OliverWyman | GuyCarpenter

Fall 2024

STOP LOSS MARKET UPDATE

Guy Carpenter and Oliver Wyman present our second annual joint stop loss market update. This newsletter includes reported annual statutory financial experience, market and cost trends and drivers, and a discussion of advanced predictive and AI analytical techniques. Our aim is to keep you abreast of key stop loss market trends and dynamics that impact stop loss insurer financial results and profitability.

2018–2023 statutory financials results

Stop loss carrier premium volume increased to $35.5 billion in 2023, reflecting a growth rate of 11.9% from 2018–2023 with 10.4% of the annual growth attributable to cost trends and business mix changes, and the remainder due to increased enrollment. Claims increased at a faster rate than premiums resulting in loss ratios deteriorating from 79.5% in 2018 to 80.3% in 2023 with quite a bit of loss ratio volatility in the interim years.

Stop loss market trends

With the increase in healthcare costs and continued pressures from inflation, employers are turning toward self-funding to control costs and overall spend. Enrollment in the fully insured group medical market has declined by over 15% in the past 5 years. The increase in claims over $1 million in the past 5 years is a growing concern for insurance and reinsurance companies.

High dollar claims trends

Large claims are continuing to rise with an increase in frequency of claims at the million+ dollar thresholds. Claims over 1 million dollars have increased steeply in the past 5 years, but the recent yearly increase has diminished. These claims can be attributed mainly to cancer treatments, premature births, complex conditions and specialty pharmacy.

Advanced analytics applications for stop loss portfolios and large claims

GC Mosaic Predictive portfolio model uses advanced analytic techniques to identify areas of profit improvement and pockets for optimized growth, while Oliver Wyman's Health Data & Analytics team (HDA) large claims model analyzes and identifies individuals at risk of high-cost claims. On their own and collectively, these tools provide great promise for improving risk selection and underwriting.

IN THIS ISSUE

2018–2023 STATUTORY FINANCIAL RESULTS

By Marc Lambright, FSA, MAAA and John Rienstra, FSA, MAAA

MARKET-WIDE STOP LOSS PREMIUM AND ENROLLMENT TRENDS

We summarize enrollment, premiums, claims, and loss ratio trends of carriers with 2018–2023 reported statutory financial information for the various segments of the stop loss market. Overall, the market has seen considerable growth in total premium, which has increased at an average rate of almost 12% annually driven primarily through higher premiums per member per month (PMPM), which have increased at an average rate of about 10% per year, while average covered lives increased at an annual rate of only about 1% over the period.

Note that these amounts are as reported other than that we removed certain data that appeared questionable, though there may still be some reporting inconsistencies amongst carriers in addition to mix differences in the type of business written by different types of carriers.

Table 1

	2018	2019	2020	2021	2022	2023	5-year average growth rate
Average covered lives (millions)	56.9	56.5	57.9	56.3	59.8	61.1	1.4%
Premium (millions)	$19,974	$23,284	$25,299	$27,352	$31,188	$35,066	11.9%
Premium PMPM	$29.24	$34.31	$36.38	$40.52	$43.49	$47.86	10.4%

CARRIER TYPES

We assigned a carrier type to each company that had premiums and lives reported in the AHPEE based on each company's characteristics, including distribution approach.

MGU Paper

- Brookfield Asset Management Reinsurance Partners Ltd.
- Fairfax Financial Holdings Limited
- Fidelity Security Life Insurance Company
- Nationwide Mutual Group
- Pan-American Life Mutual Holding Company
- Western & Southern Mutual Holding Company

Blues

- Elevance / Anthem, Inc.
- Aware Integrated, Inc.
- BCS Financial Corporation
- Blue Cross & Blue Shield of Mississippi, a Mutual Insurance Company
- Blue Cross & Blue Shield of Rhode Island Inc.
- Blue Cross and Blue Shield of Alabama
- Blue Cross and Blue Shield of Kansas City
- Blue Cross and Blue Shield of Kansas, Inc.

Specialty & Life Ins Cos

- AXA SA
- Berkshire Hathaway Inc.
- Cameron Associates, Inc.
- Educators Mutual Insurance Association
- QBE Insurance Group Limited
- Swiss Re AG
- The Westaim Corporation
- Trustmark Mutual Holding Company
- Ullico Inc.
- W. R. Berkley Corporation
- Zurich Insurance Group AG

Large National Medical

- Centene Corporation
- Cigna Corporation
- CVS Health Corporation
- UnitedHealth Group Incorporated

Comprehensive Medical

- Blue Cross and Blue Shield of Massachusetts, Inc.
- Blue Cross and Blue Shield of North Carolina
- Blue Cross and Blue Shield of South Carolina
- Blue Cross and Blue Shield of Vermont
- Blue Cross Blue Shield of Arizona, Inc.
- Blue Cross Blue Shield of Michigan Mutual Insurance Company
- Blue Cross Blue Shield of Wyoming
- Blue Cross Complete of Michigan LLC
- Blue Cross of Idaho Health Service, Inc.
- BlueCross BlueShield of Tennessee, Inc.
- California Physicians' Service, Inc.
- Capital Blue Cross, Inc.
- CareFirst, Inc.
- Elevance Health, Inc.
- GoodLife Partners, Inc.
- GuideWell Mutual Holding Corporation
- Hawaii Medical Service Association
- Health Care Service Corporation, a Mutual Legal Reserve Company
- HealthyDakota Mutual Holdings
- Highmark Health
- Horizon Healthcare Services, Inc.
- Independence Health Group, Inc.
- Louisiana Health Service and Indemnity Company
- PREMERA
- Premera Blue Cross
- Prosano, Inc.
- Trigon Healthcare, Inc.
- Wellmark, Inc.

Large Direct ESL

- Sumitomo Life Insurance Company
- Sun Life Financial Inc.
- Tokio Marine Holdings, Inc.
- Voya Financial, Inc.

PREMIUM AND CLAIMS TRENDS BY CARRIER TYPE

Table (2) shows annual direct premiums and calculated trends by carrier type. Large National Medical Carrier, MGU Paper, and Comprehensive Medical carrier types have seen higher premium growth than the total market's 11.9% annual rate for 2018–2023, and expanded their market share, while the Large Direct writers, Blues, and Specialty & Life Ins Cos have seen their shares decline. Overall, the Large National Medical, the Blues, and Large Direct ESL continue to dominate the market as they still represent almost 80% of total premium earned.

Table 2: Total direct premiums by carrier type 2018–2023
In millions

	Large National Medical	Blues	Large Direct ESL	Specialty & Life Ins Cos	MGU Paper	Comprehensive Medical	Other	Total market
2018	$6,532	$5,028	$4,391	$1,686	$704	$621	$1,012	$19,974
2019	$7,669	$5,633	$4,990	$1,848	$1,331	$952	$860	$23,284
2020	$8,234	$6,159	$5,483	$1,985	$1,460	$1,097	$881	$25,299
2021	$9,141	$6,709	$5,897	$1,855	$1,500	$1,119	$1,130	$27,352
2022	$10,463	$7,336	$6,650	$2,292	$1,573	$1,238	$1,635	$31,188
2023	$12,100	$7,808	$7,322	$2,451	$1,700	$1,147	$2,539	$35,066
5-year avgarge growth rate	13.1%	9.2%	10.8%	7.8%	19.3%	13.1%	20.2%	11.9%
Growth variance to total market	1.2%	-2.7%	-1.1%	-4.1%	7.4%	1.1%	8.3%	
2017 market share	32.7%	25.2%	22.0%	8.4%	3.5%	3.1%	5.1%	
2022 market share	34.5%	22.3%	20.9%	7.0%	4.8%	3.3%	7.2%	

In table (3), we show the premium PMPM and resulting trends by carrier type. The Blues and Specialty and Life Insurance Cos carrier types have seen the lowest average premium increases. MGU Paper carriers continue to have lower than average PMPM premiums compared with the other carrier types while both Large National Medical carriers and Comprehensive Medical carriers have higher than average PMPM premiums. Note that these PMPM amounts are as reported other than that we removed certain data that appeared questionable, though there may still be some reporting inconsistencies amongst carriers in addition to mix differences in the type of business written by different types of carriers.

Table 3: PMPM premiums by carrier type 2018–2023

In dollars

	Large National Medical	Blues	Large Direct ESL	Specialty & Life Ins Cos	MGU Paper	Comprehensive Medical	Other	Total market
2018	$52.13	$31.32	$18.59	$41.35	$12.51	$56.59	$19.08	$29.24
2019	$60.95	$29.35	$24.06	$40.15	$18.44	$68.66	$40.50	$34.31
2020	$64.96	$34.45	$27.25	$43.67	$12.85	$72.72	$61.16	$36.38
2021	$70.72	$36.01	$31.74	$49.55	$19.51	$76.84	$25.25	$40.52
2022	$81.51	$37.73	$34.70	$37.78	$16.33	$89.93	$51.12	$43.49
2023	$81.38	$38.65	$35.83	$43.59	$21.30	$99.08	$84.58	$47.86
5-year avgarge growth rate	9.3%	4.3%	14.0%	1.1%	11.2%	11.9%	34.7%	10.4%
Growth variance to total market	-1.0%	-6.1%	3.7%	-9.3%	0.9%	1.5%	24.3%	

Incurred claims PMPM and resulting trends by carrier type are displayed in table (4). Similar to the premiums PMPM, the Blues and Specialty and Life Ins Cos carrier types have seen the lowest average increase in claims PMPM. Notably, the claims PMPM for all carrier types has grown in line with each of their respective premiums.

Table 4: PMPM claims by carrier type 2018–2023

In dollars

	Large National Medical	Blues	Large Direct ESL	Specialty & Life Ins Cos	MGU Paper	Comprehensive Medical	Other	Total market
2018	$43.86	$24.21	$14.05	$31.25	$9.04	$54.51	$15.17	$23.26
2019	$50.84	$24.08	$19.30	$29.61	$13.31	$68.67	$31.50	$27.95
2020	$52.34	$30.80	$20.27	$30.57	$9.41	$72.13	$43.05	$29.32
2021	$62.50	$33.27	$22.79	$33.50	$13.50	$76.62	$19.23	$33.75
2022	$72.30	$35.66	$24.33	$28.67	$11.42	$85.06	$41.66	$36.56
2023	$70.80	$29.55	$25.95	$31.99	$15.87	$97.85	$72.98	$38.47
5-year avgarge growth rate	10.1%	4.1%	13.1%	0.5%	11.9%	12.4%	36.9%	10.6%
Growth variance to total market	-0.5%	-6.5%	2.5%	-10.1%	1.3%	1.8%	26.3%	

LOSS RATIOS BY CARRIER TYPE

In tables (5) and (6) below, we summarize the experienced loss ratios by both carrier type and in total. Comprehensive Medical carriers have experienced loss ratios that are considerably higher than the market average (16.5% over the 6-year period). Both Specialty & Life Ins Cos and MGU Paper carrier types show loss ratios that are significantly below the market average in all 6 years, with Specialty and Life Ins Cos carriers' loss ratios being 8.9% below the market total, and MGU Paper carriers' loss ratios being 9.8% below the market. Large Direct ESL carriers have seen loss ratios well below the market average in all years except for 2019 while the loss ratios of the Large National Medical carriers have been consistently at or above the market average. Notably, the Blues saw a sharp decline in their loss ratio in 2023 after several years of well above market average loss ratios.

