2024 Trends Shaping the Health Economy

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INTRODUCTION

APPLYING THE LAWS OF ECONOMICS TO IDENTIFY EMERGING HEALTH ECONOMY TRENDS

The $4.5T (and growing) health economy creates more data than any other part of the U.S. economy. New findings emerge daily but the challenge for health economy stakeholders is to synthesize seemingly unrelated — and often misconstrued — data to understand their strategic and tactical implications.

As a long-time admirer of Mary Meeker's annual *Internet Trends Report*, I have long believed that our industry needed an analogous, data-driven view of emerging healthcare trends. This longstanding idea became a reality with the debut of the first annual *Trends Shaping the Health Economy Report* ("Health Economy Trends Report") in 2021.

As a health economist, I study healthcare through the lens of demand, supply and yield. Even though markets for healthcare products and services deviate from what economists would call the perfect market, the core principles of *economics* offer a valuable framework for examining trends in the health economy.

Previous editions of the *Health Economy Trends Report* concluded that:

1) healthcare is a negative-sum game;
2) every part of the health economy — from payers and providers to life sciences and new entrants — will be impacted by reduced yield; and
3) the winners in healthcare's negative-sum game will be those who deliver value for money.

In this fourth installment of our *Health Economy Trends Report*, we expand upon our foundational conclusions from the past three years to examine in more detail **the concept of value**. Not every health economy stakeholder thinks about value, and those who do define it differently. Even so, every knowledgeable stakeholder must acknowledge that the inputs of the U.S. healthcare system, as measured by cost, exceed the outputs, as measured by the actual value or benefits received by Americans.

Election years are a prompt to reflect on what the American voter values most in the context of historic U.S. health policy decisions. Survey data reveal that many Americans feel helpless, frustrated, paralyzed and impoverished by the state of the healthcare system.

The question remains: What will be the catalyst for systemic change? Will it be legal pressures on employers facing lawsuits over the cost of health benefits? American consumers demanding transparency and more value? The fact that interest on the Federal government's $35T in debt will soon be the largest expenditure in the Federal budget?

The *Health Economy Trends Report* offers insight into eight data-driven macro trends that are either intensifying or emerging, revealing the **importance of optimizing value, as opposed to maximizing value**. As you delve into the trends, I encourage you to reflect on how the increasing need to optimize value for your customers will influence your sector – provider, payer, life sciences, etc. – and your organization.

Supporting each trend are a handful of data-driven stories about the past, present and future. This year, we have provided additional context for each of the eight macro trends as a way for health economy stakeholders to understand how to develop actionable strategies in response to the health economy's evolution. How do national trends vary by region and CBSA? Are certain patients disproportionately affected? How do trends in the commercially insured population compare to all payers, public and private? The answers to these questions, and more, are available to Compass+ research subscribers.

I hope this *Health Economy Trends Report* will cause you to reflect on the future of the U.S. health economy and question longstanding, if unsuccessful, policies and paradigms like "value-based payment." While this report is not intended to provide all the answers, you should use it as a tool to ask the right questions. What trends have you not considered, and how will they impact the markets that your organization serves? What changes will your organization have to make to deliver more value for money relative to your current and future competitors?

Sanjula Jain, Ph.D.
Chief Research Officer
Trilliant Health

P.S. Throughout the report, you will see this symbol.
It represents additional, related research available in our Compass+ subscription.

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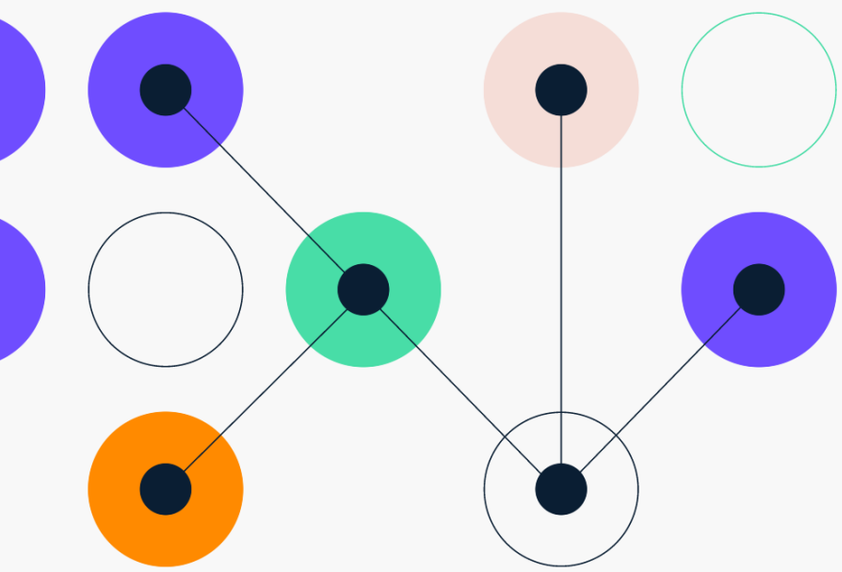

INTRODUCTION

Defining Value for Money in Healthcare

The U.S. health economy is the most expensive health system in the world, underwritten by the Federal government, state Medicaid programs and employers. Healthcare providers depend on commercial reimbursement rates from employer-sponsored plans to cross-subsidize inadequate payments from Medicare and Medicaid.

National health expenditures have increased from $2.8T in 2012 to $4.5T in 2022 despite relatively little change in demand or utilization. Hospital admissions were lower in 2022 than in 2000, even as the U.S. population increased by 18.1% during that time. Similarly, according to the American Hospital Association, inpatient surgical volume declined from 9.7M in 2012 to 7.6M in 2022.

In economics, value is a measure of the benefit provided by a good or service to an economic agent, and value for money means getting the best possible quality or benefit for the price paid. For decades, consumer-focused companies have enabled American consumers to make purchases based on their perception of "value." For consumer goods, value is ultimately subjective but is shaped by price, quality and convenience.

Delivering value in healthcare, however, has been more elusive. The most important elements of value in healthcare services are cost, quality, safety and convenience. Notably, because the extent to which quality is a component of value depends on the type of care being delivered, value in healthcare exists on a continuum.

What is the return on society's massive investment in the U.S. health economy?

As a result of the Affordable Care Act (ACA), more Americans are insured: the number of uninsured has decreased from 48.6M in 2010 to 28M in 2020, with an additional pandemic-induced, if likely temporary, decline to 25.3M in 2023. Through technological advancements and an expanding number of healthcare suppliers, the American healthcare consumer also has more care options today than ever before, many of which offer more convenience at a lower price. However, there is little else to show for the continuously increasing amount of money invested in the U.S. healthcare system.

The average life expectancy for Americans is only negligibly higher than it was in 2000, has declined since 2019 and is almost four years lower than OECD countries like Australia, Austria, Belgium, Canada, France, Germany, Japan, the Netherlands, Sweden, Switzerland and the U.K. Americans have higher rates of obesity and diabetes and more behavioral health conditions today than ever before. The explosive growth in the size of national health expenditures since 2000 has allowed some of the largest companies in the U.S. to generate massive returns, particularly in the aftermath of the ACA. Even so, in a perfect market, costs cannot increase by more than 50% while demand is flat.

How has the U.S. health economy defied the laws of economics? First, of course, the U.S. health economy does not operate in a perfect market.

Second, employers have passively allowed the status quo to persist, allowing every other stakeholder – including CMS – to benefit. In tacitly agreeing to cross-subsidize inadequate Medicare and Medicaid reimbursements, employers have absolved Congress and every state legislature for failing to pay fair value for healthcare services for Medicare and Medicaid enrollees. Through EMTALA, the Federal government has effectively delegated to hospitals the responsibility for dealing with a host of societal ills that manifest in clinical conditions, particularly the nation's burgeoning behavioral health crisis that presents daily in every emergency department in the country.

For years, all stakeholders in the health economy have concentrated on maximizing the value that they can extract from employer-sponsored health plans, whether fully or self-funded, instead of delivering value for money. Pharmaceutical companies, for instance, often target this commercially insured population by developing high-cost drugs that offer only marginal improvements over existing treatments and aggressively marketing them to healthcare providers and consumers, even when more affordable alternatives exist.

This reality is unsustainable. Health plan price transparency reveals inconceivable and inexplicable differences in commercial reimbursement rates from the same payer for the same service in the same market. Because Delaware law and ERISA impose fiduciary duties that require CEOs and CFOs to use reasonably available information to make healthcare purchasing decisions, health plan price transparency will inaugurate a new paradigm in the health economy.

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INTRODUCTION

Health Economy Stakeholders Must Deliver Value for Money to Their Customers, Not Maximize Value for Themselves

Value for money will be the defining trend of the U.S. health economy over the next decade. Value for money is a foreign concept to U.S. health economy stakeholders, because it originates in England's National Health Service. Value for money is also at odds with the still-predominant fee-for-service reimbursement system on which U.S. health economy stakeholders rely, which is merely transactional in nature.

Value for money is not to be confused with "value-based care." **Value-based care does not create value** for the ultimate payer, whether the employer or the Federal government, but simply allows that ultimate payer to cap its financial exposure. Why? Because value-based care participants focus on minimizing cost after negotiating the revenue pool from the ultimate payer to maximize marginal income on their share of the available funds, also known as "subcapitation."

The very few stakeholders who understand value for money do not have a shared definition of what it is or how to measure it. While every health economy stakeholder may have a different definition of value, each of them must face an inexorable reality: The U.S. healthcare system is what game theorists call a "negative-sum game," and the rules of that game are immutable.

For individuals, value often relates to personal health outcomes and quality of life. Employers typically understand value as ensuring their healthcare investments yield significant return on the investment in employee productivity. Conversely, provider organizations see value as quality multiplied by price, focusing on enhancing care quality while managing revenue streams. Policymakers have defined value as paying for "outcomes" by focusing on allocation of risk within a pool, rather than the reduction of the aggregate cost of the risk pool. Life sciences companies often define value in terms of the clinical effectiveness and innovation of treatments, focusing on how these advancements improve patient outcomes and quality of life. Health insurers, on the other hand, tend to equate value with the cost-effectiveness of treatments, emphasizing the balance between the benefits provided by medical interventions and their associated costs.

As employers are compelled by the fiduciary duty of care to demand that other health economy stakeholders deliver value for money, each of those stakeholders will lose something, the very definition of a negative-sum game. Some stakeholders, like health insurance brokers, deserve to lose and can afford it. Other stakeholders, like the poor, do not deserve and cannot afford to lose. The extent to which they lose will be determined by whether civil authorities do their job instead of delegating the mitigation of numerous societal issues to healthcare providers.

In the future, **health economy stakeholders who focus on value optimization will have a competitive advantage.** In economic terms, value optimization is distinctly different from value maximization. Optimization involves making the best or most effective use of resources within given constraints, whereas maximization aims for the highest possible outcome without regard to limits. Said differently, strategies focused on generating the most revenue without consideration of the total cost of care or relative quality of less expensive alternatives are incompatible with delivering value for money to the employer.

The U.S. health economy must face the reality that Herb Stein succinctly summarized: "If something cannot go on forever, it will stop." Whether the Federal government elects to continue to underwrite healthcare cost trends remains to be seen. How society elects to address longstanding societal ills that were exacerbated by the COVID-19 pandemic also remains to be seen.

On the other hand, whether other health economy stakeholders can continue to maximize their return at the expense of employers is certain. Employers will not continue to underwrite the health economy as they have in the past because they cannot as a matter of law. And so, the focus of this fourth installment of our annual Trends Shaping the Health Economy series is optimizing value. **Every health economy stakeholder can – and must – deliver more value for money to their customer.**

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INTRODUCTION

Longitudinal Analysis of Demand, Supply and Yield Reveals Eight Key Trends

While most research in healthcare, whether in industry publications or academic literature, is focused on a very specific question or a single topic such as digital health investments or prescribing patterns, the *Health Economy Trends Report* is the only study of its breadth and depth, to our knowledge.

The original research findings featured in this annual series are gleaned from proprietary Trilliant Health datasets and analytic models that measure various dimensions of demand, supply and yield across the health economy. To study healthcare demand, we leveraged our national all-payer medical and pharmacy claims database. The Trilliant Health Provider Directory was used to study the supply of 2.9M physicians, allied health providers and healthcare facilities across the country. The intersection of supply and demand informs expected yield. To measure yield, we leveraged our health plan price transparency dataset, which provides negotiated rate data across large national and small regional health plans. In addition to the primary data analyses conducted using Trilliant Health assets, the report includes other publicly available information (e.g., financial statements) and secondary sources (e.g., American Hospital Association, Centers for Disease Control and Prevention).

Analytic Framework

Demand refers to both the exogenous and endogenous factors that influence consumer preferences for, need for and utilization of healthcare services.

Primary Data Source
National all-payer claims database

Supply refers to the various providers of health services ranging from hospitals and physician practices to retail pharmacies, new entrants and virtual care platforms.

Primary Data Source
Provider Directory

Yield refers to the intersection of demand and supply (i.e., price) and is also influenced by market factors such as policy regulations and reimbursement incentives.

Primary Data Source
Health plan price transparency dataset

INTRODUCTION

Contextualizing **Macro** Trends With **Micro** Trends Guides Actionable Strategies

This *Health Economy Trends Report* is a fact-based, data-driven national analysis of the trends that will define the landscape, and subsequent challenges, for all players in the health economy.

Macroeconomic ("macro") trends, are broad, large-scale economic factors and forces (i.e., demand, supply and yield) that influence the overall structure and functioning of the health economy. In contrast, **microeconomic ("micro") trends** offer granular insights or more context into a given macro trend.

For example, the fact that behavioral health demand is on the rise is an important macro trend. However, insight into how this trend varies by condition type, by patient age, by geographic market and within the commercially insured vs. all-payer population, to name a few micro trends, can play a significant role in how stakeholders develop targeted interventions and tailor their approaches to address specific challenges and opportunities.

This dual awareness enables more effective resource allocation, enhances patient outcomes and improves operational efficiencies, ultimately driving value optimization.

A compass symbol has been added on the top right-hand corner of select pages to denote the availability of additional context via micro trend analysis. Readers with a Compass+ subscription can access micro trend analyses and additional resources to put the 2024 health economy trends into practice.

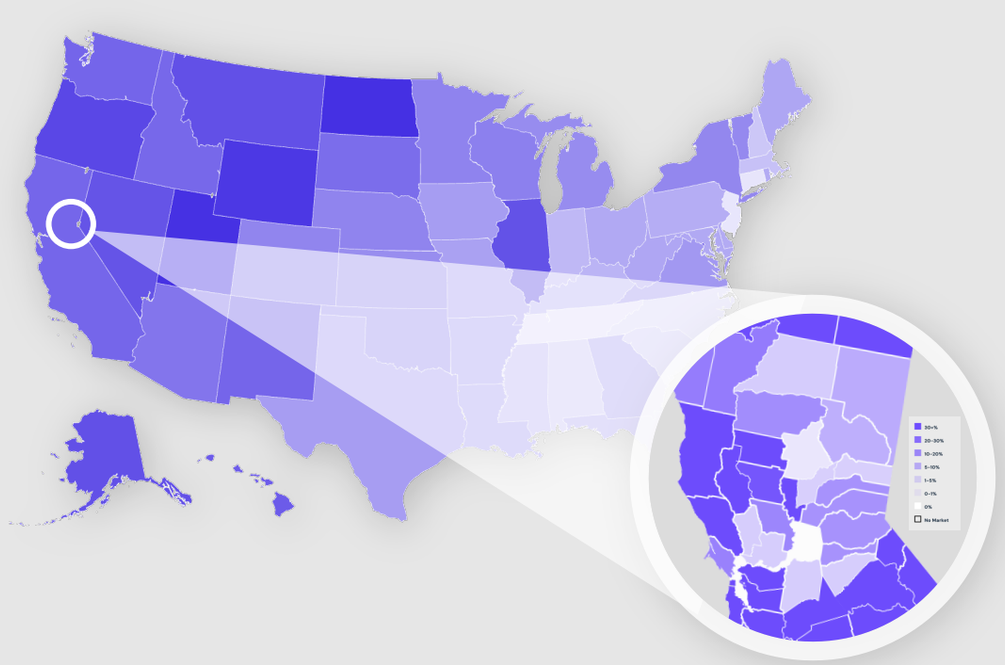
Conceptual Framework to Study Health Economy Trends

Macro

Broad, large-scale economic factors and forces (i.e., demand, supply and yield) that influence the overall structure and functioning of the health economy.

Micro

Specific, localized patterns and changes within the health economy (e.g., regional dynamics) that impact the decision-making processes of health economy stakeholders.



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2024 Trends Shaping the Health Economy

1. The Current Healthcare System Does Not Promote Health and Is Disproportionately Expensive
2. Healthcare Utilization Patterns Suggest Health Status Will Continue To Decline
3. Government Innovation and Regulation Are Failing To Produce Value
4. The Value of Technological Advancements Is Uncertain
5. Supply Constraints Are Correlated With Inadequate Yield
6. Forced Consumerism Due to Cost Shifting Has Fostered Fragmentation Without Corresponding Value
7. Lower-Cost Care Settings Can Offer Better Value
8. Employers Are Better Equipped To Demand Value for Money

CONCLUSION: Health economy stakeholders who focus on value optimization will have a competitive advantage.

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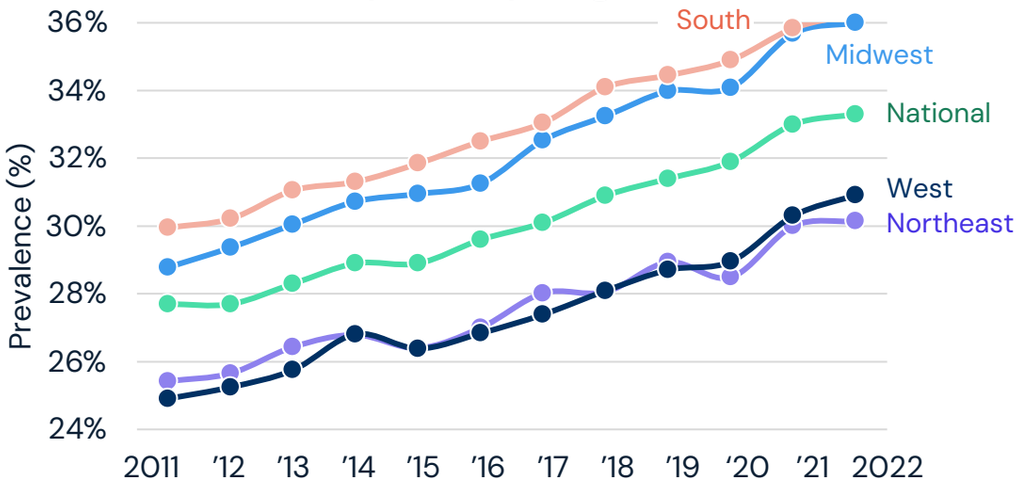
TREND 1

The Current Healthcare System Does Not Promote Health and Is Disproportionately Expensive

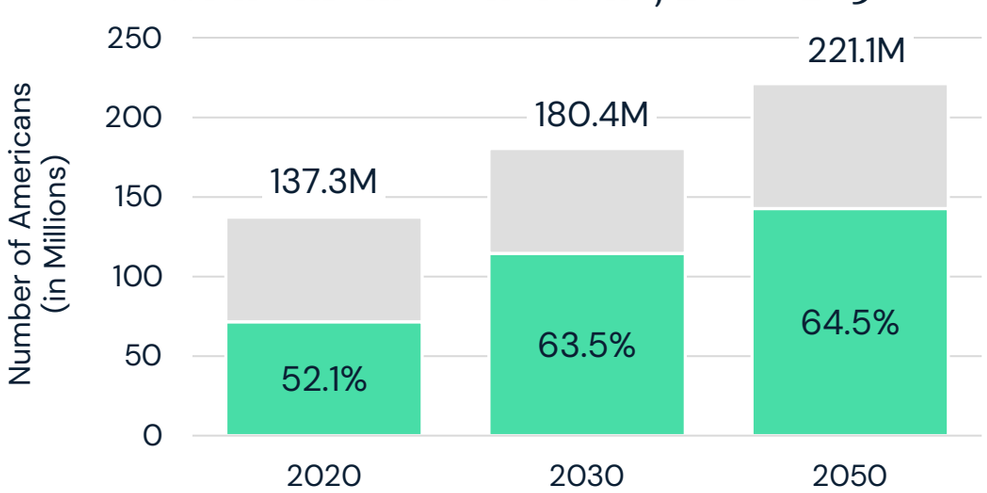
The Health Status of Americans Is Deteriorating

The physical and mental health status of Americans is unraveling, with a growing prevalence of chronic conditions. From 2020 to 2050, the percentage of U.S. adults with chronic conditions is projected to increase by 12.4 percentage points.

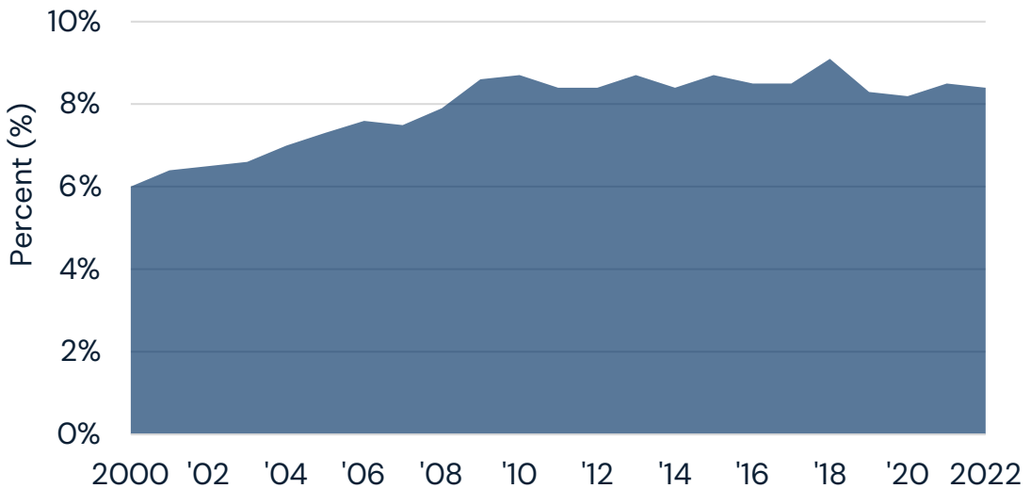
U.S. Adult Obesity Prevalence, Nationally and by Region, 2011-2022



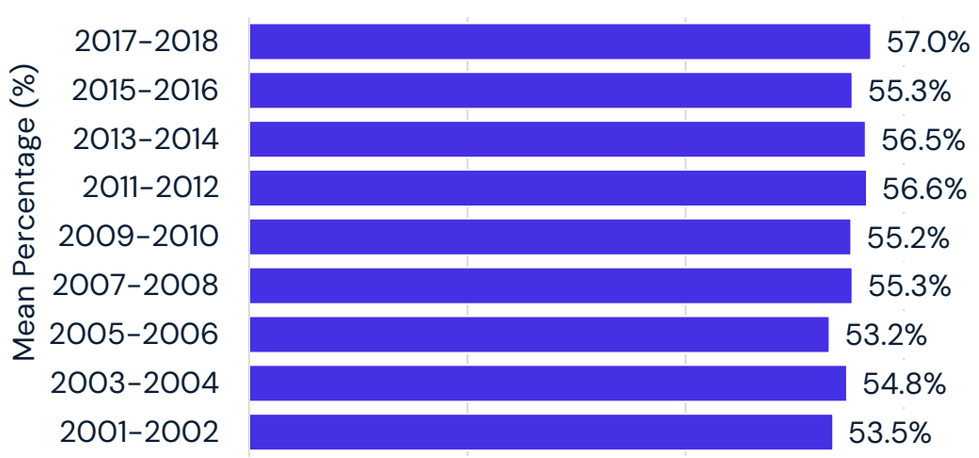
Number of Adult Americans With Chronic Conditions, 2020-2050



Share of U.S. Adults With Diagnosed Diabetes, 2000-2022



Mean Percentage of Total Energy Intake of Ultra-Processed Foods, 2001-2018



Source: Centers for Disease Control and Prevention National Center for Health Statistics; Ansah et al., Projecting the chronic disease burden among the adult population in the United States using a multi-state population model, *Frontiers in Public Health*, 2023.

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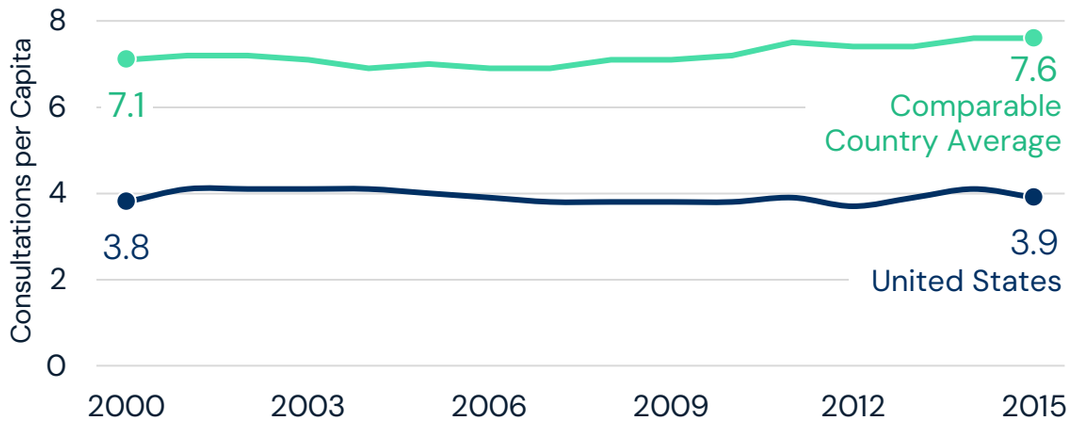
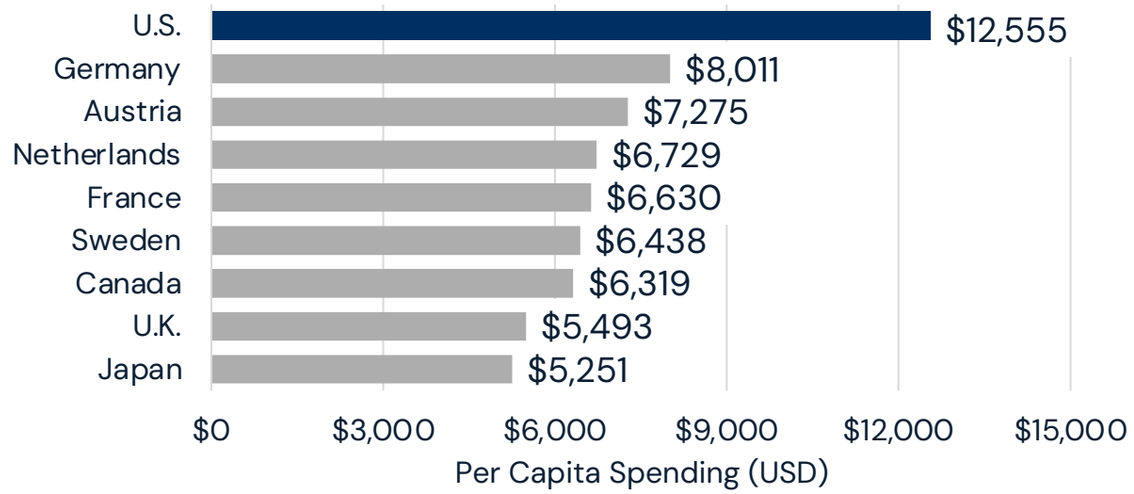
America Spends More on Less Care With Worse Results...

Despite spending nearly 2X more on healthcare than peer countries, U.S. healthcare utilization has remained largely unchanged, while it has increased by 7.0% in peer countries since 2000. At the same time, U.S. health outcomes are worse than in peer countries, which may be exacerbated by having fewer primary care physicians per 1,000 population.

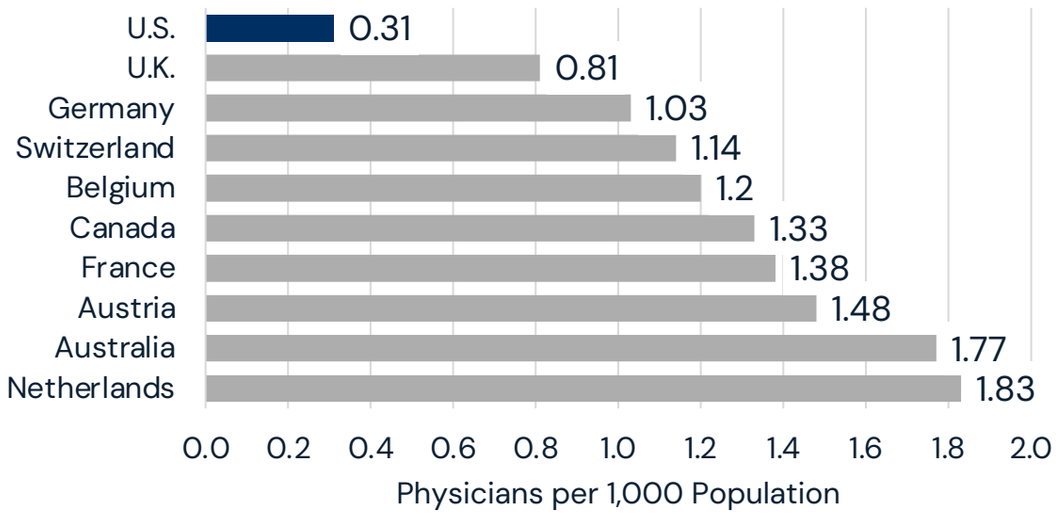
Physician Consultations per Capita, U.S. and Select OECD Countries, 2000-2015



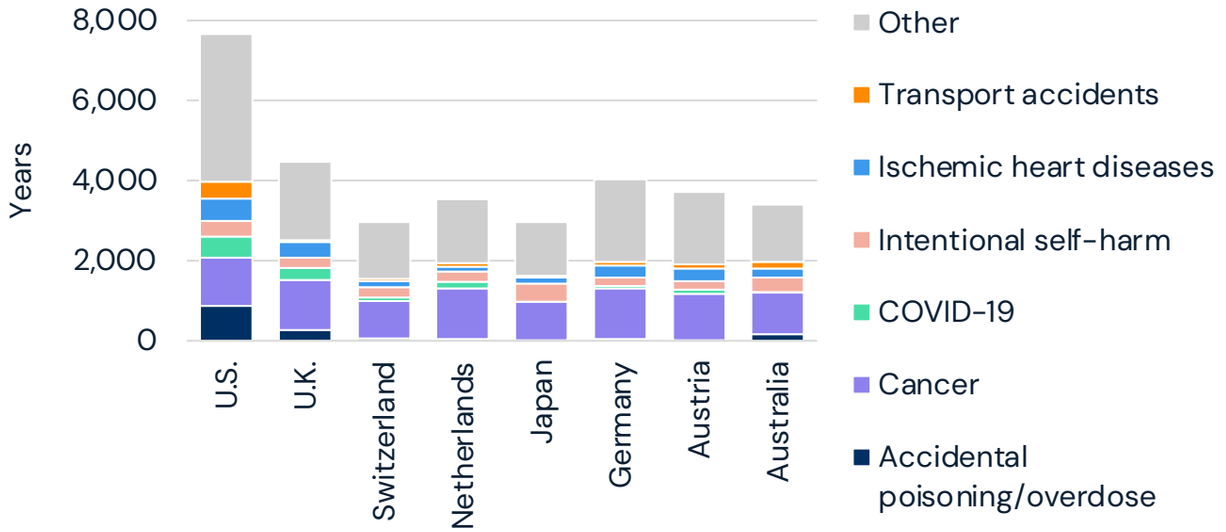
Total Health Spending per Capita, U.S. and Select OECD Countries, 2022



Primary Care Physicians per 1,000 Population, U.S. and Select OECD Countries, 2021



Years of Life Lost per 100K Population Age 75 Years Old, U.S. and Select OECD Countries, 2020



Note: OECD denotes Organization for Economic Co-Operation and Development.
Source: KFF; Peterson-KFF Health System Tracker; Organization for Economic Co-Operation and Development.

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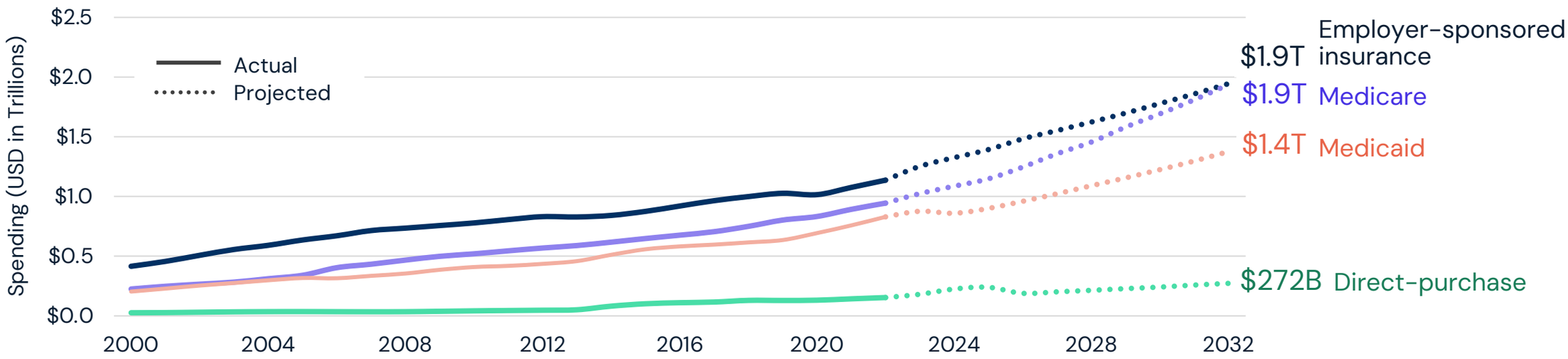
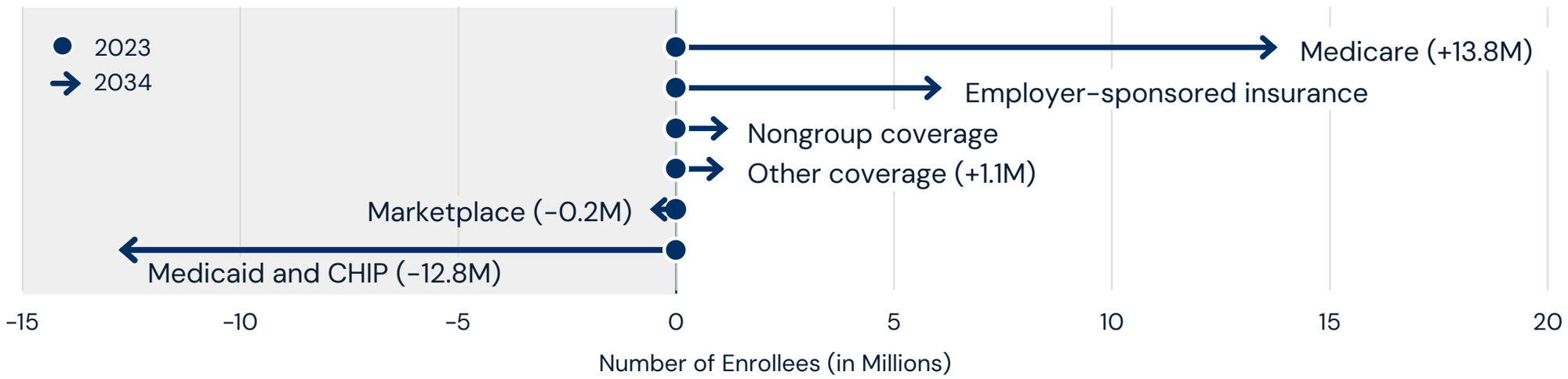
...And U.S. Healthcare Spending Is Projected To Grow 1.7X by 2032

From 2022 to 2032, U.S. healthcare spending is projected to increase by 72.6%, from $4.5T to $7.7T. Medicare expenditures are projected to increase the most (+105.1%). While employer-sponsored insurance generates most of the health economy's revenue, its share of covered lives is projected to decline from 54.2% in 2023 to 52.5% in 2034.

Actual and Projected U.S. Health Expenditures, by Insurance Source, 2000-2032



Projected Change in Health Insurance Coverage, by Insurance Source, 2023 to 2034



Note: CHIP denotes Children's Health Insurance Program.
Source: Centers for Medicare and Medicaid Services Historic and Projected National Health Expenditures; Congressional Budget Office Baseline Projections.

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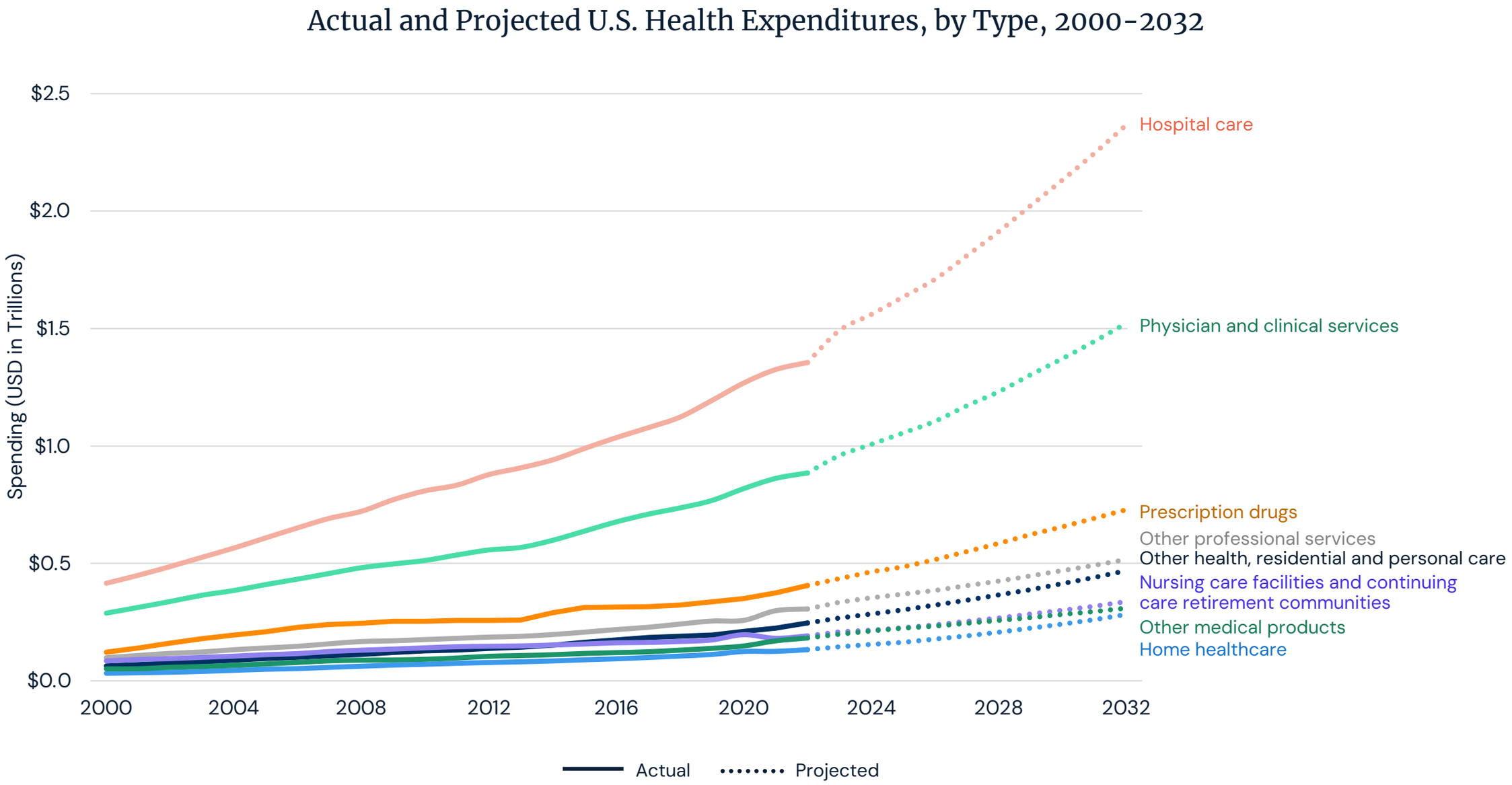
Projected Growth Across Spending Categories Will Exceed 65% Through 2032

Between 2022 and 2032, the rate of U.S. healthcare spending is expected to grow the most for home health services (+112.7%). Prescription drug spending is projected to increase by 79.5%, slightly outpacing the growth in hospital spending (+74.6%).



Source: Centers for Medicare and Medicaid Services Historic and Projected National Health Expenditures.

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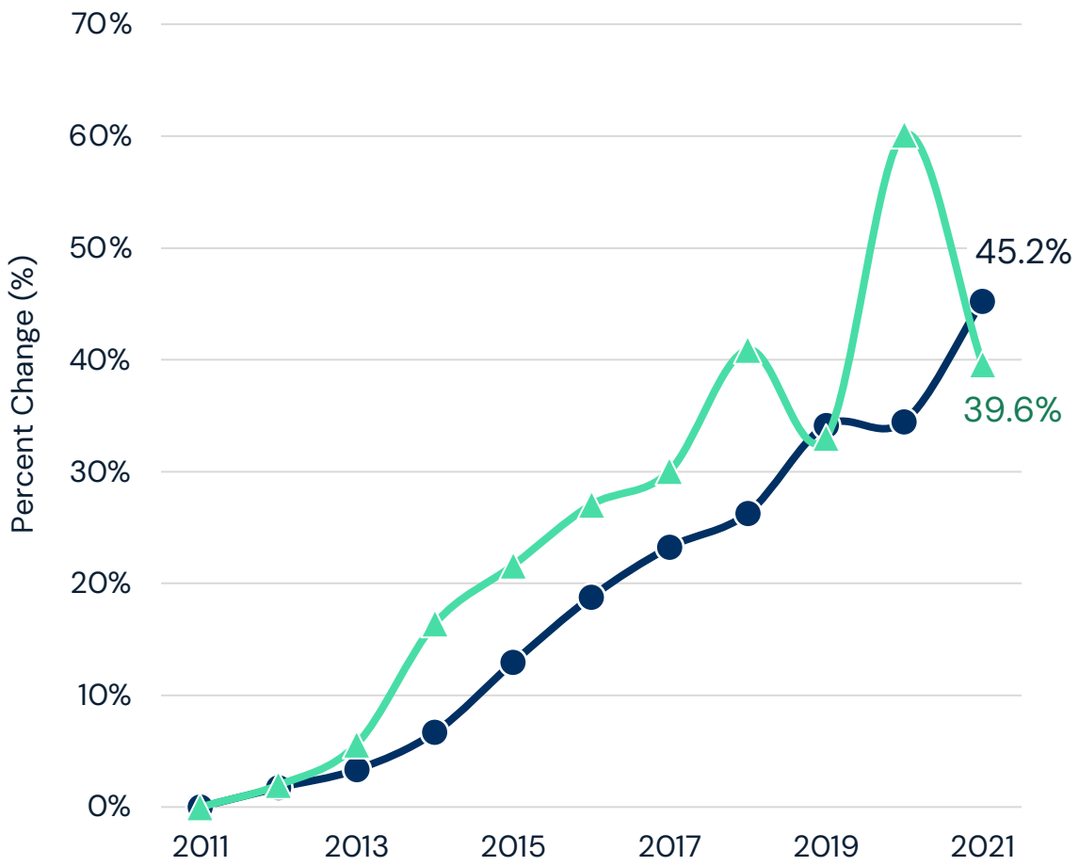
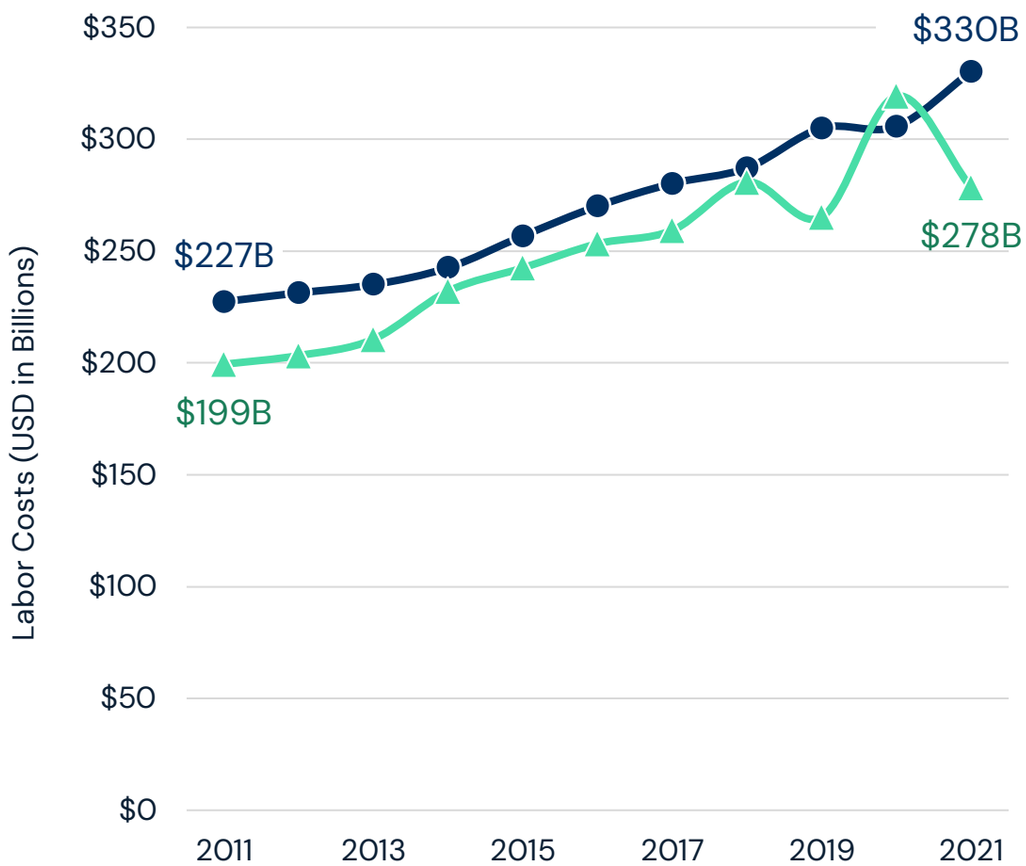
Administrative Expenditures Are Increasing and on Par With Labor Costs

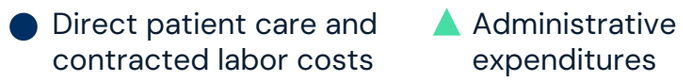
Between 2011 and 2021, administrative expenditures increased by 39.6%, reaching $278B, and U.S. hospital labor costs increased by 45.2%, reaching $330B. Despite increased spending, patient outcomes, quality of care and overall population health have minimally improved.

Percent Change in Administrative Expenditures vs. Direct Patient Care and Contracted Labor Costs for U.S. Hospitals Compared to 2011, 2011-2021



Administrative Expenditures vs. Direct Patient Care and Contracted Labor Costs for U.S. Hospitals, 2011-2021





Note: Median hospital-level costs were extrapolated to 6,764 U.S. hospitals.
Source: Organization for Economic Co-operation and Development Data Explorer; National Academy for State Health Policy Hospital Cost Tool; Agency for Healthcare Research and Quality Compendium of U.S. Health Systems, 2022.

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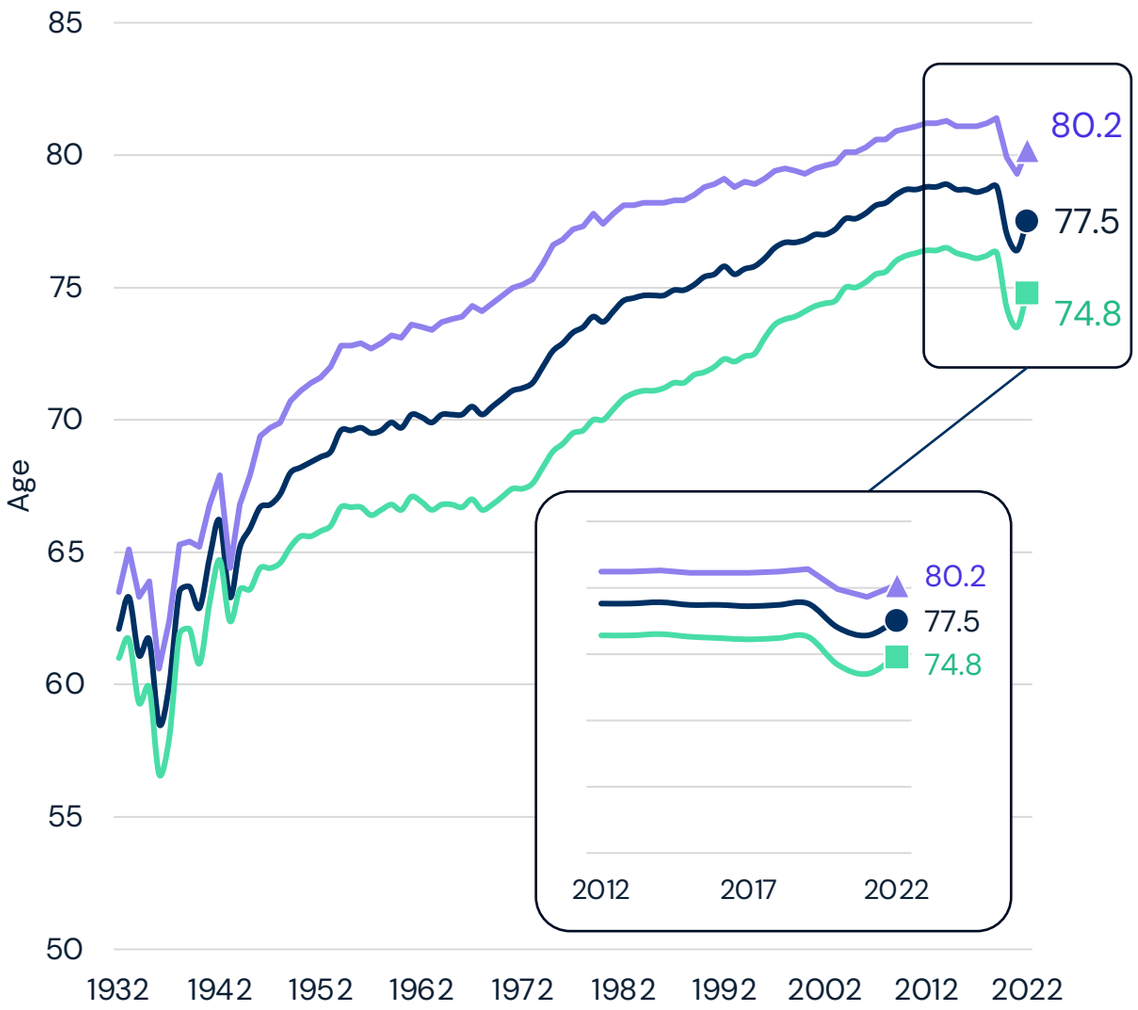
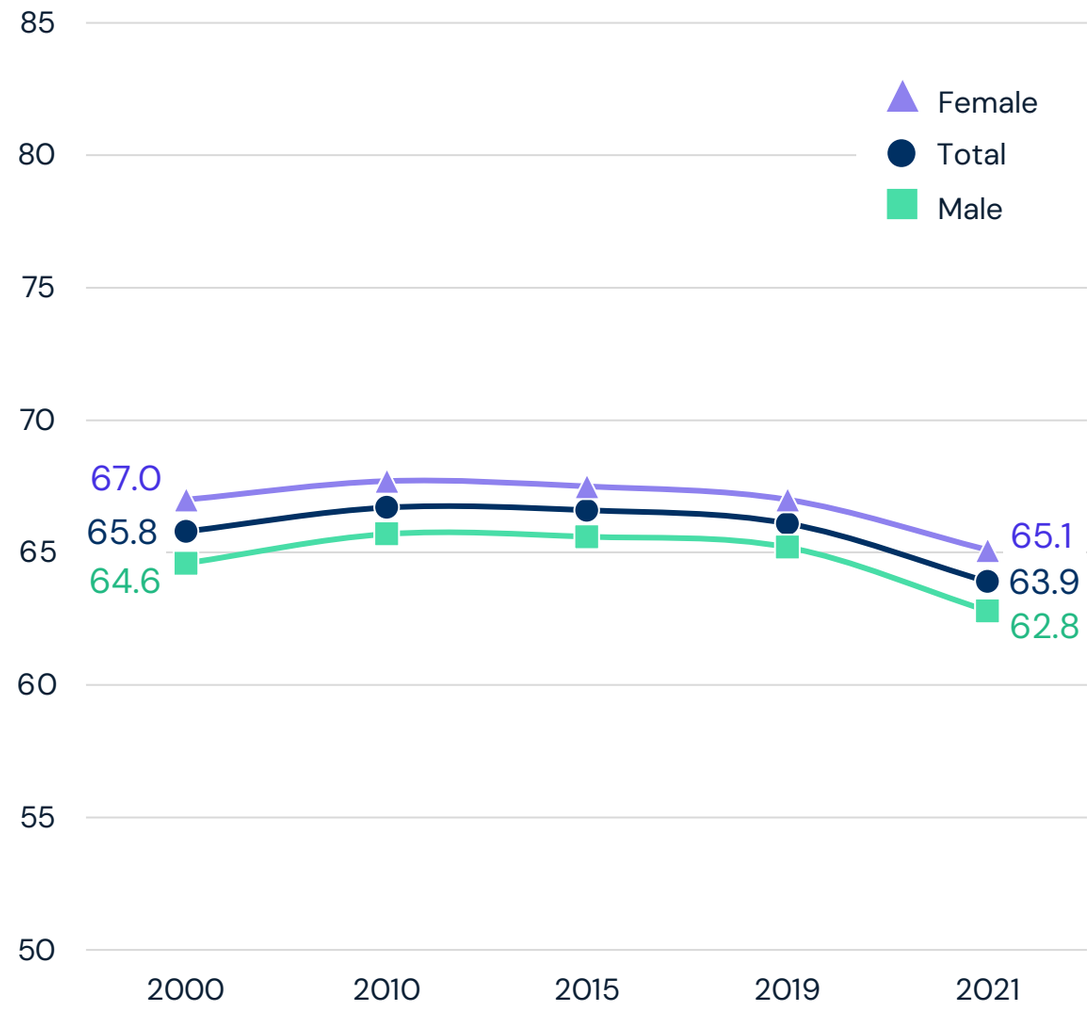
Healthy Life Expectancy Is Flat After Years of Increasing Life Expectancy

While U.S. life expectancy has increased over the last century, healthy life expectancy remained relatively flat from 2000 to 2019, with a decline in 2021 amid the COVID-19 pandemic. A longer-living population does not equate to a progressively healthier population.

U.S. Life Expectancy, by Gender, 1932-2022



U.S. **Healthy** Life Expectancy, by Gender, 2000-2021



Note: Healthy Life Expectancy is the average number of years that a person can expect to live in "full health" by taking into account years lived in less than full health due to disease and/or injury.
Source: Centers for Disease Control and Prevention National Center for Health Statistics; World Health Organization.

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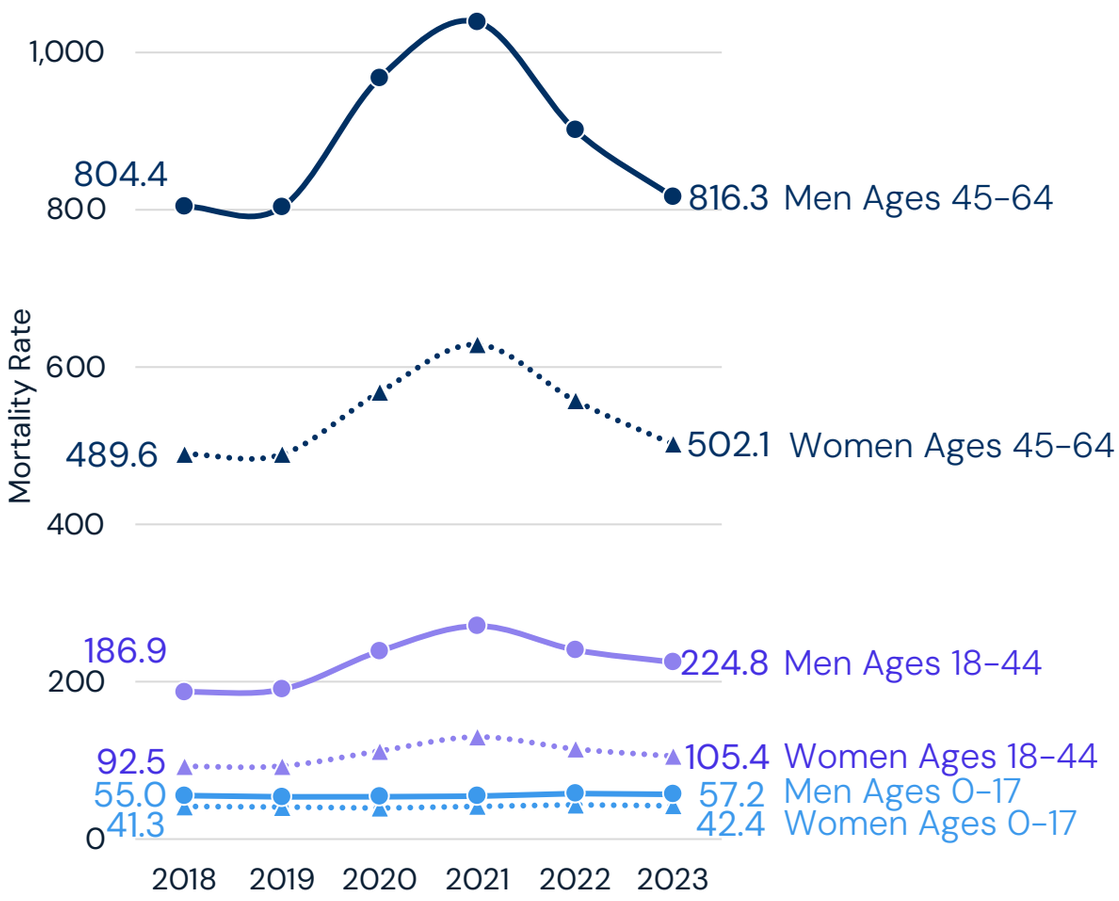
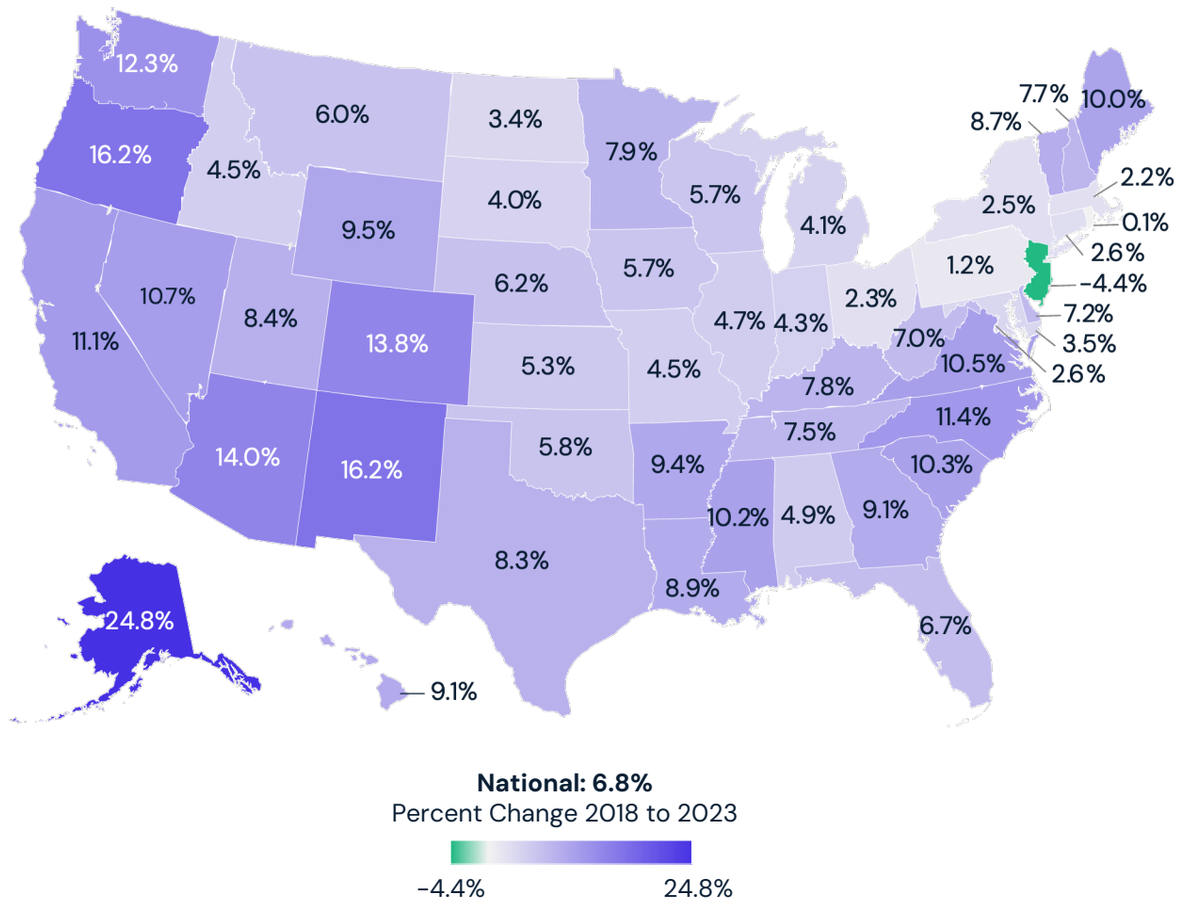
Mortality Is Down From Peak but Remains Higher Than Pre-Pandemic

Mortality rates for people under age 65 increased in 2023 compared to 2018. The largest increases are in the 18-44 age group, with a 13.9% rise for females and a 20.3% rise for males. By state, percent change in mortality rates from 2018 to 2023 ranges from -4.4% (New Jersey) to +24.8% (Alaska), compared to +6.8% nationally.

Crude Mortality Rate per 100K Population, Under Age 65, by Gender, 2018-2023



Percent Change in Crude Mortality Rate per 100K Population, by State, 2018 to 2023

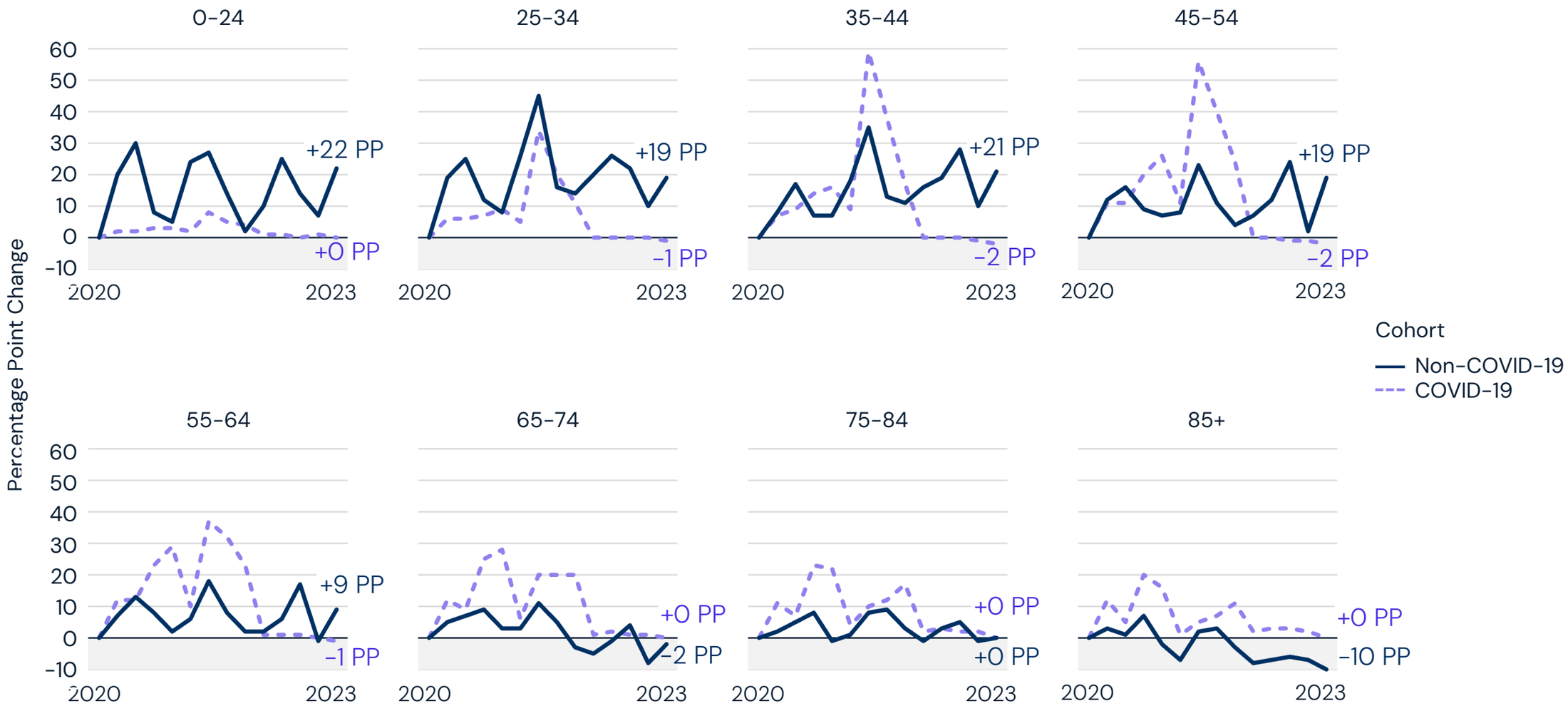


Source: Centers for Disease Control and Prevention WONDER database.

Non-COVID Excess Deaths Remain Elevated Among Younger Populations

While COVID-related excess mortality returned to normal levels in Q2 2022, non-COVID excess mortality has remained high among Americans under age 55, particularly those ages 0-24 (+22 PP) and 35-44 (+21 PP). In contrast, non-COVID excess mortality declined or remained flat in older populations from Q1 2020 to Q2 2023.

Percentage Point Change in COVID-Only and Non-COVID Excess Mortality by Age, Quarterly, Compared to Q1 2020, Q2 2020-Q2 2023



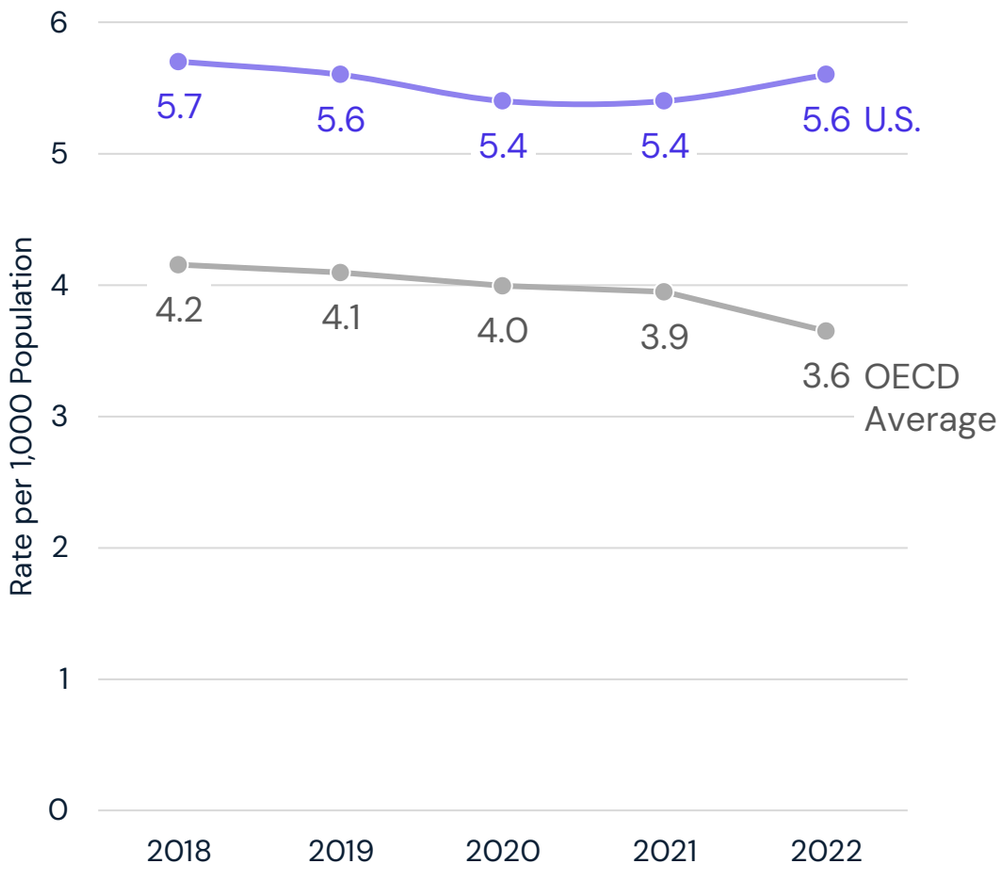
Note: PP denotes percentage point.
Source: Society of Actuaries Research Institute Group Life COVID-19 Mortality Survey Report.

TREND 1: HEALTHCARE SYSTEM

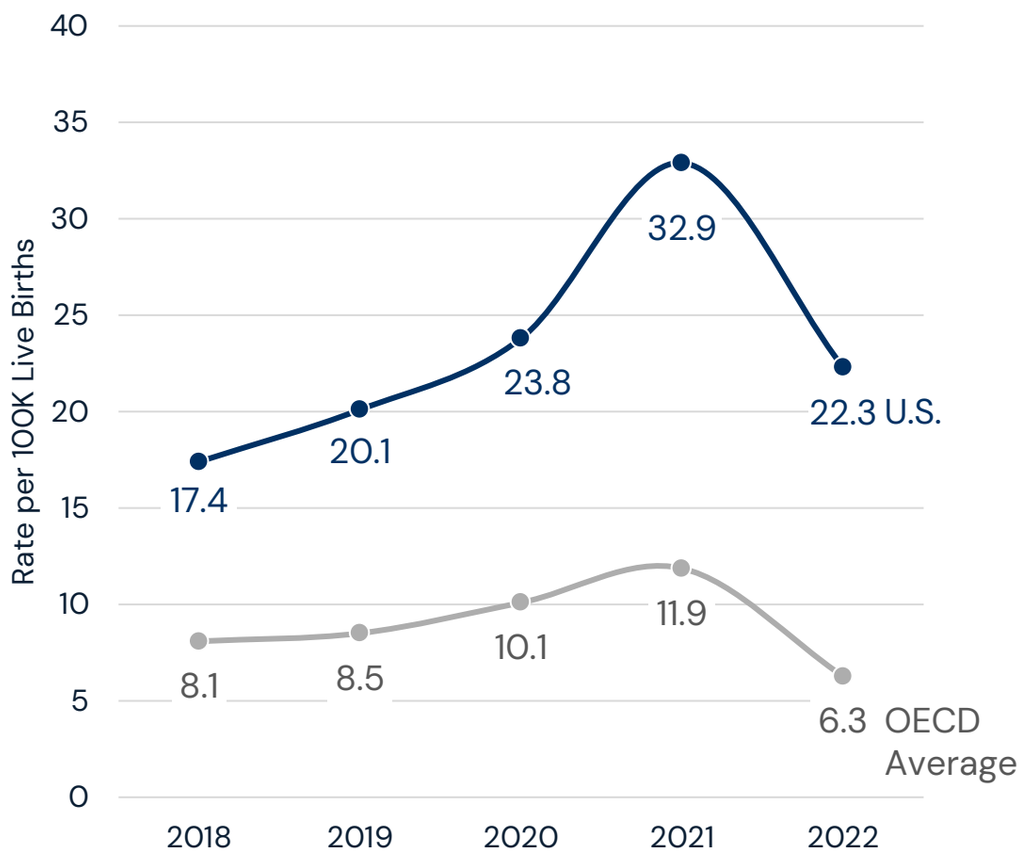
U.S. Infant and Maternal Mortality Rates Are Well Above Peer Countries

The U.S. infant mortality rate, which is above the OECD average, increased from 5.4 per 1,000 in 2021 to 5.6 per 1,000 in 2022. The U.S. maternal mortality rate per 100K live births, which is above the OECD average, increased from 17.4 in 2018 to 22.3 in 2022, peaking at 32.9 in 2021.

Infant Mortality Rate per 1,000 Population, U.S. and OECD Average, 2018-2022



Maternal Mortality Rate per 100K Live Births, U.S. and OECD Average, 2018-2022



Note: OECD denotes Organization for Economic Co-Operation and Development.
Source: Centers for Disease Control and Prevention WONDER database; Organization for Economic Co-Operation and Development.

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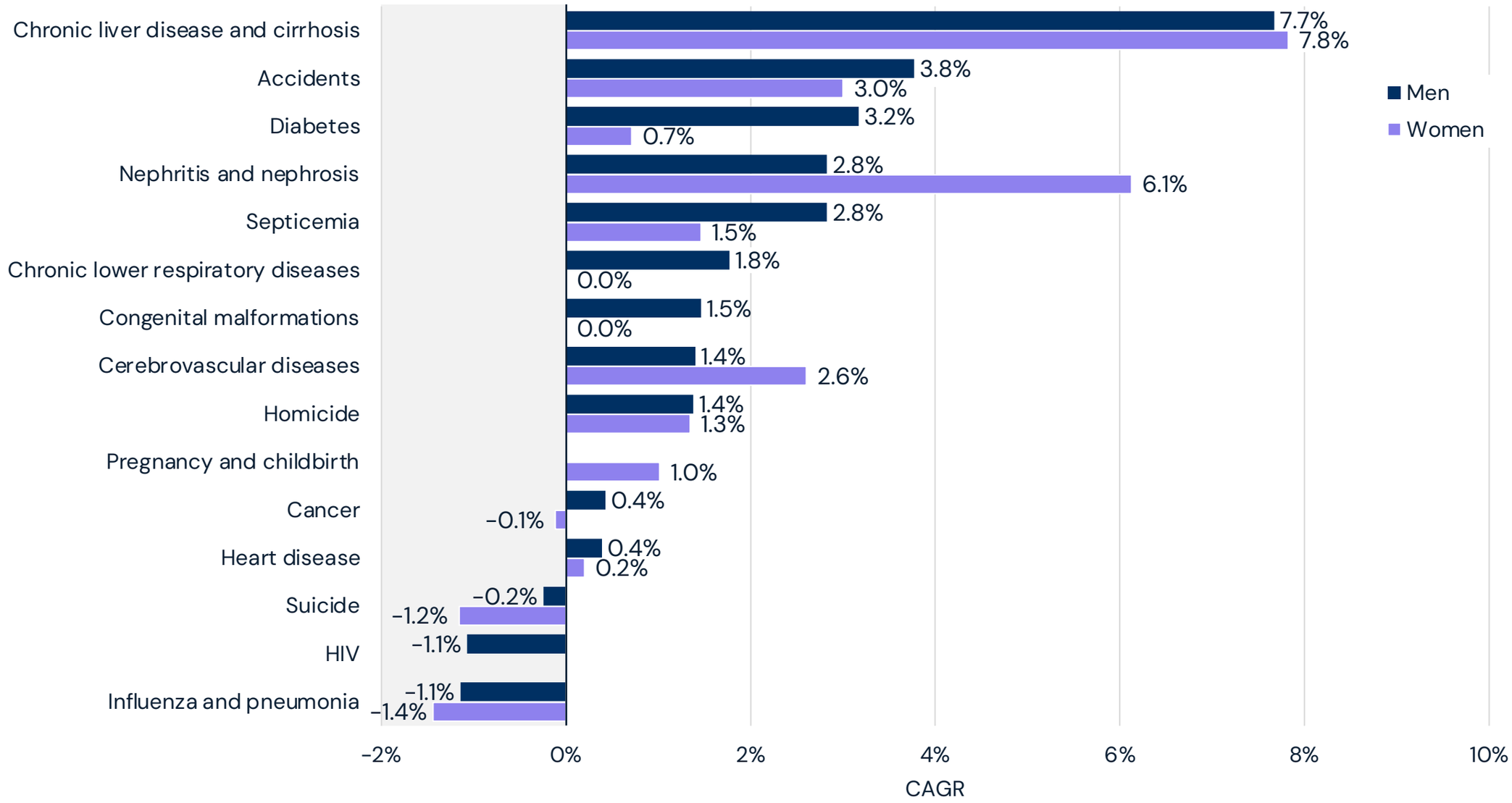
Chronic Liver Disease Mortality Is Growing for Young Adults

Of the top causes of death for people ages 18-44, the CAGR was highest for chronic liver disease and cirrhosis for both women (+7.8%) and men (+7.7%).

Crude Mortality Rate per 100K Population CAGR, Top Causes of Death, Ages 18-44, by Gender, 2018 to 2023



Note: CAGR denotes compound annual growth rate.
Source: Centers for Disease Control and Prevention WONDER database.

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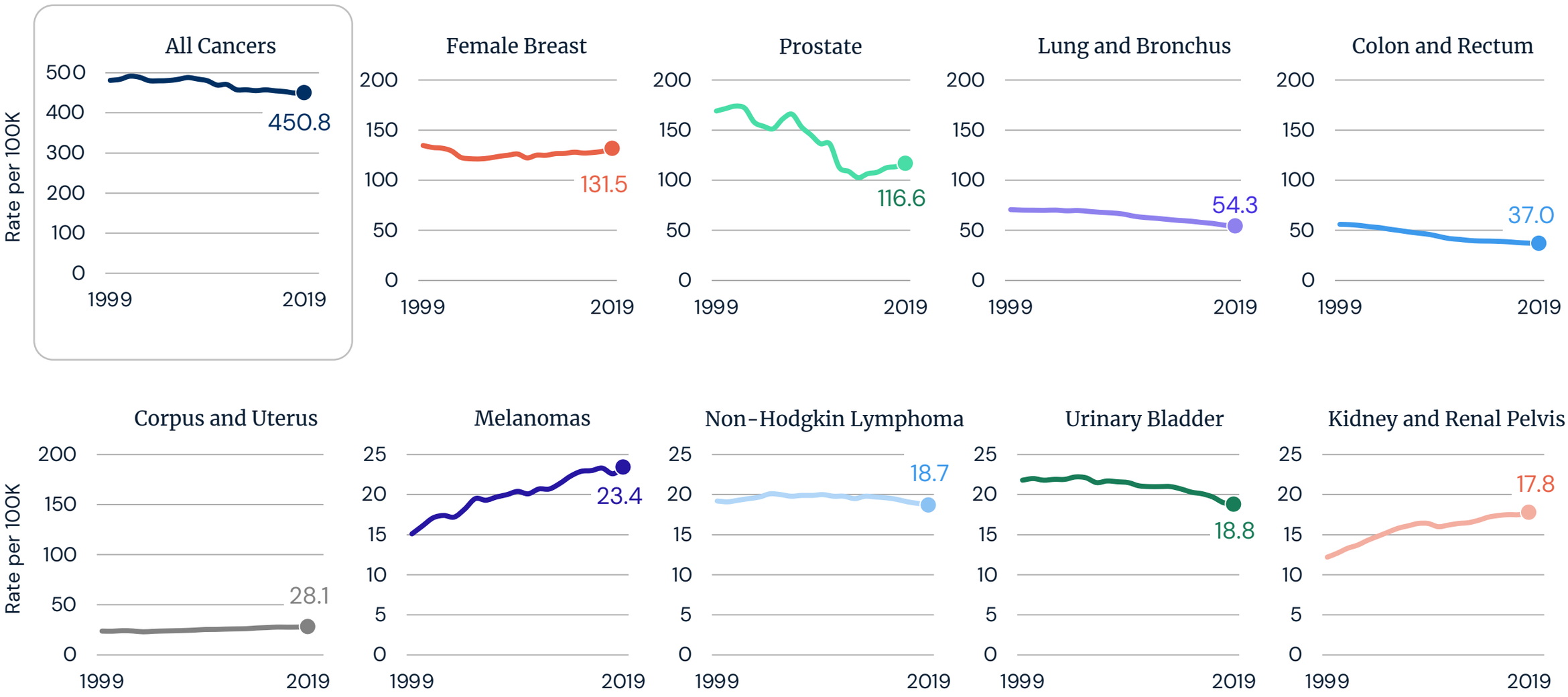
Incidence of Melanomas, Uterine and Pancreatic Cancers Is Increasing

Since 1999, the overall cancer incidence rate has declined slightly, but there are meaningful differences by cancer type. While incidence rates for cancers of the corpus and uterus, pancreas and melanomas increased, rates for prostate, lung, colon and bladder cancers declined. The rate for breast cancer – the highest incidence cancer overall – has remained relatively unchanged.

Annual Rate of Incident Cancer per 100K Population, 1999-2019



Source: U.S. Department of Health and Human Services; Centers for Disease Control and Prevention; National Cancer Institute.

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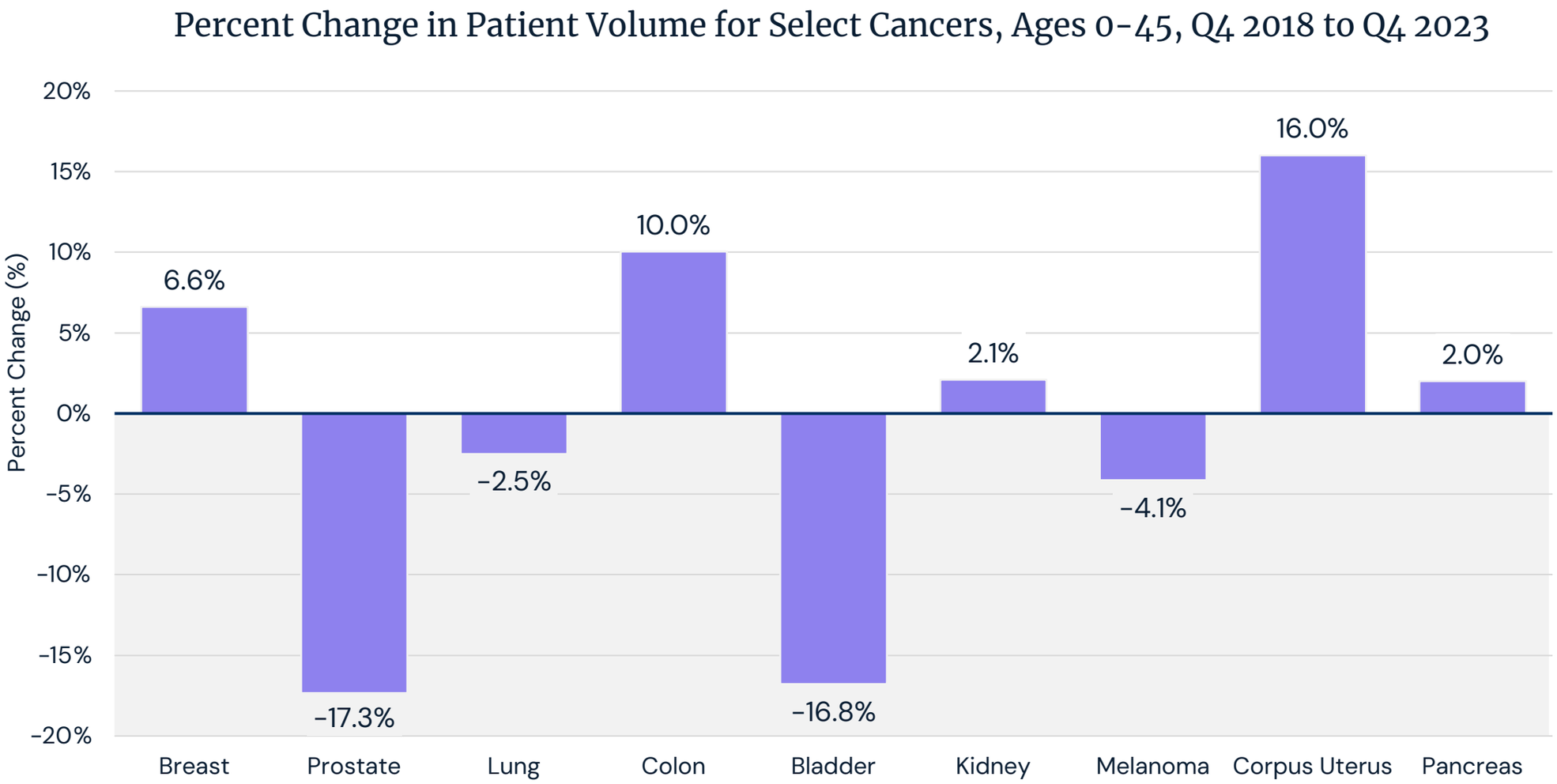
Early-Onset Breast, Colon, Kidney and Uterine Cancers Are Up Since 2018

Comparing Q4 2018 to Q4 2023, the volume of colon cancer patients ages 45 and younger rose by 10.0%, consistent with emerging reports of a rise in colon cancer among younger Americans.



