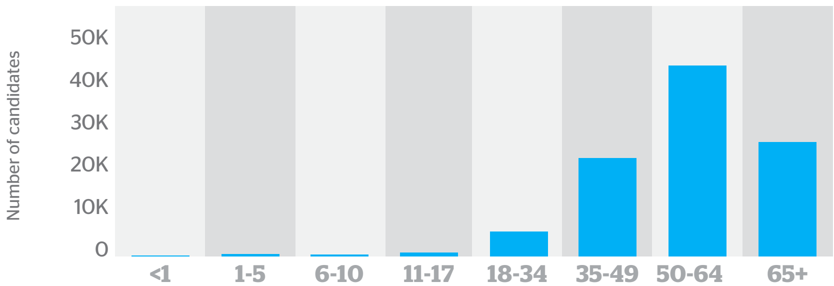
National transplants by year (all donors)



https://insights.unos.org/OPTN-metrics/

Number of candidates by age on organ donation waiting list in the U.S.

as of November 2022



https://www.statista.com/statistics/398516/number-of-us-candidates-on-organ-waiting-list-by-age-group/

Optimizing the U.S. transplant system

The U.S. surpassed the historic milestone of 1M transplants in 2022.

Right now
103,941
people need an organ transplant

2022 total
21,371
donors *(Jan-Dec 2022)**

Led to
42,888
transplants *(Jan-Dec 2022)**

*as of 3/23/23

https://unos.org/

Other products to consider

Special risk accident *market highlights*

Youth athletics, adult sports leagues, and volunteer groups are just a few organizations that benefit from Special Risk Accident coverage. When participants in supervised and sponsored activities are guarded with solid accident protection, organizations breathe easier. QBE can help ensure protection against unexpected risks for everyone from daycare-center toddlers to youth soccer players, coaches, students and collegiate athletes, campers and volunteers.

Our Special Risk Accident team is a leader in delivering consistent, responsive, and comprehensive solutions in the special risk and student accident market. Our seasoned underwriters are committed to providing customized risk coverage for the unique needs of each of our customers.

- In 2021, 3.2M Americans were treated in emergency departments for injuries from sports and recreation equipment.[1]
- 522K college students had a sports accident from competing in the 2022 NCAA sports season across the U.S.[2]
- Volunteer groups had accident exposure due to an estimated 64M American volunteers, donating 50 hours of their time every year.[3]

Classes:

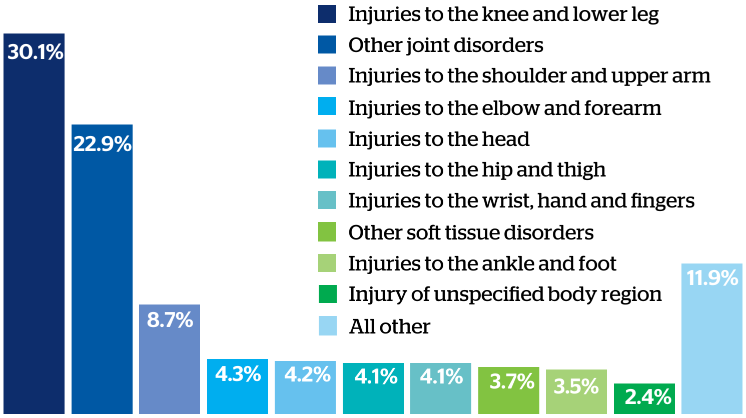
- Youth and amateur sports, teams, leagues
- Youth and adult clubs and organizations
- Special events
- Volunteer groups
- Childcare centers
- Colleges & universities
- Students (K–12)

Growing need for accident coverage in women's athletics

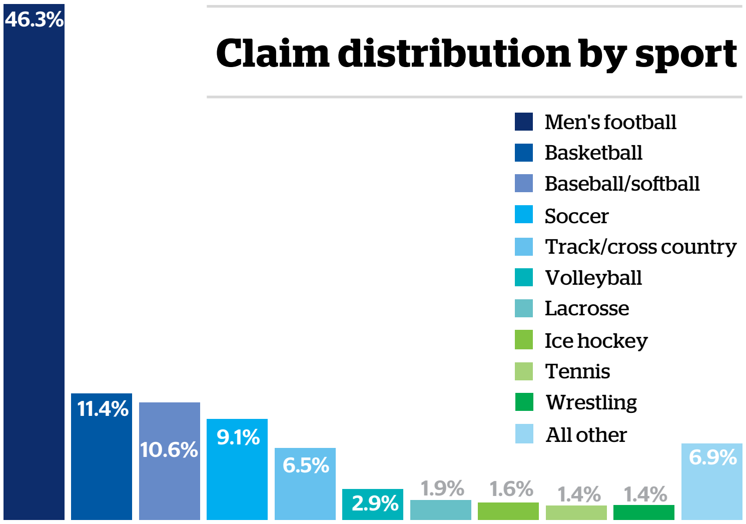
The number of women student-athletes competing in NCAA sports has been slowly growing from 215K in 2020 to 230K in the 2022 academic year.[4] The largest gains were in soccer, volleyball, basketball, indoor track and field, and cross country.[5]

A study found that although 80% of concussion research has focused on men, women are more likely to receive a concussion than male athletes playing the same sport.[6]

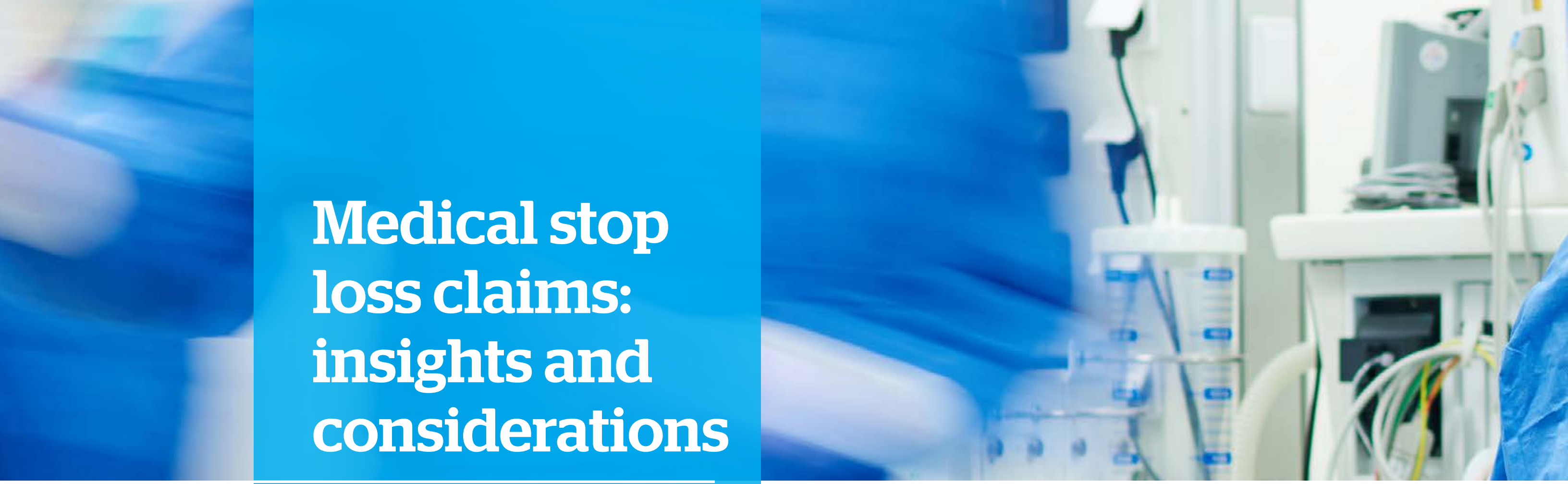
Claim distribution by injury



Claim distribution by sport



[1] https://injuryfacts.nsc.org/home-and-community/safety-topics/sports-and-recreational-injuries/
[2] NCAA student-athletes surpass 520,000, set new record - NCAA.org
[3] 22 Eye-Opening Volunteering Statistics to Know in 2023 (techjury.net)
[4] https://www.statista.com/statistics/1098761/student-athletes-by-gender/
[5] https://www.ncaa.org/news/2023/3/1/media-center-a-look-at-trends-for-women-in-college-sports.aspx#:~:text=30%2C555%20%E2%80%94%20The%20increase%20in%20the,point%20increase%20from%202011%2D12
[6] https://www.cbsnews.com/news/gender-gap-sports-concussion-research-female-athletes-struggling/



Medical stop loss claims: insights and considerations

The medical stop loss industry continues to experience changes as the impact of the pandemic lingers and is now coupled with inflationary pressures and evolutionary technological advancements. Medical cost trend is the product of the medical inflation rate, utilization of services, and service intensity. Hospitals challenged by decreased revenue and increased expenses are looking to renew payer contracts at greater reimbursement rates. Drug trends are being impacted by new high-cost specialty, gene and cell therapy drugs in the pipeline for approval. Given our observations in claim patterns, inflationary pressures, the slow recovery of utilization, and the cost impact of new drugs, we expect trends to exceed current levels over the next several years. With its long history in the medical stop loss market, QBE has proven successful in anticipating industry challenges and is well positioned to help our clients and partners navigate through this new emerging environment.

Medical inflation lag time

The following tables show the lag between medical service prices and general inflation.

Year	General CPI	Medical CPI	General CPI over Medical CPI
2020	1.2%	4.1%	-2.9%
2021	4.7%	1.2%	3.5%
2022	8.0%	4.1%	3.9%
2023 Q1	5.8%	2.3%	3.5%

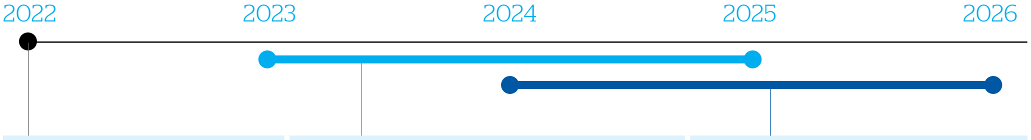
Prior to 2020, medical CPI typically exceeded general CPI. Yet by 2022, general inflation reached a 40-year record high of 8% and medical CPI was half that number. This gap was mainly caused by hospitals being locked into multi-year reimbursement contracts with insurers and pandemic-related supply chain lag, thus unable to adjust the prices of their medical services.

Nevertheless, with higher inflation, hospitals must pay higher prices for medical supplies and provide larger salary increases to attract and retain qualified staff. Due to the increased cost of care and inability to adjust prices, many hospitals suffered significant financial losses.[1] As of Q1 2023, the full impact of these financial struggles has not yet translated to higher medical inflation, as general inflation is still 3.5% higher than medical CPI.[2] However, medical inflation typically follows a pattern like general inflation but lags by about six to 12 months.[3] Similarly, further evidence of increased medical inflation can be seen in the rate filings of major direct stop loss carriers, which broadly show increased loss trend assumptions. Our review of these 2022 filings has shown an average increase of 0.5-1.0 points on the existing loss trend, with further increases expected later in 2023.

According to a McKinsey study, it is estimated that providers could pass on more than 6% incremental medical cost increases to payers in the upcoming contractual cycles (Exhibit 1).[4]

The initial impact is likely to occur this year in the contracting cycle for self-insured employers, and the 2024 pricing cycle for fully-insured employers.

