



TOKIO MARINE
HCC

2022

Annual Market Report

HCC Life Insurance Company Operating
as Tokio Marine HCC – Stop Loss Group

Tokio Marine HCC – Stop Loss Group
A member of the Tokio Marine HCC Group of Companies
TMHCC1175 – 08/2022

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03

MESSAGE FROM THE PRESIDENT

04

SIMPLE. SECURE. SMART.

05

MILLION DOLLAR CLAIMS

06

COVID SEVERITY

08

TOP 10 DIAGNOSIS CATEGORIES BY FREQUENCY

10

TOP 10 DIAGNOSIS CATEGORIES BY SEVERITY

12

TOP 10 DIAGNOSIS CATEGORIES BY TOTAL COST

14

MEDICAL COST TREND

16

SPECIFIC DEDUCTIBLE THRESHOLDS

19

ETS PIPELINE REPORT / PEPM COST IMPACT

20

CELL THERAPY PIPELINE BY ETS

22

GENE THERAPY PIPELINE BY ETS

24

TRENDS IN TRANSPLANTS

25

NAIC STOP LOSS INDUSTRY DATA

26

NET OF COMMISSION

MESSAGE FROM THE PRESIDENT

Tokio Marine HCC – Stop Loss Group (TMHCC) is pleased to present our 2022 Annual Market Report. The Stop Loss Market is on the precipice of major changes in treatment costs, placement methods and daily operations. We prepared this report to help educate and inform our Producers, TPAs, Policyholders and the rest of the industry about what we view as important developments. This includes our observations of the stop loss marketplace, its impact on our business, and solutions we are bringing to our Producers as you assist your clients in navigating this increasingly challenging marketplace. We have received very positive feedback in previous years and hope that you find this year's edition intriguing and informative.

The past year continued to show the complexity and ever-changing landscape of the stop loss market. In looking at our Top 10 Diagnosis Categories, cancers and cardiovascular diseases remain at the top of both frequency and total cost, but respiratory diseases moved up to the fourth spot over the last two years. This is undoubtedly due to the pandemic. The two most severe diagnoses in 2021 are diseases that are treatable with specialty drugs or gene therapies, which highlights the impact that these high-cost treatments have on our industry.

As expected, \$1 million+ claims continue to grow, but \$2 million+ claims are becoming more commonplace as well and may become the new definition of “catastrophic” going forward. In fact, our experience over the past eight years shows that the frequency of \$2 million+ claims is increasing over *three times* more quickly than the rate of \$1 million+ claims. Additionally, with general inflation reaching its highest levels in over 40 years, there is little doubt this will have a significant impact on medical cost inflation in 2023. To help, we have included in this report new guidance on the appropriate range of specific deductible thresholds to assist you in consultation with your clients.

To no surprise, COVID-19 and its subsequent variants have continued to wreak havoc on the health care industry. In studying the patterns of the CDC's hospital admission rates, we have found that catastrophic COVID-19 stop loss claims develop roughly five months after the admission. So, relatively low admissions in the spring should lead to modest stop loss claim activity in the fall. We do not expect COVID to be a historic stop loss claim event and while becoming normalized, we expect large COVID claims to continue to occur, just with a reduced frequency. Conversely, after a few years of delays from COVID, it appears that the number of gene and cell therapies is poised to burst onto the scene in a big way. The number of therapies is expected to triple by the end of 2023, with a predicted four-fold increase in costs expected during 2023.

With such significant changes to our industry, we want to advance the level of service we provide to our Producers and Policyholders. TMHCC continues to bring innovative solutions to the table. Looking for a way to improve the stop loss coverage process? Consider our Simple. Secure. Smart. Because Service Matters (S3)TM solution, which features automatic claim downloads from our partner TPAs. This streamlines the claim submission process to make claim payment and underwriting easier on everyone involved.

Also of note, organ transplants are our third most frequent type of claim. We are one of the few carriers that offer a first-dollar organ transplant policy that lets *us* take the risk for these high-cost claims. Is Organ Transplant a product that you should consider for handling this growing expense in the future?

We are pleased to offer this information and appreciate your interest in this report. If you have any questions as you read through the information that follows, please reach out to us. We want to discuss the data with you and answer any questions you may have.





Our clients have benefited from our expertise for over 45 years, so when we were searching for our newest offering, TMHCC – Stop Loss Group wanted to connect our existing services to a brand-new platform that serves TPAs and brokers. Simple. Secure. Smart. Because Service Matters (S3)™ is our new service center that allows us to offer quick and efficient stop loss interactions with participating TPAs and brokers. What began as a pilot two years ago is now active with multiple TPAs. Through the foundational component of S3™, our first-dollar database allows all claims to be sent from participating TPAs to TMHCC for review and reimbursement by our dedicated staff, saving time and money while providing quicker access to data. In the near future, on-demand claims reporting will be accessed by TPAs and brokers, providing live updates on claimants.

Timely filing is no longer a concern since TMHCC will automatically “file” the stop loss reimbursement request when a claimant penetrates the specific deductible threshold.

In return, this increases TPA operational efficiency and may reduce potential E&O liability. This service changes the TPAs’ position from “claim filers” to “claim reconcilers,” ensuring all claims are filed. TMHCC and TPAs will look more like a single payer and be more competitive in the marketplace.

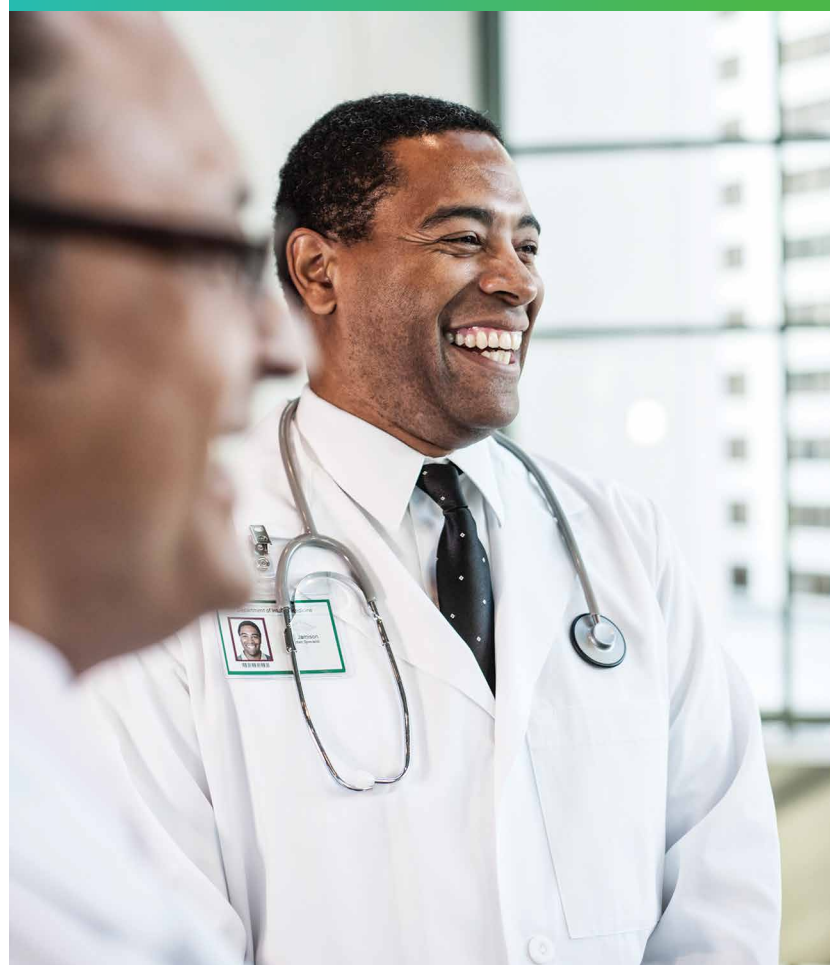
Service matters to TMHCC, which is why S3™ provides more benefits than a typical broker portal. S3™ will also be a dedicated resource for brokers to see their financial documents and reports such as 5500 reports, captive accounting and premium accounting. S3™ benefits brokers by providing on-demand reporting, reduced E&O exposure for claim filings, automated claims filing, no renewal reports and faster reimbursements.

TMHCC also benefits from the S3™ service platform as it increases operational efficiency, provides quicker access to data and reduces turnaround time after processing. Having the necessary data will allow our underwriting staff to be more comfortable, confident and accurate when evaluating risk, leading to better pricing on renewal offerings. It purposefully reduces the friction in stop loss interactions between TMHCC, TPAs and the brokers who rely on quick and efficient processes for their clients. We are taking this approach to improve the efficient exchange of data that is paramount to our collective success.

THE PURPOSE OF S3™ IS TO
BE PREPARED FOR WHAT
TOMORROW BRINGS. HOW
MANY CARRIERS IN OUR
INDUSTRY OFFER A PRODUCT
WITH NO CLAIM FILING?

WE BELIEVE WE ARE THE FIRST.