Note: Analysis is limited to commercially insured patients. Early-onset cancers are defined as cancers occurring in individuals ages 50 or less.
Source: Trilliant Health national all-payer claims database.

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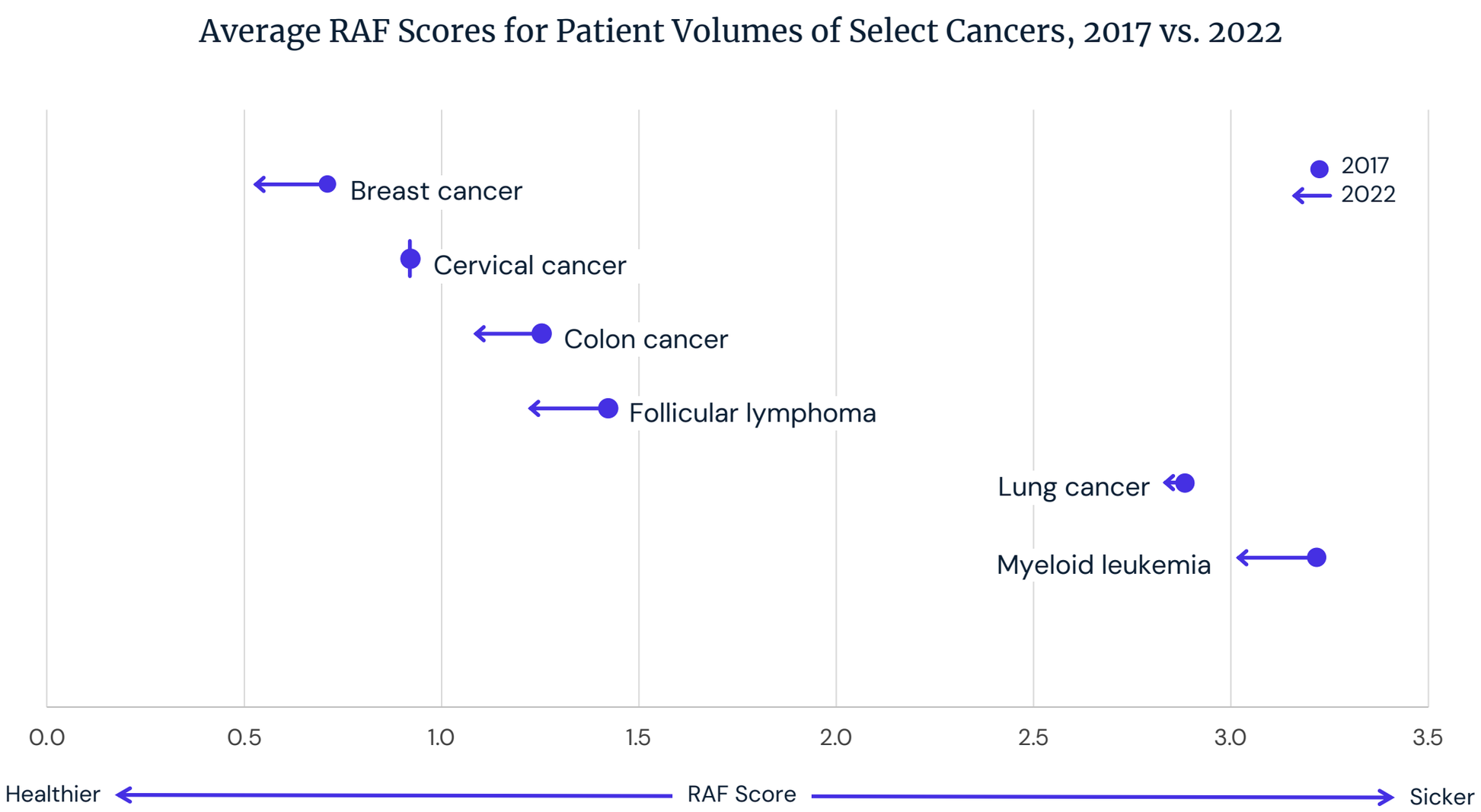
“Healthier” People Are Receiving Breast and Colon Cancer Diagnoses

As measured by a risk adjustment factor (RAF) score, the patients being treated in 2022 for several cancers were generally healthier than patients with the same diagnosis in 2017, including breast cancer and colon cancer.



Note: RAF denotes risk adjustment factor. Analysis is limited to commercially insured patients ages 65 and younger.
Source: Trilliant Health national all-payer claims database.

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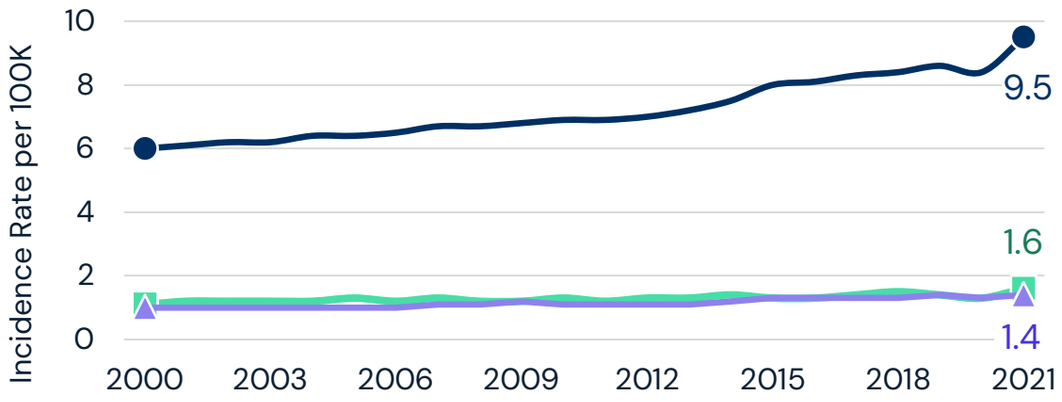
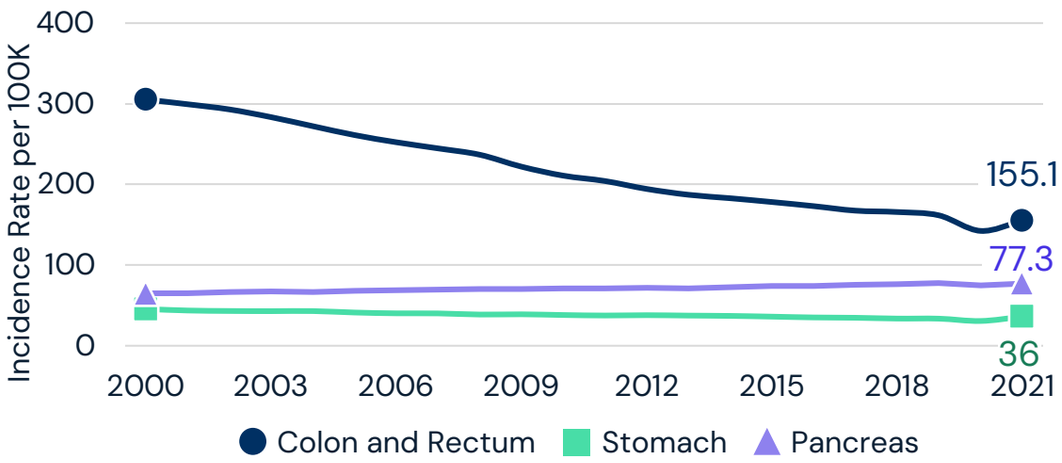
Early-Onset Cancers Are Rising, With Geographic Variation

From 2000 to 2021, incidence rates for colon and stomach cancers decreased among individuals over age 65, -49.2% and -20.9%, respectively, but increased among those under age 50. Nationally, early-onset colon cancer rates have risen, with the most significant increases observed in the West and Midwest compared to the South.

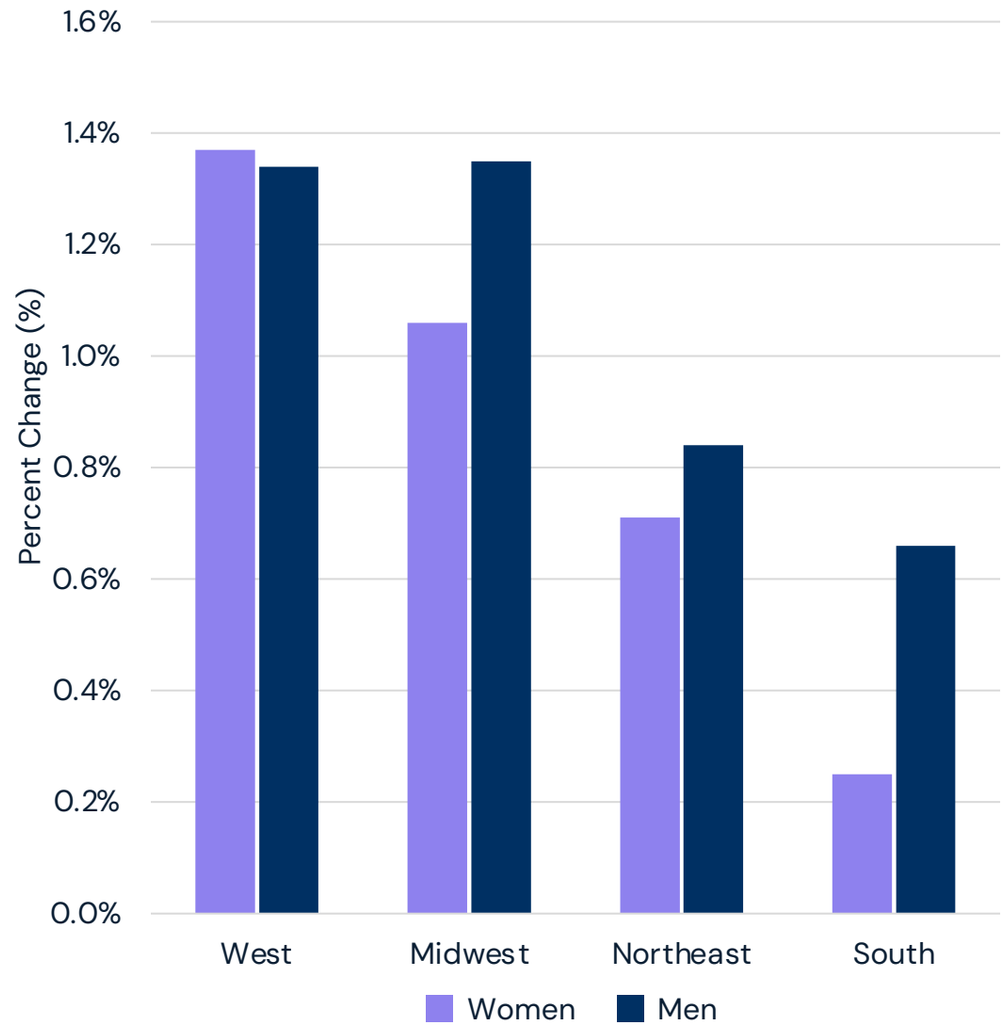
Incidence Rate of GI Cancers Among Individuals Under Age 50 per 100K Population, 2000-2021



Incidence Rate of GI Cancers Among Individuals Ages 65+ per 100K Population, 2000-2021



Average Annual Percent Change in Incidence Rate of Early Onset Colorectal Cancer, by Region, 2001-2020



Note: Early-onset cancers are defined as cancers occurring in individuals ages 50 or less. GI denotes gastrointestinal.
Source: National Cancer Institute, Surveillance, Epidemiology and End Results Program; Abboud et al., Geographical Variations in Early Onset Colorectal Cancer in the United States between 2001 and 2020, *Cancers*, 2024.

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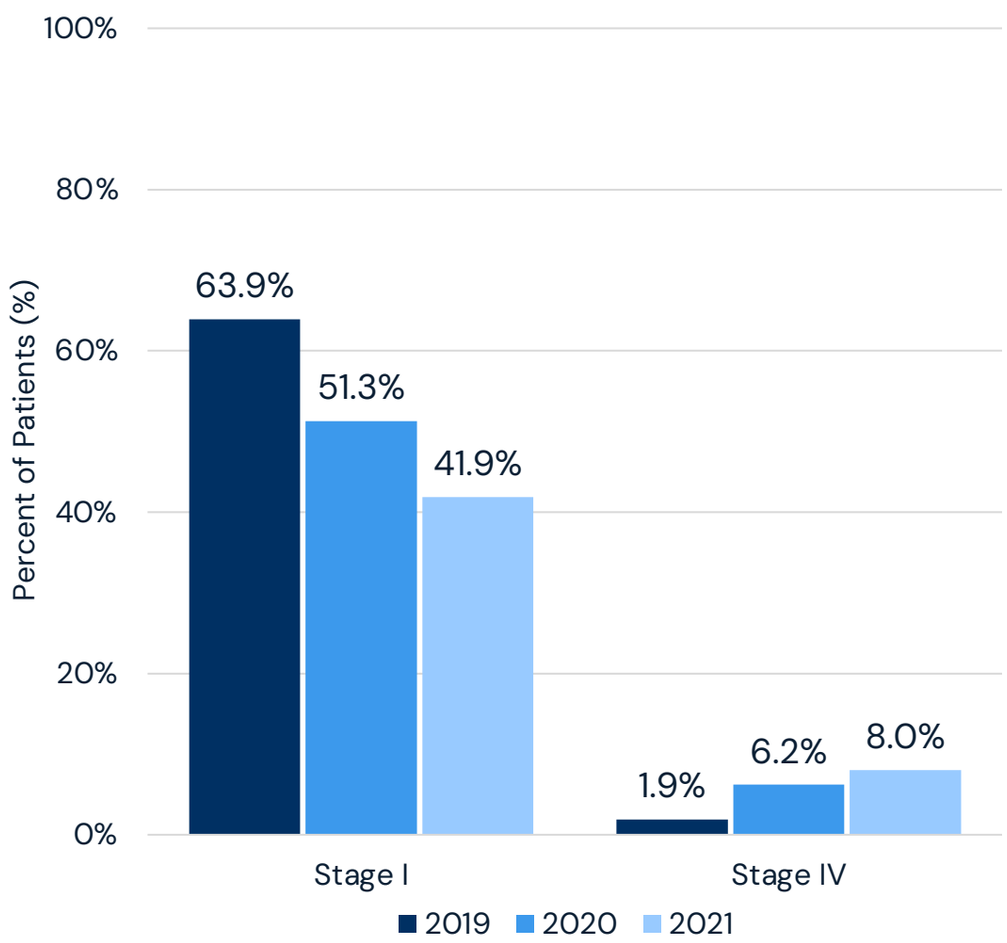
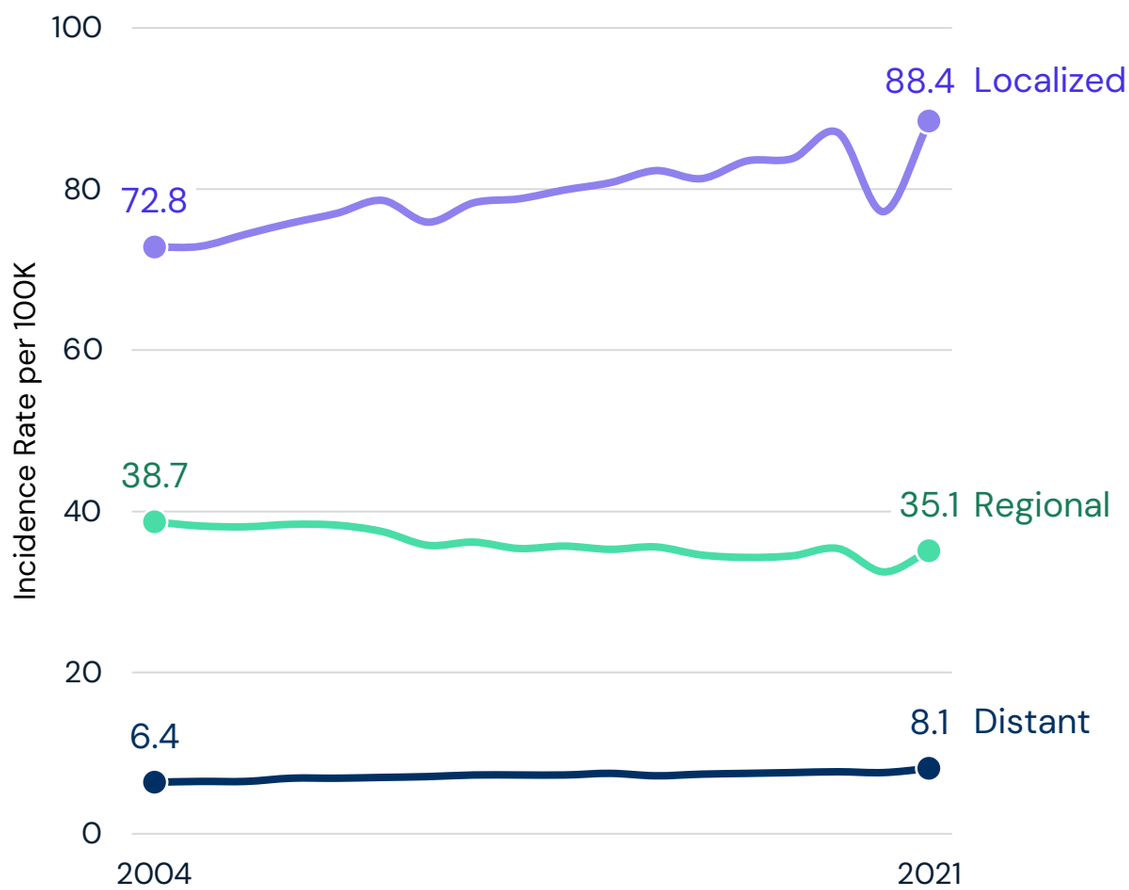
Late-Stage Initial Cancer Diagnosis Is Becoming More Common

Increasingly, patients are being initially diagnosed with late-stage cancers. Between 2019 and 2021, the percentage of patients with Stage I breast cancer dropped by 22.0 percentage points, while the percentage with Stage IV rose by 6.1 percentage points.

Percent of Breast Cancer Patients Presenting With Stage I and Stage IV Disease, 2019-2021



Incidence Rate of Breast Cancer per 100K Population, by Stage at Diagnosis, 2004-2021



Note: Localized cancer refers to cancer that is limited to the place where it started, with no sign that it has spread; regional cancer refers to cancer that has spread to nearby lymph nodes, tissues or organs; distant cancer refers to cancer that has spread to distant parts of the body. Stage I disease refers to cancer that has not spread beyond the primary tumor site or has only spread to nearby tissue; Stage IV disease refers to cancer that has spread to distant areas of the body.
Source: Zhou et al., Comparison of Early- and Late-Stage Breast and Colorectal Cancer Diagnoses During vs Before the COVID-19 Pandemic, *JAMA Network Open*, 2022; National Cancer Institute, Surveillance, Epidemiology and End Results Program.

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Macro Trend #1

- The Current Healthcare System Does Not Promote Health and Is Disproportionately Expensive

COMPASS+ EXCLUSIVE

Micro Trends

- How does the mortality rate vary by state?
- How are state-level mortality rates changing over time?
- How has the infant mortality rate changed by state?
- How are state-level infant mortality rates changing over time?

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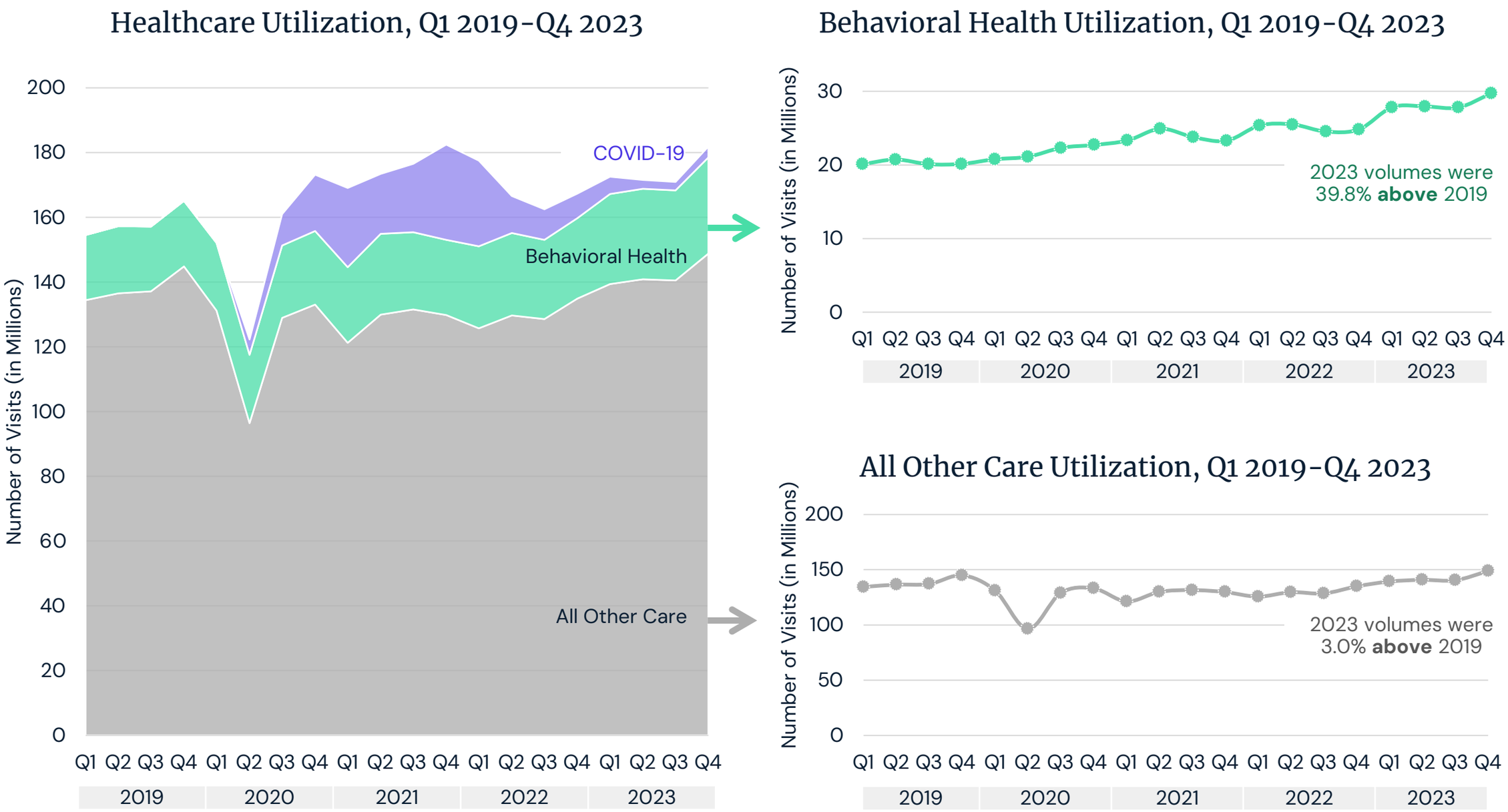
TREND 2

Healthcare Utilization Patterns Suggest Health Status Will Continue To Decline

Relative to Pre-Pandemic Volume, Care Utilization Stabilized in 2023

Excluding COVID-19 and behavioral health, "all other" care volume increased by 3.0% in 2023 compared to 2019. Notably, there was a 39.8% increase in demand for behavioral health care during the same period.



Note: Analysis is limited to commercially insured patients. The "All Other Care" category represents any healthcare visit in the timeframe unrelated to behavioral health or COVID-19-related care. The COVID-19 category is likely underrepresented due to the prevalence of at-home testing, self-pay encounters and non-specific coding of COVID-19 encounters.
Source: Trilliant Health national all-payer claims database.

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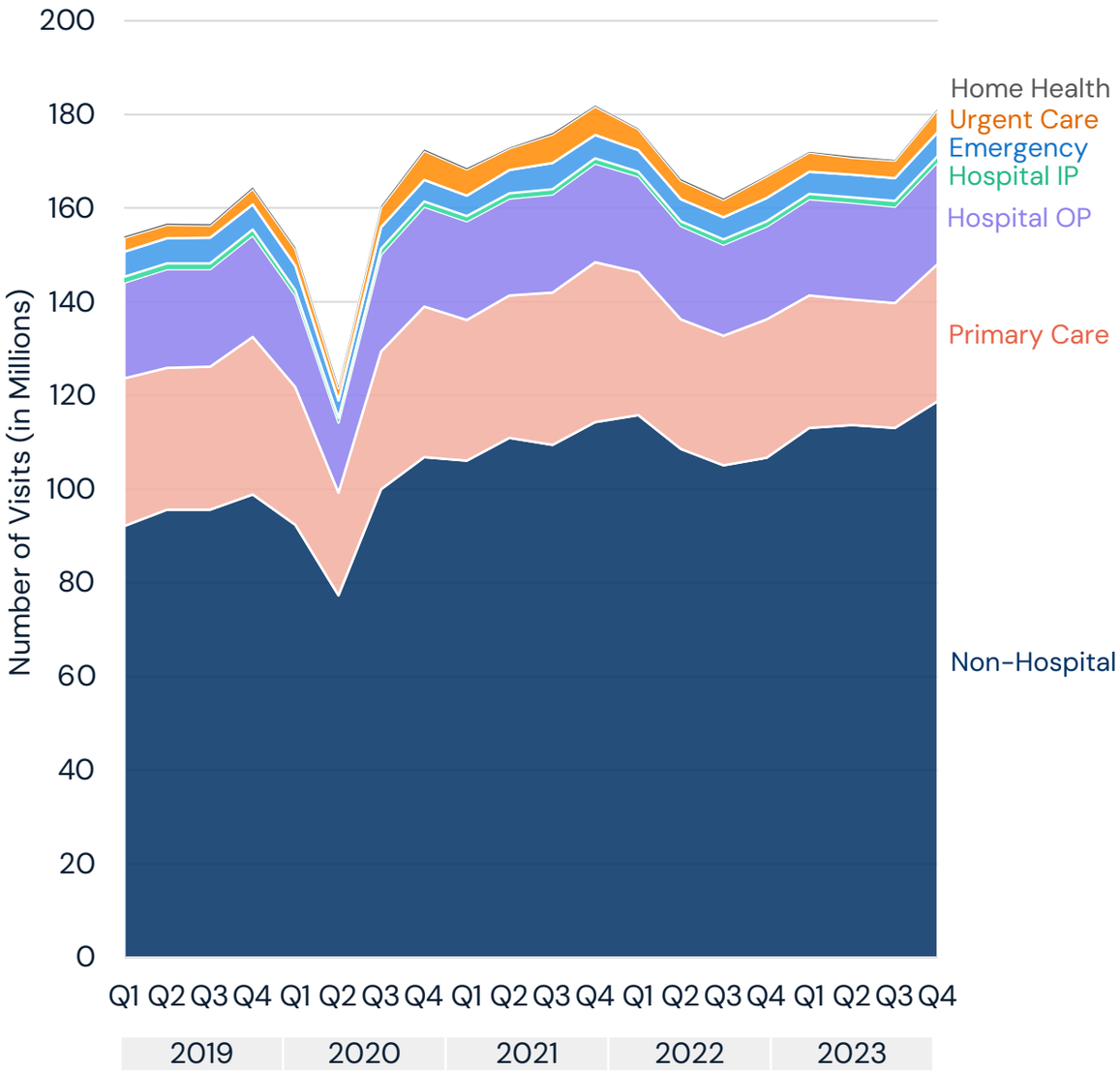
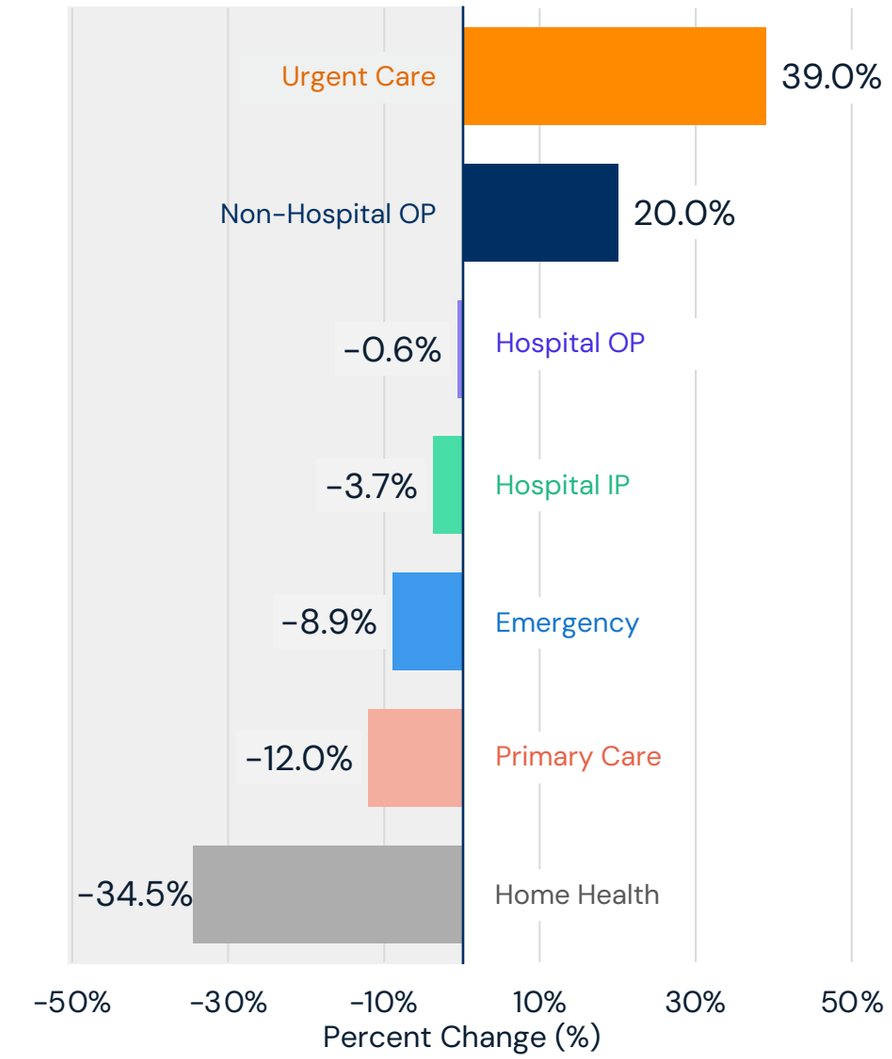
Increase in Care Utilization Concentrated in Non-Hospital OP and Urgent Care

Compared to 2019, healthcare utilization in 2023 decreased in most settings: home health (-34.5%), primary care (-12.0%), emergency department (-8.9%), inpatient (-3.7%) and hospital outpatient (-0.6%). However, non-hospital outpatient (+20.0%) and urgent care (+39.0%) volume has significantly increased from 2019 to 2023.

Healthcare Utilization, by Care Settings, Q1 2019-Q4 2023



Percent Change in Healthcare Utilization, by Care Settings, 2019 to 2023



Note: Analysis is limited to commercially insured patients. IP denotes inpatient; OP denotes outpatient.
Source: Trilliant Health national all-payer claims database.

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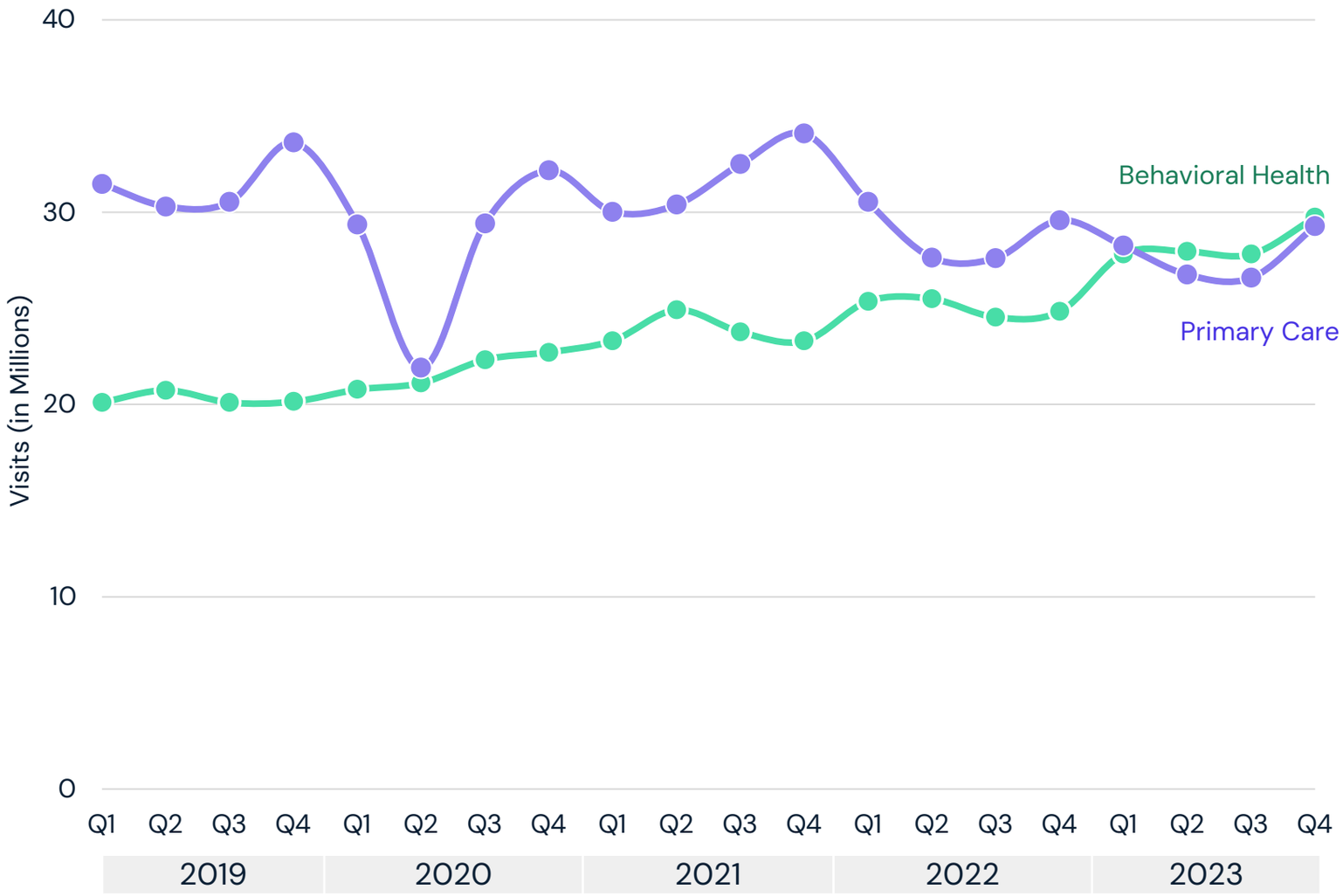
Primary Care Volume Was Down in 2022 and 2023 After 2021 Uptick

From 2019 to 2023, primary care volume declined (-12.0%), while behavioral health volume increased (+39.8%). The reduction in preventive care compounded by the increase in behavioral health demand and constrained provider supply will likely result in greater morbidity and mortality, as already evidenced by increasing mortality.

Primary Care and Behavioral Health Visits, Q1 2019-Q4 2023



Primary Care Percent Change	
2019 to 2023	**-12.0%**
2019 to 2020	-10.4%
2020 to 2021	+12.5%
2021 to 2022	-9.2%
2022 to 2023	-3.9%

Behavioral Health Percent Change	
2019 to 2023	**+39.8%**
2019 to 2020	+7.2%
2020 to 2021	+9.6%
2021 to 2022	+5.2%
2022 to 2023	+13.1%

Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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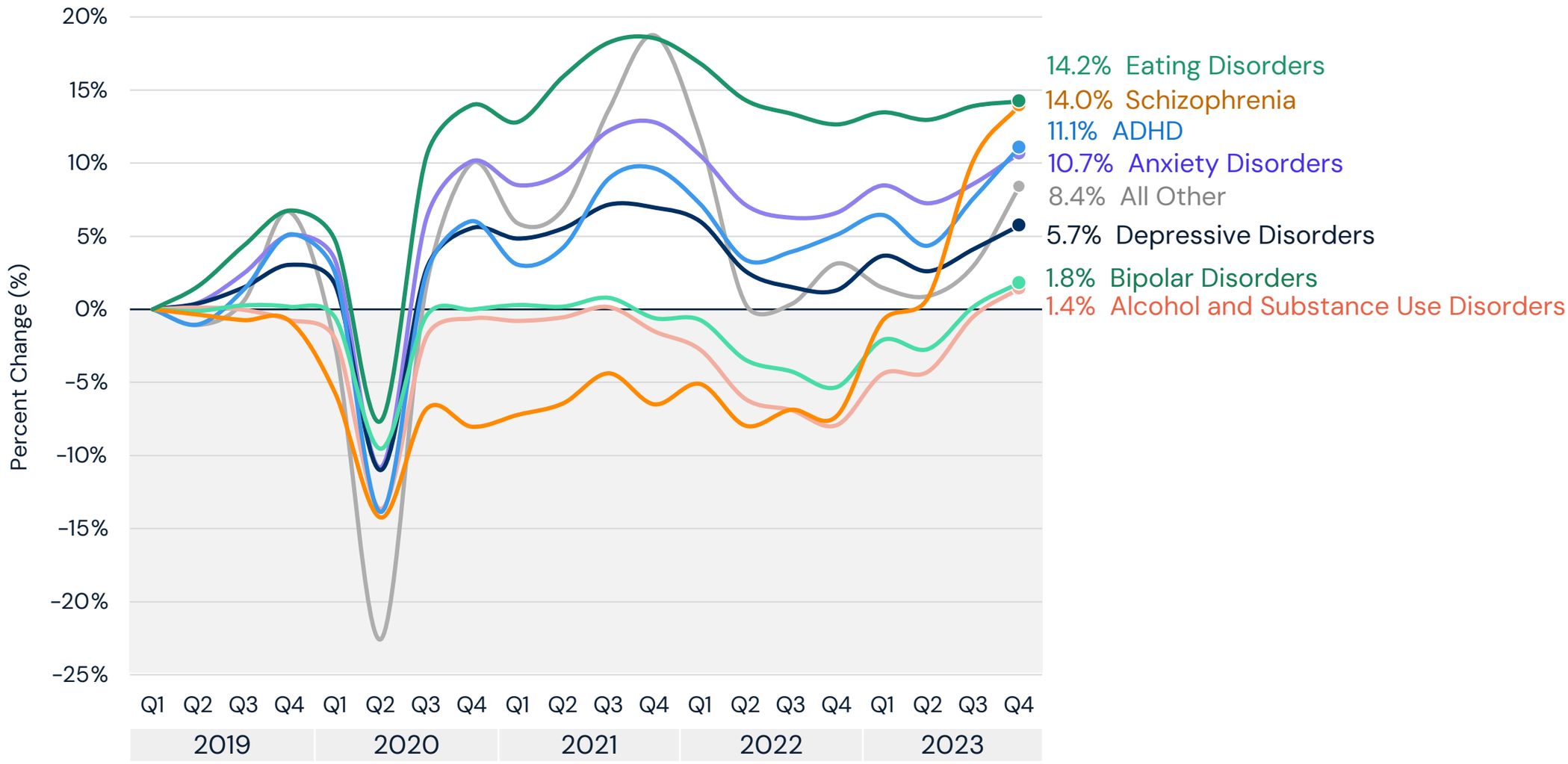
Behavioral Health Demand Varies by Condition, With All Trending Upwards

Q4 2023 patient volume for eating disorders (+14.2%), schizophrenia (+14.0%), ADHD (+11.1%), anxiety disorders (+10.7%), depressive disorders (+5.7%), bipolar disorders (+1.8%) and alcohol and substance use disorders (+1.4%) has consistently trended upwards since Q1 2019, except for a Q2 2020 decline at the COVID-19 pandemic's onset.

Percent Change in Behavioral Health Patient Volume, by Condition, Compared to Q1 2019, Q1 2019-Q4 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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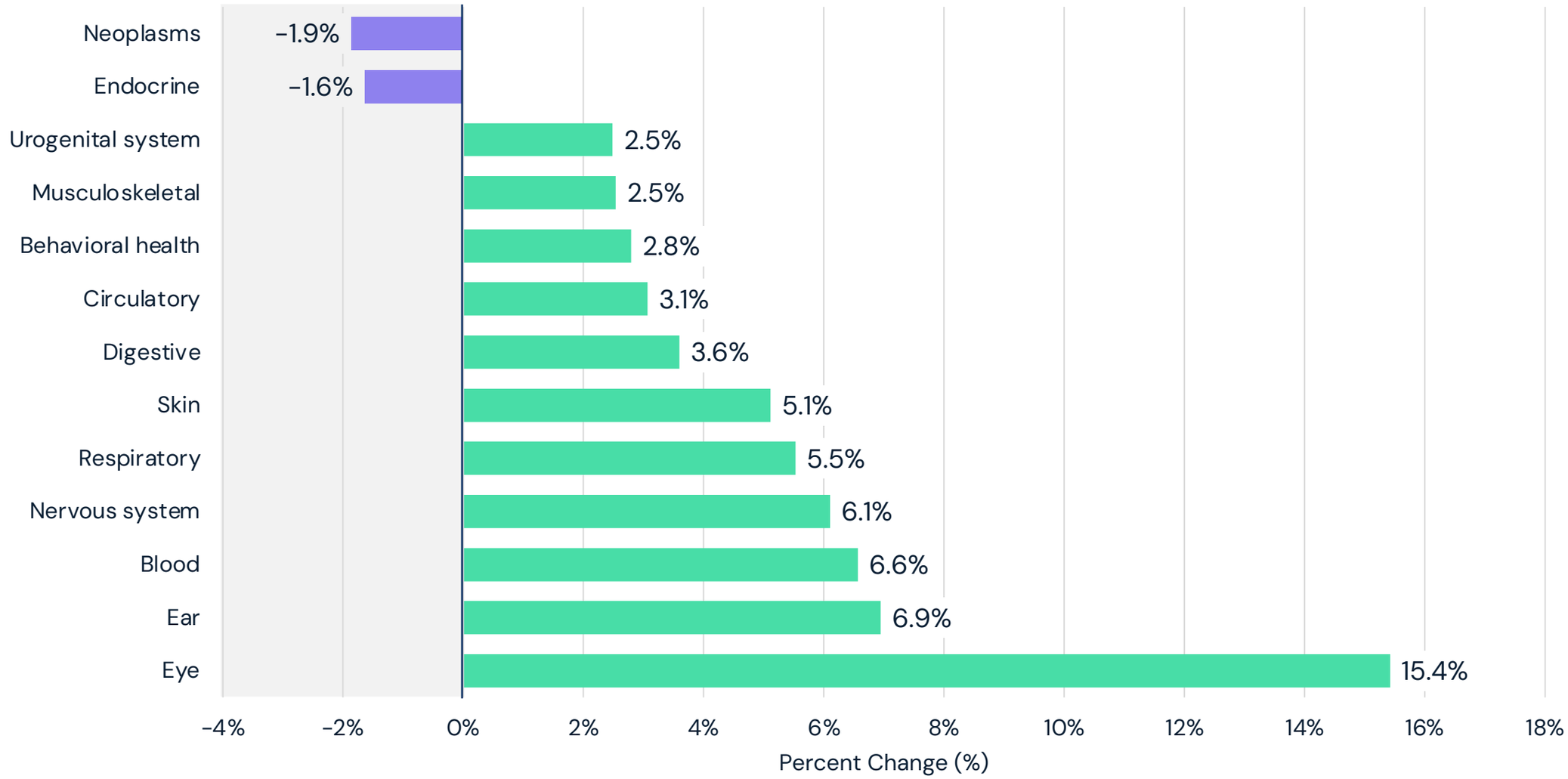
Pediatric Patient Volume Up for Eye, Ear, Blood and Nervous System Disorders

From 2022 to 2023, pediatric patient volume increased most for eye (+15.4%), ear (+6.9%), blood (+6.6%), nervous system (+6.1%) and respiratory system (+5.5%) disorders. Patient volume declined most for neoplasms (–1.9%) and endocrine disorders (–1.6%).

Percent Change in Patient Volume for Select Major Diagnostic Categories, Ages 0-17, 2022 to 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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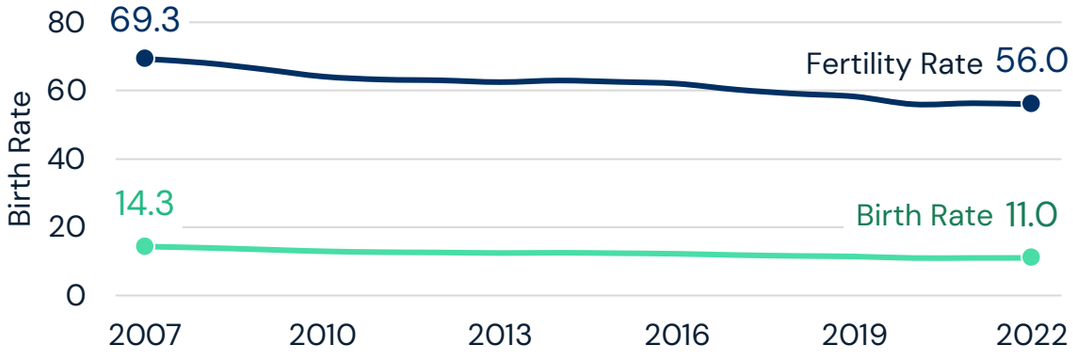
TREND 2: HEALTH STATUS

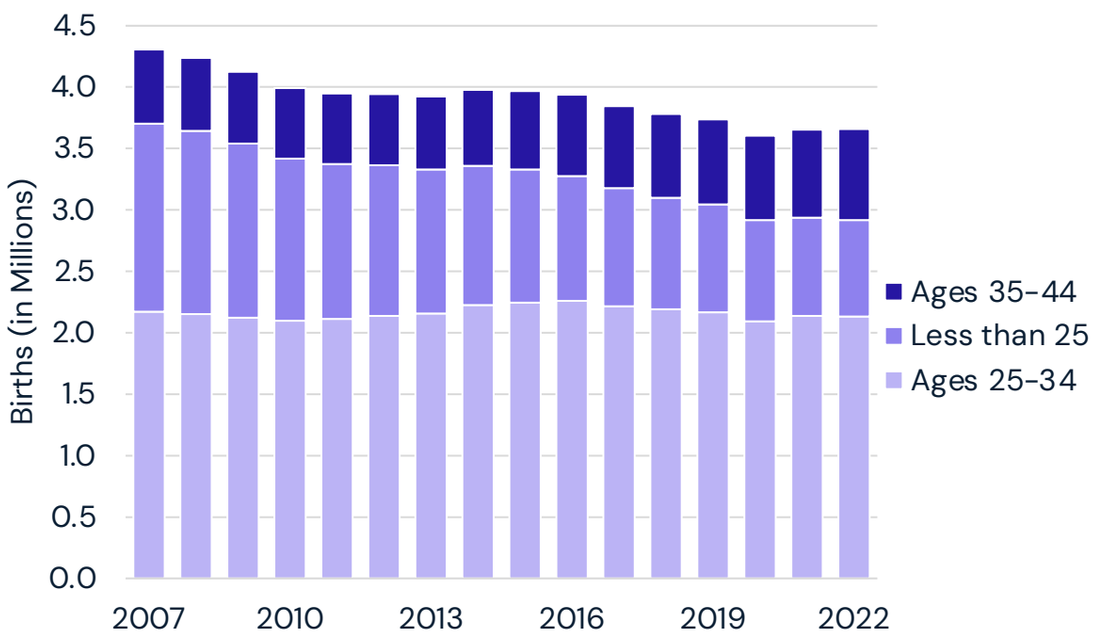
Maternal Age Is Increasing and Proportion of Full-Term Births Is Declining

From 2007 to 2022, the birth rate declined (-23.1%) from 14.3 per 1,000 to 11.0 per 1,000 and the fertility rate declined (-19.2%) from 69.3 per 1,000 to 56.0 per 1,000. During that time, the share of births reaching a full term of 40 weeks declined from 29.9% to 22.7%. Additionally, the number of births by mothers ages 35-44 increased (+22.4%).

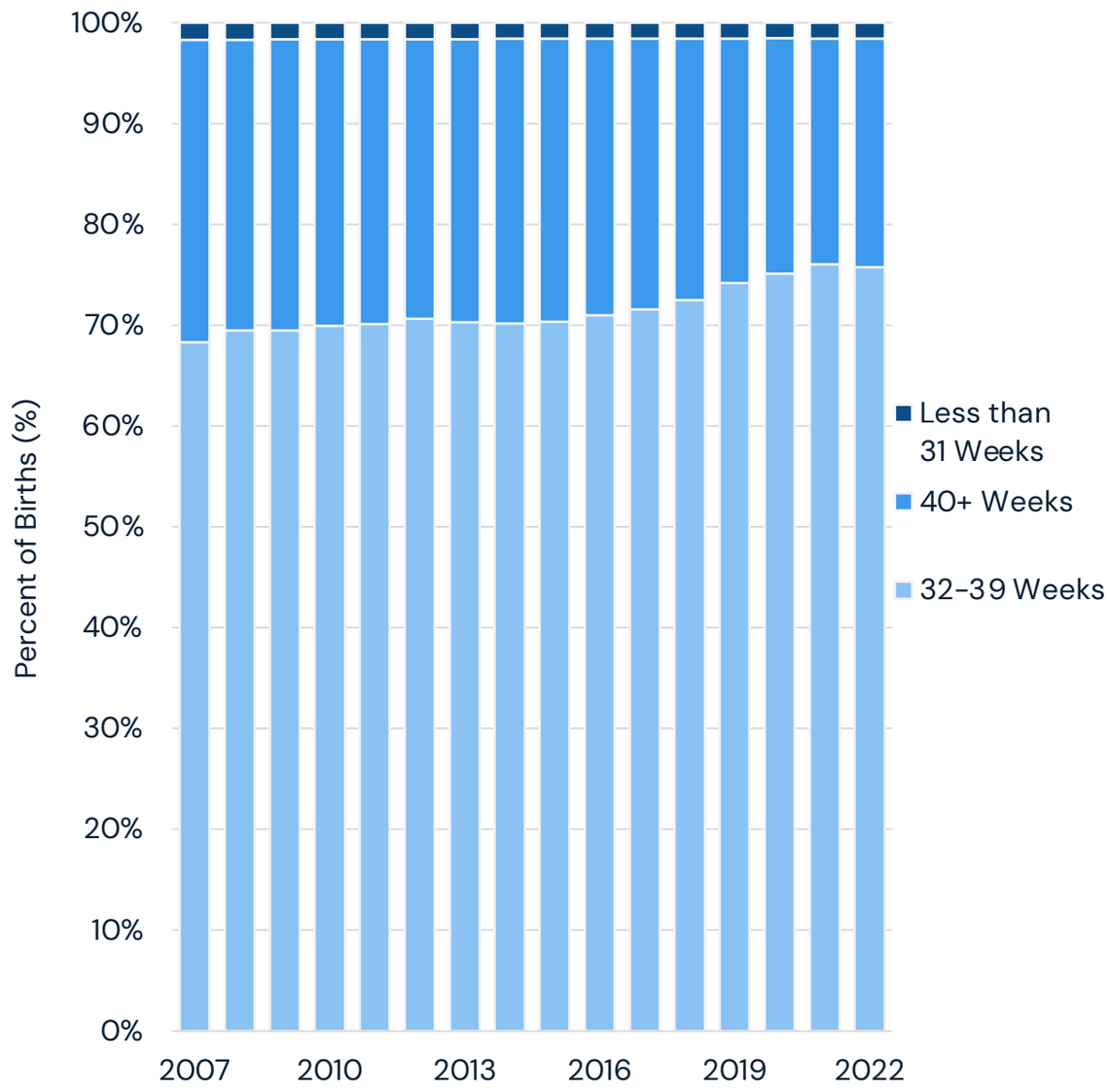
U.S. Birth and Fertility Rate per 1,000 Population, 2007-2022



Number of U.S. Births, by Age of Mother, 2007-2022



Distribution of U.S. Births, by Gestational Age, 2007-2022

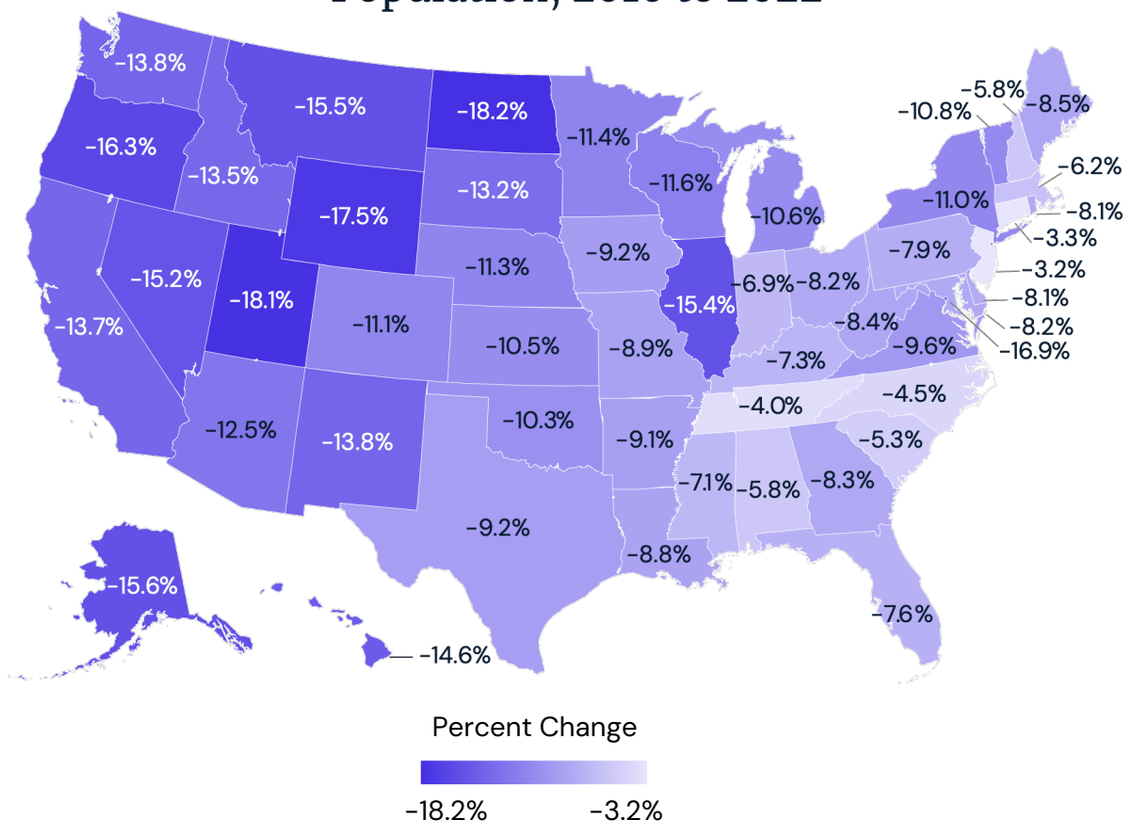


Source: Centers for Disease Control and Prevention WONDER database.

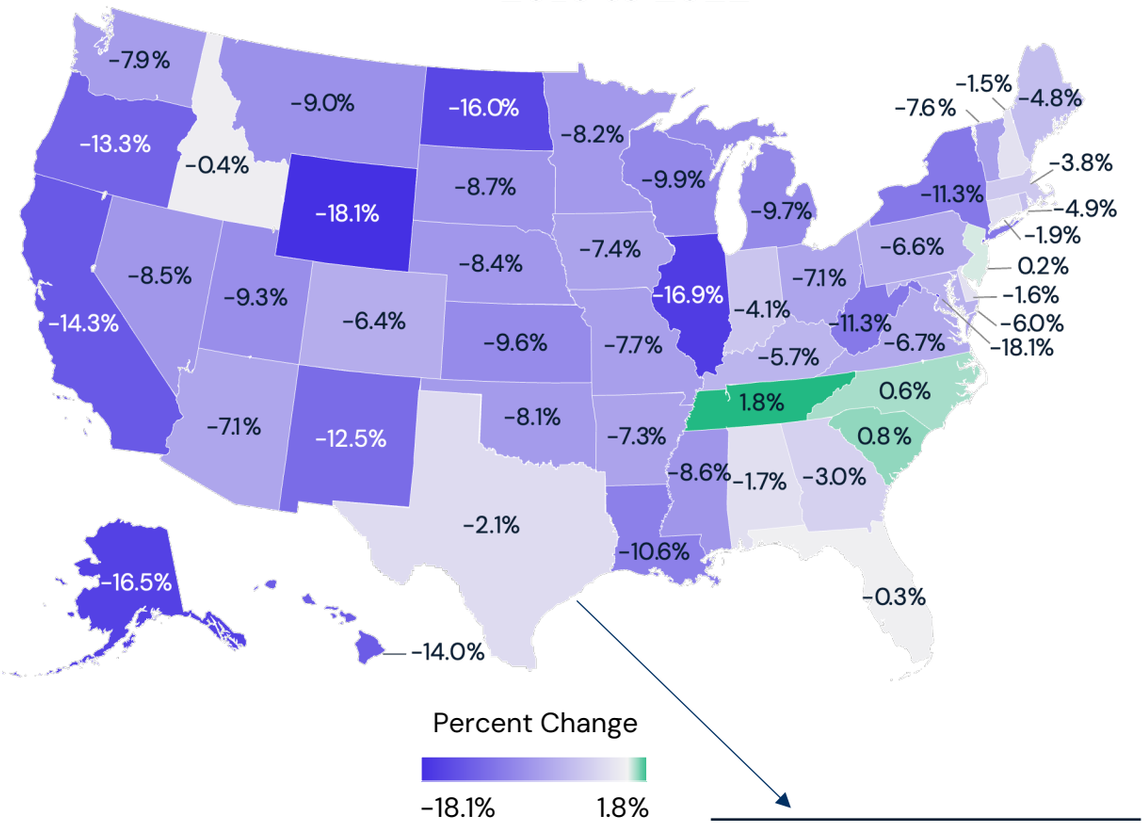
State-Level Birth Rate Declines Range from -18% to -3%

The U.S. birth rate declined in all states from 2016 to 2022. Percent change in birth rate ranges from -18.2% (North Dakota) to -3.2% (New Jersey). Overall births declined from 2016 to 2022 in most states, except Tennessee, South Carolina, North Carolina and New Jersey.

Percent Change in U.S. **Birth Rate** per 1,000 Population, 2016 to 2022



Percent Change in U.S **Number of Births**, 2016 to 2022



% Change in Number of Births in TX, 2016 to 2022

Metropolitan: -1.6%

Non-Metropolitan: -6.7%

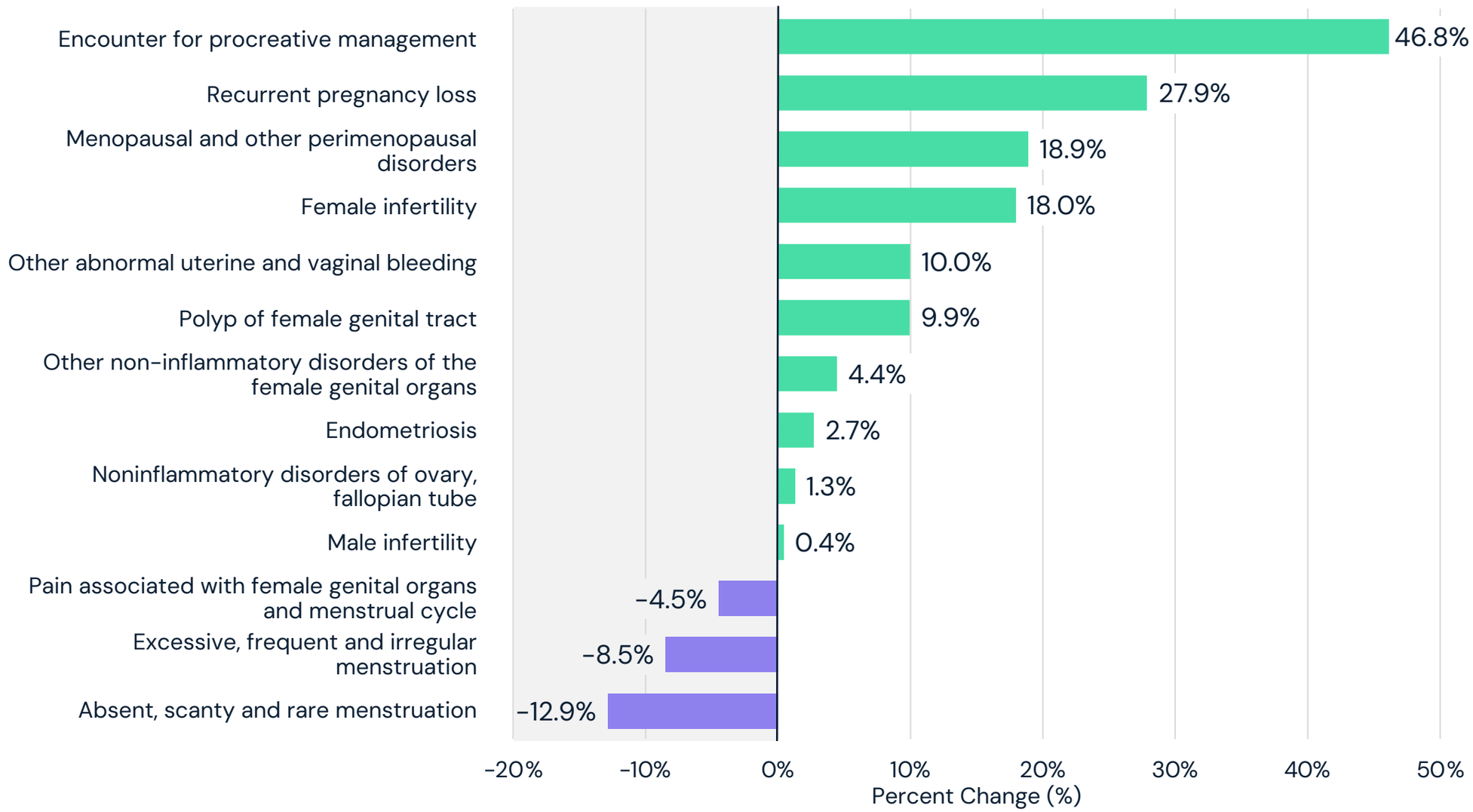
Source: Centers for Disease Control and Prevention WONDER database.

TREND 2: HEALTH STATUS

Patient Volume Has Increased for Select Fertility-Related Care

From Q4 2019 to Q4 2023, patient volume increased for several reproductive health issues, with the greatest increases observed for encounters for procreative management (46.8%), recurrent pregnancy loss (27.9%), menopausal and other perimenopausal disorders (18.9%) and female infertility (18.0%).

Percent Change in Patient Volume for Select Fertility-Related Care, Q4 2019 to Q4 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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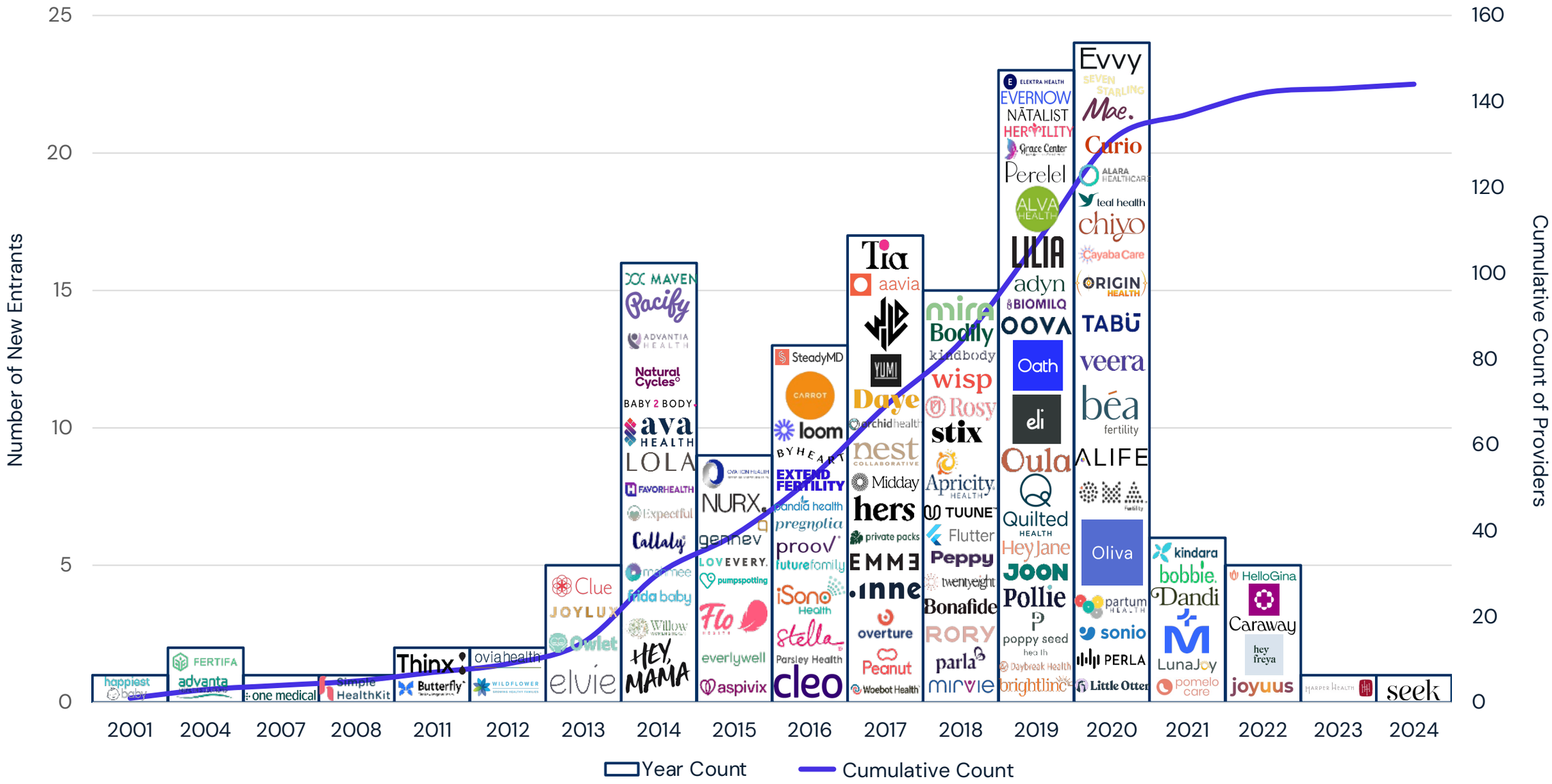
Growth in the Women's Healthcare Market Has Slowed

Between 2014 and 2020, the number of companies offering women's health services grew from 14 to 131. However, investments have slowed since 2020, with fewer than 10 new companies each year. This trend reflects the broader pattern in the traditional provider market, where many OB/GYN services have been reduced or closed amid decreasing demand.

Timeline of Select Suppliers Offering Women's Health Services, 2001-2024

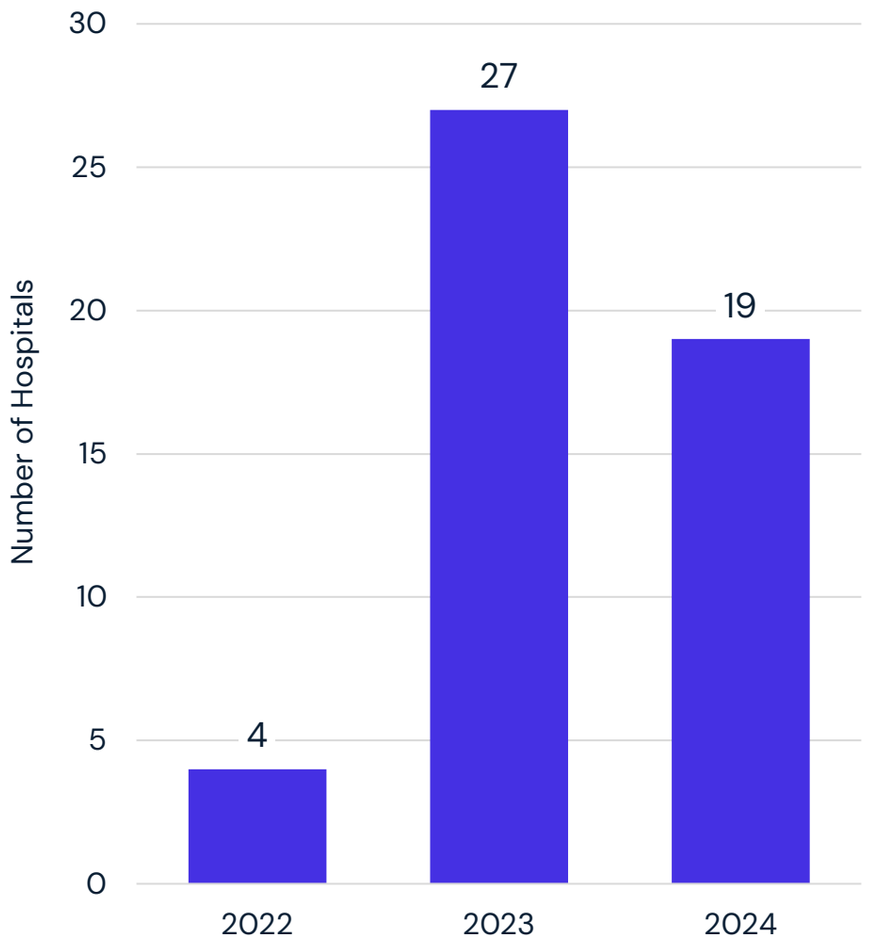


Note: OB/GYN denotes obstetrics and gynecology.
Source: Publicly available company information.

Amid Stagnating Demand, Health Systems Are Shuttering Obstetric Units

As health systems continue to compete for a shrinking number of births, an increasing number have shuttered their obstetric units altogether, with many citing the declining rate of labor and delivery patients. Through the first half of 2024, 19 health systems have announced unit closures.

Select Annual Obstetric Unit Closures, 2022–2024



Select Health Systems Closing OB/GYN Departments in 2024

Source: Becker's Hospital CFO Reports; publicly available news sources.

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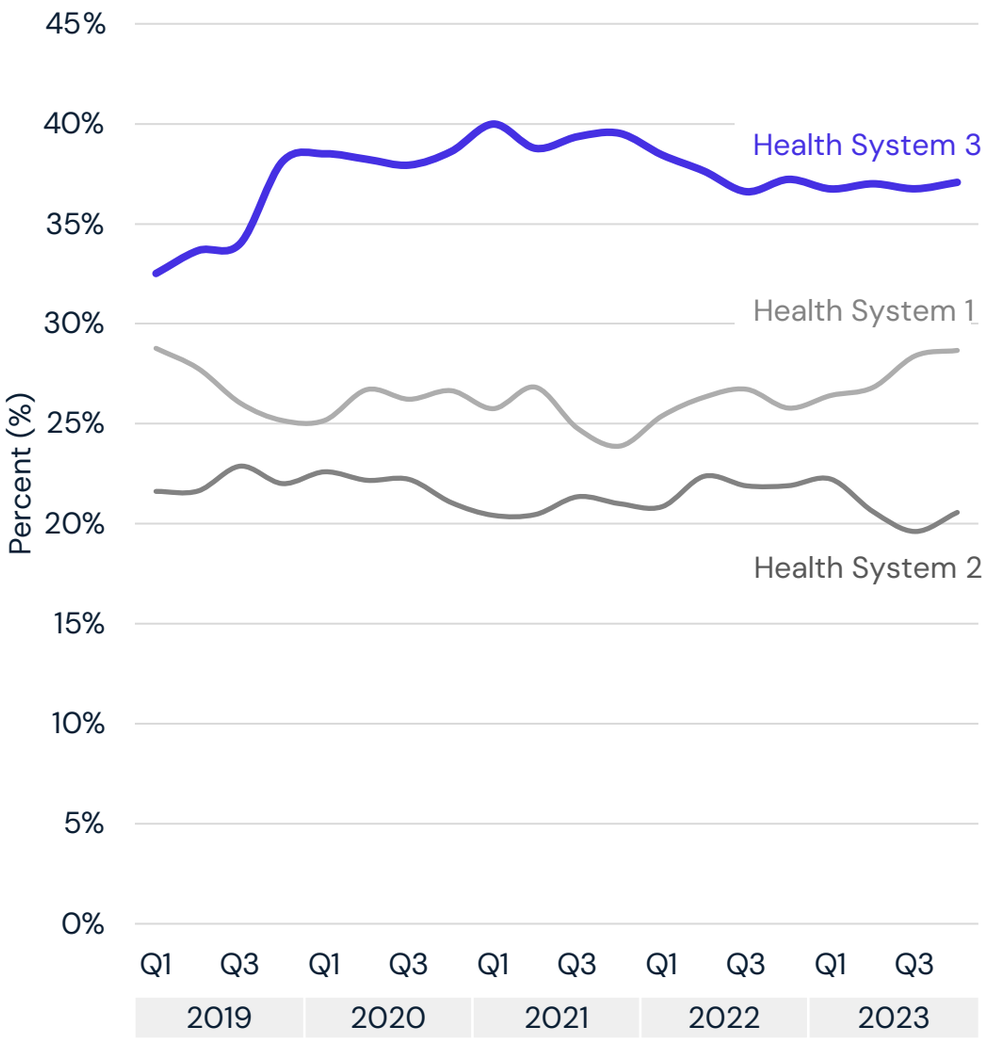
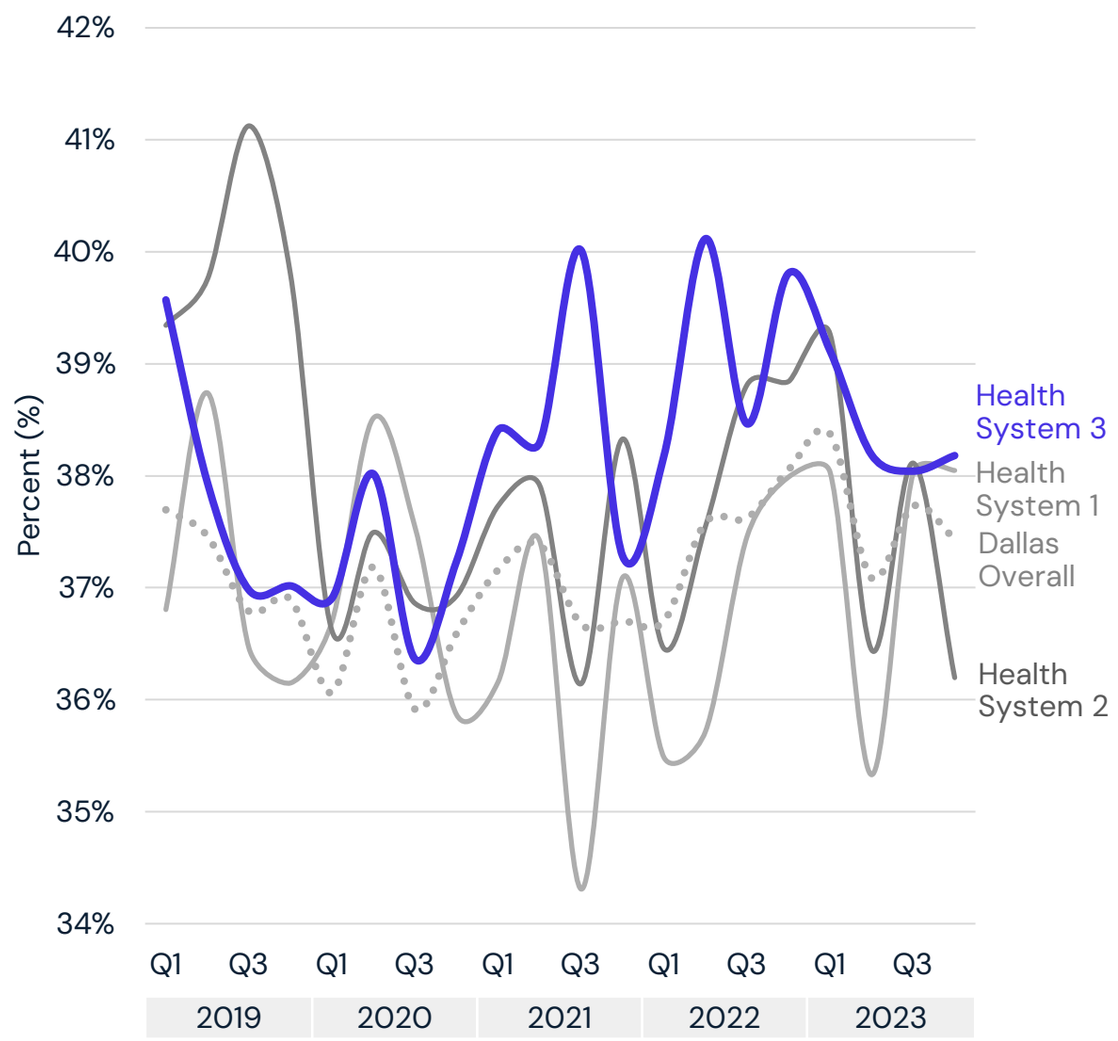
Health Systems Are Competing for a Shrinking Number of Births

Although Dallas has grown by 1M residents since 2016, the number of births declined by 7.8% from 2016 to 2022. Among select health systems, the health system with the largest share of births ("Health System 3") between 2019 and 2023 also had a higher-than-average percentage of births via Cesarean section (38.2%) compared to the other health systems and Dallas overall (37.2%).

Percent of Births Captured by Select Health Systems in Dallas-Fort Worth-Arlington, TX, Q1 2019-Q4 2023



Percent of Cesarean Section Births, Select Health Systems in Dallas-Fort Worth-Arlington, TX, Q1 2019-Q4 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database and Provider Directory; U.S. Census Bureau.

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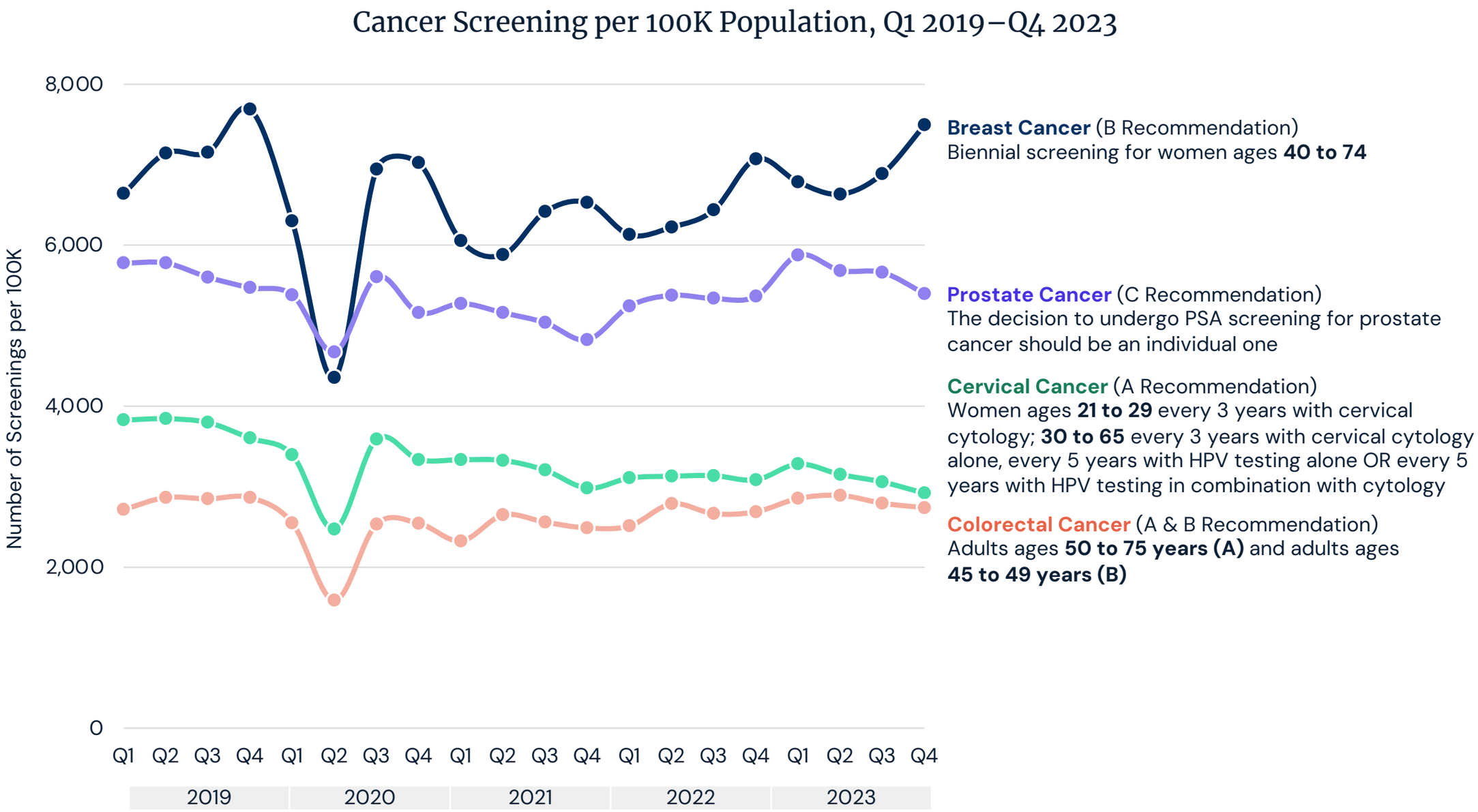
Cancer Screening Rebound Shows Heterogeneity

The COVID-19 pandemic disrupted cancer screening and diagnosis. The observed rebound in cancer screening varies by cancer type, with breast cancer screening approaching pre-COVID levels as of Q4 2023 and cervical cancer screening slowly, but consistently, decreasing over time. Notably, rates of prostate cancer screening remain high, despite a "C Recommendation" from the USPSTF.



Note: Analysis is limited to commercially insured patients. USPSTF denotes United States Preventive Services Task Force.
Source: Trilliant Health national all-payer claims database.