Table 5: Loss ratios by carrier type 2018–2023

	Large National Medical	Blues	Large Direct ESL	Specialty & Life Ins Cos	MGU Paper	Comprehensive Medical	Other	Total market
2018	84.1%	77.3%	75.6%	75.6%	72.3%	96.3%	79.5%	79.5%
2019	83.4%	82.1%	80.2%	73.7%	72.2%	100.0%	77.8%	81.5%
2020	80.6%	89.4%	74.4%	70.0%	73.2%	99.2%	70.4%	80.6%
2021	88.4%	92.4%	71.8%	67.6%	69.2%	99.7%	76.2%	83.3%
2022	88.7%	94.5%	70.1%	75.9%	70.0%	94.6%	81.5%	84.1%
2023	87.0%	76.4%	72.4%	73.4%	74.5%	98.8%	86.5%	80.3%
2018–2023 average	85.7%	85.6%	73.7%	72.8%	71.9%	98.1%	80.2%	81.7%

Table 6: Ratios variance to total market by carrier type 2018–2023

	Large National Medical	Blues	Large Direct ESL	Specialty and Life Ins Cos	MGU Paper	Comprehensive Medical	Other
2018	4.6%	-2.2%	-4.0%	-3.9%	-7.3%	16.8%	0.0%
2019	2.0%	0.6%	-1.2%	-7.7%	-9.3%	18.6%	-3.7%
2020	0.0%	8.8%	-6.2%	-10.6%	-7.4%	18.6%	-10.2%
2021	5.1%	9.1%	-11.5%	-15.7%	-14.1%	16.4%	-7.1%
2022	4.6%	10.4%	-14.0%	-8.2%	-14.1%	10.5%	-2.6%
2023	6.7%	-3.9%	-7.9%	-6.9%	-5.8%	18.4%	6.2%
2018–2023	4.1%	4.0%	-8.0%	-8.9%	-9.8%	16.5%	-1.5%

MARKET SHARE: CARRIER RANKINGS BY TOTAL PREMIUM — 2018 & 2023

In table (7), we summarize the ranking of the top 15 carriers in 2018 and 2023 based on total premium and compare their revenue growth to the market average. The top 15 carriers in both years represent almost 80% of the total stop loss market. In addition, the top 5 largest carriers in each year make up almost half of the annual market premiums. In 2023, 3 of the 5 largest stop loss insurers are Large National Medical carriers [CIGNA, UnitedHealth, and CVS Health (Aetna)]. The other 2 carriers rounding out the top 5 are Large Direct ESL carriers (Sun Life Financial and Tokio Marine). These were the same 5 largest carriers as in 2018. Of the top 5 largest carriers, only UnitedHealth saw premium growth that was considerably higher than market average. Notably, of the carriers in the table below, UnitedHealth saw the largest relative growth between 2018 and 2023. Of the other 4 carriers in the top 5, only Sun Life Financial saw growth that was above the market average, while the other 3 carriers saw growth slightly below. BCBS SC and BCBSM saw the lowest growth between 2018 and 2023 out of the carriers in the top 15. BCBS SC dropped 4 spots from the 11th largest in 2018 to the 15th largest in 2023 while BCBSM fell out of the top 15 entirely dropping 5 spots from 14th largest in 2018 to the 19th largest in 2023.

Table 7: Market share summary: Top 15 companies by premium in 2018 and 2023

Company	2018 premium (Millions)	2023 premium (Millions)	2018 rank	2023 rank	Change in rank	2023/18 average growth rate	Growth compared to market average
CIGNA	$3,312	$5,024	1	1	No Change	8.7%	-3.2%
UnitedHealth	$1,604	$4,378	3	2	+1	22.2%	10.3%
Sun Life	$1,453	$2,710	4	3	+1	13.3%	1.4%
CVS Health (Aetna)	$1,615	$2,697	2	4	-2	10.8%	-1.1%
Tokio Marine	$1,303	$2,005	5	5	No Change	9.0%	-2.9%
Elevance	$1,245	$1,772	6	6	No Change	7.3%	-4.6%
HCSC	$810	$1,676	8	7	+1	15.7%	3.7%
Voya	$934	$1,454	7	8	-1	9.3%	-2.6%
Sumitomo	$702	$1,153	10	9	+1	10.4%	-1.5%
Highmark	$773	$1,113	9	10	-1	7.6%	-4.3%
WR Berkley	$369	$577	12	11	+1	9.4%	-2.6%
QBE	$289	$554	15	12	+3	13.9%	2.0%
Fairfax	$238	$540	17	13	+4	17.8%	5.9%
Swiss Re	$366	$531	13	14	-1	7.7%	-4.2%
BCBS SC	$487	$527	11	15	-4	1.6%	-10.3%
BCBSM	$345	$379	14	19	-5	1.9%	-10.0%
Subtotal	**$15,844**	**$27,089**				**11.3%**	
Total Market	**$19,974**	**$35,066**				**11.9%**	
Subtotal % of total market	**79.3%**	**77.3%**					

STOP LOSS MARKET ENVIRONMENT AND TRENDS

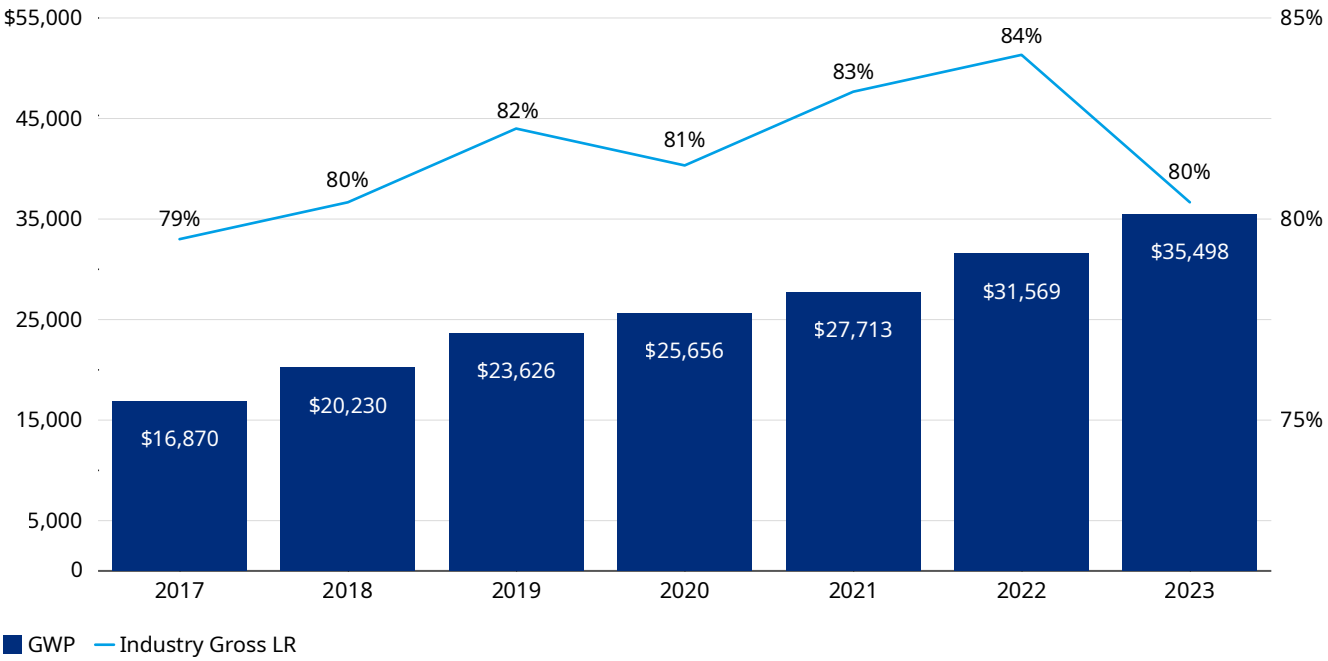
By Carol Adams, FSA, MAAA and Kevin Salfi, ASA

In the ever-evolving healthcare landscape, employers continue to be challenged in managing the rising costs of healthcare. Commercial healthcare spend is estimated to grow by 7.5% – 8% in the upcoming year, at a near record high for the past decade. Healthcare inflation is outpacing national inflation levels, mostly driven by rising hospital costs and related services. Through the transfer of high-cost claim risk to a medical stop-loss insurer, employers can mitigate some of the impact of rising healthcare costs while safeguarding their financial stability.

TRENDS IN EMPLOYER SELF-FUNDING

The medical stop loss market reached $35.5 billion of estimated gross written premium (GWP) in 2023. The 2023 overall loss ratio had a moderate decline to 80% as compared to the high of 84% in 2022.