Employers could face health cost increases of 9–10 percent through 2026 because of inflationary pressure passed through from providers



~$100B

Potential incremental annual provider costs from 2022 inflation[1]

~$80B in incremental clinical wage costs
~$20B in incremental non-labor spending driven by a heightened inflationary environment

~6%

Incremental unit cost increase passed to non-government payers over three-year contract renewal cycle

~$70B of the $100B incremental provider cost passed to non-government payers,[2] equivalent to a 6% increase of non-government payer total medical costs

9–10%

Total rate increase passed on to employers at the next renewal during 2024–26 benefit years

Total annual rate increase to employers is equivalent to the ~6% inflationary unit cost increase on top of 3–4% annual baseline trend

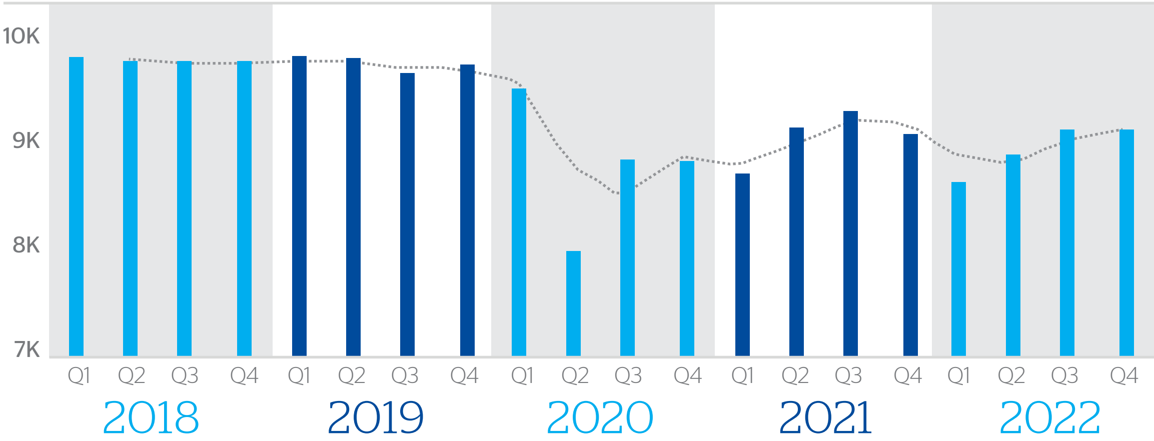
[1]Based on macroeconomic forecasts from McKinsey Global Institute applied to historical provider cost pools.
[2]Based on historical provider revenue base from non-government payers and historical payer cost pools across payer lines of business.

Moreover, it is likely that in the coming months and years, hospitals will press for larger reimbursement rates as their contracts with medical insurers come up for renewal.[1]

Utilization of medical services

After a decline at the beginning of the pandemic in 2020, utilization of medical services has gradually increased, although it has not yet returned to pre-pandemic levels. Based on data from the U.S. Census Bureau[5] and the CDC[6], and illustrated in the graphs below, the number of nationwide hospital admissions (discharges) in 2022 is still about 8% below pre-COVID levels.

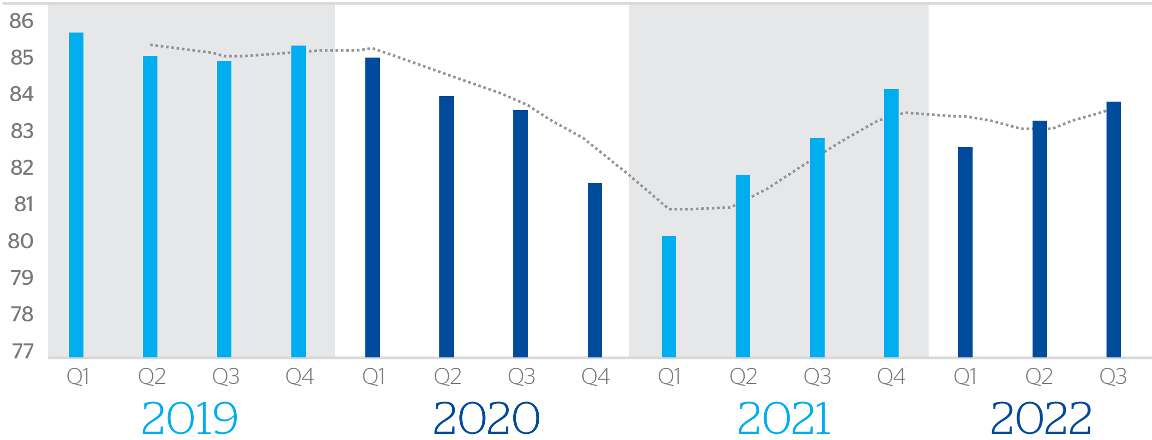
Number of discharges (000's)



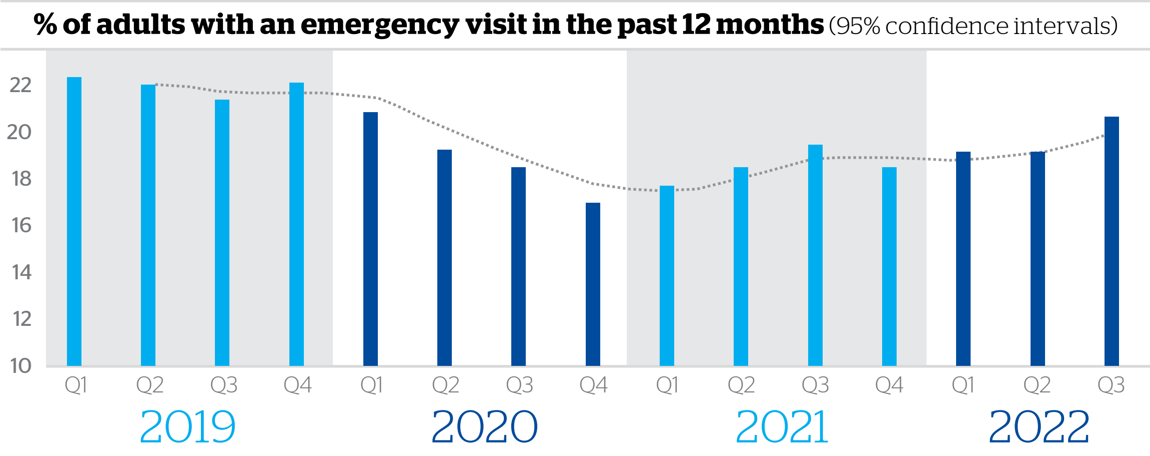
Data Source: Quarterly Services Survey of US Census Bureau

Similarly, the percentage of adults with a doctor visit in the past 12 months and the percentage of adults with an emergency room or urgent care visit are below pre-COVID levels.

% of adults visiting doctor in the past 12 months (95% confidence intervals)



Data Source: CDC Quarterly Early Release Estimates

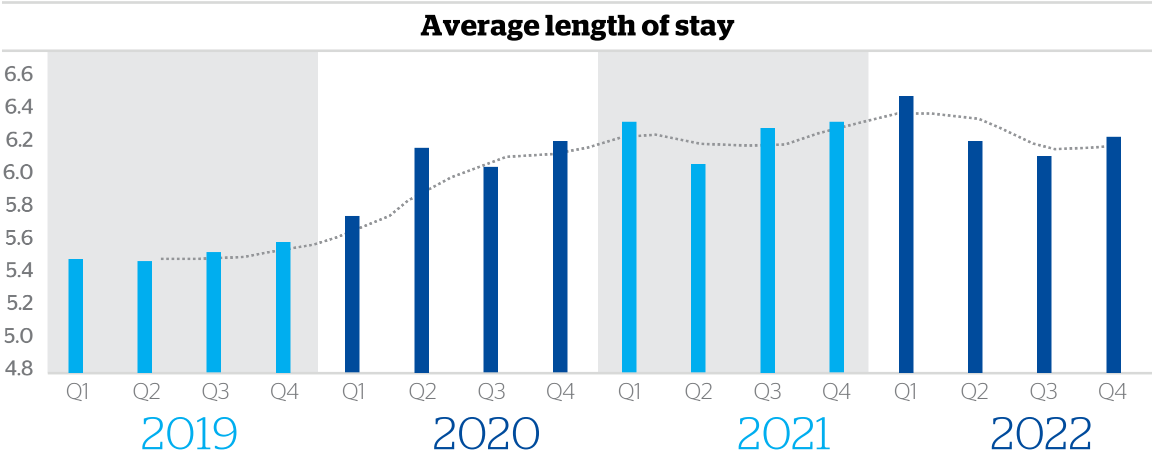


Data Source: CDC Quarterly Early Release Estimates

The slow recovery in utilization has contributed to the financial struggles of hospitals and may force hospitals to increase rates to achieve profitability targets.

Case intensity

As indicated in the chart below, case intensity has gone up by about 14% from 2019 to 2022, when measured by the average length of stay (ALOS).



Data Source: Quarterly Services Survey of US Census Bureau

This increase in ALOS is being driven by a combination of factors:

- Patients admitted to the hospital are sicker than in the past, likely due to delayed and avoided care.[7]
- Healthcare workforce shortages among clinical and non-clinical workers is creating patient bottlenecks.
- Seasoned nurses and doctors are retiring or have left the profession due to the pandemic, leaving less experienced staff to handle cases.
- Hospitals are unable to promptly discharge patients to other post-acute care providers, such as nursing homes, as these providers are experiencing severe capacity issues. [8]

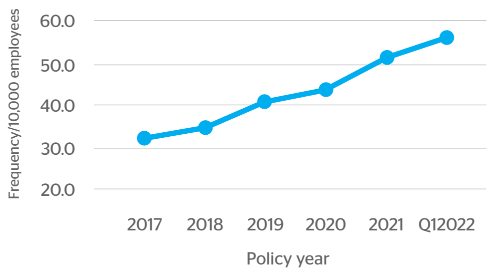
Although ALOS is increasing, it does not necessarily contribute to profitability for hospitals. Excessive patient stays incur additional costs that hospitals cannot always recover, as they are reimbursed by diagnosis-related groups (DRGs). Again, this factor will contribute to the pressure for hospitals to raise rates for care.

Stop loss claims mix: consequences of COVID-19 continue

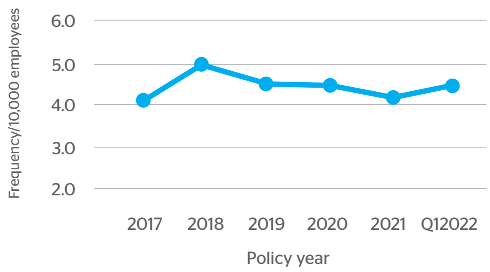
As highlighted in QBE's previous reports, our internal claims data hinted at the knock-on effects of the pandemic, which we are now seeing. The charts below plot claim frequency by policy period based on the number of stop loss claimants exceeding $200K per 10K employees (inclusive of dependents). Key highlights are:

- Total frequency of claims continues to rise faster than in the years up to 2020, likely due to services delayed in 2020 and 2021 from the COVID-19 shutdowns and the slow rebound in doctor visits and utilization resulting in more severe cases.
- Frequency for circulatory system diseases rose slightly in 2022 after a declining trend since 2018.
- Claim frequency for respiratory diseases rose much faster than other claim types (driven primarily by direct COVID-19 claims) in 2021 but fell in 2022 as the pandemic settled. However, frequency remains higher than pre-COVID levels.
- Claims frequency from mental illnesses increased sharply in 2020 and remains much higher than pre-COVID levels, with substance abuse the main driver.