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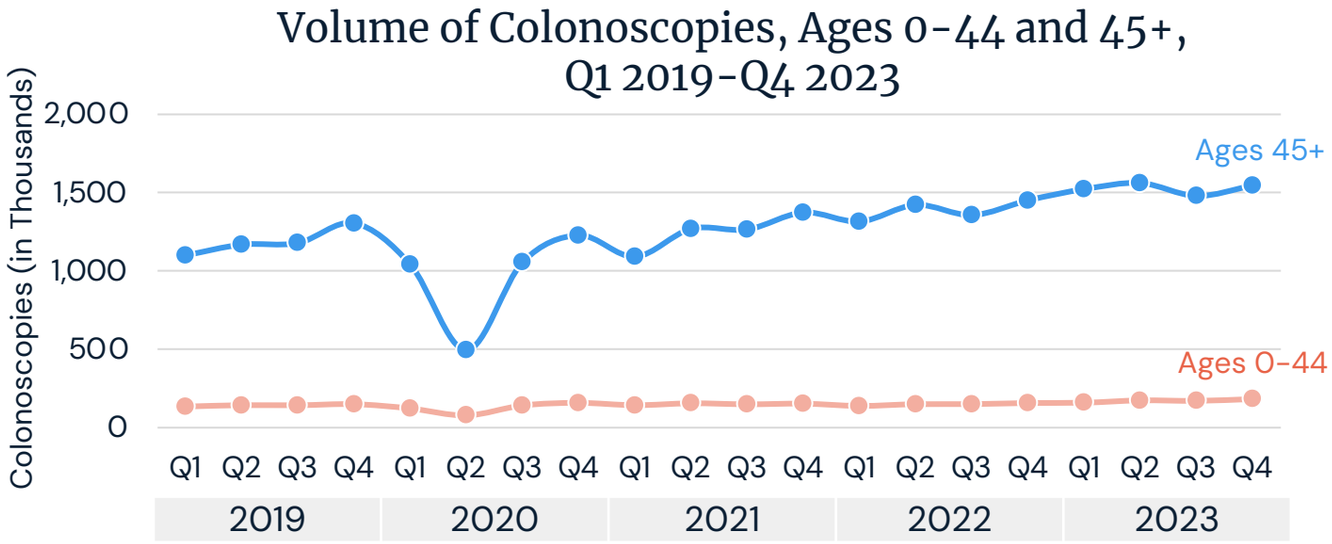
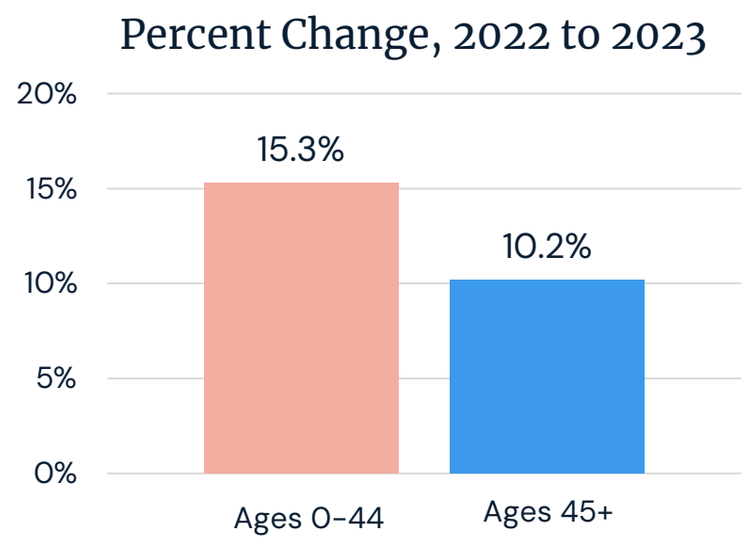
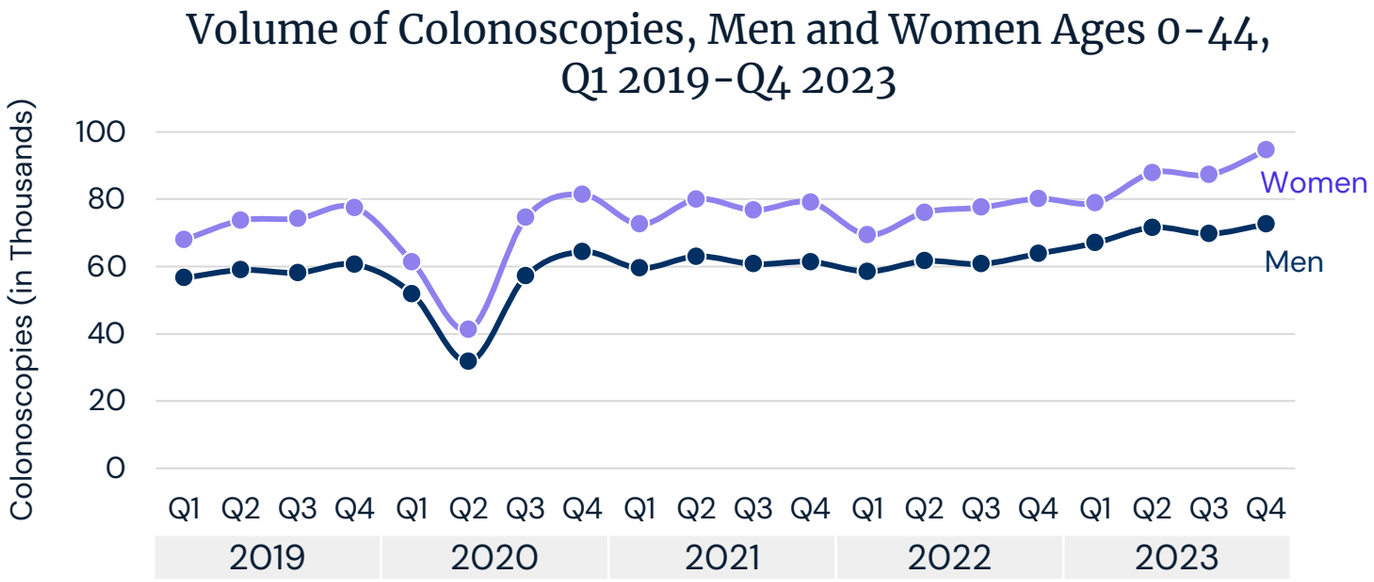
TREND 2: HEALTH STATUS

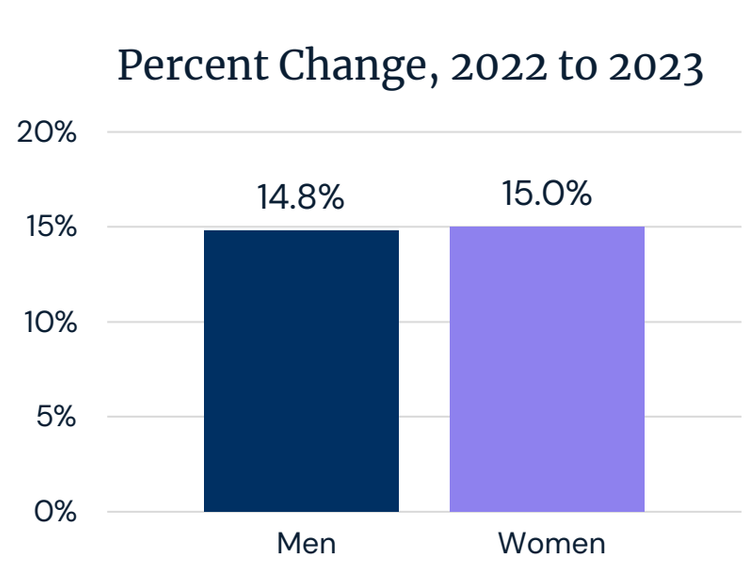
Colonoscopies Are Increasing Among Younger Americans

Overall colonoscopy volume has been growing since the COVID-19 pandemic, with a notable increase among those under age 45 (+15.3%) from 2022 to 2023, compared to a 10.2% increase for those ages 45 and older. This rise in younger patients may be attributed to an increase in colorectal cancer screenings or a higher prevalence of gastrointestinal conditions.









Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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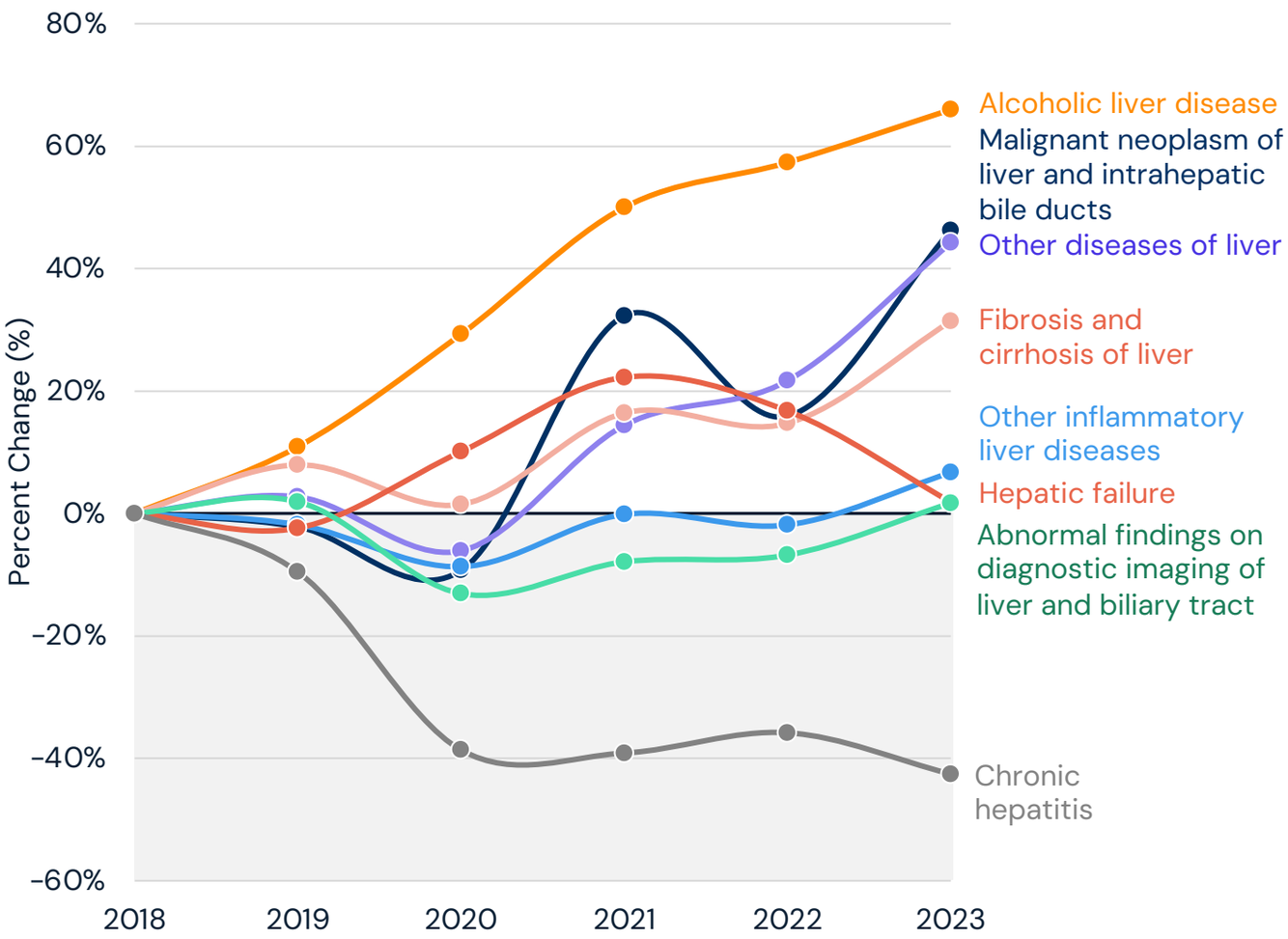
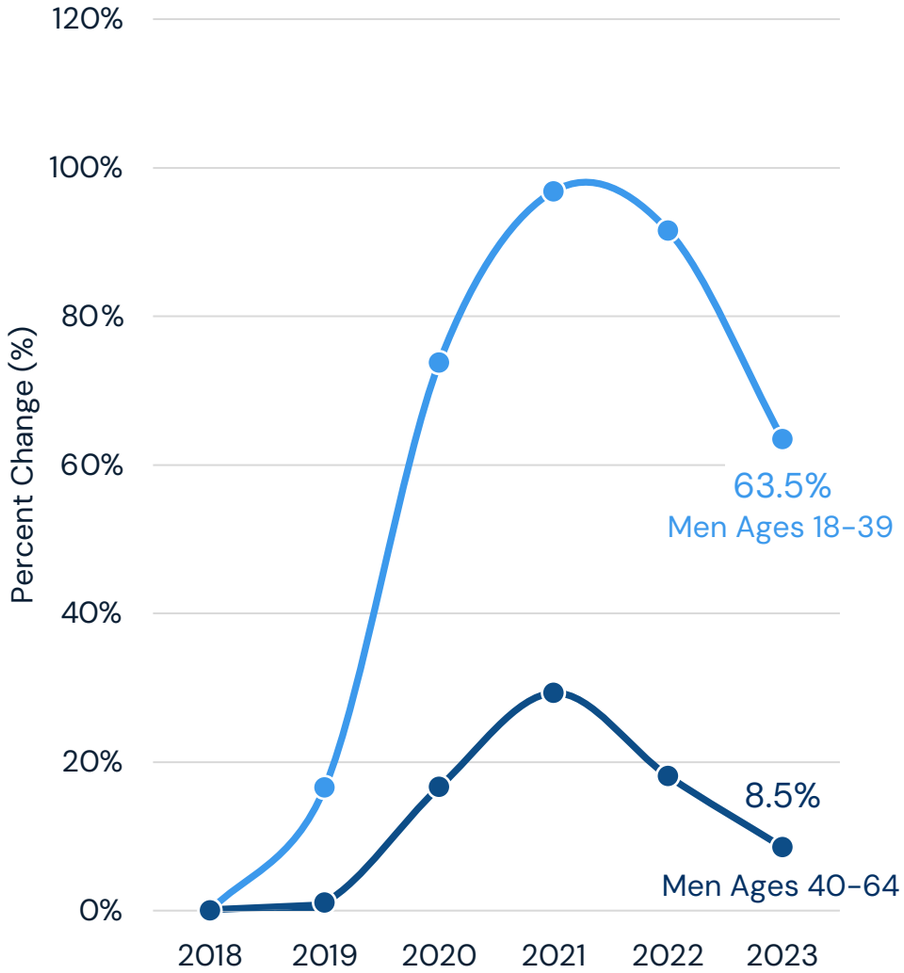
Liver-Related Utilization and Mortality Among Men 18-39 Are Growing

Mortality from liver disease and cirrhosis among men ages 18-39 and 40-64 has generally increased since 2018, but the rate of change is higher in younger men. Visits for alcoholic liver disease showed a substantial increase of 66.0% from 2018 to 2023.

Percent Change in Visits for Select Liver Conditions Compared to 2018, Men Ages 18-39, 2018-2023



Mortality From Liver Disease and Cirrhosis, Percent Change from 2018, Men Ages 18-39 and 40-64, 2018-2023



Note: Analysis is limited to commercially insured patients.
Source: Centers for Disease Control and Prevention WONDER database; Trilliant Health national all-payer claims database.

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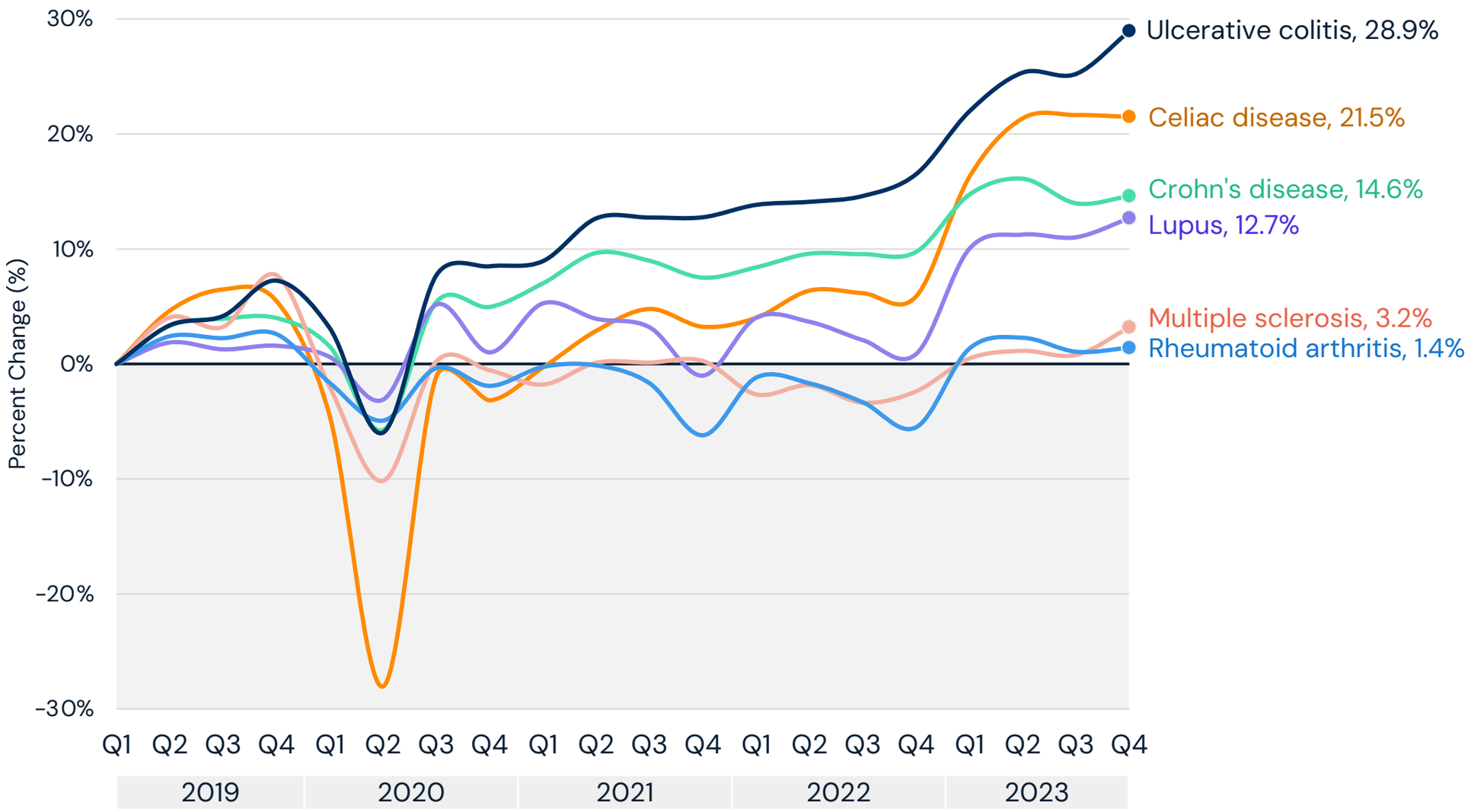
Patient Volume for Certain Autoimmune Diseases Is Rising

Between Q1 2019 and Q4 2023, patient volume for most autoimmune diseases increased, ranging from +1.4% for rheumatoid arthritis to +28.9% for ulcerative colitis. Notably, autoimmune disorders impacting the digestive system (i.e., ulcerative colitis, celiac disease and Crohn's disease) increased the most compared to other autoimmune conditions.

Percent Change in Patient Volume for Select Autoimmune Disorders Compared to Q1 2019, Q1 2019-Q4 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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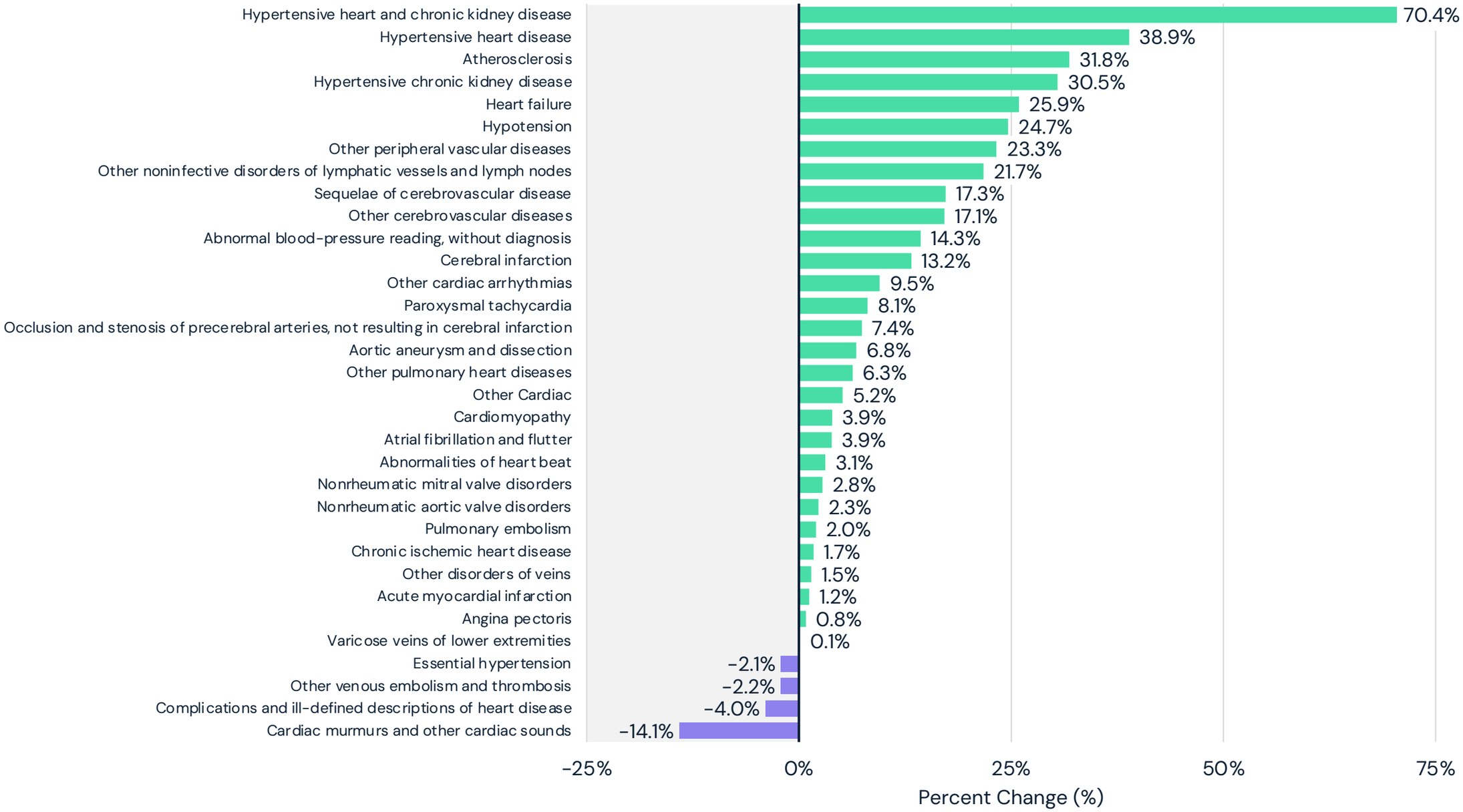
Patient Volume for Most Cardiac Conditions Are Up Relative to 2019

From 2019 to 2023, patient volume for several cardiovascular conditions grew substantially. Chronic kidney disease grew by 70.4%, hypertensive heart disease grew by 38.9% and atherosclerosis grew by 31.8%. These trends reflect a growing burden of these cardiac conditions.

Percent Change in Patient Volume for Select Cardiac Conditions, 2019 to 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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Macro Trend #2

- Healthcare Utilization Patterns Suggest Health Status Will Continue To Decline

COMPASS+ EXCLUSIVE

Micro Trends

- How does all-payer primary care utilization vary by CBSA, sex and age?
- How does all-payer behavioral health utilization vary by CBSA, sex and age?
- How does the Cesarean-section delivery rate vary by CBSA?
- For select health systems, what is their market share capture for births?
- What is the future demand for primary care, behavioral health, orthopedic surgical, heart/vascular surgical and OB/GYN surgical services through 2028?

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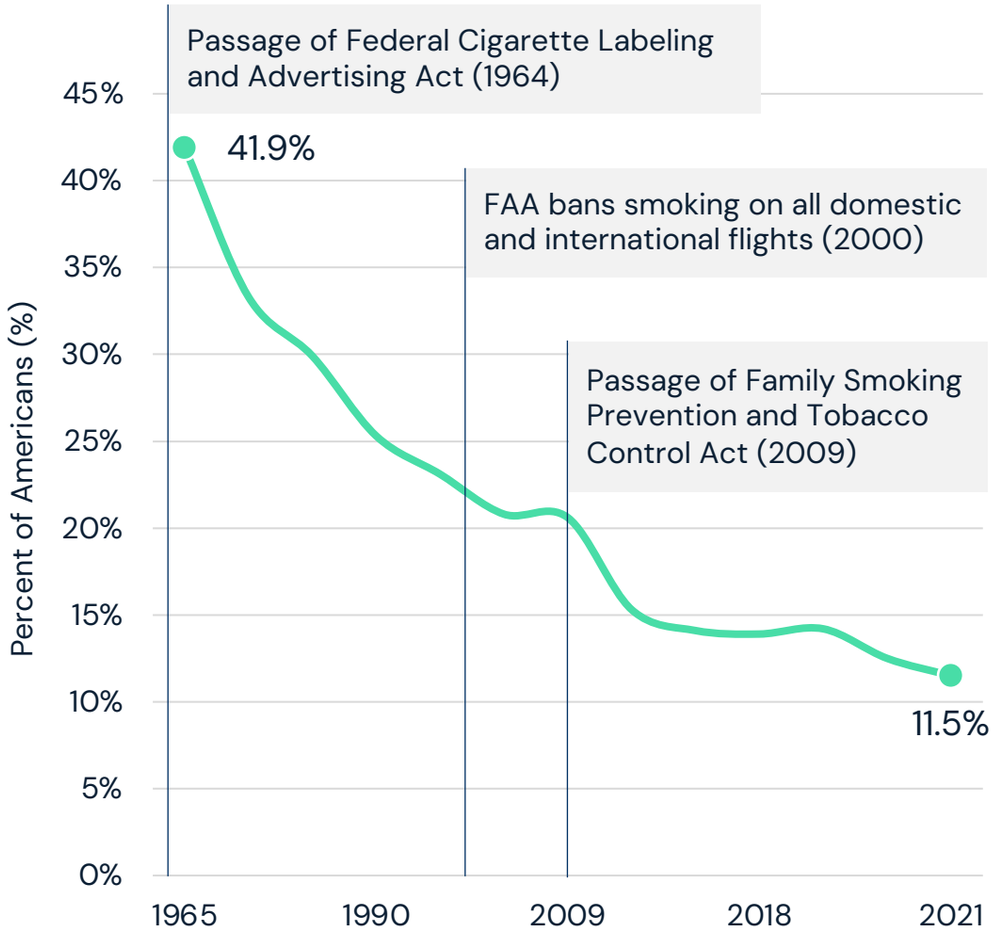
TREND 3

Government Innovation and Regulation Are Failing To Produce Value

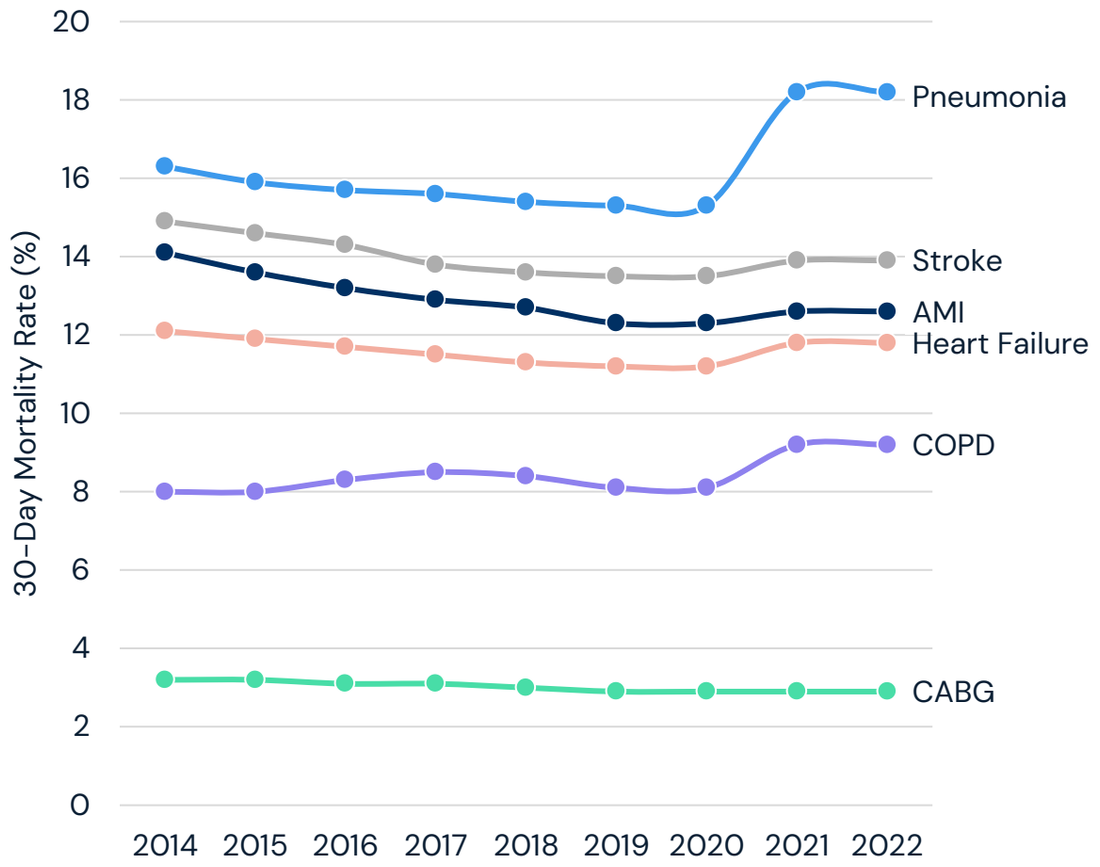
Effective Public Health Regulation Has Focused on Mortality Reduction

Relative to other areas of regulation, public health regulation has been more successful at achieving its aim: improving quality of life. For example, following the passage of legislation to regulate cigarettes, the prevalence of cigarette use decreased by 30.4 percentage points. In contrast, mandated reporting of quality measures has not yielded improvements in mortality relative to the increasing cost of reporting.

Prevalence of Cigarette Smoking Among U.S. Adults, Select Years 1965-2021



National Average Hospital 30-Day Mortality Rate for Select Conditions, 2014-2022



Note: FAA denotes Federal Aviation Administration; AMI denotes acute myocardial infarction; COPD denotes chronic obstructive pulmonary disorder; CABG denotes coronary artery bypass graft. The 30-day mortality data reflects the final year of the date of service reported to CMS, rather than the fiscal year associated with payment adjustments. After 2019, per CMS, index admissions for which mortality is measured exclude patients with unreliable demographic data, hospice enrollment in the prior 12 months, discharge against medical advice or a principal/secondary COVID-19 diagnosis (U07.1).
Source: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Environmental Health, National Health and Nutrition Examination Survey; Centers for Disease Control and Prevention National Center for Health Statistics; Centers for Medicare and Medicaid Services QualityNet.

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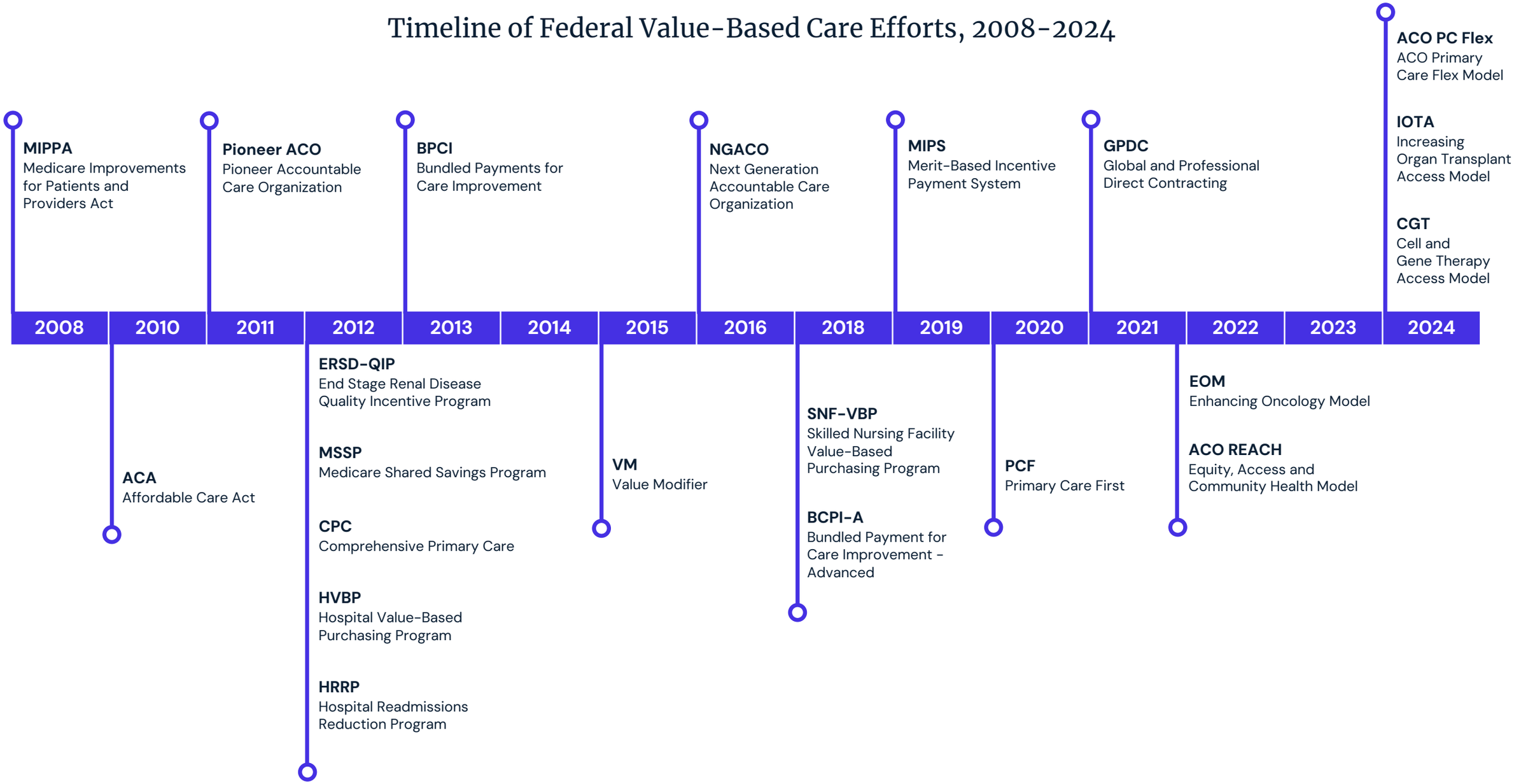
HHS Has Experimented With Value-Based Care for More Than a Decade...

Since its establishment by the ACA in 2010, CMMI has tested numerous VBC models, including ACOs, disease-specific models, episode-based models and prescription drug models. These initiatives have involved over 314K providers and served more than 41.5M Medicare and Medicaid beneficiaries.

Timeline of Federal Value-Based Care Efforts, 2008-2024



Note: HHS denotes U.S. Department of Health and Human Services; CMMI denotes Center for Medicare and Medicaid Innovation; ACA denotes Affordable Care Act; VBC denotes value-based care; ACO denotes accountable care organizations.
Source: Centers for Medicare and Medicaid Services Innovation Center press releases; Centers for Medicare and Medicaid Services Innovation Center 2022 Report to Congress.

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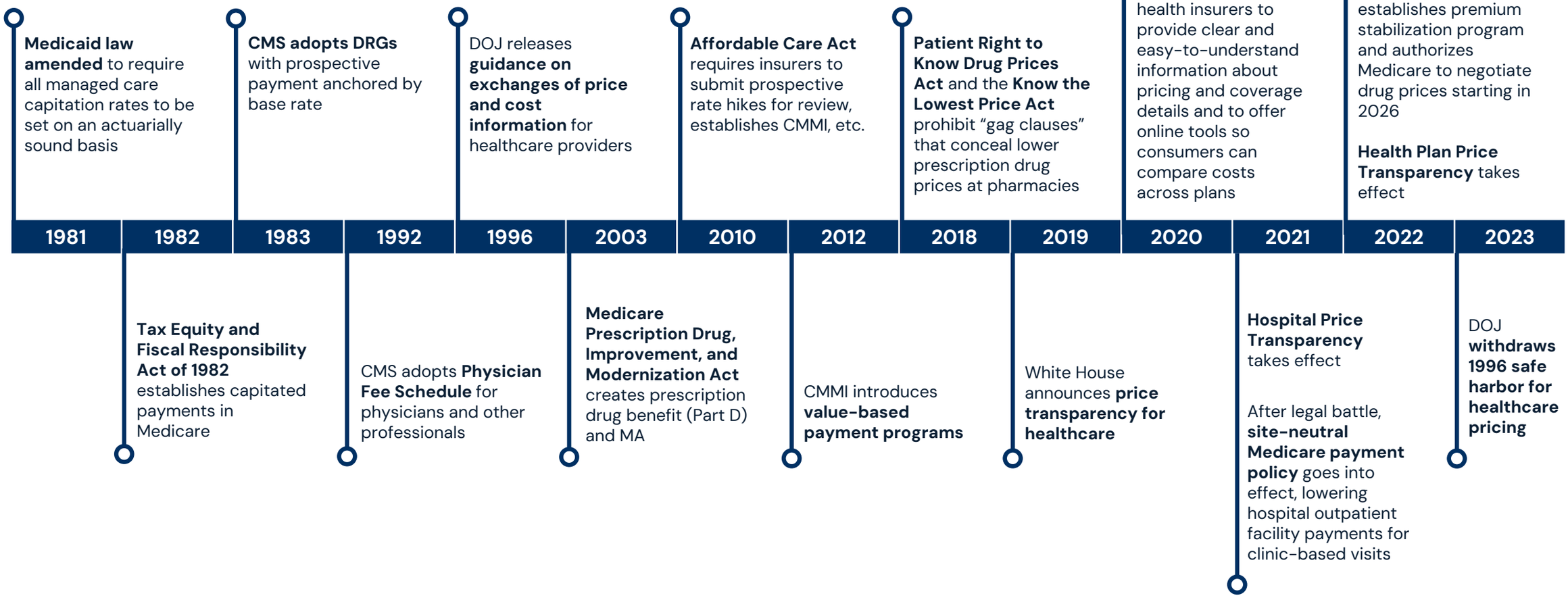
...And With Other Efforts To Constrain Costs...

Since the 1980s, the Federal government has launched various initiatives to balance affordability, quality and consumer choice. Recently, efforts have included mandating price transparency for hospitals and health plans to help consumers "shop" for affordable care. Despite these efforts, the usability of transparency data remains challenging for most stakeholders.

Timeline of Federal Efforts To Lower Healthcare Costs, 1981-2023

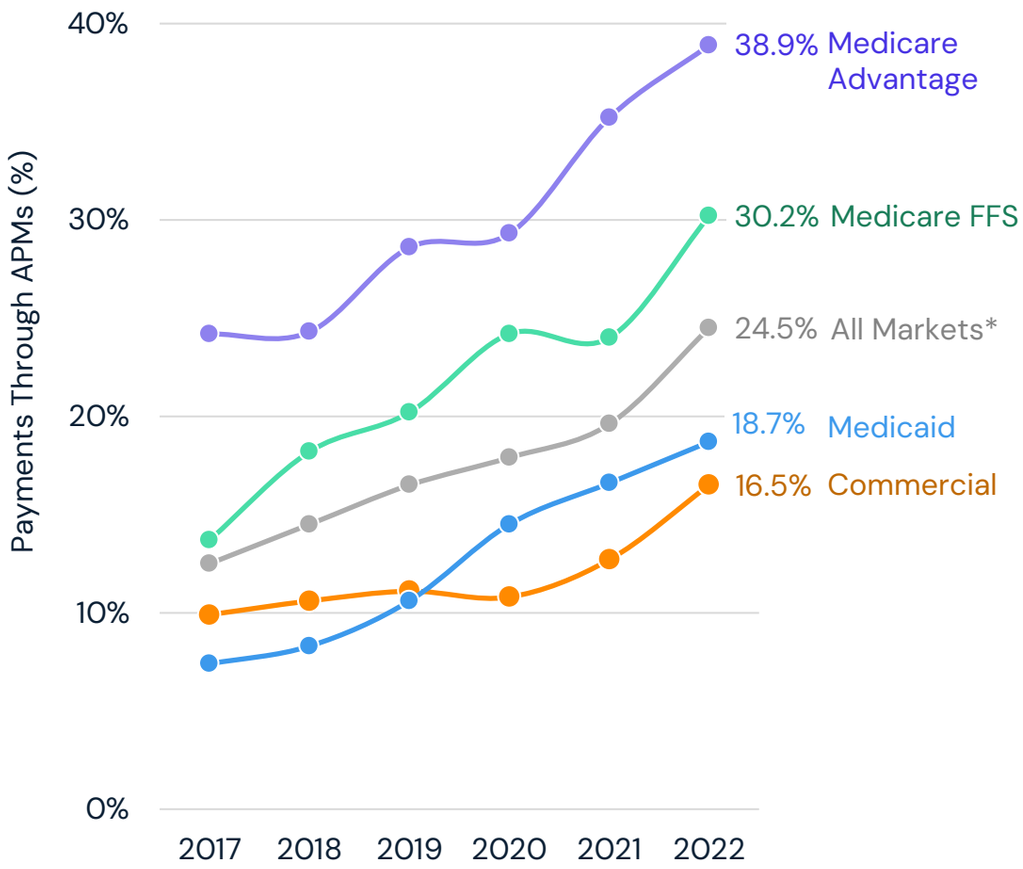


Note: CMS denotes Centers for Medicare and Medicaid Services; DRG denotes Diagnostic Related Group; DOJ denotes Department of Justice; CMMI denotes CMS Innovation Center; MA denotes Medicare Advantage.
Source: Centers for Medicare and Medicaid Services.

...With Limited Reductions in Spending or Improvements in Quality

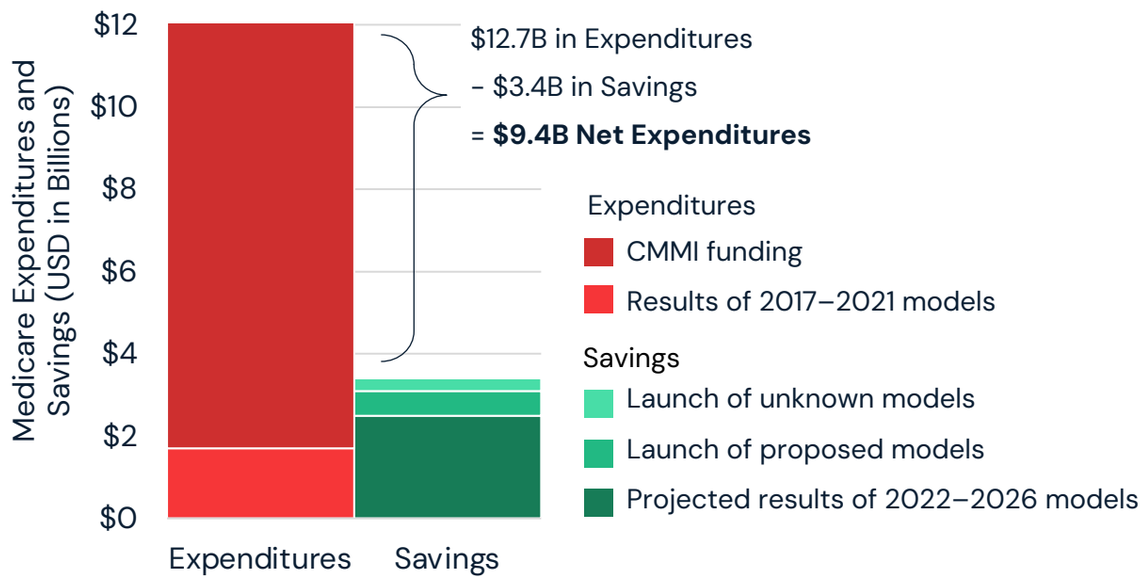
As of 2022, only 24.5% of U.S. healthcare payments flowed through value-based payment models. CMMI models, intended to generate savings, are projected to increase Medicare spending by $9.4B by 2026. Simultaneously, the share of hospitals penalized for not meeting readmission quality standards has remained around 50% since the program's inception in 2012.

Percent of Payments Flowing Through APMs With All Metrics Linked to Quality, 2017-2022

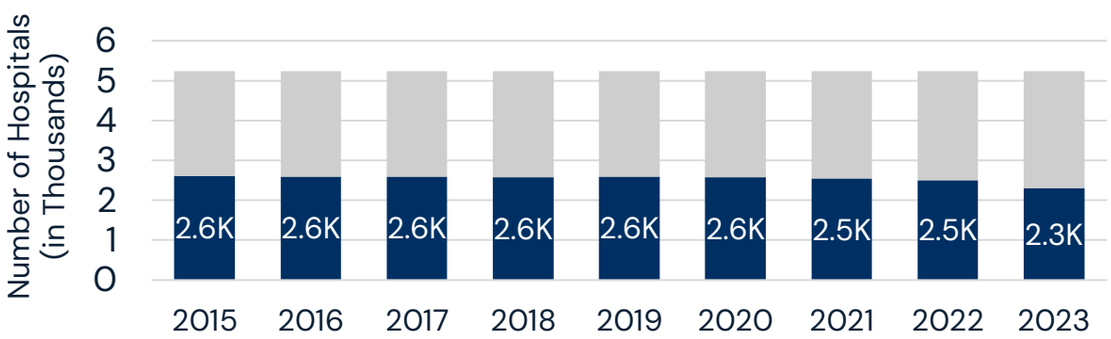


* Medicare Advantage, Medicare FFS, Medicaid, Commercial

Cost Estimate for CMMI Models, 2017-2026



Number of Hospitals Penalized by CMS for High Hospitals Readmissions, 2015-2023



Note: VBC denotes value-based care; FFS denotes fee-for-service; CMS denotes Centers for Medicare and Medicaid Services; CMMI denotes CMS Innovation Center; APM denotes alternative payment model. The Health Care Payment Learning and Action Network categorizes payments into four types: (1) FFS with no link to quality and value, (2) FFS with a link to quality and value, (3) alternative payment models (APM) built on FFS architecture and (4) population-based payments. Within category 3, subcategory A includes APMs with shared savings and subcategory B includes APMs with shared savings and downside risk. Data are inclusive of only categories 3B and 4. This framework was refreshed in 2017, therefore data predating 2017 are not included.
Source: Health Care Payment Learning and Action Network Measurement reports; Avalere 2022 Analysis of CMMI's Financial Impact; Becker's Hospital Review.

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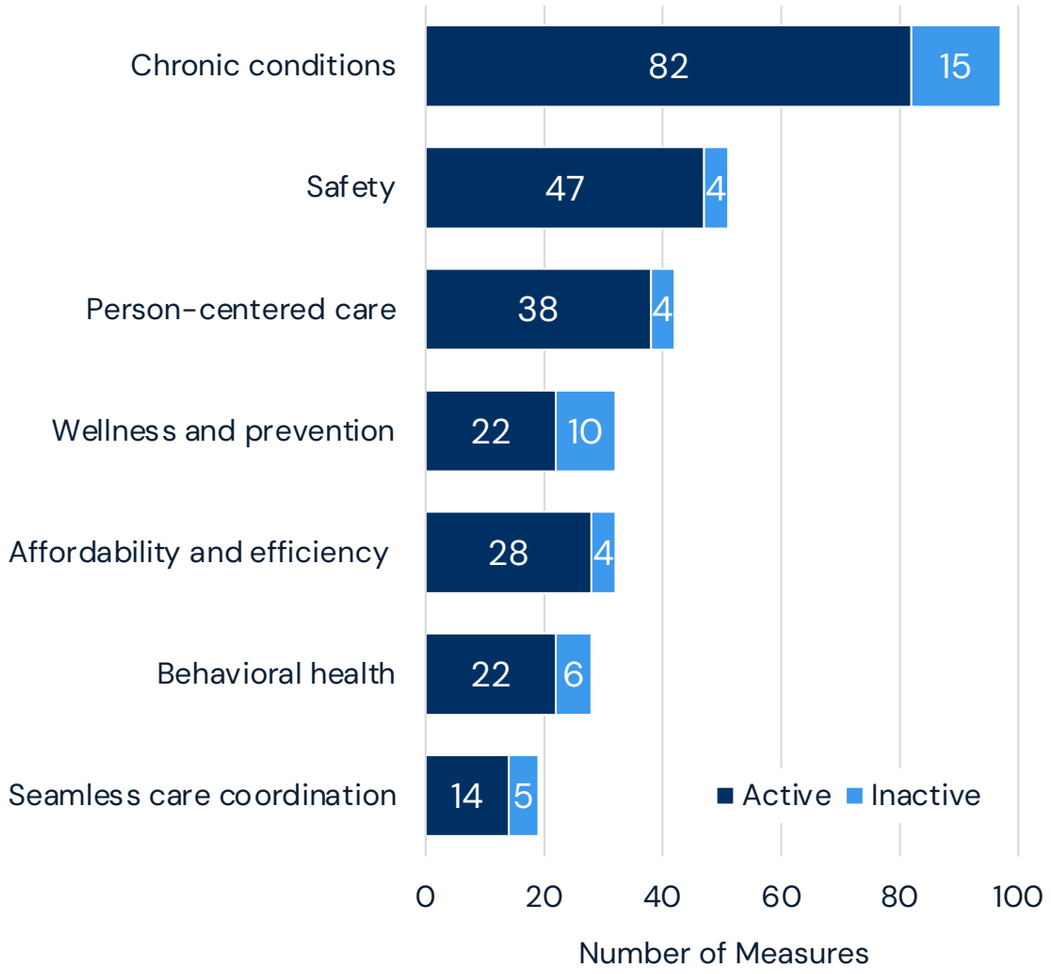
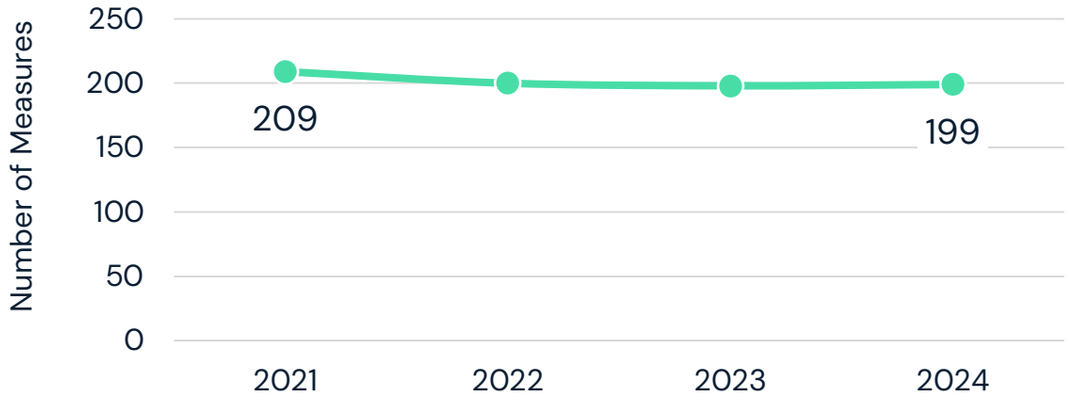
CMS Quality Measurement Burden Remains High...

To reduce reporting burden and improve data accessibility and usability, CMS has decreased the number of active quality measures in MIPS from 209 to 199. Notably, 15.4% of providers did not have a MIPS quality score in 2022.

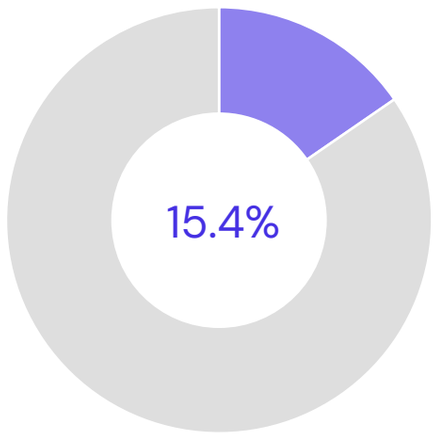
Number of Active and Inactive MIPS Quality Measures, by Measure Type



Number of Active MIPS Quality Measures, 2021-2024



Percent of Providers Without MIPS Scores, 2022



Note: CMS denotes Centers for Medicare and Medicaid Services; MIPS denotes Merit-based Incentive Payment System.
Source: Centers for Medicare and Medicaid Services Measures Inventory Tool; Centers for Medicare and Medicaid Services Quality Payment Program Measures Lists.

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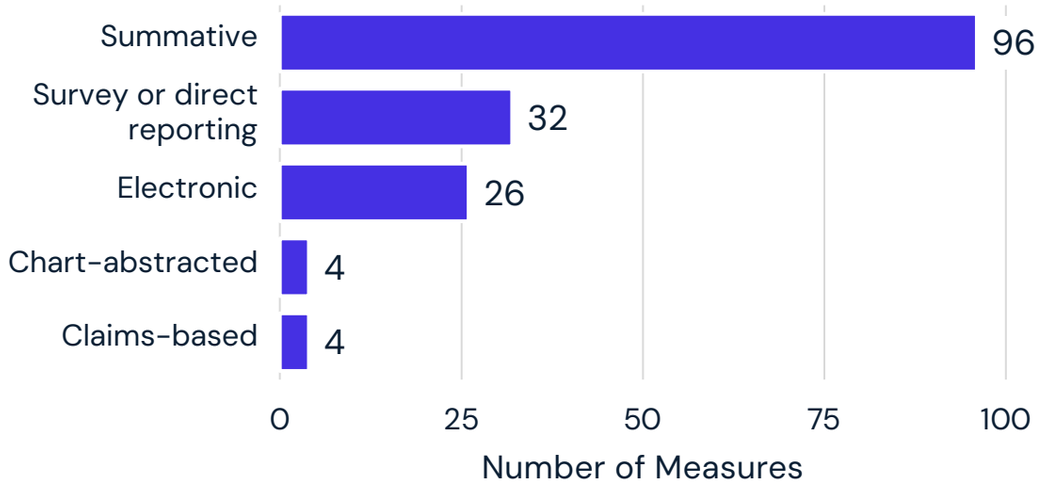
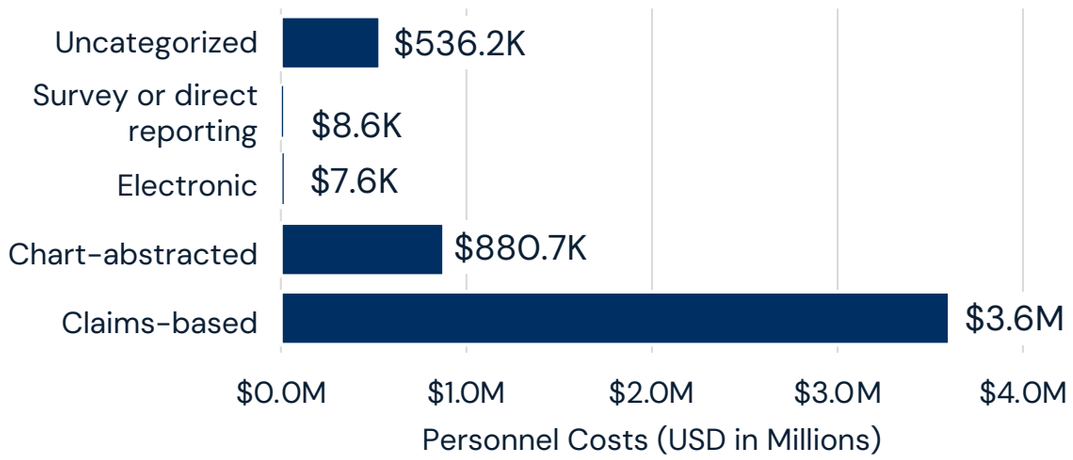
...And Quality Reporting Is Expensive

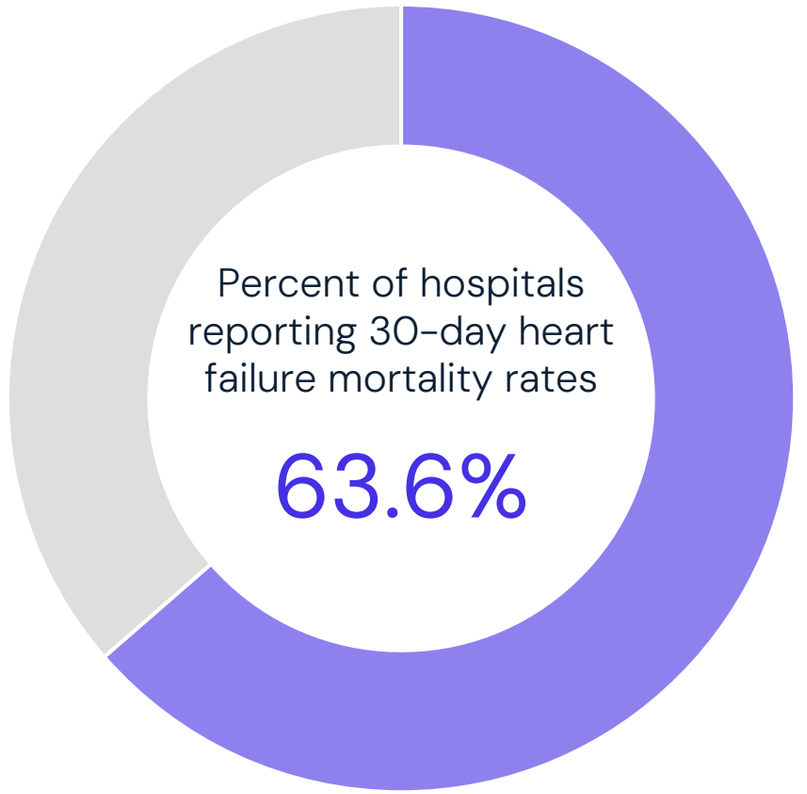
CMS requires hospitals to report data on various quality metrics. One academic medical center spent over $5.5M annually to track 162 measures. This high cost may explain why roughly one-third of hospitals fail to report basic quality metrics. Many efforts to enhance care value, like quality reporting, are not improving quality and are increasing spending.

Number of Quality Measures Reported by a Large Academic Medical Center, 2018



Personnel Cost of Quality Data Reporting by a Large Academic Medical Center, 2018





Note: CMS denotes Centers for Medicare and Medicaid Services.
Source: Saraswathula et al., The Volume and Cost of Quality Metric Reporting, *JAMA Network Open*, 2023; Centers for Medicare and Medicaid Services Quality Net.

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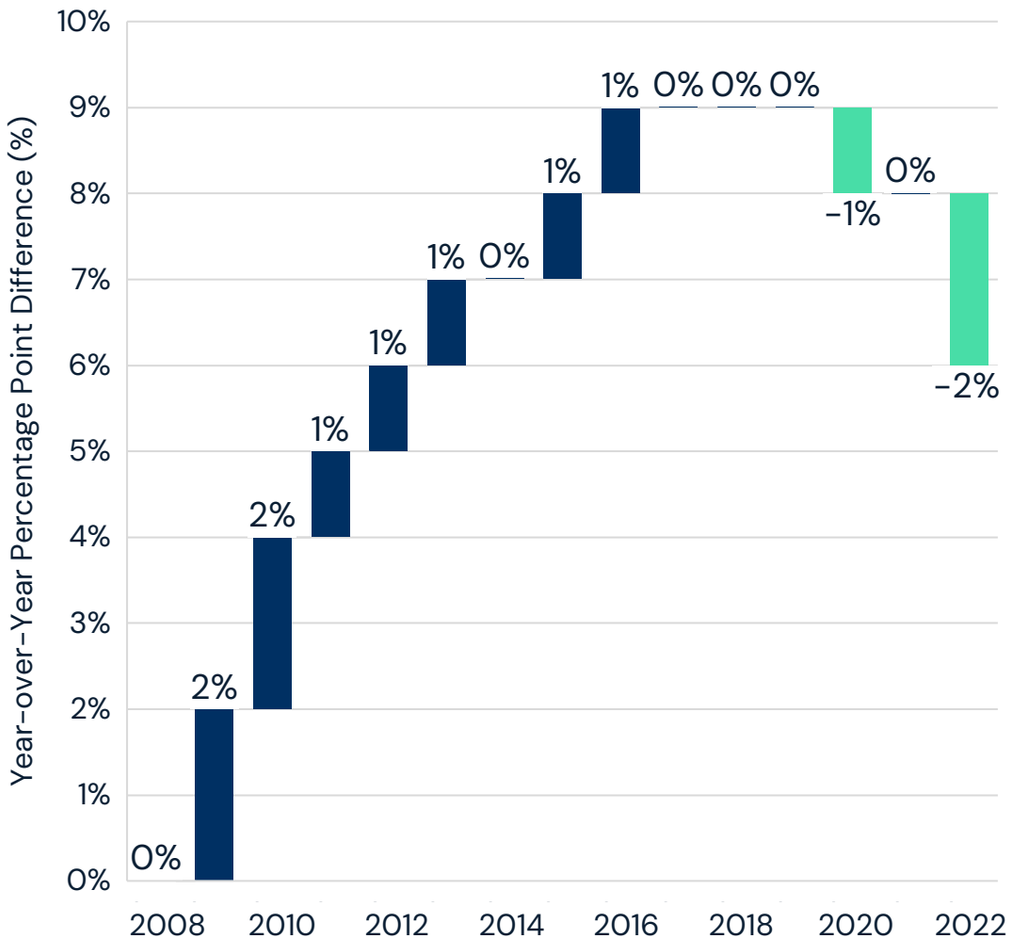
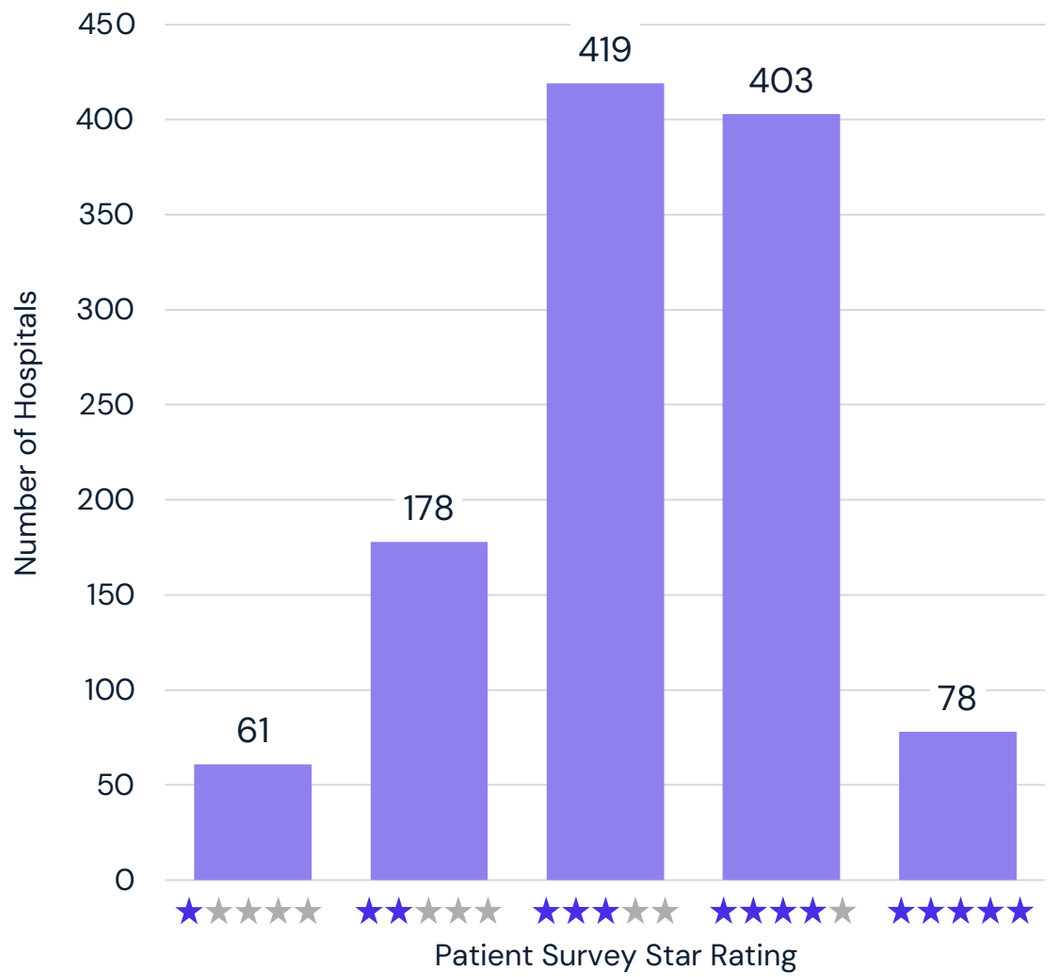
Quality and Patient Satisfaction Measure Distributions Are Narrow

Between 2008 and 2022, the top-line scores for "Overall Hospital Rating" changed by an average of just 0.4 percentage points per year. Generally, quality scores lack variation and change minimally over time.

Percentage Point Difference, Overall Hospital Rating, 2008-2022



Overall Hospital Rating at Select U.S. Hospitals, 2022



Note: HCAHPS denotes Hospital Consumer Assessment of Healthcare Providers and Systems. The HCAHPS measures included are responses to "Overall Hospital Rating" and "Recommend the Hospital." The summary displays the average "top-box" scores for these measures at the national level. The "top-box" scores for these select measures are 9 or 10 for the Overall Hospital Rating item and "Definitely yes" for the Recommend the Hospital item.
Source: Centers for Medicare and Medicaid Services HCAHPS Tables on HCAHPS On-Line.

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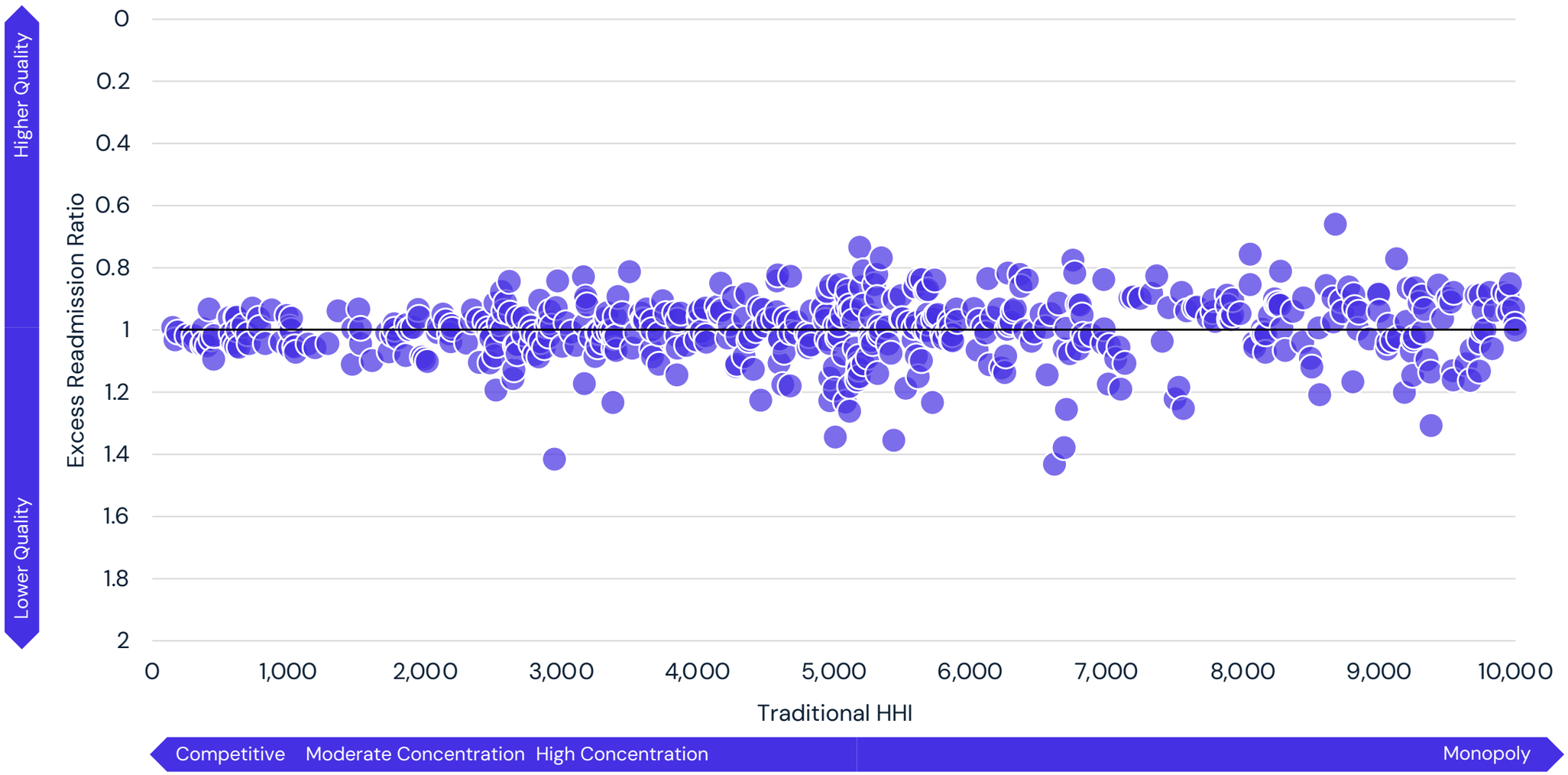
Competition Is Not a Clear Driver of Hospital Quality

Despite a renewed focus on hospital market competition and hospital M&A activity, there is a lack of a relationship between hospital quality, as measured by the hospital excess readmission ratio, and market concentration.

Market Concentration vs. Excess Readmission Ratio at Select U.S. Short-Term Acute Care Hospitals



Note: Traditional HHI refers to the standard measure of market concentration, inclusive only of inpatient settings. Competitive markets are defined as markets with an HHI below 1,500, whereas a monopoly market has an HHI of 10,000; M&A denotes mergers and acquisitions.
Source: Trilliant Health national all-payer claims database; Centers for Medicare and Medicaid Services QualityNet.

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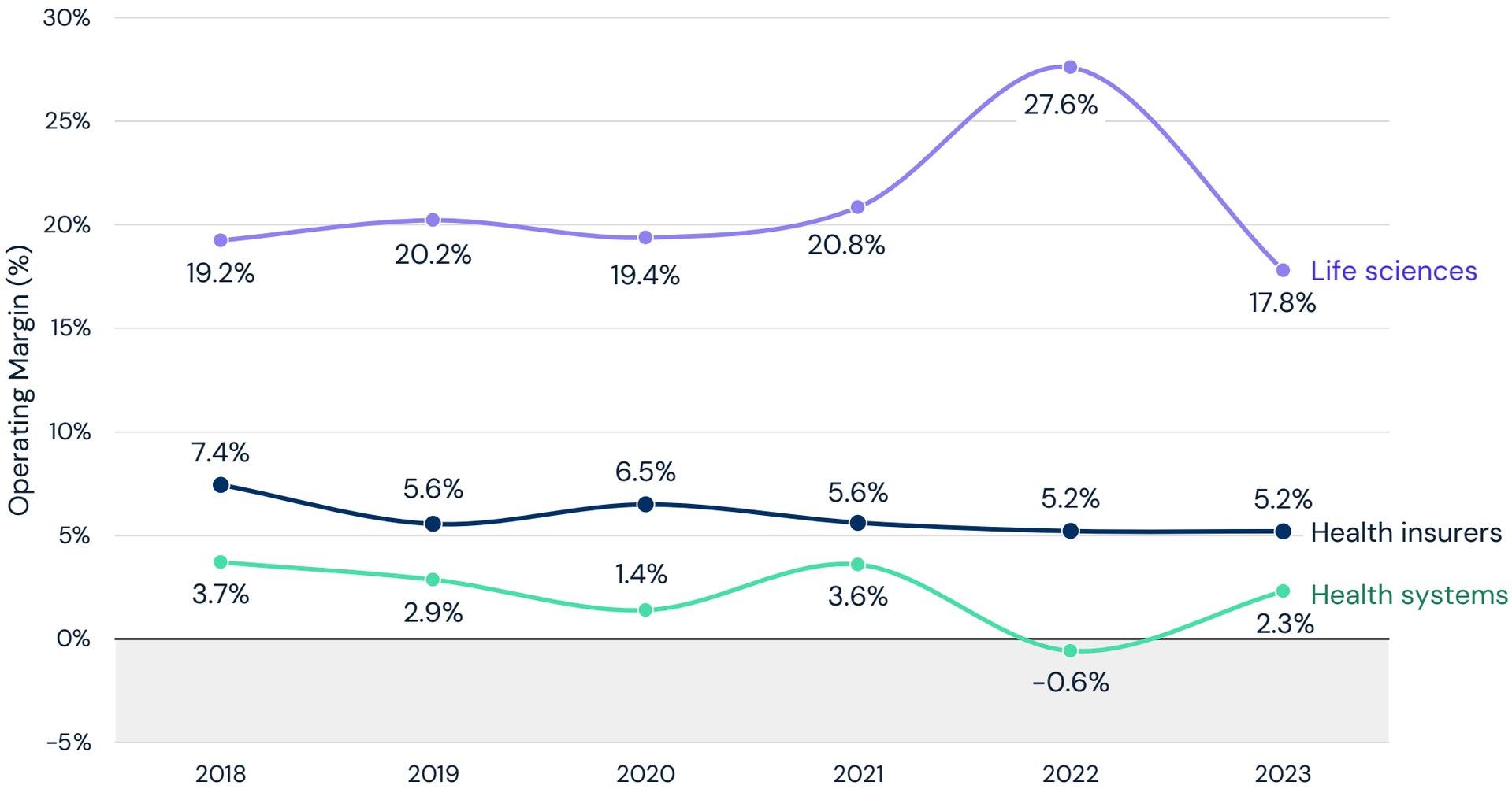
Health System Operating Margins Are Lower Than Payers and Life Sciences

Life sciences experienced an almost 10 percentage point drop in average operating margins from 2022 to 2023, while health insurers remained stable at 5.2% and health systems rebounded from -0.6% in 2022 to 2.3% in 2023. The consistently higher operating margins of life sciences firms are attributable in part to the benefits of patent protection.

Average Operating Margin of Large Life Sciences Companies, Health Insurers and Health Systems, 2018-2023



Note: Health insurers average operating margins were calculated using the average of CVS Health, Elevance Health, UnitedHealthcare, Cigna and Humana operating margins from 2018 to 2023. Health system margins were calculated using data provided by a representative sample of large for-profit, nonprofit, faith-based and government health system financial statements. Life sciences operating margins were calculated using the average of Eli Lilly, Merck, Pfizer and Johnson & Johnson operating margins from 2018 to 2023. The margins are likely to be relatively high given the sample leverages large organizations. Since some health systems have not updated financial statements for 2023, the average 2023 health systems operating margin includes some 2022 financial data.
Source: Publicly available company data; health systems financial statements.

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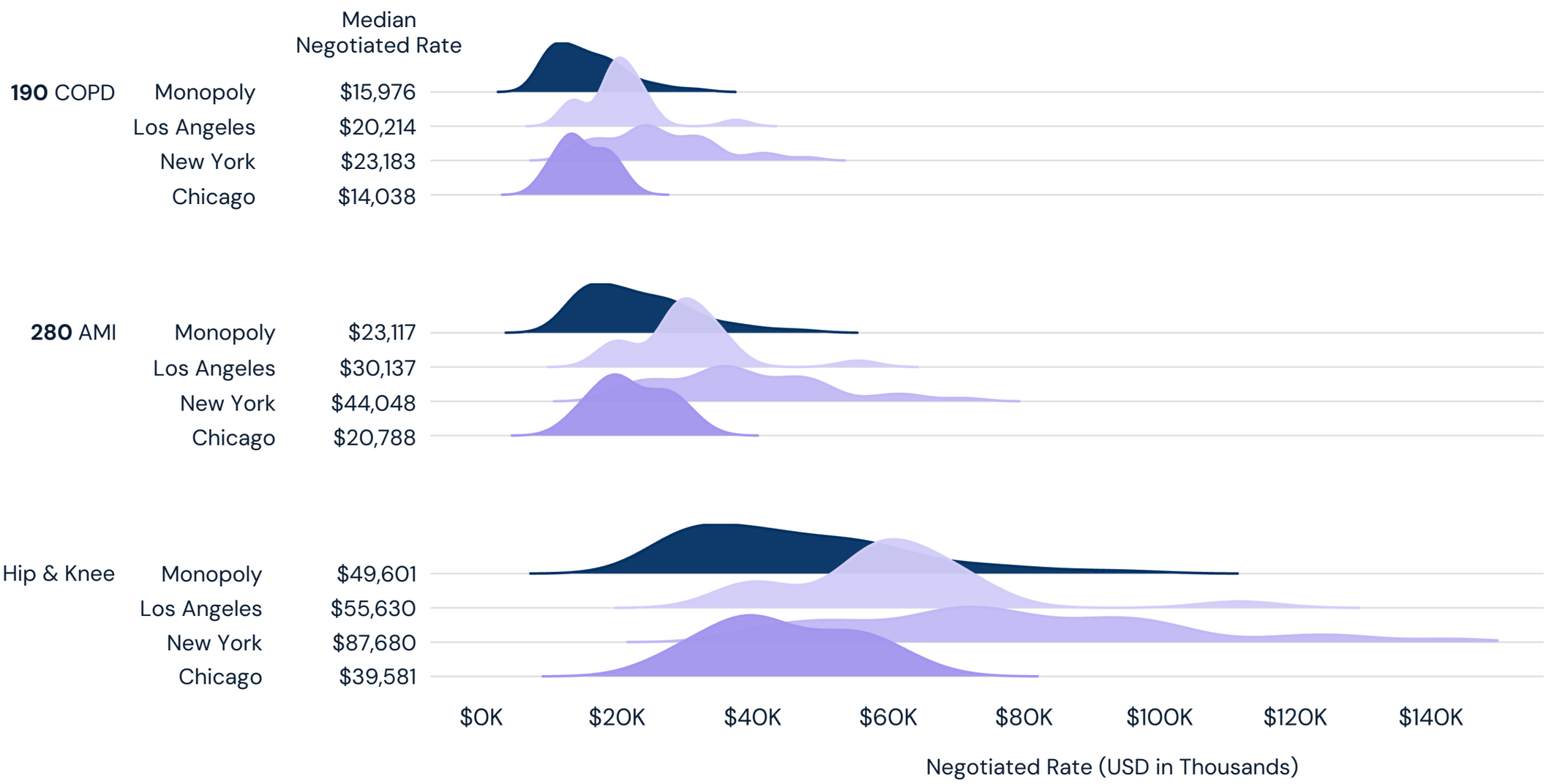
Negotiated Rates for the Same Service Are Often Lower in Monopoly Markets

Whatever the explanation is for the startling spread in pricing for healthcare services, it is not solely attributable to whether a market is considered a monopoly. In fact, the negotiated rate for healthcare services is often lower in monopoly markets than in the three most competitive U.S. markets.

Negotiated Rate Distribution for Select MS-DRGs: Monopoly vs. Highly Competitive CBSAs, 2024



Note: Traditional HHI is the standard measure of market concentration and competition, inclusive only of inpatient settings. Competitive markets are defined as markets with an HHI below 1,500, whereas a monopoly market has an HHI of 10,000. MS-DRG 469 indicates Major Hip and Knee Joint Replacement or Reattachment of Lower Extremity; MS-DRG 190 indicates Chronic Obstructive Pulmonary Disease; MS-DRG 280 indicates Acute Myocardial Infarction. CBSA denotes core-based statistical area.
Source: Trilliant Health national all-payer claims database; health plan price transparency dataset.

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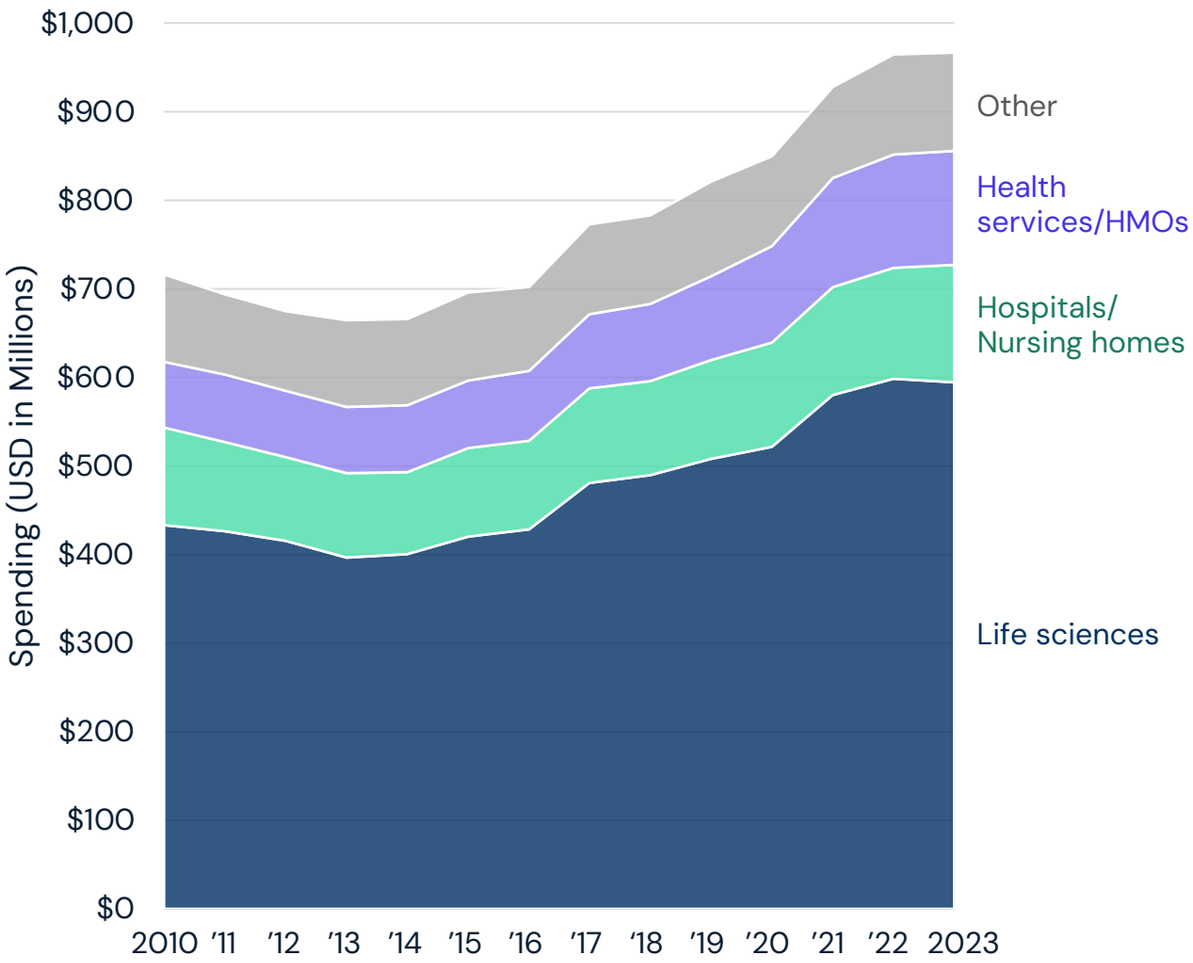
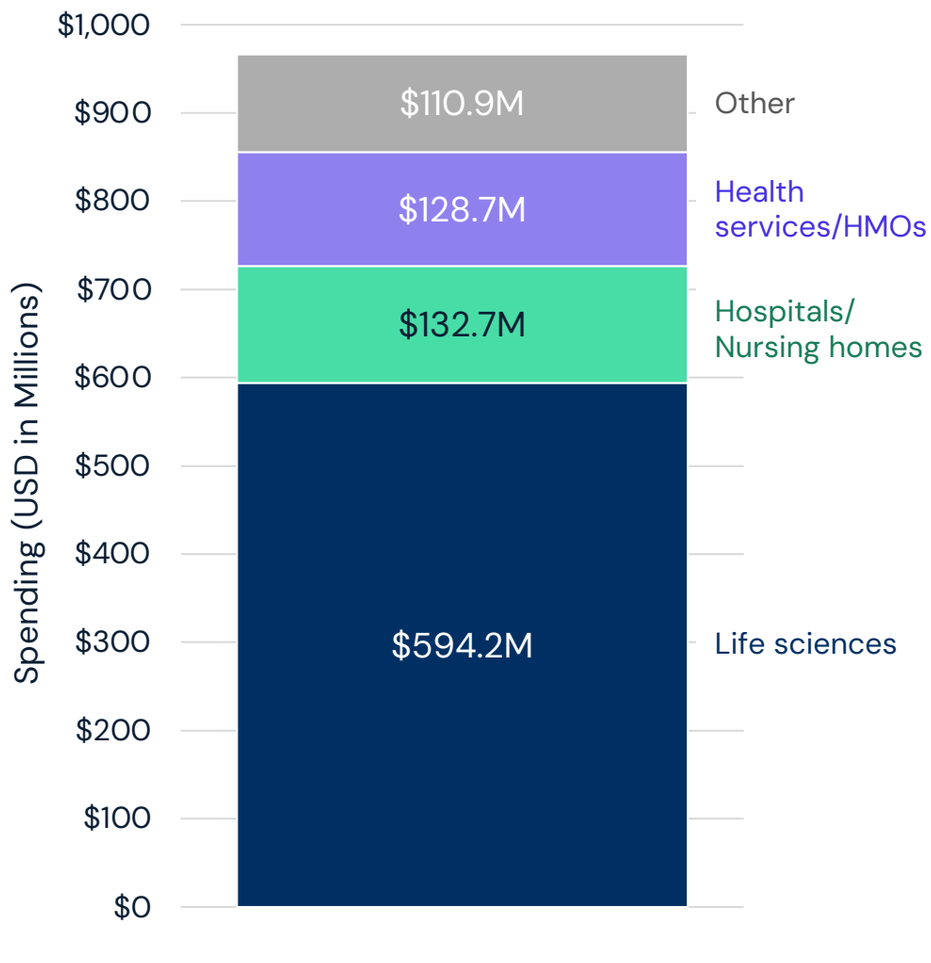
Life Sciences Lobbying Outpaces Other Industries by 4.5X

Healthcare lobbying has been growing since 2010. While health services/HMOs experienced the most growth across the past decade, with a 74% increase in lobbying spending from 2010 to 2023, life sciences represented the largest proportion of healthcare lobbying each year.

Healthcare Lobbying Spending by Stakeholder, 2010-2023



Healthcare Lobbying Spending by Stakeholder, 2023



Note: HMO denotes health maintenance organization. Life sciences was calculated by summing lobbying spending from medical supplies, pharmaceutical manufacturing and pharmaceuticals/health products; Other was calculated by summing lobbying spending from chiropractors, dentists, health professionals, nurses and nutritional and dietary supplements.
Source: The Senate Office of Public Records Lobbying Disclosure Act Reports.