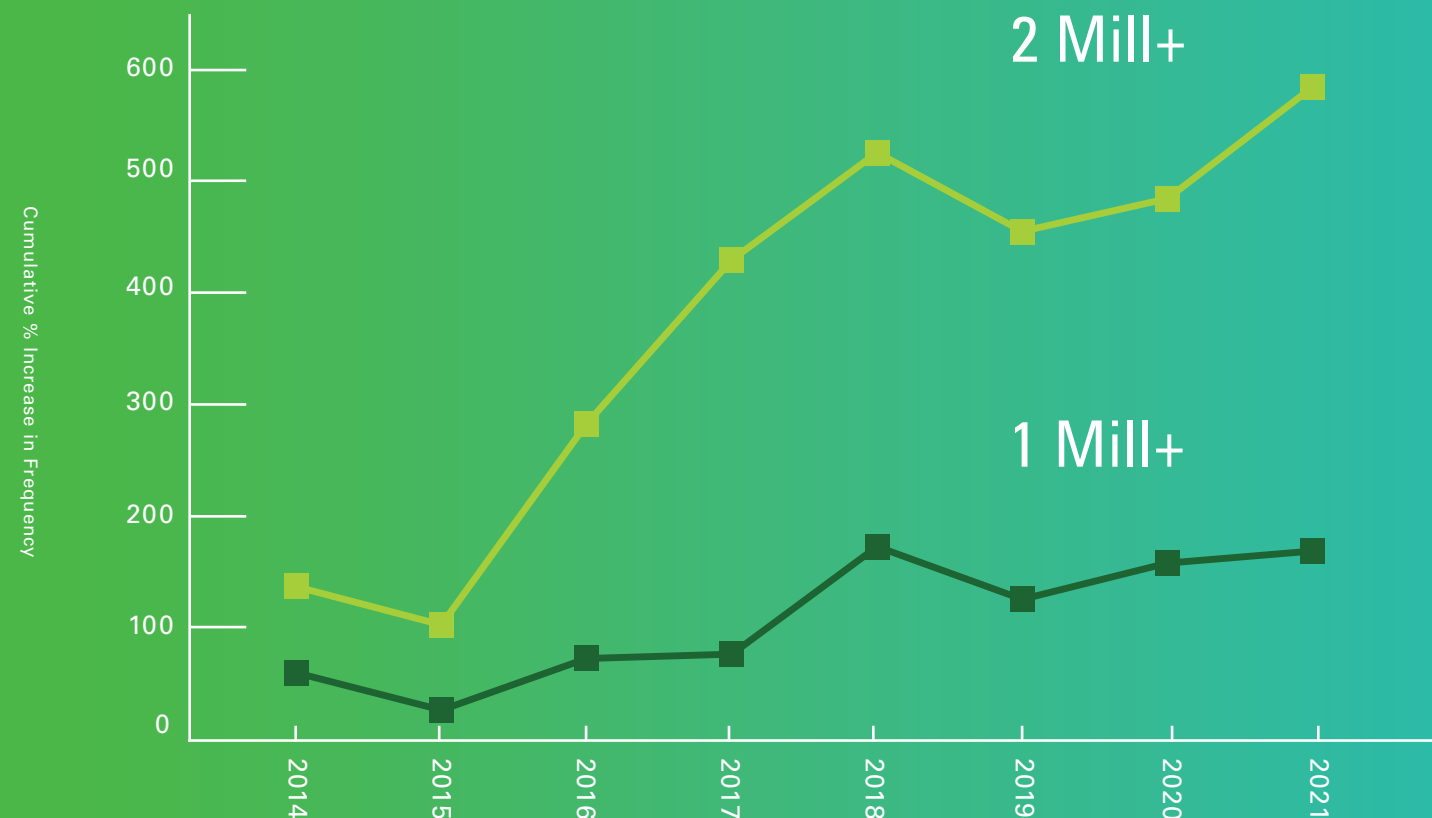
Stay tuned for additional enhancements on how we continue to prepare our partners and clients for the future of the self-funded industry.



MILLION DOLLAR CLAIMS

TMHCC has continued to see significant growth in the number of \$1 million dollar+ stop loss claims, and we are also starting to see more and more claims of over \$2 million dollars.

In fact, as the graph below shows, the frequency of stop loss claims over \$2 million is increasing much more rapidly than claims over \$1 million.



*2021 is completed based on historical patterns.

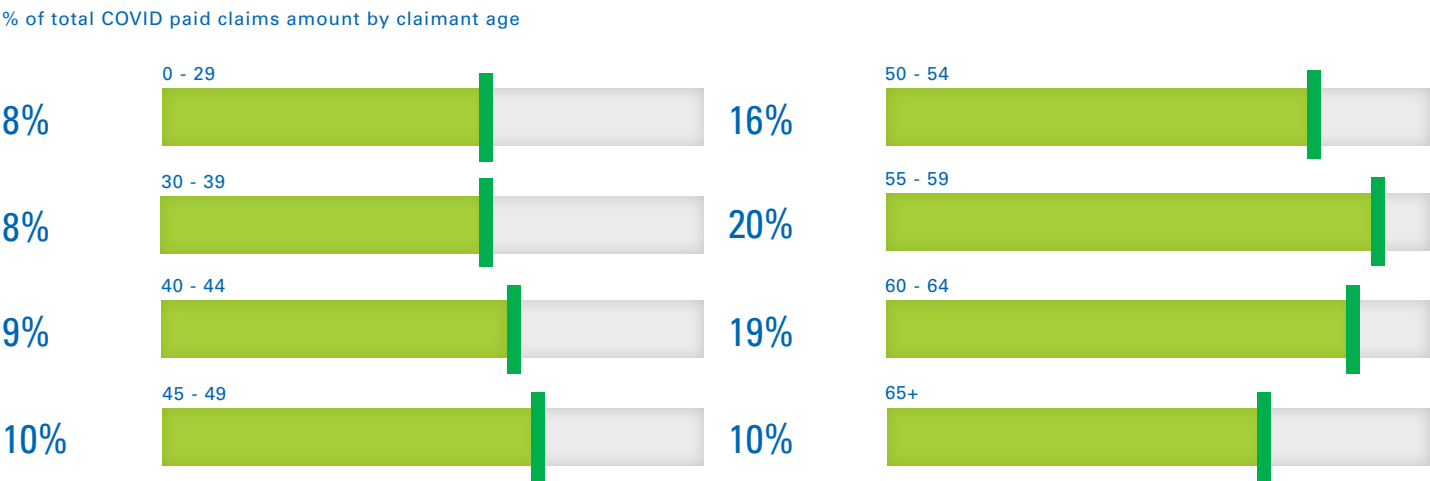
COVID SEVERITY

The following reflects TMHCC’s Stop Loss experience where COVID is the primary or secondary diagnosis. The average COVID claim size we have paid has increased each year since 2020, which could indicate that the severity of claims has increased with each new variant. Not unexpectedly, the greater number of claims fall into the older age categories. Through May 2022, TMHCC has paid over one quarter of \$1 billion in COVID-impacted claims.

Jan 2020 - May 2022
AVERAGE STOP LOSS CLAIM AMOUNT \$158,623



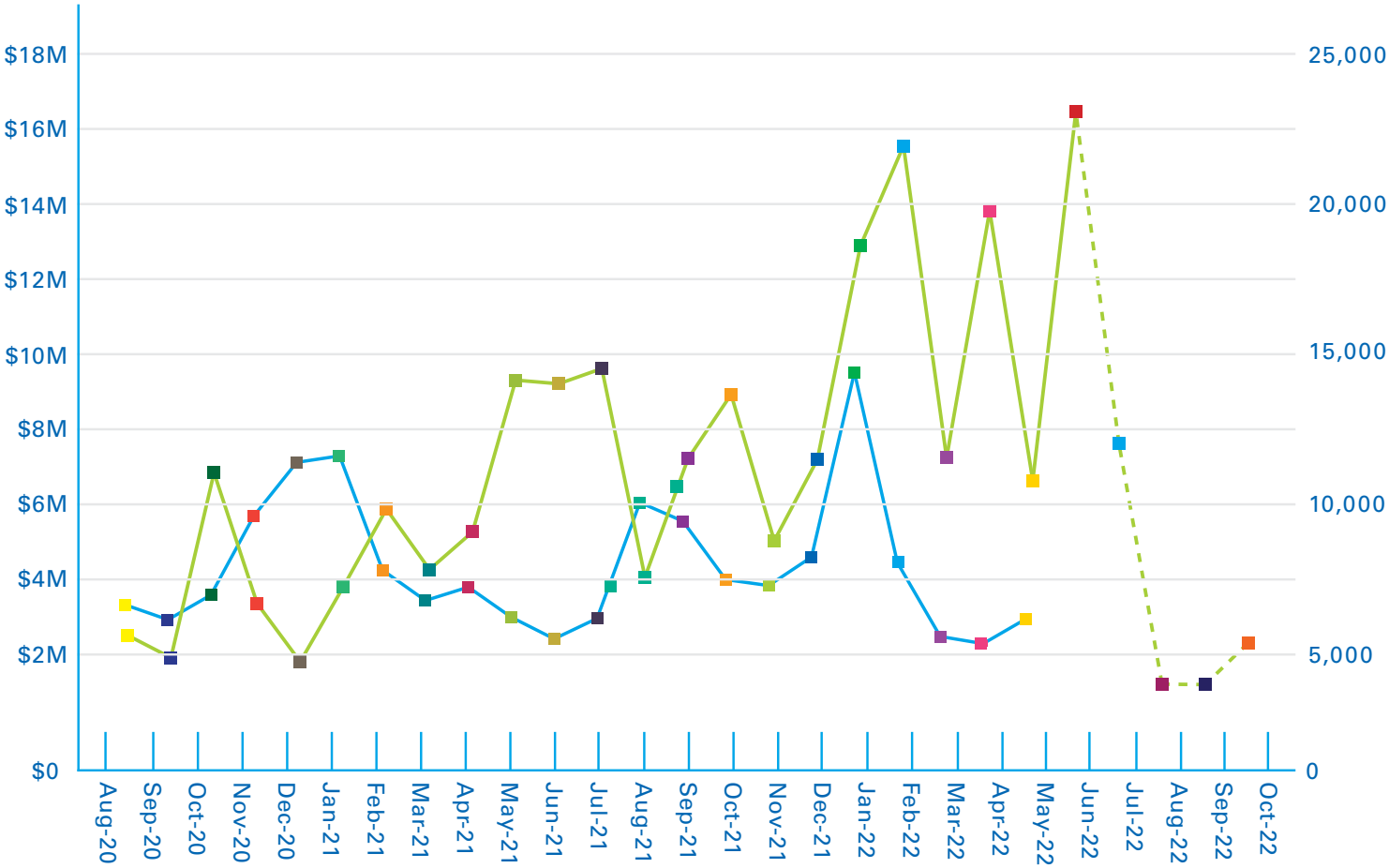
Jan 2020 - May 2022
NUMBER OF STOP LOSS CLAIMS 1,647