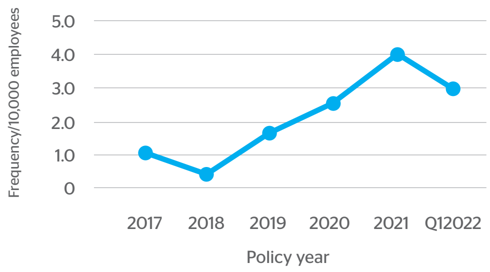
All conditions



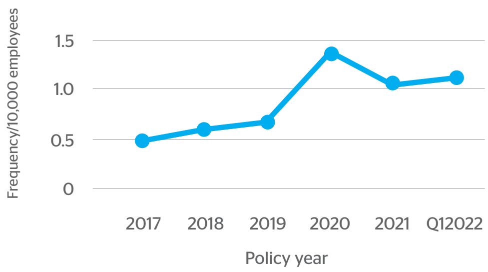
Diseases of the circulatory system



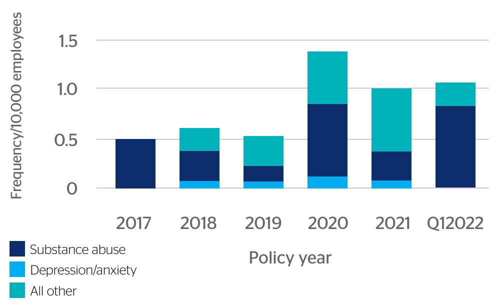
Diseases of the respiratory system



Mental illnesses claim frequency ($200K deductible)



Mental illnesses claim frequency by condition

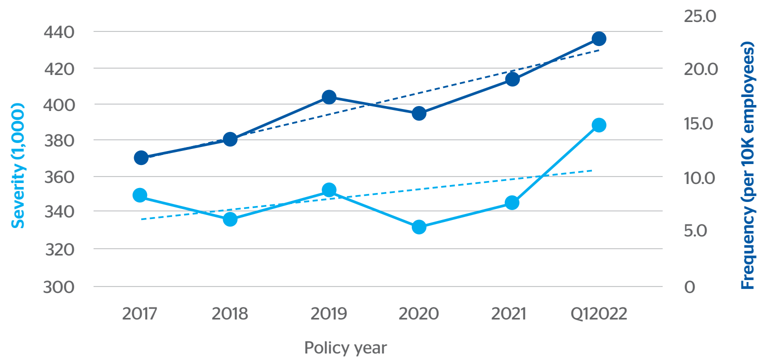


Of particular concern is the increase in neoplasm claims on both a frequency and severity basis.

We feel strongly that the 2021 and 2022 increases were partially due to the impact of COVID-19, which delayed cancer detections in 2020. That, combined with the increase in injectable pharmaceuticals has played a major role. Shown in the chart below, neoplasm claims increased in 2021 and 2022 after a decrease in 2020.

It's possible that case severity will continue to worsen given trends in healthcare workforce capacity and utilization, particularly around preventative measures.

Neoplasms stop loss claim frequency/severity
($200K deductible)

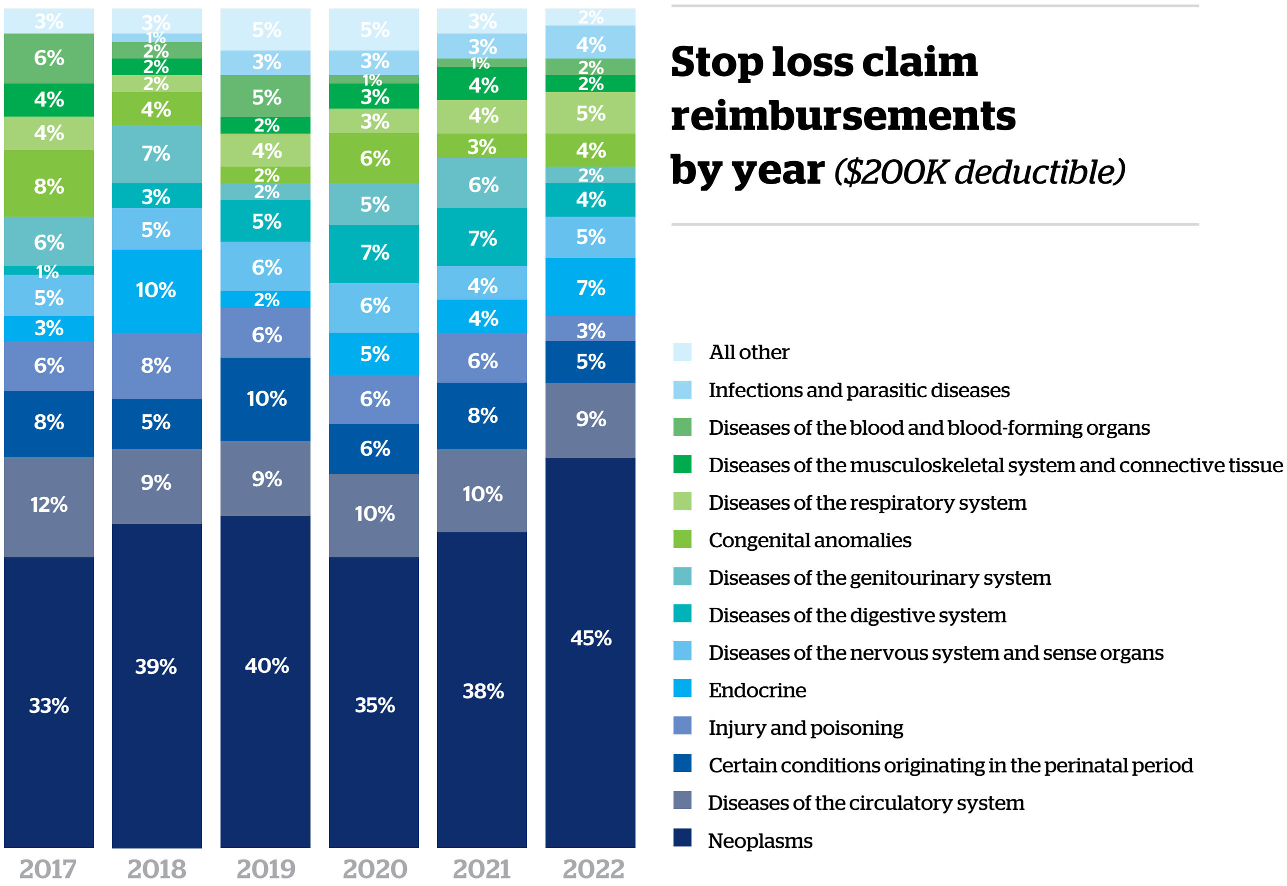


The increased trend in neoplasms can also be seen when looking at the stop loss claims mix. Neoplasms have historically made up the largest percentage of stop loss claims, and this was true again in 2022. In line with frequency and severity graphs, the percentage of stop loss claims from neoplasms dipped in 2020 and 2021 but rebounded to 45% in 2022.

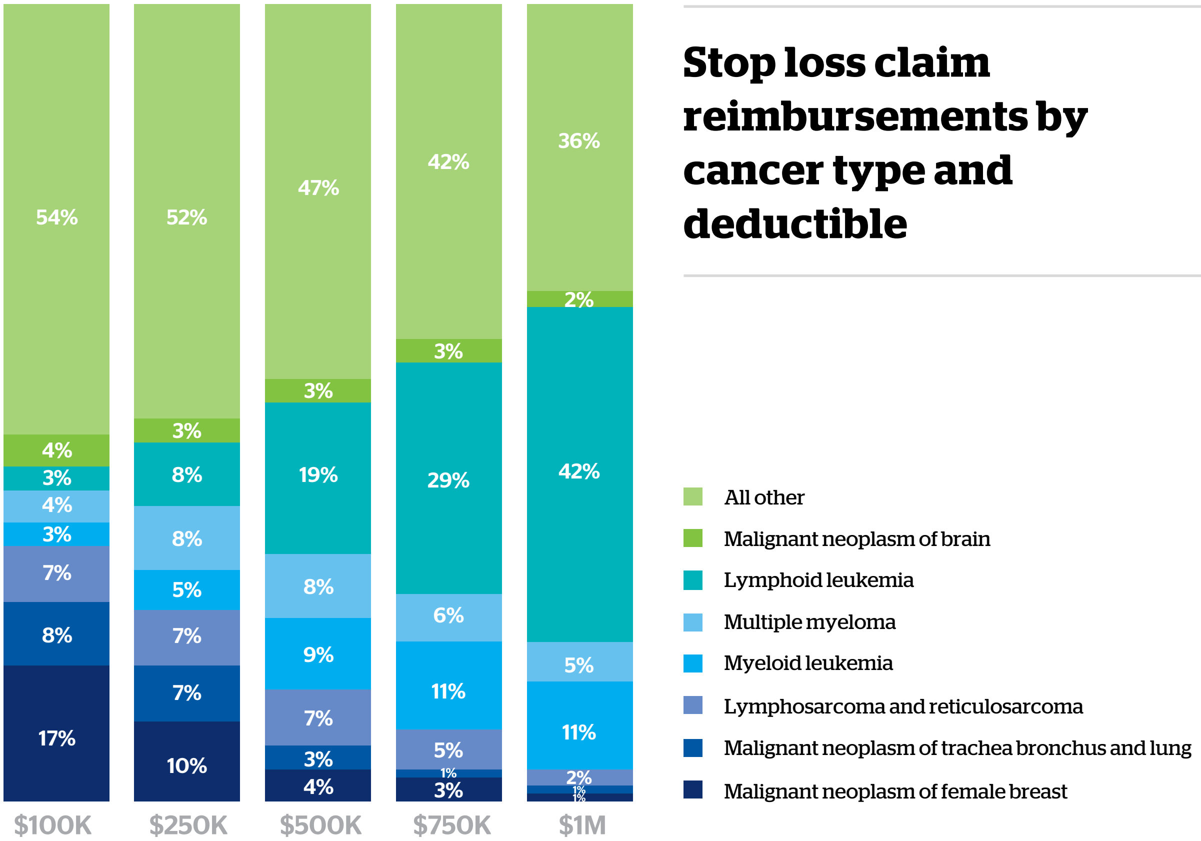
A staggering 87%

of QBE's stop loss claims came from the top 10 conditions.

Stop loss claim reimbursements by year *($200K deductible)*



QBE's analysis of stop loss claims by primary diagnosis illustrates the mix of claims for $200K deductibles. Neoplasms represent the highest number of stop loss claims for the six-year period, increasing to 45% in 2022.