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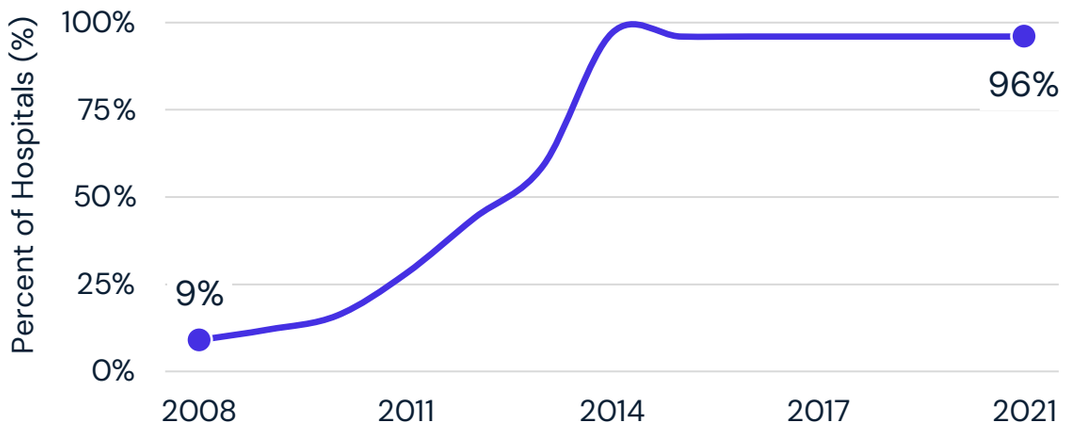
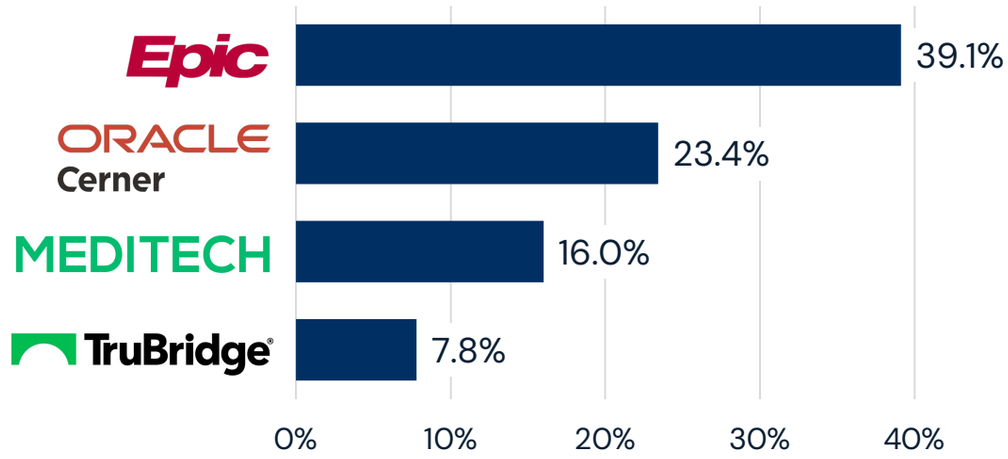
EHR Regulation May Have Led to Adoption, but Not Meaningful Integration

Regulation intended to foster "meaningful use" of HIT has had mixed success but has resulted in a highly concentrated market. While hospital EHR adoption reached nearly 100% by 2021, the share of hospitals using EHRs across domains (i.e., sending, receiving, finding and integrating data) was just 70% in 2023.

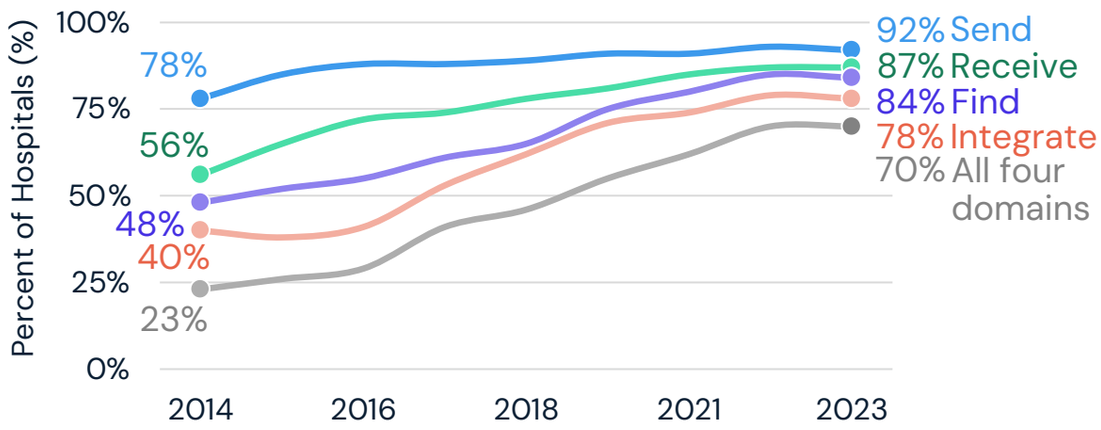
Percent of Hospitals With a Certified EHR System, 2008-2021



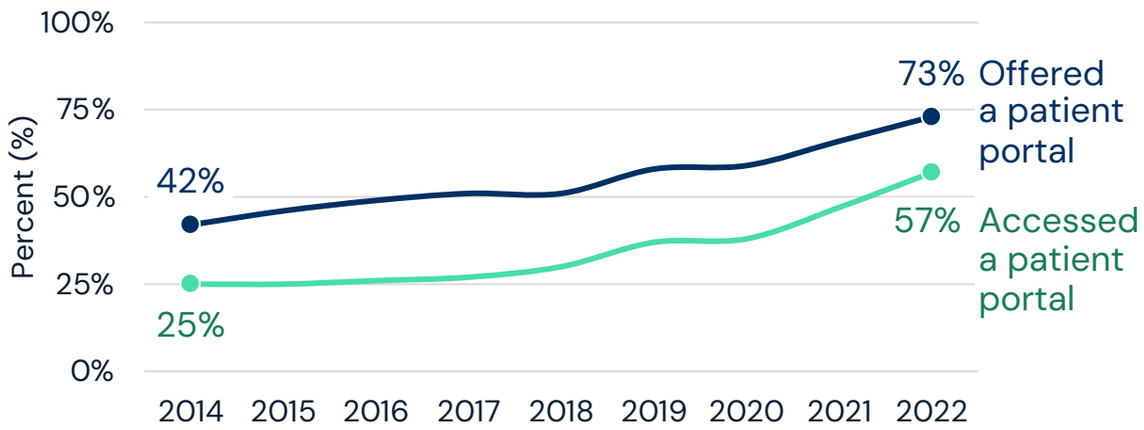
EHR Vendors by Hospital Market Share, 2023



Percent of Hospitals Implementing EHR, by Implementation Type, 2014-2023



Percent of Individuals Who Were Offered and Accessed a Patient Portal, 2014-2022



Note: EHR denotes electronic health record; HIT denotes health information technology.
Source: Office of the National Coordinator for Health Information Technology; Klas Research U.S. Hospital EMR Market Share 2023 Report.

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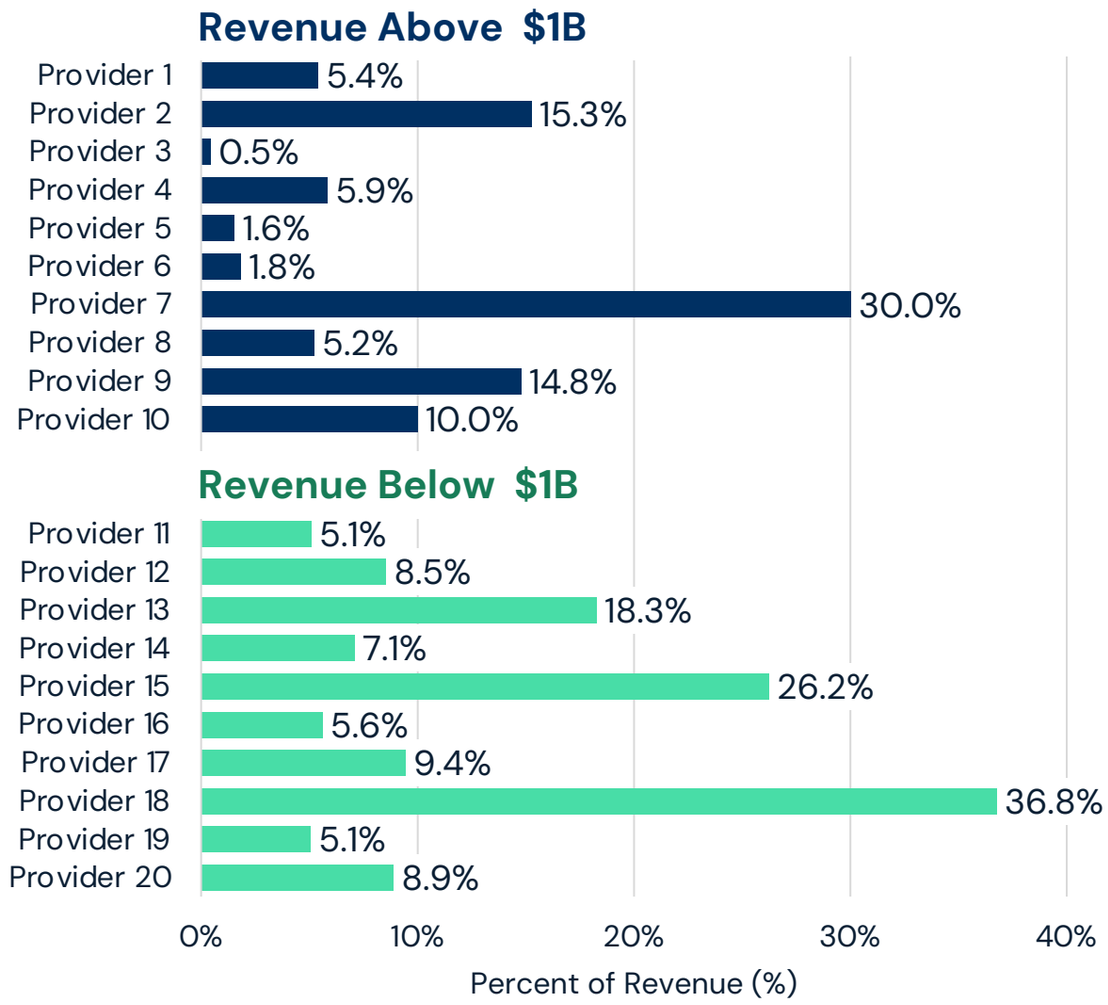
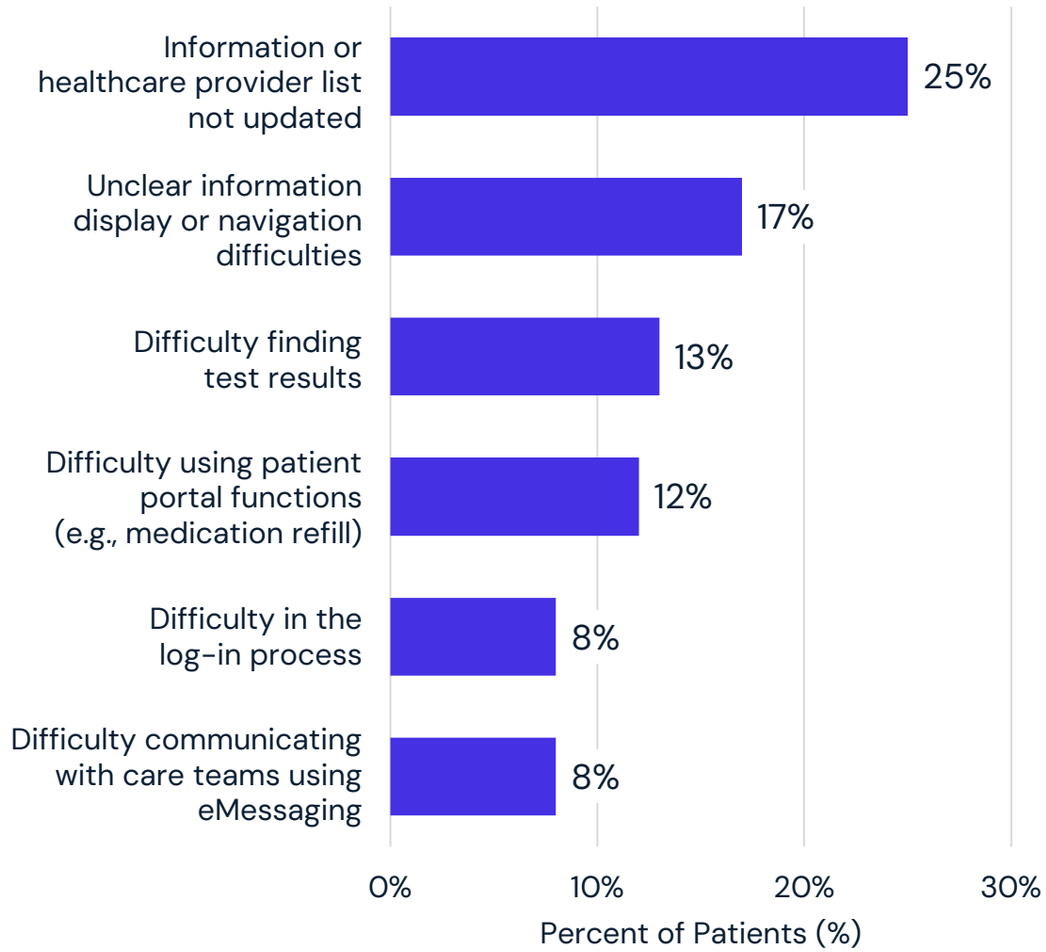
EHR Implementation and Maintenance Requires Significant Capital Allocation

Many physician practices and health systems are considering or undergoing EHR upgrades. At one smaller regional health system, the cost of a new EHR system was 36.8% of annual net revenue, while for larger systems, costs ranged from 0.5% to 30%. Meanwhile, 25% of adult patients reported difficulties accessing data or communicating with providers via EHR portals.

EHR Implementation, Upgrading Training and Maintenance Costs as a Percent of Revenue for 20 Hospitals and Health Systems



Percent of Adult Patients Reporting Difficulties With EHR Patient Portals



Note: EHR denotes electronic health record.
Source: Becker's Health IT; Agency for Healthcare Research and Quality Compendium of U.S. Health Systems, 2022; Son EH, Nahm ES, Adult Patients' Experiences of Using a Patient Portal With a Focus on Perceived Benefits and Difficulties, and Perceptions on Privacy and Security: Qualitative Descriptive Study, *JMIR Human Factors*, 2023.

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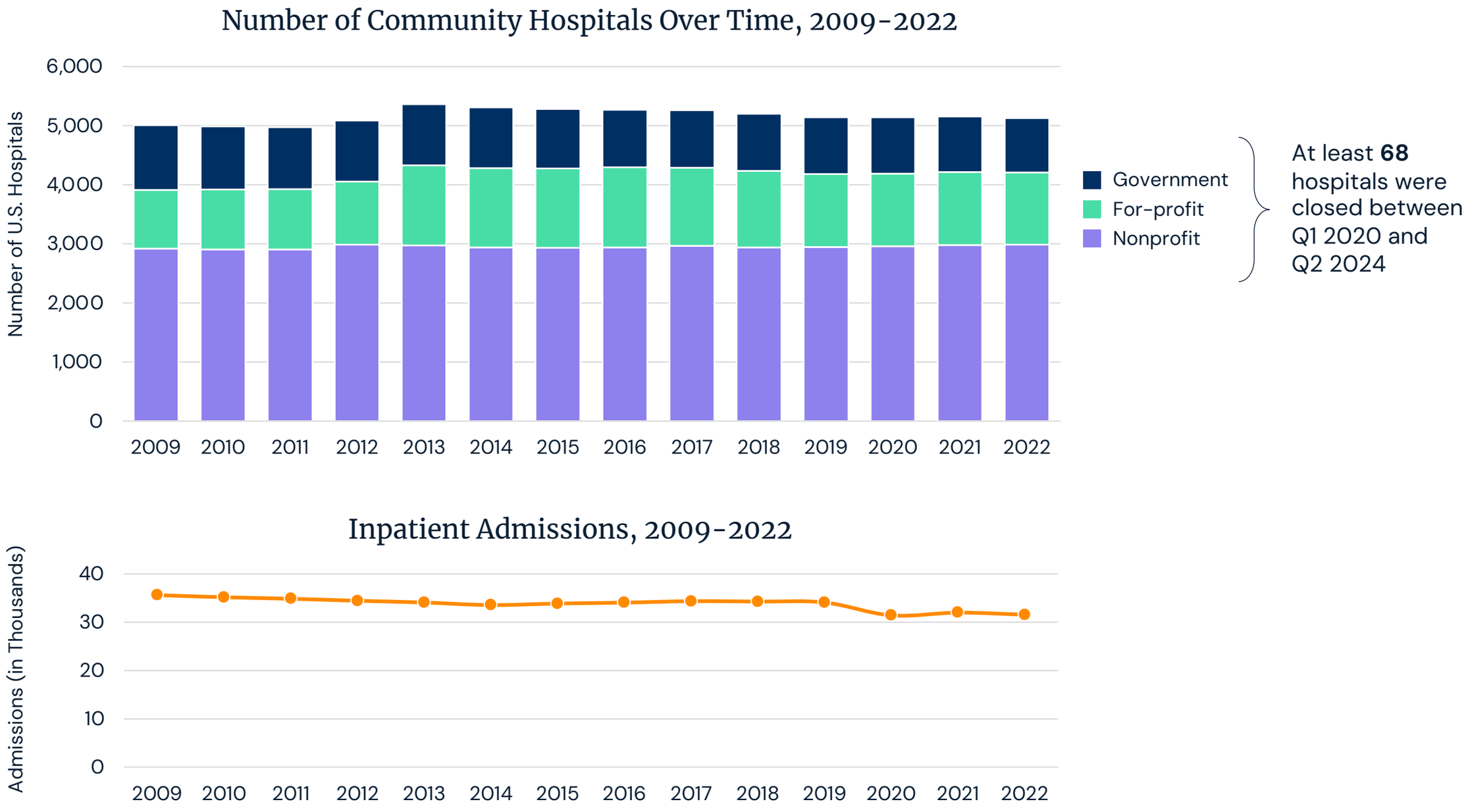
The Supply of Hospitals Remains Stable Despite Declining Demand

Between 2009 and 2022, inpatient admissions at community hospitals declined by 11.4%. In contrast, the number of community hospitals has remained stable, which can in part be attributed to the fact that hospitals are often the largest employer in many communities.



Note: Inpatient admissions are for nonfederal short-term general hospitals and other special hospitals; 2024 American Hospital Association Hospital Statistics includes data through 2022.
Source: 2024 American Hospital Association Hospital Statistics; The Cecil G. Sheps Center for Health Services Research; Becker's Hospital CFO Reports.

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Health Systems Face Increased Scrutiny From Regulators

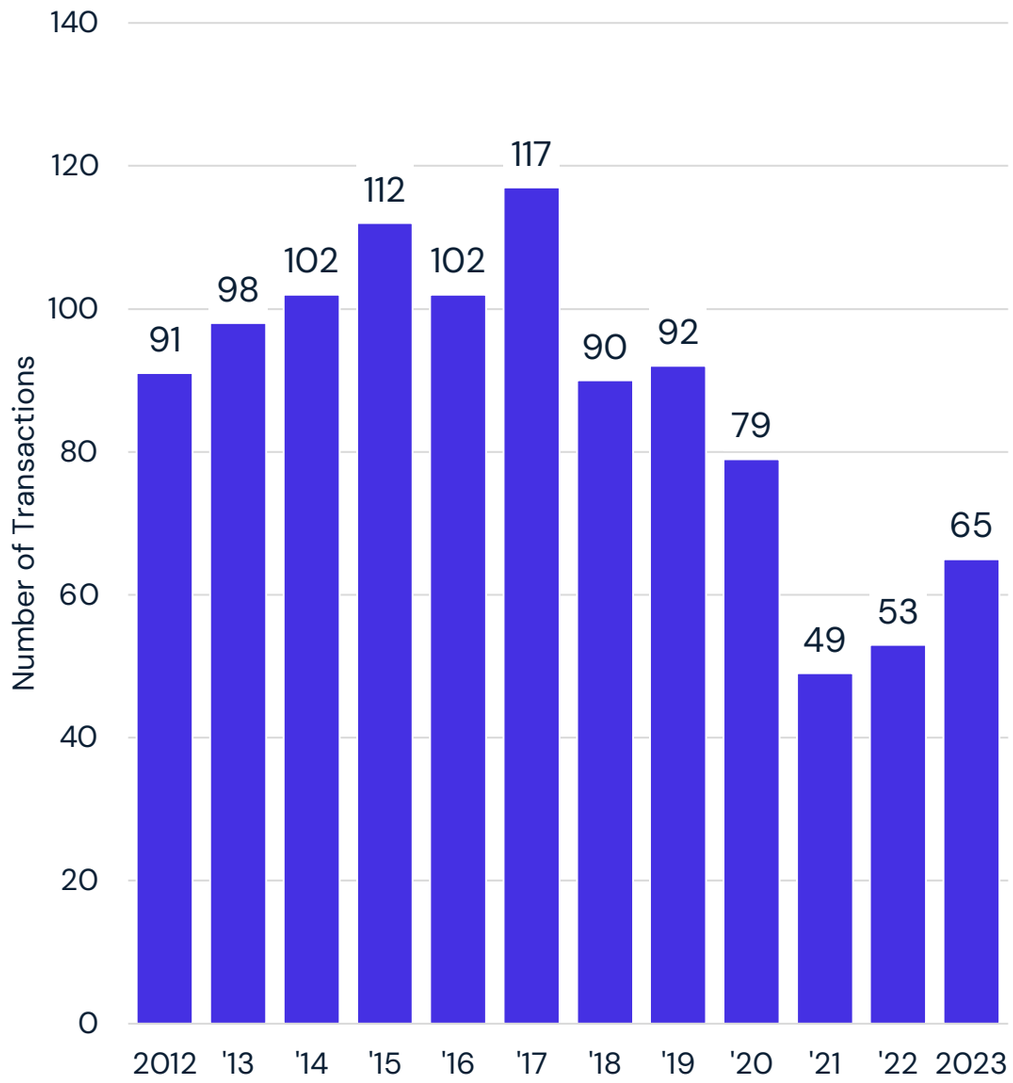
Regulatory agencies continue to express concerns regarding the anti-competitive impacts of various hospital and health system transactions despite continued financial losses and risk of hospital closures. While the number of announced hospital transactions hovered near 100 annually between 2012 and 2017, the number of transactions has gradually declined since.

Select Health System Transactions Under Review by the FTC, 2021-2023

- NOVANT HEALTH x CHS Community Health Systems
- JOHN MUIR HEALTH x Tenet Health
- RWJBarnabas HEALTH x SAINT PETER'S HEALTHCARE SYSTEM
- HCA Healthcare x Steward
- Lifespan (Delivering health with care.) x Care New England

X Transaction did not occur

Number of Announced Hospital Transactions, 2012-2023



Note: FTC denotes Federal Trade Commission.
Source: Federal Trade Commission; Kaufman Hall Hospital and Health System M&A in Review: Financial Pressures Emerge as Key Driver in 2023.

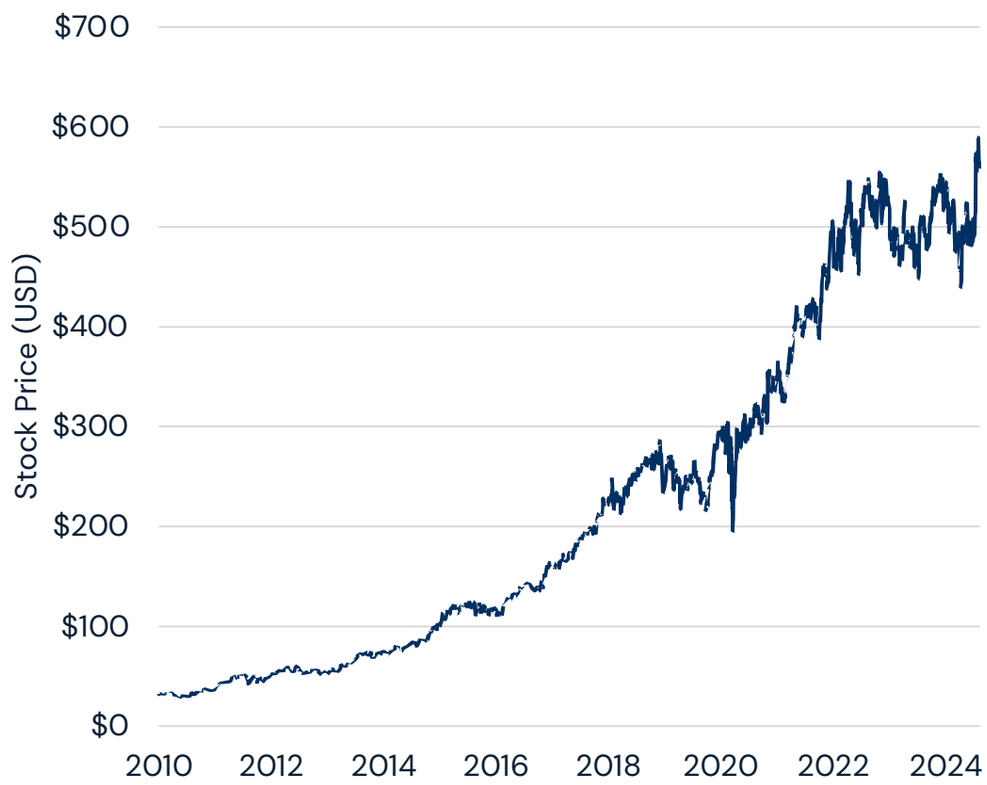
Antitrust Regulators Have Recently Focused on Optum M&A Activity

Given the vertical nature of its transactions, Optum has historically been treated differently than other providers. However, a DOJ investigation into UnitedHealth Group to determine whether the company and its subsidiaries may have violated antitrust regulations was announced in 2024. Since 2010, UnitedHealth Group's stock price has increased 17.9X.

Select Post-ACA Optum Deals, 2015-2023

Company	Year	Industry	Acquisition ($)
RALLY	2015	Digital Health	N/A
MedExpress	2015	Urgent Care	$1.5B
SCA Surgical Care Affiliates	2017	Ambulatory Surgery Centers	$2.3B
Advisory Board	2017	Healthcare Analytics, Advisory Services	$1.3B
DaVita Medical Group	2017	Independent Medical Group	$4.9B
THE POLYCLINIC	2018	Primary and Specialty Care Services	$4.9B
naviHealth	2020	Post-Acute Healthcare Services	$1B
CHANGE HEALTHCARE	2022	Healthcare Analytics, Advisory Services	$13B
REFRESH Mental Health	2022	Mental Health	$700M
Kelsey-Seybold Clinic	2022	Private Medical Group	$2B
emis group	2022	Healthcare Software	$1.4B
LHC GROUP	2023	Home Health	$5.5B
amedisys	2023	Home Health	$3.3B (not completed)

UnitedHealth Group Stock Price, 2010-Q3 2024



Timeline of Optum Regulatory Actions

June 2019 >>	July 2021 >>	February 2022 >>	February 2024 >>	February 2024 >>	May 2024 >>
FTC does not seek action against Optum-DaVita merger; Colorado AG unsuccessfully sues	Biden Administration releases EO emphasizing antitrust enforcement in healthcare	DOJ unsuccessfully sues to block Change Healthcare acquisition	DOJ launches an antitrust investigation into UnitedHealth Group	Optum reports a cyber attack on Change Healthcare	Class action lawsuit is filed against UnitedHealthcare and naviHealth regarding AI algorithm coverage denials

Note: DOJ denotes Department of Justice; FTC denotes Federal Trade Commission; AG denotes attorney general; EO denotes executive order; ACA denotes Affordable Care Act; M&A denotes mergers and acquisition; AI denotes artificial intelligence.
Source: Publicly available news sources and company press releases.

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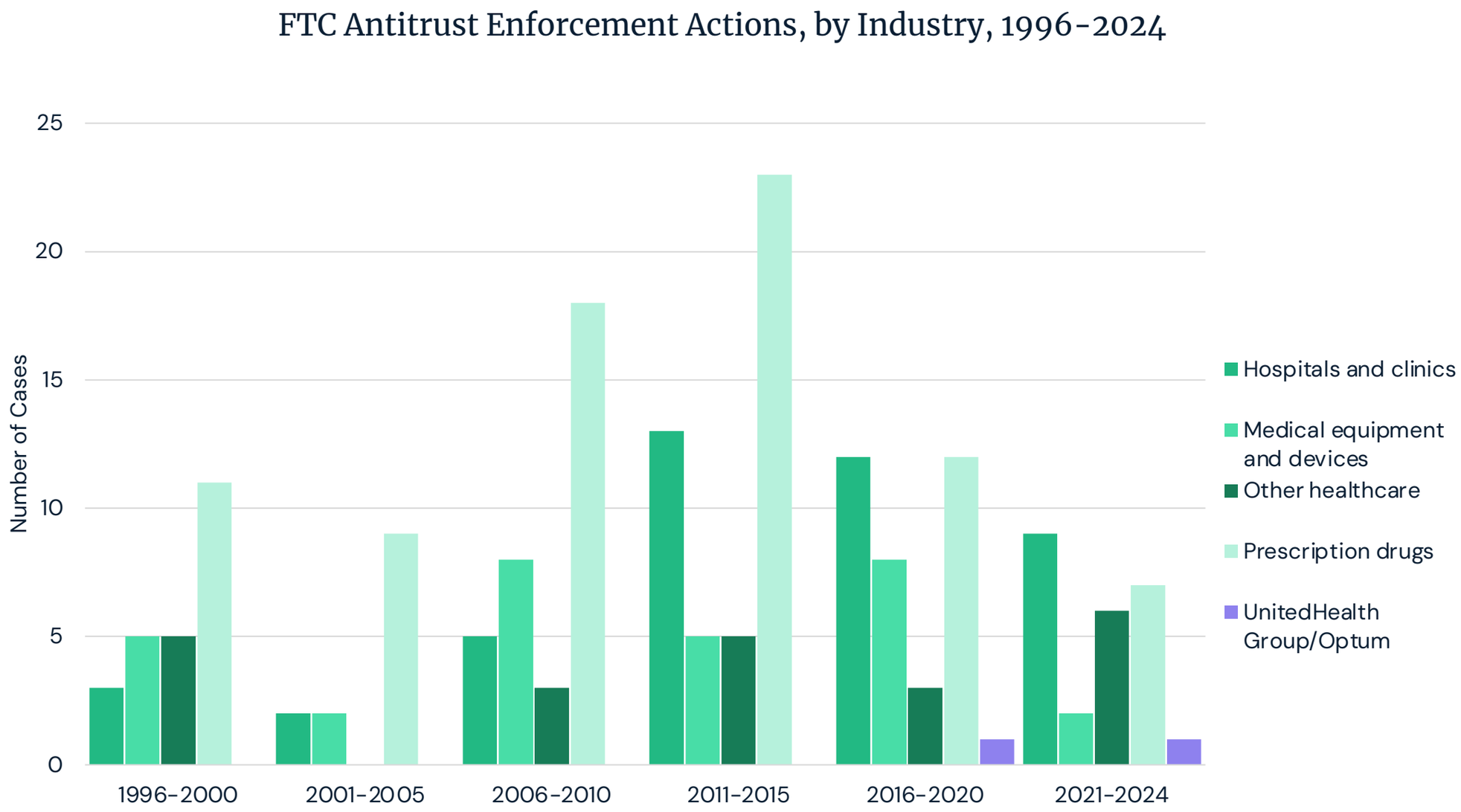
FTC Healthcare Investigations Are Concentrated in Life Sciences

Between 1996 and 2024, the FTC took action on 110 life sciences – prescription drugs and medical device – transactions, relative to just two actions on UnitedHealthcare, despite its significant M&A activity since 2010.



Note: FTC denotes Federal Trade Commission; M&A denotes mergers and acquisitions.
Source: Federal Trade Commission.

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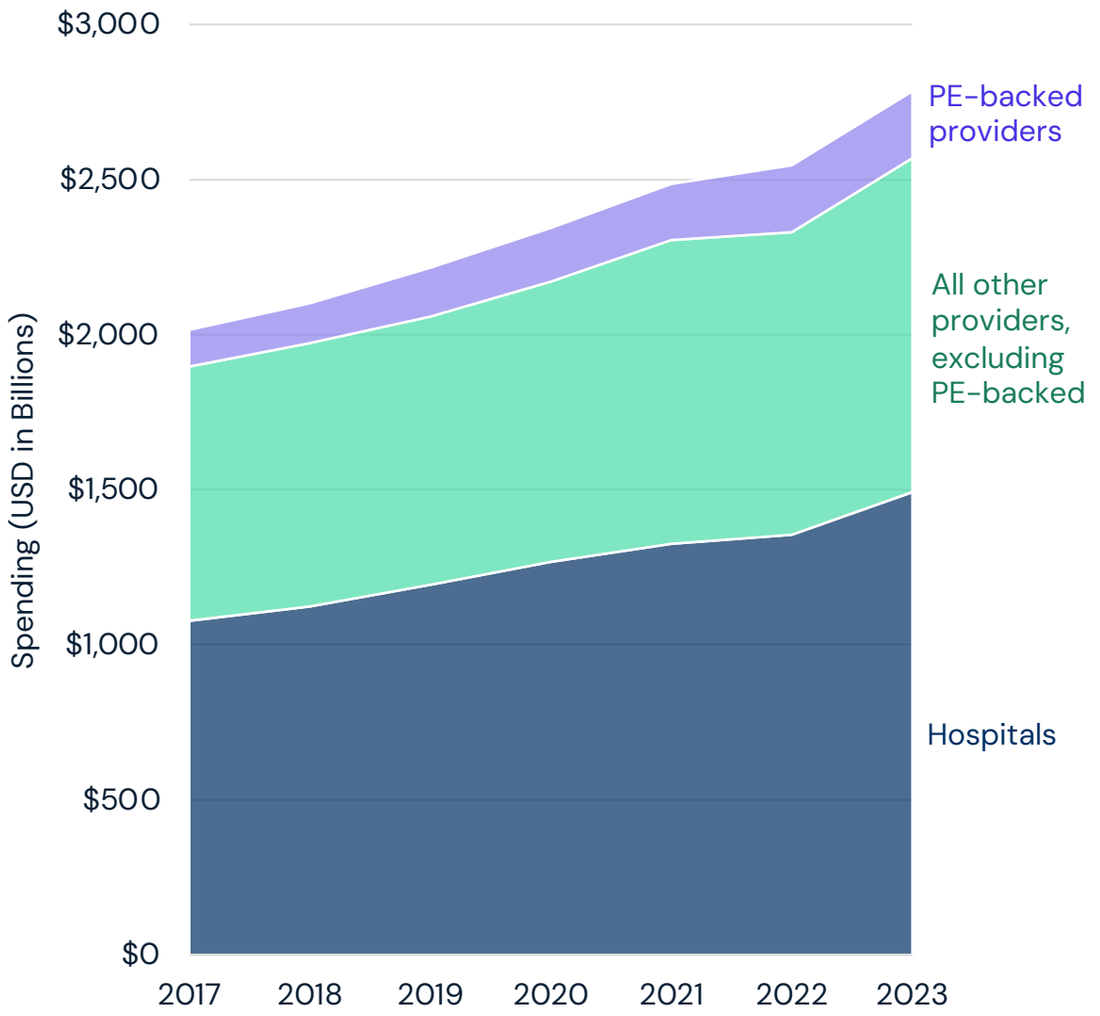
PE-Backed Providers Represent a Small Share of the U.S. Provider Market

The cumulative enterprise value for PE-backed healthcare providers increased from $118.0B in 2017 to $215.5B in 2023, which equates to 5.9% and 7.7% of total U.S. healthcare spending, respectively.

Estimated Cumulative Enterprise Value for PE-Backed Healthcare Providers, 2017-2023

U.S. Spending on Hospitals and Providers, 2017-2023



Note: PE denotes private equity.
Source: PitchBook Quantifying PE Investment in Healthcare Providers, 2024; Centers for Medicare and Medicaid Services Historic and Projected National Health Expenditures.

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The FTC and Congress Are Starting To Focus on PBM Regulation

While a 2005 FTC report found that PBM pharmacy ownership does not result in higher costs, a recent mandated report from FTC found that PBMs inflate drug costs. Notably, CVS Caremark, Express Scripts and OptumRx increased their collective market share from 70% in 2016 to 79% in 2023.

FTC Issues Report on PBM Ownership of Mail-Order Pharmacies

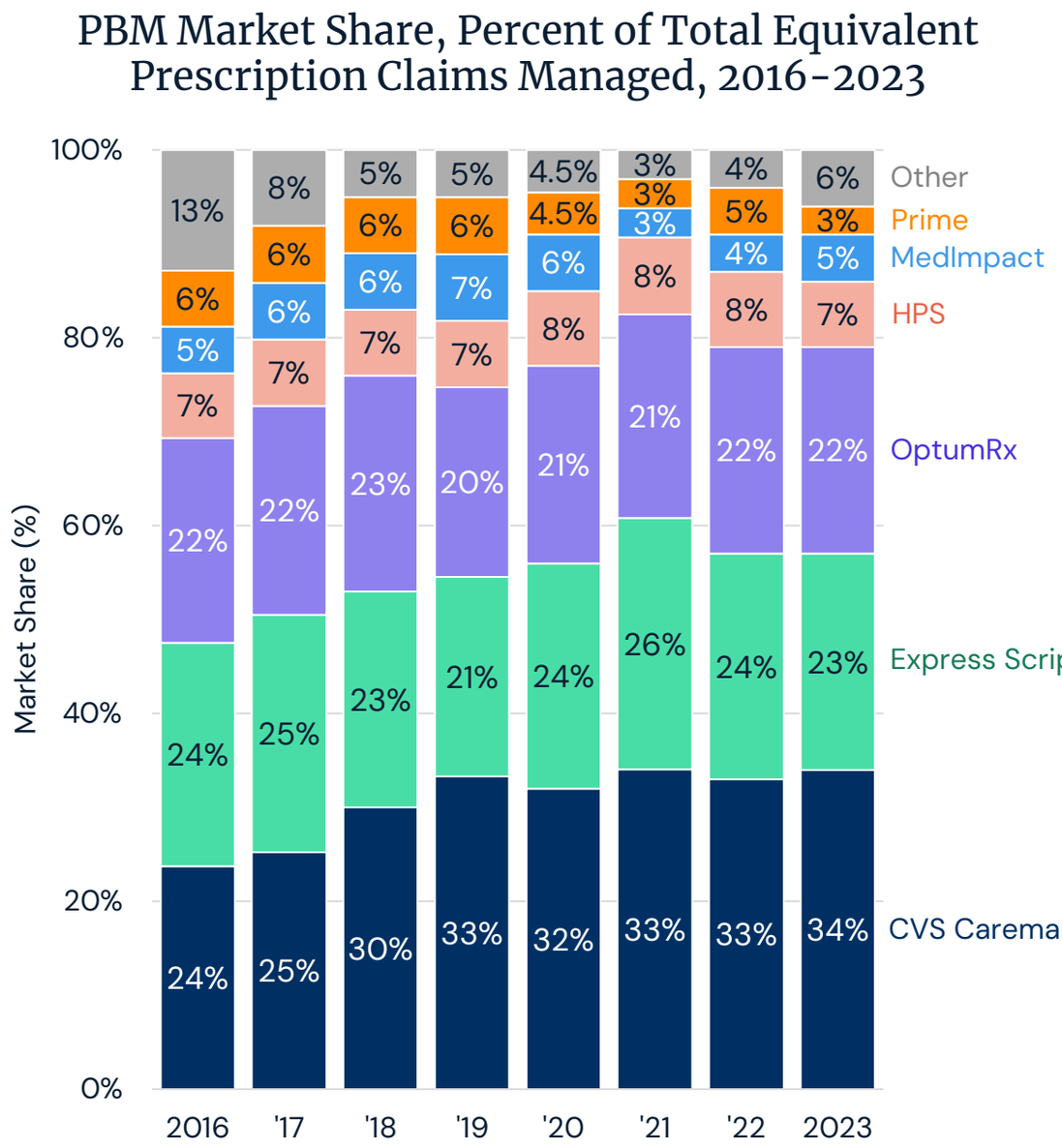
Study Shows PBM Ownership Does Not Result in Higher Costs for Consumers

September 6, 2005

FTC Releases Interim Staff Report on Prescription Drug Middlemen

Report details how prescription drug middleman profit at the expense of patients by inflating drug costs and squeezing Main Street pharmacies

July 9, 2024



Note: FTC denotes Federal Trade Commission; PBM denotes pharmacy benefit manager.
Source: Federal Trade Commission.

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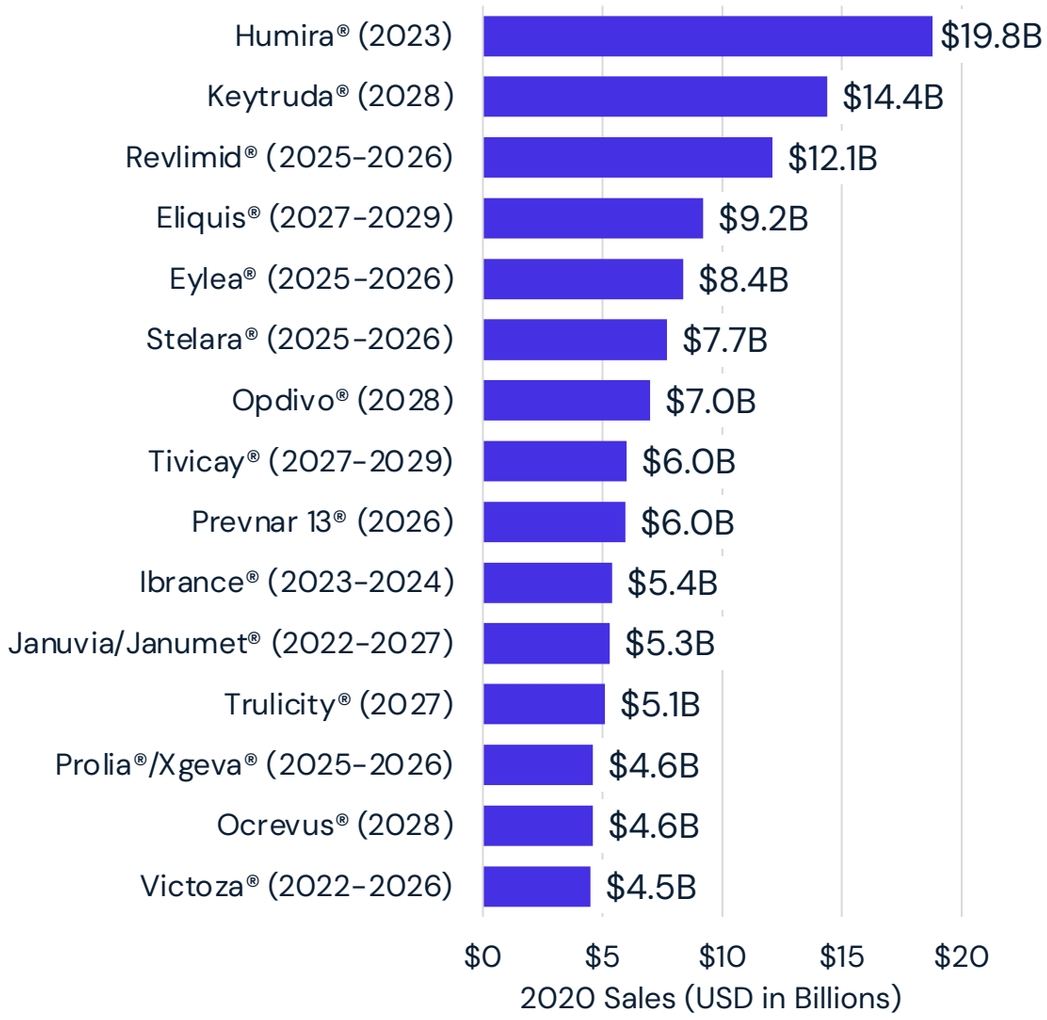
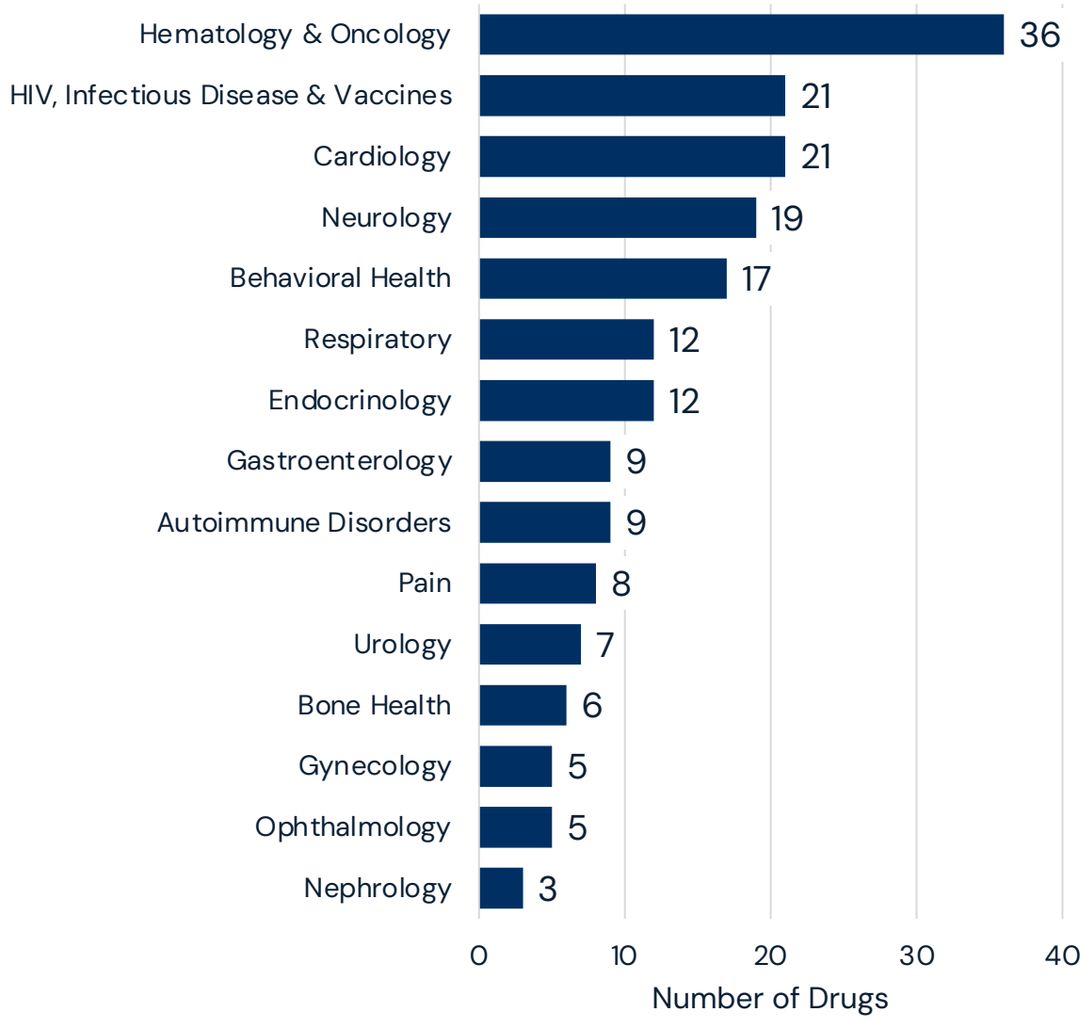
Drug Patents Expiring in the Next Decade Represent Billions in Sales

Hematology and oncology drugs account for the largest share of medications losing patent protection from 2010 to 2039, followed by infectious disease and cardiology treatments. With some of these drugs generating nearly $20B annually, many manufacturers will face a significant “patent cliff” in the coming decade.

Top Drugs Losing Patent Protection Within the Decade, by 2020 Sales



Top Drugs Losing Patent Protection by Category, 2010-2039



Note: Patent cliff refers to a sharp decline in revenue following the patent expiry of a top-selling product.
Source: Publicly available company information.

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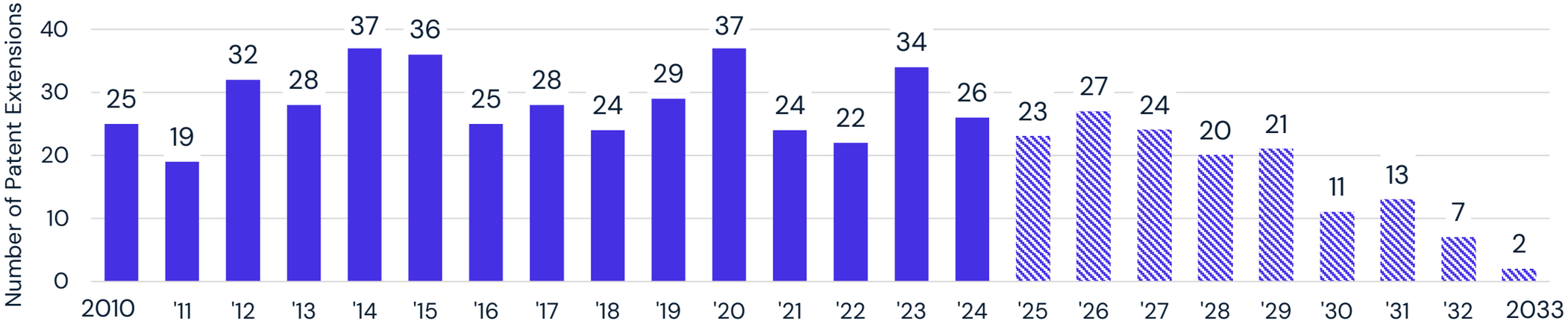
A Substantial Share of Brand Drugs Receive Patent Extensions

Between 2010 and 2033, 574 brand drugs received or will receive patent extensions. In 2014 and 2020, 37 drug patents received extensions. Notably, brand drugs can receive multiple patent extensions, preventing the introduction of lower-cost generics and biosimilars.

Number of Patent Extensions per Original Expiration Year, 2010-2033



FTC Expands Patent Listing Challenges, Targeting More Than 300 Junk Listings for Diabetes, Weight Loss, Asthma and COPD Drugs

Commission challenges junk patent listings for Ozempic, Victoza, Saxenda and other blockbuster prescription medications

April 30, 2024

FTC Files Amicus Brief Outlining Anticompetitive Harm Caused by Improper Orange Book Listings

November 20, 2023

Select Brand Drugs That Received Patent Extensions Between 2010 and 2033

OCREVUS® ocrelizumab
trulicity™
Stelara® (ustekinumab)
VICTOZA® liraglutide injection 1.2 mg | 1.8 mg
HUMIRA® adalimumab
IBRANCE® palbociclib
OPDIVO™ (nivolumab)
EYLEA® (aflibercept) Injection
Revlimid® (lenalidomide) capsules 2.5 · 5 · 10 · 15 · 20 · 25 mg
Eliquis® (apixaban) tablets 5mg 2.5mg

Note: FTC denotes Federal Trade Commission. 2025-2033 reflect future patent extensions. The Orange Book refers to the Food and Drug Administration's Approved Drug Products with Therapeutic Equivalence Evaluations publication, which identifies approved drug products and their patent and exclusivity information.
Source: U.S. Patent and Trademark Office; Federal Trade Commission.

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Macro Trend #3

- Government Innovation and Regulation Are Failing To Produce Value

COMPASS+ EXCLUSIVE

Micro Trends

- What percent of providers are receiving value-based care payments?
- How do operating margins vary by health system type (e.g., non-profit vs. for-profit)?
- How does hospital and payer competitiveness vary by CBSA?
- What are the most and least competitive CBSAs in the U.S.?

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TREND 4

The Value of Technological Advancements Is Uncertain

Per NICE, Not Every Clinical Innovation Delivers Value

NICE has determined that many drugs approved for use in the U.S. do not meet their requirements for the U.K. Moreover, the cost of the drugs not approved by NICE is 2.7X greater in the U.S. than in the U.K., suggesting that even at lower prices these drugs are not providing value commensurate to their cost.

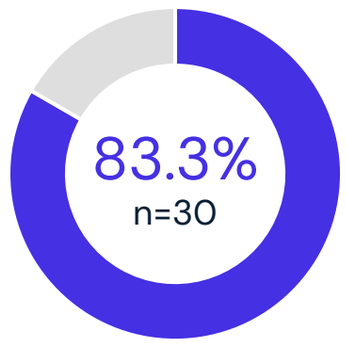
NICE Overview

What is NICE?

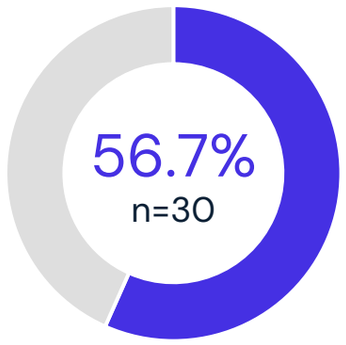
NICE provides clinical guidelines, technology appraisals and quality standards on treatment and care for providers, social workers, patients and caregivers in the U.K. NICE guidelines are intended to improve patient outcomes, in line with the **best available evidence of clinical and cost-effectiveness**.

Experts have estimated that NICE's maximum cost-effectiveness threshold is **£20,000–30,000/QALY.**

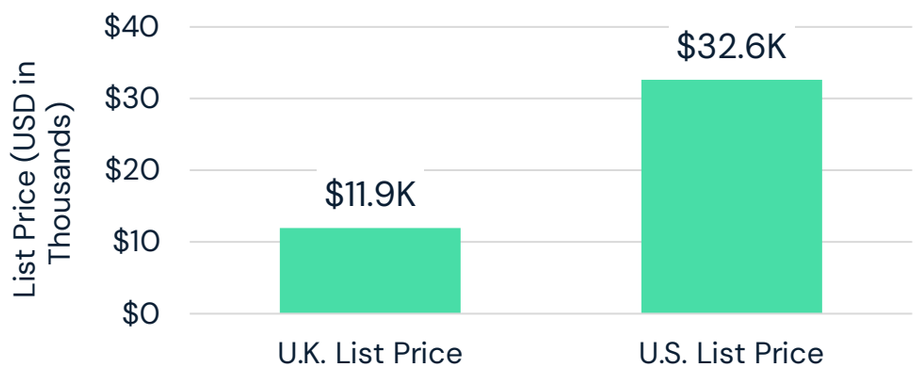
Percent of Drugs **Not Recommended** by NICE Approved by FDA Since 2020



Percent of Drugs **Not Recommended** by NICE Indicated for Oncology



Comparison of U.K. and U.S. Average List Prices for Drugs Not Approved by NICE



Note: NICE denotes the National Institute for Health and Care Excellence; QALY denotes quality-adjusted life-year. U.K. average list price conversion from GBP to USD reflects August 2024 conversion rates.
Source: NICE Guidelines Development Manual and Technology Appraisal Recommendations Data; Sun et al., Cost-Effectiveness Thresholds or Decision-Making Threshold: A Novel Perspective, *BioMed Central*, 2023; Drugs.com Price Guide; U.S. Food & Drug Administration; publicly available manufacturer press releases.

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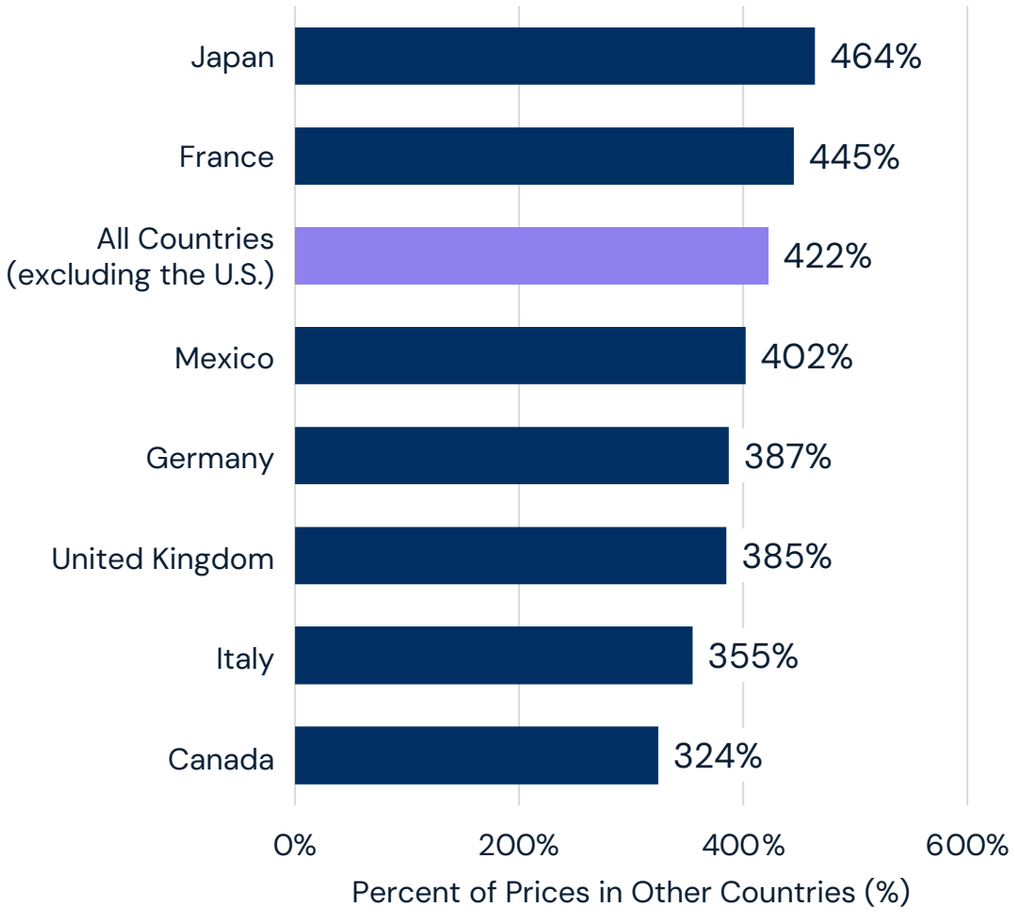
The U.S. Pays 422% More for the Same Branded Prescription Drugs

In 2022, U.S. prices across all drugs were 278% higher than the prices in 33 OECD countries, driven primarily by price differences in brand name drugs. While accounting only for 10% of prescriptions, brand name drugs in the U.S. are 422% of prices of OECD countries.

U.S. Manufacturer Gross Drug Prices as a Percentage of Prices in Select OECD Countries, Brand Drugs, 2022



Prescription Drug Market Share by Sales and Volume in the U.S. and Other Countries, 2022

Country	Sales (Billions, USD)	Volume (Billions)	Share of Sales (%)	Share of Volume (%)
All Countries	**$988.9**	**1,099.1**	**100**	**100**
All Countries (excluding the U.S.)	$371.7	837.6	37.6	76.2
United States	$617.2	261.6	62.4	23.8
Japan	$64.9	219.8	6.6	20.0
United Kingdom	$31.6	66.8	3.2	6.1
Germany	$46.5	63.9	4.7	5.8
France	$37.5	51.1	3.8	4.6
Italy	$33.0	44.3	3.3	4.0
Canada	$26.6	30.6	2.7	2.8
Mexico	$7.3	16.3	0.7	1.5

Note: OECD denotes Organisation for Economic Co-operation and Development.
Source: RAND Corporation International Prescription Drug Price Comparisons, 2024.

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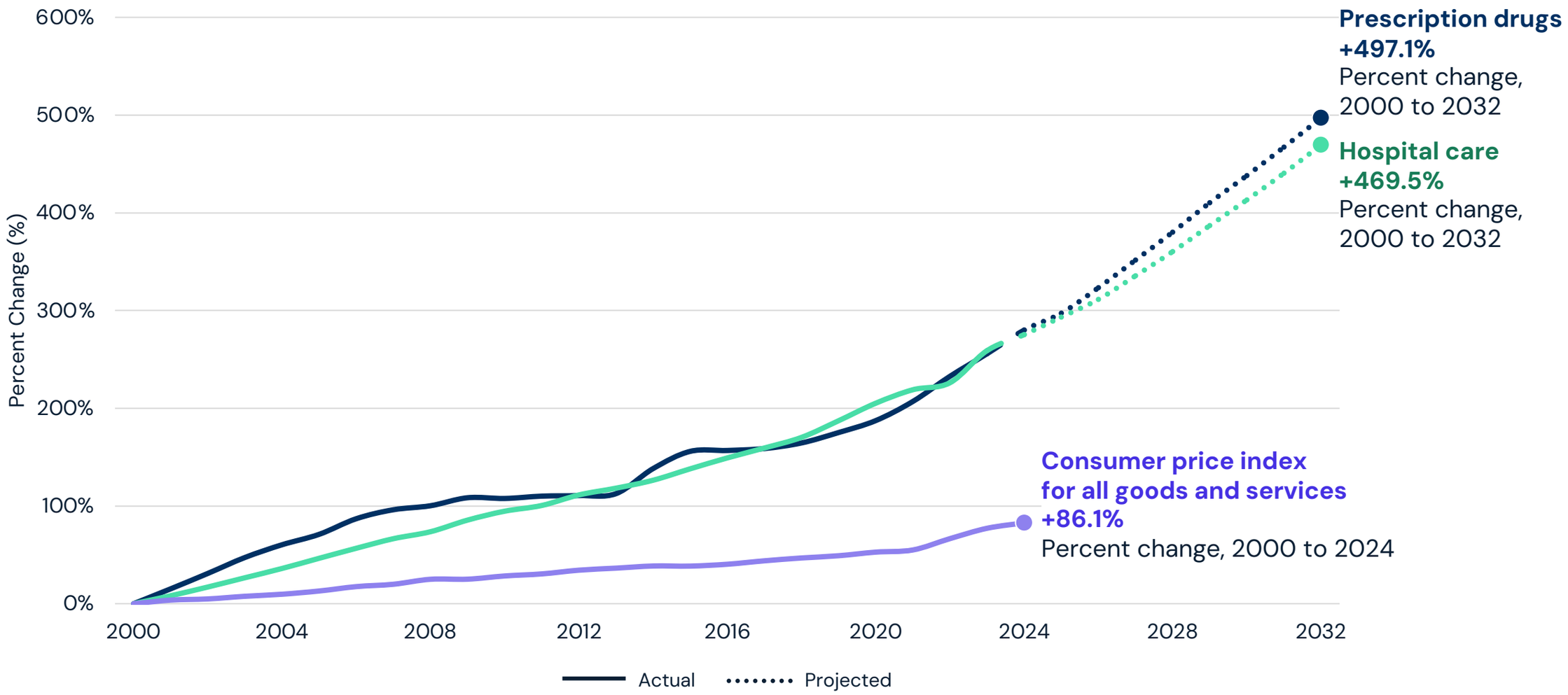
Spending Growth for Prescription Drugs Outpaces Hospital Growth

Although total expenditures for hospital care will be higher than expenditures on drugs, spending on prescription drugs is projected to increase nearly 500%, while hospital care spending is projected to increase by 469.5% between 2000 and 2032. In contrast, the CPI increased by 86.1% between 2000 and 2024.

Percent Change in Actual and Projected Prescription Drugs and Hospital Expenditures, Yearly Compared to 2000, 2000-2032



Note: CPI denotes consumer price index.
Source: Centers for Medicare and Medicaid Services Historic and Projected National Health Expenditures; Bureau of Labor Statistics Consumer Price Index.

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Chronic and Genetic Disease Drugs Represent a Growing Share of New Drugs

Since Q4 2023, 41 novel medications have received FDA approval, with one-third targeting cancers. Significant portions of recent approvals also include cell and gene therapies, as well as treatments for chronic conditions such as ulcerative colitis, non-alcoholic steatohepatitis and chronic kidney disease. Will these therapeutic areas continue to expand in response to the rising prevalence of chronic conditions?

FDA Novel Drug Approvals, Q4 2023-Q3 2024

Q4 2023	LOQTORZI (toripalimab-tpzi) injection; DEFENCATH™ Taurolidine and Heparin Catheter Lock Solution; Bimzelx® (bimekizumab-bkzx); ZILBRYSQ® (zilucoplan) Injection; aGamree® (vamorolone) oral suspension 40mg/mL; omvoh™ (mirikizumab-mrkz); AUGTYRO™ (repotrectinib) 40 mg capsules; Velsipity™ (etrasimod) 2mg tablets; WAINUA™ (eplontersen) 45 mg; Fruzaqla® (fruquintinib) capsules; Ogsiveo™ (nirogacestat) 50 mg tablets; FABHALTA® (iptacopan) 200 mg capsules; Truqap™ capivasertib 160 mg • 200 mg tablets; Filsuvez® (birch triterpenes) topical gel
Q1 2024	Pr Letybo™ LetibotulinumtoxinA for Injection; EXBLIFEP®; Zelsuvmi™ (berdazimer) topical gel, 10.3%; Rezdiffra™ resmetirom tablets 60mg · 80mg · 100mg; TEVIMBRA (tislelizumab); WINREVAIR™ (sotatercept-csrk) for injection 45 mg, 60 mg; Duvyzat™ (givinostat); Vafseo® (vadadustat) Tablets; TRYVIO™ (aprocitentan) 12.5mg tablets; Voydeya™ (danicopan) 50mg·100mg tablets
Q2 2024	Zevtera™ Ceftobiprole medocaril; LUMISIGHT (pegulicianine for injection); IMDELLTRA™ (tarlatamab-dlle) for injection 1 mg & 10 mg single-use vials; Anktiva® (nogapendekin alfa inbakicept-pmln); ojemda™ (tovorafenib); RYTELO™ (imetelstat) for Injection 47 mg 188 mg; XOLREMDI™ (mavorixafor) capsules; IQIRVO® elafibranor 80 mg tablets
Q3 2024	ONCE MONTHLY kisunla™ (donanemab-azbt); LEQSELVI™ (deuruxolitinib) tablets 8mg; Niktimvo™ (axatilimab-csfr) 50 mg/mL for injection, for intravenous use; Livdelzi® seladelpar 10mg Capsules; nemluvio™ (nemolizumab-ilto) for injection 30 mg; Voranigo® vorasidenib tablets; LAZCLUZE™ (lazertinib) Tablets | 240 mg/80 mg

Therapeutic Areas of Approved Drugs

Genetic	Oncology	Chronic	Infectious Disease	Other
8	13	13	4	3

Note: FDA denotes U.S. Food and Drug Administration.
Source: U.S. Food and Drug Administration.

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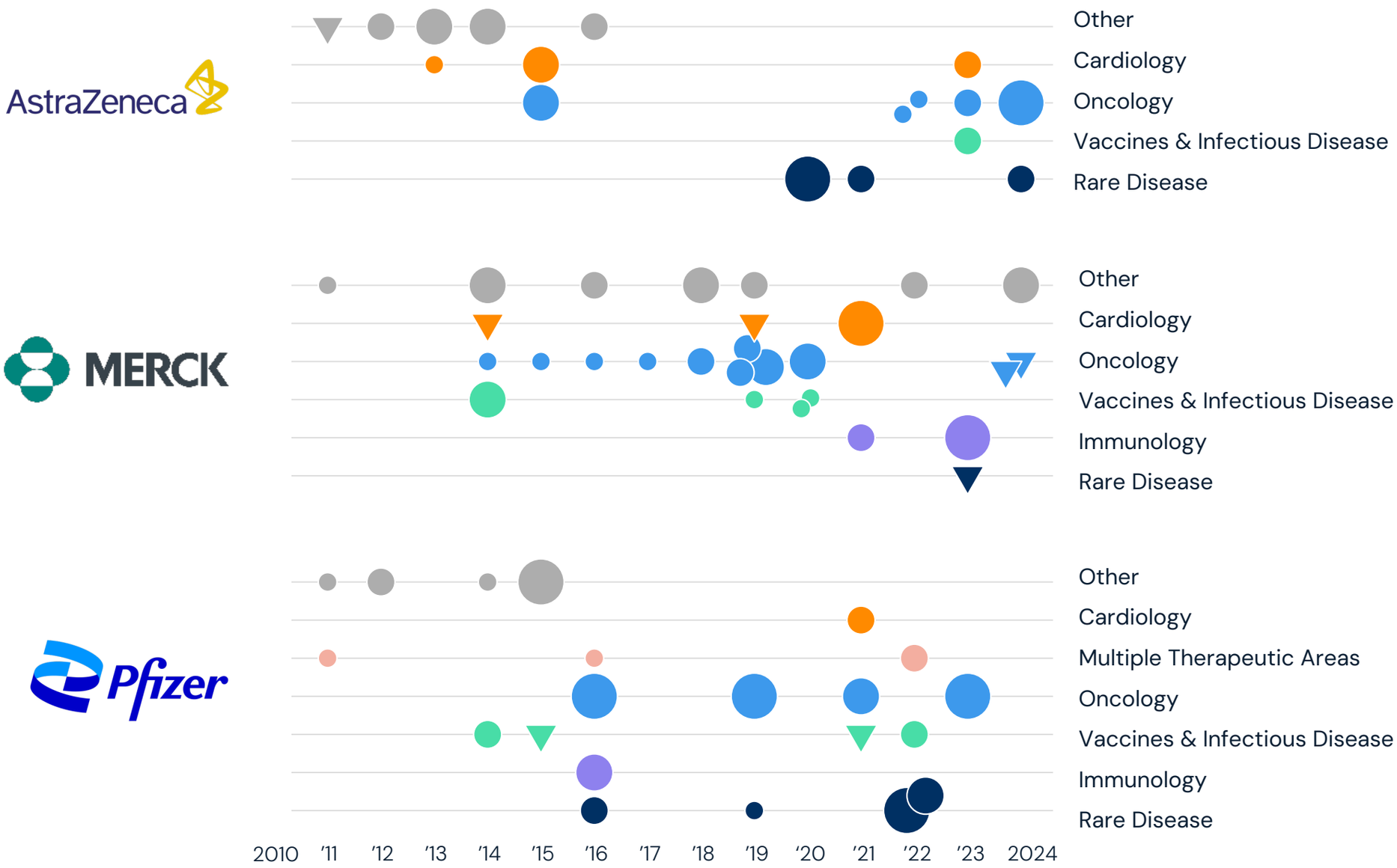
Life Sciences M&A Is Concentrated in Oncology and Rare Disease

In the post-pandemic era, large biopharmaceutical manufacturers have focused on acquiring companies developing cancer and rare disease treatments. Since 2020, AstraZeneca has invested $40.6B in rare disease through M&A, while only spending $2.8B on companies specializing in oncology. In contrast, Pfizer has invested $49.7B to acquire oncology-focused companies and $17B on rare disease-focused companies.

M&A by Therapeutic Area for Three Major Biopharmaceutical Manufacturers, 2010-2024



Note: M&A denotes mergers and acquisitions. "Other" includes areas such as pain, respiratory, ophthalmology, neurology, biosimilars, etc.
Source: Company press releases.

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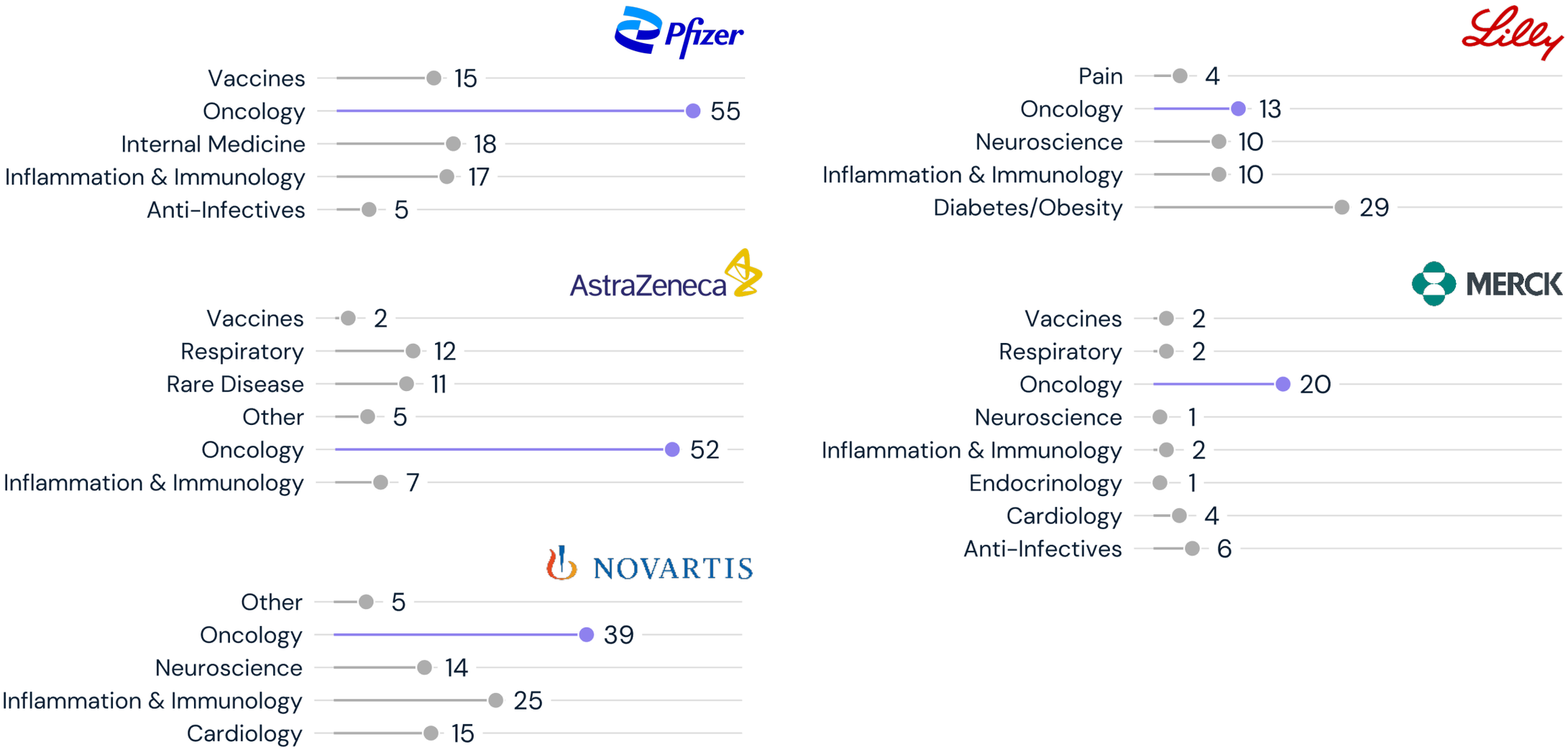
Oncology Continues To Dominate Drug Manufacturer Pipelines

Treatments for cancer account for over half of the clinical development pipelines of Merck (52.6%), Pfizer (50.0%) and AstraZeneca (58.4%). Eli Lilly and Novartis are also developing oncology treatments, but treatments for diabetes/obesity and inflammatory conditions represent greater areas of focus, respectively. Will increasing uptake of GLP-1s for weight loss lead more manufacturers to invest in diabetes/obesity treatments?

Clinical Development Pipelines of Major Biopharmaceutical Manufacturers, as of Q2 2024



Note: GLP-1 denotes glucagon-like peptide-1. Some products and projects in these pipelines are new molecular entities, while other are indications and different formulations for marketed products.
Source: Company clinical development pipelines.

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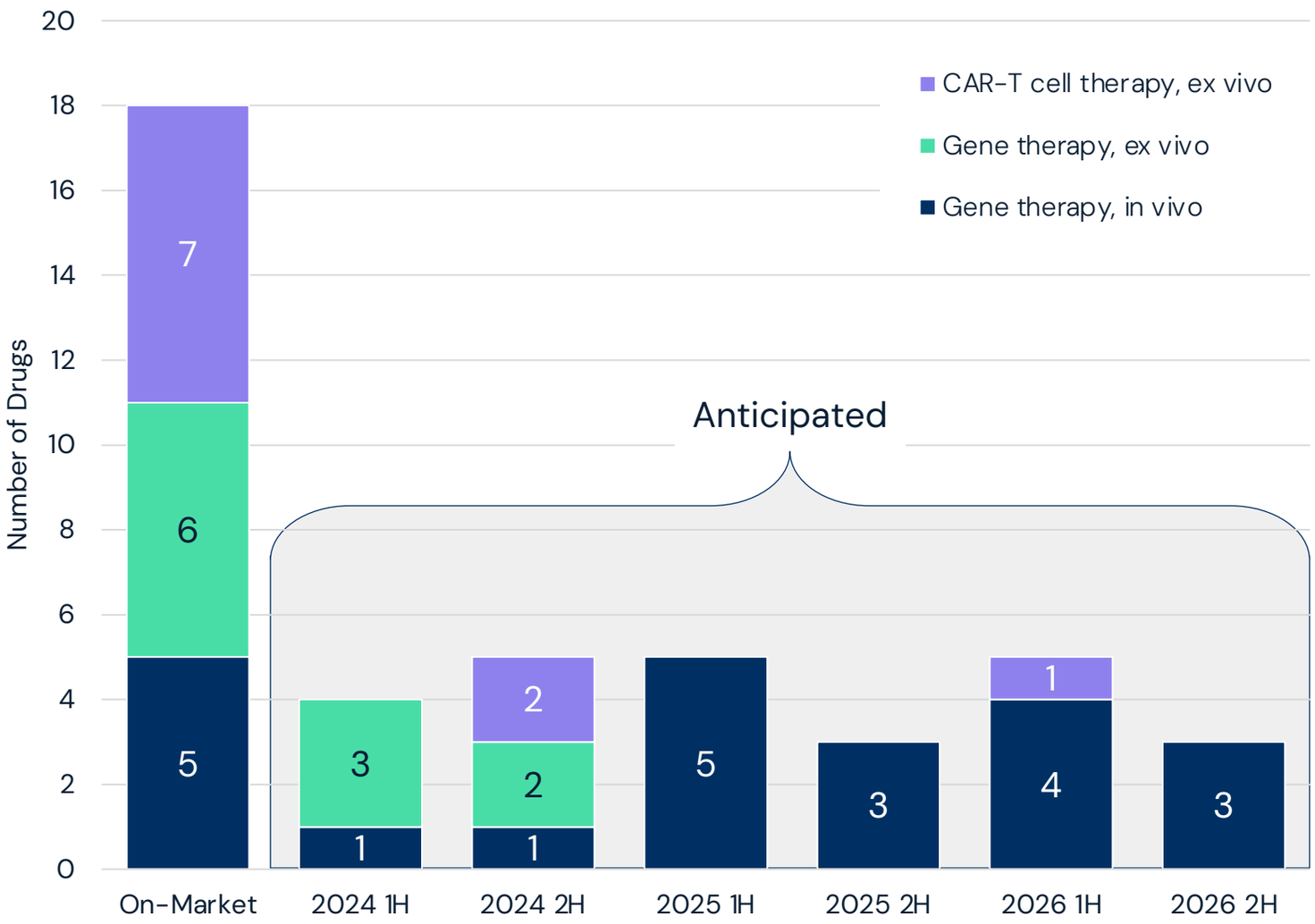
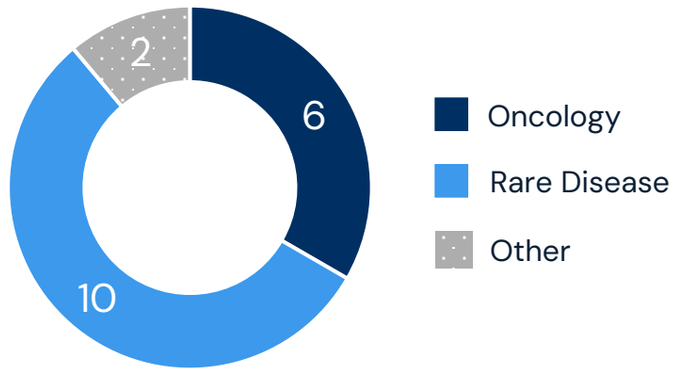
Number of Treatments for Rare Disease Anticipated To Grow

Oncology treatments are anticipated to account for a smaller share of approved cell and gene therapies by 2026. While one-third of on-market treatments are indicated to treat cancer (e.g., CAR-T cell therapies), treatments for rare diseases (e.g., hemophilia, Sanfilippo) and chronic conditions (e.g., age-related macular degeneration) account for 75% of the CGT pipeline.

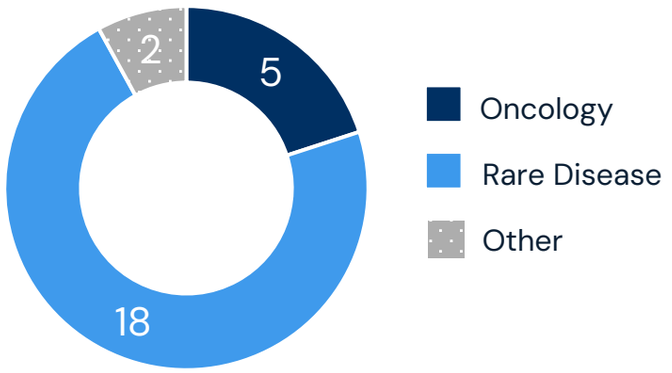
Cell and Gene Therapies Already on Market or With Project Launch Years Between 2024 and 2026



On-Market Therapies, by Indication



Anticipated Therapies, by Indication



Note: CGT denotes cell and gene therapy; CAR-T denotes chimeric antigen receptor.
Source: CVS, Gene Therapy Pipeline, Q4 2023 – Q4 2026; Tufts Medicine NEWDIGS Medical Consortium, Approved Cell and Gene Therapy (CGT) Products.

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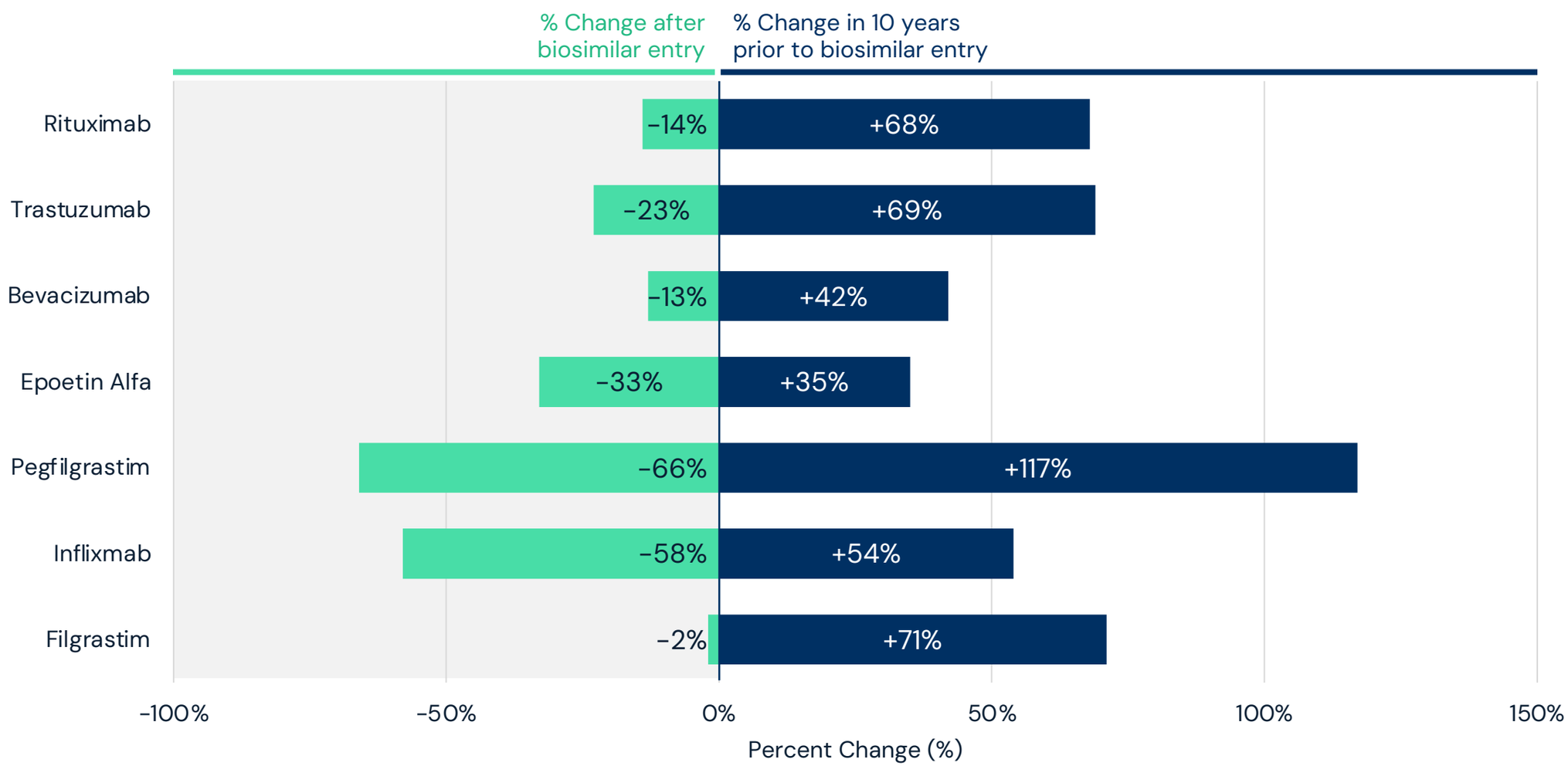
Biosimilar Market Share Remains Low Despite Demonstrated Savings

Prior to biosimilar entry, brand biologics typically increase in price, however, after biosimilar entry, brand prices decrease by 25% on average. Despite demonstrable savings, biosimilar market share remains below 20%, suggesting that brand name drugs are still being dispensed even when a biosimilar is available.