Total Stop Loss Claims

\$261,251,519

This chart shows the historical relationship between COVID-19 hospital admissions, as tracked by the Center for Disease Control (CDC), and payment of a TMHCC stop loss claim. You will notice that there is about a five-month lag between the admission and the stop loss claim. We used this relationship to estimate the impact that hospitalizations from the Omicron variant will have on our emerging stop loss experience through the third quarter of 2022.



TOP 10 DIAGNOSIS CATEGORIES BY FREQUENCY 2018-2021

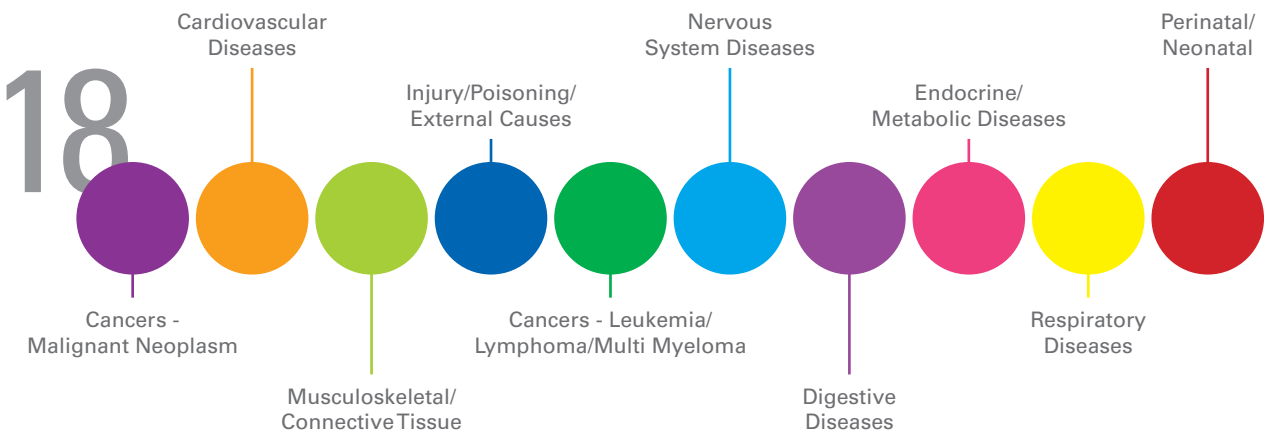


The three most frequent diagnosis categories have been Cancers–Malignant Neoplasm, Cardiovascular Diseases and Musculoskeletal/Connective Tissue since 2018. COVID is likely the reason that Respiratory Diseases has made its way into the 4th most frequent diagnosis for the past 2 years.

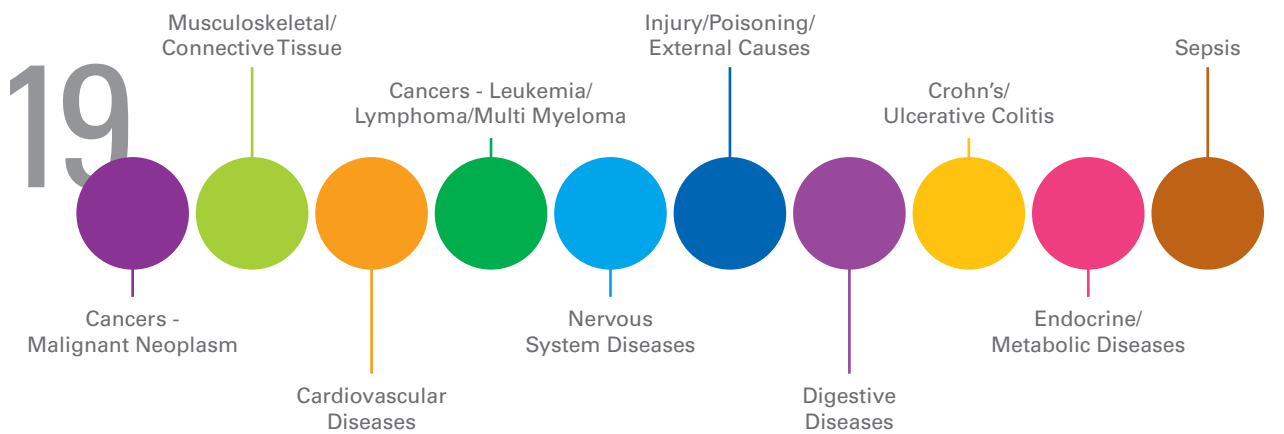
Overall, there was not much change in the most frequent Diagnosis Categories from 2020 to 2021.

Ranked by number of claims per 1M Employees. Data through May 2022.