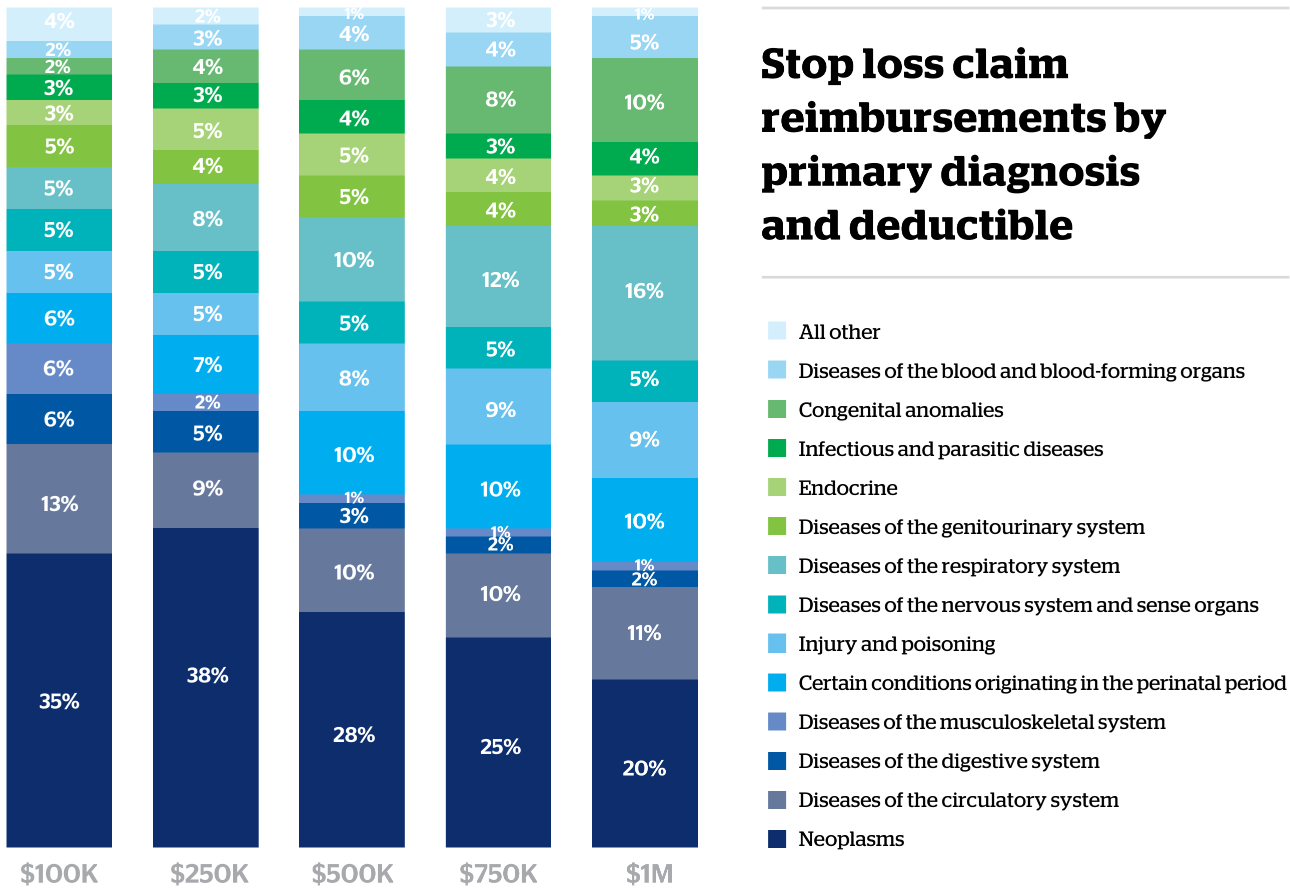
Stop loss claim reimbursements by cancer type and deductible

The prevalence of types of neoplasm claims varies by deductible size, as seen in the chart. For example:

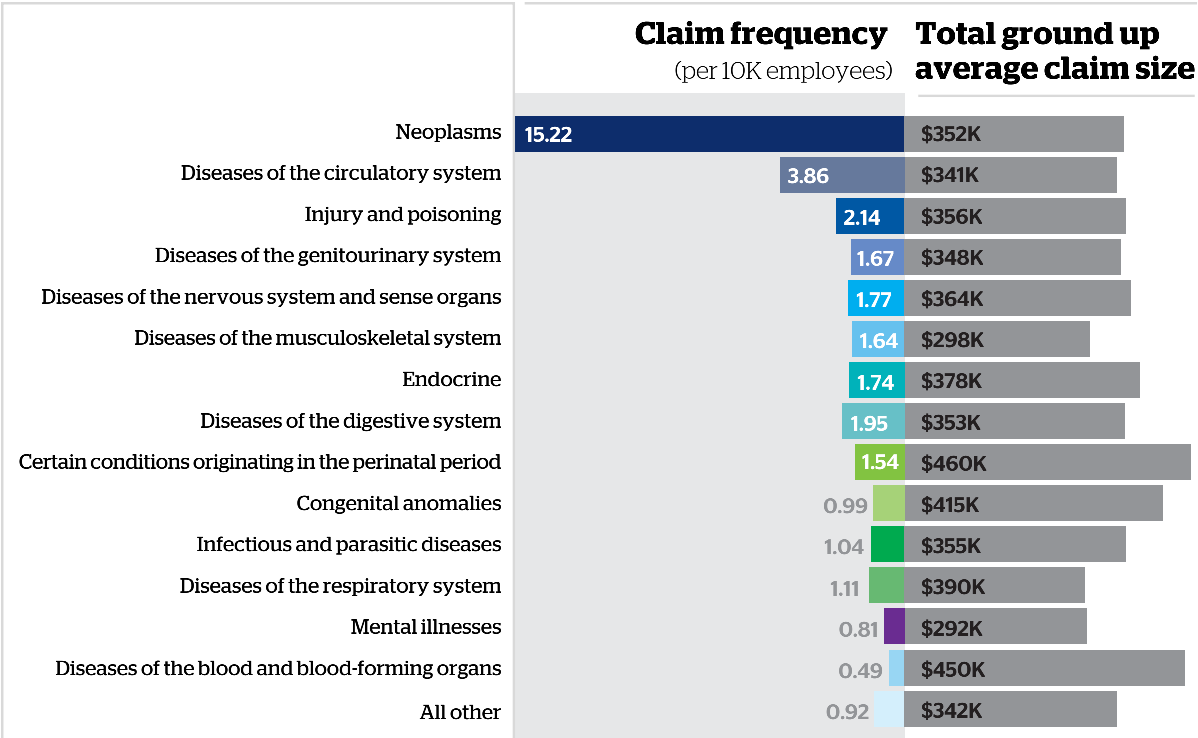
- Female breast cancer accounts for about 17% of cancer-related claims with a $100K deductible, but only 4% for a $500K deductible, and 1% for a $1M deductible.
- Lymphoid leukemia accounts for only 3% of cancer-related claims at a $100K deductible, yet 19% of cancer claims at a $500K deductible, and 42% for a $1M deductible.

Similarly, the mix of claims by primary diagnosis varies at different deductible levels. While neoplasms are the top diagnosis at each deductible level, their percentage at high deductibles is smaller as other rarer but more severe diagnoses exist.

Stop loss claim reimbursements by primary diagnosis and deductible



The chart below shows the claim frequency and severity by diagnosis side by side. Neoplasm claims continue to have the highest frequency, while premature birth claims now have the highest severity.



[1] Kaufman Hall: National Hospital Flash Report: January 2023 | Kaufman Hall
[2] U.S. Inflation Calculator: Health Care Inflation in the United States (usinflationcalculator.com)
[3] Milliman: Medical inflation: Drivers and patterns (milliman.com)
[4] McKinsey & Company: https://www.mckinsey.com/industries/healthcare/our-insights/the-gathering-storm-the-threat-to-employee-healthcare-benefits?utm_medium=DSMN8&utm_source=LinkedIn&utm_user=14419235875965699
[5] U.S. Census Bureau: Quarterly Services - Information for Respondents (census.gov)
[6] CDC: Quarterly Early Release tables (cdc.gov)
[7] American Hospital Association: pandemic-driven-deferred-care-has-led-to-increased-patient-acuity-in-americas-hospitals.pdf (aha.org)
[8] American Hospital Association: Issue Brief: Patients and Providers Faced with Increasing Delays in Timely Discharges | AHA, and How tight nursing home capacity is bottlenecking hospital operations | Healthcare Dive

The sepsis problem: difficult to detect, costly to treat

Sepsis, the body's life-threatening response to an infection, is hard to diagnose before it causes significant harm. But without early and effective treatment, sepsis can lead to tissue damage, organ failure and even death.[1]

The stark sepsis facts:

- More than 1.7M people in the U.S. are diagnosed with sepsis each year, or roughly one person every 20 seconds.[1]
- More than 75K children in the U.S. develop severe sepsis every year and 6.8K of these children die, more than from pediatric cancers.[2]
- Sepsis causes at least 261K maternal deaths every year worldwide and is driving increases in pregnancy-related deaths in the U.S.[3]
- Approximately 1% of sepsis survivors undergo one or more surgical amputations of a limb or digit due to sepsis.[5]

Sepsis disproportionately affects the Black community in the U.S., with Blacks bearing **nearly twice** the burden of sepsis deaths.[4]

- Sepsis survivors have a shortened life expectancy, are more likely to suffer an impaired quality of life, and often experience worsened cognitive and physical function.[6]

Detection

Sepsis is difficult to diagnose because its symptoms can also be caused by several other conditions. Symptoms can include higher or lower temperature, clammy or sweaty skin, low blood pressure, increased heart rate, signs of underlying infection, sleepiness, confusion, severe pain, and shortness of breath. Making the diagnosis can require a variety of tests and a review of patient history. No single test for sepsis currently exists.[7]

Making matters worse, sepsis is not only hard to diagnose, it's also extremely important to treat early. For every hour treatment is delayed, the likelihood the patient may develop severe sepsis and septic shock, resulting in death, increases by 4% to 9%.[8]

Everyone is susceptible, but the most vulnerable are people with chronic medical conditions such as diabetes, lung disease and kidney disease. Additional vulnerable populations include people with weakened immune systems, those over the age of 50, children under the age of one and people with a recent severe illness or hospitalization.

Although most people survive sepsis, many are left with ongoing medical conditions such as kidney failure, organ dysfunction or amputated limbs. Newly acquired or lingering mental health conditions such as depression, anxiety and memory loss are also common for sepsis survivors.[9]

Economic cost

- Costs for acute sepsis hospitalization and skilled nursing are estimated to be $62B annually.[1] This is only a portion of all sepsis-related costs, and there are substantial additional costs after discharge for many patients.
- The average cost per hospital stay for sepsis is double the average cost per stay across all other conditions.[1]
- Sepsis is the #1 cause of readmission to the hospital, costing more than $3.5B each year.[10]
- **Anti-microbial resistance is a major contributor to mortality and costs associated with a diagnosis of sepsis. While the world has been focused on COVID-19 and the development of cell and gene therapies, less attention has been given to the investments in new antibiotics to counter the rise in anti-microbial resistance.**
- On a promising note, AI tools have been developed to help clinicians more quickly and accurately diagnose sepsis in hospitalized patients, facilitating more prompt treatment and better recovery. Also, a clinical trial is expected in 2023 to examine the effectiveness of three potential new treatments for infants with sepsis.[11]

In 2022 alone, QBE saw **nine** sepsis claims over **$1M** and another **37** over **$500K**. In instances where sepsis was not the primary diagnosis, we saw chronic or immunocompromised diagnoses such as cancer, diabetes, neurological, cardiac, gastrointestinal, and renal disease noted to be the primary diagnosis. Pre-term and other infants were also on the list.

Sepsis is the #1 cost
of hospitalizations in the U.S.[1]

Sepsis accounts for more than three quarters of all claims in the QBE "infectious and parasitic diseases" category, which is 3-4% of total stop loss claims, regardless of specific deductible level.

Who is at risk?[14]

Anyone can develop sepsis, but some people are at higher risk for sepsis:

Adults 65 or older

People with weakened immune systems

People with chronic medical conditions (such as diabetes, lung disease, cancer and kidney disease)

People with recent severe illness or hospitalization

People who survived sepsis

Children younger than one

What can employers do and help their employees do to keep them safe from sepsis?

Provide a comprehensive benefit package that encourages:

- Low or no co-pay for PCP (primary care provider) visits and preventative testing, screening and vaccinations.
- Benefits that support care needed to manage chronic conditions.
- Healthy lifestyle program offerings including education around how to avoid and recognize sepsis.

A new AI system was developed at Johns Hopkins University that catches symptoms hours earlier than traditional methods, making patients 20% less likely to die from sepsis.[12] AI scours through medical records to identify patients with life-threatening complications.[13]

[1] Sepsis Fact Sheet (nih.gov)
[2] Children | Sepsis Alliance
[3] Sepsis Alliance, Maternal Sepsis Fact Sheet, May 5, 2020
[4] Hospital outcomes for children with severe sepsis in the USA by race or ethnicity and insurance status: a population-based, retrospective cohort study - The Lancet Child & Adolescent Health
[5] Sepsis Alliance Institute: Rehab Tech: From Wooden Legs to Robotics
[6] Sepsis Alliance, Life after Sepsis Fact Sheet, January 2020
[7] Testing for Sepsis | Sepsis Alliance
[8] Septic Shock | Sepsis Alliance
[9] Post-Sepsis Syndrome | Sepsis Alliance
[10] Cost of Sepsis Readmissions Estimated at More Than $16,000 Per Patient | HealthLeaders Media
[11] https://www.cidrap.umn.edu/antimicrobial-stewardship/who-unveils-priority-pediatric-antibiotic-formulation-list
[12] Sepsis-detection AI has the potential to prevent thousands of deaths | Hub (jhu.edu)
[13] https://www.nbcnews.com/tech/tech-news/elon-musk-several-technologists-call-pause-training-ai-systems-rcna77156
[14] What is Sepsis? | Sepsis | CDC

Drug and medical supply shortages

Drug shortages in the U.S. are reaching record highs. Thousands of patients are having problems securing cancer treatments and other therapies for deadly diseases. Breast and lung cancer are two of the five most common cancers in the U.S. and historically make up a large percentage of high dollar stop loss claims.