Industry gross premiums and gross loss ratio trend

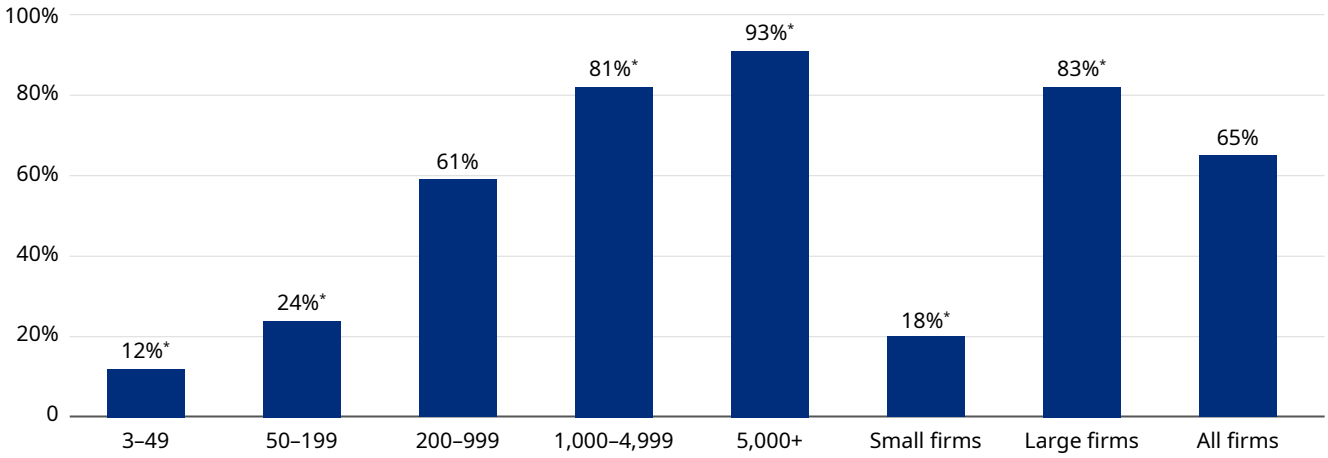


Segmenting and removing the BUCA (Blue Cross Blue Shield, United Health Group, Cigna and Aetna) results from the data shows the stop loss carrier loss ratio continuing to steadily increase since 2020. It is expected that traditional carriers will continue to have claim cost pressures, especially from pre-term births and high-cost pharmaceuticals. COVID-19 spend is not seen as an issue in 2023 and forward.

Employers who decide to self-fund their medical insurance gain insight and transparency into their own claims experience, with a lens to control utilization and reduce healthcare expenses. Self-funding allows employers to strategically customize their health plans, including benefits and plan designs that are current and relevant to their employee base.

The Kaiser Family Foundation reported that 65% of covered employees are in a self-funded plan, with 83% of covered workers enrolled in a self-funded plan for large firms.

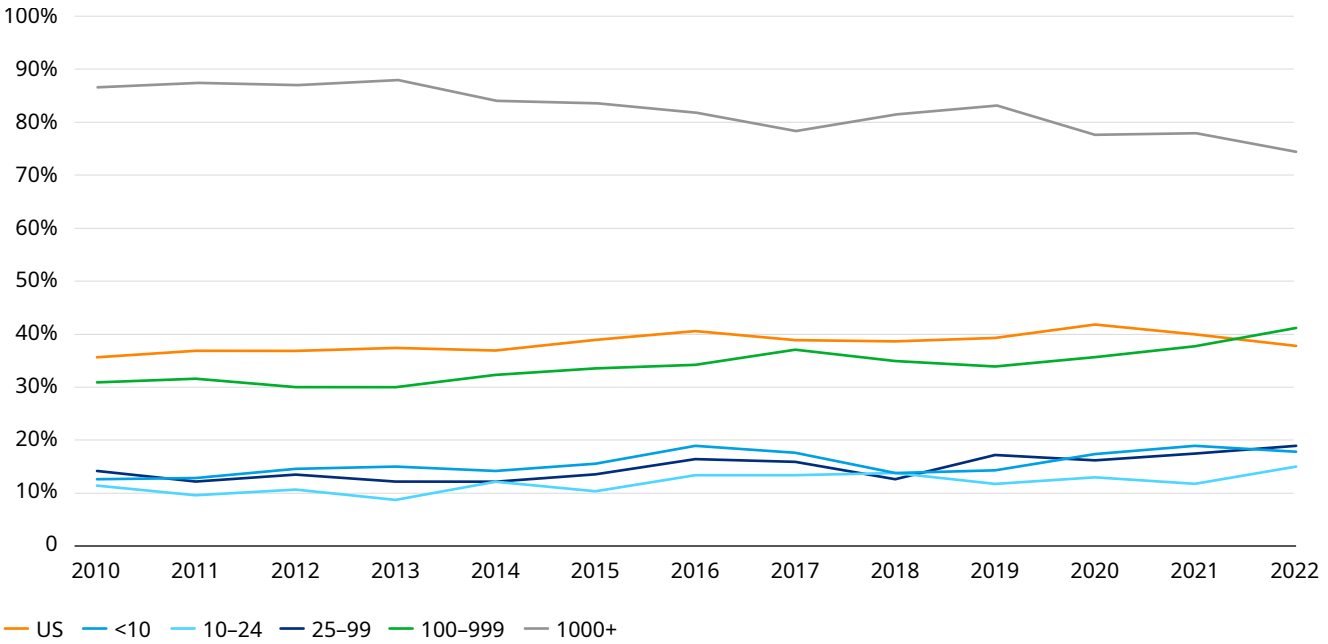
Percentage of covered workers enrolled in a self-funded plan, by firm size, 2023



*Estimate is statistically different from estimate for all other firms not in the indicated size category (p<.05).

Source: KFF Employer Health Benefits Survey, 2023.

Percentage of private-sector establishments that offer health insurance that self-insure at least one plan, overall and by detailed firm size, 2010–2022 (%)



Source: Medical Expenditure Panel Survey-Insurance Component, private-sector establishments, 2010–2022.

TRENDS IN GROUP INSURANCE ENROLLMENT

The following further segments the trend in group insurance enrollment by public companies, Blues plans and other than public companies and blues, with the enrollment in the fully insured market continuing to decline, decreasing 3.5% compared to 2022 and by 4% for 2021.

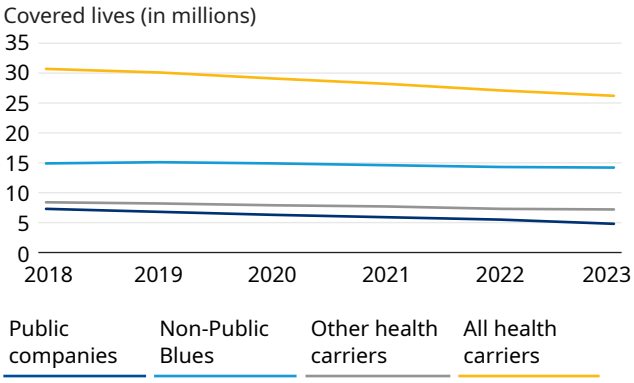
Enrollment

Enrollment in the comprehensive fully insured group market continued to decline in 2023, decreasing by 3.5% compared to 2022.

	2018	2019	2020	2021	2022	2023
All health carriers	30.7	30.1	29.1	28.2	27.1	26.2

Commercial group enrollment

Public vs. Blue vs. Other



TRENDS IN LARGE CLAIMS

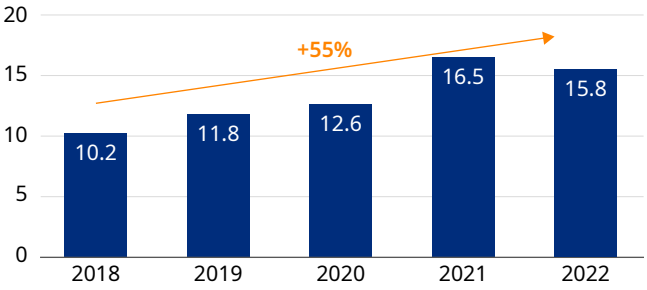
Large claims are continuing to rise with a trending increase of frequency of claims at the higher thresholds of 2 million and 5 million dollars. These claims can be attributed mainly to transplants, cancer treatments, and premature births. According to the 2023 March of Dimes Report Card, the percentage of live births born preterm has primarily risen the past decade, with a slight 1% drop in the 2022 year. The preterm birth rate reached its peak in 2021 at 10.4%. Contributing to these high preemie costs is that reduced negotiation power with teaching facilities and children's hospitals, with increased complexity of conditions for claimants.

Large claims excess $2 million are increasing by 55% from 2018 to 2022 with the largest jump from 2020 to 2021. In 2022, there is a small decrease in claims from 16.5 to 15.8 per million lives, although claims are expected to rise in upcoming years.

Claims at the larger dollar thresholds, excess of 5 million, have seen the most rapid increase at 292% over the same time, with a smaller 4.4% increase in 2022 compared to 2021.

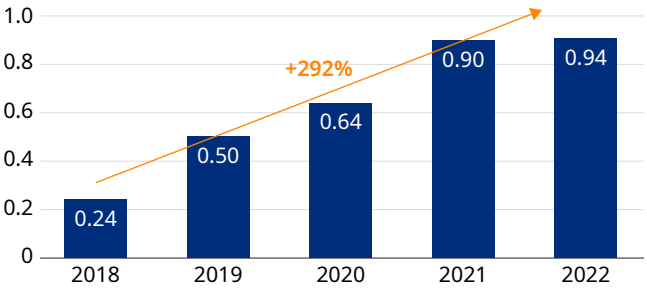
Frequency of claims > $2 million

per million members



Annual Frequency of Claims over $5 million

per million members



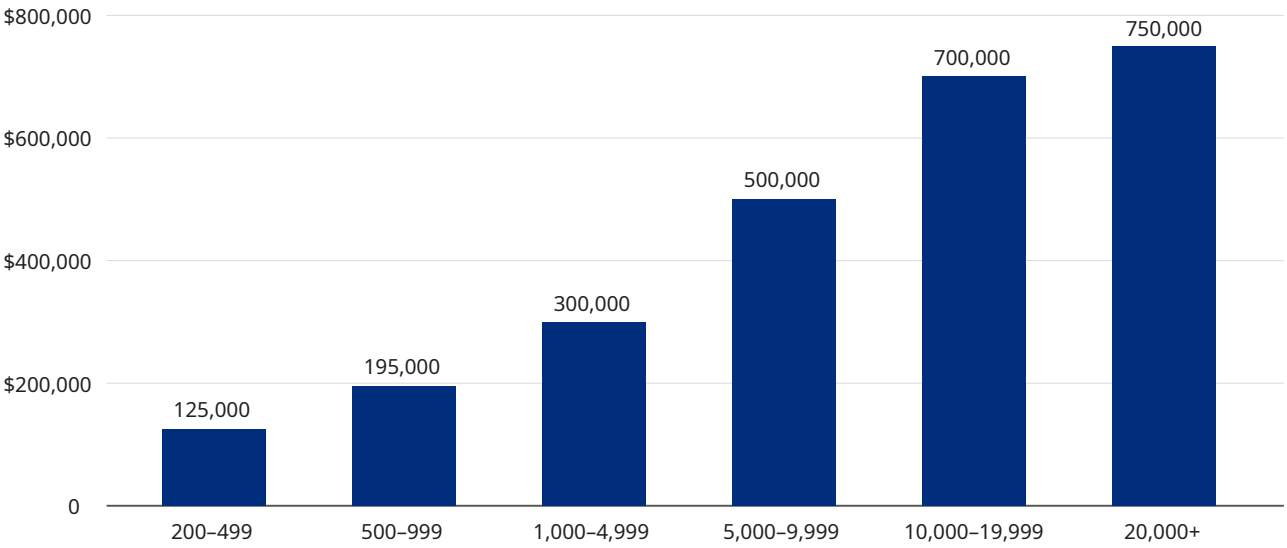
Source: Guy Carpenter analytics

TRENDS IN STOP LOSS AND CAPTIVE FUNDING PROGRAMS

Stop loss deductibles

With a larger number of employers choosing a self-funded benefit plan over traditional insurance, selecting stop-loss deductibles needs careful consideration. The trend toward self-funding is evident, with approximately 97% of employers with a self-funded medical plan choosing a stop loss program for groups under 1,000 lives. These programs have stop loss deductibles ranging from $125,000 to $200,000. However, as the size of the group increases to jumbo-sized groups exceeding 20,000 lives, the percentage of self-funded employers opting to purchase stop loss coverage declines to under 50%, showing that larger organizations may have the financial capacity and risk tolerance to assume a greater portion of the medical claim risk without relying on external stop loss coverage.