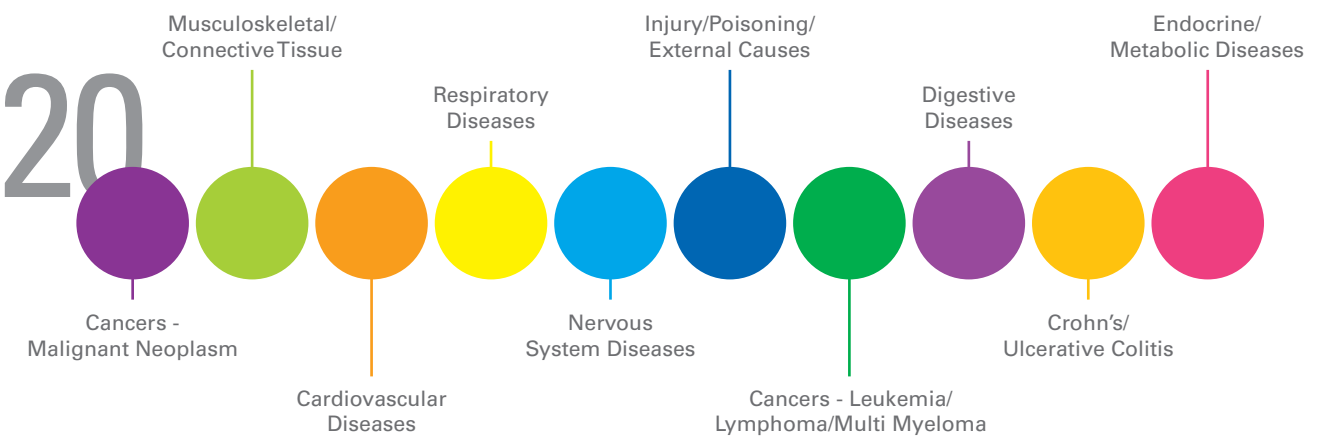
2018



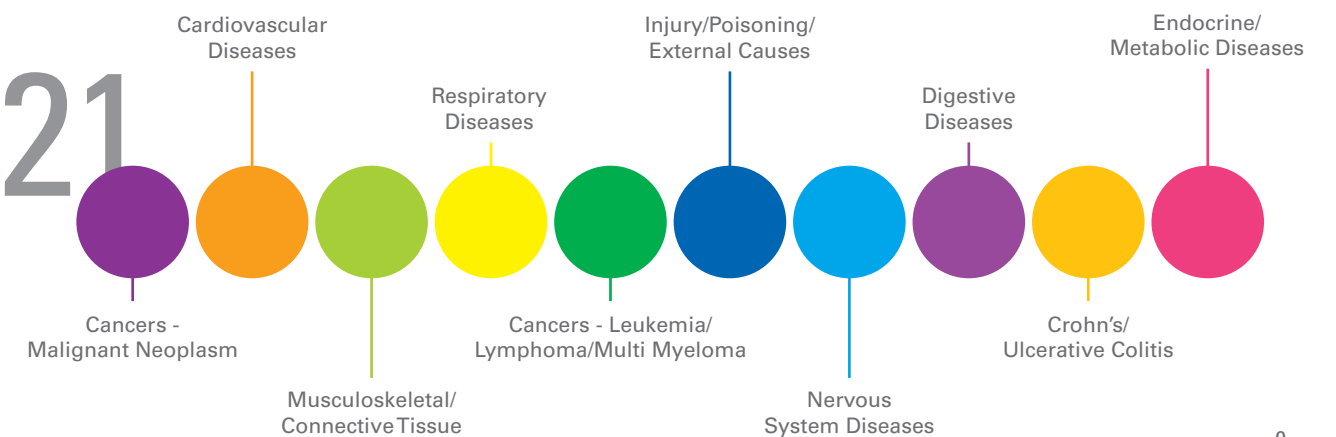
2019



2020



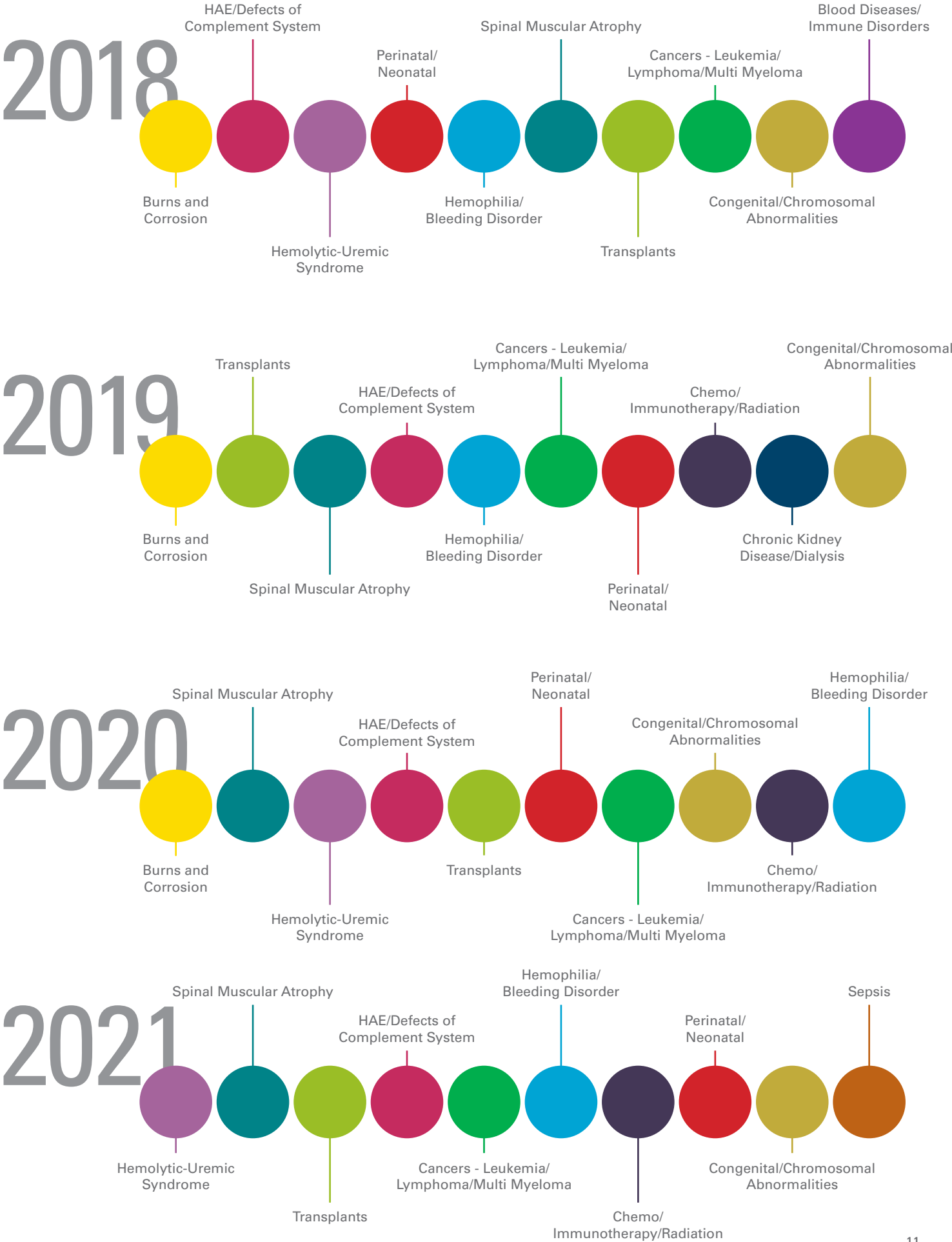
2021



TOP 10 DIAGNOSIS CATEGORIES BY SEVERITY 2018-2021

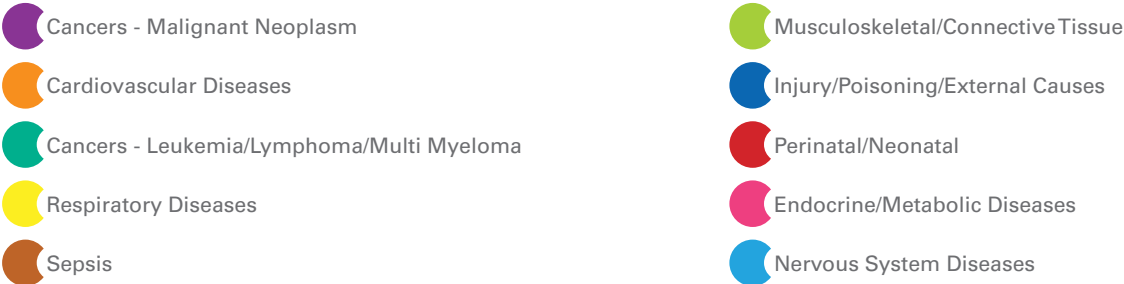
Burns and Corrosion noticeably did not make the top 10 most severe diagnoses in 2021, after occupying the top spot the prior three years. (TMHCC sees few of these very unpredictable claims, so the average severity is heavily impacted by the presence of a single million dollar claim.) The top 2 diagnosis categories are diseases that are now treatable by high-cost specialty drugs or gene therapies. Sepsis has made its first appearance in the top 10 list, likely spurred by an uptick in these types of claims related to COVID admissions. Transplants have consistently been some of our most severe claims since 2018, making it into the top 3 in 2021. This supports the importance of considering carving out organ transplant coverage. TMHCC’s organ transplant carve-out product protects your clients from heavy stop loss rate increases or lasers at renewal for known upcoming transplants. (Turn to Page 24 for more information on the “Trends in Transplants”)

Ranked by average TPA paid per claimant. Data through May 2022.



TOP 10 DIAGNOSIS CATEGORIES BY TOTAL COST

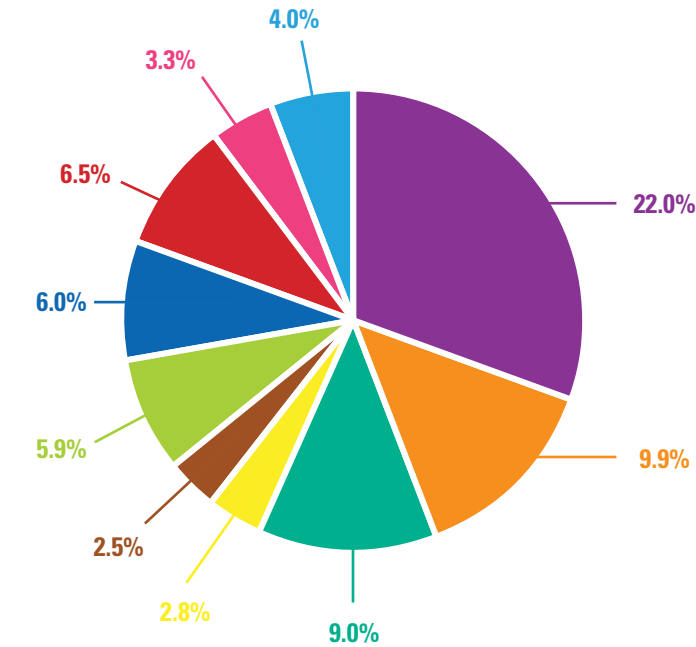
The order of the top 3 total cost diagnosis categories has remained consistent over the past few years, and they make up just under half of total stop loss claim costs. Overall, the Top 10 Diagnosis Categories account for around three-quarters of overall stop loss claim spend.