Percent Change in Originator Biologic ASP Before and After Biosimilar Entry



Note: ASP denotes average sales price.
Source: The Association for Accessible Medicines U.S. Generics and Biosimilar Medicines September 2023 Savings Report.

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Utilization of AI Technologies Is Highest for Cardiac Conditions

Since 2018, multiple AI CPT codes have been introduced. Despite the availability of these codes, utilization is infrequent and concentrated among cardiac conditions such as coronary artery disease, ECG cardiac dysfunction and coronary atherosclerosis.

Utilization of AI CPT Codes, 2018-2023

Condition or Procedure	Clinical Application	Patient Volume	Average Age	Effective Year
All AI CPT Codes		**201,728**	**66.4**	**-**
Coronary artery disease (0501T-0504T)	Noninvasive estimate of coronary fractional flow reserve derived from augmentative software analysis	197,693	66.8	2018
ECG cardiac dysfunction (0764T-0765T)	Provider uses algorithms enhanced by artificial intelligence to assess the patient for cardiac issues	44,535	59.7	2023
Diabetic retinopathy (92229)	Retinal telescreening for diabetic retinopathy	29,491	59.1	2021
Coronary atherosclerosis (0623T-0626T)	Preparing and transmitting coronary computed tomographic angiography data for computerized quantification and characterization of coronary plaque	8,886	61.5	2021
Liver MR (0648T-0649T)	Reports from quantitative multiparametric liver MR scans to help clinicians diagnose and manage fatty liver disease, including nonalcoholic steatohepatitis	5,265	53.0	2021
Breast ultrasound (0689T-0690T)	Provider uses ultrasound imaging data and software to analyze tissue quantitatively, and then provides an interpretation and report	1,857	59.6	2022
Cardiac acoustic waveform recording (0716T)	Cardiac acoustic waveform recording with automated analysis and generation of coronary artery disease risk score	1,222	62.4	2022
Multiorgan MRI (0697T-0698T)	Analyze tissue composition quantitatively for multiple organs, acquiring, preparing and transmitting data with an interpretation and report	985	48.8	2022
Quantitative MR cholangiopancreatography (0723T-0724T)	Provider uses magnetic resonance cholangiopancreatography data and software to assess the biliary system quantitatively	955	54.7	2022
Epidural infusion (0777T)	Provider uses a device that detects pressure changes to help identify and confirm the epidural space in real time	248	56.3	2023
Autonomous insulin dosage (0740T-0741T)	Remote, autonomous algorithm-based recommendation system for insulin dose calculation and titration	49	52.6	2023

Note: AI denotes artificial intelligence; CPT denotes Current Procedural Terminology; ECG denotes electrocardiogram; MRI denotes magnetic resonance imaging; MR denotes magnetic resonance. CPT codes with patient volume <25 removed. All patient volume is not a sum of the code-level totals represented in the table.
Source: Trilliant Health national all-payer claims database.

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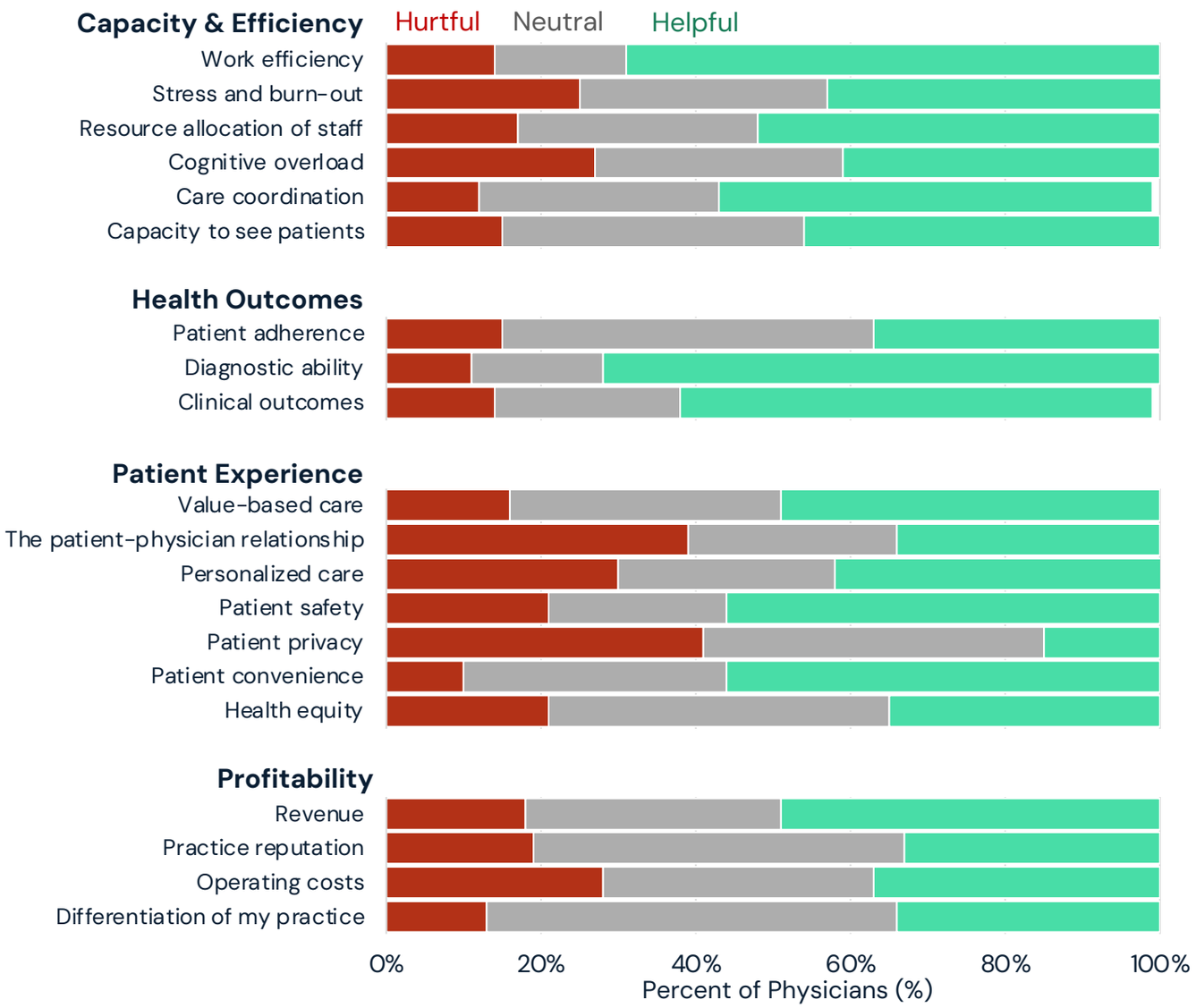
Physicians Are Cautiously Optimistic About AI's Potential

Physician sentiment regarding the impacts of AI on healthcare is mixed. While most report that they think AI will improve diagnostic ability (72%) and work efficiency (69%), 39% are concerned that AI could damage the patient-physician relationship, and 41% report it could jeopardize patient privacy.

Percent of Physicians Anticipating Impact of AI, 2023



> In health care, the result can be models that 'reflect the conditions only of the fortunate' and yield 'an aggregate understanding of health and illness that fundamentally excludes the marginalized' in a way that risks exacerbating existing health disparities.
>
> *- AMA Augmented Intelligence in Health Care Report*

Note: Percentages may not add to 100% due to rounding. AI denotes artificial intelligence; AMA denotes American Medical Association.
Source: American Medical Association Augmented Intelligence Research Reports, 2018 and 2023.

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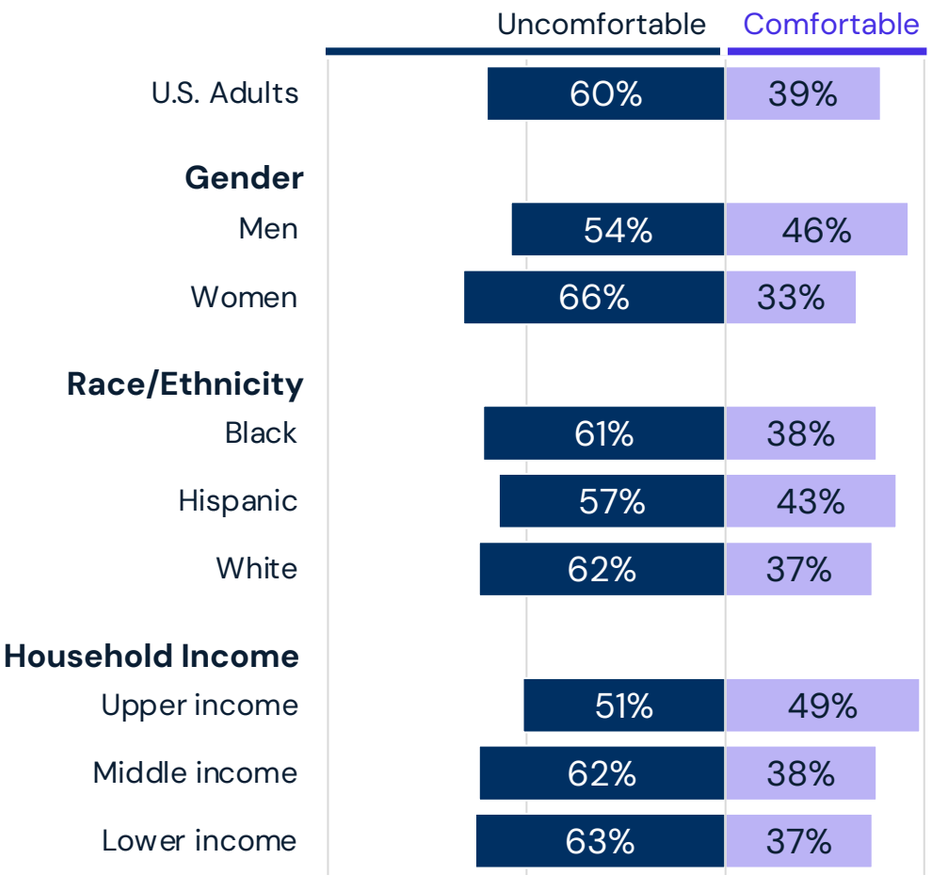
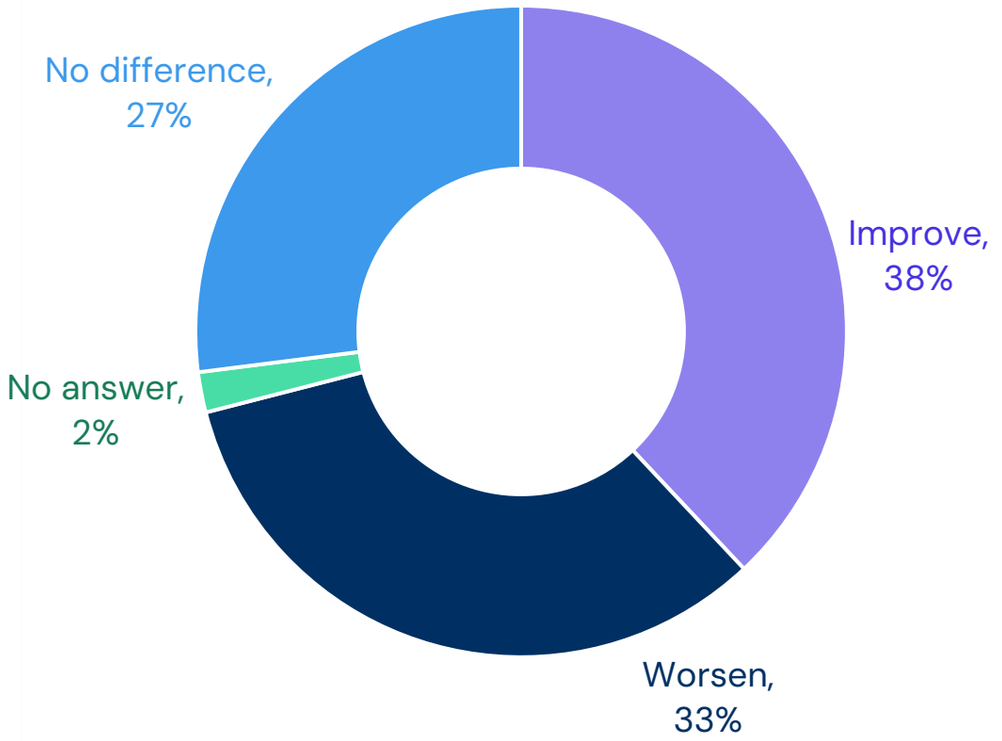
Patients Remain Uncomfortable With Use of AI in Healthcare

Consumer trust in AI in healthcare remains limited. Only 39% of U.S. adults report that they would feel comfortable if their provider relied on AI for their healthcare, although men and those with higher incomes report slightly higher trust. Meanwhile, the majority of Americans report that AI will either not impact (27%) or worsen (33%) health outcomes for patients.

Degree of Comfort With Use of AI in Healthcare Among Adults, 2022



Share of Adults Reporting They Believe AI Will Improve or Worsen Health Outcomes for Patients



Note: Percentages may not add to 100% due to rounding. AI denotes artificial intelligence. The data represents the percent of patients who said "they would feel ___ if their healthcare provider relied on AI to do things like diagnose disease and recommend treatments" and the percent of patients who said "would lead to ___ health outcomes for patients." The percentage of adults reported as "comfortable" includes adults were "very comfortable" and "somewhat comfortable," and the percentage of adults reported as uncomfortable includes adults who were "very uncomfortable" and "somewhat uncomfortable."
Source: Pew Research Center Survey on AI in Healthcare.

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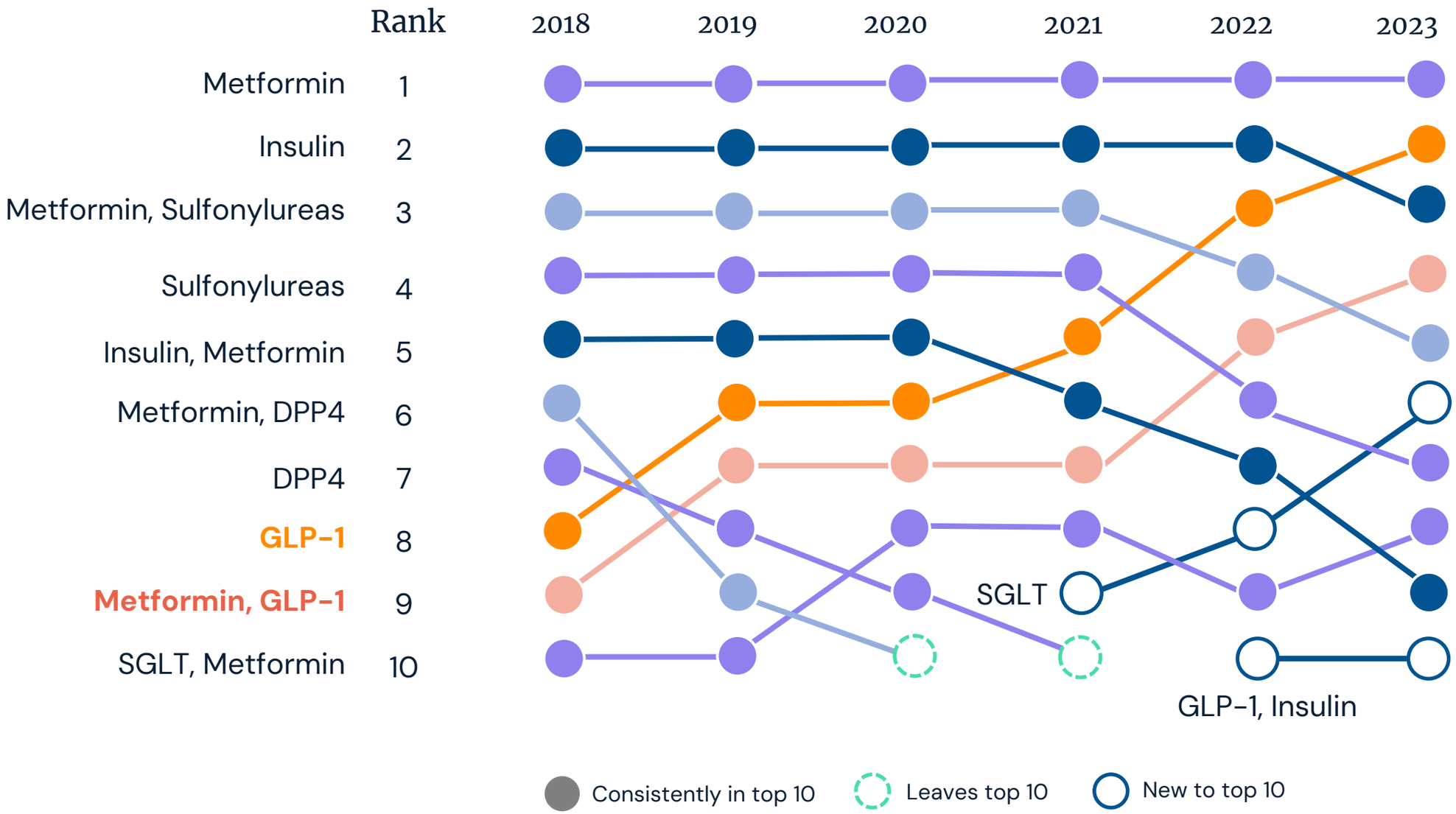
New Therapies Can Change Established Treatment Patterns and Costs

While metformin has consistently been the most common medication for managing type 2 diabetes, GLP-1s rose from the eighth most common drug regimen in 2018 to the second most common in 2023. The value attributed to new therapies will be influenced by the number of drugs needed to manage the specific clinical condition and associated incremental costs.

Top 10 Medication Combinations for Type 2 Diabetes Management, 2018-2023



Note: Analysis is limited to commercially insured patients. GLP-1 denotes glucagon-like peptide-1; DPP4 denotes dipeptidyl peptidase-4; SGLT denotes sodium-glucose linked transporter.
Source: Trilliant Health national all-payer claims database.

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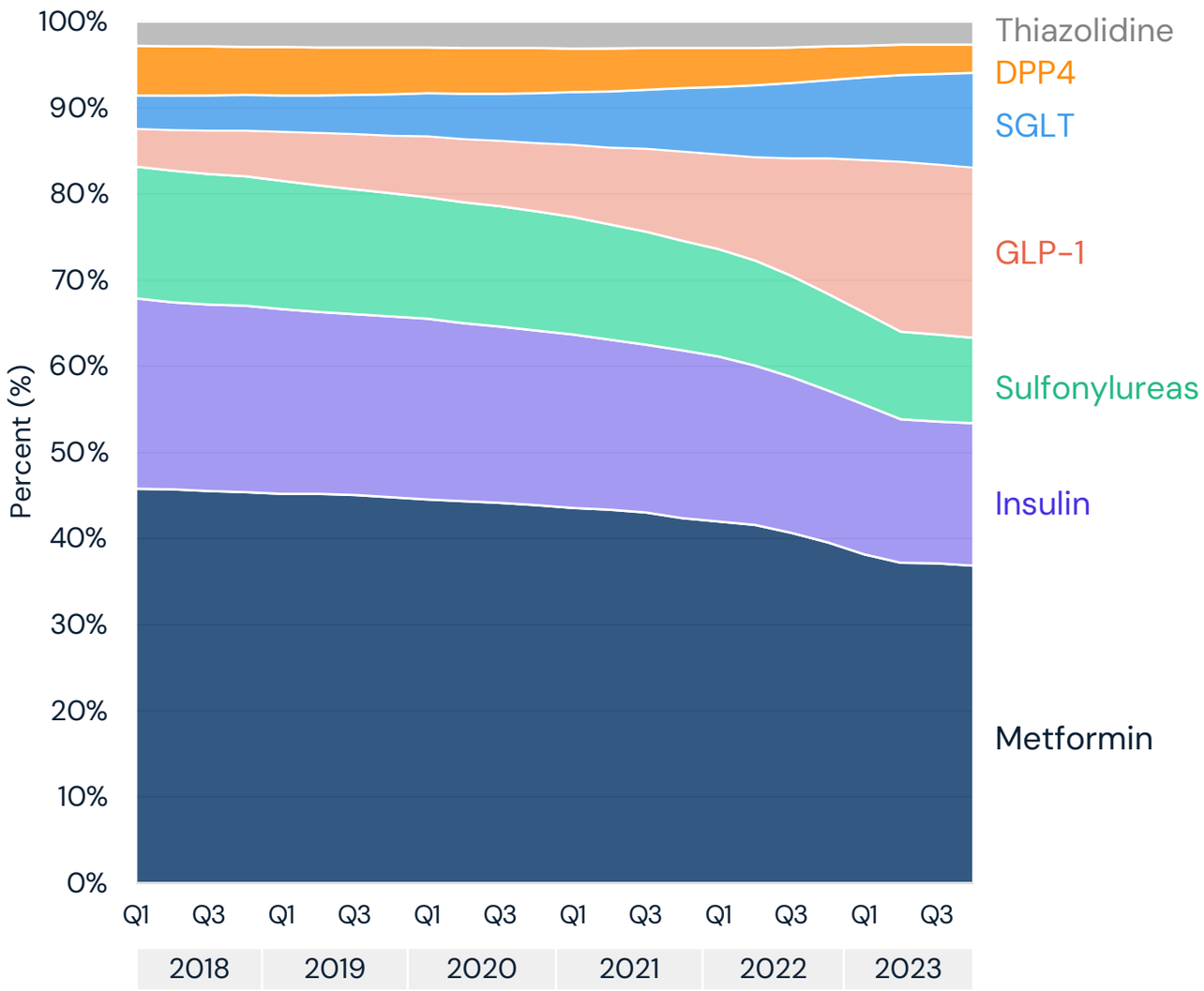
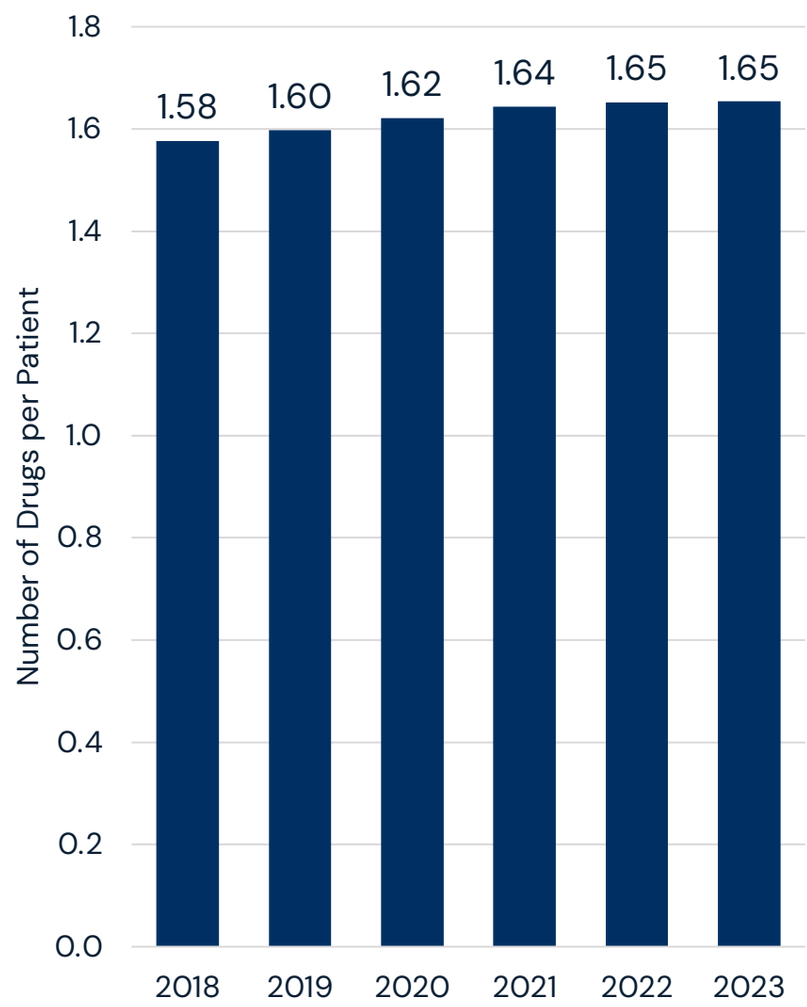
Do Expanded Drug Regimens Lead to Better Value?

The average number of diabetes drugs per patient increased from 1.58 in 2018 to 1.65 in 2023. GLP-1s increased from comprising 4.4% of type 2 diabetes drugs prescribed in Q1 2018 to 19.8% of type 2 diabetes drugs by Q4 2023.

Distribution of Type 2 Diabetes Management Drugs, Q1 2018-Q4 2023



Average Number of Type 2 Diabetes Drugs per Patient, 2018-2023



Note: Analysis is limited to commercially insured patients. GLP-1 denotes glucagon-like peptide-1; DPP4 denotes dipeptidyl peptidase-4; SGLT denotes sodium-glucose linked transporter.
Source: Trilliant Health national all-payer claims database.

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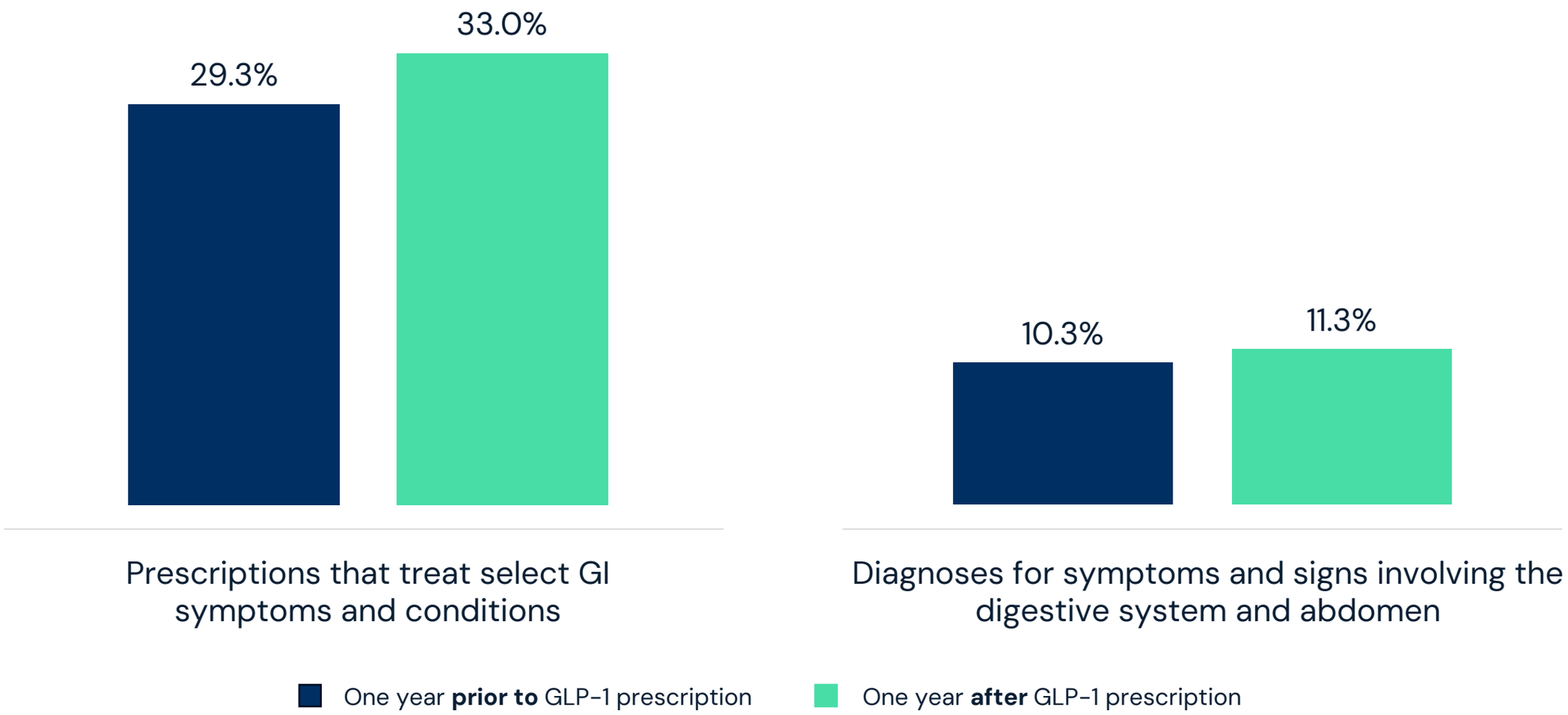
New Therapies Like GLP-1s Impact Downstream Demand for Services

In the year following GLP-1 initiation, the proportion of patients with a GI-related diagnosis increased by 1.0 percentage point and the proportion of patients taking a GI-related medication increased by 3.7 percentage points. This underscores the importance of holistically weighing potential benefits and harms of new drugs and their downstream impact on the use of additional services and/or drugs.

GI-Related Diagnoses and Prescriptions Rendered One Year Before and After GLP-1 Prescription



Note: Analysis is limited to commercially insured patients. GI denotes gastrointestinal; GLP-1 denotes glucagon-like peptide-1. GI-related diagnoses include Symptoms and signs involving the digestive system and abdomen (ICD R10-R19). GI-related prescription drugs include GPI 46-49 (Ulcer Drugs), 46-50 (Antiemetics) and 46-51 (Gastrointestinal Agents).
Source: Trilliant Health national all-payer claims database.

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How Many Surgical Procedures Are Imperiled by New Therapeutics?

As new therapies become available and emerging evidence is incorporated into clinical guidelines, it is likely that some high-margin surgical procedures will be replaced by less invasive interventions, or there will be a decline in downstream demand. Are providers prepared for the potential volume declines and revenue losses associated with replacement therapies?

Current and Future Scenarios for Select Surgical Procedures With Less Invasive Alternatives

Present *Traditional Care Delivery Standard*					**Future** *Potential New Standard*		
Procedure Or Intervention	Approximate Annual U.S. Volume	Average Inpatient Medicare Rate	Minimum Annual Provider Revenue		Less Invasive Intervention	Replacement Rate Scenarios	Potential Provider Revenue Loss
Bariatric Surgery	250K	$10,667	$2.7B	*Replace with medication management*	GLP-1 agonists	5%	-$133.3M
						10%	-$266.7M
						20%	-$533.4M
Cardiac Catheterization	1M	$40,737	$40.7B		PCSK9/SGLT2 inhibitors	5%	-$2.0B
						10%	-$4.1B
						20%	-$8.2B
Screening Colonoscopy	15M	$11,722	$175.8B	*Replace with alternate screening test*	Fecal occult blood tests, flexible sigmoidoscopy, fecal DNA testing	5%	-$8.8B
						10%	-$17.6B
						20%	-$35.2B

Note: The approximate annual procedure volumes are based upon national projections. These scenarios represent the potential outcomes of changes in volume due to alternate treatments becoming available or recommended practice patterns changing. Replacement rate scenarios are merely illustrative and could be higher or lower depending on the specific procedure. GLP-1 denotes glucagon-like peptide-1 receptor.
Source: Centers for Medicare and Medicaid Services Inpatient Prospective Payment System.

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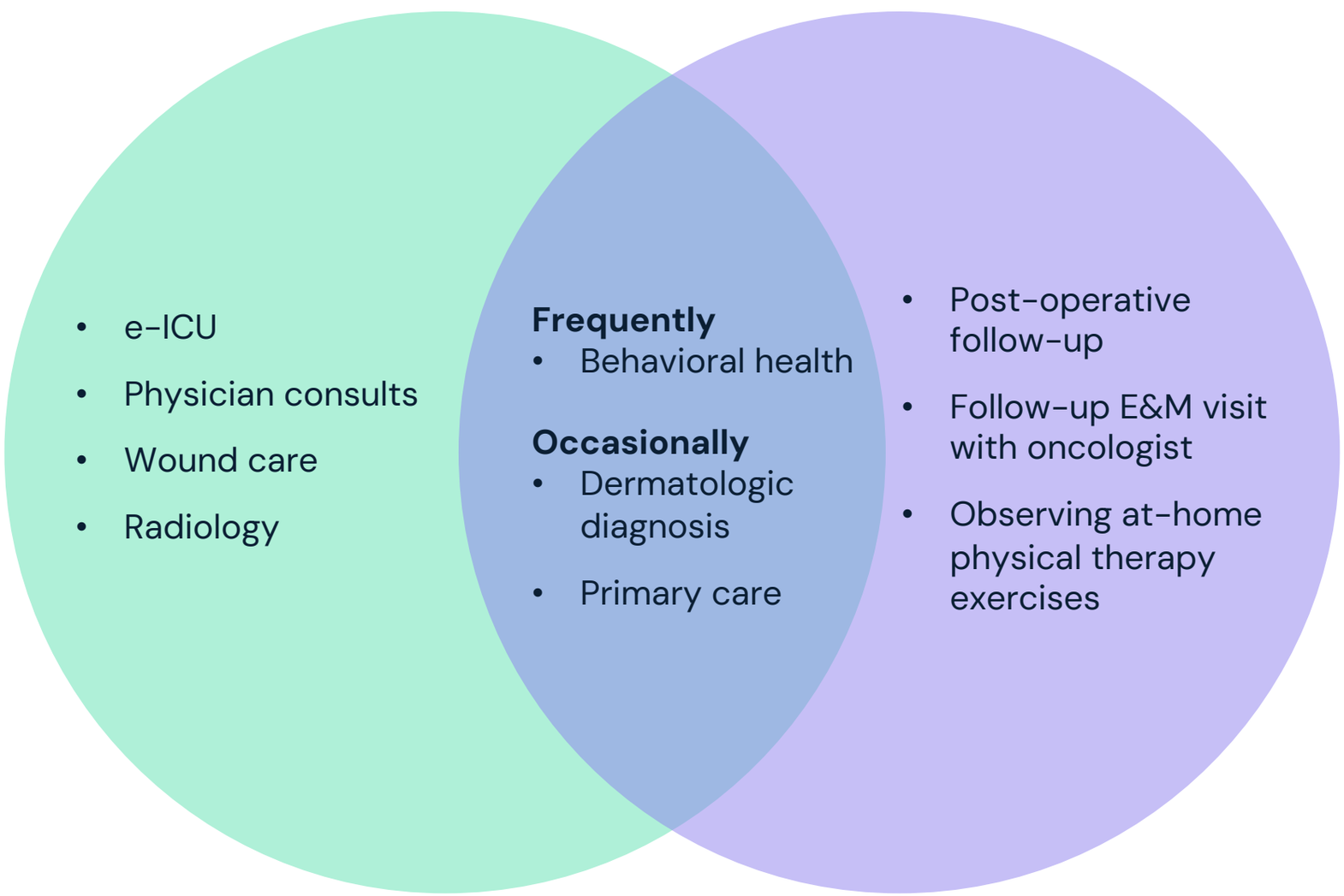
Telehealth's Value as a Clinical Tool Is Limited

Telehealth utilization trends signal that patients do not view telehealth as a substitute for in-person care for most conditions, except for behavioral health. How telehealth utilization evolves will depend on how policymakers, employers, payers and providers view its clinical utility, which can be at odds with patient, or consumer, preference.

Telehealth Use Cases by Value Proposition



Note: ICU denotes intensive care unit; E&M denotes evaluation and management.

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Macro Trend #4

The Value of Technological Advancements Is Uncertain

COMPASS+ EXCLUSIVE

Micro Trends

- How does all-payer bariatric surgery utilization vary by CBSA, age and sex?
- How has the use of AI in healthcare evolved over time?

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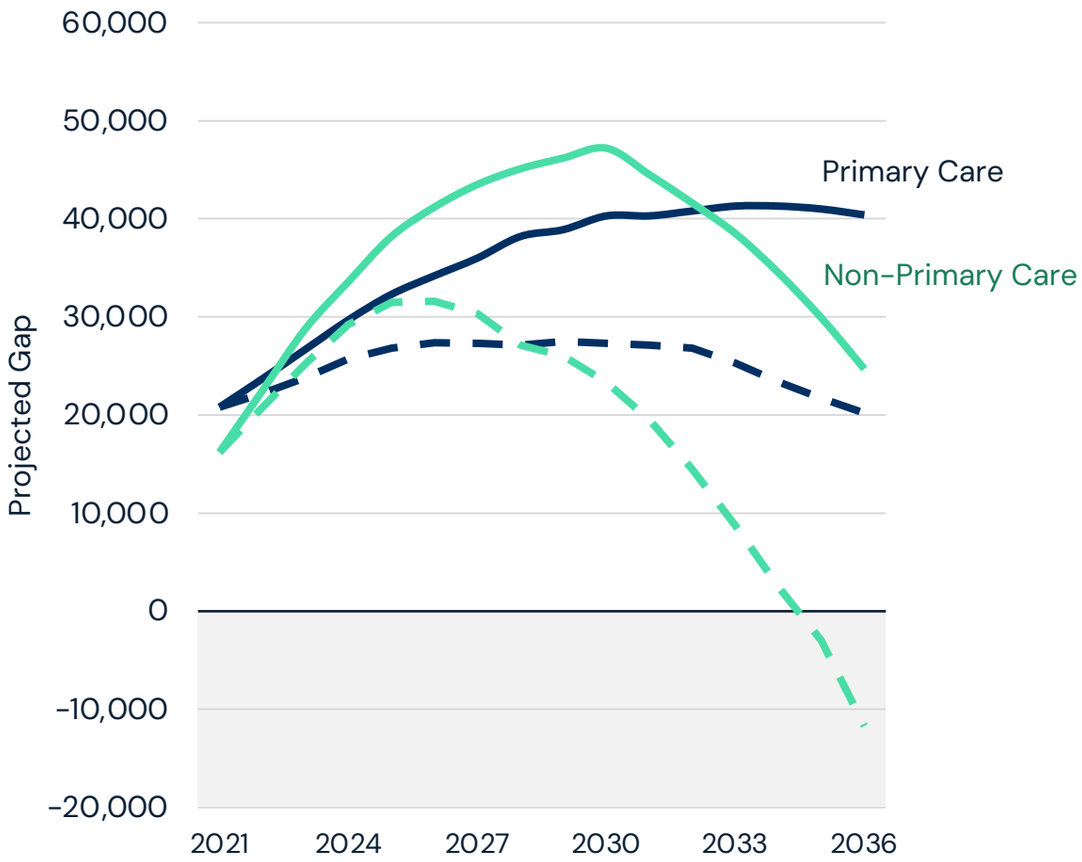
TREND 5

Supply Constraints Are Correlated With Inadequate Yield

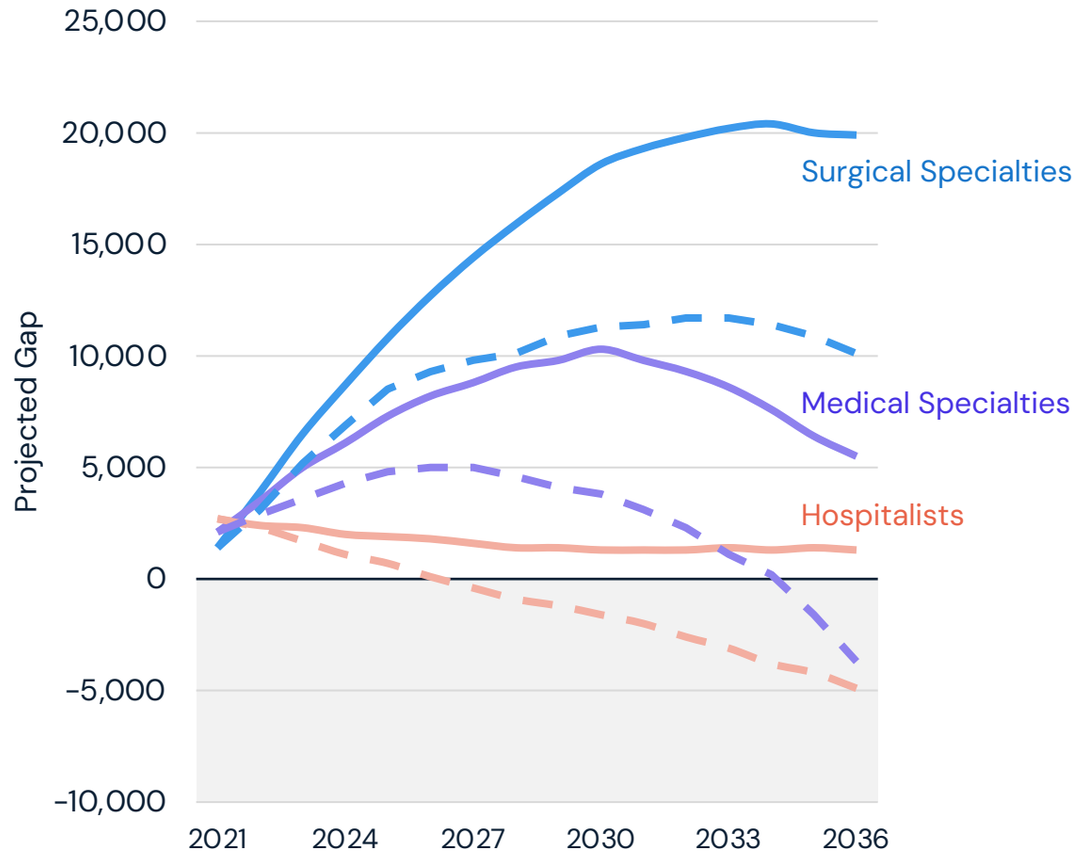
The Projected Gap of Primary Care Providers Could Exceed 40K

By 2036, the gap in primary care physician supply is projected to range from 20,200 to 40,400 physicians. At the same time, the gap in hospitalists could range from a shortage of 1,300 physicians to a surplus of 4,900 physicians.

Projected Gap Between Physician Supply and Demand for Primary Care and Non-Primary Care, 2021-2036



Projected Gap Between Physician Supply and Demand for Surgical Specialties, Medical Specialties and Hospitalists, 2021-2036



Note: The shortage range for non-primary care can differ from the sum of ranges for specialty categories. Negative numbers indicate projected excess supply and positive numbers indicate projected shortages.
Source: Association of American Medical Colleges The Complexities of Physician Supply and Demand: Projections From 2021 to 2036.

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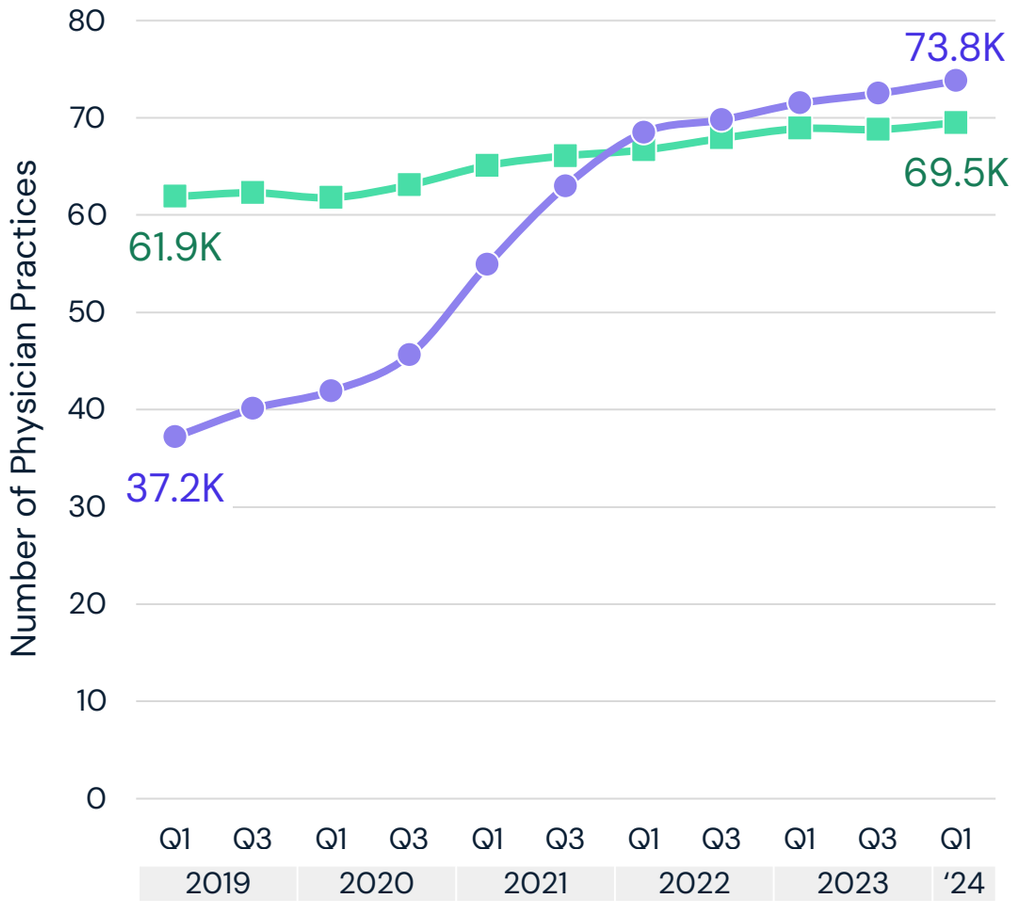
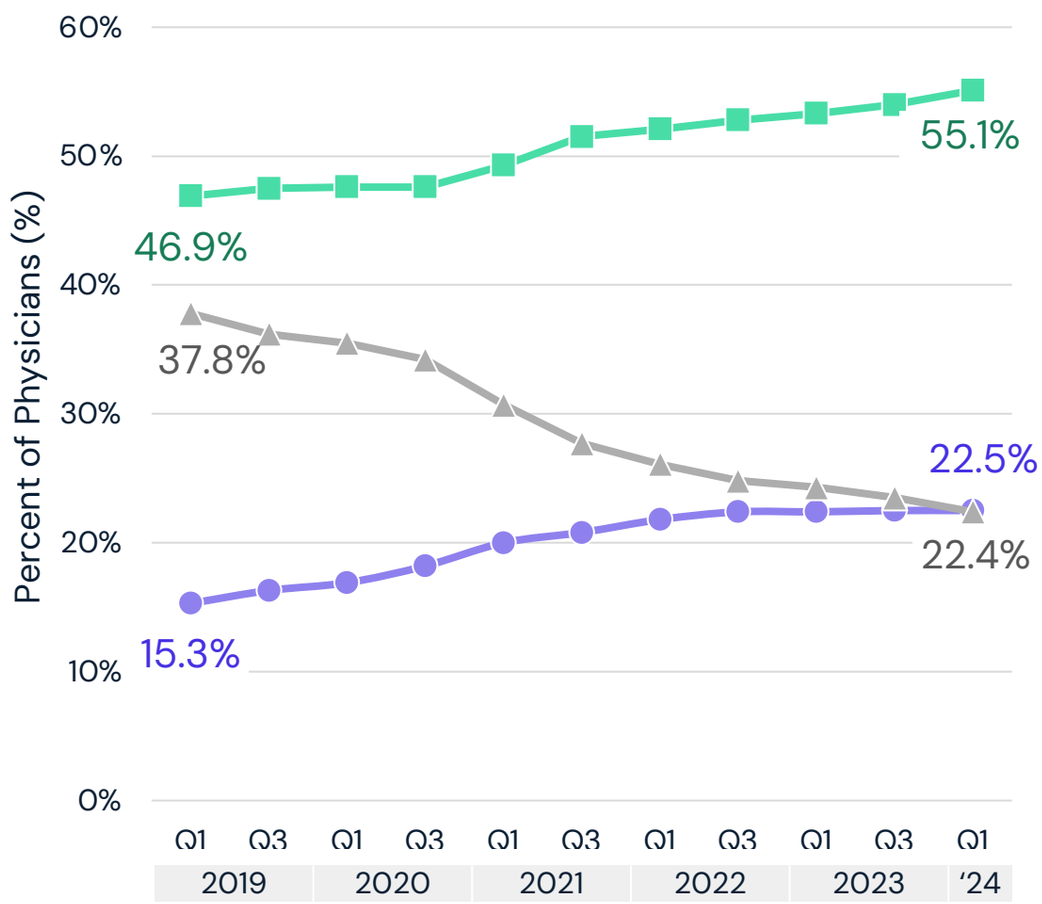
The Majority of Physicians Are Employed, Not Independent

Physicians are increasingly employed by corporate entities, as opposed to independent practices. Of physicians employed by a corporation, a growing share are employed by a non-physician entity rather than a hospital.

Number of **Physician Practices** Owned by Hospitals and Non-Physician Entities, Q1 2019-Q1 2024



Percent of U.S. **Physicians** Employed by Hospitals or Non-Physician Entities, Q1 2019-Q1 2024



Note: Non-physician entities include health insurers, private equity firms and other corporate entities that own a controlling share of the practice. All other includes independent practices.
Source: Physicians Advocacy Institute-Avalere Health Updated Report: Hospital and Corporate Acquisition of Physician Practices and Physician Employment 2019-2023.

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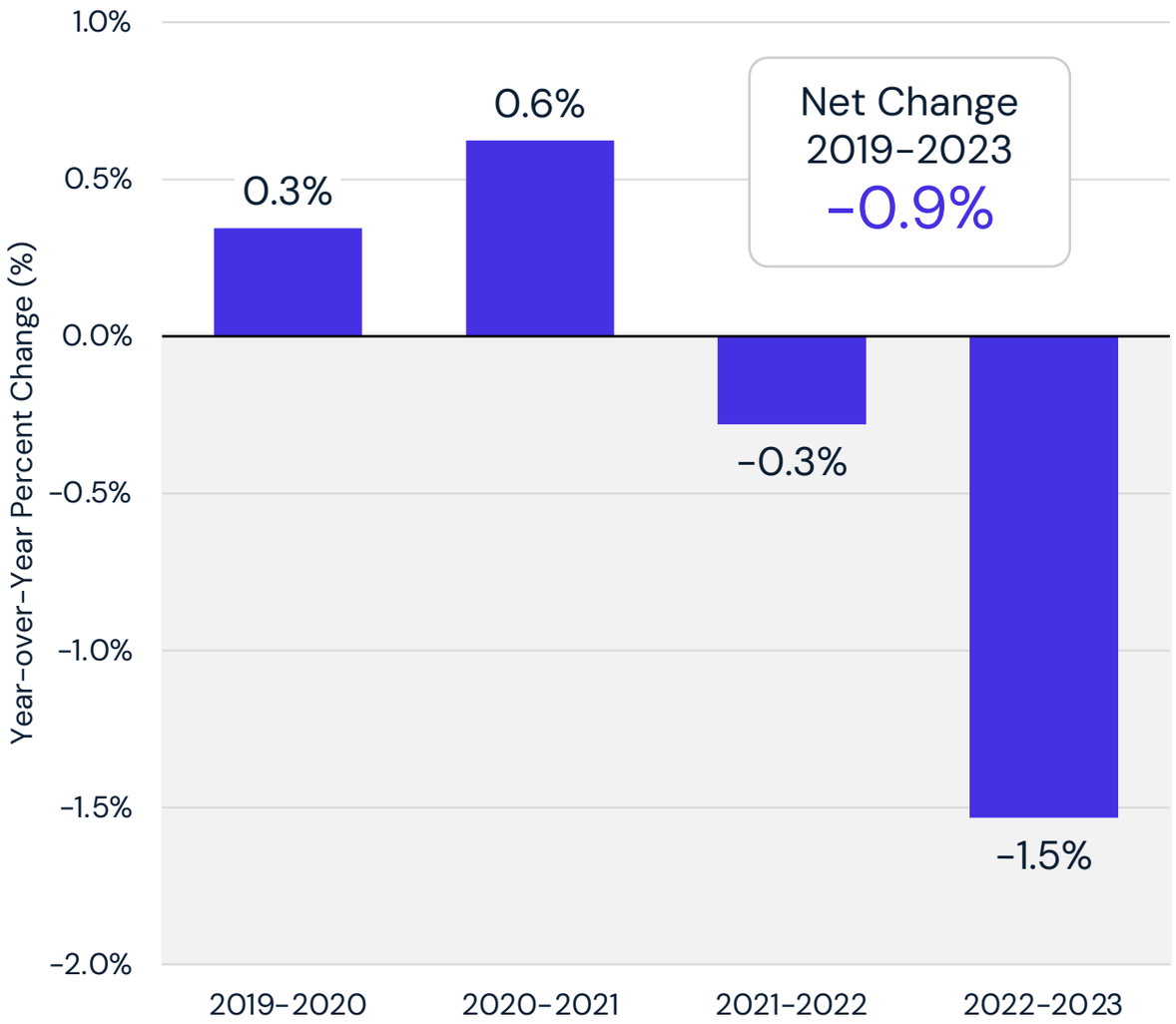
Competition Is Intensifying for a Smaller Number of Physicians

The change in the number of practicing physicians from 2019 to 2023 resulted in a -0.9% workforce reduction, with a workforce reduction of -1.5% from 2022 to 2023. Notably, 31.3% of physicians changed primary practice location between 2019 and 2023.

Percent Change in Practicing U.S. Physicians, 2019-2023



Share of Physicians in 2023 That Are **New** Since 2019
3.0%

Share of 2019 Physicians No Longer Practicing in 2023
2.4%

Physicians That Changed Practice Locations From 2019 to 2023
31.3%

Note: Physicians denote both MD and DO. Analysis was limited to physicians delivering office-based evaluation and management (E&M) services.
Source: Trilliant Health national all-payer claims database and Provider Directory.

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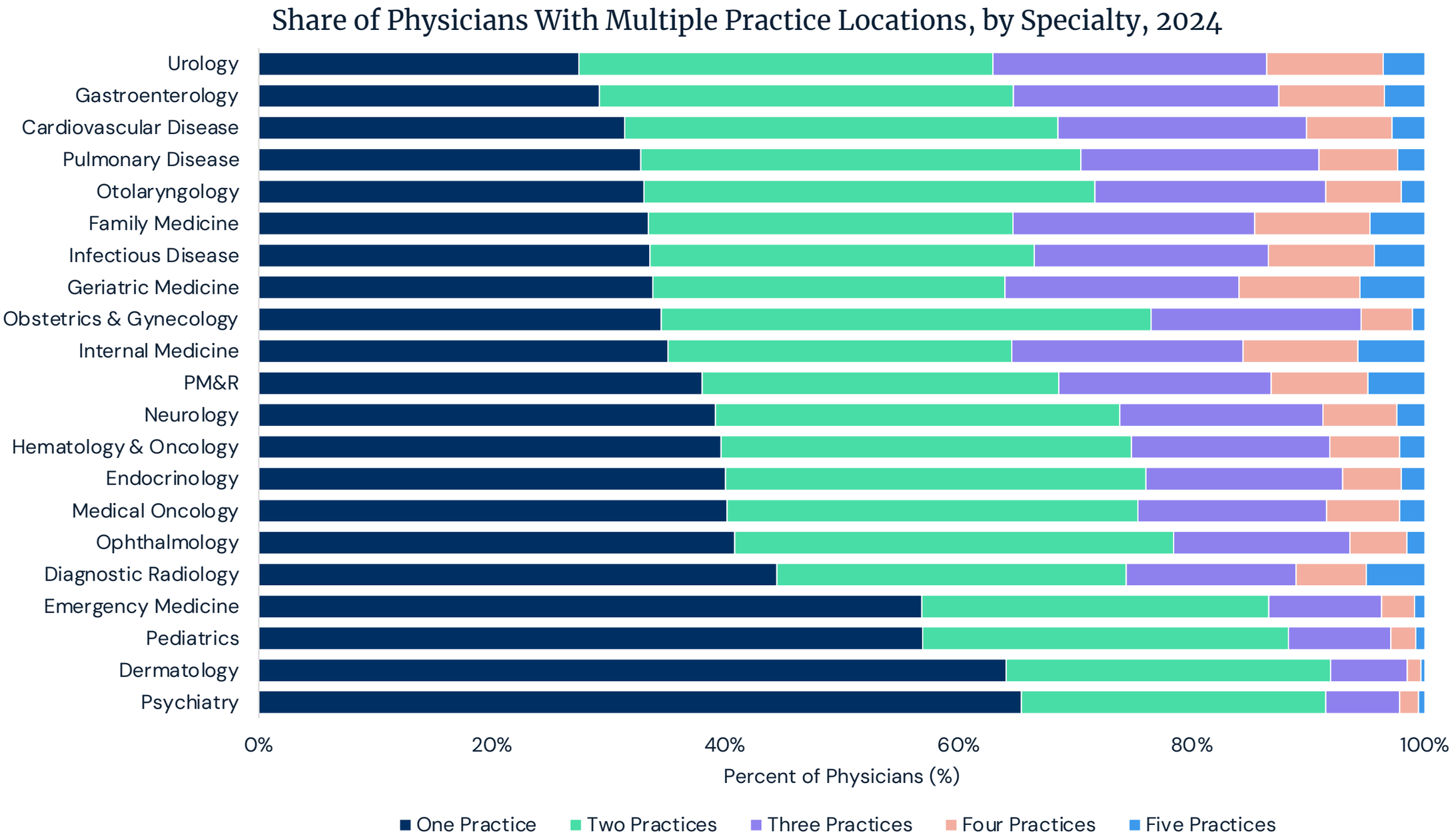
Thirty Percent of Physicians Have at Least Three Practice Locations

The number of physician practice locations varies by specialty, which can be influenced by the number of employers, regional supply of physician types and demand for services. Notably, 65.4% of psychiatrists have a singular practice location, compared to 27.5% of urologists.



Note: PM&R denotes physical medicine and rehabilitation.
Source: Trilliant Health Provider Directory.

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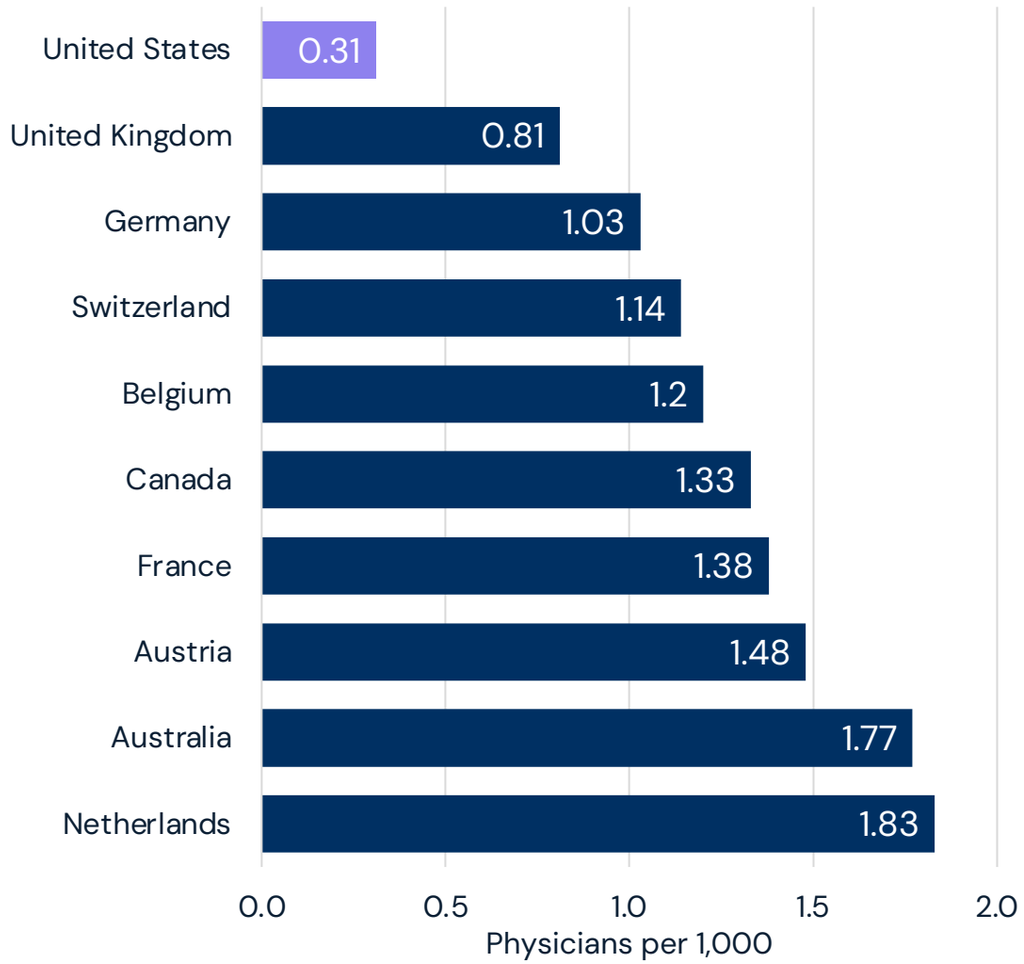
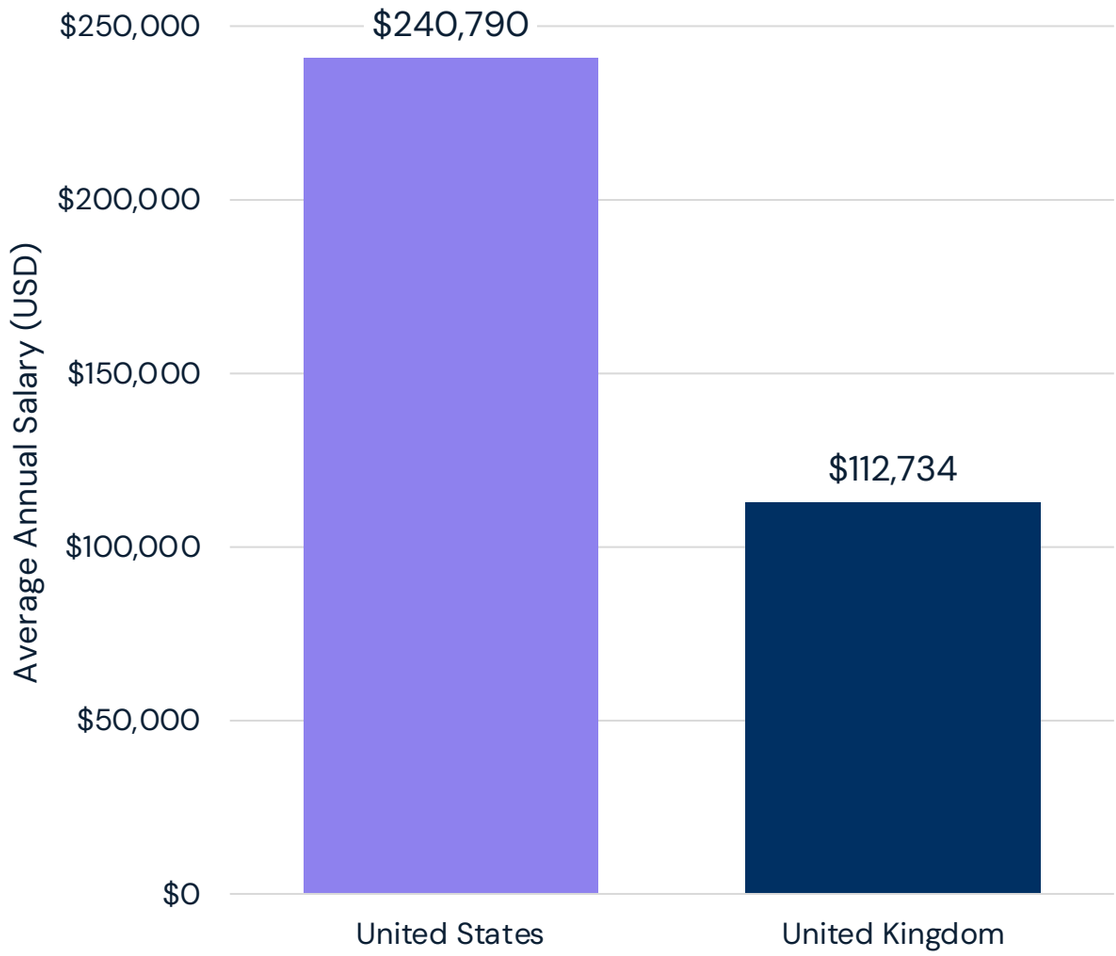
There Are Fewer PCPs in the U.S. vs. U.K., Despite Higher Compensation

While there are more PCPs per 1,000 population in the U.K. than in the U.S., PCPs are paid $241K in the U.S., on average, while U.K. PCPs are paid $113K, on average.

Primary Care Physicians per 1,000 Population, U.S. and Select OECD Countries, 2021



Primary Care Physician Average Annual Salary, 2023



Note: PCP denotes primary care physician. OECD denotes Organization for Economic Co-Operation and Development. U.K salary conversion from GBP to USD reflects August 2024 conversion rates.
Source: Organization for Economic Co-Operation and Development; GP World A guide to GP salary and pay in the UK 2024; Bureau of Labor Statistics Occupational Employment and Wages, May 2023.

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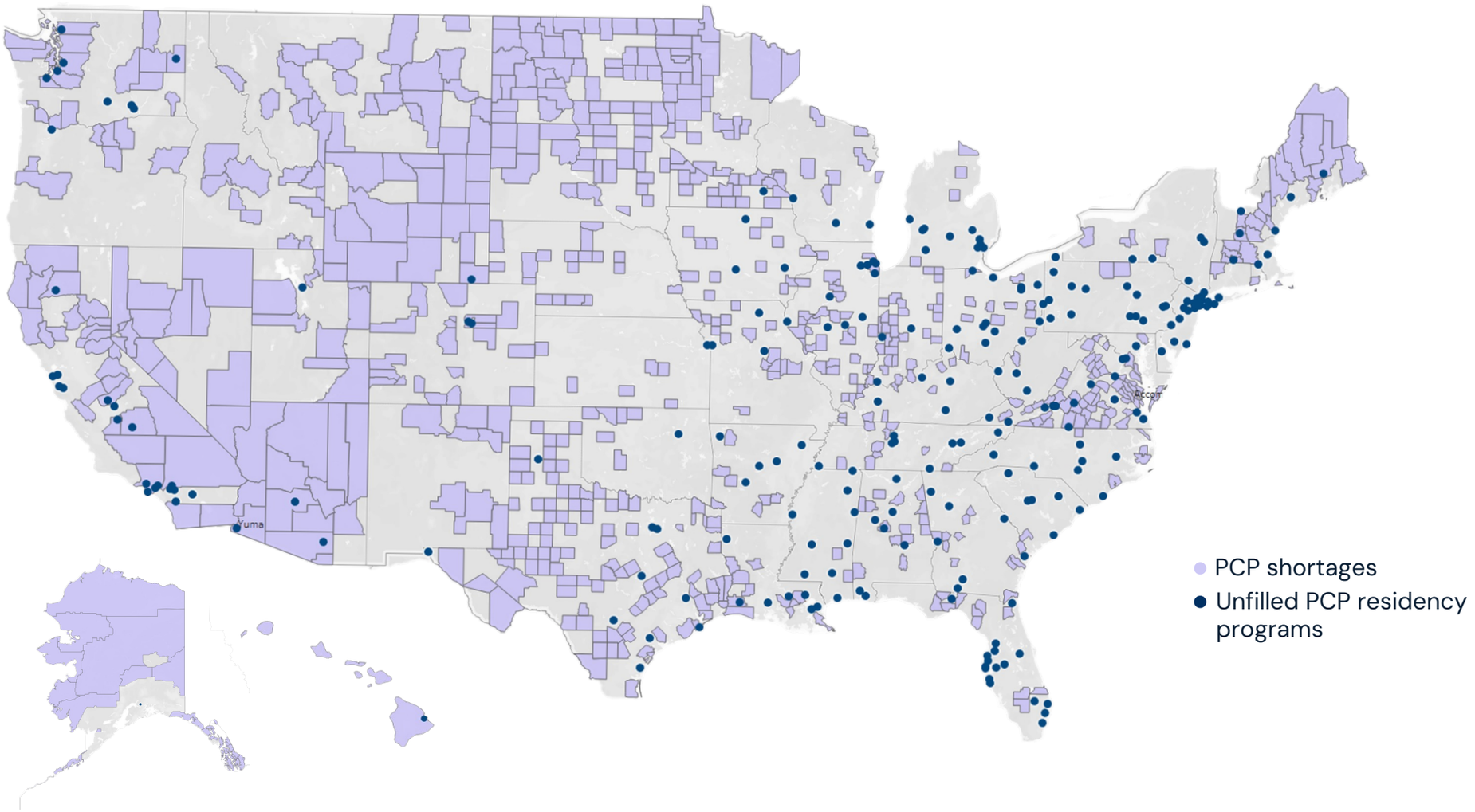
Unfilled Primary Care Residencies Align With Primary Care HPSAs

The Health Resources & Services Administration designates regions with insufficient primary care supply. Nationally, areas designated as primary care shortage areas are concentrated in rural areas and throughout the Midwest and Northwest, with many HPSAs overlapping with unfilled primary care residency programs.

Primary Care Professional Shortage Areas and Unfilled Primary Care Residency Programs, by County, 2024

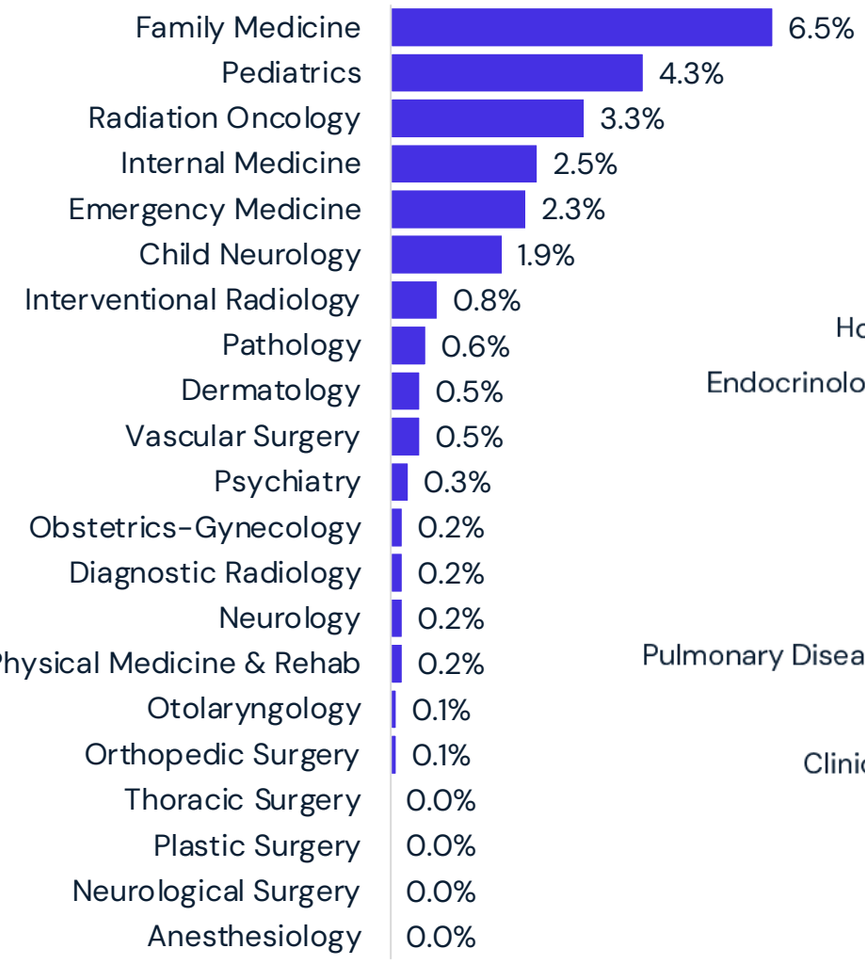


Note: HPSA denotes health professional shortage area; PCP denotes primary care physician.
Source: Health Resources & Services Administration; National Resident Matching Program Main Residency Match Data Tables.

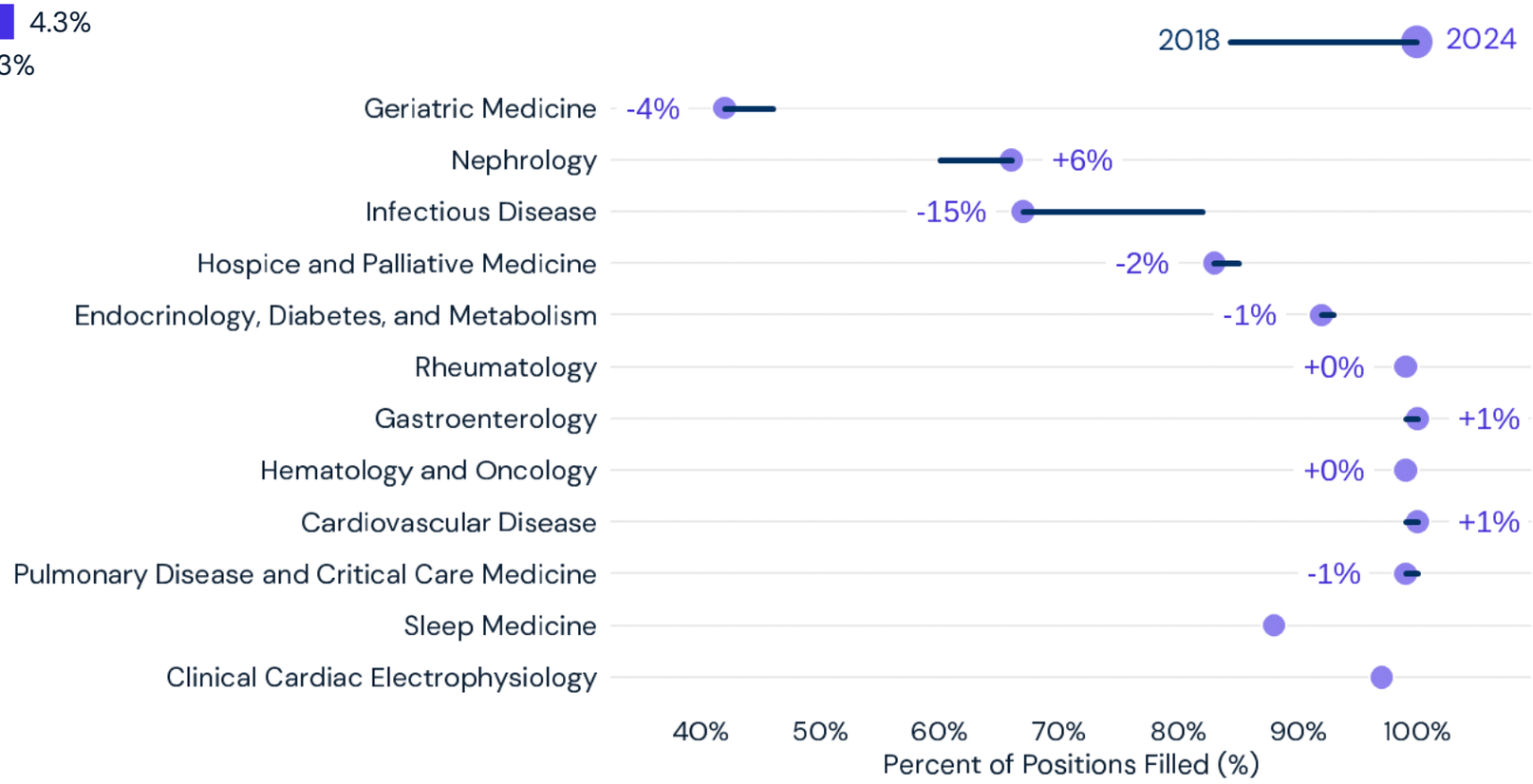
Surge in Subspecialty Fellowships Will Exacerbate Widening Primary Care Gap

Family medicine (6.5%) and internal medicine (2.5%) programs had the highest rates of unfilled residency positions, underscoring the accelerating shortage of primary care physicians. Internal medicine residents are increasingly choosing to subspecialize, with rates increasing from 61.5% in 2018 to 87.6% in 2024.

Percent of Unfilled MD/DO Residency Positions by Specialty, 2024



Change in Percent of Filled Fellowships Following Internal Medicine Residency, 2018 to 2024



Note: Residency positions are inclusive of PGY-1 and PGY-2 applicants. Specialties with fewer than 70 residency positions available, transitional programs and preliminary programs were excluded.
Source: National Resident Matching Program Main Residency and Specialties Match Data Tables 2018-2024.

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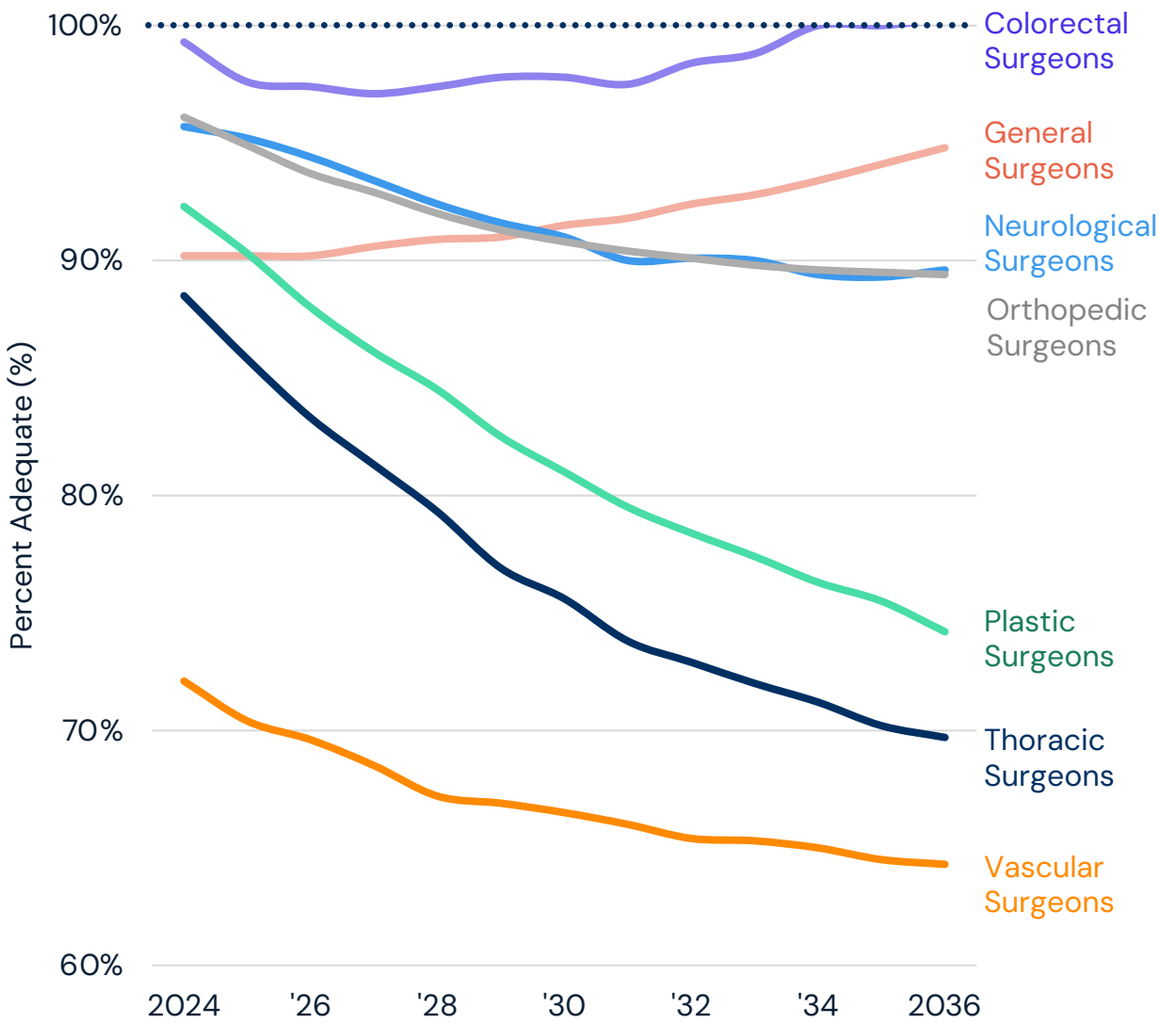
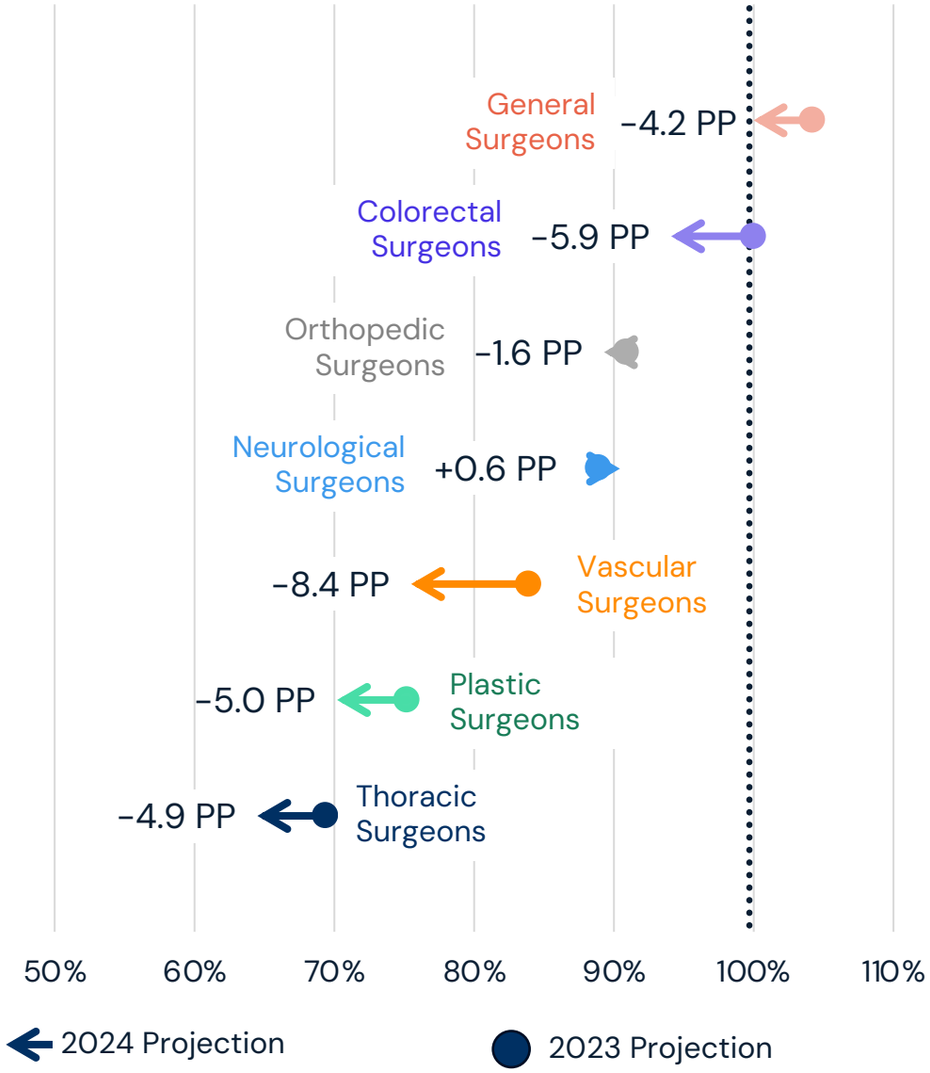
Despite Near 100% Residency Fill Rates, Projected Supply of Surgeons Is Inadequate To Meet Demand

Projected surgical adequacy by 2036 is lowest for vascular surgeons (64.3%) and highest for colorectal surgeons (100.3%). 2035 adequacy projections for all surgical specialties fell between 2023 and 2024, except for neurosurgery.

Projected Adequacy of Surgeons, 2024-2036



Difference Between 2035 Adequacy Projections, 2023 vs. 2024



Note: PP denotes percentage point.
Source: Health Resources and Services Administration Workforce Projections.

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Higher Compensation Is Likely Driving Differences in Supply Adequacy

Medical specialties such as family and geriatric medicine are compensated less than adequately supplied specialties like dermatology. While the supply adequacy of nurse practitioners is projected to reach nearly 200% by 2036, registered nurses will be 61.9% adequate and are paid 1.5X less.

	Specialty	Average Annual Salary	Projected Percent Adequacy, 2036
Medical Physicians	Emergency Medicine	$398,990	122.9%
	Critical Care Medicine	$401,000	112.3%
	Dermatology	$493,659	99.8%
	Neurology	$343,000	94.3%
	Geriatric Medicine	$289,201	81.2%
	Family Medicine	$300,813	78.3%
Allied Health	Nurse Practitioners	$129,480	191.6%
	Occupational Therapists	$96,370	115.0%
	Speech-Language Pathologists	$89,290	104.7%
	Audiologists	$87,740	100.4%
	Pharmacists	$136,030	98.7%
	Licensed Practical Nurses	$59,730	87.7%
	Registered Nurses	$86,070	61.9%

Source: U.S. Bureau of Labor Statistics; Doximity Physician Compensation Report 2024; Medscape Physician Compensation Report 2024.