Median specific stop loss deductible by # of covered employees



Source: Mercer's National Survey of Employer-Sponsored Health Plans, 2023.

Captives have emerged as an effective vehicle for employer groups to self-insure additional risk, including healthcare benefits. By utilizing captives, employer groups can access the stability and financial protection provided by stop loss insurance, leveraging group purchasing power with networks and provider related services to generate greater volume discounts that may not be available to individual self-funded employers. With the additional retained layer through the captive, the price for stop loss coverage may be reduced and smoothed over time. It is important to have transparency into the captive arrangements, understanding associated fees and any lock in periods.

Many carriers are looking to the captive space as a source of new business and avenue of growth in a mature marketplace. Medical stop loss captives have historically had better loss ratios than traditional stop loss programs as there are aligned incentives to manage the risk. The attractive results, and the challenge for growth in the crowded employer stop loss market has led many stop loss writers to expand into the captive marketplace.

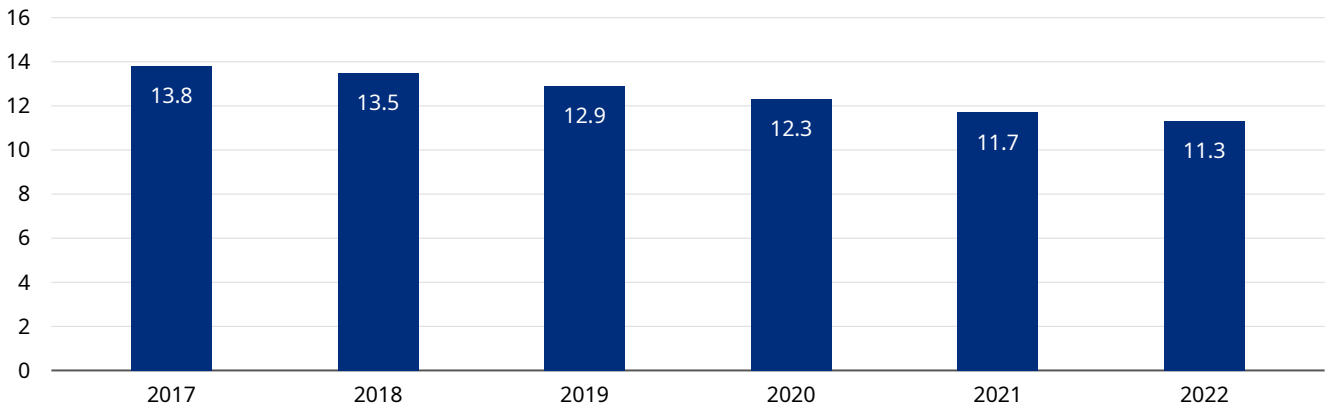
Level funding programs

A level-funded health plan is a type of self-funded health insurance that lets employers pay a fixed "level" monthly amount for their employee health care benefits. There are 4 main components to a level-funded health plan: the claims fund, a specific stop loss premium, aggregate stop loss premium, and administration fee. The claims fund will be set such that all claims up to the specific stop loss are covered. If the employer group incurs less than the amount in the claims fund, some or all of the excess amounts will return to the employer.

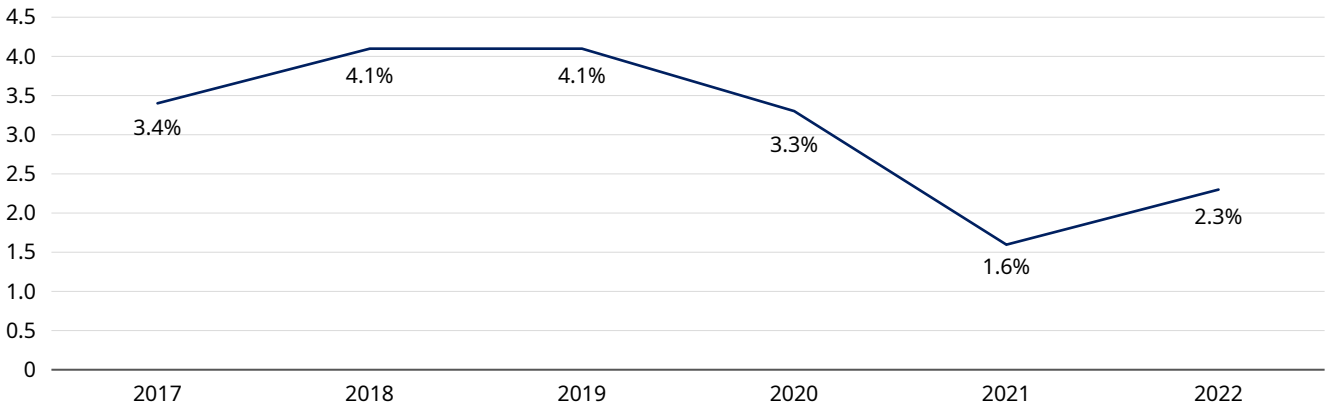
The Kaiser Family Foundation estimates that 38% of covered workers in small firms (3-199 workers) are in a level-funded plan in 2023. This is higher than 2022 where only 35% of small firms were in level-funded plans. Small employers can benefit from level-funded plans by avoiding overhead costs and profit margins that traditional insurance carriers add to their premiums. In addition to savings in premiums, firms with 50 or fewer employees have not been subject to ACA regulations since this product is considered "Self-Funded".

Level-Funded health plans are mainly focused on small to midsize employer groups who want to manage their benefits instead of purchasing insurance. Level funding can give these businesses an alternative solution that makes healthcare costs more predictable to stabilize their balance sheet. Below, is the enrollment in small group fully insured market has been decreasing since 2017. During that same time period, the profit margin for the fully insured market has taken a hit as well.

Enrollement in small group fully insured markets



Underwriting G/L as % of premium



HIGH DOLLAR CLAIMS TRENDS

By Marc Lambright, FSA, MAAA, John Rienstra, FSA, MAAA, Carol Adams, FSA, MAAA, and Kevin Salfi, ASA

Based on our proprietary pricing model and nationwide claims data for a population of individuals with employer coverage, we developed a cost distribution of annual claims costs and trends above various attachment points. We also analyzed underlying claims information by service category to provide insights into what is driving leveraged trends and stop-loss insurance costs at these different attachment points. We also break down claims by specific ICD chapters (defined as groupings of related disease/diagnosis types) to provide additional insights into causes of high dollar claims in the industry.

LEVERAGED TREND SUMMARY BY ATTACHMENT POINT

The table below shows leveraged trends in annual costs above various attachment points for covered individuals' allowed charges. The trends shown are for claims above each annual attachment point for 2017 to 2022. A few trends are immediately identifiable:

- The annual trends over the 5-year period showed leveraged trends that bounced around a bit but were reasonably consistent for the lower attachment points with average annual leveraged trends being about 4% at $0 and 7% at $100,000, however, trends from 2021 to 2022 are considerably lower than the 5-year average for attachment points $250,000 and greater.
- There was a clear reduction in trends in 2020 due to COVID-19 and then a bounce back in 2021 for all attachment points other than $2M+. 2019 to 2021 annualized trends were generally close to the average over the 5-year period, indicating that costs increased in 2021 to levels generally in line with longer-term expectations following the decrease seen in 2020, the year most impacted by COVID-19.
- Trends experienced for 2021 to 2022 were considerably lower than historical averages, particularly at the higher attachment points. This is driven by the Inpatient service type, which makes up over 50% of costs at attachment points of $500,000 and greater and saw negative trends within the Surgical sub-category.

Table 8: 2017–2022 annual trend rates

Attachment	2017 to 2022	2019 to 2021	2017 to 2018	2018 to 2019	2019 to 2020	2020 to 2021	2021 to 2022
$0+	3.6%	3.6%	3.5%	4.2%	-6.7%	15.0%	3.0%
$50,000+	5.8%	5.6%	7.0%	6.7%	-2.8%	14.8%	4.2%
$75,000+	6.5%	6.2%	7.9%	7.1%	-1.7%	14.8%	5.2%
$100,000+	6.7%	6.3%	9.0%	7.6%	-1.4%	14.7%	4.5%
$250,000+	8.1%	8.0%	11.9%	9.0%	1.6%	14.8%	3.7%
$500,000+	8.4%	9.2%	12.7%	8.8%	3.8%	14.8%	2.3%
$1 million+	8.4%	10.2%	12.3%	9.3%	8.1%	12.3%	0.7%
$2 million+	13.2%	20.8%	7.1%	19.1%	28.0%	14.1%	0.0%

TRENDS BY MAJOR SERVICE CATEGORY

We analyzed cost and trends for 6 major service categories (Inpatient, Outpatient, Professional, Rx, Therapies, and other services), and certain more granular sub-categories of services within each major service category to provide additional insights into the drivers of high-cost claims and trends. Table (9) shows the 6 major service categories and subcategories of services within each of them.