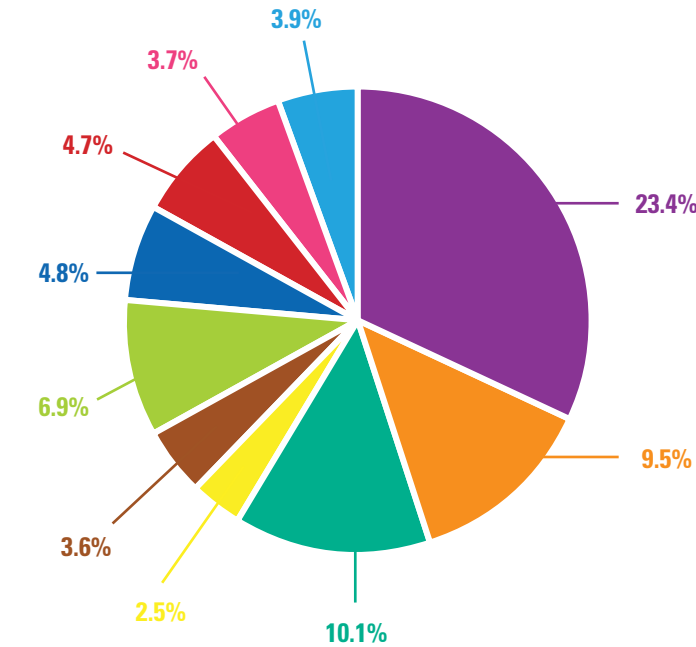
Ranked by total cost of stop loss claims. Data through May 2022.



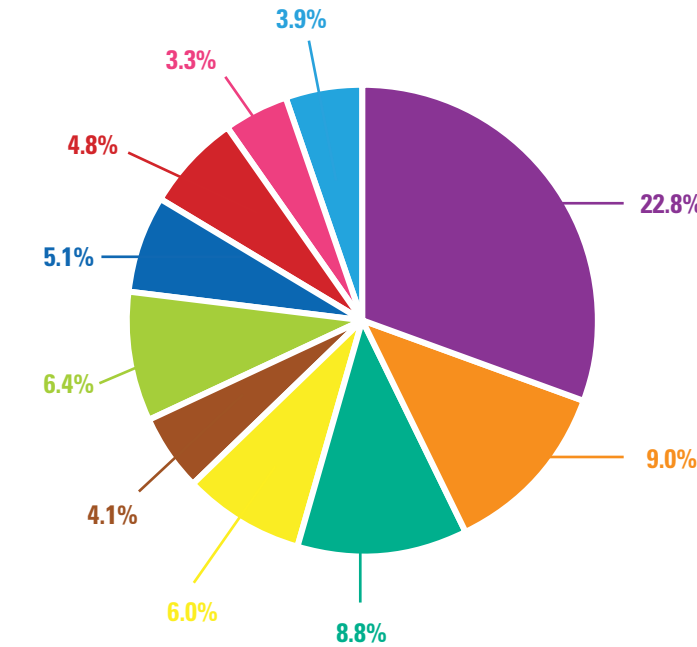
2018



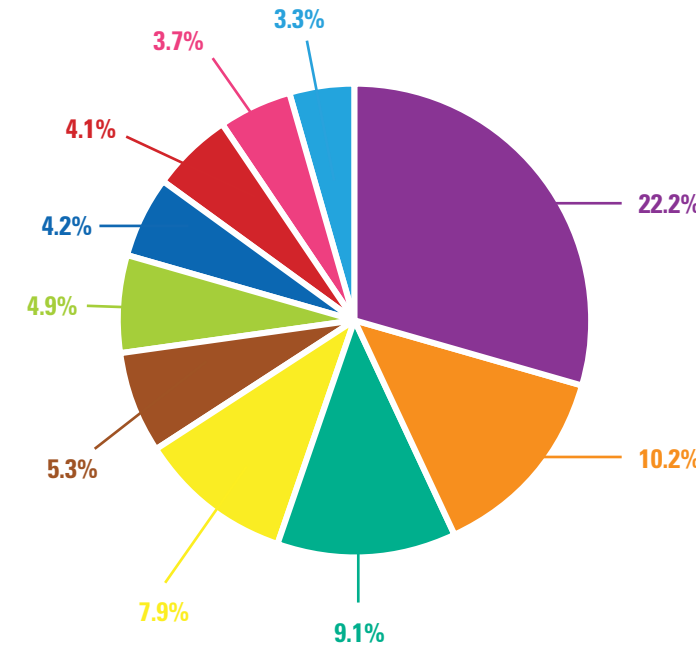
2019



2020



2021



MEDICAL COST TREND

Recent years have introduced a number of non-traditional influencers of medical cost trend. The chart below shows the typical trend influencers, along with some of the recent non-traditional influencers.

TRADITIONAL TREND INCREASERS

- Medical inflation
- Medical technology advances
- Government program cost-shifting
- Frequency of medical services

TRADITIONAL TREND DECREASERS

- Cost containment programs
- Wellness programs
- Generic Rx substitution initiatives

RECENT NON-TRADITIONAL TREND INCREASERS

- COVID hospitalizations
- Rescheduling of deferred services (COVID “crush”)
- Hospital recoupment of lost revenues
- Record inflation impact on future medical inflation
- Emerging COVID variants

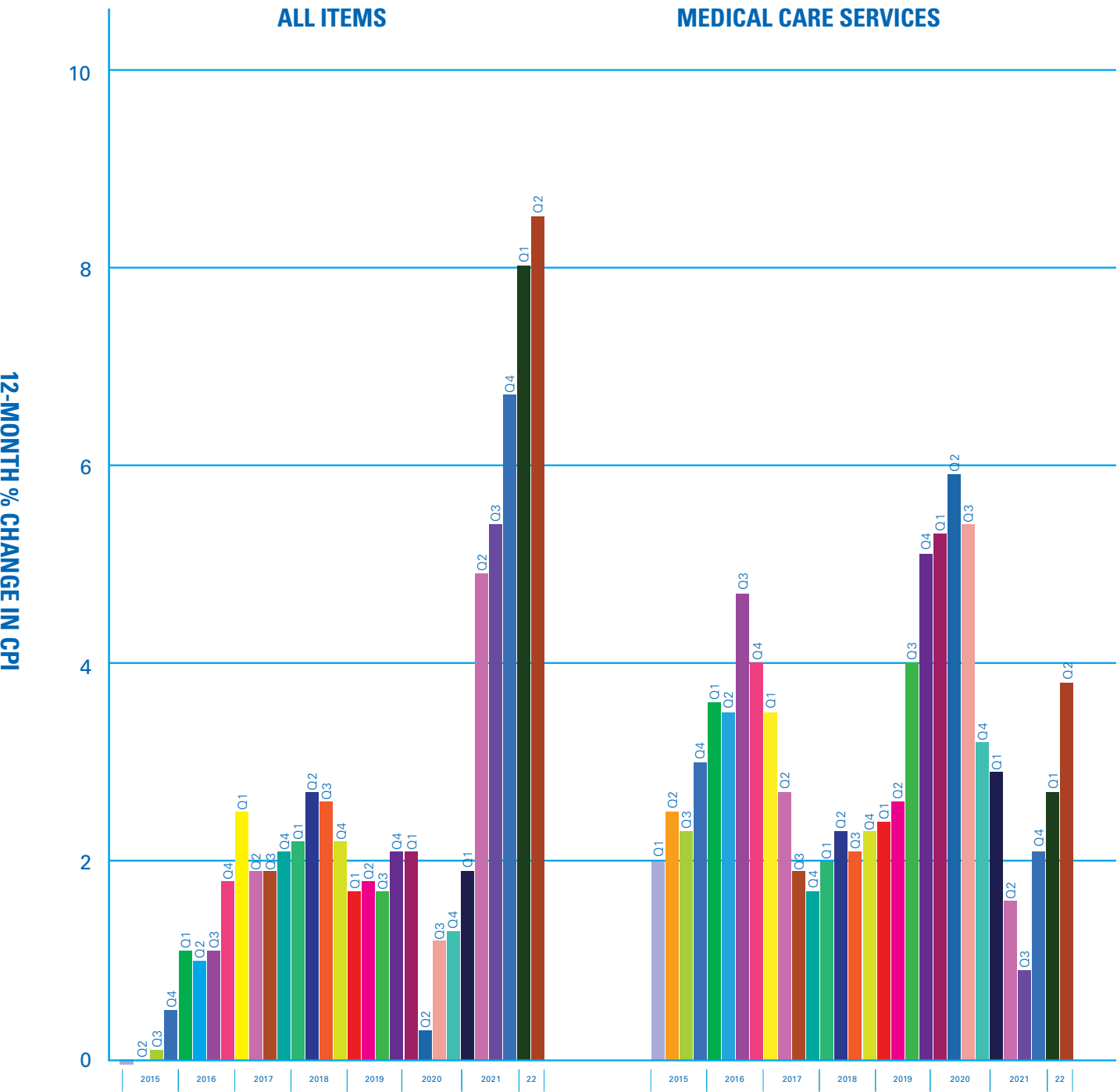
RECENT NON-TRADITIONAL TREND DECREASERS

- Deferred procedures (COVID “hush”)
- Specialty Rx programs
 - Drug importation programs
 - Specialty Rx formularies
 - Manufacturer rebate programs
- Emergence of Reference Based Pricing solutions

This data represents the 12-month percent change in the Consumer Price Index. “All Items” includes consumer-paid food, energy, electricity, apparel, medical care commodities, shelter, education and communication, gasoline, natural gas, new vehicles and medical care services. “Medical Care Services” includes only the consumer-paid Physicians’ services and Hospital services.