We anticipate an uptick in high dollar stop loss claims linked to cancer diagnoses in 2023. This is directly related to the cancer drug shortage for patients who experienced delayed, less effective or sub optimal treatments.

Many drugs are manufactured overseas and pharmaceutical companies work on razor thin margins, which can lead to quality-control issues that can hamper timely production.

At the time of this market report release, news had broke that FDA inspectors found almost farcical conditions when they inspected an Indian manufacturing plant that supplies medical drugs to the U.S. The plant had hardly any working systems to ensure sterility of its products and employees were trying to conceal evidence of these problems. The drug manufacturer in question provides Americans with several frontline chemotherapy drugs that are used to treat more than a dozen types of cancer. In some cases, the manufacturer has the country's entire supply of the drug.

Experts note the low cost of generic, first-line cancer drugs have played a role in recurrent chemotherapy drug shortages. Dr. Karen Knudsen, CEO of the American Cancer Society stated, "While the medications are cheap to manufacture, pharmaceutical companies are not incentivized to do so because they don't bring in large profits."[13]

Experts say the U.S. is experiencing one of the **largest shortages of chemotherapy drugs seen in 30 years.**[13]

[1] List of U.S. FDA Approved Cell and Gene Therapy Products (27) | BioInformant
[2] Sarepta's DMD gene therapy secures accelerated FDA approval (fiercepharma.com)
[3] VYJUVEK | FDA
[4] How much does Luxturna cost? (drugs.com)
[5] FDA approves $3.5 million treatment for hemophilia, now the most expensive drug in the world | CNN
[6] Gene Therapy Market Size, Share & Growth Report, 2030 (grandviewresearch.com)
[7] Gene Therapy Market Size, Growth, Trends, Report 2022-2030 (precedenceresearch.com)
[8] List of U.S. FDA Approved Cell and Gene Therapy Products (27) | BioInformant
[9] https://www.mayoclinic.org/tests-procedures/gene-therapy/about/pac-20384619#:~:text=This%20technique%20presents%20the%20following,in%20severe%20cases%2C%20organ%20failure.
[10] Gene Therapy Market Size & Share Analysis - Industry Research Report - Growth Trends (mordorintelligence.com)
[11] https://invivo.pharmaintelligence.informa.com/IV146781/The-Cell-And-Gene-Therapy-Sector-In-2023-A-Wave-Is-Coming-Are-We-Ready#:~:text=As%20of%20this%20writing%2C%20as,therapies%20a%20year%20by%202025
[12] Researchers identify the high costs of living with sickle cell disease | NHLBI, NIH
[13] https://www.bbc.com/news/world-us-canada-65791190

The proliferation of cell and gene therapy

Gene and cell therapies offer hope to patients with previously untreatable, serious medical conditions, but they come with a high cost that can overwhelm an employer's self-funded health plan. While medical stop loss insurance can reduce this risk for an employer, the cost must still be accounted for in the overall health insurance market in the form of rising premiums and other funding mechanisms. As more therapies gain approval and the population of eligible patients expands, employers must work closely with their plan administrators and insurance partners to address this trend.

Gene therapy, often delivered in a one-time dose, alters genes inside the body's cells to cure a disease or slow its progression. In 2022, three new gene therapies for rare diseases and one gene therapy for bladder cancer received Food and Drug Administration (FDA) approval. In the first half of 2023, three additional gene therapies have gained approval, raising the total number of FDA approved gene therapies to nine as of June 29, 2023.[1,2,3] Costs for approved gene therapies now range from $950K for Luxturna,[4] treating inherited retinal disease, to $3.5M for Hemgenix,[5] a hemophilia B gene therapy.

Cell therapy involves the transfer of healthy new cells that have been modified in a laboratory into the body to attack and replace diseased or damaged cells, such as cancerous cells. There are 21 cell therapies approved by the FDA as of June 29, 2023.[1] The current cost of cell therapy hovers around $500K and does not include any preparative or post-administration care.

The global gene therapy market was valued at **$7.5B** in 2022 and is expected to reach a value of **$15.7B** by 2030.[6,7]

Gene therapy is a treatment that alters genes inside the body's cells to treat, slow the progression of, or cure disease.

The FDA approved nine gene therapies for use in the U.S. as of June 29, 2023.[8]

Cell therapy is the transfer of laboratory modified, healthy new cells into the body to attack and replace damaged cells, such as cancer cells.

The FDA approved 21 cell therapies as of June 29, 2023.[8]

Both cell and gene therapies require specialized procurement and manufacturing, along with intensive screening, preparative treatment, evaluation and costly administration protocols. While the effectiveness of these therapies is promising, the complexity of administering them to patients presents many risks, which include:

- Unwanted immune system reactions
- Targeting the wrong cells
- Infection caused by the virus vector used to deliver the therapy
- The possibility of causing a tumor[6]

Complications can lead to exceptionally costly care on top of the high cost of the cell or gene therapy, putting further financial stress on the payer.

The COVID-19 pandemic had a positive effect on the gene and cell therapy market since the development of COVID-19 vaccines relied heavily on cell and gene therapy technologies.[10]

Diagnosis	Drug name	Approval date	Approximate cost
Hereditary Retinal Dystrophy	Luxturna	December 2017	$950K ($475K per eye)
Spinal Muscular Atrophy	Zolgensma	May 2019	$2.2M
Beta Thalessemia	Zynteglo	August 2022	$2.8M
Cerebral Adrenoleukodystrophy	Skysona	September 2022	$3.0M
Hemophilia B	Hemgenix	November 2022	$3.5M
Bladder Cancer	Adstiladrin	December 2022	$160K to $260K*
Dystrophic Epidermolysis Bullosa	Vyjuvek	May 2023	$631K**
Duchenne Muscular Dystrophy	Elevidys	June 2023	$3.2M
Hemophilia A	Roctavian	June 2023	$2.9M

* Preliminary estimated cost
** Anton Health published, https://antonhealth.com/fda-approves-new-topical-gene-tx-vyjuvek

North America dominates the cell and gene therapy market and will continue to do so through 2028 because of the focus on developing effective therapies to treat cancer. This treatment development is expected to make up a significant share of the market through 2030. As noted in our chart on stop loss claim reimbursement by primary diagnosis and deductible, cancer is the leading cause of medical stop loss claims in the QBE portfolio. Furthermore, promising research is being conducted related to expanding indications for cell therapy to include the treatment of solid tumors.

Notable clinical advances were made in 2022, and the medical community is hopeful they will continue. Vertex lifted a clinical hold on their clinical trial for Type 1 diabetes. Another manufacturer is making clinical advances in their work on therapies for two rare diseases, ATTR amyloidosis and hereditary angioneurotic edema. Data released in November 2022 showed promise for gene therapy to produce a functional cure for hereditary angioneurotic edema.[2]

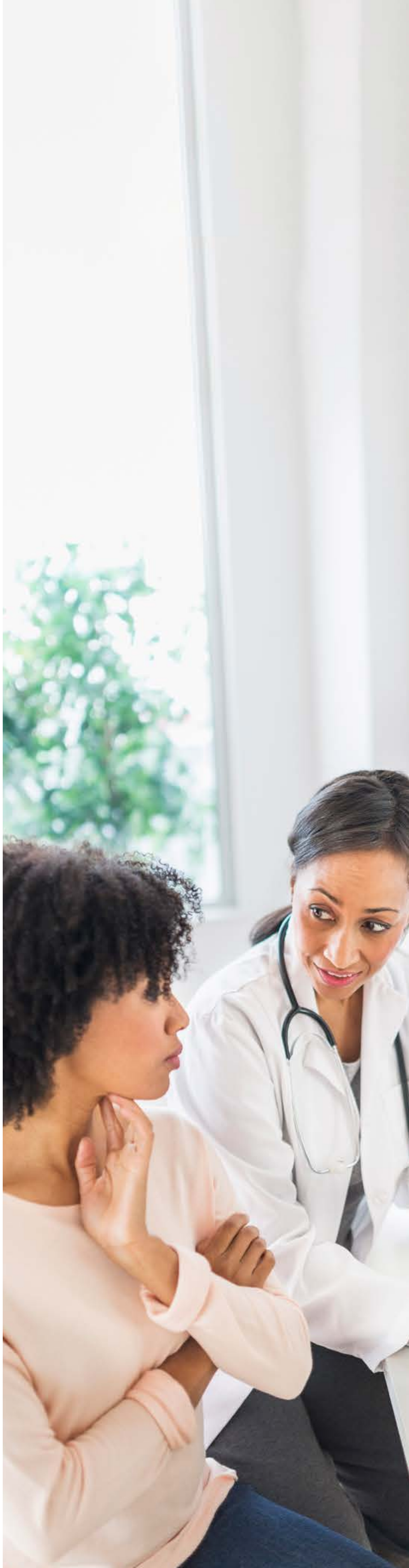
Despite its growth, the cell and gene therapy market has ongoing challenges related to manufacturing, delivery to the patient, reimbursement and scrutiny around clinical successes and failures.[4] Some of these challenges have quelled the uptake of the therapies as they have created obstacles related to availability and access to providers that are skilled in the administration of the therapies.

A compelling example is illustrated by the two therapies in line for approval in 2023 for sickle cell disease (SCD). SCD is more prevalent than many other rare diseases targeted by gene therapy development, with over 100K Americans currently living with the disease. Currently, an estimated 58K of the 100K Americans with sickle cell disease are anticipated to be eligible for gene therapy. One of the treatments will likely cost $500K or more for the hospital stay alone. There will be a major focus on whether or how the U.S. healthcare system can provide access and reimbursement for these therapies.[11]

SCD predominantly affects Black and Hispanic Americans. Healthcare disparities among these populations have come to the forefront, especially during the pandemic and continue to be an issue post-pandemic. These disparities serve as a major obstacle to access care and could ultimately impact the use of gene therapies approved for SCD.