Table 9

Inpatient	ECF/SNF	Hospice	Maternity	Medical
	Rehab	Mental Health	Neonates	Substance Abuse
	Surgical			
Outpatient	Blood and Plasma	Cardiology	CT Scan	ECG/EKG/EEG
	Emergency Room	Lab	Mammogram	Maternity
	Mental Health	MRI	Pathology	PET Scan
	Substance Abuse	Surgical ASC	Surgical Hosp	Ultrasound
	X-Ray			
Professional	Acupuncture	Chiropractic	Mental Health	PCP
	Specialist	Substance Abuse	Surgery	Urgent Care
Rx	Generic Mail	Generic Pharmacy	Non Preferred Brand Mail	Non Preferred Brand Pharmacy
	Preferred Brand Mail	Preferred Brand Pharmacy	Specialty Brand Mail	Specialty Brand Pharmacy
Therapies	Cardiac	IV/Infusion	Occupational	Other
	Physical	Rehabilitation	Respiratory	Speech
Other	Allergy Shots	Ambulance Air/Water	Ambulance Ground	Consultations
	Dental	Dialysis	DME	Hearing Exam
	Home Health	Injectable Drugs	Medical Supplies	Prosthetics/Orthotics
	Vision Exam	Wellness — Adult	Wellness — Child	Wellness — Womens
	Wellness — Immunizations			

Based on our review of trends by major service category for individuals that have claims above various attachment points, we note the following:

- Outpatient and Professional trends are similar to the overall trends by attachment point other than at the very highest attachment points.
- Inpatient trends are lower than the increase in trends seen for other services at lower attachment points.
- The Other category, which includes Injectable Drugs often referred to as "Part B" drugs in a Medicare context, has experienced higher trends than All Services above the $2 million attachment point, reflective of the very high price point of some of these Injectables. This may also explain the increase in the Professional trends for claims in excess of the $2 mill attachment point since some of the Injectable Drugs need to be administered by Physicians.
- Rx trends tend to be higher than overall trends for attachment points up to $500,000, and then lower for the attachment points of $1 million and $2 million. This result is intuitive as some specialty drugs may have monthly and annual costs that are quite large, but generally would not result in individual annual claims costs that reach the highest attachment points in our analysis.

Table 10: 2017-2022 annual trend rates

Attachment	All Services	Inpatient	Outpatient	Professional	Rx	Therapies	Other
$0+	3.6%	0.9%	3.3%	3.8%	6.0%	5.0%	3.3%
$50,000+	5.8%	2.2%	5.8%	3.4%	12.0%	6.8%	5.4%
$75,000+	6.5%	3.0%	5.4%	3.5%	14.8%	7.4%	5.5%
$100,000+	6.7%	3.7%	5.2%	3.6%	16.1%	7.9%	5.3%
$250,000+	8.1%	5.6%	6.9%	6.6%	16.7%	12.5%	6.6%
$500,000+	8.4%	7.3%	8.9%	6.5%	10.3%	18.3%	6.3%
$1 million+	8.4%	8.9%	6.1%	5.4%	4.5%	15.5%	8.4%
$2 million+	13.2%	15.1%	2.8%	18.7%	-11.2%	5.3%	27.5%

As different service categories experienced different trend rates over time for the various attachment points, they made up a different percentage of costs above those attachment points, which is summarized in the following table, resulting in some interesting trends in the service components of high-cost claims:

- Inpatient trends are generally lower than the increase in trends seen overall at lower attachment points, and therefore saw declines in the portion of overall costs at those attachment points. However, they saw an increased share at higher attachment points. Inpatient allowed charges were about 19% of all claims but made up nearly 67% of claims for individuals that had claims above $2 million in a year in 2022.
- Outpatient trends were lower at attachment points above $1 million leading to a decrease in the portion of the costs above that attachment point.
- The portion of costs attributable to Professional services has not significantly changed at all attachment points.
- The "Other" category, which includes Injectable Drugs often referred to as "Part B" drugs in a Medicare context, now makes up a substantial and growing portion of the costs at the highest deductible levels, including nearly 22% of all claims costs above $2 million in 2022, an increase of almost 10% from representing just over 12% of all claims above that attachment point in 2017.
- Rx costs make up an increasing portion of costs at attachment points up to $500K, and then a decreasing portion of costs above the $1 million attachment point, which is consistent with the increased utilization of high-cost specialty drugs which generally don't result in claims that breach the highest attachment points that we reviewed.

Table 11: 2017, % of allowed charges above attachment

Attachment	Inpatient	Outpatient	Professional	Rx	Therapies	Other
$0+	21.9%	27.9%	14.7%	21.7%	4.5%	9.3%
$50 thousand+	38.0%	18.3%	5.9%	20.3%	6.1%	11.3%
$75 thousand+	40.7%	16.5%	5.5%	17.9%	6.8%	12.5%
$100 thousand+	43.0%	15.5%	5.2%	15.4%	7.5%	13.5%
$250 thousand+	48.4%	11.4%	3.8%	11.6%	8.4%	16.4%
$500 thousand+	52.5%	8.0%	2.7%	10.6%	6.3%	19.9%
$1 million+	56.0%	6.2%	1.7%	10.2%	3.6%	22.3%
$2 million+	61.5%	6.2%	0.8%	17.4%	2.0%	12.1%

Table 12: 2022, % of allowed charges above attachment

Attachment	Inpatient	Outpatient	Professional	Rx	Therapies	Other
$0+	19.2%	27.5%	14.9%	24.4%	4.8%	9.2%
$50,000+	32.0%	18.2%	5.3%	27.0%	6.4%	11.1%
$75,000+	34.5%	15.7%	4.8%	26.0%	7.1%	11.9%
$100,000+	37.2%	14.4%	4.5%	23.4%	7.9%	12.6%
$250,000+	43.1%	10.7%	3.6%	17.1%	10.3%	15.3%
$500,000+	49.9%	8.2%	2.4%	11.6%	9.8%	18.1%
$1 million+	57.3%	5.6%	1.4%	8.5%	5.0%	22.3%
$2 million+	66.8%	3.8%	1.0%	5.2%	1.4%	21.8%

Table 13: 2017–2022 change in allowed charges % of total

Attachment	Inpatient	Outpatient	Professional	Rx	Therapies	Other
$0+	-2.6%	-0.4%	0.2%	2.7%	0.3%	-0.1%
$50,000+	-6.0%	-0.1%	-0.6%	6.6%	0.3%	-0.2%
$75,000+	-6.3%	-0.9%	-0.7%	8.1%	0.3%	-0.6%
$100,000+	-5.8%	-1.0%	-0.7%	8.0%	0.4%	-0.9%
$250,000+	-5.3%	-0.6%	-0.3%	5.4%	1.9%	-1.1%
$500,000+	-2.6%	0.2%	-0.2%	1.0%	3.5%	-1.9%
$1 million+	1.3%	-0.6%	-0.2%	-1.7%	1.3%	-0.1%
$2 million+	5.3%	-2.4%	0.2%	-12.3%	-0.6%	9.8%

DETAILED TRENDS WITHIN SERVICE CATEGORIES

INPATIENT

Inpatient costs make up an increasing percentage of costs as the attachment points increase, which is intuitive as most individuals with high annual claims costs likely had an inpatient stay for a complex condition.

Table 14: 2017–2022 Annual trend

Attachment	All Services	Inpatient	Inpatient Medical	Inpatient Surgical	Inpatient Neonate
$0+	3.6%	0.9%	1.7%	-0.9%	4.8%
$50,000+	5.8%	2.2%	2.9%	1.1%	4.4%
$75,000+	6.5%	3.0%	3.1%	2.6%	4.2%
$100,000+	6.7%	3.7%	3.4%	3.6%	4.3%
$250,000+	8.1%	5.6%	5.3%	5.9%	4.4%
$500,000+	8.4%	7.3%	7.8%	7.7%	4.1%
$1 million+	8.4%	8.9%	10.1%	10.2%	2.5%
$2 million+	13.2%	15.1%	19.8%	16.8%	0.7%

In 2022, Inpatient costs accounted for about 19% of all costs, and about 62% of costs for individuals with costs above a $2 million attachment point, of note:

- Inpatient costs had lower annual trends from 2017 to 2022 than all service categories combined (0.9% Inpatient annual trend vs. 3.6% for All Total) resulting in their making up a smaller percentage of total costs in 2022 (19%) than in 2017 (22%).
- At the highest attachment point of $2 million, inpatient costs made up a higher percentage of all costs above the attachment point in 2022 (67%) versus 2017 (62%).
- When analyzing trends and costs for different types of inpatient stays over the 2017 to 2022 period, we note:
  - **Inpatient Surgical** services had trends that lagged the overall claims trends at lower attachment points but had higher trends at the higher attachment points than those for other services. Overall, Inpatient Surgical claims made up 8.8% of all costs in 2022, a decrease of 2.2% versus 2017, but they made up 44.4% of costs above $2 million, an increase of 6.3% versus 2017.
  - **Inpatient Neonate** services generally make up a small percentage of overall costs (1.4% in 2022) and have made up a decreasing percentage of overall claims at higher attachment points, including only 5.5% of claims above the $2 million attachment point which is a 4.4% reduction from nearly 10% in 2017.
  - **Inpatient Medical** services make up a sizeable percentage of overall costs (5.8% in 2022), and costs for attachment points above $2 million (14.9% in 2022). As attachment points increase, the percentage of Inpatient costs attributable to Inpatient Medical are fairly stable, whereas the portion of costs related to both Surgical and Neonate see increases.

Table 15: 2017, % of allowed charges above attachment

Attachment	Inpatient	Inpatient Medical	Inpatient Surgical	Inpatient Neonate
$0+	21.9%	6.4%	11.0%	1.3%
$50,000+	38.0%	11.1%	22.3%	2.2%
$75,000+	40.7%	12.2%	23.7%	2.6%
$100,000+	43.0%	13.1%	24.7%	3.0%
$250,000+	48.4%	15.5%	26.5%	4.5%
$500,000+	52.5%	15.7%	28.8%	6.3%
$1 million+	56.0%	14.1%	31.8%	8.0%
$2 million+	61.5%	11.3%	38.1%	9.8%

Table 16: 2022, % of allowed charges above attachment

Attachment	Inpatient	Inpatient Medical	Inpatient Surgical	Inpatient Neonate
$0+	19.2%	5.8%	8.8%	1.4%
$50,000+	32.0%	9.7%	17.8%	2.1%
$75,000+	34.5%	10.4%	19.6%	2.4%
$100,000+	37.2%	11.2%	21.2%	2.6%
$250,000+	43.1%	13.6%	24.0%	3.8%
$500,000+	49.9%	15.3%	27.9%	5.1%
$1 million+	57.3%	15.2%	34.4%	6.0%
$2 million+	66.8%	14.9%	44.4%	5.5%

Table 17: 2017–2022 change in allowed charges % of total

Attachment	Inpatient	Inpatient Medical	Inpatient Surgical	Inpatient Neonate
$0+	-2.6%	-0.6%	-2.2%	0.1%
$50,000+	-6.0%	-1.4%	-4.5%	-0.1%
$75,000+	-6.3%	-1.8%	-4.1%	-0.3%
$100,000+	-5.8%	-1.9%	-3.4%	-0.3%
$250,000+	-5.3%	-1.9%	-2.6%	-0.7%
$500,000+	-2.6%	-0.4%	-0.9%	-1.1%
$1 million+	1.3%	1.1%	2.6%	-2.0%
$2 million+	5.3%	3.6%	6.3%	-4.4%

PHARMACY

Pharmacy costs continue to make up an increasing percentage of costs as the attachment points increase, other than at the highest attachment points (note also that we are including Injectable Drugs in "Other" costs). In 2022, Pharmacy costs accounted for about 24% of all costs, but only about 5% of costs for individuals with costs above a $2 million attachment point.