Historically, CPI increases for Medical Care Services have been higher than All Items combined. However, this appears to have changed due to the impact of COVID as of April 2021. This could validate that we have been in a hush period for medical services and suggests that a COVID crush could be coming. Additionally, general inflation will eventually make its way into medical cost inflation.

Source: Bureau of Labor Statistics



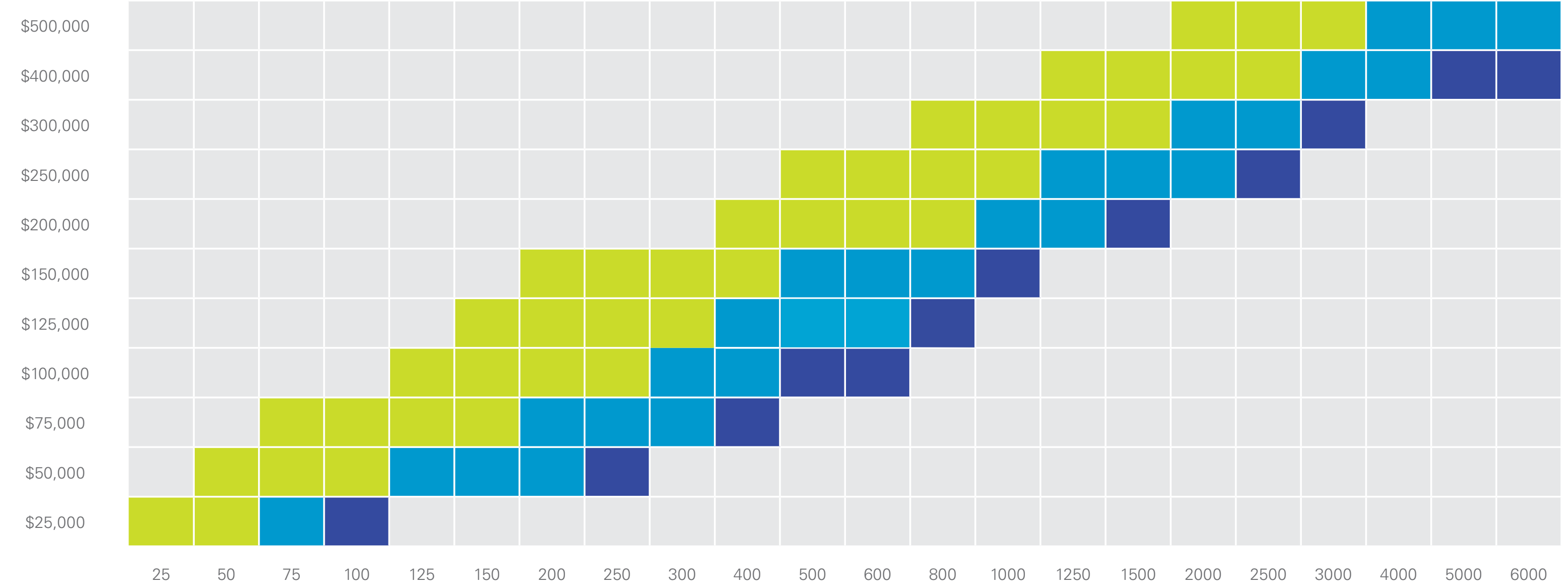
SPECIFIC DEDUCTIBLE THRESHOLDS

EXPECTED CLAIMS FREQUENCY

One of the key questions our producers often ask us each year is for our suggestion on where the specific deductible threshold should be set. While this depends on a number of variables – the size of the group, the risk tolerance of the client and the profit margins of their business, to name a few – we do believe there are reasonable ranges that most groups will fall into, based on the expected frequency of claims. Too many expected claims equates to higher premiums, and points towards the specific deductible being set too low. Too few claims indicates that the specific deductible could be set too high. This may put the client in too risky of a position if several large claims occur below this deductible threshold.

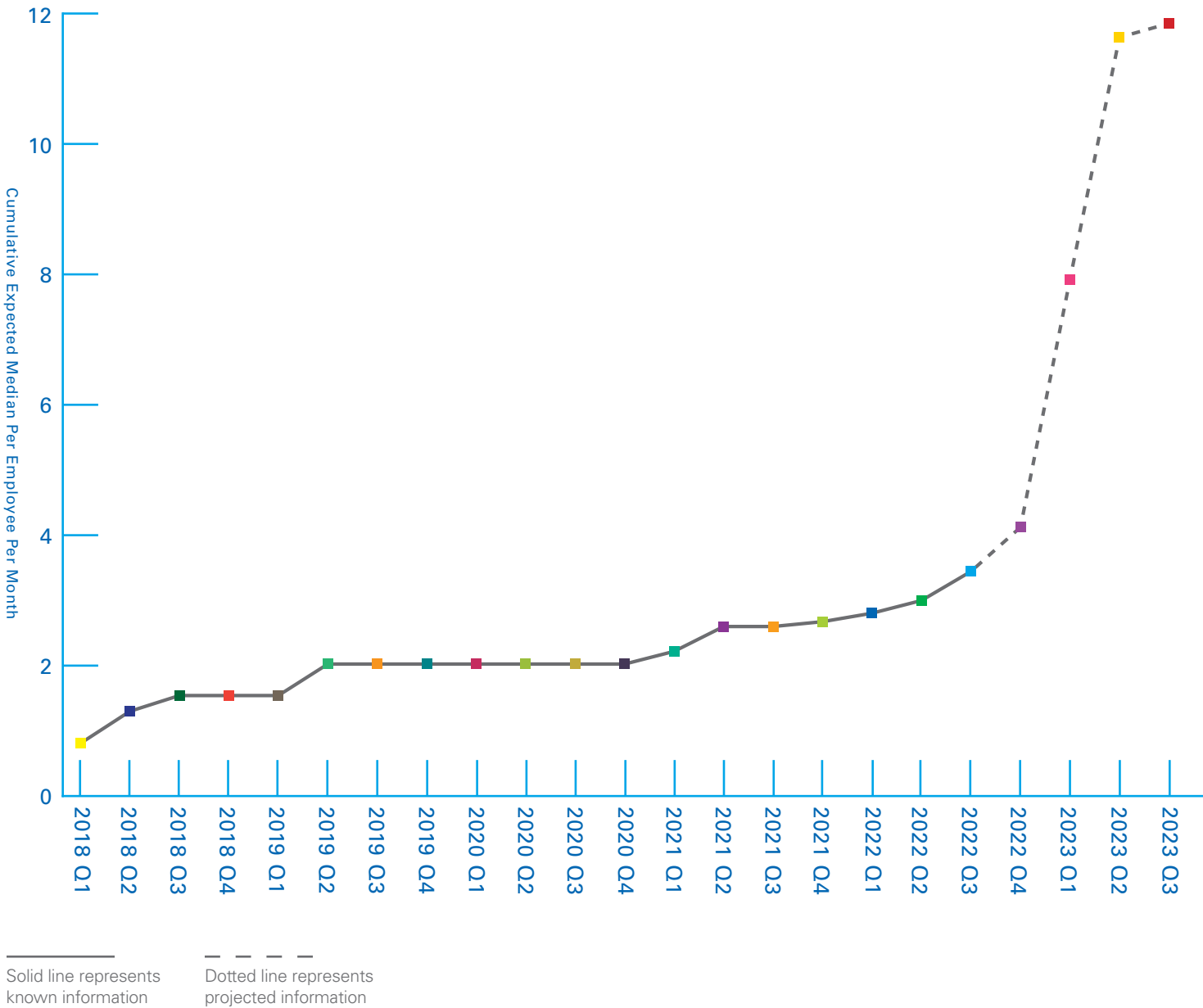
The following table, which is based on our recent claims experience, illustrates suggested specific deductible ranges based on one of the key variables - group size. Because of leveraged trend, employers should always plan to increase their specific deductible levels over time.

- Outside advisable range (under 2 claims, over 12 claims)
- Optimal risk options (2-5 claims)
- Acceptable risk options (6-8 claims)
- Risky options (9-12 claims)



EMERGENCY THERAPY SOLUTIONS PIPELINE REPORT / PEPM COST IMPACT

A great number of cell and gene therapies are expected to be approved in the near future. The graph below, which is projected from actual TMHCC experience, suggests that if therapies get approved as expected, the cost of cell and gene therapies in 2023 could be more than four times the cost in 2022 on a Per Employee Per Month (PEPM) basis.