- Approximately 1/3 of patients with SCD use commercial health insurance (others are Medicare, Medicaid or no insurance).
- Sickle cell patients have more medical appointments, more urgent care and emergency medical visits, and more prescriptions, compared to people without the disease.
- People with SCD have higher out-of-pocket medical costs, which average about $1.3K each year. People with SCD lose around $700K in income over the course of their lifetimes due to their inability to work.[12]

The causes of disparity in healthcare are complex and many factors contribute. Income, ethnicity, geographic locale, and environmental and behavioral factors such diet and exercise are just a few.[12]



Anticipated regulatory decisions in 2023

Afami-cel (cell therapy) *Adaptimmune Therapeutics* Advance synovial sarcoma	**bb1111 (gene therapy)** *bluebird bio* Sickle cell disease	**CT-053 (CAR-T therapy)** *CARsgen Therapeutics* R/R multiple myeloma	**fidanacogene elaparvovec (gene therapy)** *Pfizer (formerly Spark Therapeutics)* Hemophilia B
HPC cord blood (cell therapy) *StemCyte* Unrelated donor hematopoietic progenitor cell transplantation	**Libmeldy (gene therapy)** *Orchard Therapeutics* Metachroatic leukodystrophy (MLD)	**Lifileucel (TIL therapy)** *Iovance* Metastatic melanoma	**Omidubicel (cell therapy)** *Gamida Cell* Hematological malignancies
B-VEC (gene therapy) *Krystal Bio* Dystrophic epidermolysis bullosa	**SRP-9001 (gene therapy)** *Sarepta Therapeutics* Duchenne muscular dystrophy	**Tab-cel (cell therapy)** *Atara Biotherapeutics Inc* Epstein-Barr virus-associated post-transplant lymphoproliferative disorder (EBV+PTLD)	**Upstaza (gene therapy)** *PTC Therapeutics* Aromatic L-amino acid decarboxylase (AADC) deficiency
CTX001 (gene editing therapy) *CRISPR Therapeutics & Vertex Pharmaceuticals* Sickle cell disease, β-thalassemia		**B-VEC (gene therapy)** *Krystal Bio* Dystrophic epidermolysis bullosa	**CTX001 (gene editing therapy)** *CRISPR Therapeutics & Vertex Pharmaceuticals* Sickle cell disease, β-thalassemia
EtranaDez (gene therapy) *uniQure & CSL Behring* *Hemophilia B*		**Lumevoq (gene therapy)** *GenSight Biologics SA* Leber hereditary optic neuropathy (LHON)	

United States Europe

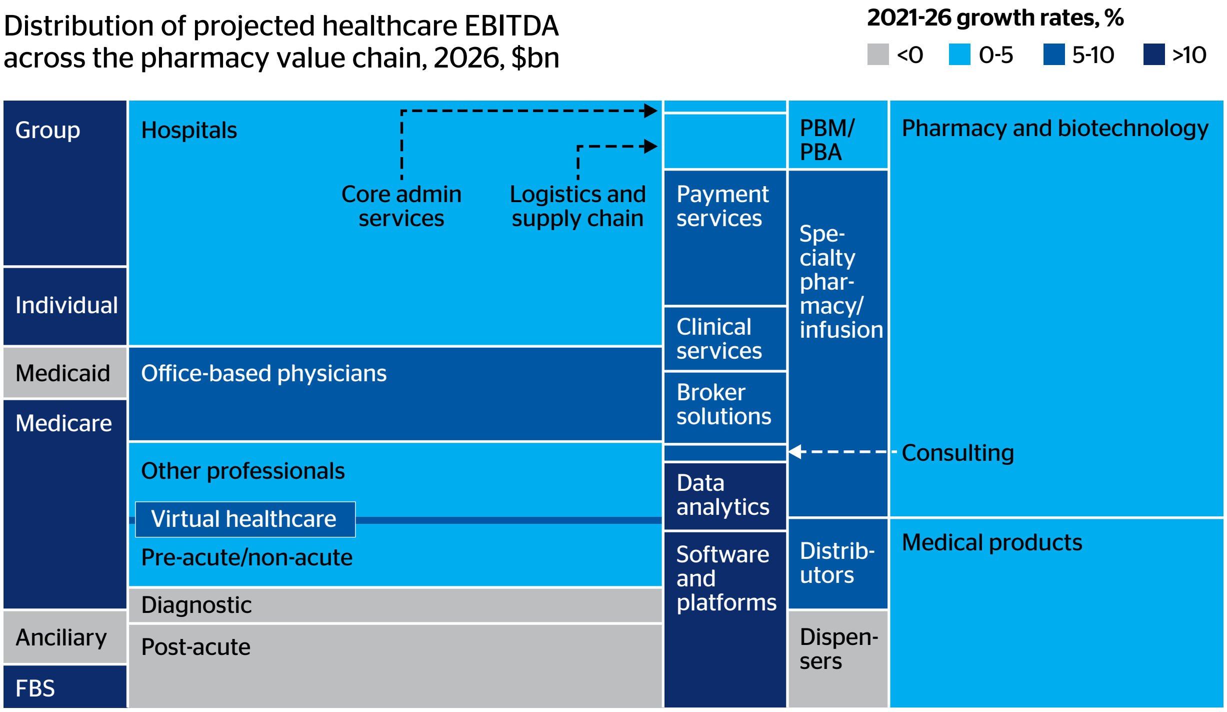
As employers work with their plan administrators and insurance partners, the ability to steer patients to experienced and skilled centers for proper screening and treatment by well-equipped and proficient providers is critical to excellent outcomes. In addition to ensuring employees receive the right care, in the right setting, at the right time for the right cost, there is value in providing them information that will help them make optimal choices for their health. Prevention and excellent outcomes inherently involve costs. **QBE's clinical and cost containment staff can help ensure your employees receive the necessary level of attention and access to experienced providers leveraging outcome-based findings.**

Specialty pharmacy: prescriptions for growth

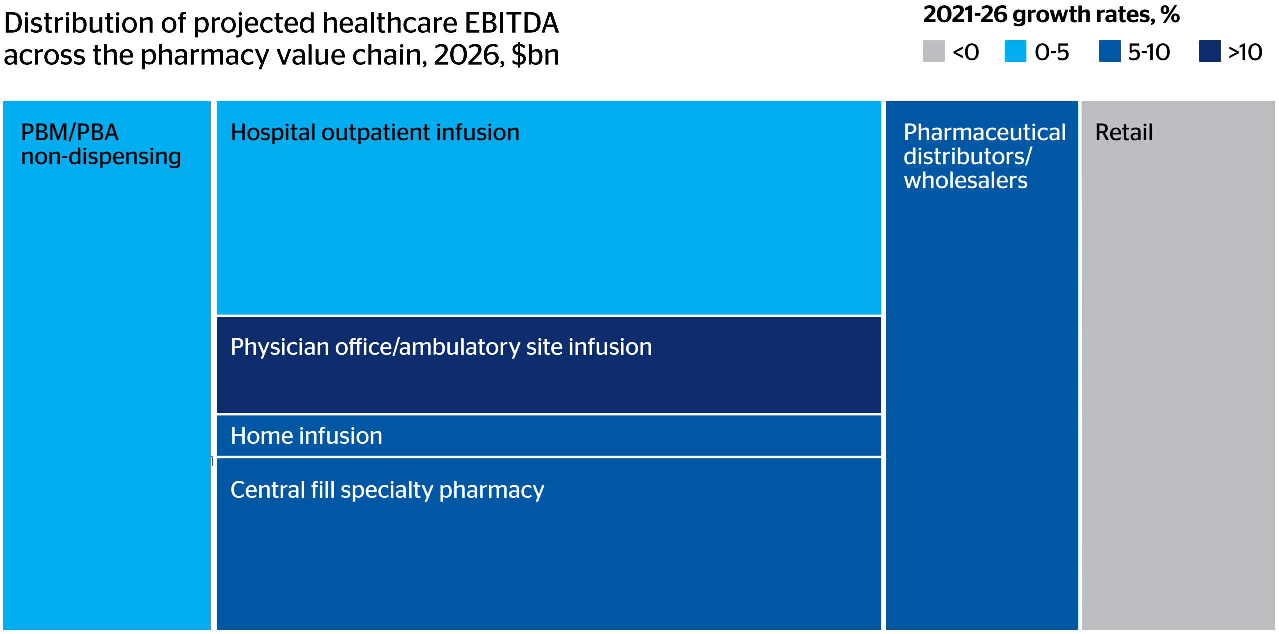
The combination of high-cost drugs and therapies known as specialty pharmacy continues to be a growing market challenge. It's estimated that the specialty pharmaceutical market will balloon in value to over $902B in 2027. Over the past five years, the speed of FDA new therapy approvals has outpaced approvals for any other market segment. While several blockbuster specialty pharmacy drugs now, or will soon, face competition from generics or biosimilars, which can lower treatment costs, other drugs projected to be blockbusters are being introduced, often with even higher costs.

Profit pools for commercial and Medicare Advantage segments, physician offices, healthcare services and technology, and specialty pharmacy segments are predicted to grow the fastest post-COVID-19.

Distribution of projected healthcare EBITDA across the pharmacy value chain, 2026, $bn



Pharmacy services will continue to see benefits from the growth of specialty pharmacy.



US healthcare developments in 2023 and beyond | McKinsey

Blockbusters moving to generic or biosimilars in 2022-2024

Drug	Annual cost per patient	Uses
Humira	$93K	Numerous autoimmune disorders
Revlimid	$227K	Myelomas and lymphomas
Alimta	$148K	Non-small cell lung cancer
Velcade	$55K	Myelomas and lymphomas
Abraxane	$174K	Cancers

Projected blockbusters coming to market in 2022-2024

Drug	Projected annual cost per patient	Uses
Ublituximab	$55K	Multiple sclerosis
Adagrasib	$260K	Non-small cell lung cancer
Elacestrant	$281K	Breast cancer oral medication
Pirtobrutinib	$276K	Lymphoma oral medication
Tzield	$359K	Type 1 diabetes

QBE offers multiple solutions to help health plans lower costs on specialty pharmacy drugs and therapies. Whether through utilizing our cost negotiation expertise, linking patients and plans to assistance programs, or assisting in identifying and vetting vendors for management of specialty pharmacy needs, we are here to help customers navigate the growing market.

The economics cannot be overlooked. 18-19% or $4T of the U.S. GDP is tied to the healthcare system.[3] As much as 86% of that is spent on chronic diseases, with a primary focus of mitigating symptoms, rather than addressing the root cause.[6] Outside of infectious diseases, the U.S. healthcare system has historically been focused on treatment of disease rather than prevention.

The U.S. spends $600B annually on prescriptions, and a little under 10% of those prescribed respond effectively to that treatment.[4] That means 90% of patients live with the side effects, and payors—including employees, employers and insurance carriers—bear the costs. Of the top 10 U.S. prescribed drugs, the best outcome to those that respond is 25%, as is the case with Humira, a widely prescribed auto-immune drug. The value of education around wellness and prevention cannot be overlooked by employer groups. The use of AI will be a game changer in supporting prevention in the future.[5]

[1] Global Specialty Pharmaceutical Market [2023-2030] | Exciting Growth Projected for Market, Set to Reach USD 902099.67 Million - MarketWatch
[2] Cost is average PBM annual price as provided by Advanced Medical Strategies.
[3] U.S. health expenditure as GDP share 1960-2021 | Statista
[4] sdp-trends-prescription-drug-spending.pdf (hhs.gov)
[5] Lee Hood & Nathan Price (on the future of medicine) - Armchair Expert with Dax Shepard | Podcast on Spotify
[6] https://www.americanactionforum.org/research/chronic-disease-in-the-united-states-a-worsening-health-and-economic-crisis/#:~:text=The%20share%20of%20health%20care%20costs,million%20today%20to%2098%20million.%20%5B11%5D&text=The%20share%20of%20health,to%2098%20million.%20%5B11%5D&text=of%20health%20care%20costs,million%20today%20to%2098

Five measures to help employers defray healthcare cost increases [1]

Fortune 1000 companies are facing profitability challenges due to higher healthcare costs that will account for 9–11% of overall industry earnings by 2025. Employers in labor-intensive industries — especially retail, manufacturing, and food services—could experience 16–19% EBITDA erosion by 2025. The following five measures could help employers defray near-term cost increases, while placing the system on a more sustainable long-term trajectory.

1

Reimagine medical networks

High-performance, narrow provider networks can reduce costs while maintaining efficiency and quality of care. Consumer-focused solutions (e.g., reference-based pricing) enable patient-level financial transparency and can produce savings of up to 30%. Cost comparison tools allow employees to make tradeoffs based on cost and other metrics, such as quality, access, and experience. Other levers (e.g., tiered networks, centers of excellence, referral management, and site-of-care strategies) can generate savings of 5–15%.