Table 18: 2017–2022 Annual trend rate

Attachment	All Services	Rx	Generic Rx	Preferred Rx	Specialty Rx
$0+	3.6%	6.0%	-1.7%	3.2%	8.8%
$50,000+	5.8%	12.0%	2.7%	9.5%	12.5%
$75,000+	6.5%	14.8%	4.2%	10.3%	15.4%
$100,000+	6.7%	16.1%	4.8%	10.8%	16.7%
$250,000+	8.1%	16.7%	8.0%	13.4%	16.9%
$500,000+	8.4%	10.3%	9.2%	14.7%	10.2%
$1 million+	8.4%	4.5%	8.7%	13.4%	4.4%
$2 million+	13.2%	-11.2%	20.1%	34.6%	-11.6%

We analyzed Pharmacy costs, overall, and the sub-categories making up the three largest components of overall costs: Generic, Preferred, and Specialty drugs, all excluding the impact of rebates, and note the following:

- Rx cost trends had higher annual trends from 2017 to 2022 than all services in total (6.0% Rx annual trend vs. 3.6% for All Total), resulting in their making up a larger percentage of total costs in 2022 (24%) than in 2017 (22%).
- At the highest attachment point of $2 million, pharmacy costs made up a much smaller percentage of all costs in 2022 (5%) versus 2017 (17%).
- When analyzing trends and costs for different types of Rx drugs over the 2017 to 2022 period, we note:
  - **Generic Rx** drugs had trends that lagged the overall claims trends at all but the highest attachment points and made up a smaller percentage of overall costs in 2022 (about 3%) than they did in 2017 (about 4%).
  - **Preferred Rx** drugs had trends that exceeded the overall claims trends and made up a similar percentage of overall costs in 2022 as in 2017 (slightly below 5%).
  - **Specialty Rx** drugs made up a sizeable percentage of overall costs (about 16% in 2022), and a smaller percentage of costs for attachment points above $2 million (5% in 2022). As attachment points increase, Specialty Rx costs make up a larger proportion of drug costs due to their higher price points than Generic and Preferred drugs. From a stop-loss perspective, they are much more concerning at lower attachment points (e.g., at a $50K attachment point Specialty Rx costs may make up 25% of costs versus 8% at a $1 million attachment point). Again, we are considering injectables in our "Other" service category.

Table 19: 2017, % of allowed charges above attachment

Attachment	Rx	Generic Rx	Preferred Rx	Specialty Rx
$0+	21.7%	3.9%	4.7%	12.3%
$50,000+	20.3%	0.9%	1.1%	18.2%
$75,000+	17.9%	0.7%	0.8%	16.3%
$100,000+	15.4%	0.5%	0.7%	14.1%
$250,000+	11.6%	0.3%	0.3%	11.0%
$500,000+	10.6%	0.2%	0.1%	10.3%
$1 million+	10.2%	0.1%	0.1%	10.1%
$2 million+	17.4%	0.0%	0.0%	17.3%

Table 20: 2022, % of allowed charges above attachment

Attachment	Rx	Generic Rx	Preferred Rx	Specialty Rx
$0+	24.4%	3.0%	4.6%	15.7%
$50,000+	27.0%	0.7%	1.3%	24.7%
$75,000+	26.0%	0.6%	1.0%	24.3%
$100,000+	23.4%	0.5%	0.8%	22.0%
$250,000+	17.1%	0.3%	0.3%	16.4%
$500,000+	11.6%	0.2%	0.2%	11.2%
$1 million+	8.5%	0.1%	0.1%	8.3%
$2 million+	5.2%	0.1%	0.1%	5.0%

Table 21: 2017–2022 change in allowed charges % of total

Attachment	Rx	Generic Rx	Preferred Rx	Specialty Rx
$0+	2.7%	-0.9%	-0.1%	3.4%
$50,000+	6.6%	-0.1%	0.2%	6.5%
$75,000+	8.1%	-0.1%	0.2%	8.0%
$100,000+	8.0%	0.0%	0.1%	7.9%
$250,000+	5.4%	0.0%	0.1%	5.3%
$500,000+	1.0%	0.0%	0.0%	0.9%
$1 million+	-1.7%	0.0%	0.0%	-1.8%
$2 million+	-12.3%	0.0%	0.0%	-12.3%

OTHER SERVICES AND SUPPLIES

Within our 6 major service categories, we used the "Other" category for services (and supplies) that did not fit nicely into the other five categories. This includes several different types of services with the three highest cost services, overall, in the Other services category being Injectables, Adult Wellness, and Dialysis. Injectables and Dialysis have seen high trends especially at the higher attachment points and contribute considerably to high-cost claims. In 2022, Other claims costs accounted for about 9% of all costs, and about 22% of costs for individuals with costs above a $2 million attachment point.

Table 22: 2017–2022 annual trend

Attachment	All Services	Other	Injectables	Adult Wellness	Dialysis
$0+	3.6%	3.3%	8.3%	0.4%	0.1%
$50,000+	5.8%	5.4%	8.1%	6.6%	0.2%
$75,000+	6.5%	5.5%	8.1%	7.5%	0.3%
$100,000+	6.7%	5.3%	7.8%	7.6%	0.4%
$250,000+	8.1%	6.6%	10.1%	8.2%	0.8%
$500,000+	8.4%	6.3%	9.8%	5.1%	1.0%
$1 million+	8.4%	8.4%	7.9%	4.7%	8.5%
$2 million+	13.2%	27.5%	19.2%	0.6%	50.7%

We note the following for the Other service category trends:

- Other cost trends had slightly lower annual trends from 2017 to 2022 than all services in total (3.3% Other annual trend vs. 3.6% for All Total) resulting in their making up a slightly smaller percentage of total costs in 2022 than in 2017.
- At the highest attachment point of $2 million, Other trends were more than double those seen for all services resulting in Other costs making up a much higher percentage of all costs above the $2 million attachment point in 2022 (22%) versus 2017 (12%).
- When analyzing trends and costs for different types of Other services over the 2017 to 2022 period, we note:
  - **Injectable** services had trends that were much higher than overall claims trends at most attachment points. Overall, Injectable claims made up 3.9% of all costs in 2022, an increase of 0.8% versus 2017, but they made up 12.5% of costs above $2 million, an increase of 2.8% versus 2017.
  - **Adult Wellness** services make up about 1% of overall costs but have a negligible impact on claims at higher attachment points.
  - **Dialysis** services made up a small percentage of overall costs (0.9% in 2022), but a much larger percentage of costs for attachment points above $2 million (8.3% in 2022). This is an intuitive result as costs for individuals with end-stage kidney disease are quite high while the prevalence of the disease is relatively low in the Commercial population.

Table 23: 2017, % of allowed charges above attachment

Attachment	Other	Injectables	Adult Wellness	Dialysis
$0+	9.3%	3.1%	1.3%	1.0%
$50,000+	11.3%	6.2%	0.1%	2.6%
$75,000+	12.5%	7.0%	0.1%	3.2%
$100,000+	13.5%	7.4%	0.0%	3.8%
$250,000+	16.4%	8.5%	0.0%	6.1%
$500,000+	19.9%	10.0%	0.0%	8.5%
$1 million+	22.3%	11.2%	0.0%	10.0%
$2 million+	12.1%	9.7%	0.0%	2.0%

Table 24: 2022, % of allowed charges above attachment

Attachment	Other	Injectables	Adult Wellness	Dialysis
$0+	9.2%	3.9%	1.1%	0.9%
$50,000+	11.1%	7.0%	0.1%	2.0%
$75,000+	11.9%	7.5%	0.1%	2.4%
$100,000+	12.6%	7.8%	0.0%	2.8%
$250,000+	15.3%	9.3%	0.0%	4.3%
$500,000+	18.1%	10.6%	0.0%	6.0%
$1 million+	22.3%	11.0%	0.0%	10.1%
$2 million+	21.8%	12.5%	0.0%	8.3%

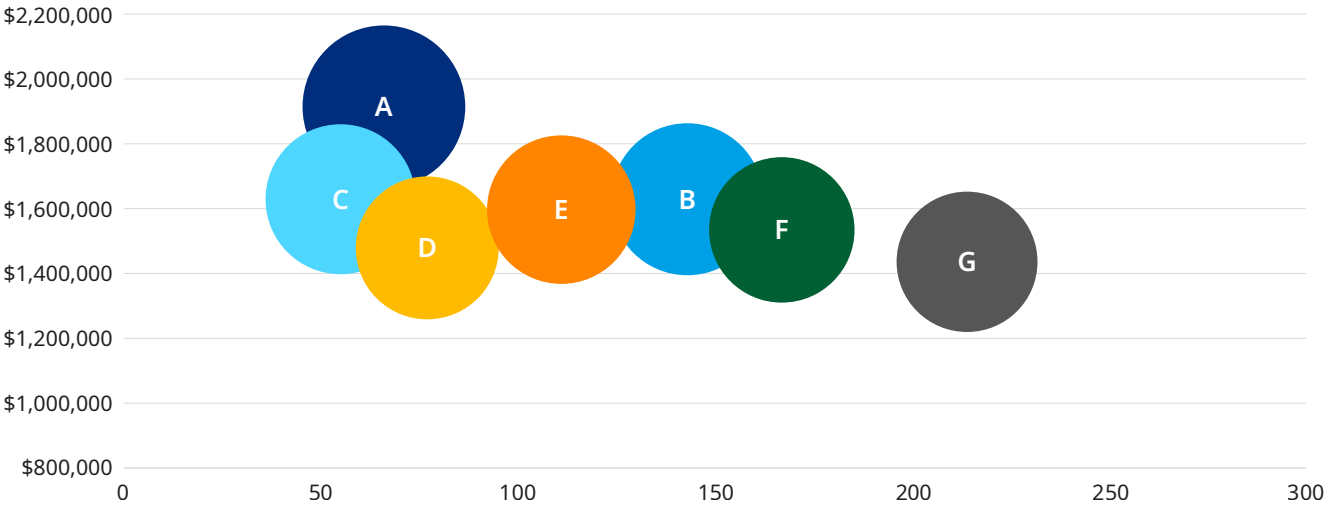
Table 25: 2017–2022 change in allowed charges % of total

Attachment	Other	Injectables	Adult Wellness	Dialysis
$0+	-0.1%	0.8%	-0.2%	-0.2%
$50,000+	-0.2%	0.7%	0.0%	-0.6%
$75,000+	-0.6%	0.5%	0.0%	-0.8%
$100,000+	-0.9%	0.4%	0.0%	-1.0%
$250,000+	-1.1%	0.8%	0.0%	-1.8%
$500,000+	-1.9%	0.7%	0.0%	-2.5%
$1 million+	-0.1%	-0.3%	0.0%	0.0%
$2 million+	9.8%	2.8%	0.0%	6.3%

LARGE CLAIM ANALYSIS BY ICD CHAPTERS

The chart below breaks down the down the 7 highest cost ICD chapters by severity, illustrating the average severity of ground up claims over $1M.