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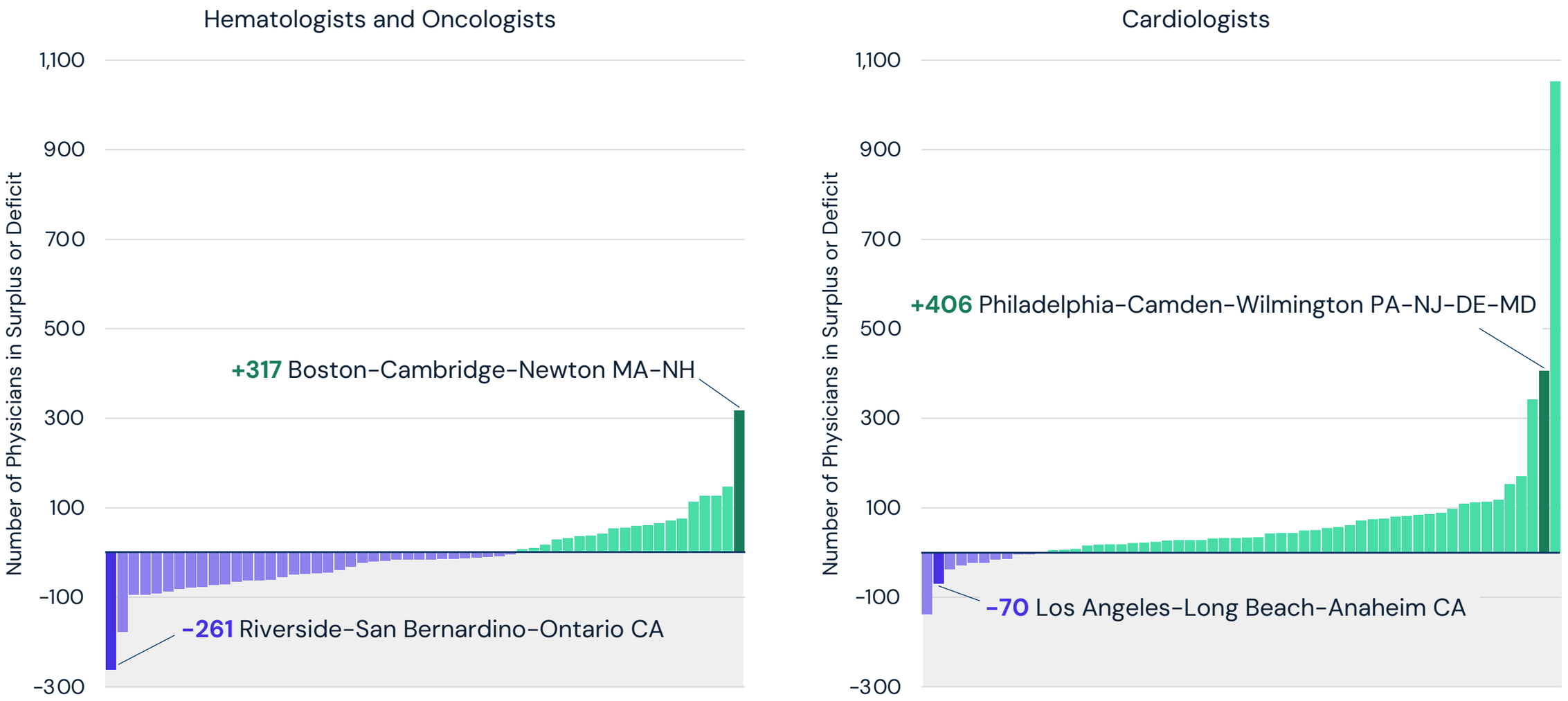
Cardiologists and Oncologists Are Not Evenly Distributed at the Market Level

For hematologists and oncologists, 20 CBSAs have a population-based surplus, while 36 CBSAs have a population-based shortage, based on national-level AAMC benchmarks. For instance, Boston, MA has the highest surplus (+317 physicians), while Riverside, CA has the largest shortage (-261 physicians). Alternately, 46 CBSAs have a surplus of cardiologists, while 10 CBSAs have a shortage.

Physician Adequacy for **Hematologist/Oncologists** and **Cardiologists**, CBSAs Over 1M Population, 2023



Note: Analysis is limited to CBSAs over 1M population. Market-level analyses leverage AAMC reported benchmarks for number of people per active physician by specialty. CBSA denotes core-based statistical area; AAMC denotes Association of American Medical Colleges.
Source: Trilliant Health Provider Directory; Association of American Medical Colleges.

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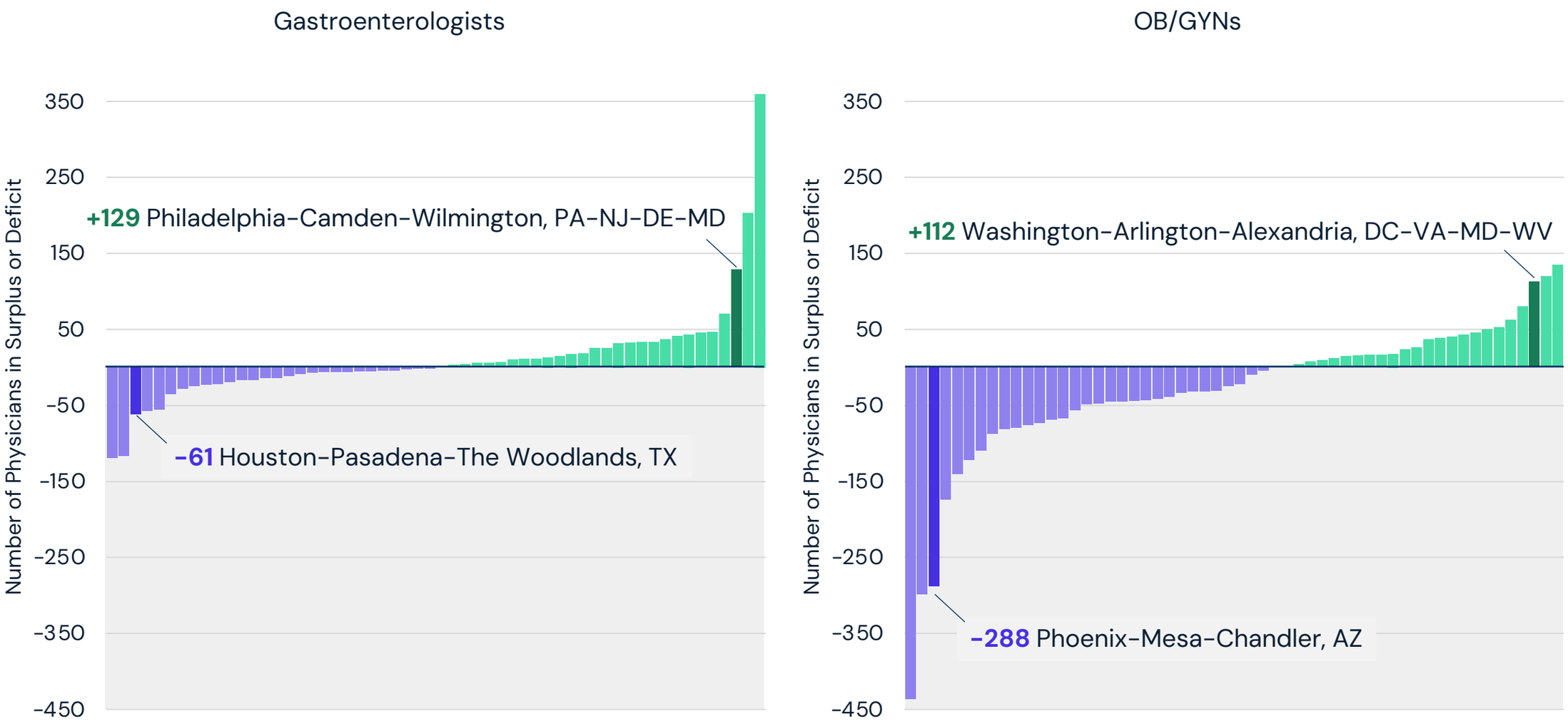
Gastroenterologists and OB/GYNs Are Not Evenly Distributed at the Market Level

For gastroenterologists, 27 CBSAs have a surplus, while 28 CBSAs have a shortage and one is adequately supplied, based on national-level AAMC benchmarks. For instance, Philadelphia, PA is in surplus (+129 physicians), while Houston, TX is in shortage (-61 physicians). Alternately, 25 CBSAs have a surplus of OB/GYNs, while 31 CBSAs have a shortage.

Physician Adequacy for **Gastroenterologists** and **OB/GYNs**, CBSAs Over 1M Population, 2023



Note: Analysis is limited to CBSAs over 1M population. Market-level analyses leverage AAMC reported benchmarks for number of people per active physician by specialty. CBSA denotes core-based statistical area; AAMC denotes Association of American Medical Colleges.
Source: Trilliant Health Provider Directory; Association of American Medical Colleges.

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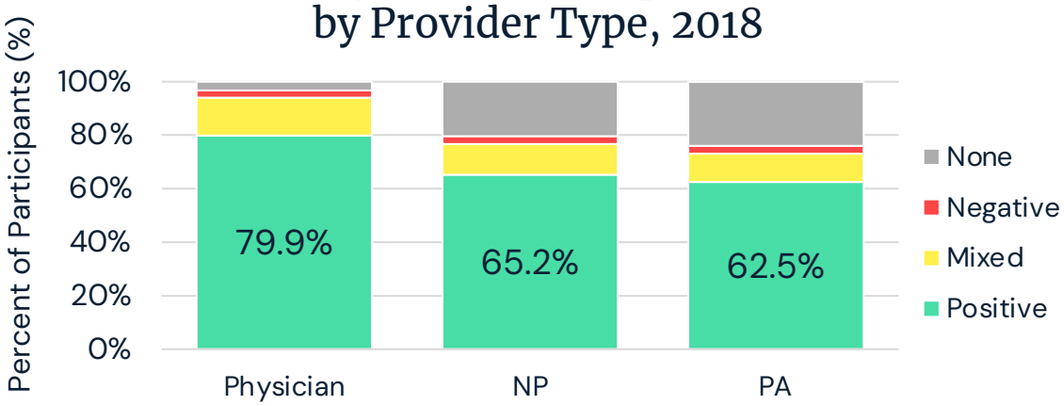
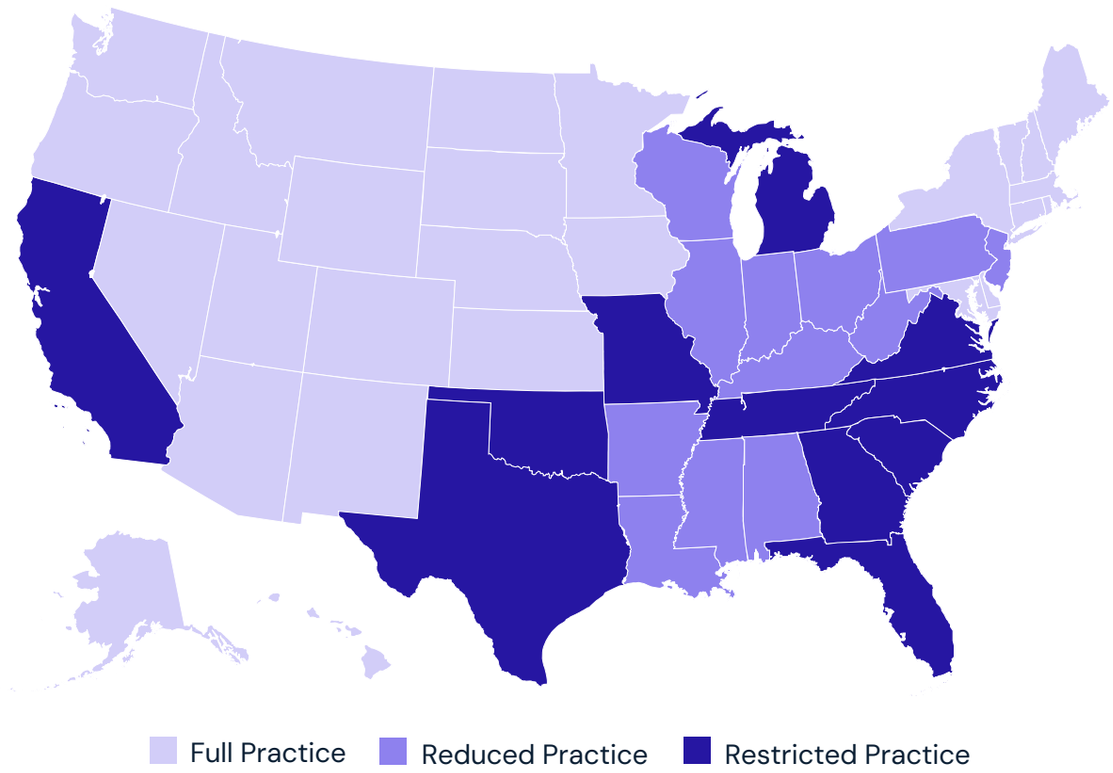
Can Allied Health Professionals Alleviate the PCP Shortage?

While 71.9% of patients cite provider type (i.e., physician, allied health) as important in selecting a provider, more than 60% of patients report positive experiences with PAs and NPs. However, the scope of practice for NPs is reduced or restricted in 33 states. Whether allied health professionals can offset primary care shortages is unclear.

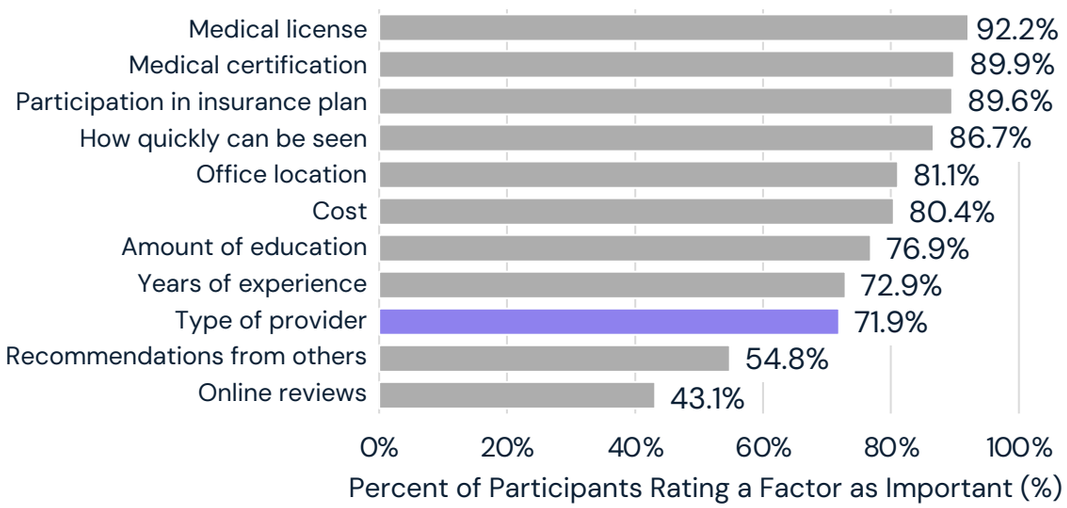
Quality of Patient Experiences, by Provider Type, 2018



2024 Nurse Practitioner State Practice Environment



Factors Deemed Important in Selecting a Healthcare Provider, 2018



Note: PA denotes physicians assistant; NP denotes nurse practitioner. Full practice allows NPs to evaluate patients, manage treatments and prescribe medications, including controlled substances. Reduced practice limits at least one NP function, often requiring a collaborative agreement with another provider. Restricted practice imposes supervision or management by another health provider for at least one NP function.
Source: Kozikowski et al., Choosing a Provider: What Factors Matter Most to Consumers and Patients?, *Journal of Patient Experience*, 2022; American Association of Nurse Practitioners 2024 Nurse Practitioner State Practice Environment Fact Sheet.

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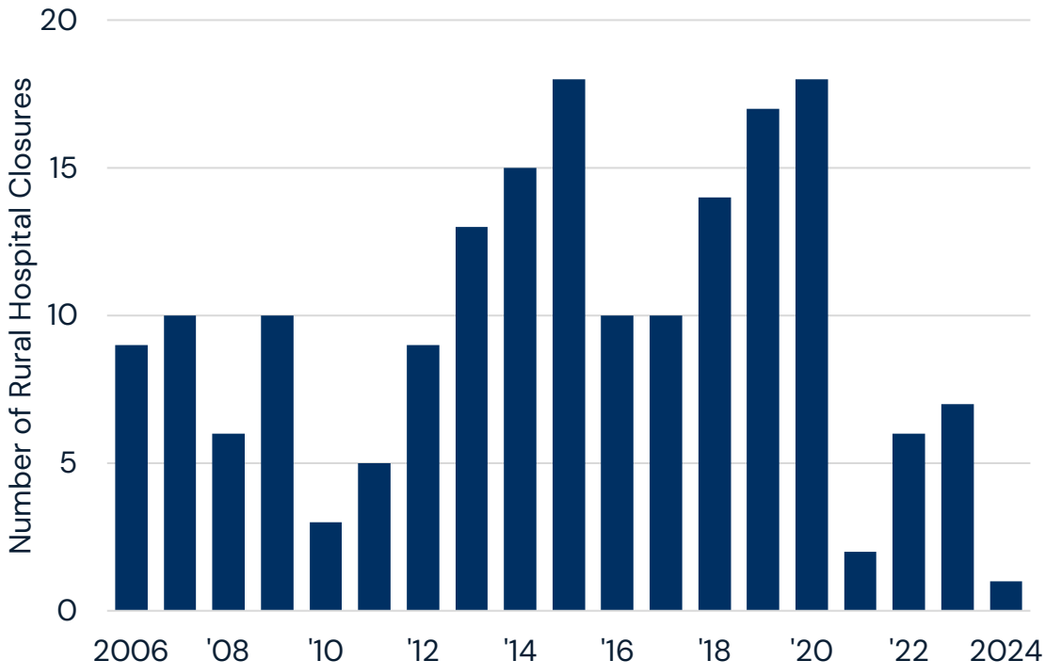
The Supply of Rural Hospitals Is Shrinking

Following a brief decline in closures from 2020 to 2021, rural hospital closures began increasing again through 2023. Currently, 300 rural hospitals are at immediate risk of closing. While many rural hospitals may not have sufficient demand to sustain operations, they fulfill both a critical medical and economic role.

Annual Rural Hospital Closures, 2006-2024

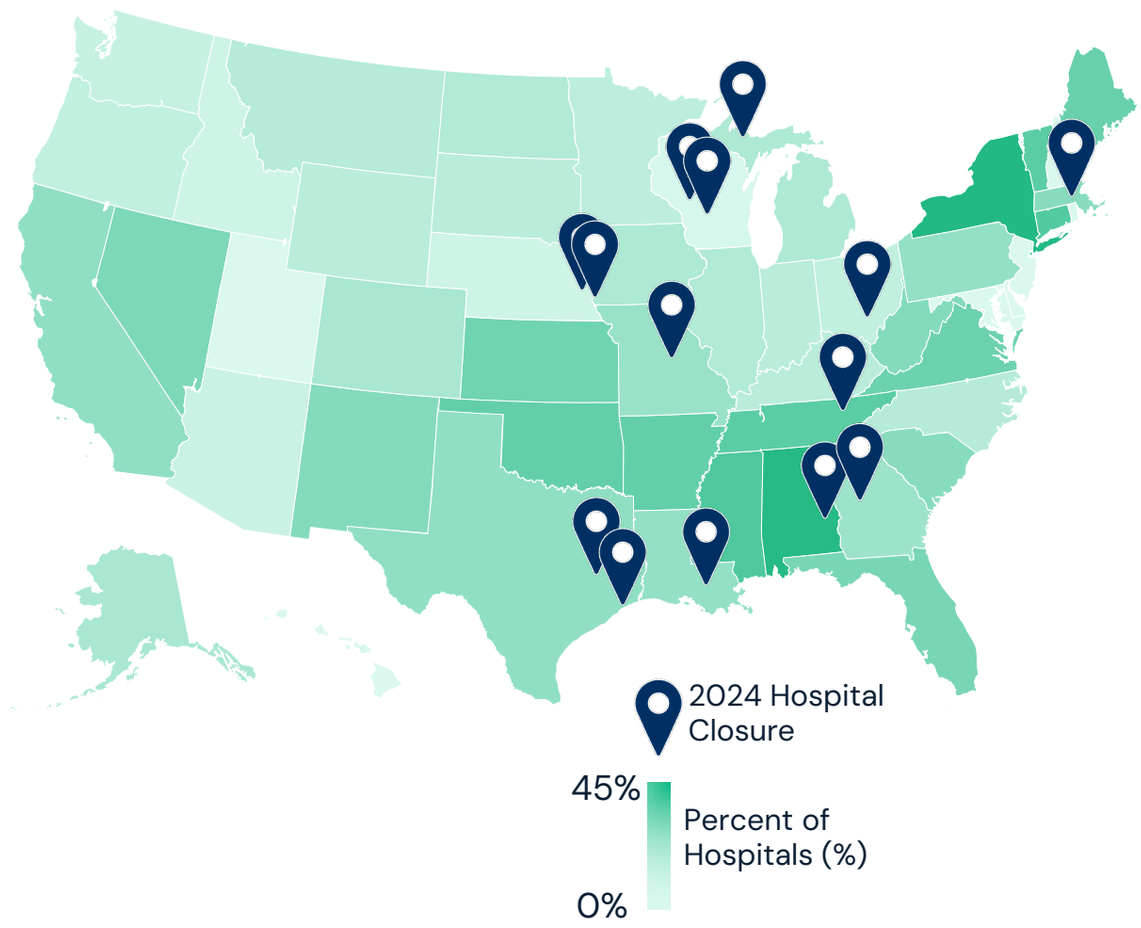


RURAL HEALTH

Rural NC county pursues experimental plan to revive shuttered hospital

Martin County could become the first community in the nation to bring a closed facility back to life using a new federal program

Percent of Rural Hospitals at Immediate Risk of Closing, by State, 2024



Note: 2024 hospital closures include both rural and non-rural hospitals.
Source: The Cecil G. Sheps Center for Health Services Research; Becker's Hospital CFO Reports; publicly available news sources.

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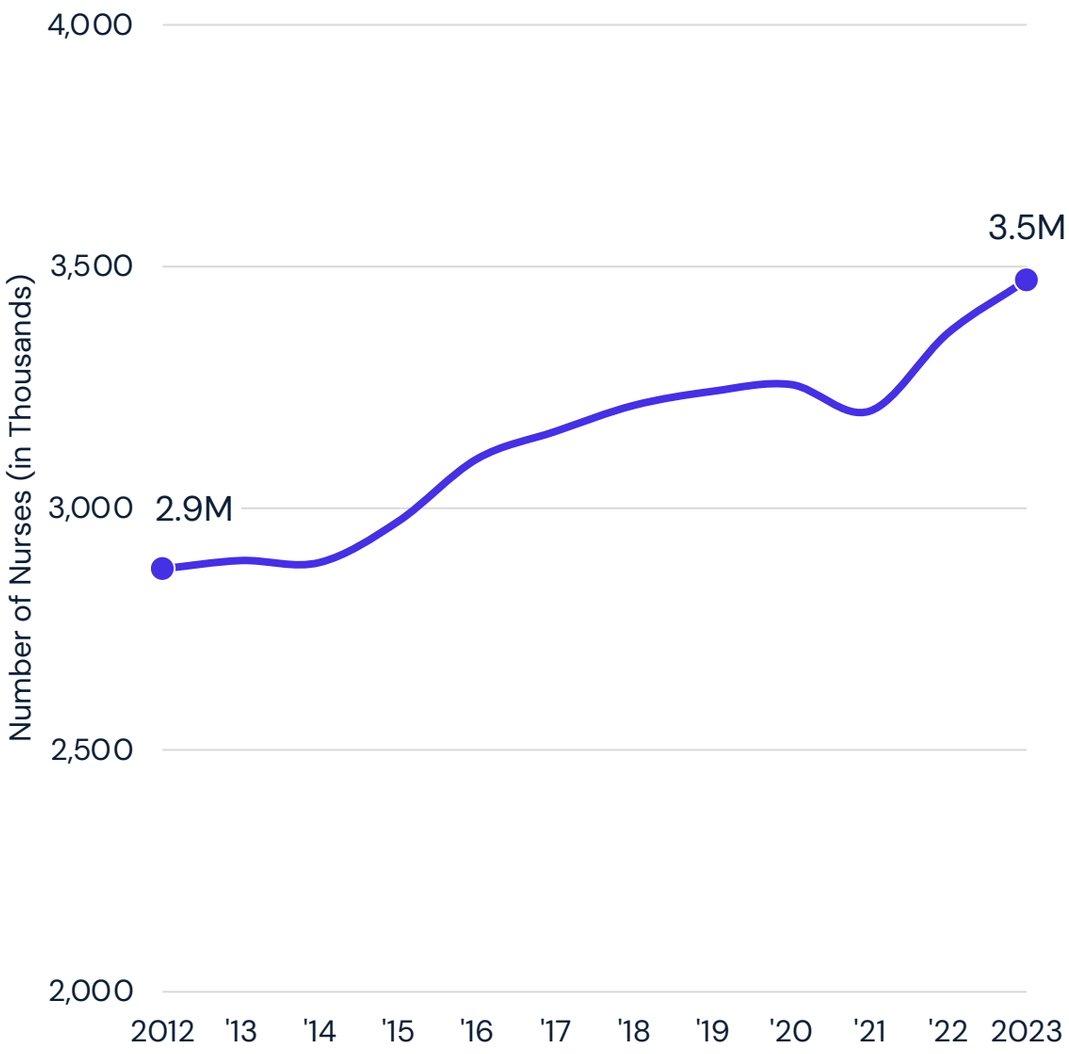
TREND 5: SUPPLY CONSTRAINTS

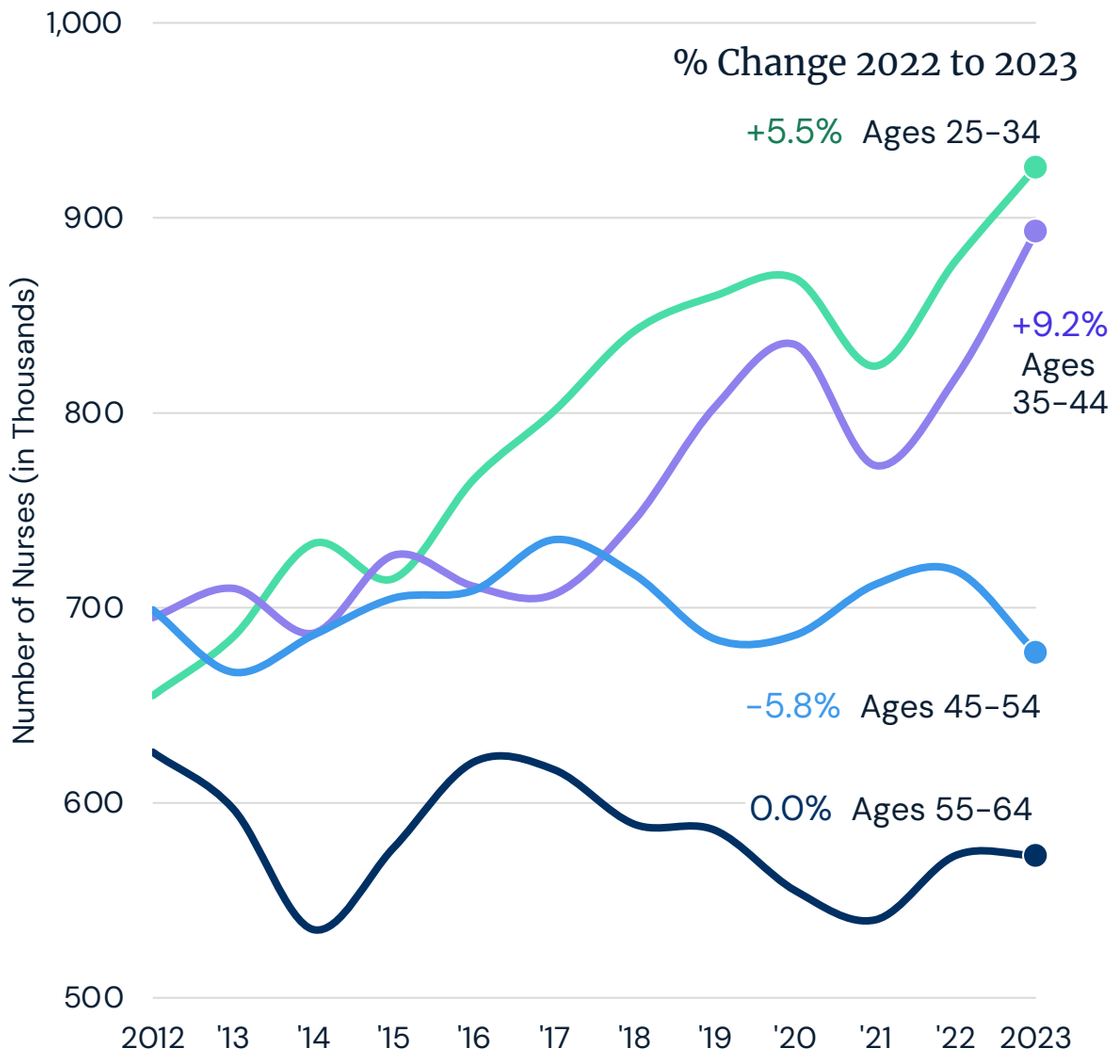
The Nursing Supply Continues To Grow Following a Decline in 2021

Following almost ten years of consistent growth, the nursing workforce declined from 2020 to 2021 among nurses ages 25-34 and 35-44 by 5.2% and 7.4%, respectively. However, from 2022 to 2023, the nursing workforce under age 45 rebounded, while the supply of nurses ages 45-54 declined.

Number of Employed Nurses, 2012-2023



Number of Employed Nurses, by Age, 2012-2023



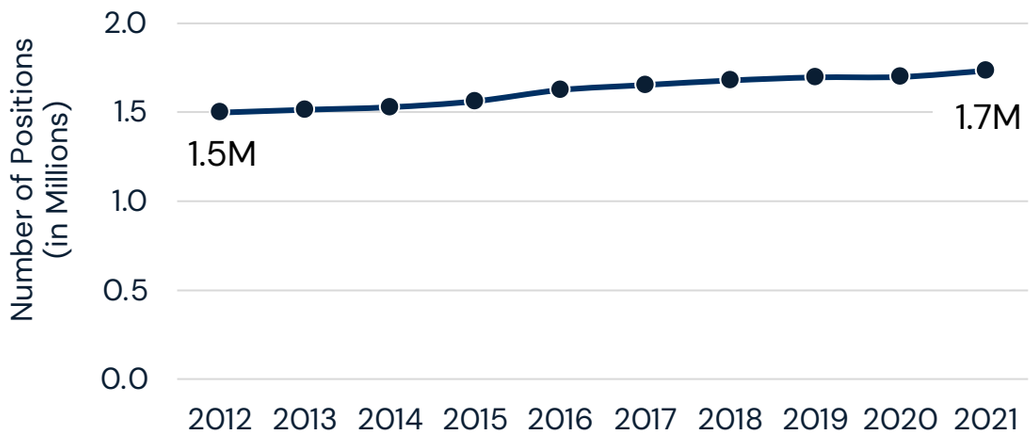
Source: Bureau of Labor Statistics.

TREND 5: SUPPLY CONSTRAINTS

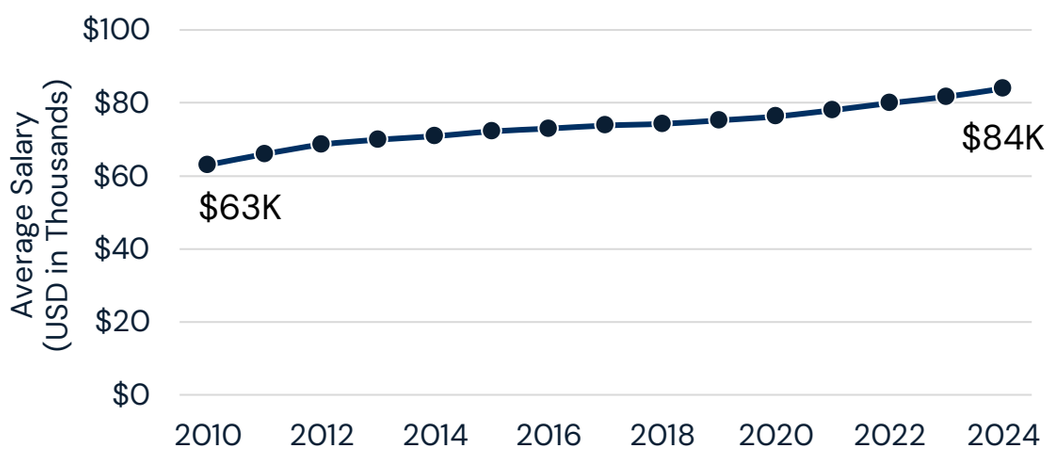
Travel Nursing Positions and Average Compensation Growing Post-Pandemic

The number of travel nurse positions grew by 15.7% from 2012 to 2021, accompanied by a 33.3% increase in average annual salary from 2010 to 2024. This growth reflects nurses' desire for better pay and more flexibility.

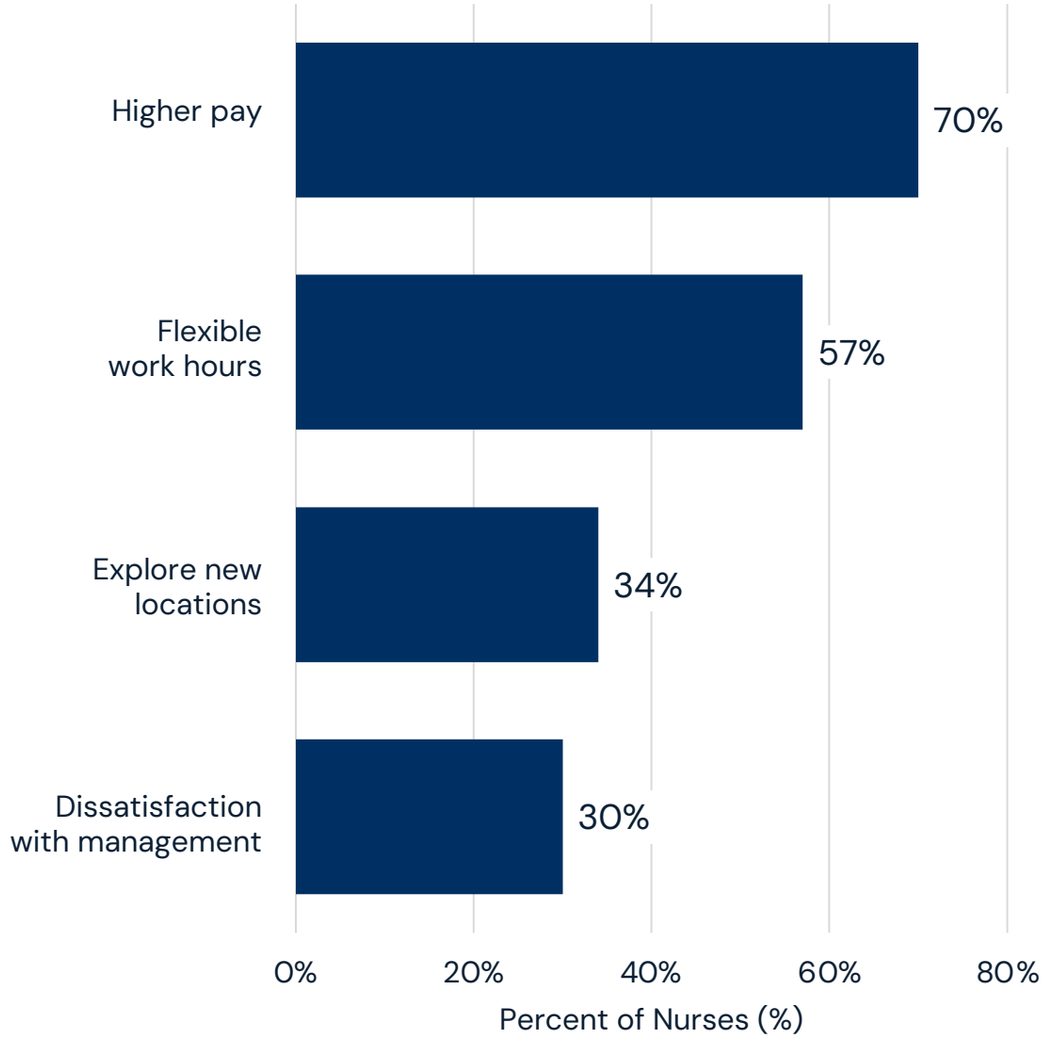
Number of Travel Nurse Positions, 2012-2021



Average Travel Nurse Salary, 2010-2024



Top Reasons for Becoming a Travel Nurse



Source: Zippia Job Outlook for Traveling Nurses in the United States; Relias 2024 Nurse Salary Research Report.

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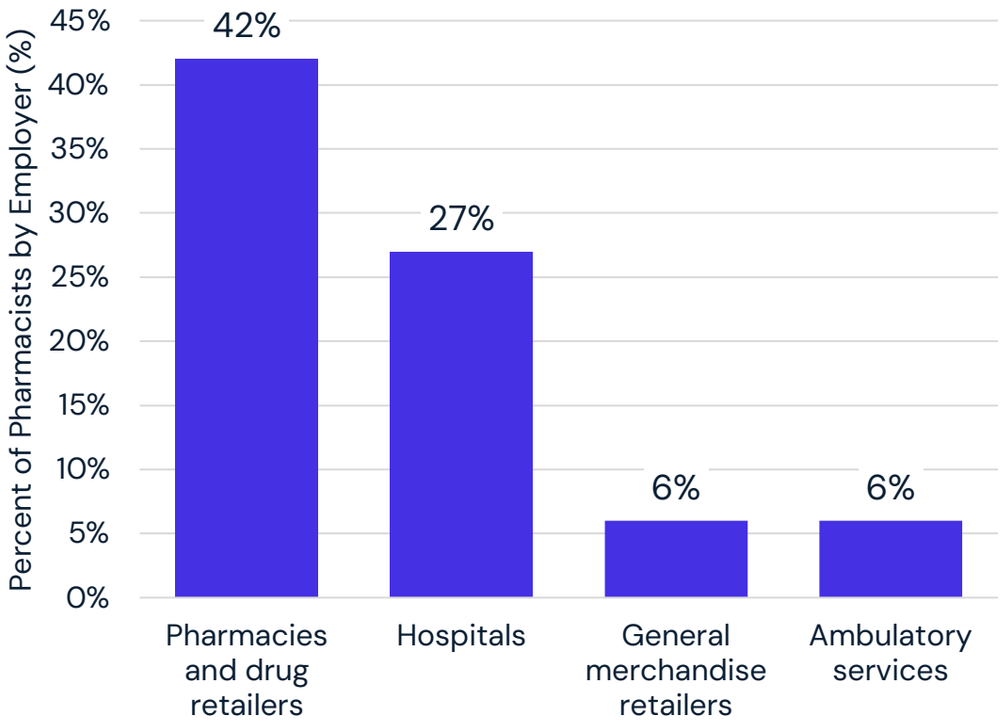
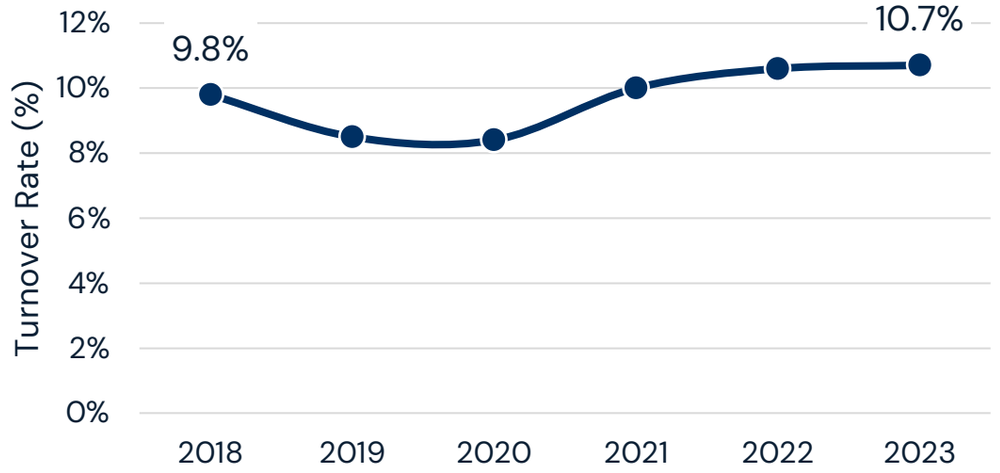
Turnover Rates and Open Positions for Pharmacists Are Growing

Retailers and hospitals are the largest employers of pharmacists, employing 42% and 27% of pharmacists, respectively. Across all settings, the number of open pharmacist positions increased from 2019 to 2023, notably in retail settings, reflective of growing turnover rates and dissatisfaction with work conditions.

Share of Pharmacist Employment by Setting, 2023



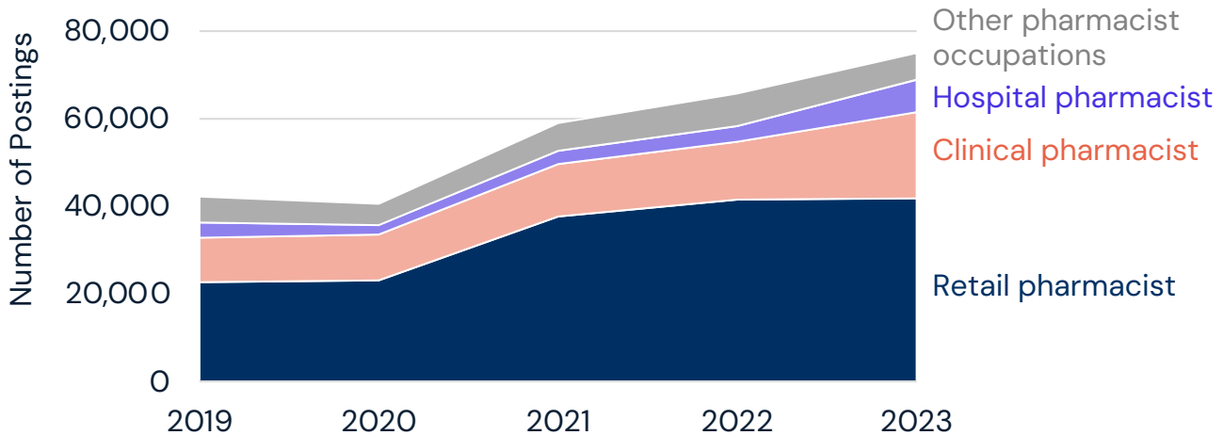
Hospital Pharmacist Turnover Rates, 2018-2023



CVS pharmacists are at a breaking point, imperiling company's reinvention plans

Plagued with long hours and staff shortages, pharmacists are increasingly unhappy with working conditions

Number of Pharmacist Job Postings, by Category, 2019-2023



Note: Other pharmacist occupations include compounding, informatics, infusion, long-term care, nuclear pharmacists and oncology.
Source: Bureau of Labor Statistics; 2020-2024 NSI Nursing Solutions National Health Care Retention & RN Staffing Reports; Pharmacy Workforce Center, Inc. Pharmacy Demand Reports 2019-2023; publicly available news sources.

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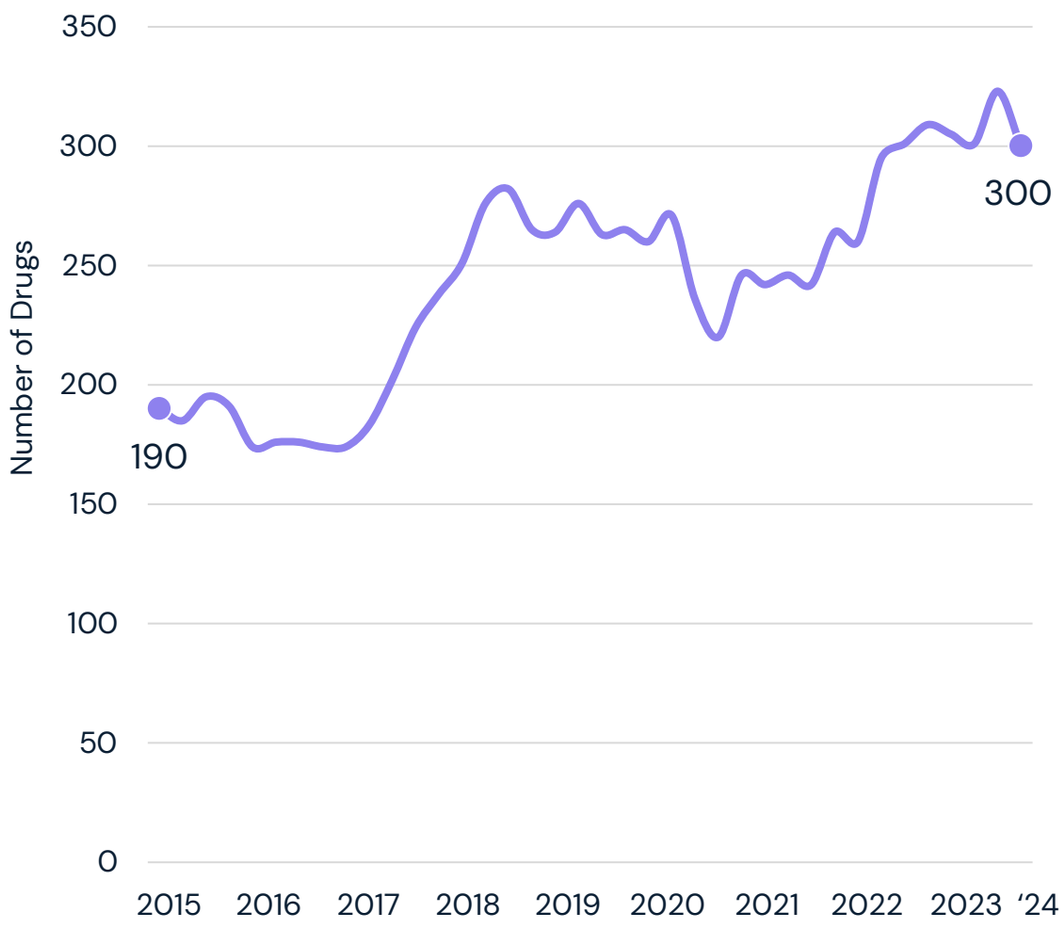
TREND 5: SUPPLY CONSTRAINTS

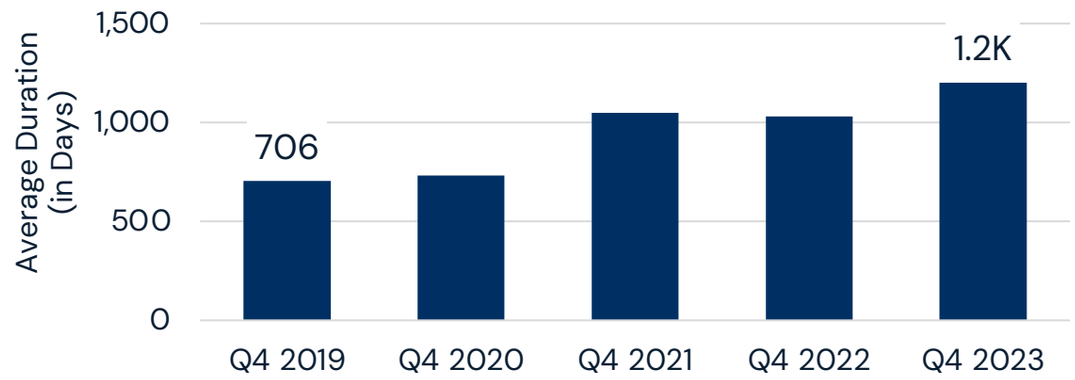
Record-High Drug Shortage Levels Persist

Between Q2 2015 and Q2 2024, the number of drugs classified by the FDA as being in active "shortage" increased by 62.2%, reaching a record high of 323 in Q1 2024. The duration of these shortages also increased, with the average 2023 shortage lasting nearly 500 days longer than in 2019.

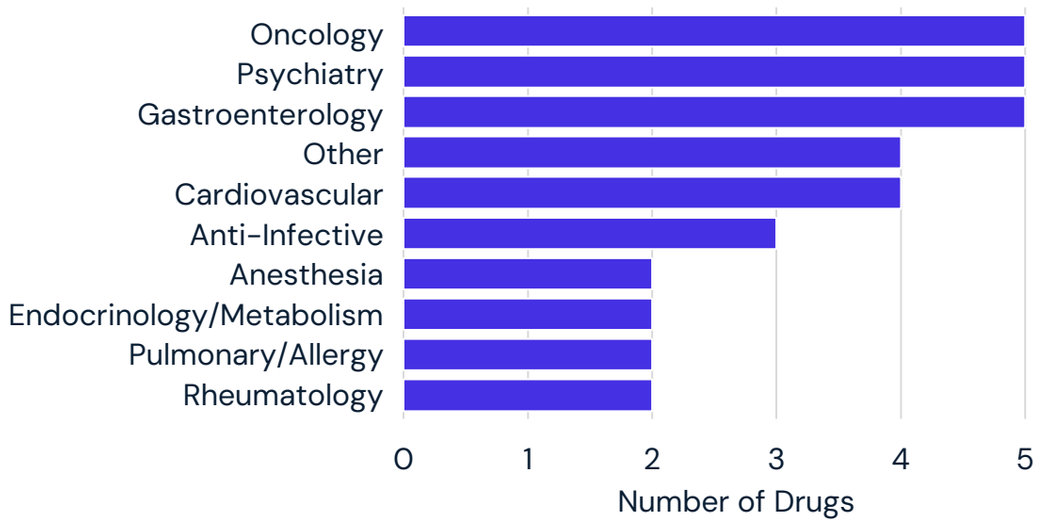
Active National Drug Shortages by Quarter, Q1 2015-Q2 2024



Average Duration of All Shortages by Year, 2019-2023



Therapeutic Class Distribution of New Drug Shortages, 2023



Note: FDA denotes U.S. Food and Drug Administration.
Source: American Society of Health-System Pharmacists Drug Shortage Statistics; U.S. Pharmacopeia 2024 Annual Drug Shortage Report.

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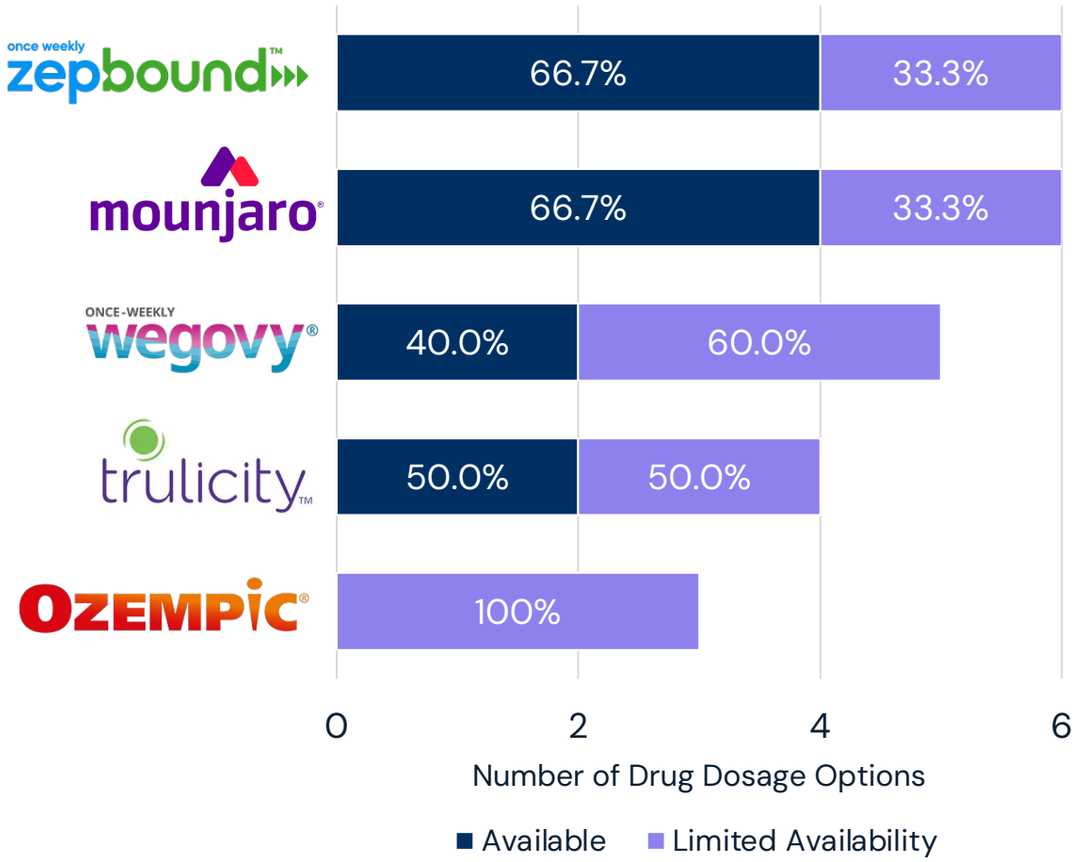
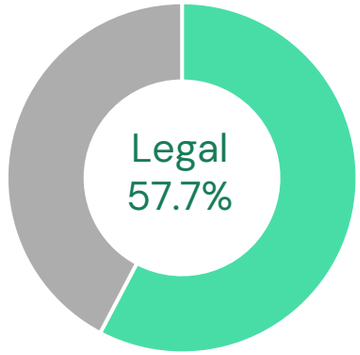
GLP-1 Shortages Fuel a Growing Illegal Online Market

With all Ozempic® dosage options and many other GLP-1s in limited supply, patients are increasingly turning to online pharmacies for semaglutide. However, over 40% of these vendors operate illegally, leading to issues such as undelivered shipments, unexpected fees and product impurities.

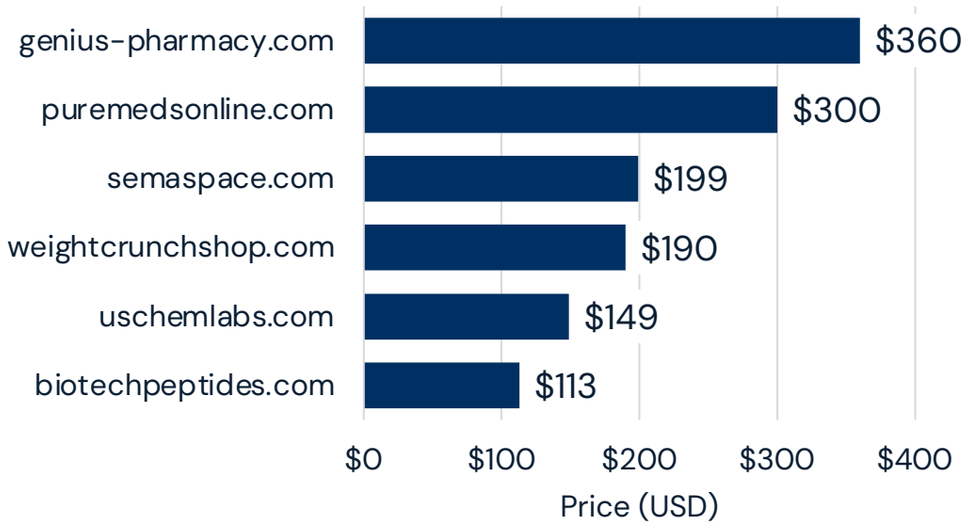
Share of Dosage Options of Select GLP-1s by Availability, as of Q3 2024



Legal Status of Online Pharmacies Advertising Semaglutide, 2023



Price of Semaglutide Products Offered by Select Unverified Online Vendors, 2023



Note: GLP-1s denotes glucagon-like peptide-1.
Source: U.S. Food and Drug Administration Drug Shortages Database; Ashraf et al., Safety and Risk Assessment of No-Prescription Online Semaglutide Purchases, *JAMA Network Open,* 2024.

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Macro Trend #5

Supply Constraints Are Correlated With Inadequate Yield

COMPASS+ EXCLUSIVE

Micro Trends

Which health systems employ the largest number of providers?

How does oncologist, cardiologist, gastroenterologist and OB/GYN physician supply compare within and across CBSAs?

What is the projected national supply of surgeons, allied health providers, behavioral health providers and medical physicians?

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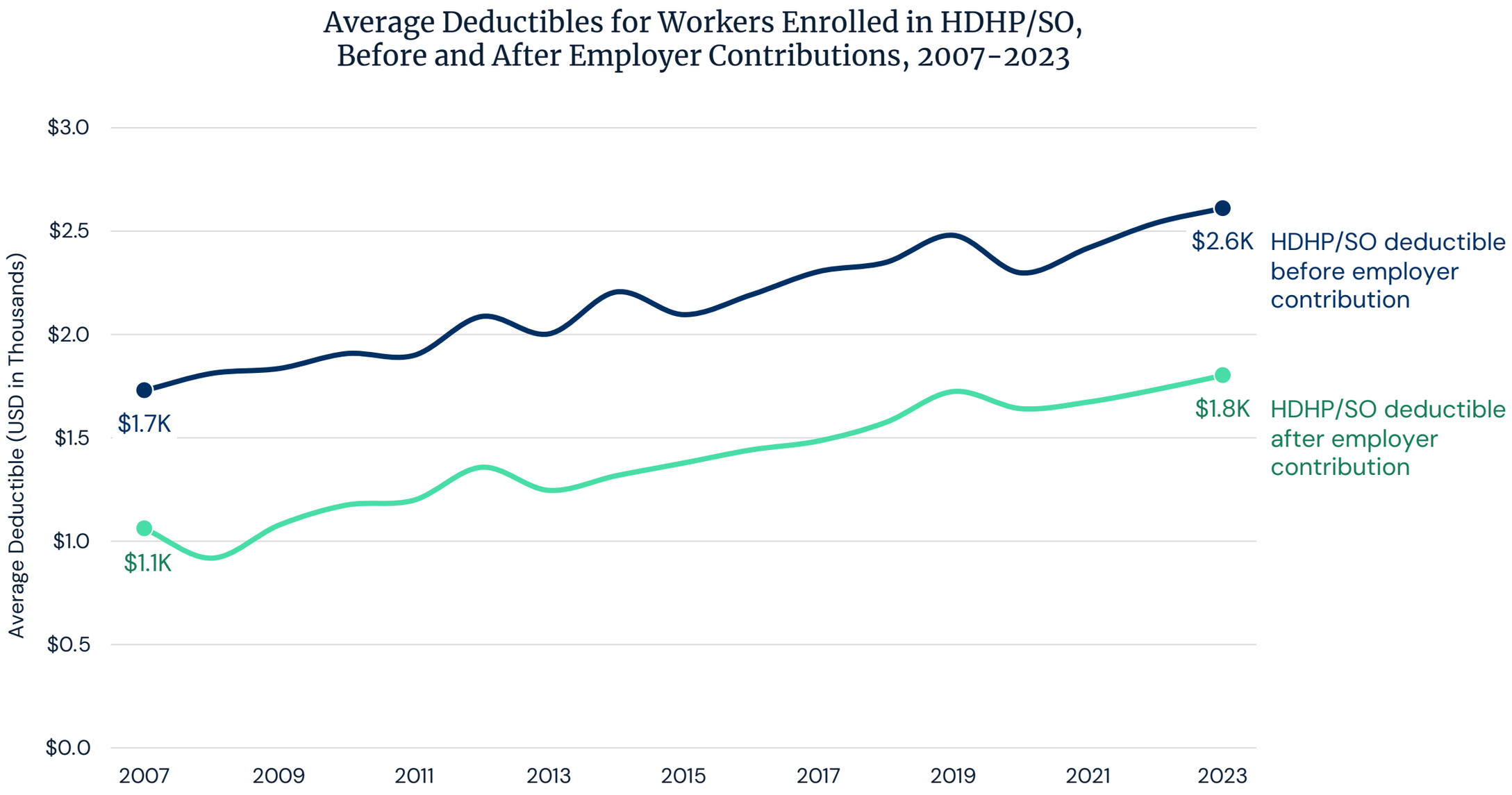
TREND 6

Forced Consumerism Due to Cost Shifting Has Fostered Fragmentation Without Corresponding Value

Continuously Increasing Deductibles Are Not Consumer Friendly

Although HDHPs were introduced to reduce employee spending on healthcare by increasing employee control, deductibles for these plans have continuously increased. Since 2007, average deductibles for employees with HDHP/SO plans increased by over 50%, reaching $2.6K in 2023. When employer contributions are included, deductibles have increased even more (+69.8%).



Note: HDHP/SO denotes high-deductible health plan with a savings option.
Source: KFF Employer Health Benefits 2023 Survey.

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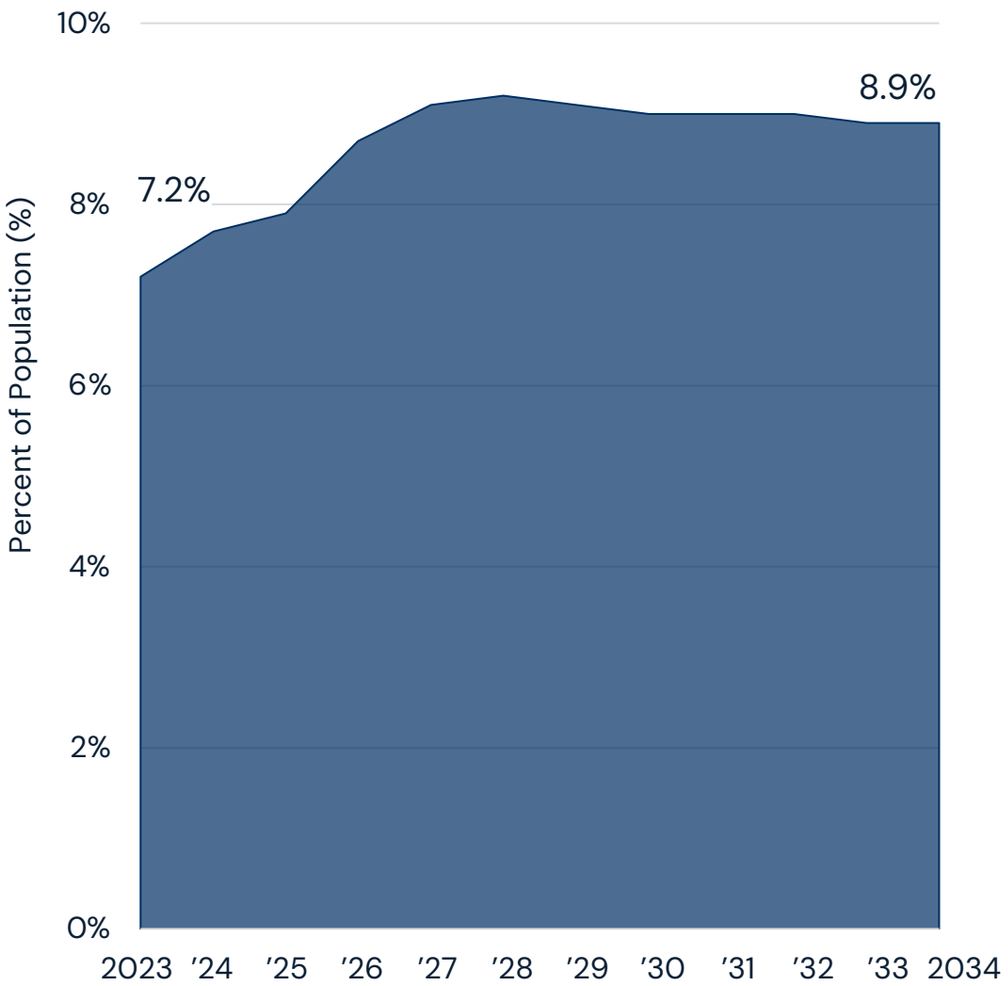
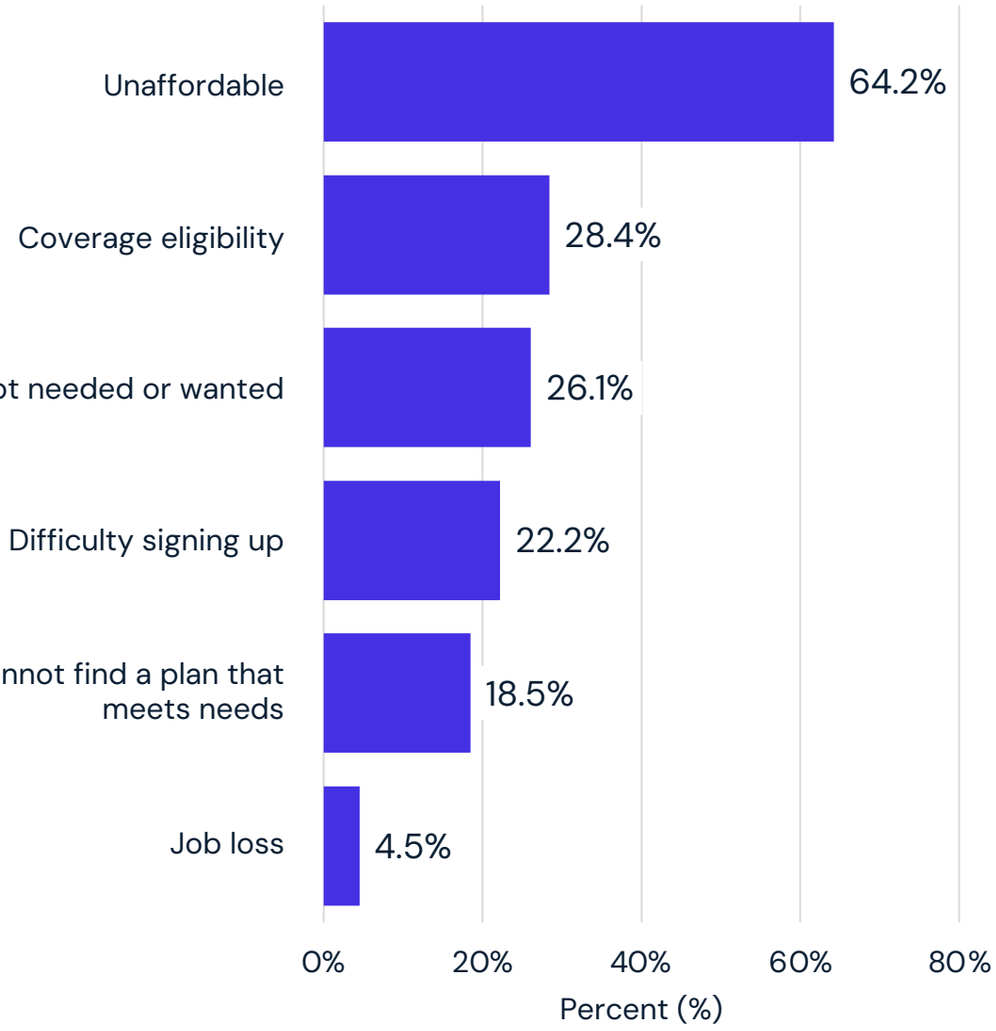
Following a Decline, Uninsured Rates Are Projected to Reach 9% by 2034

While the U.S. uninsured rate reached a record low in 2022, the proportion of uninsured Americans is projected to grow to 8.9% by 2034. Unaffordability of health insurance (64.2%) and coverage eligibility (e.g., Medicaid, employer-sponsored insurance) (28.4%) are the top reasons for being uninsured among nonelderly adults.

Projected Uninsured Rates, 2023-2034



Reasons for Being Uninsured Among Nonelderly Adults, 2022



Source: Congressional Budget Office Baseline Projections.; KFF analysis of 2022 National Health Interview Survey.

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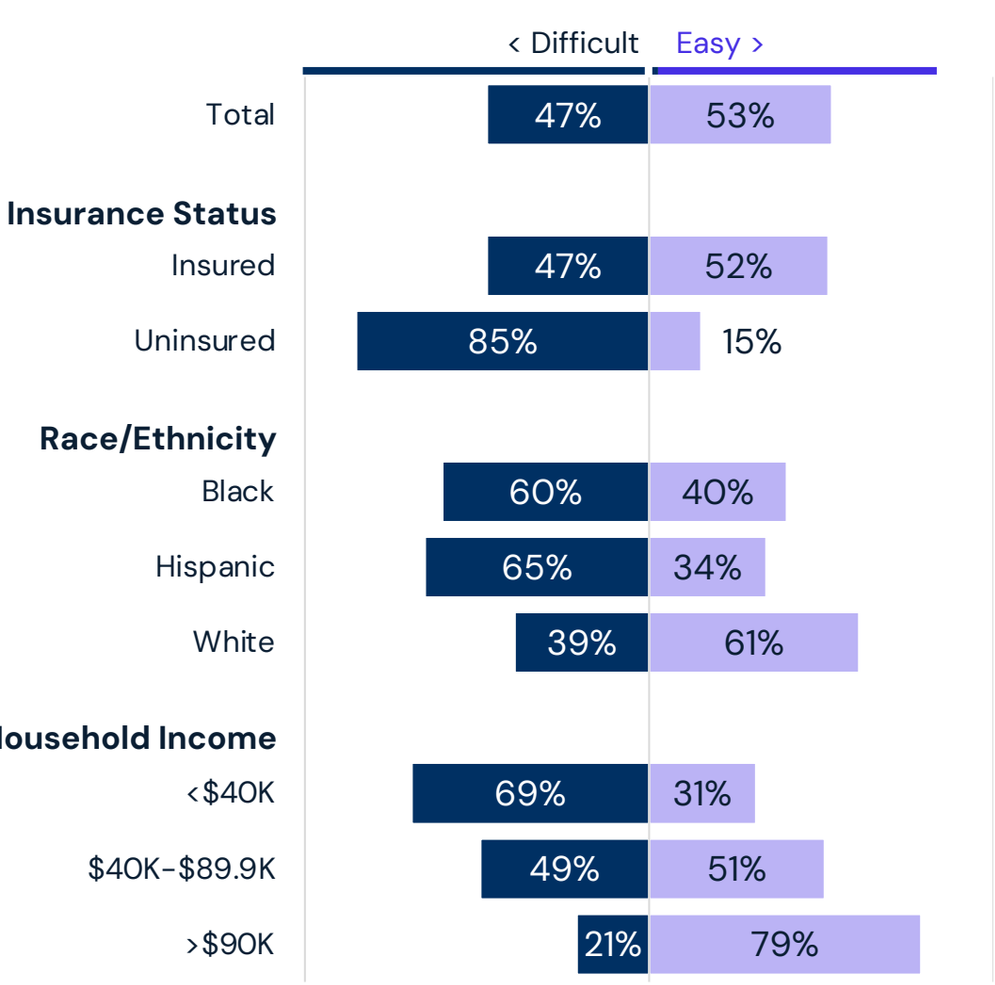
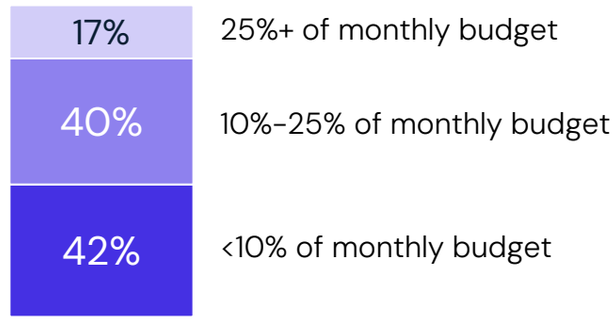
Nearly Half of Americans Struggle To Afford Healthcare

Even among insured Americans, nearly half struggle to afford the cost of healthcare, evidenced by the fact that 57% of Americans spend at least one-tenth of their monthly budget on healthcare. Further underscoring the unaffordability of healthcare, 85% of adults with healthcare debt owe $500 or more.

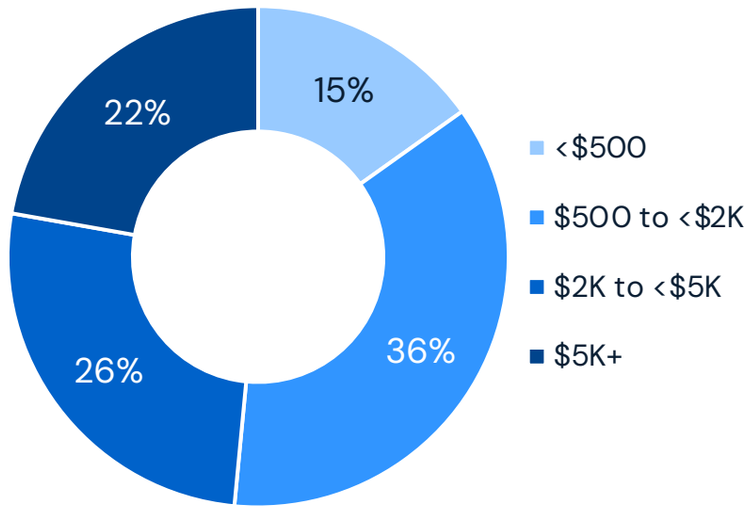
Share of Adults Reporting Ability To Afford Healthcare, 2022



Average Percent of Monthly Household Budget Spent on Healthcare, 2023



Share of U.S. Adults With Healthcare Debt, by Size of Debt, 2021



Note: The percentage of adults reported as “easy” includes adults who responded “very easy” and “somewhat easy,” and the percentage of adults reported as difficult includes adults who responded “very difficult” and “somewhat difficult.”
Source: KFF Issue Brief, Americans’ Challenges with Healthcare Costs; Commonwealth Fund 2023 Health Care Affordability Survey.

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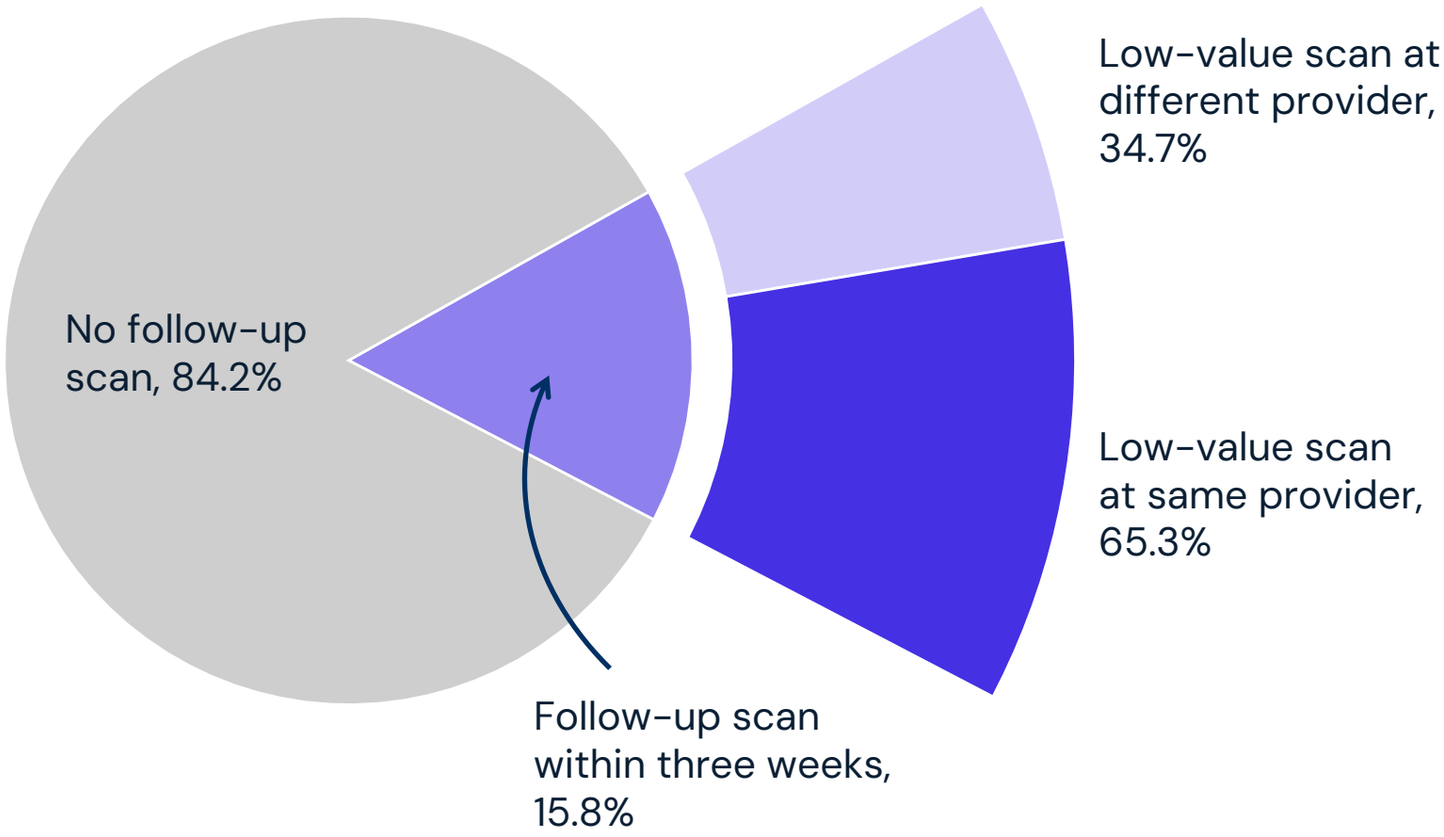
In-Office Ancillary Services Lead to Excess Utilization for Consumers

Duplicate imaging is an example of low-value care, which is a large contributor to waste. In a three-week period, 15.8% of patients with an ankle fracture received a low-value repeat ankle scan. Of those patients, 34.7% received that duplicate scan at a different site than where the original scan was performed.

Frequency of Low-Value, Duplicate Ankle X-rays



Note: Analysis is limited to commercially insured patients who received ankle X-rays and did not receive future ankle surgery.
Source: Trilliant Health national all-payer claims database.

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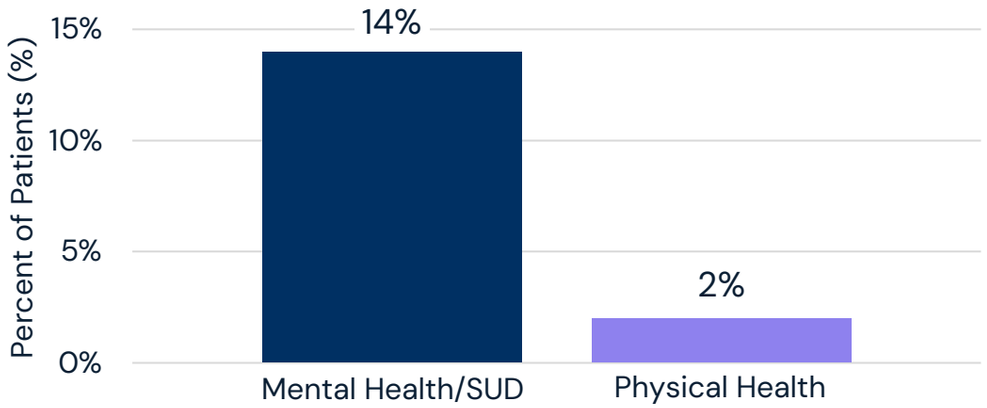
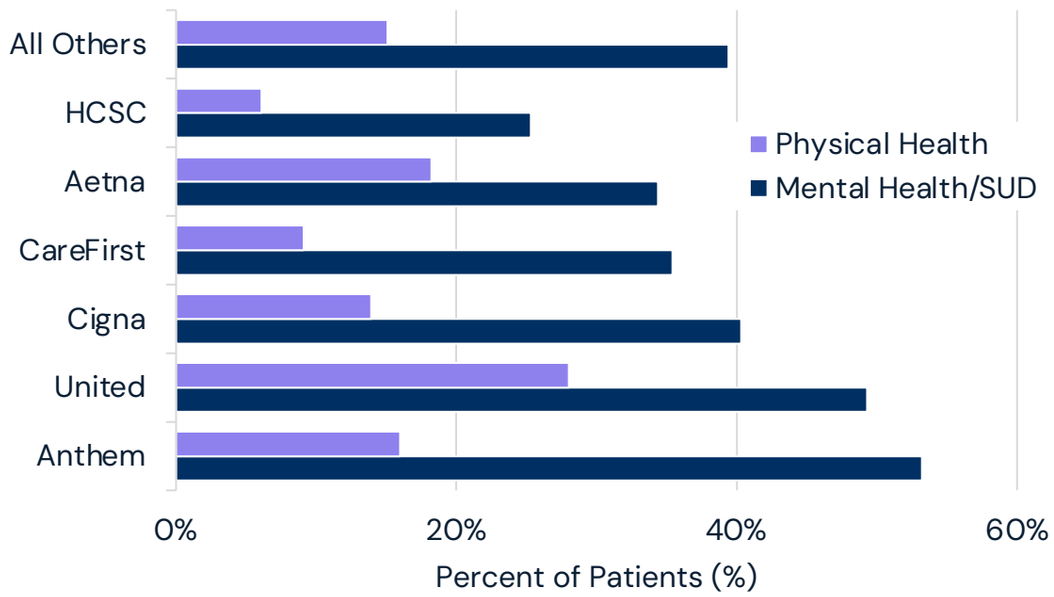
Patients Are More Likely To Go Out-of-Network for Behavioral Health

More than one-third of patients cited insurance benefit limitations as a primary reason for stopping psychotherapy. Moreover, 14% of commercially insured patients used behavioral services but did not use their insurance coverage, relative to only 2% for physical health services.

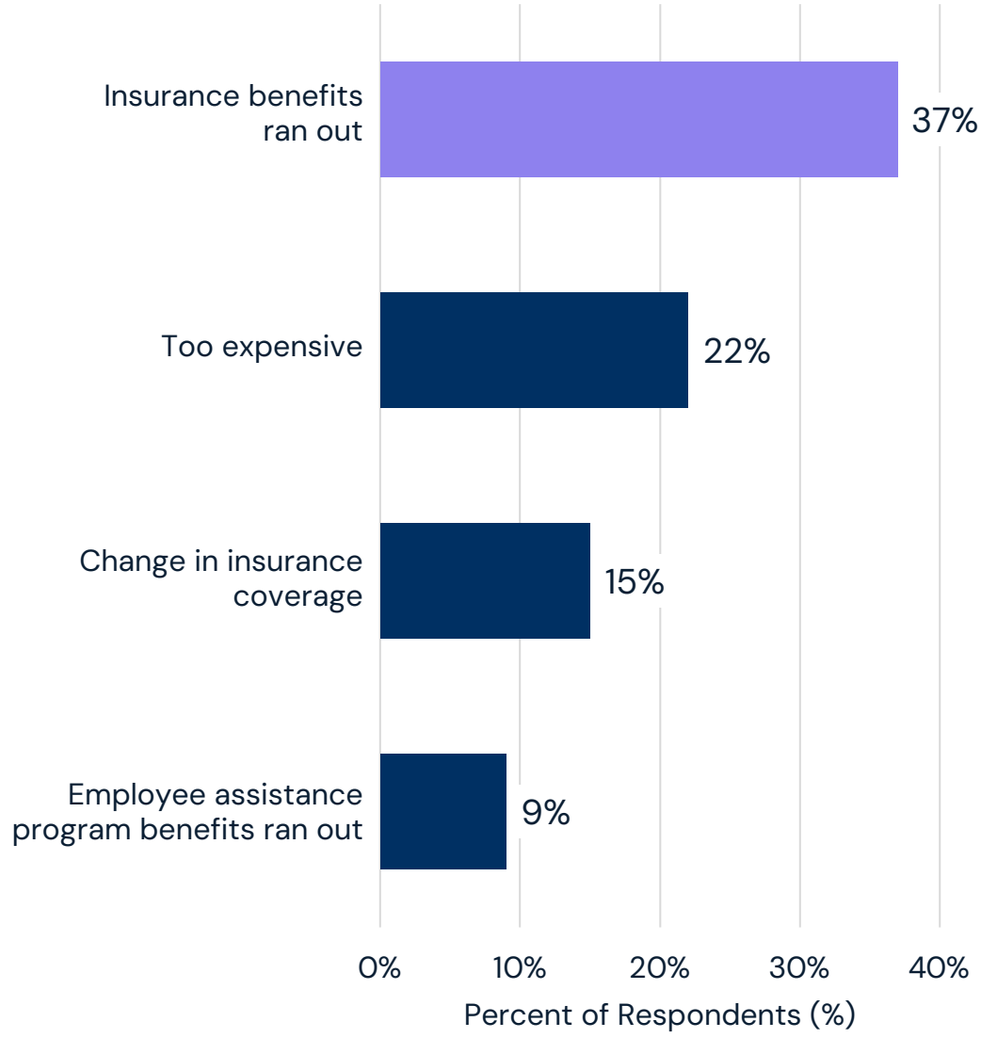
Percent of Patients Receiving Care, but Not Through Insurance



Percent of Patients Receiving Outpatient Care From at Least One Out-of-Network Provider



Financial Reasons for Stopping Psychotherapy, by Percent of Respondents



Note: SUD denotes substance use disorder.
Source: Verywell Cost of Therapy Survey 2022; Bowman Family Foundation Equitable Access to Mental Health and Substance Use Care: An Urgent Need, 2023.