CELL THERAPY PIPELINE BY ETS

(EMERGING THERAPY SOLUTIONS®)

Therapy & Manufacturer	Condition	Current Treatment*	Approval Date/ Expected Market Entry Date
Kymriah® (tisa-cel) tisagenlecleucel Novartis	Acute Lymphoblastic Leukemia	Multidrug regimen, chimeric antigen receptor (CAR) T-cell therapy	8.30.2017 Approved \$508,250
Yescarta® (axi-cel) axicabtagene ciloleucel Kite Pharma	Diffuse Large B-cell Lymphoma Non-Hodgkin Lymphoma Follicular Lymphoma	Chemotherapy, Bone Marrow Transplant (BMT), chimeric antigen receptor (CAR) T-cell therapy	10.18.2017 Approved \$424,000
Kymriah® (tisa-cel) tisagenlecleucel Novartis	Diffuse Large B-cell Lymphoma Non-Hodgkin Lymphoma	Chemotherapy, BMT, chimeric antigen receptor (CAR) T-cell therapy	5.1.2018 Approved \$399,110
Tecartus® (brexu-cel) brexucabtagene autoleucel Kite Pharma	Mantle Cell Lymphoma Non-Hodgkin Lymphoma	Radiation, chemotherapy, autologous stem cell transplant, chimeric antigen receptor (CAR) T-cell therapy	7.24.2020 Approved \$424,000
Breyanzi® (liso-cel) lisocabtagene maraleucel Bristol Myers Squibb	Diffuse Large B-cell Lymphoma Follicular Lymphoma Non-Hodgkin Lymphoma	Chemotherapy, BMT, chimeric antigen receptor (CAR) T-cell therapy	2.5.2021 Approved \$410,300
Abecma® (ide-cel) idecabtagene vicleucel Bristol Myers Squibb/BBB	Multiple Myeloma	Chemotherapy, stem cell transplants, surgery, radiation or combination of these options, chimeric antigen receptor (CAR) T-cell therapy	3.26.2021 Approved \$419,500
Tecartus® (brexu-cel) brexucabtagene autoleucel Kite Pharma	Acute Lymphoblastic Leukemia	Multidrug regimen, chimeric antigen receptor (CAR) T-cell therapy	10.1.2021 Approved \$424,000
Carvykti™ (cita-cel) ciltacabtagene autoleucel Janssen/Legend Biotech	Multiple Myeloma (MM)	Chemotherapy, stem cell transplants, surgery, radiation or combination of these options, chimeric antigen receptor (CAR) T-cell therapy	2.28.2022 Approved \$465,000
Yescarta® (axi-cel) axicabtagene ciloleucel Kite Pharma	Large B-cell Lymphoma (LBCL) in the second-line setting	Chemotherapy, BMT	4.1.2022 Approved \$424,000

Therapy & Manufacturer	Condition	Current Treatment*	Approval Date/ Expected Market Entry Date
Kymriah® (tisa-cel) tisagenlecleucel Novartis	Follicular Lymphoma	Chemotherapy, BMT, chimeric antigen receptor (CAR) T-cell therapy	5.27.2022 Approved \$399,110
Breyanzi® (liso-cel) lisocabtagene maraleucel Bristol Myers Squibb	Large B-cell Lymphoma (LBCL) in the second-line setting	Chemotherapy, BMT	6.24.2022 Goal Date
afami-cel (Prev. ADP-A2M4) afamitresgene autoleucel Adaptimmune Therapeutics	Synovial Sarcoma	Surgical removal of tumor, chemotherapy, radiation therapy	H1 2023
lifleucel (LN-144) lovance Biotherapeutics	Metastatic Melanoma	Surgical excision, removal of affected lymph nodes, chemotherapy, radiation, checkpoint inhibitor immunotherapy or targeted therapy drugs	H1 2023
lifleucel (LN-144) lovance Biotherapeutics	Cervical Cancer	Hysterectomy, radiation, chemotherapy	H1 2023
Tab-cel ATA129.EBV-CTL tabelecleucel Atara Biotherapeutics	Epstein-Barr Virus (EBV)-Associated Post-Transplant Lymphoproliferative Disease (PTLD)	Immunotherapy, rituximab, radiation & antiviral therapy, immunochemotherapy	H1 2023

*Current Treatment is only a general categorization of generally published and known alternatives and does not reflect that every individual situation will vary.

This content is informational only and is intended for a U.S. audience. This material has been prepared by Emerging Therapy Solutions (ETS) and provides information about prospective cell and gene therapy treatments as of the date of this document. The information provided has been obtained from third-party sources ETS believes to be reliable, however ETS may not be able to verify accuracy and makes no guarantee, warranty or representation about this information. Due to the rapidly evolving and changing nature of the content of this document, the information presented, including opinions and estimates, is subject to change without notice and may become quickly outdated. The information presented is not intended to be a recommendation as to medical care, or any form of legal or medical advice. Emerging Therapy Solutions is a trademark of Emerging Therapy Solutions, Inc. All other trademarks referenced herein are the property of their respective owners.

GENE THERAPY PIPELINE BY ETS

Therapy & Manufacturer	Condition	Current Treatment*	Approval Date/ Expected Market Entry Date
Luxturna® voretigene neparvovec-rzyl Spark Therapeutics	Biallelic RPE65 Mutation	Limited to none (Treating symptoms)	12.2017 Approved \$425,000 per eye
Zolgensma® onasemnogene abeparvovec Novartis	Spinal Muscular Atrophy	Spinraza® (nusinersen), Evrysdi® (risdiplam)	5.2019 Approved \$2,125,000
beti-cel , LentiGlobin BB305 betibeglogene autotemcel Europe: Zynteglo bluebird bio (BBB)	Transfusion-Dependent Beta-Thalassemia	Chronic blood transfusions, BMT, chelation therapy	8.19.2022 Goal Date
eli-cel , Lenti-D elivaldogene autotemcel Europe: Skysona™ bluebird bio	Cerebral Adrenoleukodystrophy (CALD)	BMT	9.16.2022 Goal Date
EtranaDez (AMT-061) etranacogne dezaparvovec UniQure / CSL Behring	Hemophilia B	Factor replacement	Q4 2022
B-VEC Topical (KB103) beremagene geperpavec Krystal Biotech	Dystrophic Epidermolysis Bullosa (DEB)	Wound care	Q4 2022
Eladocagene exuparvovec (PTC-AADC, Europe:Upstaza) PTC Therapeutics	Aromatic L-Amino Acid Decarboxylase (AADC)	Limited to none (Treating symptoms)	H1 2023
Roctavian (BMN 270/ Valrox) valoctocogene roxaparvovec BioMarin Pharmaceutical Inc.	Hemophilia A	Factor replacement or Hemlibra® (emicizumab)	H1 2023
CTX001 CRISPR/Vertex	Transfusion-Dependent Beta-Thalassemia	Chronic blood transfusions, BMT, chelation therapy	H1 2023

Therapy & Manufacturer	Condition	Current Treatment*	Approval Date/ Expected Market Entry Date
CTX001 CRISPR/Vertex	Sickle Cell Disease	BMT	H2 2023
Libmeldy® (atidarsagene autotemcel) / OTL-200 Orchard Therapeutics	Metachromatic Leukodystrophy	BMT	H2 2023
RP-L201 Rocket Pharmaceuticals	Leukocyte adhesion deficiency type I (LAD-I)	BMT, antibiotic therapy	H2 2023
lovo-cel (bb1111) lovotibeglogene autotemcel bluebird bio	Sickle Cell Disease	BMT	H2 2023
LUMEVOQ (GS010) lenadogene nolparvovec GenSight Biologics	Leber Hereditary Optic Neuropathy	Limited to none (Treating symptoms)	2023
EB-101 Abeona Therapeutics	Recessive Dystrophic Epidermolysis Bullosa (RDEB)	Wound care	2023
LYS-SAF302 Olenasufligene relduparvovec Lysogene	Mucopolysaccharidosis Type III (MPSIII, Sanfilippo Syndrome)	Limited to none (Treating symptoms)	2023
ABT-102 Abeona Therapeutics	Mucopolysaccharidosis Type III (MPSIII, Sanfilippo Syndrome)	Limited to none (Treating symptoms)	2023

*Current Treatment is only a general categorization of generally published and known alternatives and does not reflect that every individual situation will vary.

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TRENDS IN TRANSPLANTS

IN 2021

41,354

organ transplants were performed in the United States, an increase of 5.9% over 2020 and the first time the annual total exceeded 40,000.

The three organ types most commonly transplanted all set annual volume records. Those totals were:

24,669 **9,236** **3,817**
KIDNEYS LIVERS HEARTS

13,861

people became deceased organ donors in 2021.

10.1%

increase from 2020, 11th year of increased total.

Living donor transplants decreased significantly in 2020, but increased in 2021. Lower levels on increase were due to some facilities not engaging in living donor transplants.

2019

7,400

2020

5,700

2021

6,500

14.2% increase, but still 12% below 2019 high of 7,400.