Average cost by ICD chapter claims xs $1 million for 2022



The Average Cost by ICD Chapter shows that higher frequency ICD chapters (horizontal axis) have a lower severity (vertical axis). The highest prevalence was shown to be Neoplasm claims with just over 200 claims reported in 2022 but had the lowest average severity of those shown. The highest average severity of claims was for Congenital malformations, deformations and chromosomal abnormalities claims with an average of $1.9M per claim. This is significantly higher than any other chapter and illustrates the potential risks these claims can have on stop loss business.

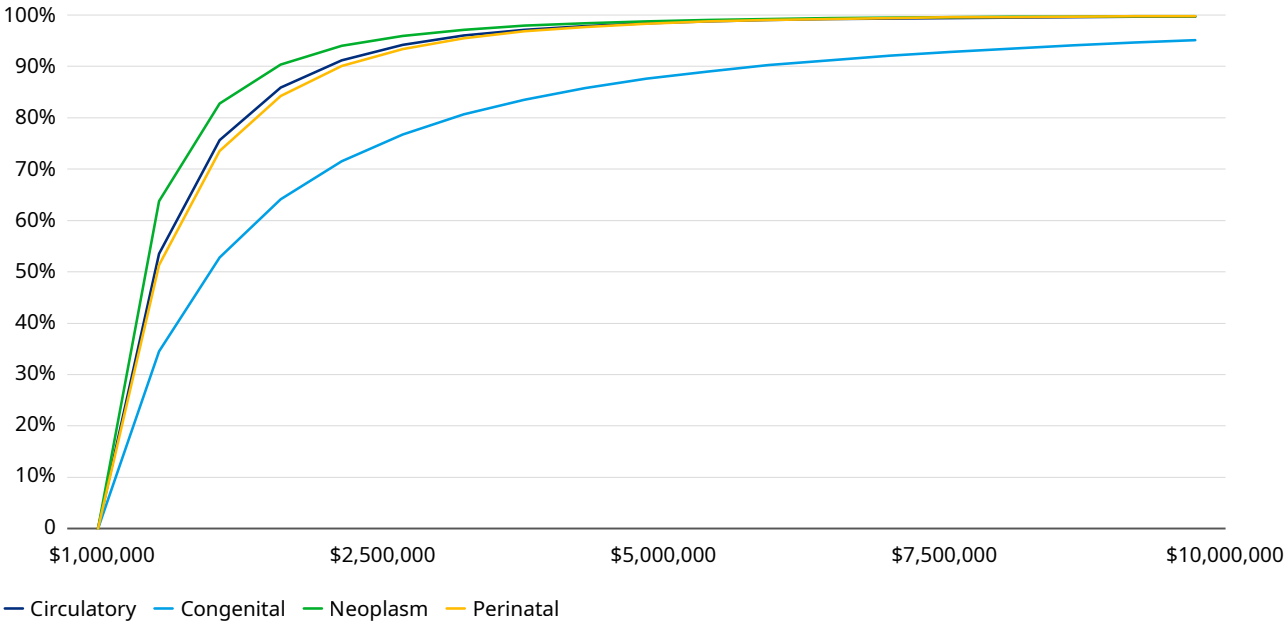
The chart below breakouts the claim details by the selected ICD chapters:

ICD Chapter	Counts	Severity	Label
Congenital malformations, deformations and chromosomal abnormalities	66	$1,914,000	A
Related to reproduction/perinatal period*	143	$1,673,000	B
Diseases of the respiratory system	55	$1,629,000	C
Diseases of the nervous system	77	$1,479,000	D
Injury, poisoning and certain other consequences of external causes	111	$1,597,000	E
Diseases of the circulatory system	167	$1,534,000	F
Neoplasms	214	$1,436,000	G

*Related to reproduction/perinatal period is combination of 2 ICD chapters: Certain conditions originating in the perinatal period & Persons encountering health services in circumstances related to reproduction

The following shows severity distribution curves for 4 selected ICD Chapters' claims of over $1M in 2022. The mean of each chapter is roughly in the 50th to 60th percentile range. Congenital claims have a thicker tail compared to the other chapters. Even at the $10 million threshold, there is a non-zero percentage probability of a congenital claim over $1 million exceeding that threshold.

Severity distribution curves for 4 selected ICD Chapters



Statistic	Circulatory	Congenital	Neoplasm	Perinatal
Mean	$1,534,000	$1,914,000	$1,436,000	$1,673,000
Mean Percentile	56%	50%	59%	61%
Distribution	Weibull	Weibull	Inverse Gamma	Log Normal

EMERGING GENE AND CELL THERAPIES

The balance between rising healthcare costs and the advances in gene and cell therapies is a multifaceted issue. The development and availability of gene and cell therapies have revolutionized the treatment landscape, offering new hope and life-saving options for patients with previously untreatable or difficult-to-treat conditions. These therapies have the potential to provide long-term or even curative solutions for genetic disorders, certain types of cancer, and other debilitating diseases. While these interventions offer hope and improved outcomes for patients, they also come with hefty price tags.

The high costs associated with the research, development, and production of gene and cell therapies present significant challenges. These therapies often involve intricate manufacturing processes, specialized facilities, and personalized treatment approaches, which contribute to their high costs. As a result, the presence of gene and cell therapies into healthcare systems raises important questions about access, affordability, and sustainability.

There are 10 currently approved gene therapies with treatment costs exceeding $2 million.

THE FINANCIAL LANDSCAPE OF GENE THERAPIES

Highest cost gene therapies

Gene Therapies > $2 million

Looking at the current risk transfer landscape, there is less reliance on listed therapy carve-outs and more of a trend towards comprehensive coverage of approved (and possibly pipeline) therapies. In addition, pay for performance is gaining traction with a financial mechanism that ties the ultimate cost of a therapy to medical outcomes. Carriers are also increasingly concerned about the increasing frequency of CAR-T therapies, even though they are less expensive than gene therapies. A trending solution is to access to contractual bundled prices for cellular therapies, providing cost certainty within a network of premier facilities, with a track record for proven results of favorable outcomes. All of these solutions converge in the direction of less risk transfer and more risk spreading as a strategy to address these game changing therapies.

As more therapies get FDA approval, it is important to understand how prevalence of a disease can factor into total expected costs for organizations. There is a known prevalence for the diseases these therapies were created to treat but not all those who have the disease are eligible for treatment. Some factors that can reduce the expected treatment are age range restrictions, patient hesitancy, medical evaluations and immunization testing. Understanding that this reduction will drastically change expected costs for companies worried about treating patients with Gene & Cellular Therapies.

ADVANCED ANALYTICS APPLICATIONS FOR STOP LOSS PORTFOLIOS AND LARGE CLAIMS

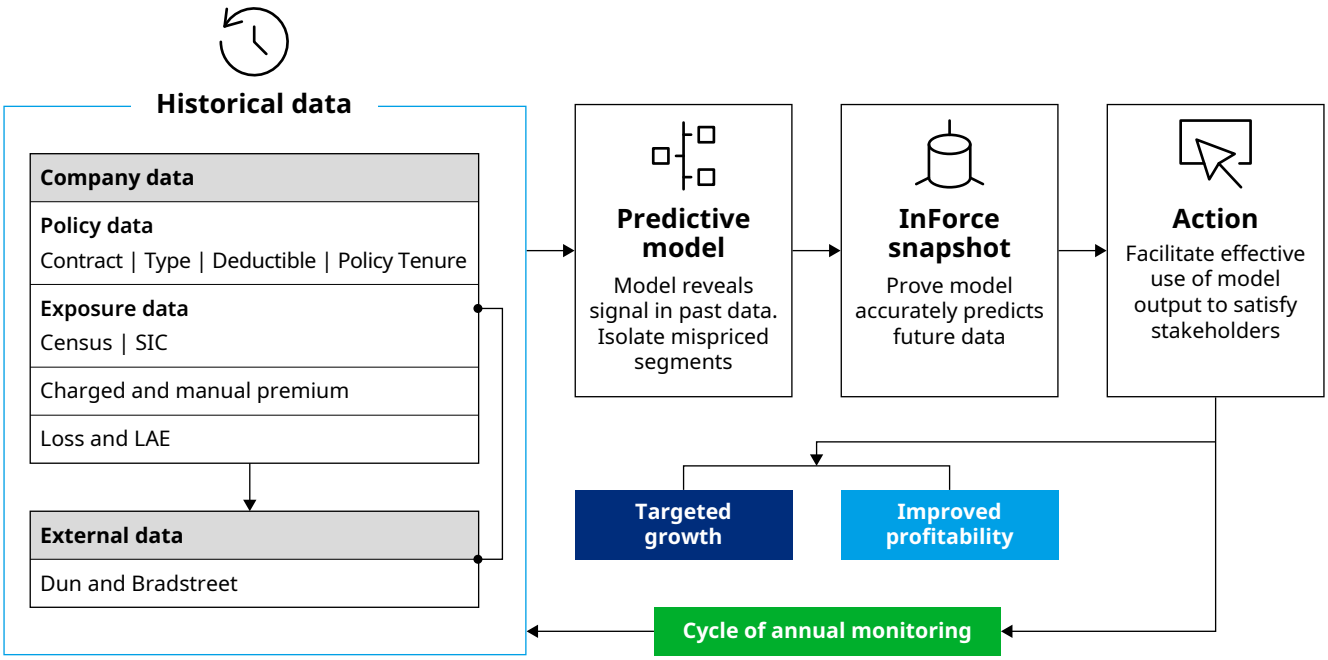
By Mike Kestler, ASA, MAAA and Carol Adams, FSA, MAAA

In the backdrop of increasing industry loss ratios and the upsurge in claims, the employer stop loss market faces constant challenges in achieving underwriting goals. With the advent of predictive analytics, companies like Guy Carpenter and Oliver Wyman are offering a strategic solution to improve bottom line performance and effectively manage business portfolios. By leveraging predictive analytics at a portfolio level, GC Mosaic Predictive identifies areas of profit improvement and pockets for optimized growth. Oliver Wyman's Health Data & Analytics team's (HDA) large claims model is a claimant-level model that analyzes individuals at risk of high-cost claims on their own. Collectively, these tools provide great promise for improving risk selection and underwriting.