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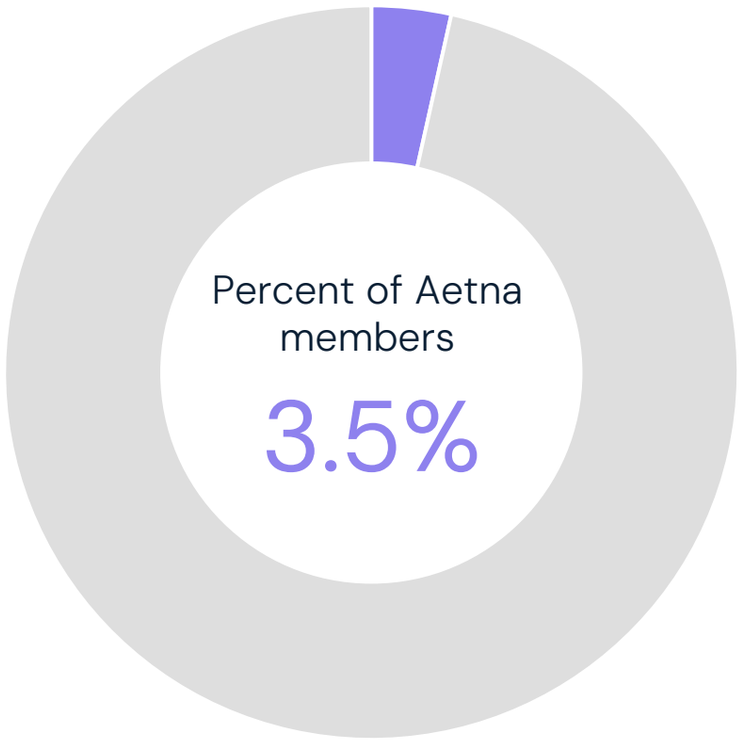
Transparency Efforts Are Not Transparent to the Average American

In a study of employer-sponsored individuals where a healthcare price transparency tool was implemented to assist in determining service prices, one year after implementation there was little impact on average outpatient spending, which increased from $2,021 to $2,233. Additionally, just 3.5% of Aetna members used its Member Payment Estimator Tool.

Enrollees Using Aetna's Member Payment Estimator Tool



Average Outpatient Spending, One Year Prior to and After Implementing a Price Transparency Tool

Source: Sinaiko and Rosenthal, Examining A Health Care Price Transparency Tool: Who Uses It, And How They Shop For Care, *Health Affairs, 2*016; Desai et. al., Association Between Availability of a Price Transparency Tool and Outpatient Spending, *JAMA,* 2016.

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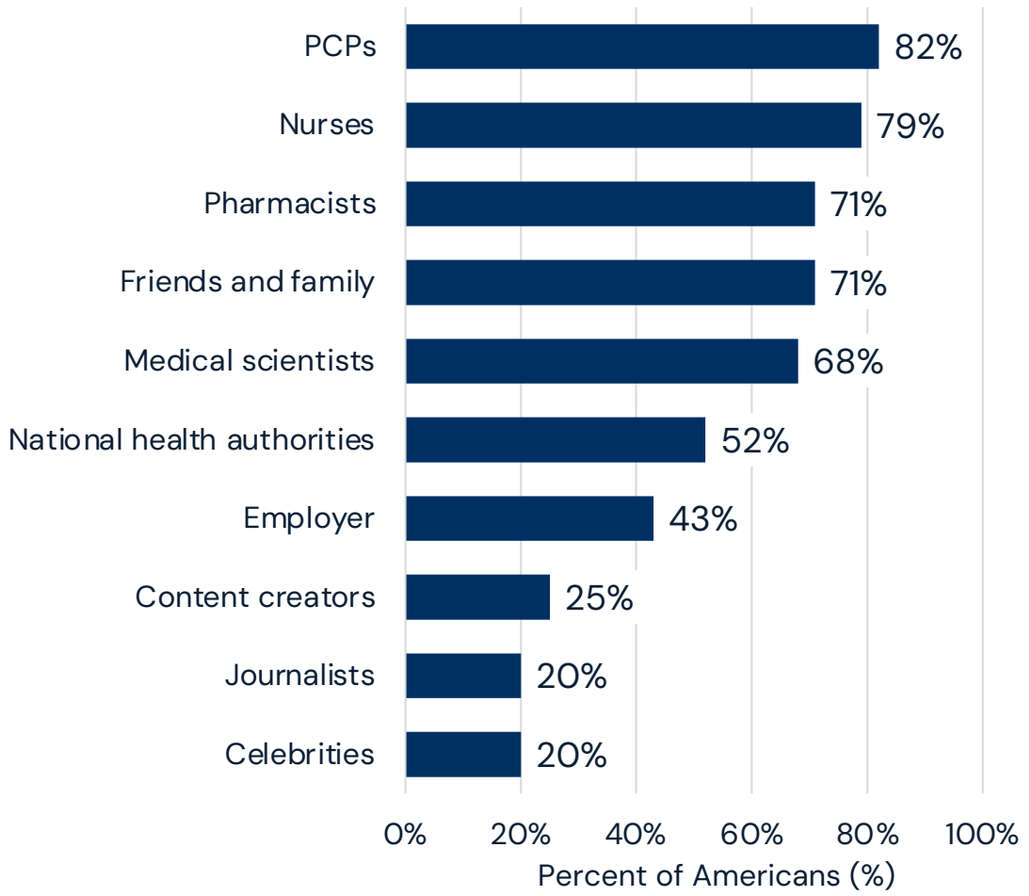
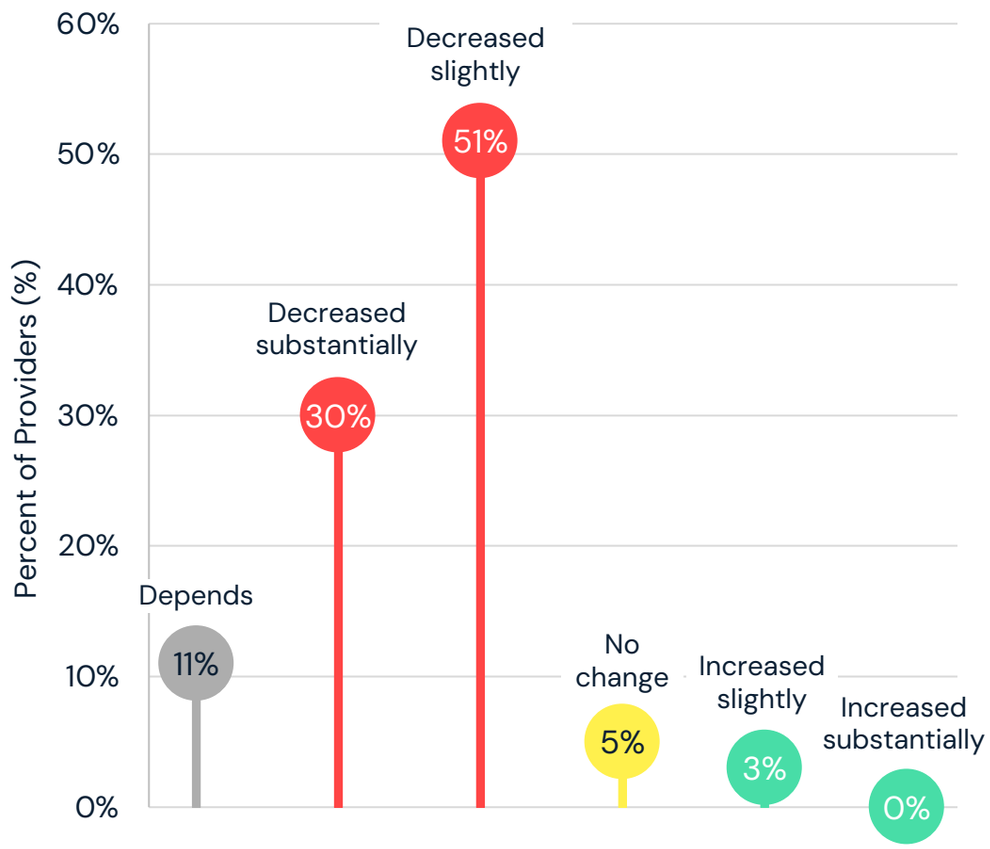
PCPs Remain a Trusted Source, but Overall Trust Continues To Erode

While most Americans continue to trust PCPs to deliver health information, a quarter of Americans trust social media content creators to deliver truthful health information, compared to 52% who trust national health authorities. Consistent with patient views, more than 80% of providers believe that patient trust decreased from 2020 to 2023.

Percent of Americans That Trust Select Sources for Health Information, 2023



Provider Perception of How Patient Trust Changed Between 2020 and 2023



Note: PCP denotes primary care provider.
Source: Edelman Trust Barometer 2024 Special Report: Trust and Health; Healthcare Financial Management Associate Fall 2023 Leadership Retreat Report.

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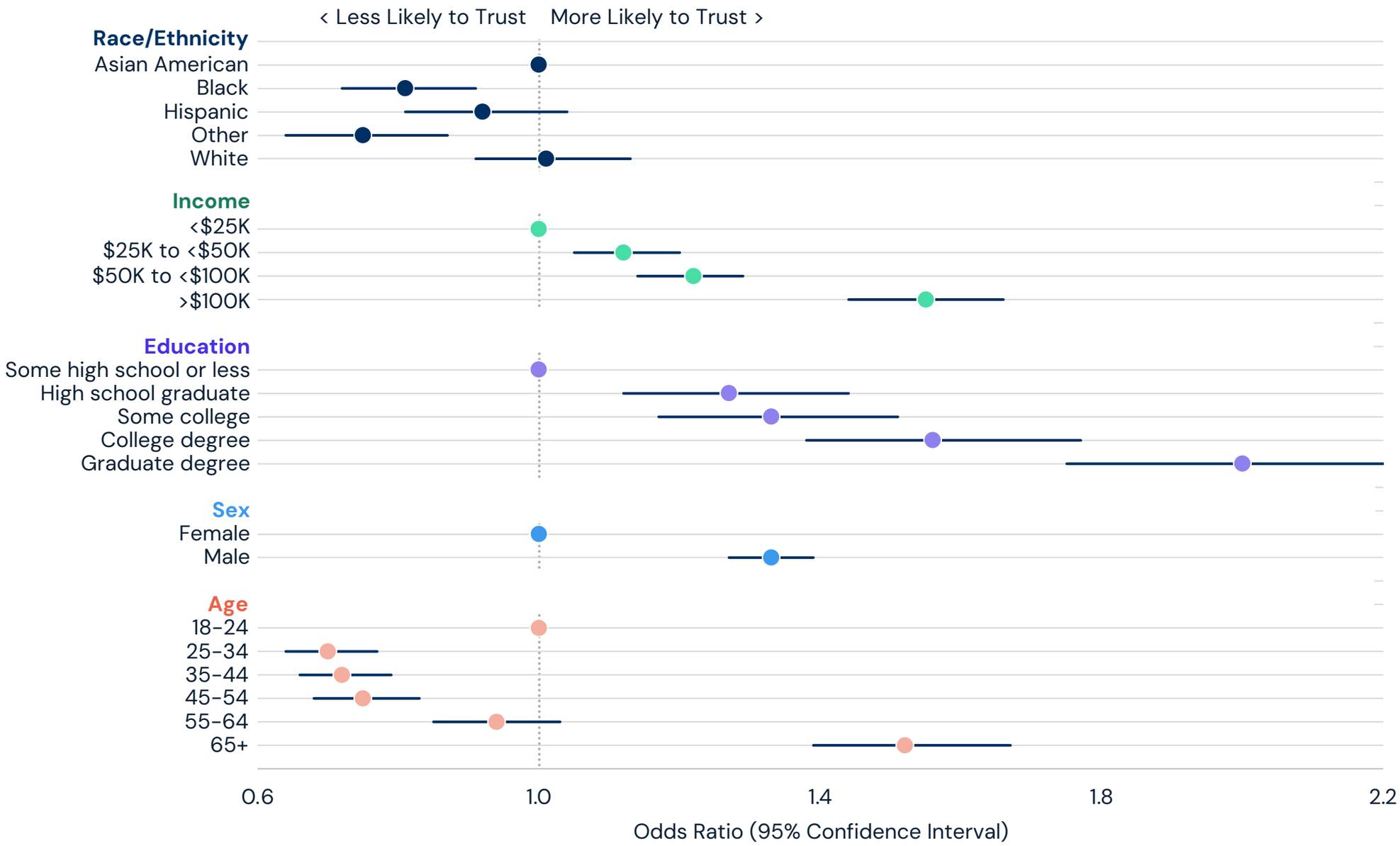
Trust in Physicians and Hospitals Highest Among Educated and Wealthy

Trust in the healthcare system has declined since the pandemic. Surveys show that white adults, those with incomes over $100K, those with college or graduate degrees and those over age 65 were more likely to trust physicians and hospitals compared to other sociodemographic groups.

Association Between Individual Sociodemographic Features and Trust in Physicians and Hospitals, 2023



Note: The odds ratio compares the odds of one segment of a sociodemographic group having a different level of trust in physicians and hospitals compared to a baseline (i.e., patient segment with an odds ratio equal to 1.0). Segments with lower odds ratios (i.e., below 1.0) were less likely to trust physicians and hospitals. Sociodemographic group segments with higher odds ratios (i.e., above 1.0) were more likely to trust physicians and hospitals.
Source: Perlis et al., Trust in Physicians and Hospitals During the COVID-19 Pandemic in a 50-State Survey of US Adults, *JAMA Network Open*, 2024.

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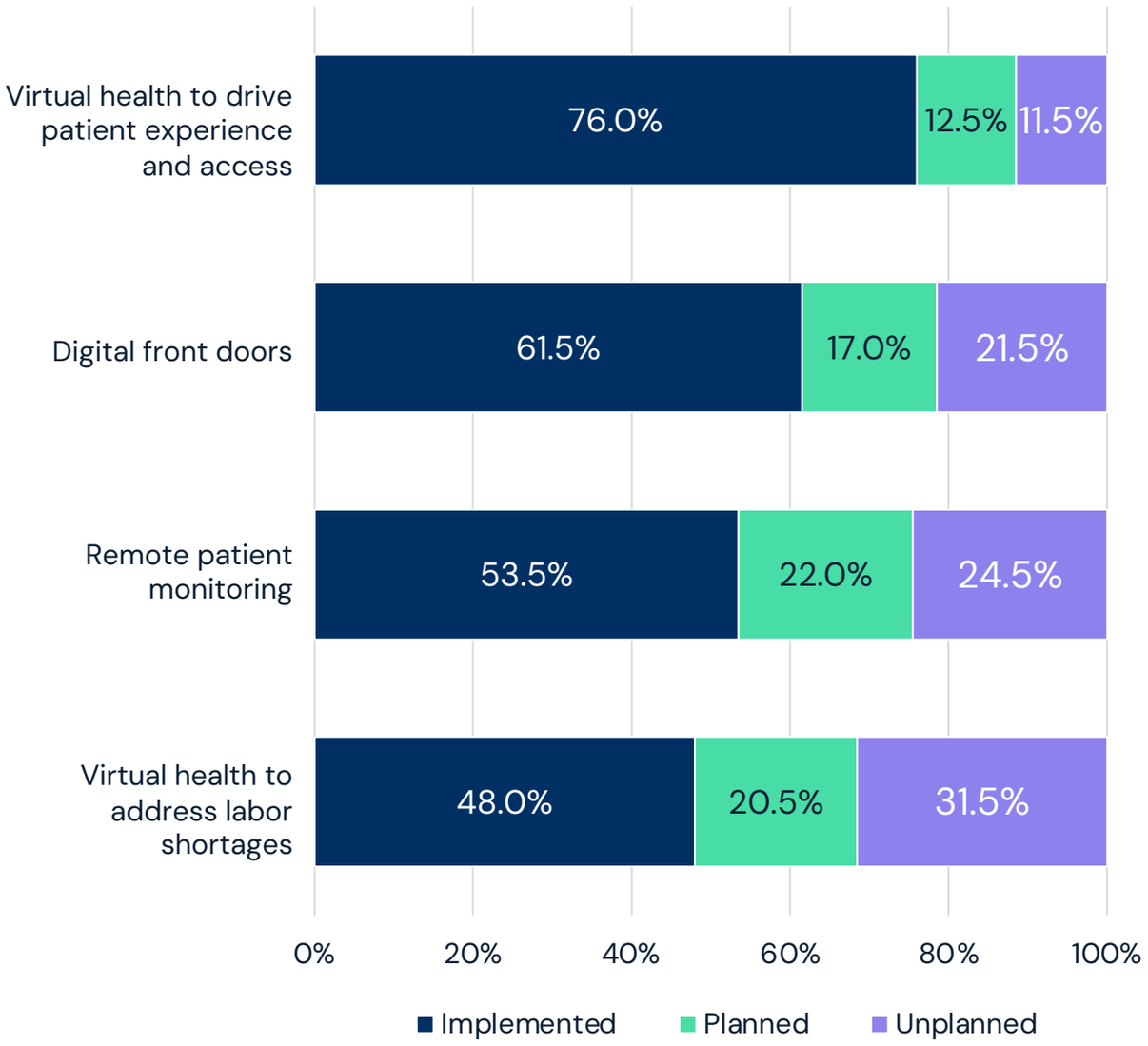
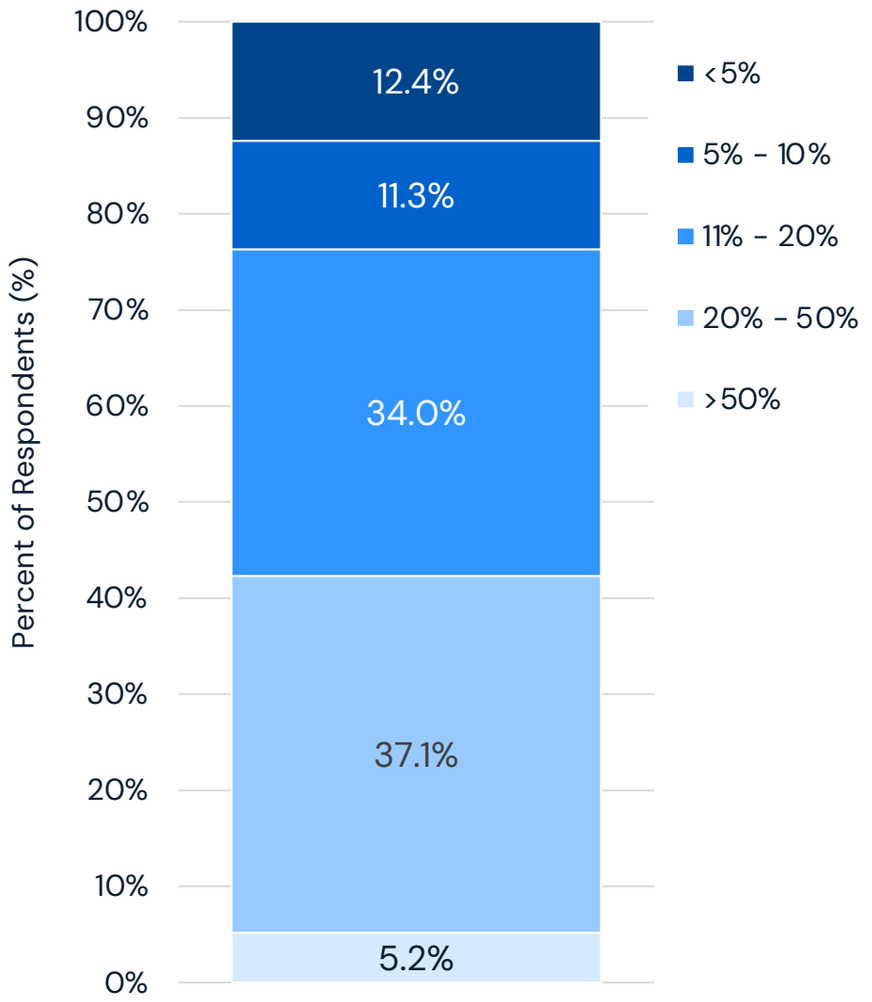
Health System Leaders Want To Expand Digital Capabilities...

Many leaders are investing in digital tools (e.g., telehealth). As of 2024, the largest investment area is expanding virtual health to drive patient experience and access, with 88.5% of health system executives having either implemented or planning to invest in this area. Additionally, 76.3% of leaders believe that at least 11% of all types of care can be delivered virtually.

Share of Health Systems Reporting Investments in Select Digital Areas, by Investment Status, 2024



Share of Health Systems Leaders Estimating What Percent of Care Can Be Delivered Virtually, by Percent of Care, 2024



Source: McKinsey & Company, Digital Transformation: Health Systems' Investment Priorities; Becker's Healthcare and Teladoc Health 2024 Annual Health Benchmark Survey.

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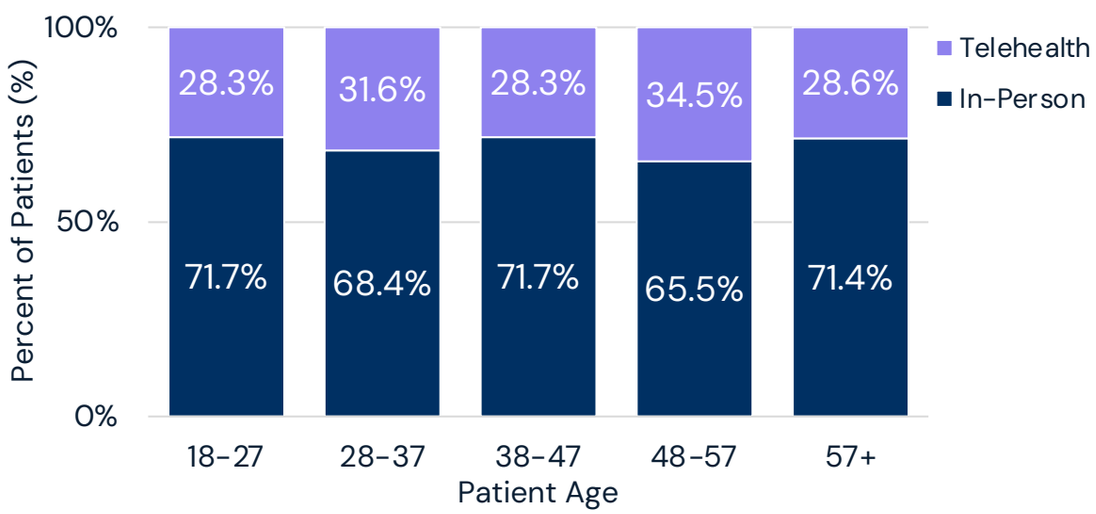
...But Patients and Providers Prefer In-Person Care for Most Clinical Needs

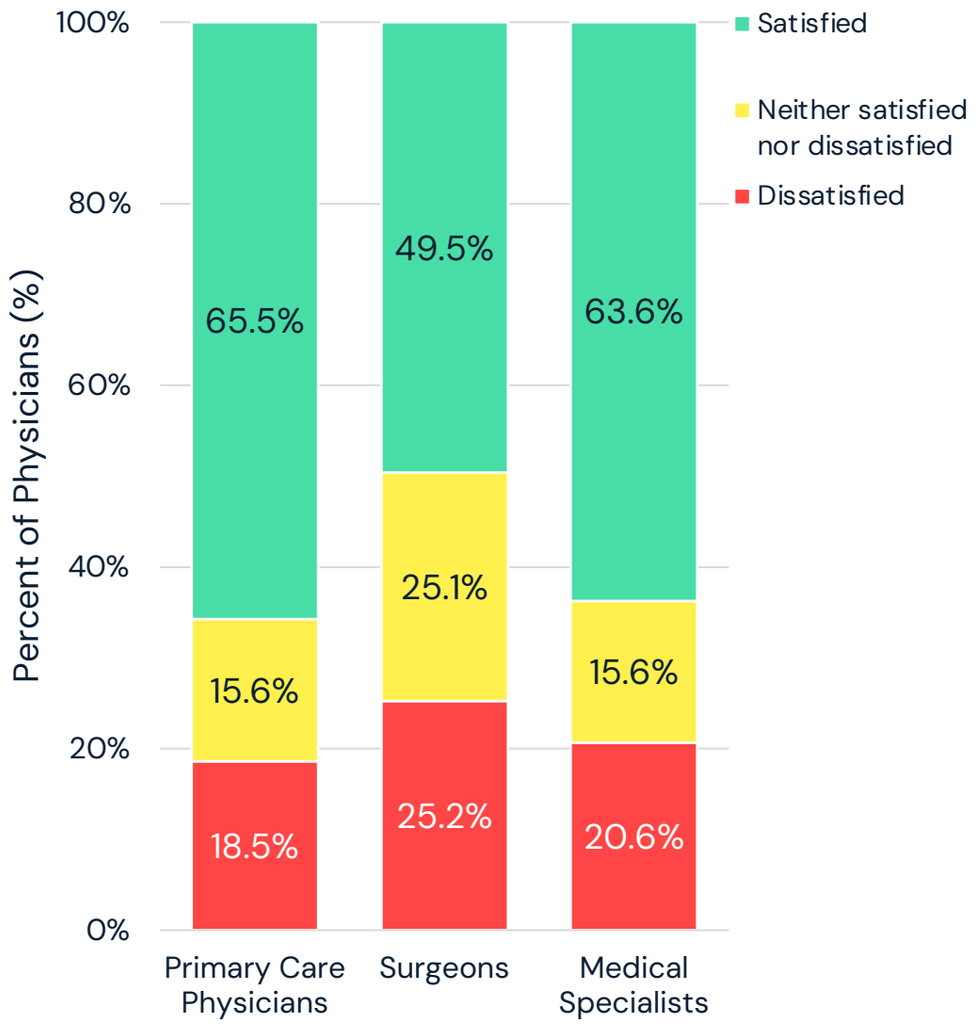
Patients generally prefer in-person care, reporting it is more trustworthy. Physicians also reflect this view, with 25.2% of surgeons reporting dissatisfaction with telehealth, compared to 18.5% of primary care physicians. These sentiments suggest that virtual care is a viable replacement for a limited number of clinical applications.

Share of Patients Choosing In-Person Visits vs. Telehealth, by Age Group



Top Reasons for Choosing In-Person Visits	
Detailed and complete physical examination	Direct, visual, comfortable and better communication
More accurate diagnosis	Reducing misdiagnosis
More accurate and better treatment	Physician paying more attention to the patient
More confidence and trust	Faster treatment
Better prescription of medicine	Lack of computer infrastructure

Share of Physicians Satisfied With Telehealth, by Specialty



Source: Moulaei et al., Patients' perspectives and preferences toward telemedicine versus in-person visits: a mixed-methods study on 1226 patients, *BMC Medical Informatics and Decision Making*, 2023; Myrick et al., Telemedicine Use Among Physicians by Physician Specialty: United States, 2021, *NCHS Data Brief No. 493*, 2024.

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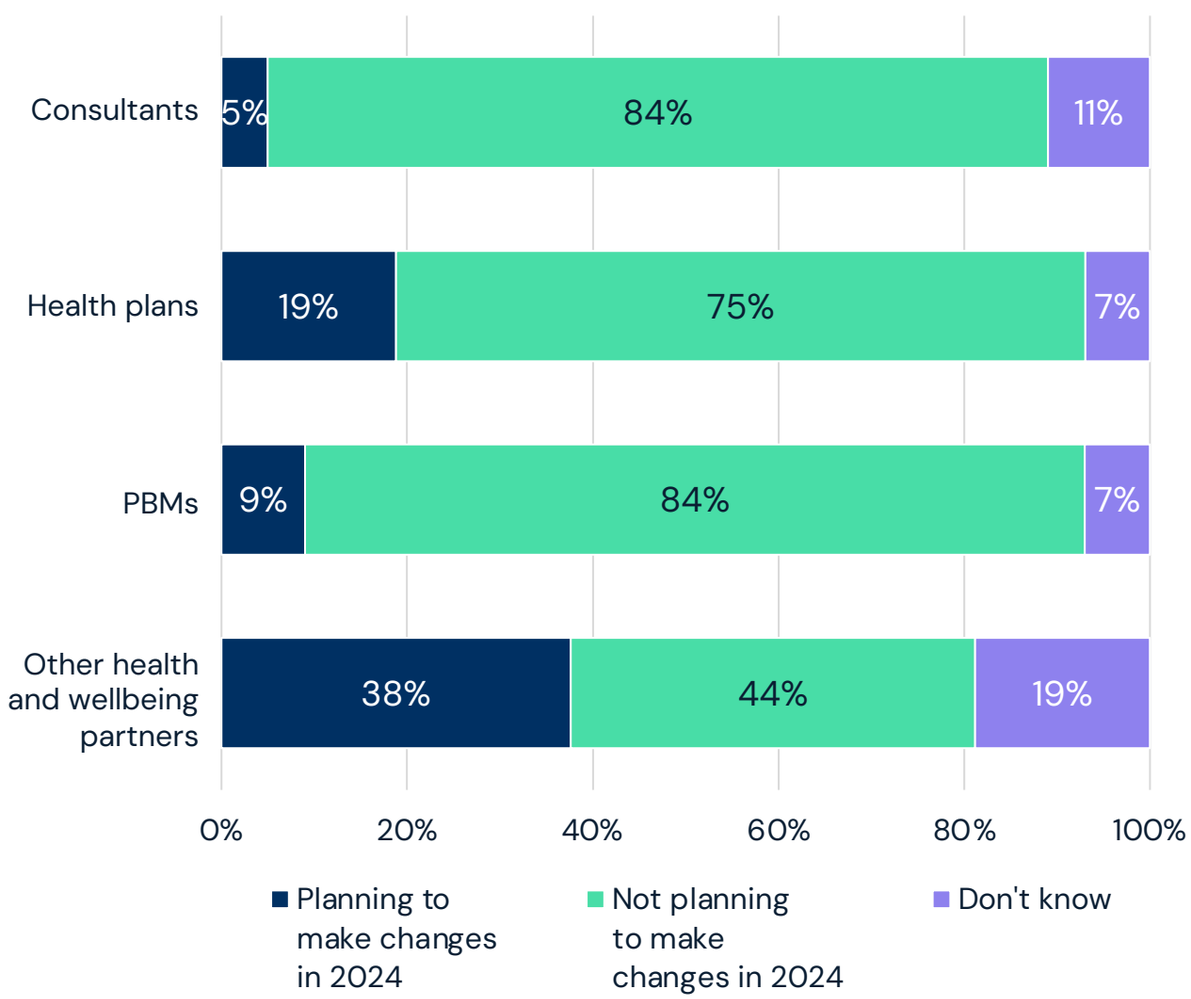
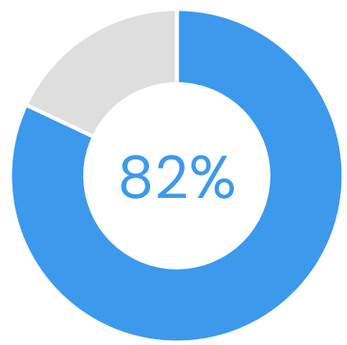
Employers Are Reevaluating Digital Health Solution Partnerships

Although 82% of large employers provide digital health point solutions to their employees, only 22% fully trust these partners to act in their best interest. Notably, Google ended its advanced primary care contract with One Medical in 2024. Despite an increasing focus on reevaluating digital health partners, primary care enablement continues to be a key focus for employers.

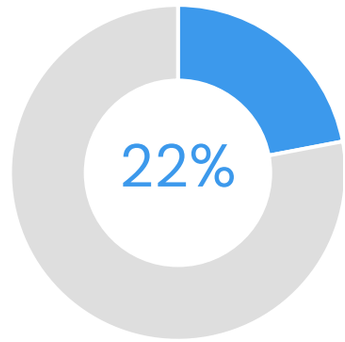
Percent of Employers Reporting Plans To Change Health Benefit Partnerships, 2024



Percent of Employers Offering Access to Digital Health Solutions to Employees



Percent of Employers That Trust Digital Health Solutions To Act In Their Best Interest



Note: Percentages may not add to 100% due to rounding. PBM denotes pharmacy benefit manager.
Source: Business Group on Health 2024 Large Employer Health Care Strategy Survey; Employer Benefits News State of Healthcare 2024 Study; publicly available news sources.

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Prescribing-Focused New Entrants Are Influencing More of the Patient Journey

New pharmacy entrants offer expanded choices for consumers. As they vertically integrate, these stakeholders will influence more of the prescription drug patient journey.

Comparison of CVS with Prescribing-Focused New Entrants

	CVS	amazon RxPass	amazon clinic	WeightWatchers	NURX	GoodRx Care	Cerebral	hims & hers
Price Point	**85%** of CVS prescriptions are under **$10** per month	**$5** per month	**$9** per month for membership **$29** per visit without membership	**$99** per month + cost of prescription	**$15 - $65** per consultation **$69+** per month for medication management	**$9** per month for membership **$19 - $49** per consultation + prescription cost	**$95** per month for just RX **$365** per month for RX and therapy	**$49 - $199** per month
Included Treatments	All	50+ low-cost generics	Sexual health, dermatological treatments, other low-acuity services	GLP-1s only	Sexual health, dermatological treatments, behavioral health	Short-term refills, diabetes, dermatological treatments, sexual health	ADHD, anxiety, bipolar disorder and depression treatments	GLP-1s, behavioral health, dermatological treatments
Presence	In-person and virtual	Virtual only						
Mail-Order Required?	No	Yes	No	Yes	Yes	No	Yes	Yes
Functionality	Prescribing and dispensing	Dispensing only	Prescribing only	Exclusive prescribing and dispensing	Exclusive prescribing and dispensing	Prescribing only	Exclusive prescribing only	Exclusive prescribing and dispensing
Subscription/ Membership Required?	No	Yes	Available but not required	Yes	No	Available but not required	Yes	Available but not required
Compounding Capability?	Yes	No	No	No	No	No	No	Yes

Note: Exclusive prescribing and dispensing denotes companies that will not dispense prescriptions made by providers outside of the company.
Source: Publicly available company information.

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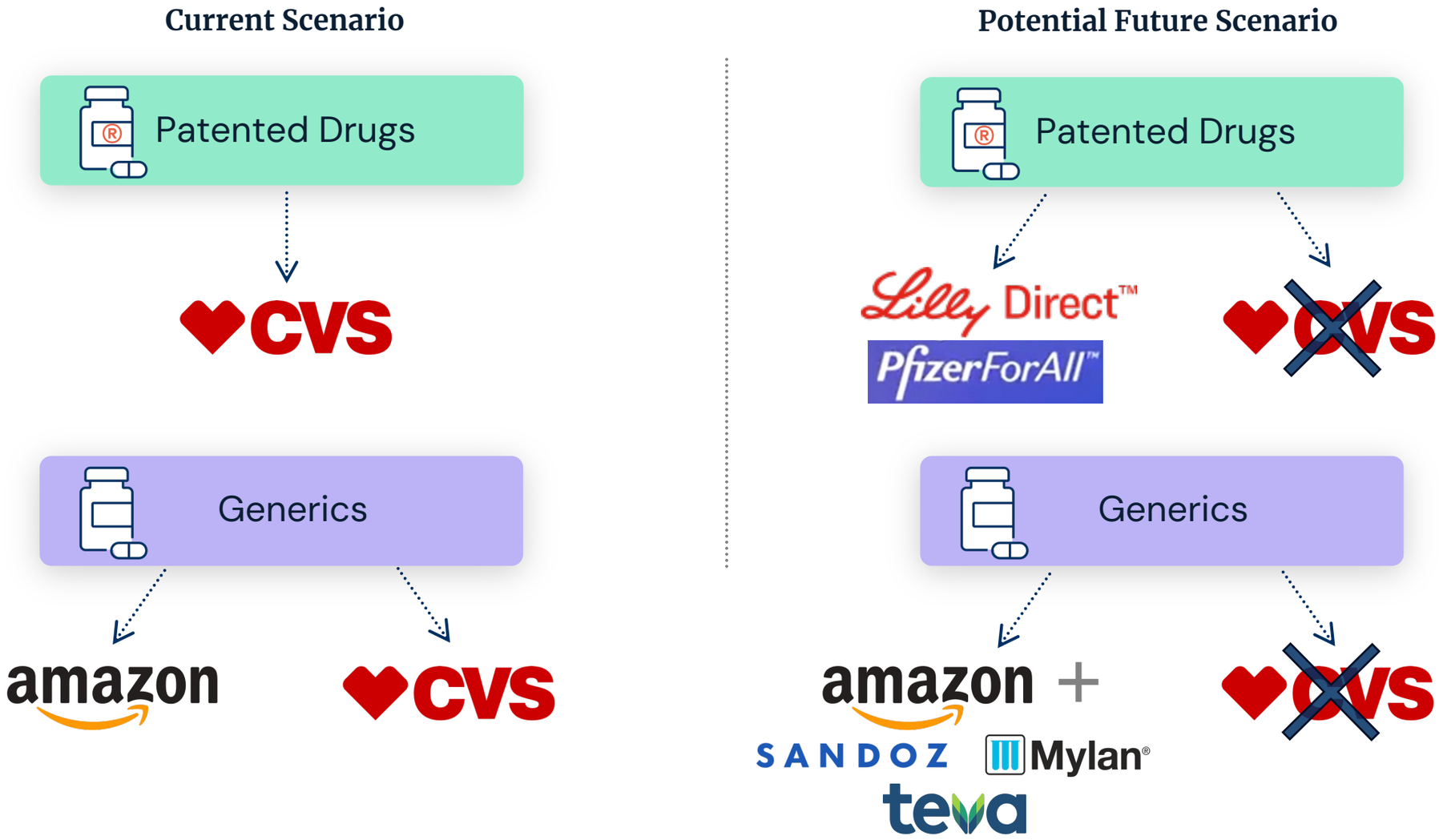
What if Amazon Disrupted the Generic Drug Market?

In 2017, CNBC reported that Amazon had discussions with Sandoz and Mylan "about strategies for entering the industry." With a market cap in excess of $1T, Amazon could easily acquire one or more generic manufacturers. What would be the implications if this hypothetical scenario became a reality? Will more manufacturers like Eli Lilly and Pfizer create their own platforms to sell patented drugs directly to patients? How would brick-and-mortar retailers respond?

Current and Future Scenarios for Pharmaceutical Drug Manufacturing



Note: Teva, Sandoz and Mylan are among the top generics manufacturers by revenue. Scenarios depicted above are theoretical, and as of the time of publication, Amazon has not announced plans for a merger, acquisition or partnership with any of the generics manufacturers.
Source: Publicly available news sources.

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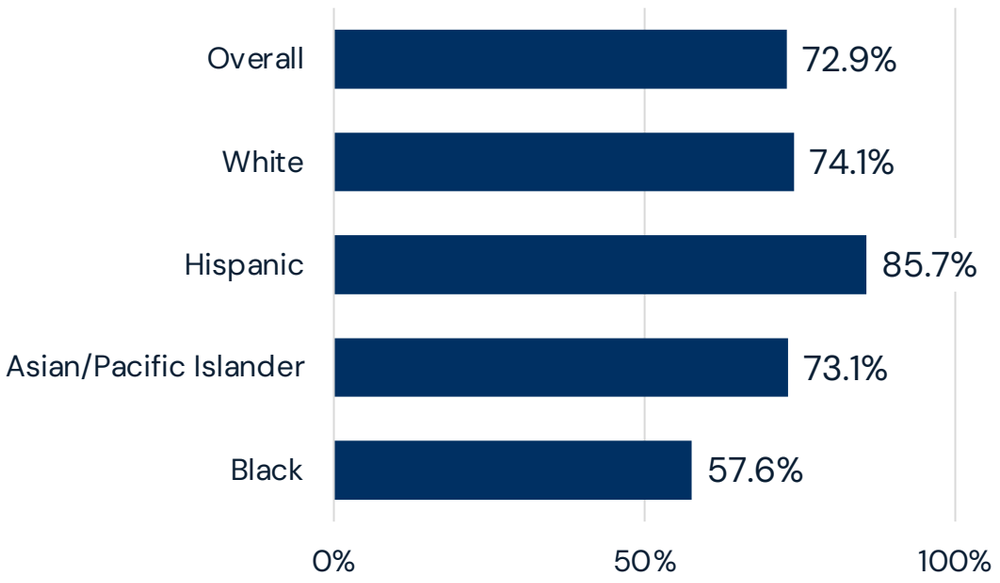
The DTC Diagnostics Market Is Predicted To Grow, Despite Utility Concerns

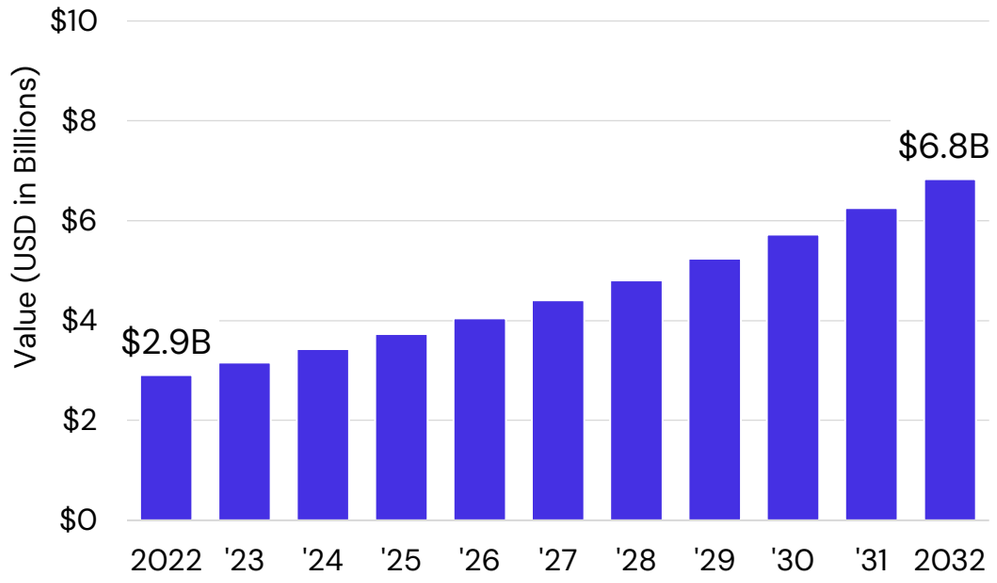
Despite widespread exposure to DTC diagnostics during the COVID-19 pandemic and the growing availability of tests, consumer adoption has been tepid. Even so, the DTC diagnostics market is expected to grow, with an estimated value of $6.8B by 2032. The impact of greater regulation of test accuracy and safety remains to be seen.

	Genetic	General Wellness	Sexual Health	Fertility	COVID-19
Example Tests	23andMe	everlywell	my LABBOX	Modern Fertility	iHealth
Average Cost	$99 - $298	$49 - $300	$59 – $239	$159	$10

Rate of Patient Follow-Up With Provider Following Abnormal DTC Test Result by Race/Ethnicity



Projected Value of DTC Diagnostics Market, 2022-2032



Note: DTC denotes direct-to-consumer.
Source: Publicly available company information; Carroll et al., Demographic Differences in the Utilization of Clinical and Direct-to-Consumer Genetic Testing, *Journal of Genetic Counselors*, 2020; Precedence Research Direct-To-Consumer Laboratory Testing Market Report.

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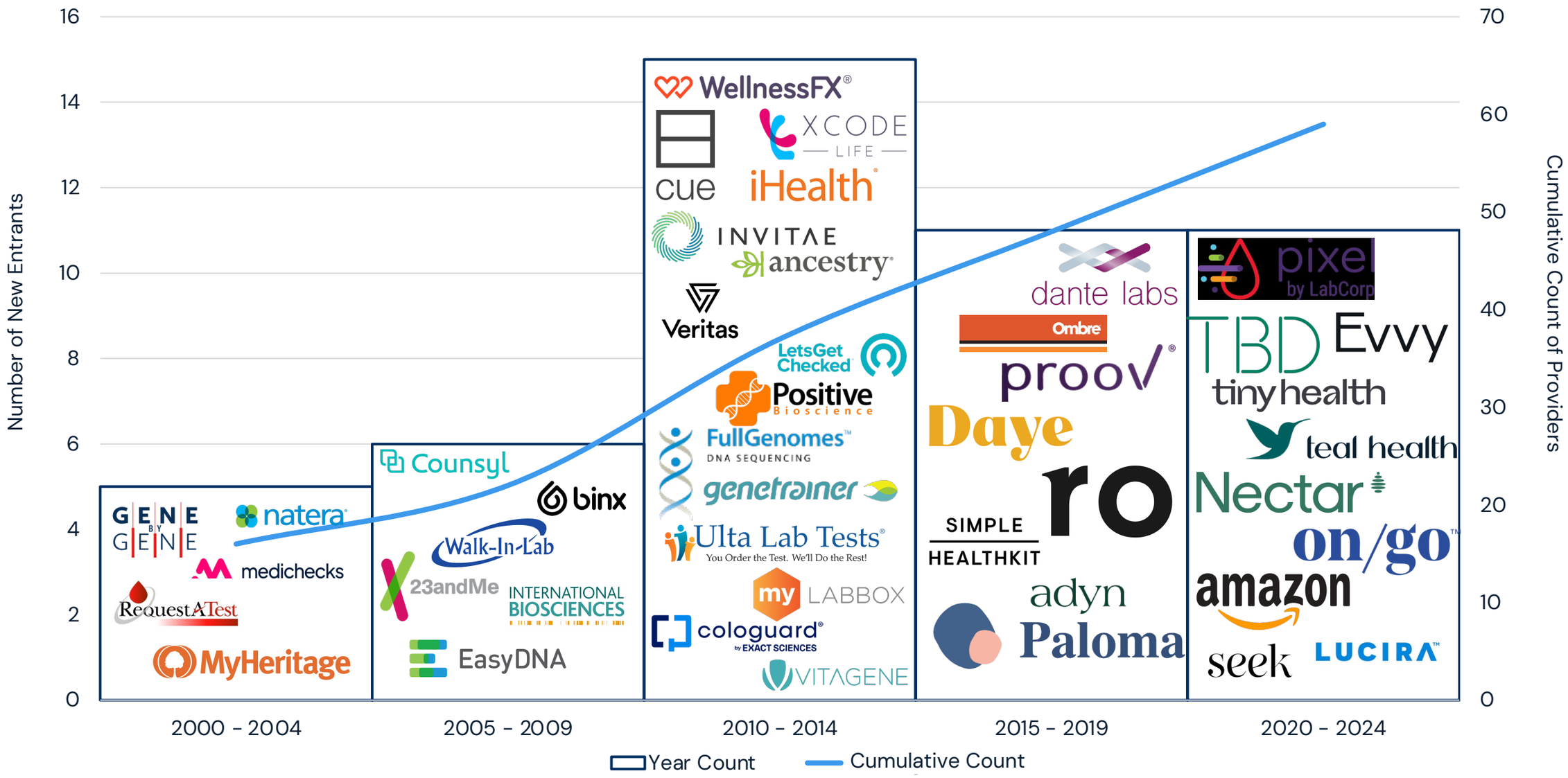
The Diagnostics Market Is Pivoting Away From Genetics

The 2010s marked a significant shift in the U.S. diagnostics market, with the number of companies offering tests growing from 22 in 2009 to 59 by 2024. While early entrants focused on genetic and ancestry testing, newer companies emphasize screening tests (e.g., cancer, infectious diseases) and general wellness (e.g., thyroid function, allergies, microbiome). This shift reflects a broader trend towards increased self care and self diagnosis.

Timeline of Select Suppliers Offering Diagnostic Testing, 2000-2024



Note: Logos of companies that entered the market prior to 2000 are not included in the figure, except for in the cumulative count.
Source: Publicly available company information.

Labcorp Is Investing Heavily in the Consumer Market

Since 2022, Labcorp has expanded from its traditional focus on physician-ordered lab testing to offer over 60 DTC tests. Consumers can now order these tests, provide samples at home and access results online. The company's increased advertising, particularly through targeted social media, has driven a rise in advertising spending.

Labcorp OnDemand Test Offerings

Annual Wellness
- Men's health tests
- Women's health tests
- Cancer screening
- Urine analysis

Nutrition
- Vitamin deficiency tests
- Celiac disease test
- Anemia test

Fertility and Sexual Health
- Pregnancy testing
- STI testing
- Paternity testing

Heart Health
- Diabetes risk tests
- General heart health tests

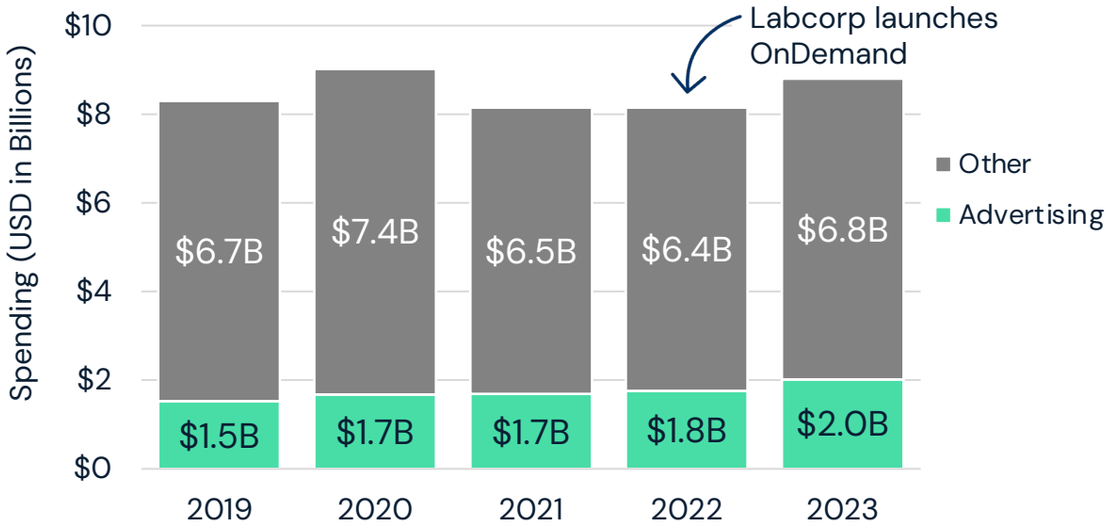
General Health
- Weight loss
- Drug testing
- Blood type testing
- Diabetes management and risk

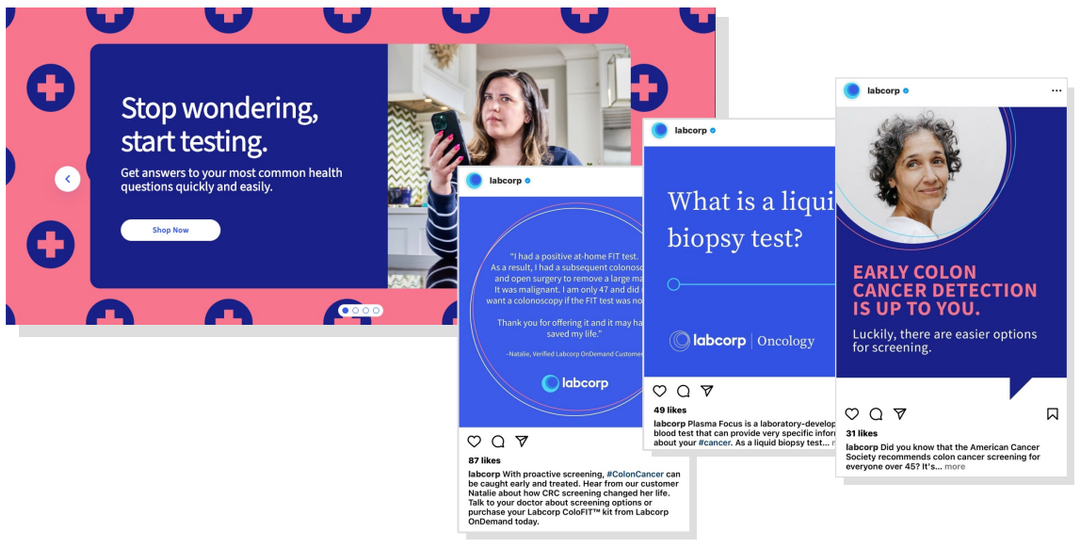
Immunity/Infectious Disease
- COVID-19, tuberculosis, MMR, measles and chickenpox immunity tests
- PCR testing

Hormones
- Thyroid, testosterone and progesterone tests
- Menopause test

Allergy
- Dog and cat allergy tests
- Food allergy tests

Labcorp Advertising Expense as Share of Total Cost of Revenue, 2019-2023





Note: DTC denotes direct-to-consumer. Advertising expense represents selling/general/administrative expense.
Source: Publicly available company information; Labcorp Annual Income Statements, 2019, 2020, 2021, 2022 and 2023; MassDevice, Labcorp launches on-demand platform for purchasing diagnostics.

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Macro Trend #6

Forced Consumerism Due to Cost Shifting Has Fostered Fragmentation Without Corresponding Value

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Micro Trends

- What are all-payer trends in e-prescribing for opioids, stimulants and antidepressant medications?
- How do population migration trends vary by CBSA?
- How does the psychographic distribution compare across CBSAs?

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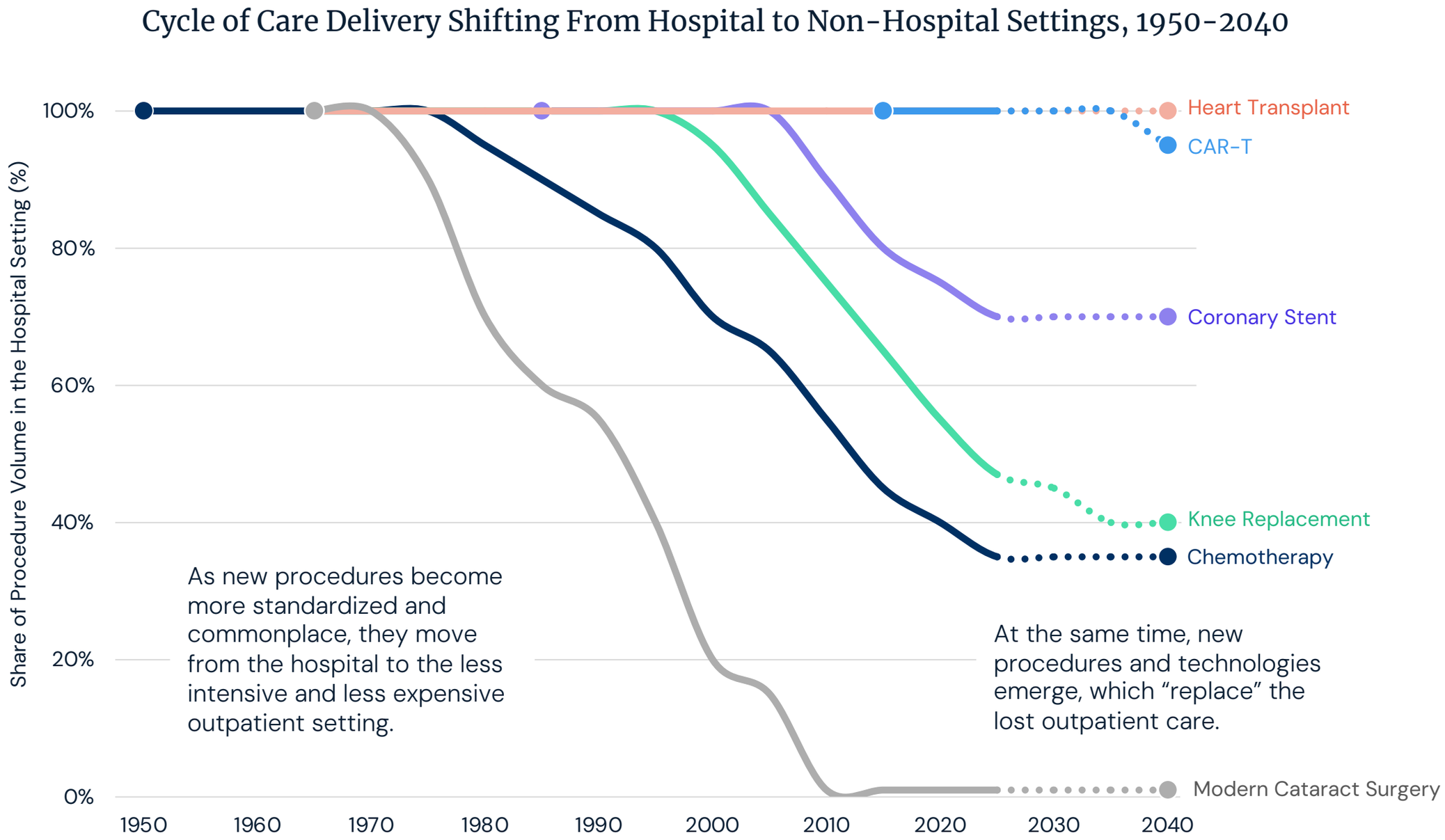
TREND 7

Lower-Cost Care Settings Can Offer Better Value

Cycle of Innovation Influences Rate of Care Migration Outside the Hospital

New treatment paradigms often start in the hospital setting. Over time, technology and innovation (e.g., new tools, payment reform) can facilitate more optimized delivery outside the hospital. Historically, as medicine has advanced, new complex procedures (e.g., CAR-T) have replaced the lost inpatient care and resulted in a new cycle. How long will that continue?



Note: CAR-T denotes chimeric antigen receptor.

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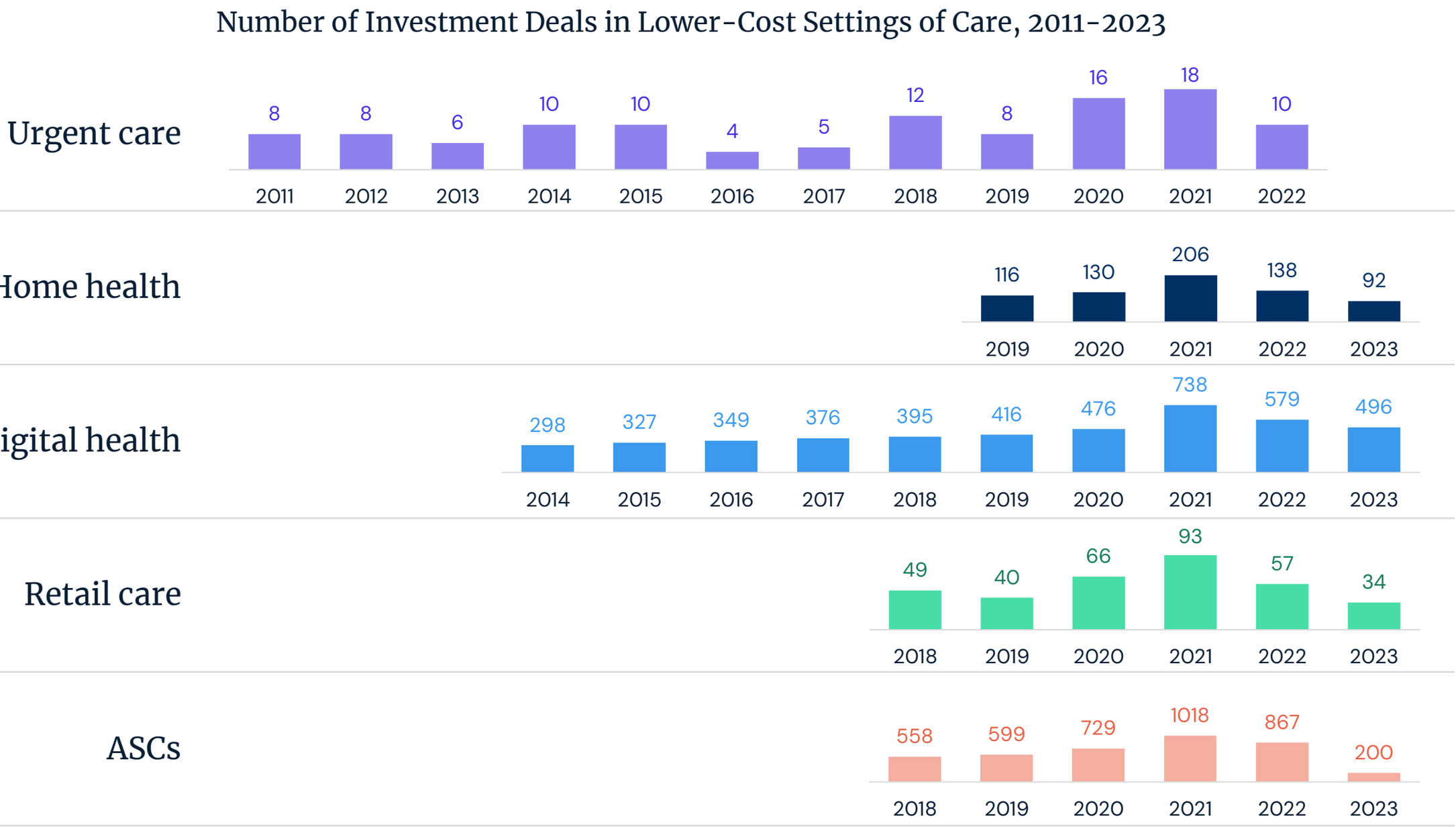
Investments in Lower-Cost Settings of Care Peaked in 2021

The number of venture capital and private equity deals related to lower-cost settings of care peaked in 2021 during the COVID-19 pandemic. From 2018 to 2022, ASC deals had the highest volume, but in 2023, digital health deals became the most frequent, totaling 496 deals.



Note: ASC denotes ambulatory surgery center.
Source: PitchBook; Capstone Partners Non-Skilled Home Care Services Drive M&A Activity in the Home Care Sector, 2024; Rock Health Q1 2024 digital health funding: Great (reset) expectations; EY Parthenon How to define and execute on a successful retail health business model, 2024; VMG Health Private Equity Investment in Ambulatory Surgery Centers, 2023.

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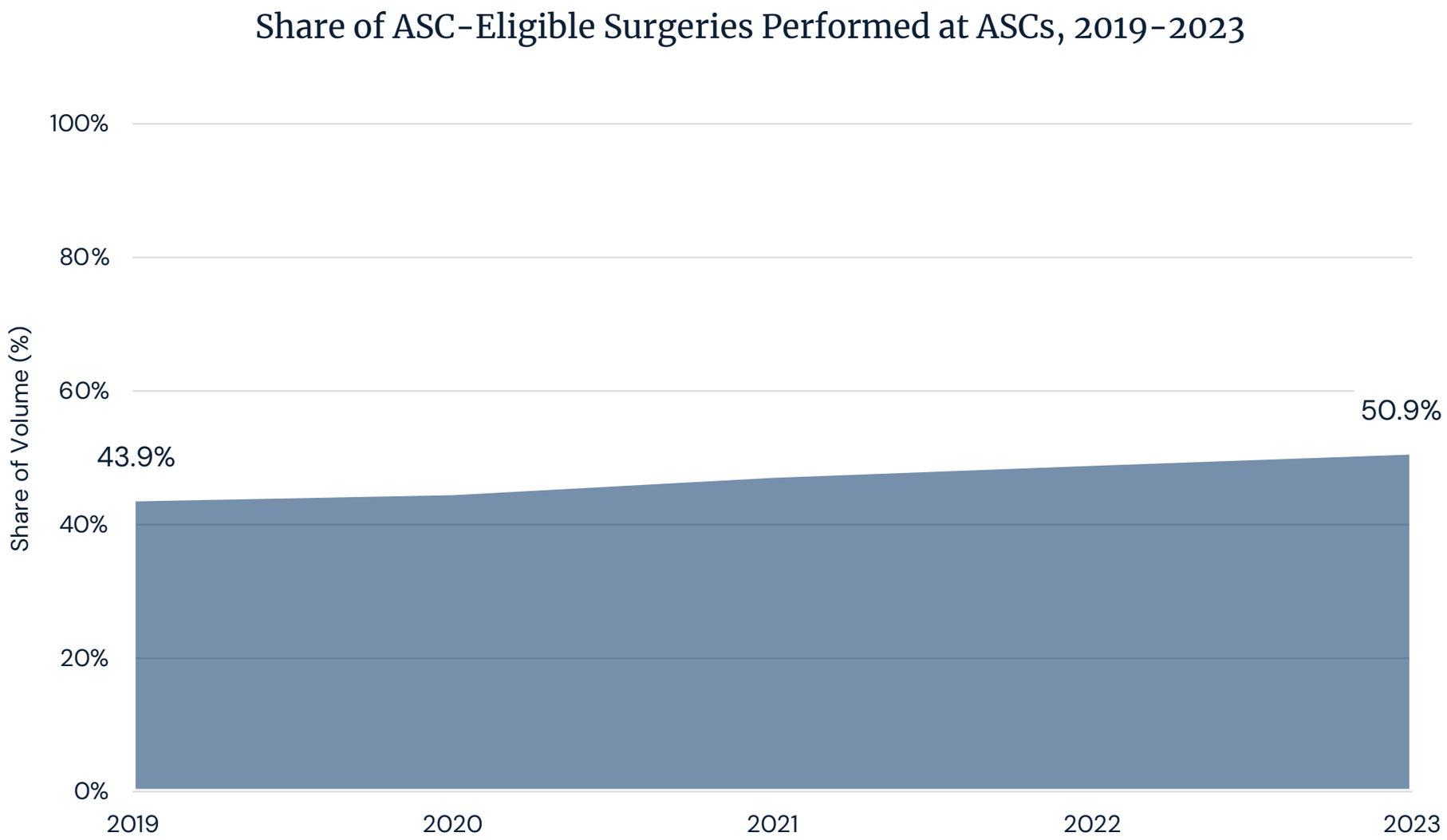
Surgical Care Is Shifting to ASCs

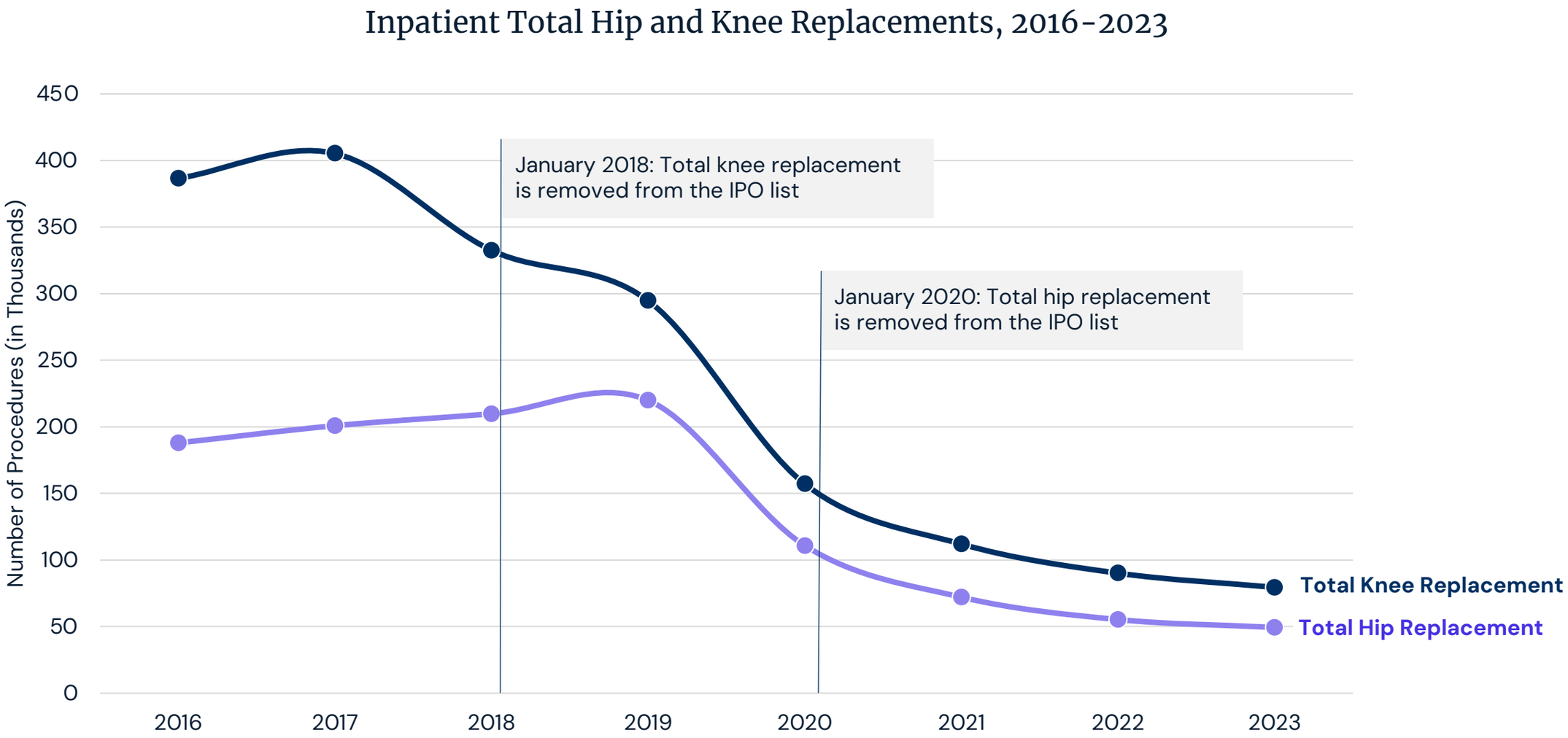
ASCs are delivering an increasing share of surgical care. Between 2019 and 2023, the share of surgical care delivered at ASCs increased by 7.0 percentage points.



Note: Analysis is limited to commercially insured patients. ASC denotes ambulatory surgery center.
Source: Trilliant Health national all-payer claims database.

As Procedures Are Removed From the IPO List, ASC Volumes Will Increase

In 2022, CMS reinstated the 298 procedures that were previously removed from the Medicare IPO list. These procedures are only reimbursed by Medicare when delivered in an inpatient setting. After total knee replacements were removed from the IPO list in 2018, inpatient volume declined by 17.9% from 2017 to 2018. A similar trend was observed for total hip replacements after IPO list removal in 2020. As surgical procedures are removed from the IPO list, the number of surgeries performed in ASCs and other outpatient settings will increase.



Note: Analysis is limited to Medicare patients. ASC denotes ambulatory surgery center; IPO denotes inpatient only; CMS denotes Centers for Medicare and Medicaid Services.
Source: Trilliant Health national all-payer claims database.

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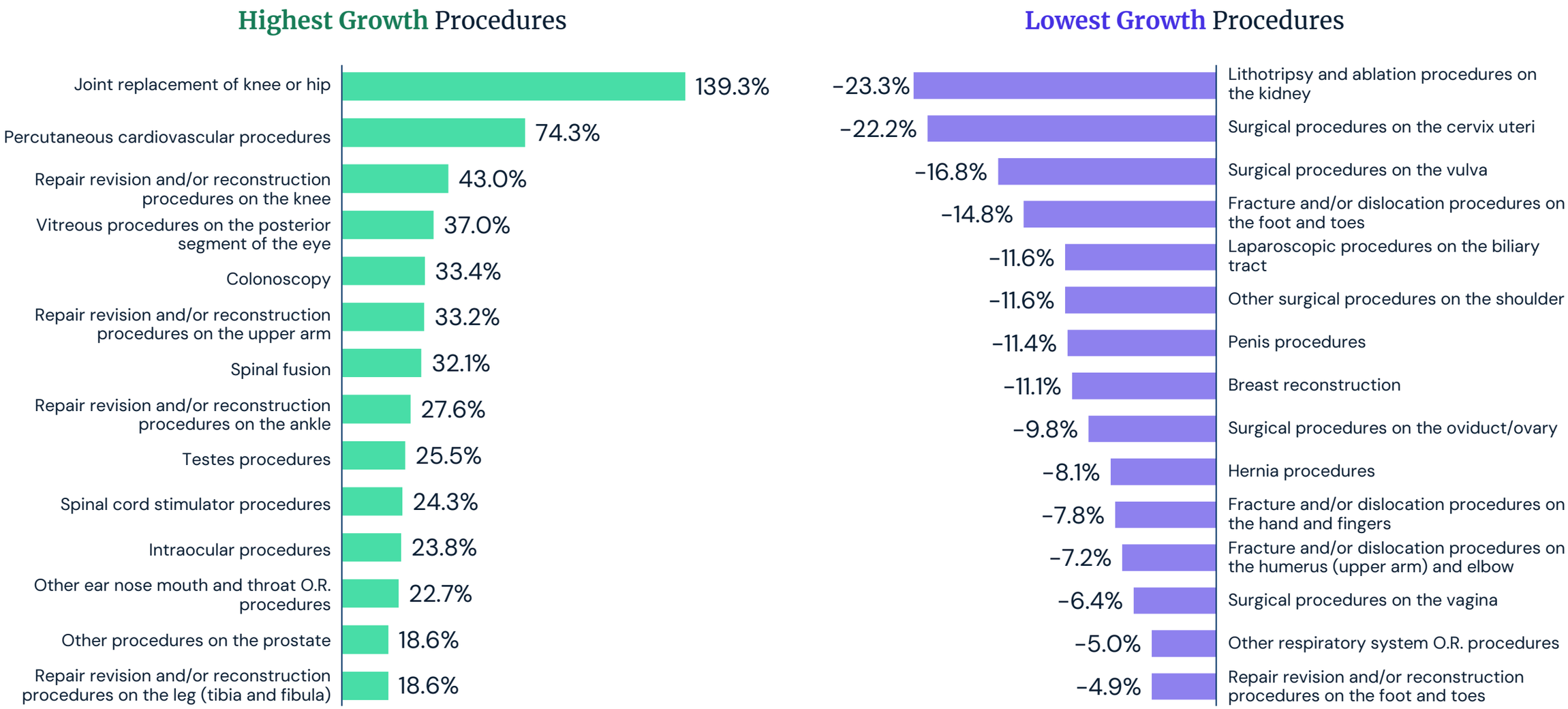
Hip and Knee Replacement Is the Fastest Growing ASC Procedure

From 2019 to 2023, the surgical procedures with the highest volume growth at ASCs were hip and knee replacements (+139.3%) and percutaneous cardiovascular procedures (+74.3%), while the procedures with the highest volume decreases were lithotripsy and ablation procedures on the kidney (-23.3%) and surgical procedures on the cervix uteri (-22.2%).

Percent Change in ASC-Eligible Surgical Volume at ASCs, by Procedure Type, 2019 to 2023



Note: Analysis is limited to commercially insured patients; ASC denotes ambulatory surgery center.
Source: Trilliant Health national all-payer claims database.

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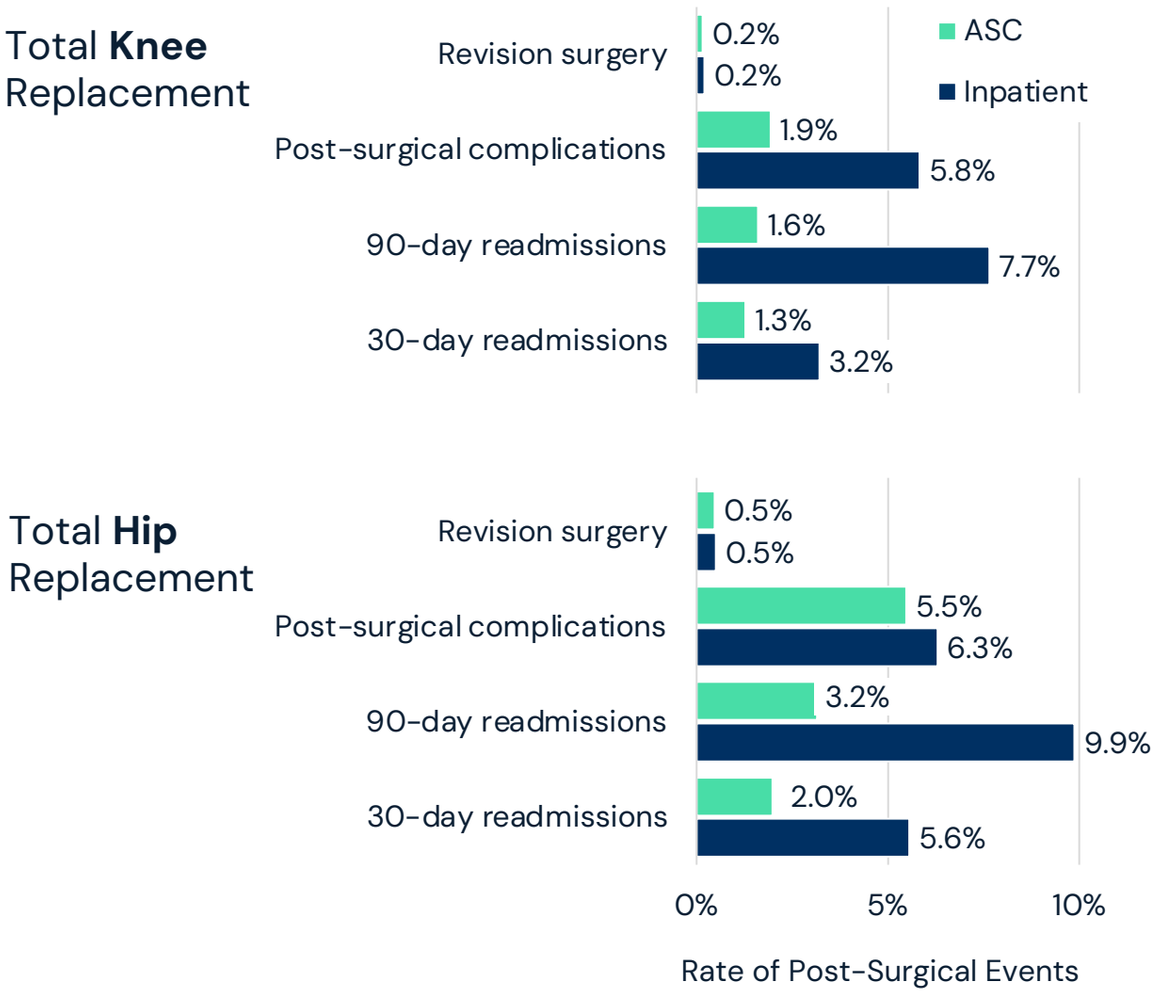
Joint Replacements in Outpatient Settings Consistently Deliver Better Value

Readmissions, post-surgical complications and costs for total joint replacements are lower in outpatient settings compared to inpatient settings, indicating higher value for lower-acuity patients who do not require inpatient care. As more surgeries shift to outpatient settings, providers could see a $1.2B decrease in Medicare payments for joint replacements.

Comparison of Total Joint Replacement Post-Surgical Events, Inpatient and at ASCs



Current and Future Scenarios for Total Joint Replacement at Lower-Cost Settings

Current State		
Inpatient (70%)	ASCs (30%)	
553K Procedures x $18,171 (Medicare)	237K Procedures x $10,502 (Medicare)	
$10.0B	$2.5B	= $12.5B
790K U.S. Hip & Knee Joint Replacements		

Potential Future State		
Inpatient (50%)	ASCs (50%)	
395K Procedures X $18,171 (Medicare)	395K Procedures x $10,502 (Medicare)	
$7.2B	$4.1B	= $11.3B
790K U.S. Hip & Knee Joint Replacements		

$1.2B Difference

Note: ASC denotes ambulatory surgery center.
Source: Carey et al., Patient Outcomes Following Total Joint Replacement Surgery: A Comparison of Hospitals and Ambulatory Surgery Centers, *Journal of Arthroplasty*, 2020.

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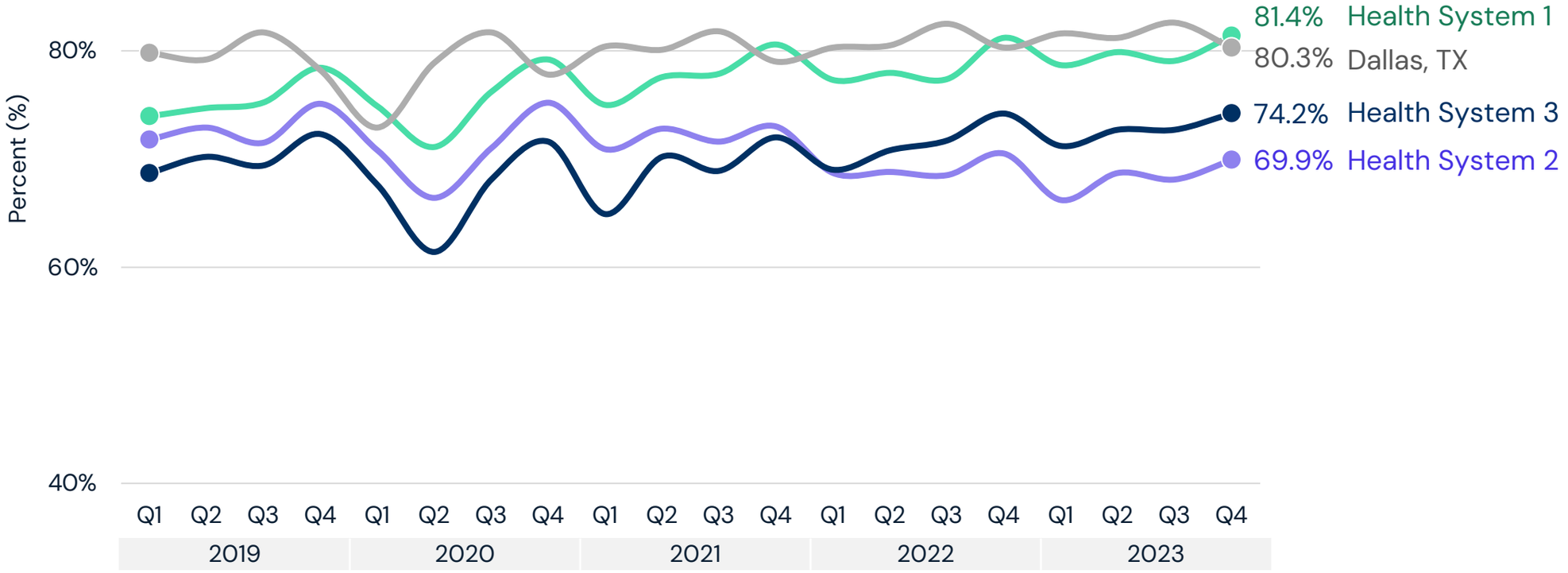
TREND 7: LOWER-COST SETTINGS

Dallas Serves as a Harbinger of Future Outpatient Surgery Trends

More than 80% of surgeries in Dallas are performed in outpatient settings. With over 70% of surgeries at major health systems already performed in outpatient settings in this competitive market, Dallas can serve as a benchmark for future surgical trends in other markets, except those with certificate-of-need (CON) regulations.

Percent of Surgeries Delivered in the Outpatient Setting at Select Health Systems in Dallas-Fort Worth-Arlington, TX, Q1 2019-Q4 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database and Provider Directory.

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Continued Migration of Screening to Outpatient Will Produce More Value

In Scenario 1, where 100% of the 15M screening colonoscopies performed annually occur in inpatient settings, expenditures would total $247.5B. However, expenditures under Scenario 5 – with site-neutral payment – would be $231.7B less.

Potential Scenarios for Outpatient vs. Inpatient Colonoscopy Utilization and Associated Expenditures

Scenario	Description	Utilization	Expenditures ($)
Scenario 1	• 100% Inpatient	• 15M Screening Colonoscopies x $16.5K (150% Medicare)	**$247.5B**
Scenario 2	• 50% Inpatient • 50% Outpatient	• 7.5M Screening Colonoscopies x $16.5K (150% Medicare) • 7.5M Screening Colonoscopies x $1.6K (150% Medicare)	**$135.5B**
Scenario 3	• 10% Alternate Method (Fecal DNA test) • 30% Inpatient • 60% Outpatient	• 1.5M Fecal DNA tests x $600 (Average List Price) • 4.5M Screening Colonoscopies x $16.5K (150% Medicare) • 9M Screening Colonoscopies x $1.6K (150% Medicare)	**$89.3B**
Scenario 4	• 10% Alternate Screening Method (Fecal DNA test) • 5% Inpatient • 85% Outpatient	• 1.5M Fecal DNA tests x $600 (Average List Price) • 750K Screening Colonoscopies x $16.5K (150% Medicare) • 12.75M Screening Colonoscopies x $1.6K (150% Medicare)	**$34.9B**
Scenario 5	• Site-Neutral Payment	• 1.5M Screening Colonoscopies x $600 • (Average List Price) • 13.5M Screening Colonoscopies x $1.1K (100% Medicare)	**$15.8B**

Source: Centers for Medicare and Medicaid Services Inpatient and Outpatient Prospective Payment Systems; GoodRx.