2

Manage specialty drug costs

Specialty drug spending will likely grow at an 8% CAGR through 2025. Specialty prescriptions account for nearly 50% of total pharmacy spending, although less than 2% of insured members use specialty drugs, which are necessary for serious health conditions. Effective cost-management will take a comprehensive approach using both traditional and innovative levers. Traditional levers include formulary and utilization management, and network and benefit design to generate savings from cost-management measures. Moreover, targeted care-management programs where employers work with pharmacy benefits managers and payers to redefine formularies across brands, generics, and biosimilars can also help cut costs. Innovative levers can include value-based care programs where employers partner with manufacturers or participate in financing solutions (e.g., risk-pooling and pay-per-performance programs) that may require a longer-term savings plan.

3 Value-based care or risk-sharing models

Risk-sharing models involve an efficient network and a new approach to benefits management that requires greater use of analytics, patient engagement and targeted care-management interventions. Value-based care (VBC) models can better align incentives across employers and providers by incorporating quality of care and outcomes in provider reimbursement arrangements. Promising VBC models for employers include high-performance provider networks with cost- and quality-based metrics, episode-based payments for standardized patient-care journeys (e.g., cancer), and risk-based contracts for end-to-end management of high-cost conditions.

4 Adopt high ROI care-management programs

There is opportunity to better address employee sub-segments of healthcare risk through improved healthcare management. Employers can work with healthcare partners to make use of available healthcare data to better understand employees' healthcare needs and risks, how to engage them, and deploy the right mix of high-performance care-management solutions. Employers can also work with solution providers to transition from activity-based reimbursement arrangements (typically per-employee per-month) to higher quality engagement (e.g., fees per engaged employee), and from fee-for-service to percentage of shared savings and ROI guarantees to produce at least twice the ROI for care-management programs.

There is opportunity to better address employee sub-segments of healthcare risk through improved care management.

Type of member; average annual cost per member	Example conditions	Share of members	Share of costs	Example programs
Healthy <$2,500	• Preventative care • Minor acute care • Pregnancy	>80%	<20%	• Maternity program featuring e-consult, digital member education, care condition, remote patient monitoring for high-risk pregnancy
Rising risk >$8,000	• Early-stage single chronic illness (e.g., type 2 diabetes)	~15%	~20%	• Diabetes management with remote patient monitoring, digital engagement/ consultation and medication adherence management
Persistent super utilizers[1] ~$90,000	• Unmanaged behavioral health needs (e.g., anxiety, depression) • Poorly managed chronic illnesses (musculoskeletal, diabetes, hypertention) • Cancer	2-3%	~30%	• Behavioral health program focusing on virtual consulting, digital driven personalized care, prescription monitoring, peer engagement • Joint pain/joint replacement management via Rx utilization management, patient navigation, remote therapy
Catastrophic >$100,000	• NICU/PICU[2] cases • Heart failure • Renal disease	2-3%	~30%	• Cardiovascular disease management with remote patient monitoring and multi-discipline post-acute care coordination

$6,000
Average spend per member

[1] More than one year in top ~5% of spending
[2] Newborn intensive care unit/pediatric intensive care unit
Source: Kaiser Family Foundation 2019; Population Health Management 2019

5 Consider value-based insurance plans

Next-generation benefit design accounts for healthcare risk, consumer discretion and ability to absorb risk, and value. Value-based insurance design (VBID) plans structure benefit coverage and cost-sharing policies based on the degree of consumer discretion and influence, the ability of consumers to absorb cost risk, and the value at stake. This approach attempts to align financial incentives for both patient and payer around utilization of care.

Next generation benefit design accounts for healthcare risk, consumer discretion and ability to absorb risk, and value

Comparison by risk category

Type of risk	Example	Consumer discretion	Consumer ability to absorb risk (cost)	Value
Routine	Minor acute low-cost conditions; usually require outpatient medical care	High	High	Medium
Preventative	Evidence-based preventative care	High	Medium	High
Chronic care	Evidence-based chronic disease management	High	Medium	High
Catastrophic, chronic	High-cost chronic disease management	High	Low	High
Catastrophic, non chronic	High-cost acute care	Low	Low	Low
End of life	Specialized care at the end of life	Low	Medium	High
Discretionary	Shoppable non-emergent services	High	Medium	Medium
Purely elective	Procedures often not covered by medical benefits	High	Medium	Low

High Medium Low

Employers must act now if these cost-saving measures are to be effective. There is still an opportunity to adopt the aforementioned actions and prompt a step change in long-term affordability. To ensure affordable healthcare coverage for both employers and employees, now is the time to partner with and challenge healthcare-service vendors to comprehensively redesign employer health benefits.

[1] The threat to employee health benefits | McKinsey

Underwriting into the future

At QBE, we understand the risk landscape for health plans has never been so unpredictable. The risks have vastly evolved from five years ago due to factors including novel diseases, such as COVID-19, an outpouring of new treatments and pharmaceuticals coming to market, and the continued expansion of regulatory demands. As an innovative risk partner, our goal is to help customers stay ahead of these risks so they can stay focused on their future.

Here are just a few ways we are planning to improve our service to customers:

- Utilize large data sets and targeted medical and prescription drug data to address instances where assessing risk is difficult due to limited data.
- Leverage application programming interfaces (APIs) to improve data flow from our producers to our underwriting systems.
- Enable staff to spend more time on crafting unique solutions for customers through robotic process automation (RPA) of routine tasks.
- Embed diversity and inclusivity into our everyday models of doing business.

Services customers have grown accustomed to with their QBE underwriter will never change, such as:

- Direct access, on any given case, to the underwriters and account managers responsible for understanding the risk.
- Identifying and recommending cost containment strategies during the underwriting process, not just after an unfavorable claim trend develops.
- A cost containment team trained to identify fraud, waste, egregious charges and bring them to the attention of our broker partners and customers.
- A clinical risk management team available to educate consultants on the highest risk claimants, suggest potential ways to mitigate expenses and improve the patient experience.
- A dedicated team that monitors proposed state and federal legislation and communicates potential impacts to our risk partners.
- Available decision makers, including the Accident & Health executive team, to discuss challenges our customers face.

QBE's legal and compliance teams will continue to monitor and adjust the ways in which we utilize the data from our customers. We strive to leverage technological innovations to bring superior levels of service, as well as meet customer needs as a risk management partner from a socially responsible perspective.

Modernizing the claims process through automation

A medical stop loss claim can be stressful for a policyholder due to the high dollar amounts often involved. With so much at stake, the claims process needs to be both fast and accurate, yet delivered with a personal, empathetic touch.

Data collection, communications and payments need to flow seamlessly throughout the claims cycle to the multitude of stakeholders involved.

Although the process is complex, automation can be applied to many facets of the claims cycle. It improves accuracy and minimizes the time claims professionals spend on routine tasks, thereby allowing them to address claims requiring deeper expertise more quickly. For example, **QBE was able to automate notices, claim intake and explanation of reimbursement (EOR) delivery, including the addition of key controls throughout the claim lifecycle to ensure both quality and data integrity. The result was a 90% reduction in handling times.**

This increased efficiency improved reimbursement turnaround times for customers. The reengineering of these processes also created new opportunities to enhance traditional advanced funding mechanics and expedited reimbursement offerings.

Plan sponsors need to learn of incoming claim payments as soon as possible to account for large reimbursements. Therefore, **we have fully automated our EOR delivery process, cutting the time between the reimbursement transaction for electronic deposit and the EOR by 99%.**

While automation is an important part of the modernization journey, it can never replace human interaction. The best claims departments will use automation to optimize the time that team members are allocated to provide hands-on problem solving and support the evolving needs of customers.

Wider AI adoption could save the U.S. **5%–10%** or **$200B–$360B a year,** according to research from Harvard University and McKinsey & Company.

Process	Before	After	Reduction *(in min)*	Savings
Notice			27.98	90%
TPA claim intake			46.26	94%
ASO claim intake			45.94	90%
Explanation of reimbursement delivery			64.00	100%

[1] w30857.pdf (nber.org)

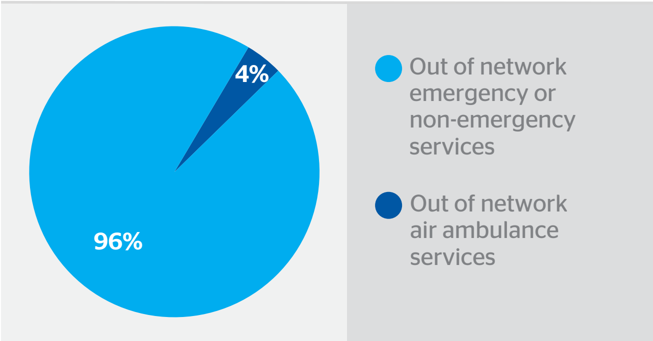
Regulatory activity: what you don’t know could cost you

New federal guidance has been released this year on parts of the Consolidated Appropriations Act (“No Surprises Act”), which took effect in January 2022.[1] The Act includes a “Gag Clause Prohibition” that was designed to prohibit plan sponsors from entering into contract agreements that restrict data access. Federal guidance has confirmed that plan sponsors should not sign contract agreements with a provider network or administrator that has language limiting their access to their own claims data, including details for pricing and quality of care. This guidance was released after plan sponsors filed lawsuits against network owners and administrators for denying them access to their data and citing the information as proprietary.

As part of the No Surprises Act, surprise billing was prohibited countrywide to limit balance billing of patients for out-of-network emergency services, services provided by an out-of-network provider at in-network facilities and out-of-network air ambulance services. The No Surprises Act also provided for the creation of an Independent Dispute Resolution (IDR) portal for both providers and payers to initiate a dispute if either party believes the payment is either too low or too high.

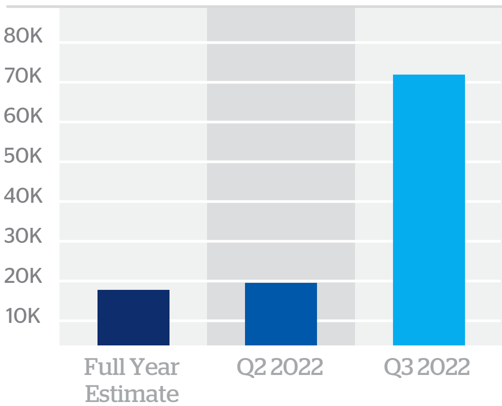
Disputed service type

April 15–September 30, 2022



*Data from the initial report on the Independent Dispute Resolution (IDR) Process

Number of IDR Disputes



Furthermore, 96% of those disputes pertained to out-of-network emergency or non-emergency services; the remaining 4% of the disputes related to out-of-network air ambulance services.

Initial estimates for the number of claim payments being disputed were set at 17K for the first full year. Based on the initial data provided by the Center for Medicare & Medicaid Services, **more than 90K disputes** were initiated between April 15 and September 30, 2022.[1]

[1] https://www.cms.gov/nosurprises/help-resolve-payment-disputes/payment-disputes-between-providers-and-health-plans

Now legislation and guidance are surfacing regarding the use of AI in insurance. New advances in AI will undeniably impact the insurance industry. An article by Business Insurance cites that new developments in AI will allow for sharper data analysis and could help reduce underwriting bias.[3] However, states are trying to prevent unfair discrimination and privacy issues that could arise from the use of AI in underwriting practices. Both AI and cyber security are top NAIC priorities, and technology industry executives and academic experts released an open letter earlier this year strongly suggesting a temporary discontinuation of open experiments with AI.