ADVANCED ANALYTICS — GC MOSAIC PREDICTIVE PORTFOLIO MODEL

The GC Mosaic Predictive model's proactive approach enables businesses to navigate the evolving landscape of the employer stop loss market and make data-driven decisions to enhance financial outcomes.

Customized solution to identify portfolio drivers to assist with operational decision-making



GC Mosaic Predictive helps to understand the cost drivers and impact of changing pricing assumptions by expanding upon the traditional explanatory experience reporting and translating to a predictive tool to classify potential sources of growth in this challenging, mature market segment; identify sources of above-average profitability for targeted marketing; and find underperforming accounts for corrective actions through informed underwriting or pricing actions.

GC Mosaic Predictive ingests client data and enriches the portfolio with public and private data sources. This information is run through our enterprise AI platform to train the model, validate the results, and identify correlations and predictive levers. This results in scoring of policies and determining areas for improved performance, focusing on portfolio corrections for targeted portions of the business. This is a customized solution to identify risk drivers to provide informed decision making, improving both operational performance and profitability. The results may be used for strategic planning purposes, as well as business development and loss ratio improvement and are available in a dashboard through Power BI, identifying sources of potential growth to balance top-line and bottom-line objectives.

STOP LOSS DATA HANDLING AND CLAIMANT-LEVEL OW HEALTH DATA AND ANALYTICS TEAM (HDA) LARGE CLAIMS MODEL

Over the years, advanced analytics and machine learning (ML) have continued to make a splash in the healthcare space. In fact, the emergence of generative AI (genAI) and Large Language models (LLMs) has facilitated an increased surge in all types of advanced analytics within healthcare business solutions.

In our fall 2023 newsletter we discussed some frequent applications of ML and corresponding methodologies for both providers and insurers. We also provided insights into the challenges faced when dealing with large or catastrophic claims and techniques we can employ to deal with them.

We will now build upon our approach for handling large claims with ML by focusing on techniques that can be applied in the context of the stop loss market. Specifically, we will discuss methodologies and best practices for handling and enriching censored (e.g., reinsurers writing and paying stop loss business) and uncensored (e.g., employer groups and administrators) large claims data. We will also summarize a case study highlighting the application of Oliver Wyman's (OW) Health Data & Analytics team (HDA) large claims model.

Stop loss data handling

Large claimants account for more than half of healthcare spend. In fact, studies have shown that not only do 5% of healthcare claimants account for 50% of total spend, but the top 1% account for almost one-third of spend.[1] As a result, many employers, employer stop loss (ESL) insurers, and reinsurers have limited data volume when estimating stop loss impacts on blocks of business and specific cases.

Starting with employers and their claim management partners, it is crucial that they understand the impact of large claimants on their insured population as this dictates not only rate setting, but also the level of stop loss coverage needed from an ESL carrier. Employers with a higher estimated volume of high dollar claimants may purchase higher deductible stop loss plans to manage liabilities and vice versa. While these employer groups and administrators are equipped with the full claim history of their insured populations, the volume of high dollar claims may be limited. Supplementing this risk pool with data from a larger benchmarking population can add credibility and stability to future projections for employers to more accurately assess their stop loss exposure and coverage needs.

OW does this by employing a claimant matching technique known as propensity score matching (PSM), which consists of matching members from the insured risk pool to members in a larger benchmark population with similar

1 https:/www.ncbi.nlm.nih.gov/pmc/articles/PMC10397786/#:~:text=individual%20patient%20use.-,Previous%20studies%20have%20estimated%20that%205%25%20of%20patients%20account%20for,for%20over%2027%25%20of%20costs.

attributes according to statistical scores. These scores are based on demographics such as age and sex as well as other key attributes that are important to predicting high dollar claimants from our large claim models. This list naturally includes current year total costs but also characteristics such as current inpatient cost and utilization that may be indicative of future care needs and the prevalence of select conditions such as cancers, maternity, behavioral health disorders, and respiratory disorders.

In addition to credibility boosting via matching, our large claims model allows us to identify future likely stop loss claimants along with their clinical and demographic breakdowns. This allows for early intervention and care management initiatives that can aid in reducing high dollar claims and ultimately reducing the anticipated level of required stop loss coverage.

For reinsurers, a full claim history for a covered member is generally not available. Information related to the ground up claim is present with some diagnostic information, but this is often limited to the diagnosis attributable to the largest portion of a member's total spend. This adds an additional layer of complexity to the insured population, especially since disease mix and the presence of comorbidities are major drivers of large claim volatility.

This can be addressed by leveraging ML techniques and uncensored data sourced from credible benchmarking assets to generate analytics that assist in rate setting stability and/or cost projections.

One such advanced analytical technique OW leverages is repeated statistical sampling (bootstrapping) at various stop loss deductible thresholds and contract sizes, analyzing cost deviations across disease mix. This bootstrapping at the disease level allows for the development of confidence intervals for specific stop loss thresholds and conditions. This enables reinsurers to better estimate future costs for the insured population and ultimately to set policy rates more efficiently.

Further, marrying this analysis with our large claims models that predict the likelihood of future catastrophic claimants allows OW to assist stop loss carriers in adverse risk mitigation by identifying key performance indicators and targeted member cohorts to which appropriate lasering thresholds can be applied.

Advanced analytics for large claims in practice OW health data and analytics team (HDA) large claims model

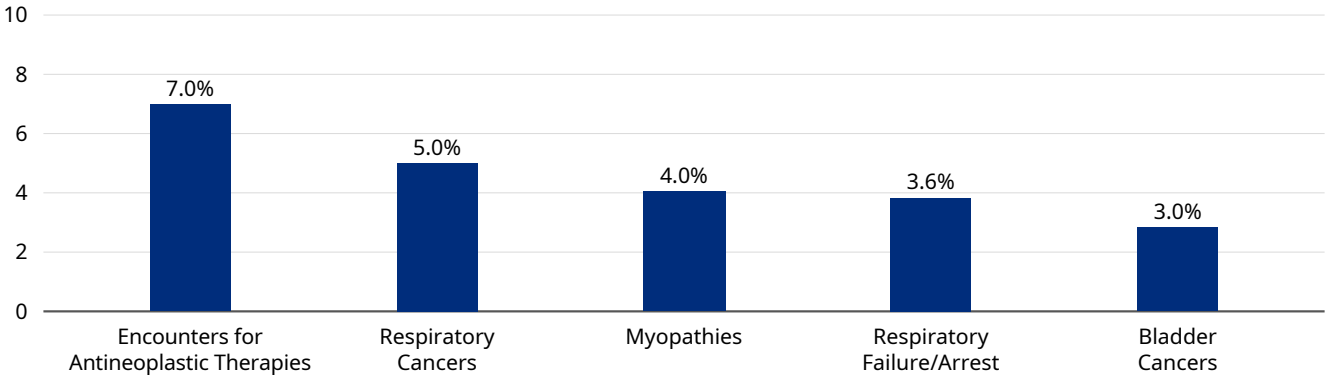
As discussed above, the OW HDA team has developed proprietary large claims ML models to predict the likelihood of future high dollar claimants. These models have been implemented within our Rapid Diagnostic analytical toolkit, allowing us to better understand drivers of total spend for our clients and work with them to develop strategies around care management and early intervention initiatives.

For one of our regional Medicare payer clients, our analytical engine highlighted that over 10% of total spend in 2023 was attributable to members likely to be high cost in the subsequent year (~0.5% of the insured population) as determined via our large claims ML models.

This insight allowed us to drill further into this cohort of members to identify patterns in some of the top drivers of this cost. As shown in the graphic below, almost one fourth of 2023 costs for predicted future large claimants was associated with cancer treatments and cardio-respiratory disorders, sparking deeper discussions with the client on current initiatives related to transitions of care and early intervention/care management programs for select conditions and where there may be opportunities for more optimized resource allocation within these programs.

2023 costs vs. top 5 conditions

% of spend for predicted large claimants



While this exercise led to broader discussions around initiatives for reductions in total cost of care, there are clear parallels to the stop loss applications discussed above. Being able to identify members likely to be high cost in the future along with patterns around their cost drivers can assist with lasering and adverse risk mitigation.

Our data scientists would be happy to discuss your challenges and needs in your efforts to improve your predictive large claims models.

ABOUT OLIVER WYMAN'S ACTUARIAL HEALTH PRACTICE

The Actuarial Consulting Practice of Oliver Wyman has life, healthcare and property & casualty actuaries that advise financial institutions, regulators, and self-insured entities across a broad spectrum of risk management issues.

With over 600 professionals across more than 25 offices in North America, Bermuda, Europe, and Asia, the firm's consulting actuaries provide independent, objective advice, combining a wide range of expertise with specialized knowledge of specific risks.

ABOUT GUY CARPENTER

Guy Carpenter is a leading global risk and reinsurance specialist with 3,400 professionals in over 60 offices around the world, delivering broking expertise, strategic advisory and industry-leading analytics. Guy Carpenter is a business of Marsh McLennan (NYSE: MMC), the world's leading professional services firm regarding risk, strategy, and people.

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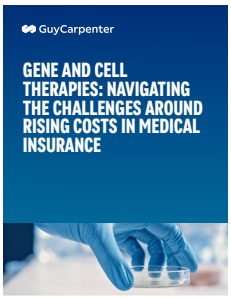
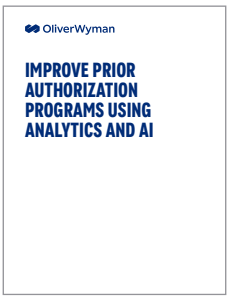
You may also be interested in:



Gene and Cell Therapies: Navigating the Challenges Around Rising Costs in Medical Insurance

Insurance Financial Pulse — Summer 2024 Edition



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