Source: UNOS.org - 2021 data

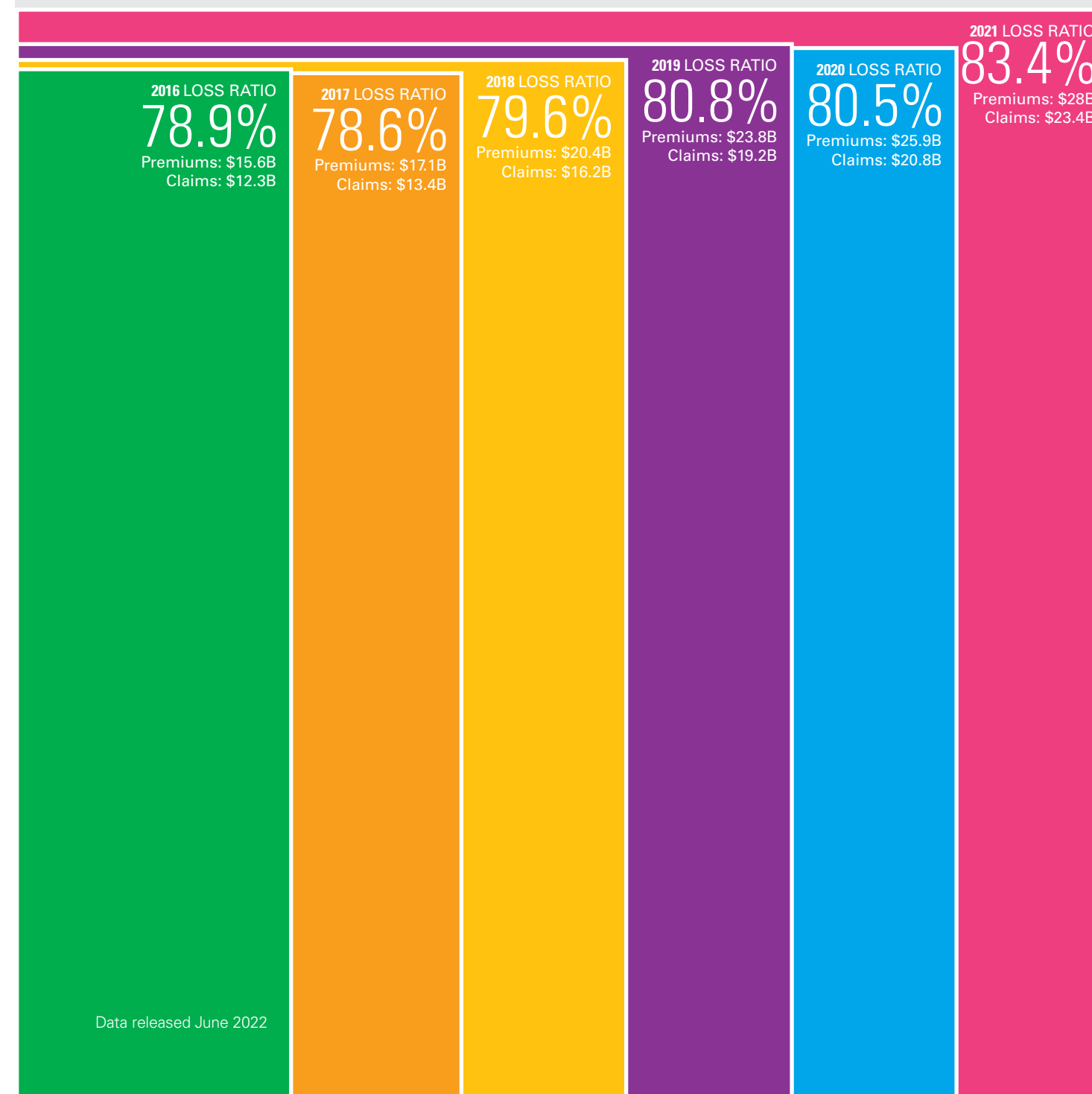
NAIC STOP LOSS INDUSTRY DATA

Earned Premiums and Incurred Claims by Calendar Year

Spurred by a nearly 3 percentage point increase in average loss ratio in 2021, the data shows that from 2016 through 2021, claims increased by

90% but premiums only increased by **79%**

100%



Data released June 2022

NET OF COMMISSION

LOOKING FOR A WAY TO SAVE YOUR CLIENTS SOME MONEY?

Consider writing their stop loss contracts on a net of commission basis. Under Case II, the client saves 4.2% in overall costs with no change in your compensation.

ACQUISITION EXPENSES

	CASE I	CASE II
Premium Tax	2%	2%
Commission	15%	0%
Carrier Expenses	20%	20%
Total Acquisition Expenses	37%	22%

PREMIUM RESULT

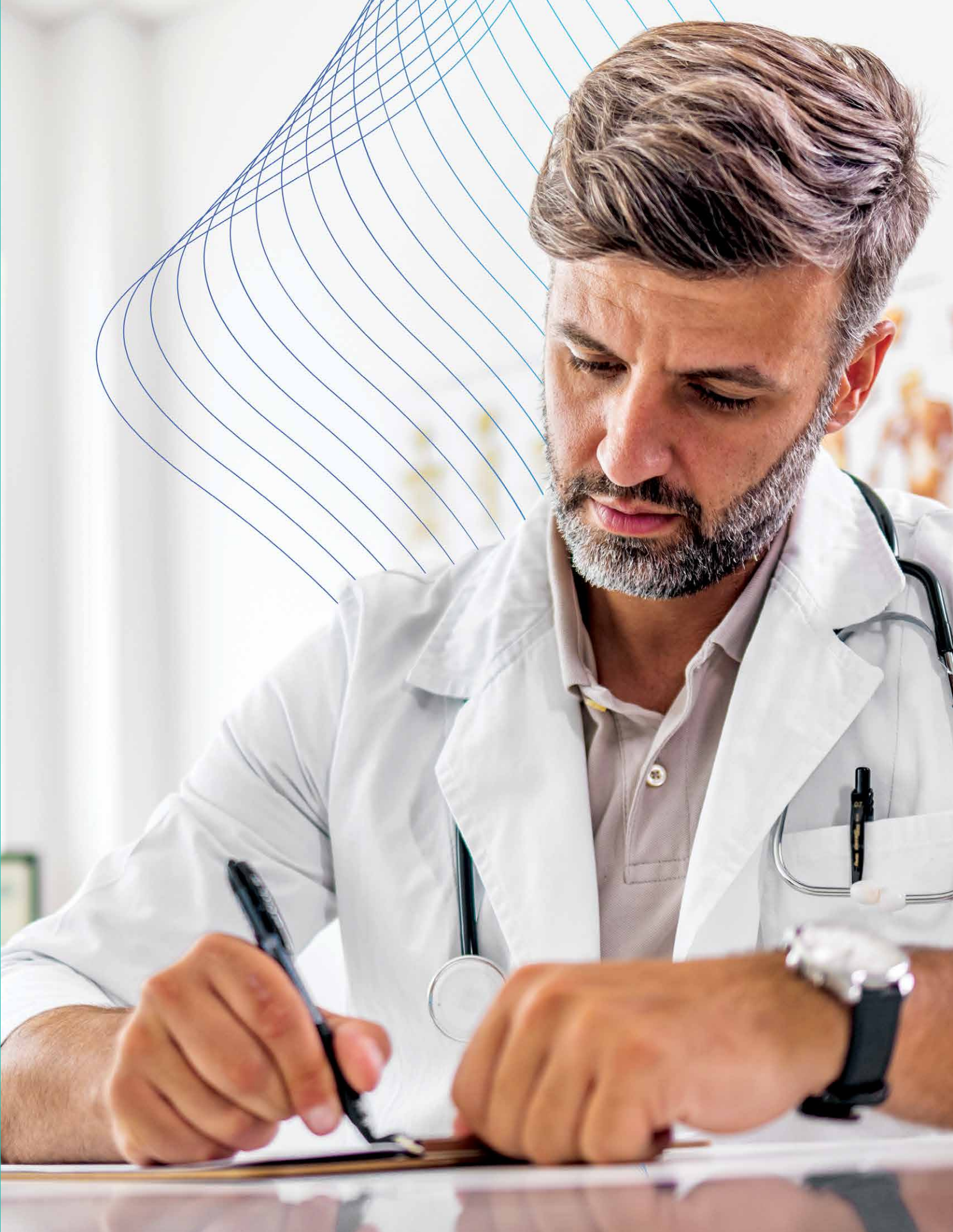
	CASE I	CASE II
Net Claim Cost (a)	\$100	\$100
Acquisition Expenses (b)	37%	22%
Gross Premium a/(1-b)	\$158.73	\$128.21
Commission	15% (\$23.80)	0%
Placement Fee	\$0	\$23.80
	\$158.73	\$152.01

CASE II

4.2% SAVINGS

WE ENCOURAGE OUR PRODUCERS TO TAKE ADVANTAGE OF THIS OPPORTUNITY AS IT:

- Separates you from your competitors still requesting commissions
- Gives you the same revenue while giving the employer significant savings
- Provides your employer group with funds to be applied toward their healthcare spend
- Eliminates future discussion about specific deductible increases and impact on commission revenue
- Provides ongoing savings in each future plan year





TOKIO MARINE
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