Lastly, states are finally zeroing in on Pharmacy Benefit Manager (PBM) transparency as more than 100 pieces of legislation on the issue were introduced last year.[4]

The language drafted in some of this legislation is of growing concern for the self-funded community, as it proposes to prohibit self-funded plan sponsors from leveraging ERISA pre-emption language regarding PBM benefits. Moreover, self-funded benefit plans would be subject to the state rules and regulations for their pharmacy plan designs. The self-funded community has raised a strong opposition to such language, especially over two bills out of Louisiana and Texas. These two bills have been tabled in the 2023 legislative session, but the Self-Insurance Institute of America, Inc. (SIIA) will continue to monitor the progress of proposals in future sessions. PBM transparency is not just a focus on the state level, but on the federal as well. Bipartisan legislation is being considered from multiple committees, including the Senate HELP Committee and Commerce Committee and the House Energy and Commerce Committee and Ways & Means.

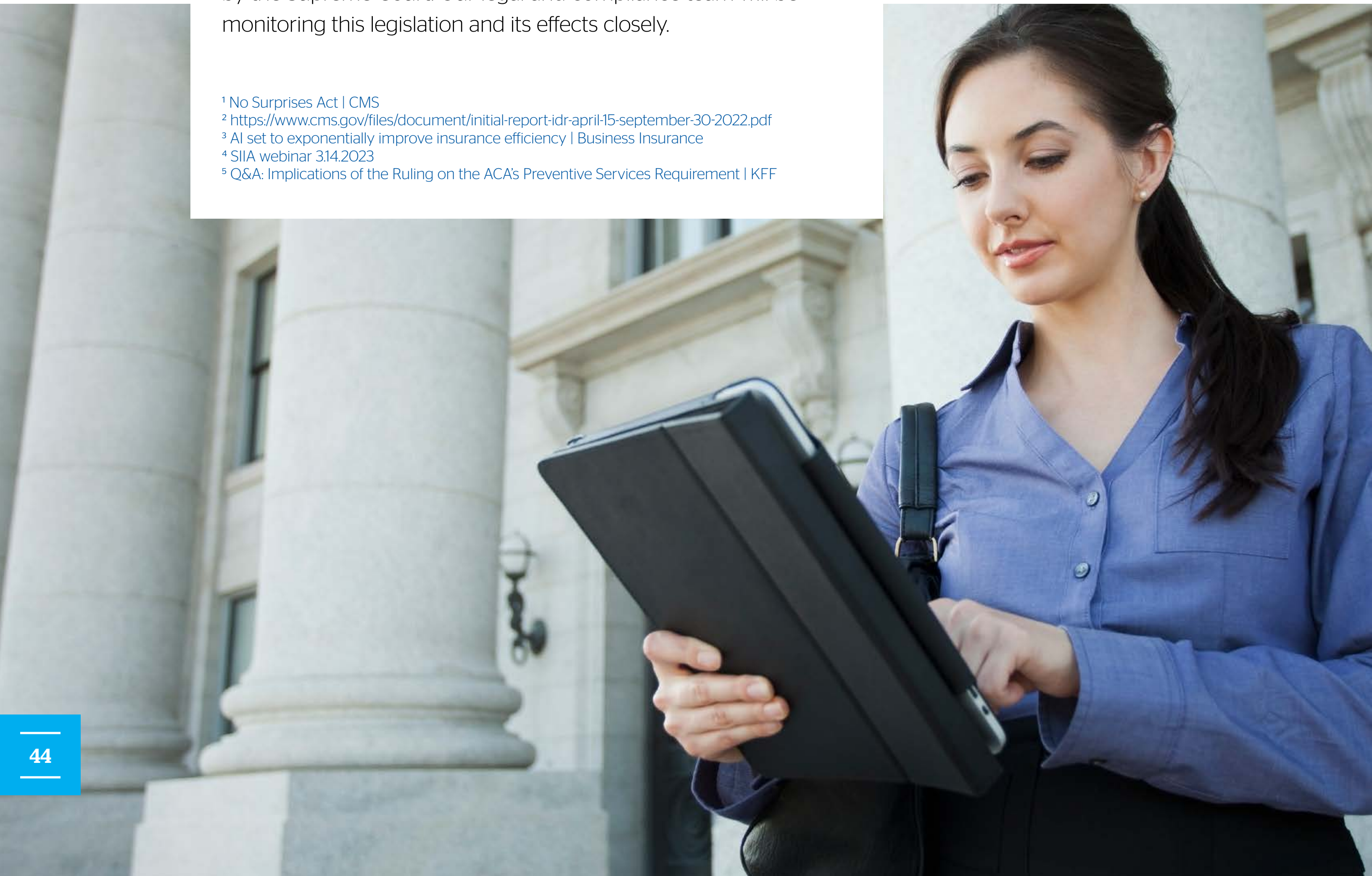
ACA preventive services requirement

The provision of the ACA that affects the largest total population, over 100M privately insured people, requires preventive services be covered without out-of-pocket costs.[5]

Due to this ACA provision, most private health plans must cover a range of preventive services and can't impose deductibles or copays for them. If the ruling stands, millions of people could pay more or lose access for other types of preventive care. For instance, services and medications like statins to prevent heart disease, lung cancer screening, PrEP to prevent HIV, and medications to lower the risk of breast cancer for high-risk women may now be subject to copays, deductibles, or coinsurance.

The Biden administration is appealing this ruling and will pursue a stay of this remedy from the Fifth Circuit Court of Appeals. This is the first time a court has ruled that the ACA preventive services coverage requirement other than the contraceptive coverage requirement, violates employers' religious rights. This can open the door to employers objecting to other services, such as vaccines. However, the merits of the case itself could eventually be reviewed by the Supreme Court. Our legal and compliance team will be monitoring this legislation and its effects closely.

[1] No Surprises Act | CMS
[2] https://www.cms.gov/files/document/initial-report-idr-april-15-september-30-2022.pdf
[3] AI set to exponentially improve insurance efficiency | Business Insurance
[4] SIIA webinar 3.14.2023
[5] Q&A: Implications of the Ruling on the ACA's Preventive Services Requirement | KFF



Our commitment to our communities

Resiliency through sustainability

QBE's commitment to help people and companies manage risk and build resiliency includes efforts to improve sustainability and identify ESG trends. We provide resources to help customers, brokers and employees develop their own ESG risk management and sustainability awareness.

As an international insurer and reinsurer, the QBE perspective on sustainability encompasses strong corporate governance, sustainable business practices and a positive work environment. We have evolved our sustainability strategy to better support our ambition and purpose of enabling a more resilient future.

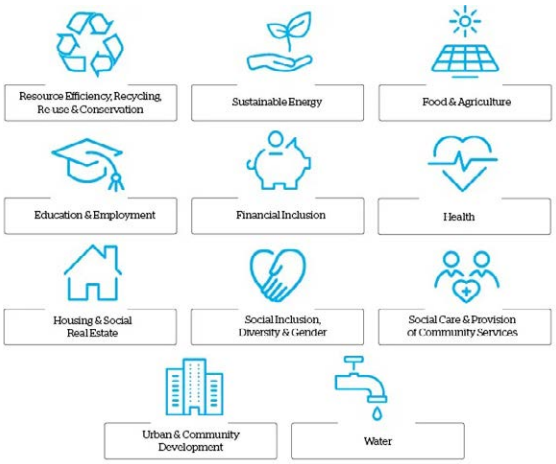
The 2022 Sustainability Report discloses how QBE approaches sustainability and the management of ESG issues. In 2022, climate change was a key consideration in the evolution of our sustainability strategy.

Premiums4Good: making a tangible difference

We are proud of our impact investment initiative, Premiums4Good, which seeks to make a positive environmental and social impact. Through Premiums4Good, QBE invests a portion of customers' premiums into investments that have additional social or environmental benefits, at no extra cost to our customers.

Our annual Premiums4Good Investment Impact Reports provides an update on our stated ambition to grow our impact investments and highlights of this initiative.

11 impact areas



108 securities
&
$1.6B has been invested as part of Premiums4Good
(as of December 2022)

Our ambition is to **grow** our impact investments to
$2B by 2025

QBE Foundation

Preparing and protecting communities

The QBE Foundation strives to improve the preparedness of our communities through long-term partnerships designed to help people help themselves. The focus of the Foundation is to create strong, resilient and inclusive communities that are better equipped to protect themselves.

In 2022, the QBE Foundation contributed over $4.9M globally in corporate community investments.

Accelerating growth

In partnership with Leading Cities, the QBE Foundation delivers the QBE AcceliCITY Resilience Challenge, a competition for start-up companies and entrepreneurs to help cities accelerate growth and make them more equitable, sustainable and resilient. Open to start-ups around the globe, the challenge and accelerator program connects winners with funding, a pilot project and client prospects from cities throughout the world.

QBE | AcceliCITY RESILIENCE CHALLENGE

QBE AcceliCITY has been recognized as one of the

Top 5

GovTech Accelerators in the world

$675M+

Since our launch in 2018, the total funding QBE AcceliCITY Alumni have raised now exceeds $675M

Feeding the hungry

The number-one cause of illness in the U.S. is poor nutrition, which is responsible for more than half a million deaths each year. That's why the QBE Foundation partners with Feeding America as a key charitable beneficiary. Feeding America works to provide food security for the less fortunate by collaborating with grocers, farmers and truckers to do so sustainably.

As a top provider of medical stop loss insurance, QBE understands how diet can impact health. Our A&H practice is passionate about helping and working with the community to support this worthy cause. Tara Krauss is QBE's Co-executive Sponsor of the Feeding America Drive. Now in its fifth year, this fundraising initiative has been responsible for donating nearly 1.8M meals to those in need.

According to the USDA, more than **34M people**, including **9M children**, in the U.S. are food insecure.[1]

Approximately **46% of adults** and **56% of children** in the U.S. suffer from a poor-quality diet.[2]

[1] Feeding America and Poverty in the United States US Census
[2] Everyday Health

Why employers choose QBE

Employers across the country turn to QBE for the expertise and resources needed to help manage their self-funded health plans. A leading provider of medical stop loss insurance, QBE creates custom-tailored solutions that fit the needs of each employer to control the cost and quality of their self-funded plans.

We are committed to innovation through our focus on continuous improvement and growth. This includes developing new and modern products and services, while continually evolving to make it easier to work with us.

QBE operates through a network of limited and preferred distribution partners to offer its products and services. This allows our brokers direct access to QBE executive leadership, as well as seasoned underwriters and business development leaders. The result is superior coverage for QBE policyholders.

When complex claims arise, such as those around emerging treatments and therapies, QBE clinicians are ready to educate and assist producers. QBE claims and policy administration teams can customize solutions to facilitate claims on both TPA and ASO-type plans.

After 135 years (and counting) of applied expertise and solid financial strength, QBE has grown to become a top-tier global insurer and reinsurer.

Learn more about our customized solutions

We would welcome the opportunity to connect further. If you have questions on the information contained in this report, industry insights or how we can partner with you to help manage your customers' risk exposures, please contact one of the following team members:

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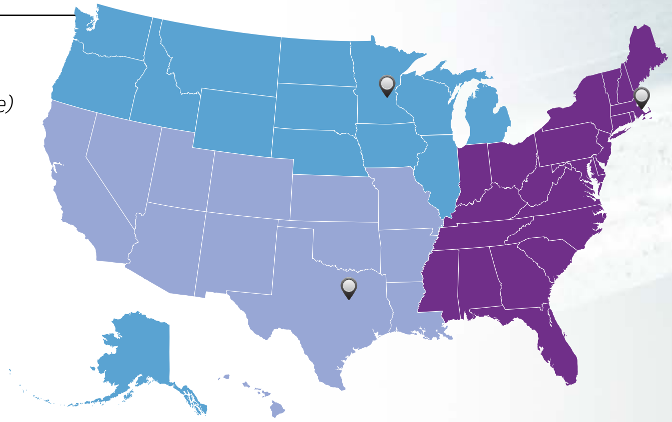

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