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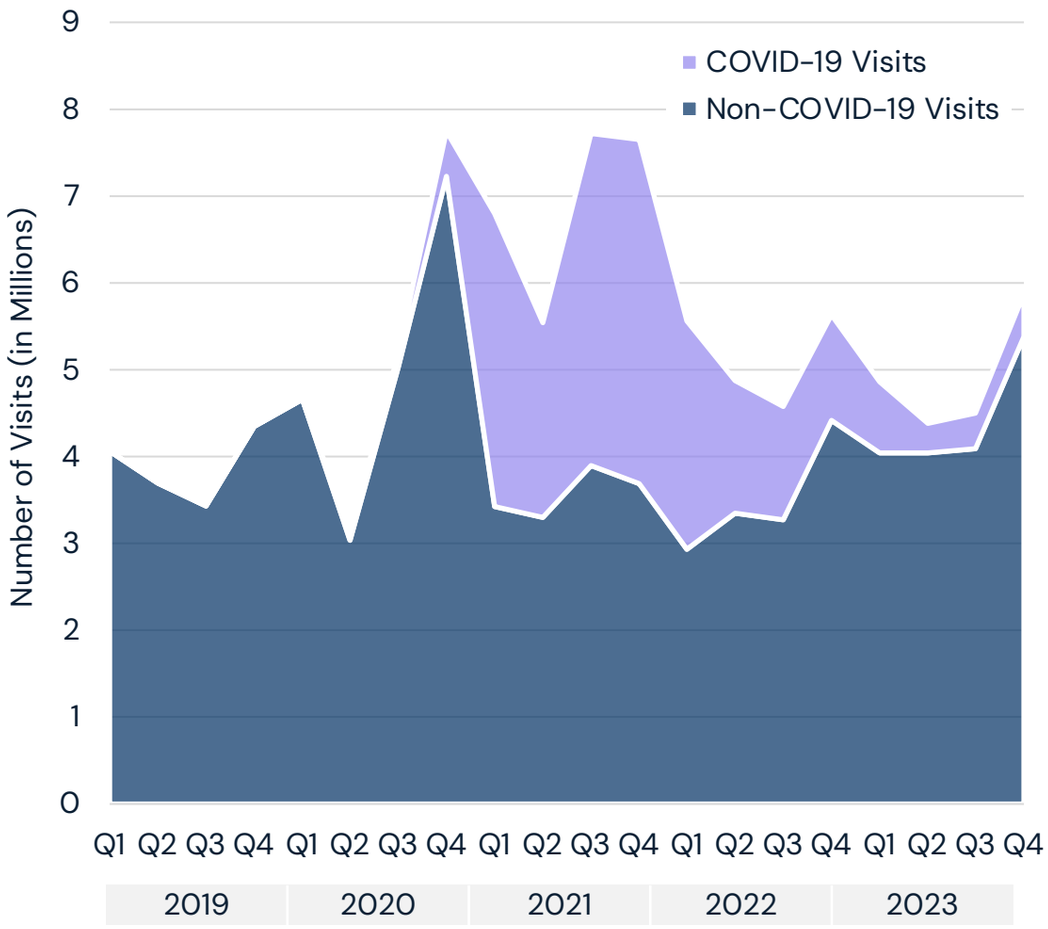
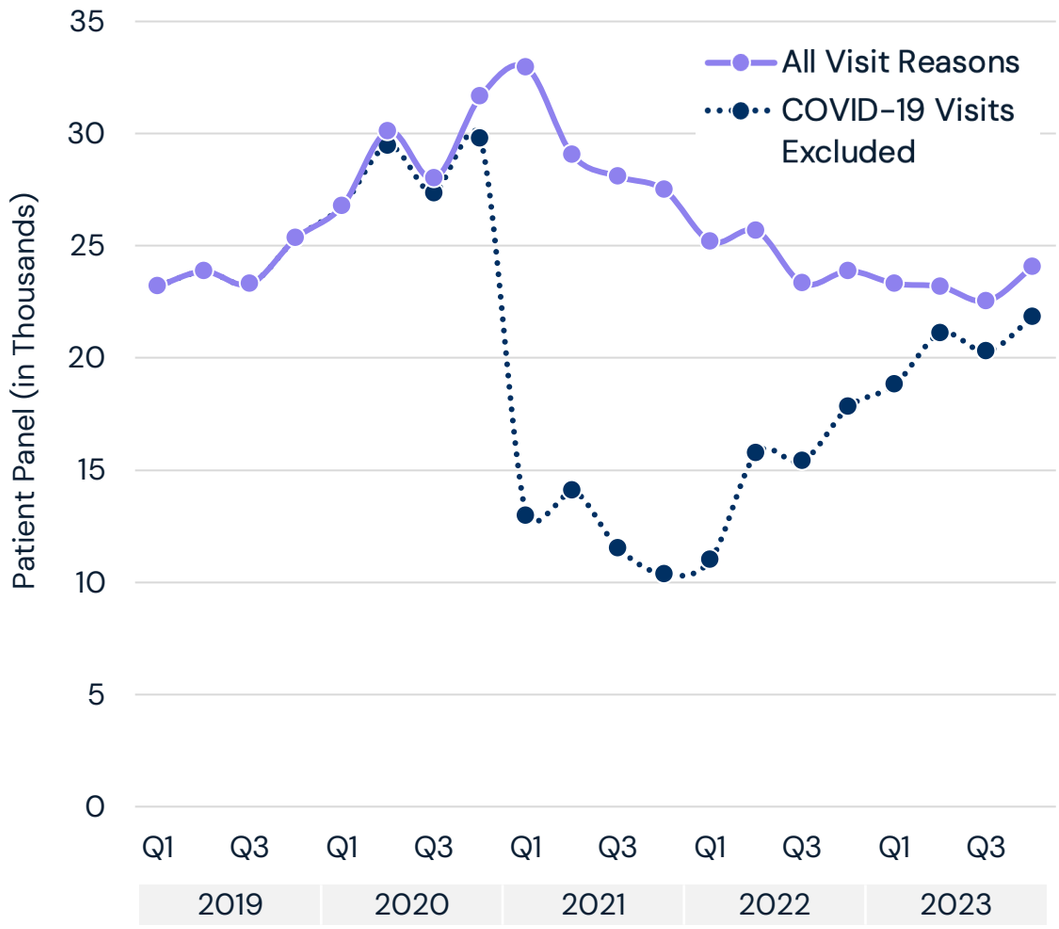
Urgent Care Growth Is No Longer COVID-Dependent

Between Q1 2019 and Q4 2023, urgent care volumes increased by 44.6%. However, growth in urgent care volumes with COVID-19 related visits removed was markedly lower (32.5%). What do recent trends in urgent care utilization suggest about changes in consumer preference?

COVID-19 and Non-COVID-19 Urgent Care Visit Volumes, Q1 2019-Q4 2023



Average Quarterly Urgent Care Patient Panel Over Time, Q1 2019-Q4 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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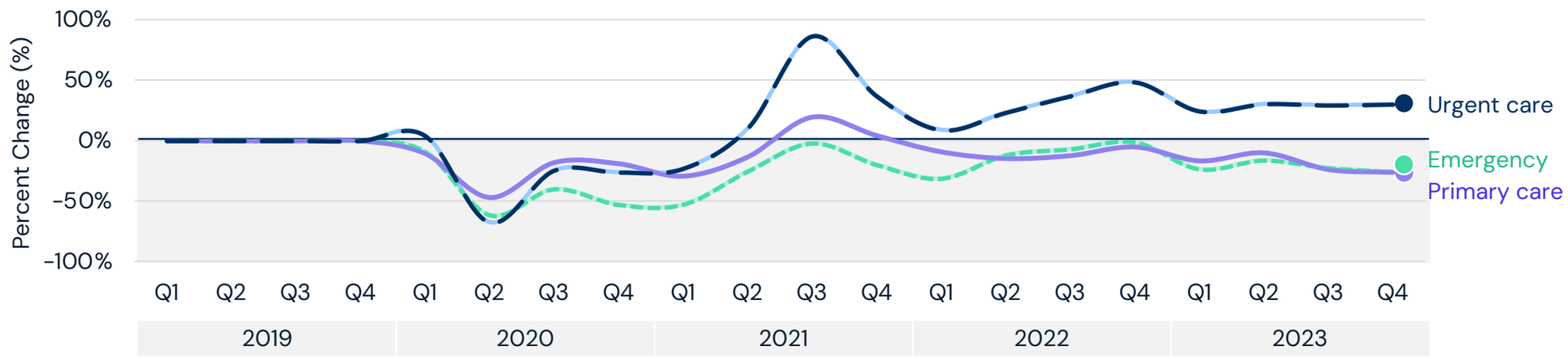
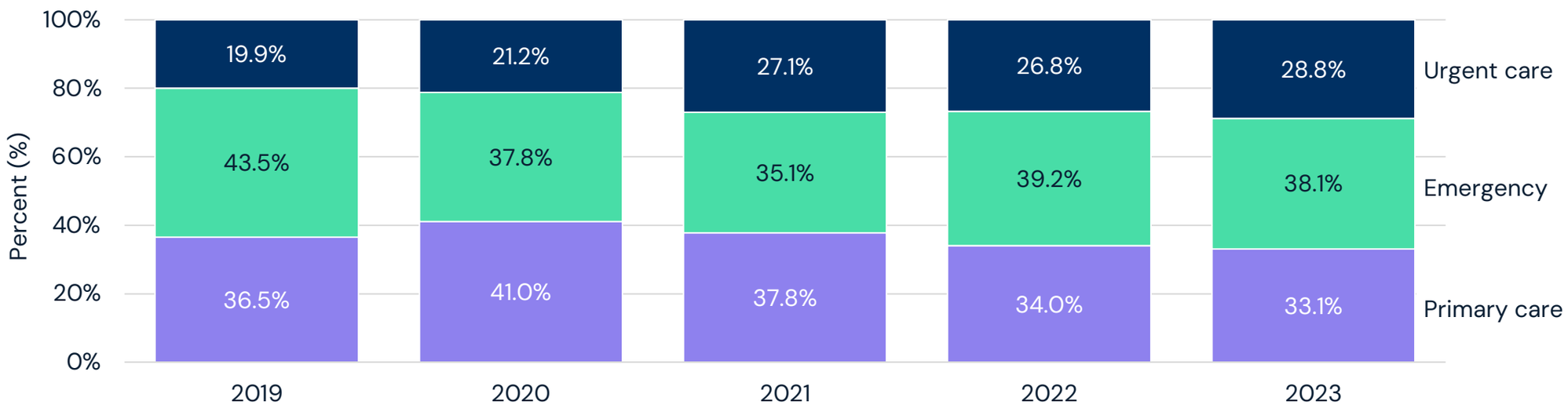
Low-Acuity Pediatric Utilization Is Shifting Towards Urgent Care

Since 2019, the share of pediatric visits in urgent care settings increased by 8.9 percentage points, while it decreased by 5.4 percentage points in emergency care and 3.4 percentage points in primary care settings. Whatever the reason for this trend, it will create care fragmentation for patients with established pediatrician relationships.

Percent Change in Pediatric Visits by Care Setting, Compared to Respective 2019 Quarter, 2019-2023



Share of Pediatric Visits by Care Setting, 2019-2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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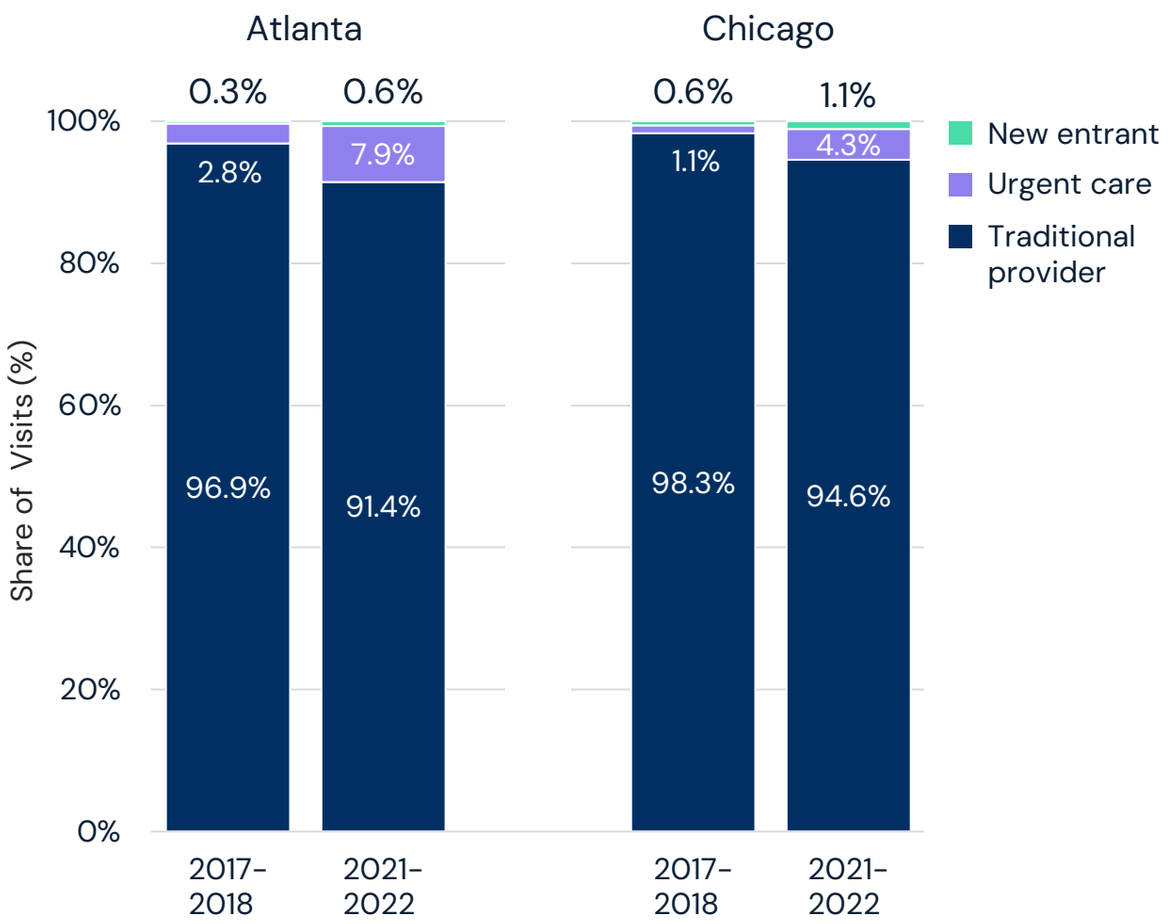
Retailers Finally Realize Delivering Primary Care Is Hard...

New entrants, like One Medical, VillageMD, Walmart Health and CVS, entered the healthcare delivery market with the goal of transforming low-acuity care delivery. In key markets, these providers ended up delivering less than 1% of low-acuity care. The struggle to transform care and drive profits in primary care is reflected in their decisions to exit the market, reduce investments, scale back brick-and-mortar operations and pivot their healthcare strategies altogether.

Distribution of Low-Acuity E&M Visits by Provider Type, 2017-2022



BUSINESS INSIDER
Amazon, CVS, and Walgreens went all in on primary care. Their bets are bleeding money.

BUSINESS INSIDER
Inside Project Espresso, Amazon's secretive and painful reset of its big healthcare bet

HEALTHCAREDIVE
Walmart Health shuts down
The unexpected closure of Walmart's 51 health centers and virtual care business highlights the difficulty of providing healthcare at this moment in time.

American Hospital Association™
Advancing Health in America
Walgreens Shutters 160 VillageMD Clinics after $6 Billion Loss

ALM | GLOBEST.COM
CVS Looks for Funding Help for Primary Care Provider Oak Street Health
The move comes when Walmart, Walgreens, and Rite Aid make big changes in their health clinic offerings.

Note: Analysis is limited to commercially insured patients. Atlanta and Chicago selected as illustrative examples due to patient mix and new entrant footprint. E&M denotes evaluation and management.
Source: Trilliant Health national all-payer claims database; publicly available news sources.

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...And That Specialty Pharmacy Is Profitable

As retailers exit care delivery, CVS, Walgreens and Walmart have focused growth strategies on specialty pharmacy. Notably, Walmart exited primary care delivery and is instead leasing space to Centerwell (Humana). Likewise, Walgreens has substantially scaled back its VillageMD expansion and is considering a potential sale. CVS has also announced the closure of several MinuteClinic locations.

Specialty Pharmacy at Major Retailers

	Specialty Pharmacy Revenue, 2023	Percent Change, 2022-2023	Percent of Prescription Revenue, 2023	Executive Statements Regarding Specialty Pharmacy, 2024
CVS specialty	$73.3B	+11%	30%	"So, most of all the success we've delivered is because of our leadership position, specifically in the specialty marketplace. So, we have unmatched access both across mail, retail, and in the home infusion space. We have broad set of products, both in the pharmacy and the medical benefits side; continue to be a leader in the limited distribution category; continue to be a leader in the new developing cell and gene therapy marketplace. **So, that, combined with the technology that we've invested, has allowed us to be kind of the leading provider in this space.**" *- David Joyner, President, Pharmacy Services (Q1 2024 Earnings Call)*
Walgreens Specialty Pharmacy	$8.4B	-25%	3%	"...Walgreens Specialty Pharmacy is the largest independent provider that offers the industry's most robust specialty capabilities not vertically aligned with a pharmacy benefit manager." *- Rick Gates, Chief Pharmacy Officer*
Walmart Specialty Pharmacy	$3.4B	+16%	1%	"Over the past few years, the importance of pharmacies has continued to grow, and we have expanded the clinical capabilities of the services we provide. We continue to offer immunizations and have grown to provide Testing and Treatment services, access to specialty pharmacy medication and care, as well as other essential services such as medication therapy management and a variety of health screenings. With more than 4,000 of our stores in medical provider shortage areas, our pharmacies are often the front door of healthcare." *- Walmart press release in announcing the closing of Walmart Health*

Source: Drug Channels, The Top 15 Specialty Pharmacies of 2023: Market Shares and Revenues at the Biggest PBMs, Health Plans, and Independents, 2024; Company quarterly earnings call transcripts.

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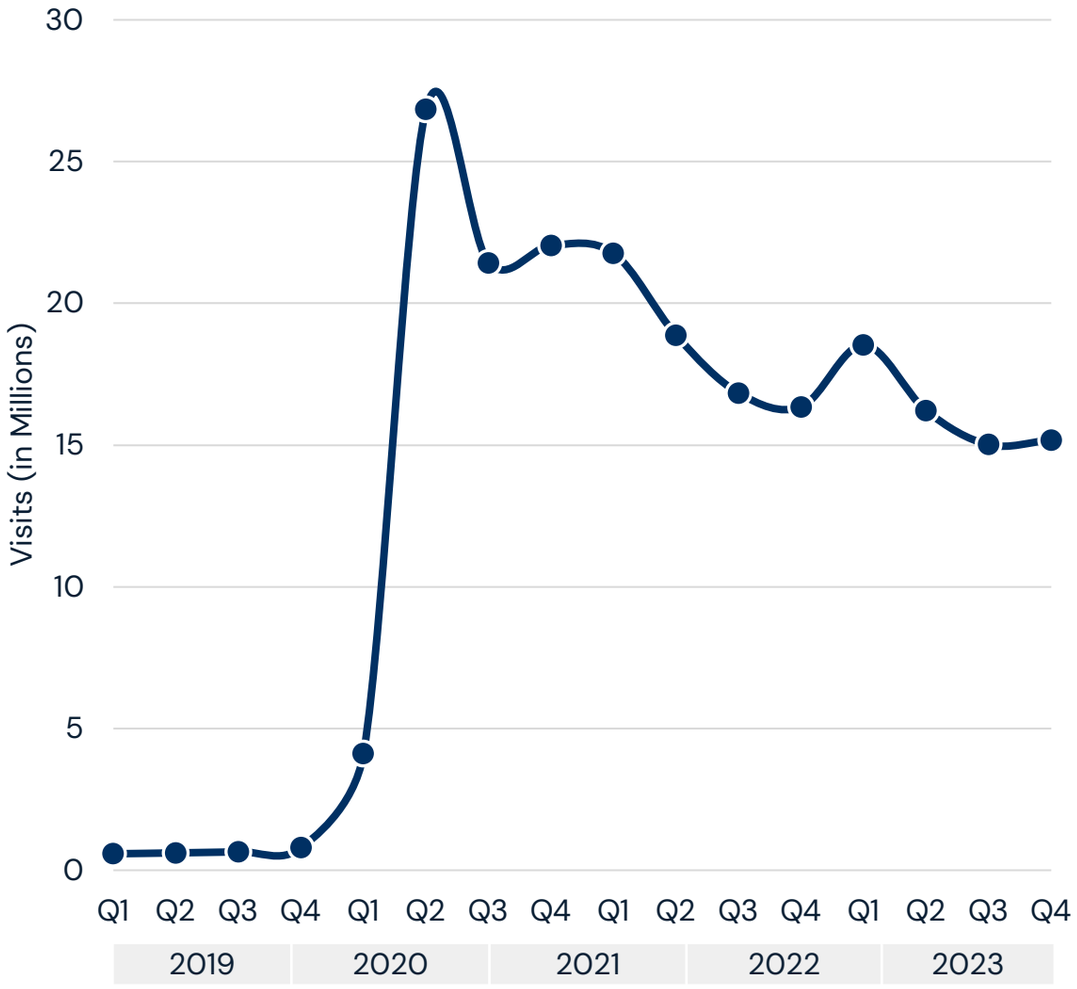
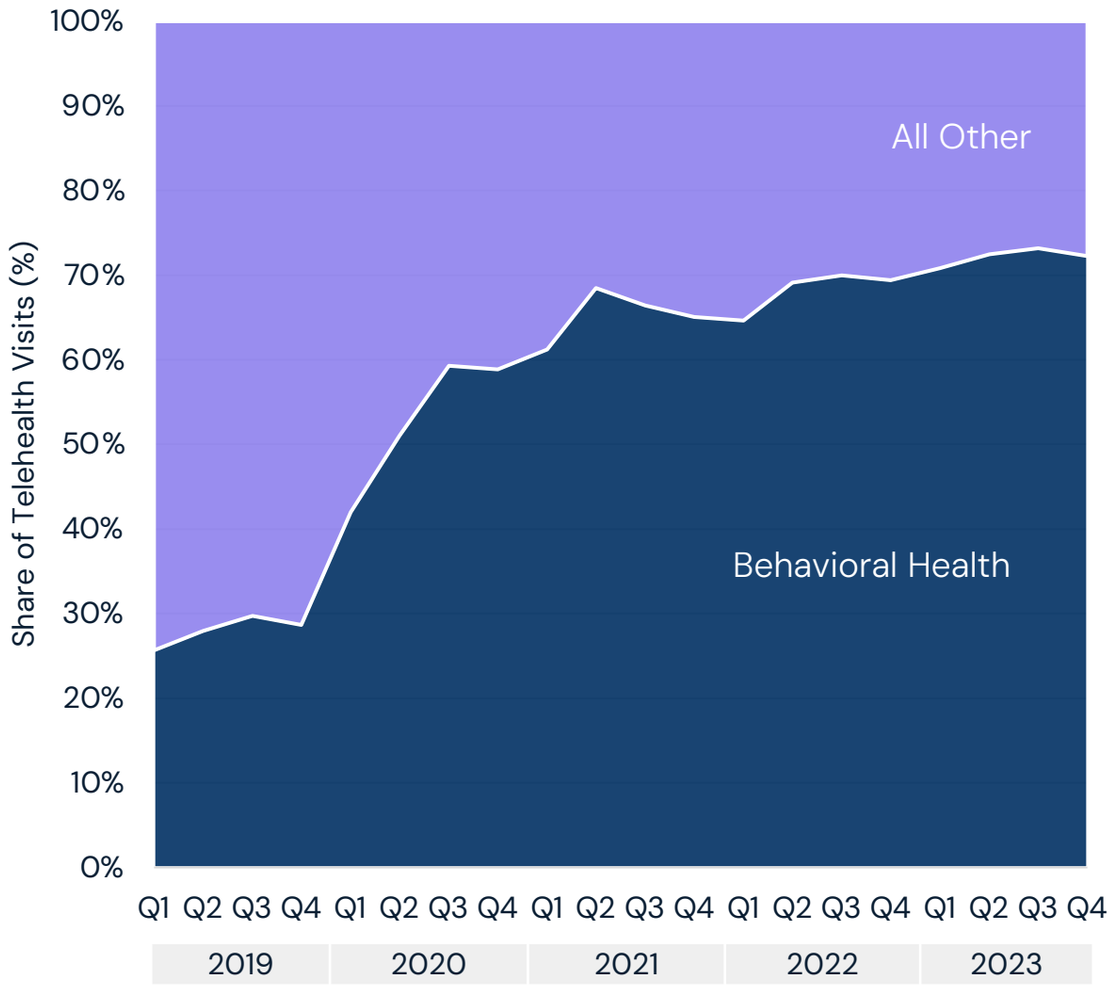
Behavioral Health Accounts for Over 70% of Telehealth Volume

Telehealth for the treatment and management of behavioral health conditions has increased consistently since 2019, a trend not seen in any other clinical application of virtual care. Compared to Q1 2020, the share of telehealth for behavioral health reasons increased from 42.0% to 72.3% in Q4 2023.

Telehealth Visits, Q1 2019-Q4 2023



Telehealth Utilization, Behavioral Health and All Other, Q1 2019-Q4 2023



Note: Analysis is limited to commercially insured patients.
Source: Trilliant Health national all-payer claims database.

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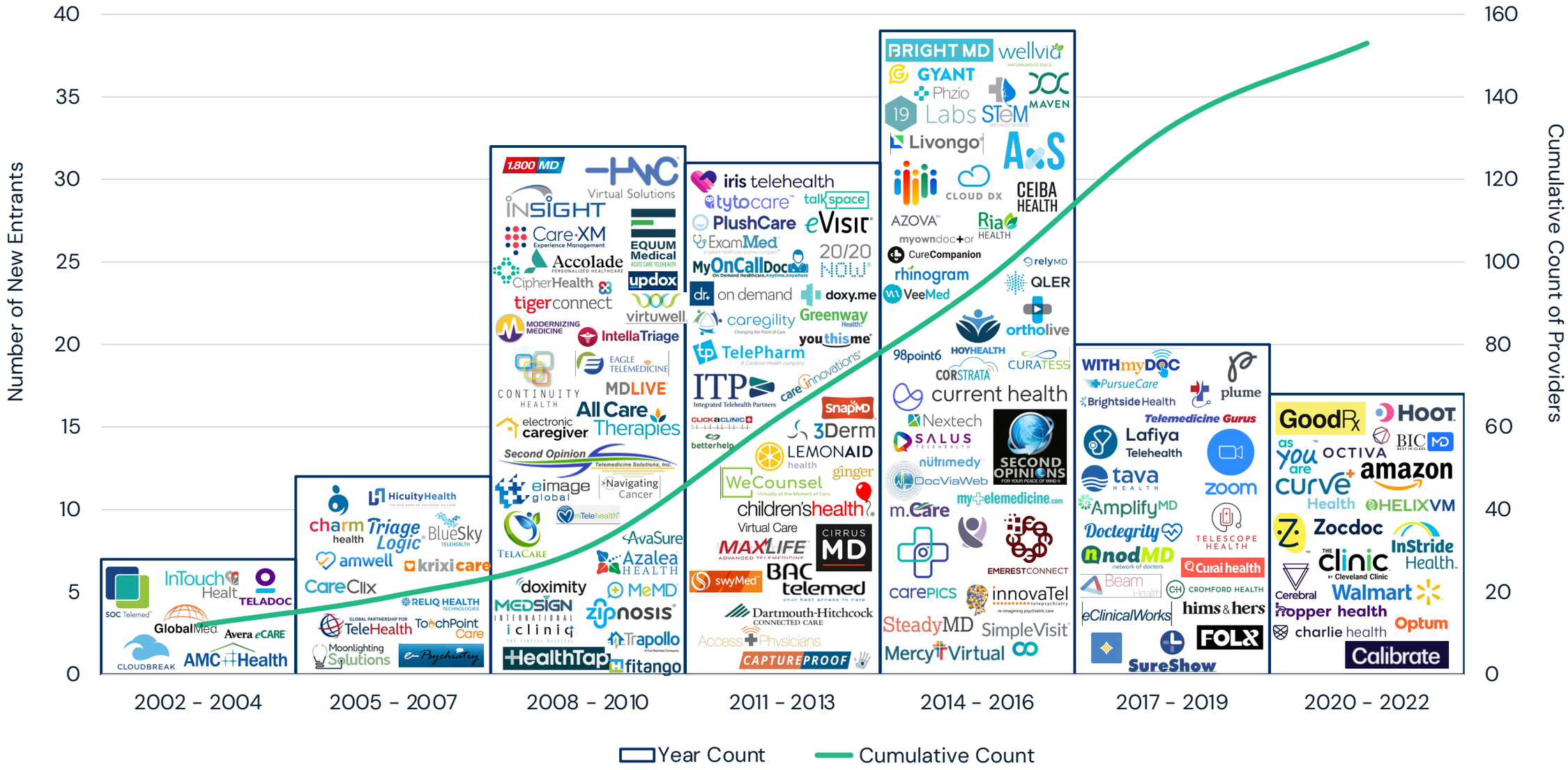
Growth in the Number of Telehealth Providers Has Plateaued

Between 2002 and 2016, the number of telehealth providers surged by nearly 700%, with an average of 24 new entrants each year. Growth has continued since 2017, though at a slower pace. Recent unfavorable earnings reports from Teladoc and Amwell, along with decisions by Optum and Walmart to end their virtual care services in 2024, signal a turning point for the industry.

Timeline of Select Suppliers Offering Telehealth, 2002-2022



Note: Logos of companies that entered the market prior to 2000 are not included in the figure, except for in the cumulative count.
Source: Publicly available company information.

The Home Is Emerging as a Preferred Site of Care for Many Levels of Acuity

A broad spectrum of care can be delivered in the home. While home-based care for self-care and diagnosis is less mature than home-based end-of-life care, those applications are comparatively more scalable and require less in-person clinician interaction. This trend emphasizes the need for improved data interoperability as care migrates away from facilities.

Overview of Clinical Service That Can Be Delivered in the Home

	Self Care	Diagnosis	Monitoring and Treatment	Long-Term Management	End of Life	Unplanned Acute Care
Applications	• DTC diagnostics • DTC medications and supplements • Remote psychotherapy • Wellness apps	• In-home diagnostics, sent via mail • Virtual visits	• Prescription delivery • Virtual visits	• Self-administered treatment (e.g., dialysis at home) • RPM tools • Virtual and in-home visits	• Home clinician visits • Social support • Care management tools	• Hospital-at-home • Home clinician visits • RPM tools • Social support
Barriers to Adoption	Clinical effectiveness Data sharing and security Upfront costs Effectiveness Patient awareness	Insurance coverage Care coordination Availability of caregiver Patient preference for in-person care Low provider reimbursement Clinician supply	OOP costs	Regulatory approval Clinician supply Societal acceptance		

Does Not Need Family Caregiver
No Caregiver Reimbursement
More Scalable
Low Provider Touch

Needs Family Caregiver
Has Caregiver Reimbursement
Less Scalable
High Provider Touch

Note: DTC denotes direct-to-consumer; RPM denotes remote patient monitoring.
Source: McKinsey & Company From facility to home: How healthcare could shift by 2025.

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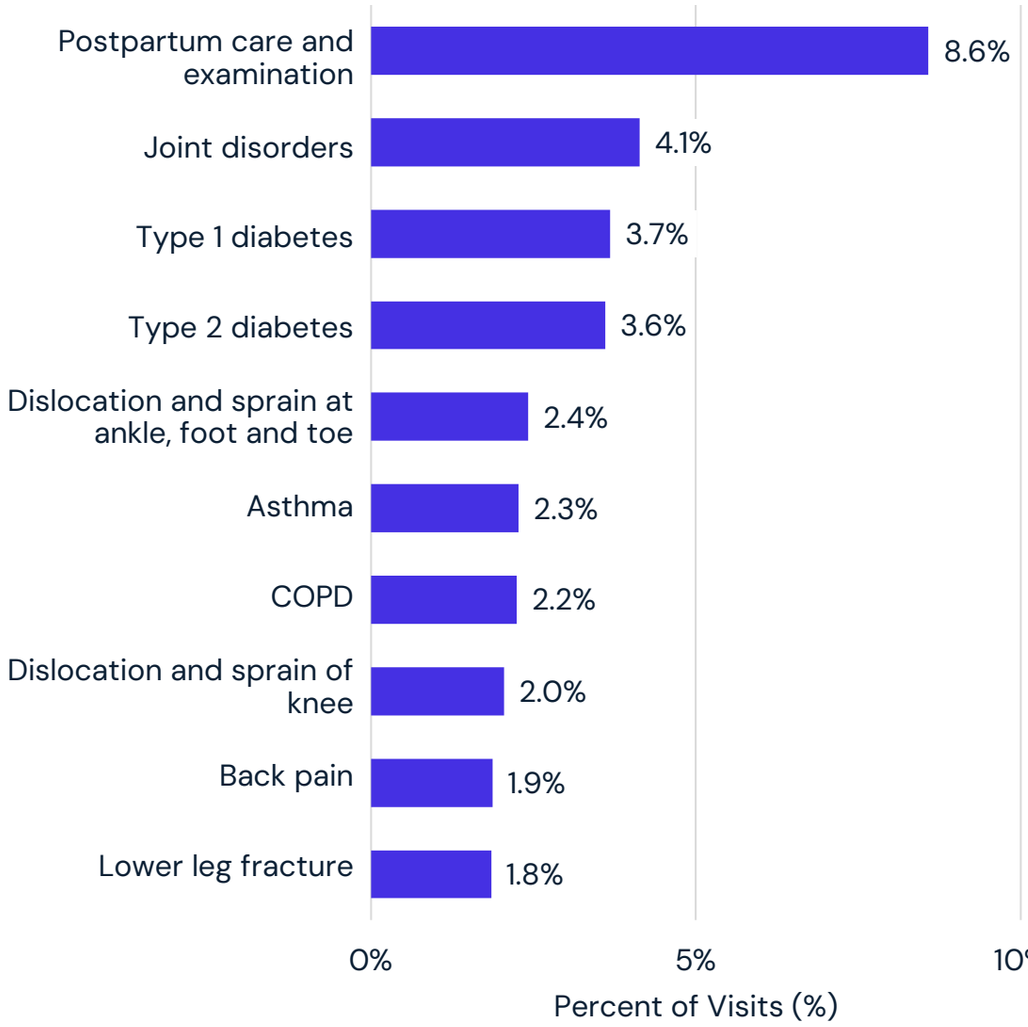
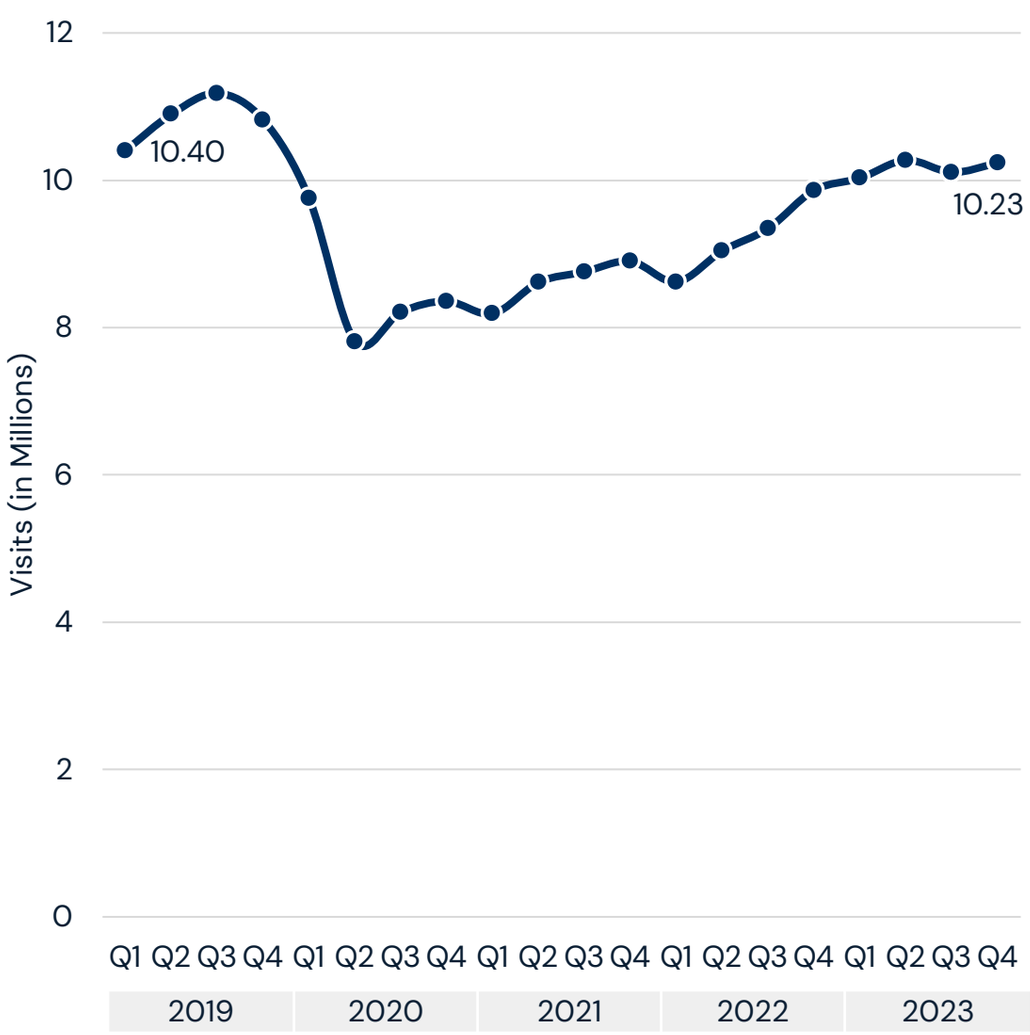
Home Care Visits Are Increasing in the Commercially Insured Population

Compared to Q4 2019, the Q4 2023 volume of patients using home health was down by 5.4%. While postpartum care was the top home health visit reason for the commercially insured population, chronic conditions like COPD, asthma and diabetes also accounted for a substantial share of home health care.

Top Visit Reasons for Home Health as a Percentage of All Home Health Visits, 2019 to 2023



Home Health Visits Among Commercially Insured Patients, Q1 2019-Q4 2023



Note: Analysis is limited to commercially insured patients. Encounters for sleep apnea were excluded from the top diagnoses. COPD denotes chronic obstructive pulmonary disease.
Source: Trilliant Health national all-payer claims database.

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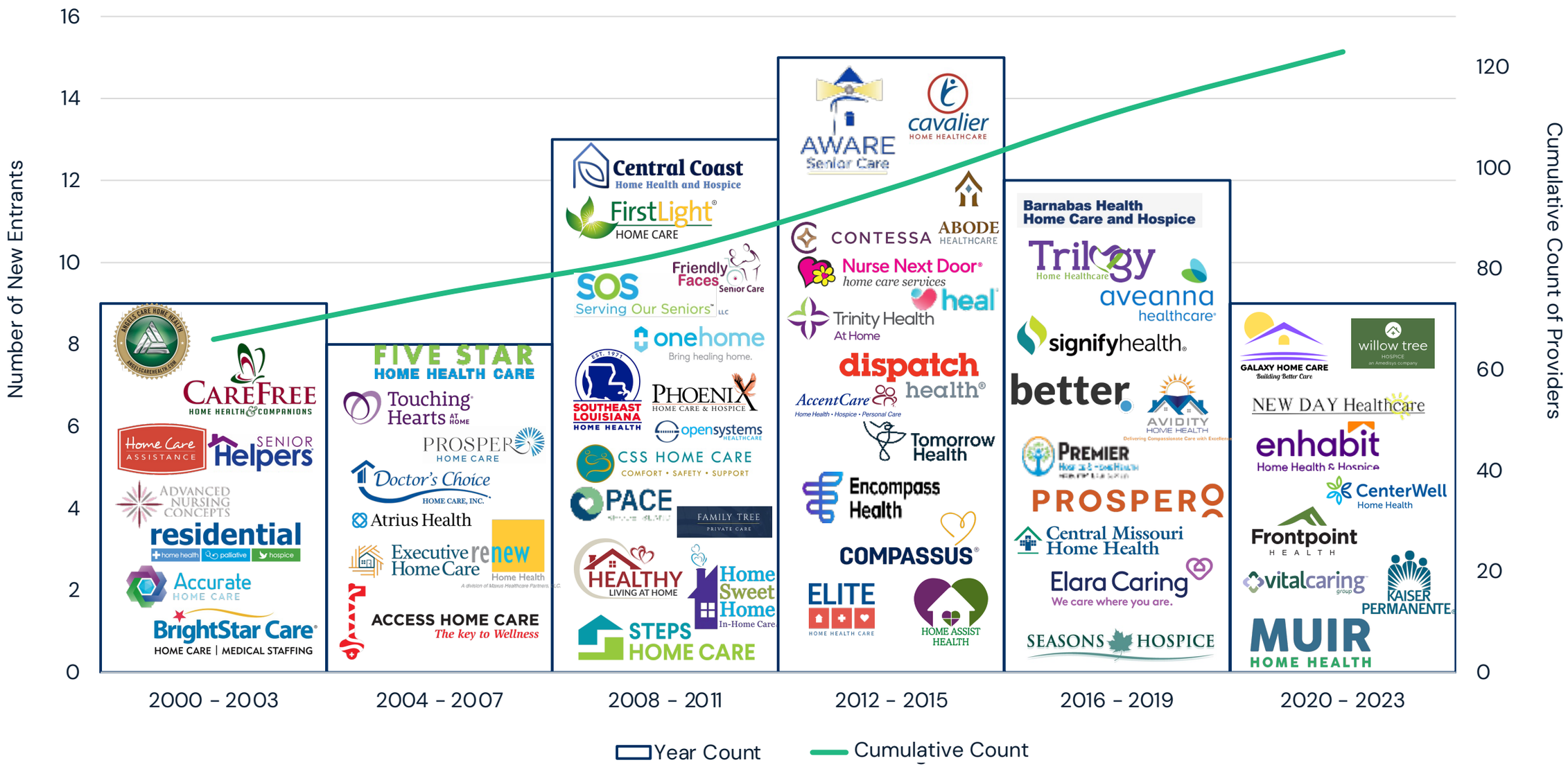
The Home-Based Care Market Continues to Grow

The market for providers offering home-based care has grown consistently, averaging more than one new entrant per year. Will the shift towards personalized, on-demand care result in an even more competitive market?

Timeline of Select Suppliers Offering Home-Based Care, 2000-2023



Note: Logos of companies that entered the market prior to 2000 are not included in the figure, except for in the cumulative count.
Source: Publicly available company information.

Macro Trend #7

- Lower-Cost Care Settings Can Offer Better Value

COMPASS+ EXCLUSIVE

Micro Trends

- What are the most common procedures rendered at ASCs?
- How does all-payer outpatient surgery utilization vary by CBSA and among select health systems?
- How does all-payer telehealth utilization vary by CBSA, age and sex?
- How does all-payer urgent care utilization vary by CBSA, age and sex?

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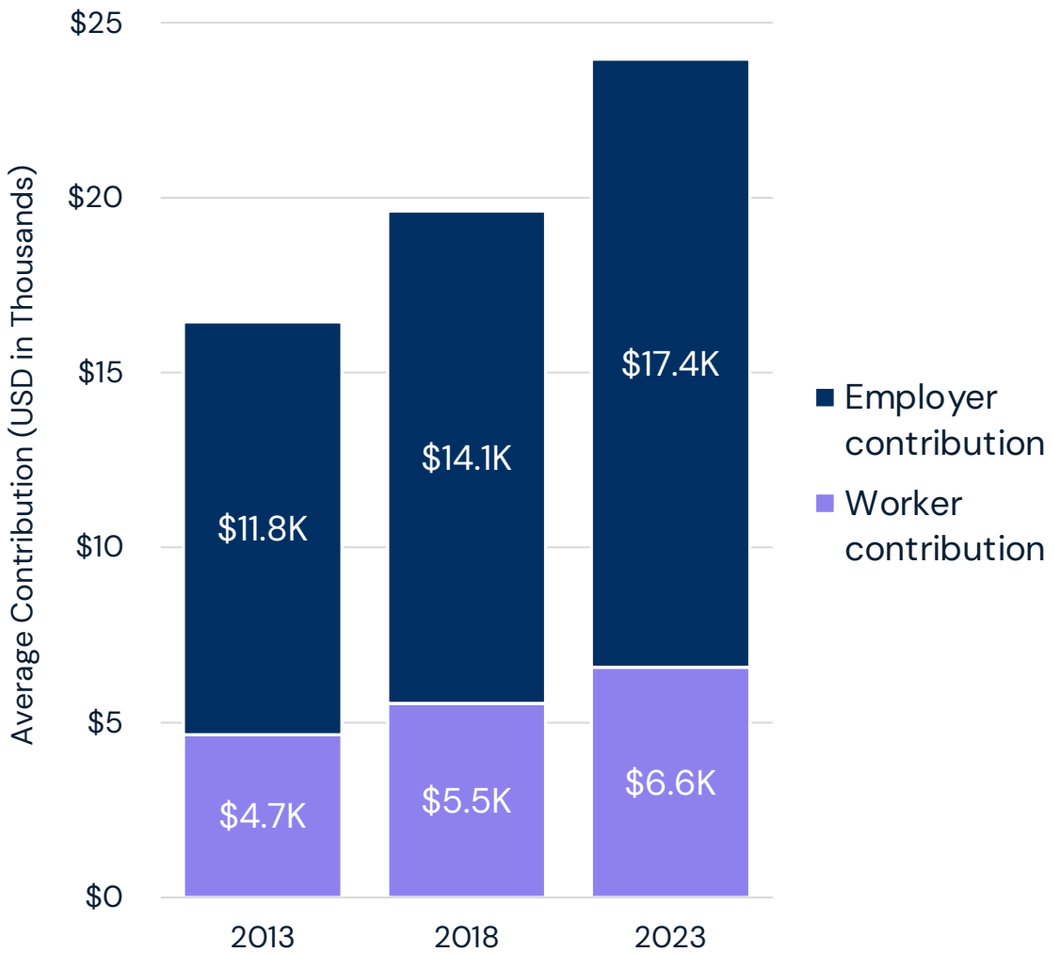
TREND 8

Employers Are Better Equipped To Demand Value for Money

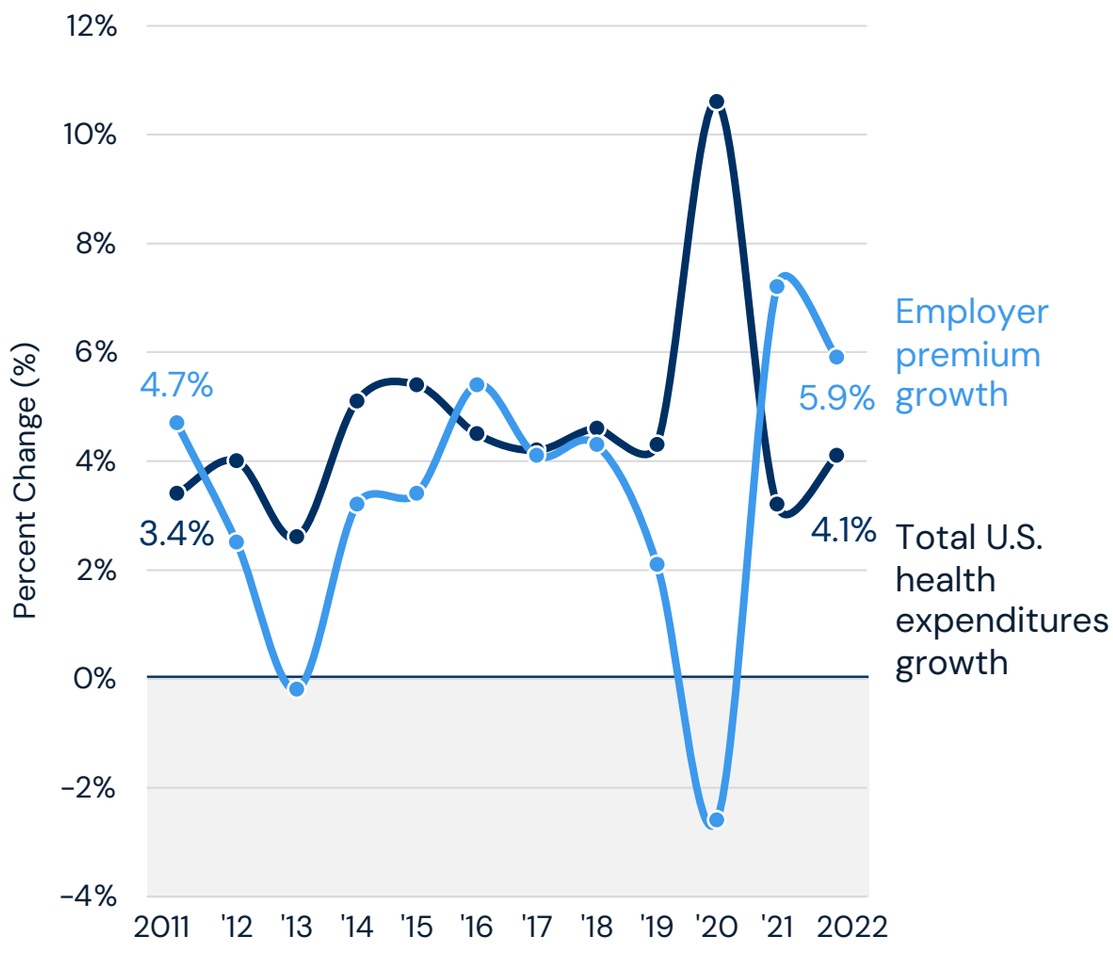
Employer and Employee Expenses Continue To Rise

From 2013 to 2023, the average annual contribution for family coverage increased by 41.2% for workers and 47.6% for employers. In 2022, growth in employer expenditures for health insurance premiums outpaced growth in total U.S. health expenditures, driven in part by the higher rates paid by commercial payers compared to government payers.

Average Annual Worker and Employer Contributions for Family Coverage, 2013, 2018 and 2023



Annual Percent Change in Health Expenditures, National and Employer Premium Contributions, 2011-2022



Source: KFF Employer Health Benefits 2023 Survey; Centers for Medicare and Medicaid Services 2022 National Health Expenditures.

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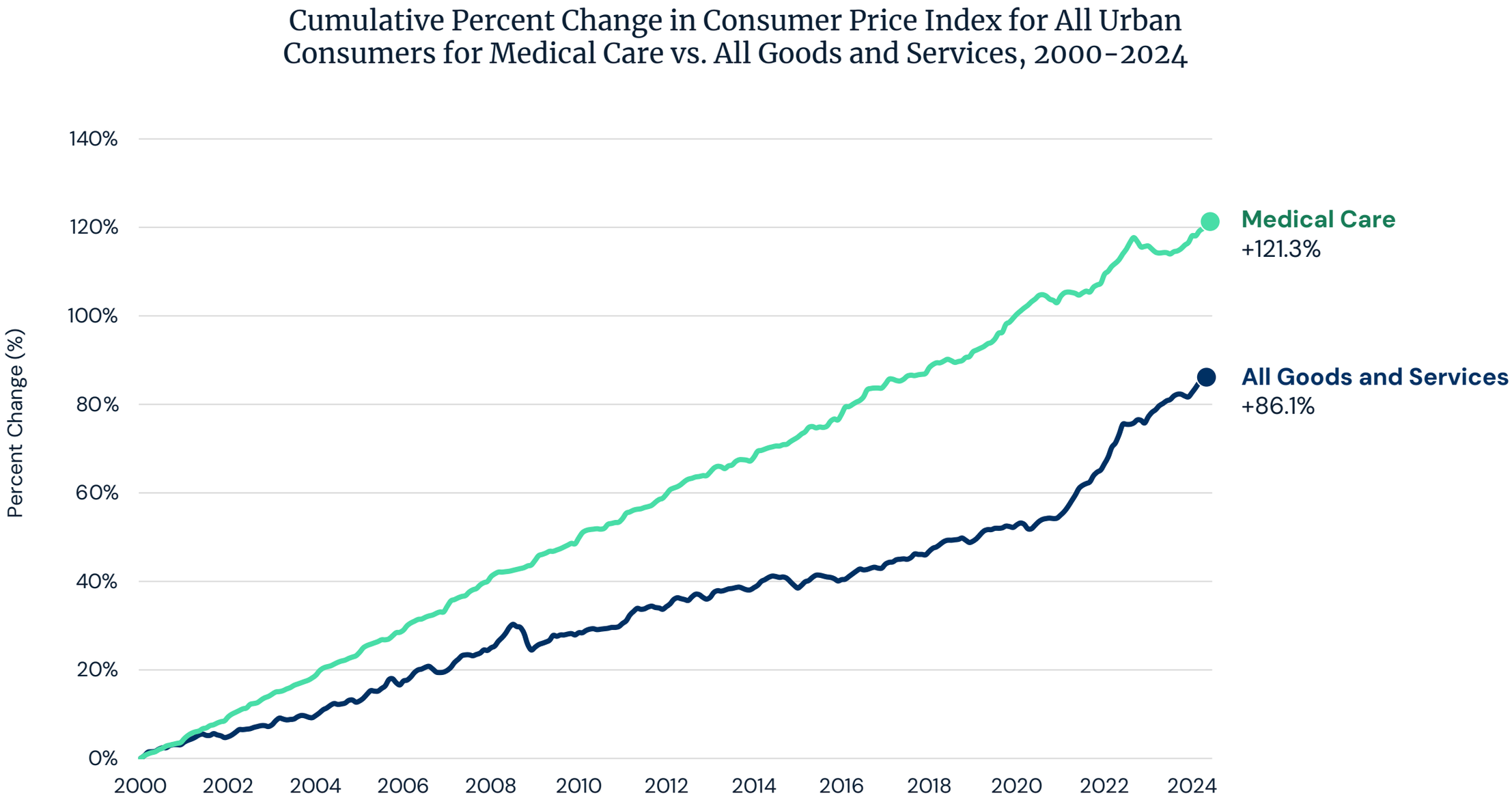
Growth in Medical Prices Outpaces Overall Consumer Prices

The prices for all consumer goods and services have increased by 86.1% since 2000, but prices for medical care — including treatment, insurance, medical equipment and prescription drugs — have increased by 121.3%. Despite markedly higher overall inflation since 2021, the gap between medical care inflation and overall inflation remains large.



Source: Bureau of Labor Statistics Consumer Price Index.

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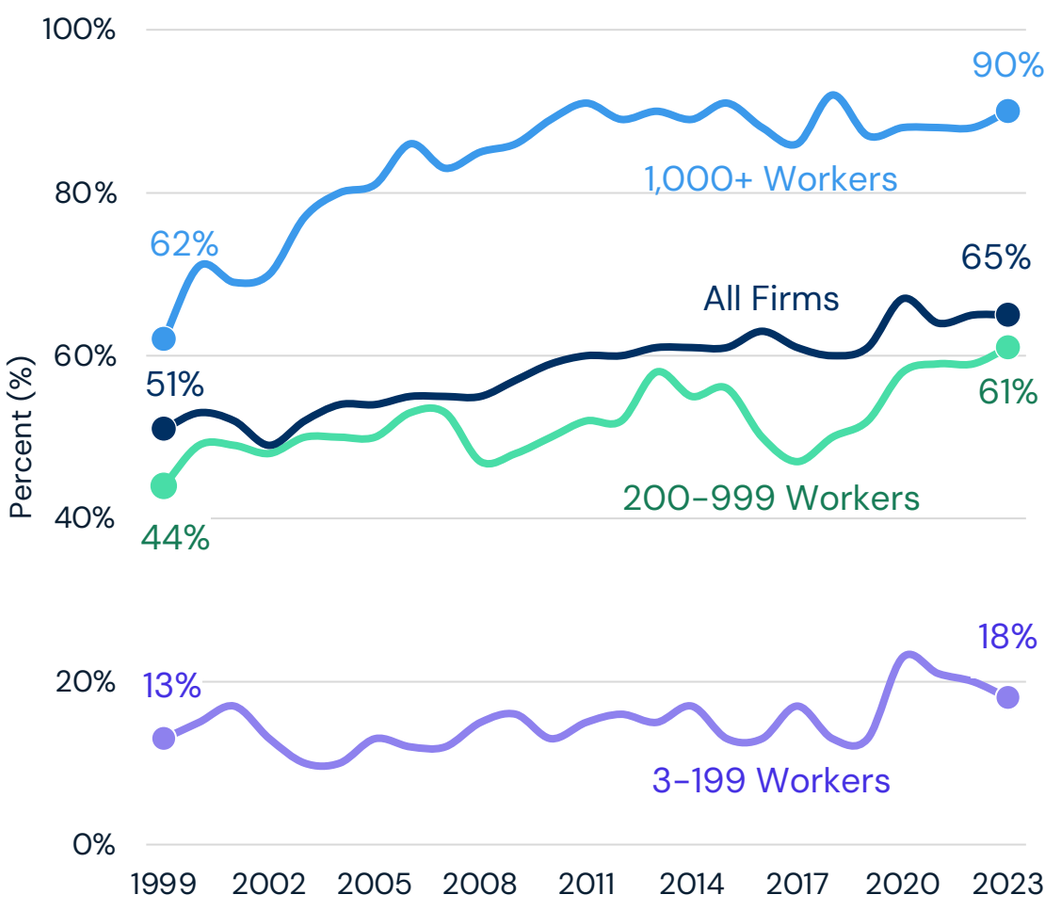
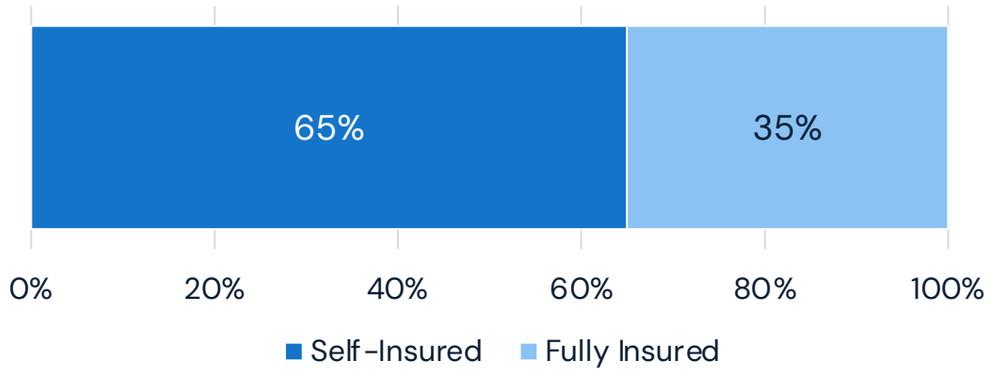
Employers and Employees Are Increasingly Taking on Risk

In 2023, 65% of covered workers were enrolled in self-insured plans, a 14 percentage point increase from 1999. This shift was particularly significant among large firms, where enrollment in self-insured plans grew by 28 percentage points. Additionally, nearly one-third of employees are enrolled in a HDHP.

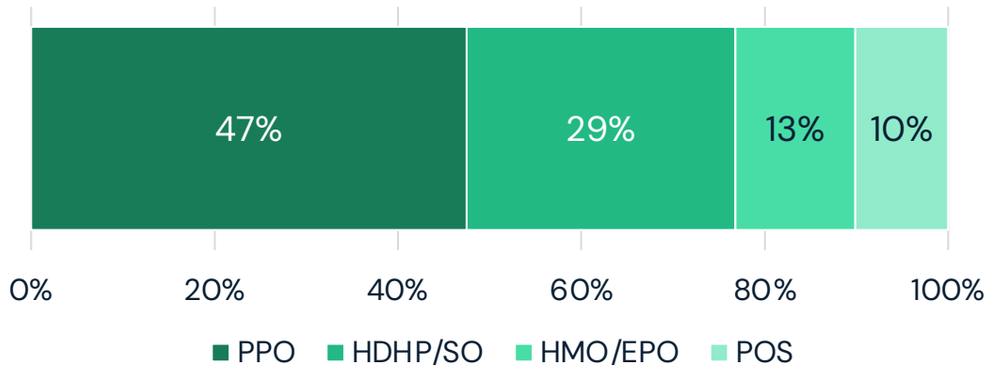
Percent of Covered Workers Enrolled in Self-Insured Plans, by Firm Size, 1999-2023



Distribution of Health Plan Enrollment for Covered Workers, by Risk Arrangement, 2023



Distribution of Health Plan Enrollment for Covered Workers, by Plan Type, 2023



Note: Percentages may not add to 100% due to rounding. OOP denotes out-of-pocket; PPO denotes preferred provider organization; POS denotes point of service; HDHP/SO denotes high deductible health plans with a savings option; HMO/EPO denotes health maintenance organization/exclusive provider organization.
Source: KFF Employer Health Benefits 2023 Survey.

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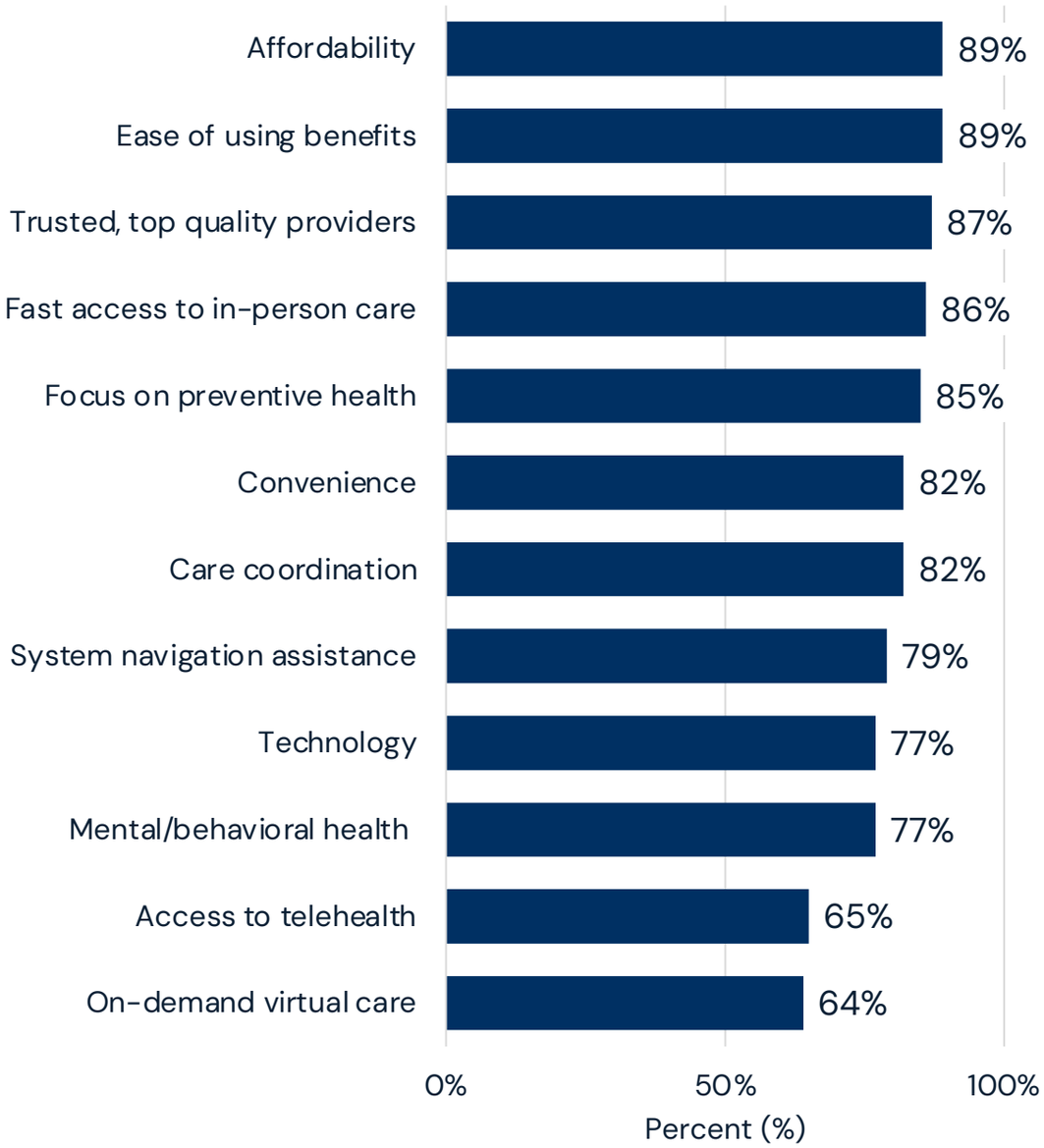
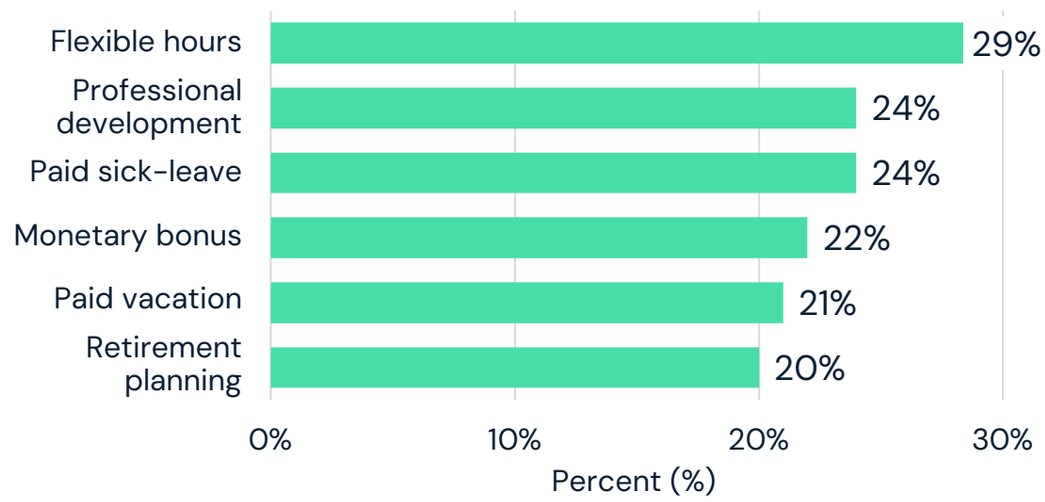
Healthcare Benefits Are a Top Priority for Employees

Surveys consistently show that health insurance is the most important benefit offered by employers, with 65% of employees willing to sacrifice at least one benefit for access to high-quality healthcare. Additionally, 70% of employees consider health insurance the most crucial factor when deciding to leave or accept a job.

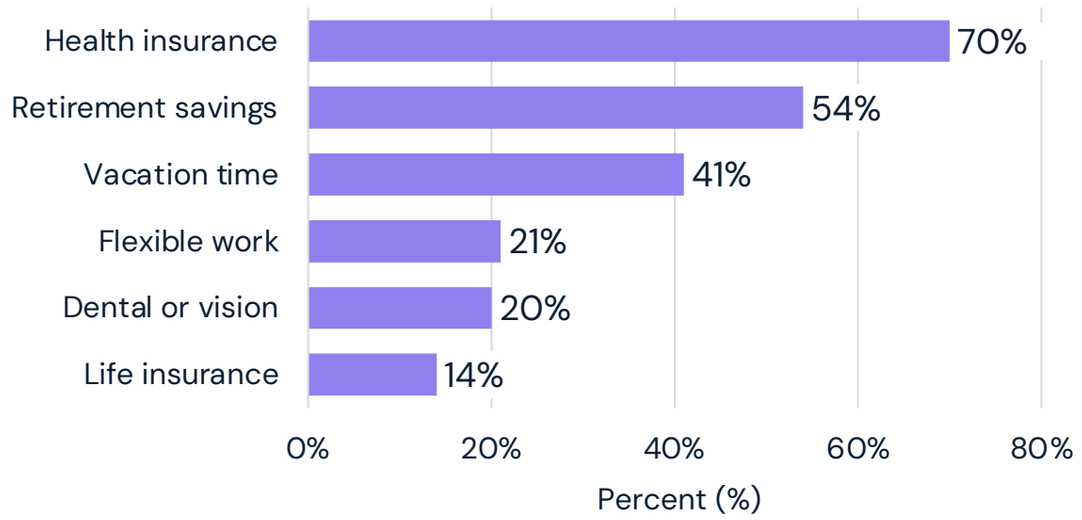
Percent of Employees Who Highly Value Select Healthcare Benefit Features



Percent of Employees Who Would Forgo Select Benefits for the Highest Quality Healthcare



Percent of Employees Who Rank Select Benefits as an Important Factor in Making Employment Decisions



Source: One Medical Navigating the Deferred Care Crisis; Employee Benefit Research Institute 2023 Workplace Wellness Survey.

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Lawsuits Question Value for Money from Employer-Sponsored Healthcare

Employers have historically been relatively passive in managing healthcare costs. However, new price transparency requirements both enable and compel employers to change that. Recent lawsuits, such as Kraft Heinz's dispute with Aetna, have reinforced the fiduciary duty of employers to provide high-value health insurance benefits. Aramark Services, W.W. Grainger and Huntsman International have also sued Aetna for breach of fiduciary duty.

Select Lawsuits Regarding Fiduciary Duty of Employer-Sponsored Health Insurance Administrators

Lawsuit	Description	Potential Impact
Lewandowski vs. **Johnson and Johnson** et al.	Plaintiff alleges that defendants violated their fiduciary duty under ERISA by failing to ensure reasonable prescription drug prices in their health benefit plans. This mismanagement can lead to higher healthcare premiums, increased out-of-pocket drug costs and limited employee wage growth.	**Ensuring employers comply with statutory obligations to monitor the cost-effectiveness of various aspects of their health benefit plans could help lower health care costs for employees.**
Navarro v. **Wells Fargo** et al.	The lawsuit alleges mismanagement of employees' drug benefits, including failing to ensure that plan costs were reasonable and not exercising due diligence in selecting and monitoring its PBM. However, the plaintiffs also accuse Wells Fargo of incurring excessively high administrative fees and failing to ensure that the compensation paid to its PBM was reasonable, leading to a prohibited transaction.	
Plaintiffs vs. **Mayo Clinic;** and MMSI, Inc., d/b/a **Medica Health Plan Solutions**	The complaint alleges that Medica, as plan administrator, used deceptive pricing methods, violating the law and its fiduciary duty. Plaintiffs claim they were not given accurate information about out-of-network costs, deductibles and in-network providers. The lawsuit seeks to stop Mayo Clinic and Medica from these alleged breaches, declare their actions violated ERISA and implement measures for compliance with ERISA's claims processing and appeals requirements.	
The Kraft Heinz Company vs. **Aetna Life Insurance Company**	Kraft Heinz alleged the insurer breached fiduciary duties and enriched itself at Kraft's expense as a third-party claims administrator. Kraft Heinz claimed Aetna took over $1.3B for provider payments, pocketed undisclosed fees and used harmful claims processing practices. The complaint noted Aetna's failure to provide complete medical claims data, violating fiduciary duties. While the lawsuit was dropped, both parties later proceeded to arbitration.	

Note: ERISA denotes Employee Retirement Income Security Act; PBM denotes pharmacy benefit manager.
Source: Publicly available case information and news sources.

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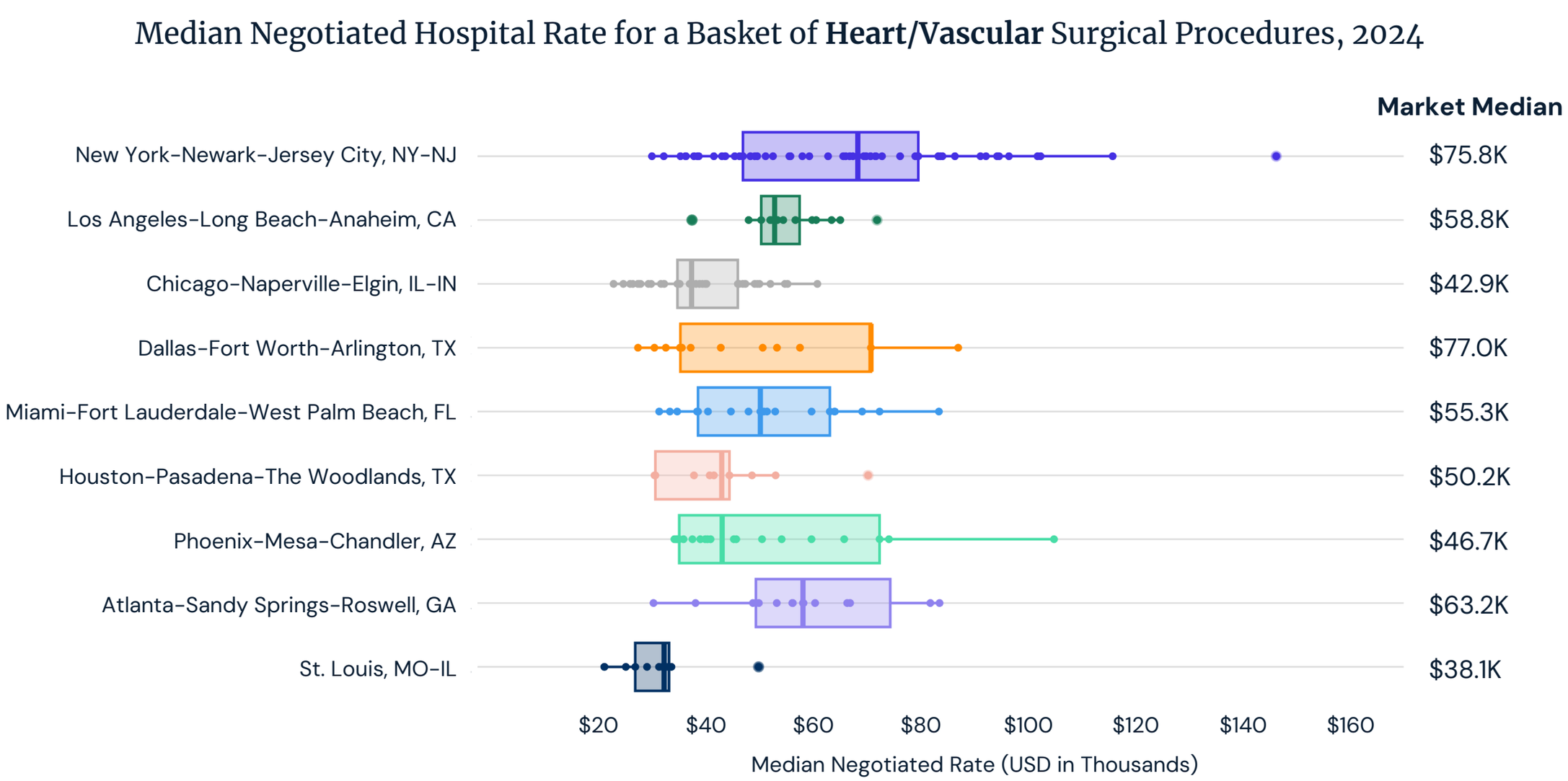
Heart Surgical Rates Differ by $127.3K Across Competitive Markets

Across a basket four common heart and vascular surgical procedures in select competitive markets, the hospital-level median negotiated rate ranged from $26.5K in St. Louis to $153.8K in New York City. Even within the same market, there is significant variation, which is indicative of wasteful spending.



Note: Analysis includes only short-term acute care hospitals in competitive markets. Analysis was conducted using negotiated rates for a single national payer — UnitedHealthcare. Traditional HHI is the standard measure of market concentration and competition, inclusive only of inpatient settings. Competitive markets are defined as markets with an HHI below 1,500, whereas a monopoly market has an HHI of 10,000. Two Los Angeles hospitals are not plotted on the chart due to them being outside of the relative range, with a median negotiated rate of $312.2K.
Source: Trilliant Health national all-payer claims database, Provider Directory and health plan price transparency dataset.

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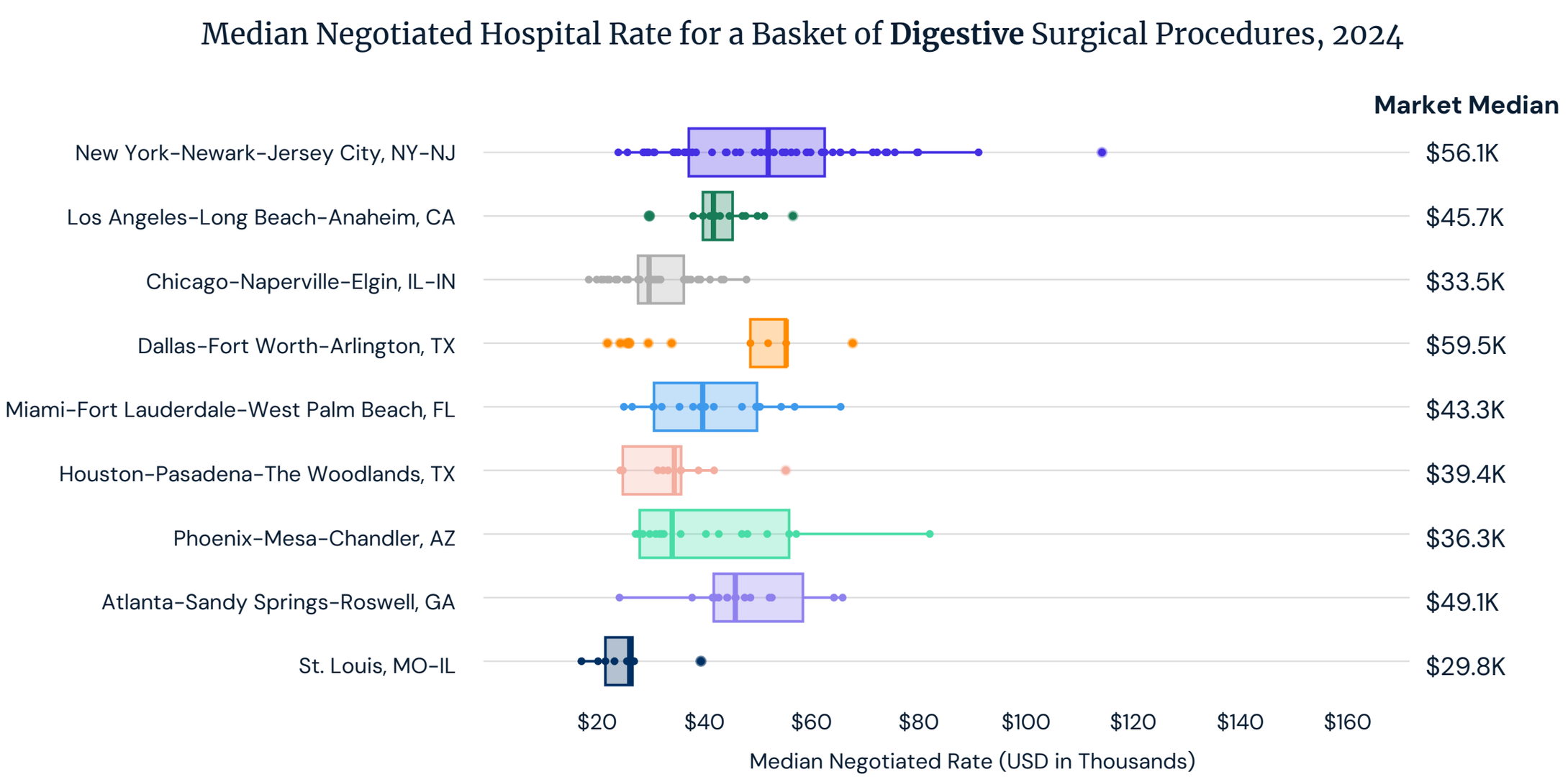
Digestive Surgical Rates Differ by $98.9K Across Competitive Markets

Across a basket of five common digestive surgical procedures, the hospital-level median negotiated rate ranged from $20.6K in St. Louis to $119.5K in New York City. Even within the same market, there is significant variation, which is indicative of wasteful spending.



Note: Analysis includes only short-term acute care hospitals in competitive markets. Analysis was conducted using negotiated rates for a single national payer — UnitedHealthcare. Traditional HHI is the standard measure of market concentration and competition, inclusive only of inpatient settings. Competitive markets are defined as markets with an HHI below 1,500, whereas a monopoly market has an HHI of 10,000. Two Los Angeles hospitals are not plotted on the chart due to them being outside of the relative range, with a median negotiated rate of $243.2K.
Source: Trilliant Health national all-payer claims database, Provider Directory and health plan price transparency dataset.

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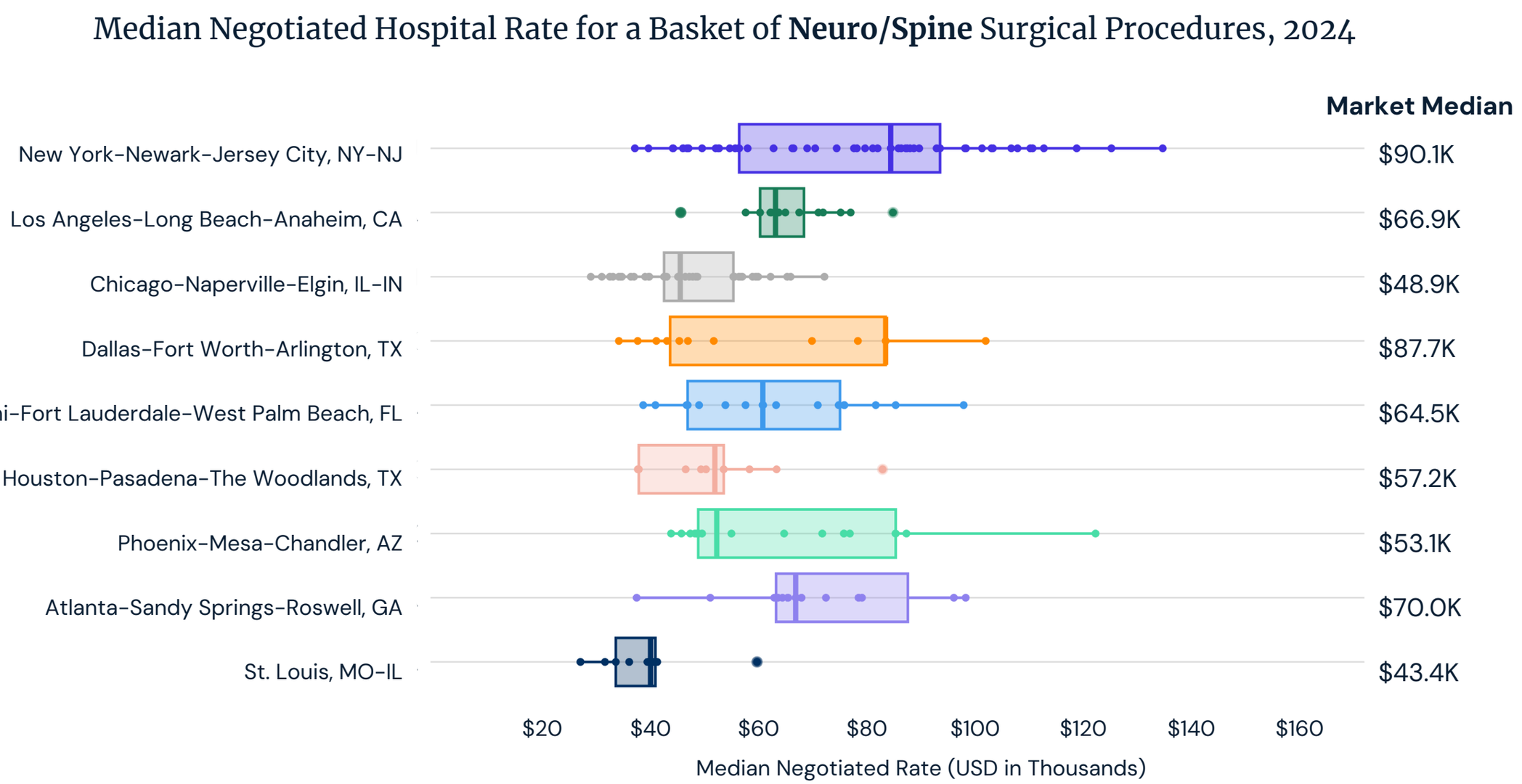
Neuro/Spine Surgical Rates Differ by $144.9K Across Competitive Markets

Across a basket of five common neurological and spine surgical procedures, the hospital-level median negotiated rate ranged from $30.2K in St. Louis to $175.2K in New York City. Even within the same market, there is significant variation, which is indicative of wasteful spending.



Note: Analysis includes only short-term acute care hospitals in competitive markets. Analysis was conducted using negotiated rates for a single national payer — UnitedHealthcare. Traditional HHI is the standard measure of market concentration and competition, inclusive only of inpatient settings. Competitive markets are defined as markets with an HHI below 1,500, whereas a monopoly market has an HHI of 10,000. Two Los Angeles hospitals are not plotted on the chart due to them being outside of the relative range, with a median negotiated rate of $356.0K.
Source: Trilliant Health national all-payer claims database, Provider Directory and health plan price transparency dataset.

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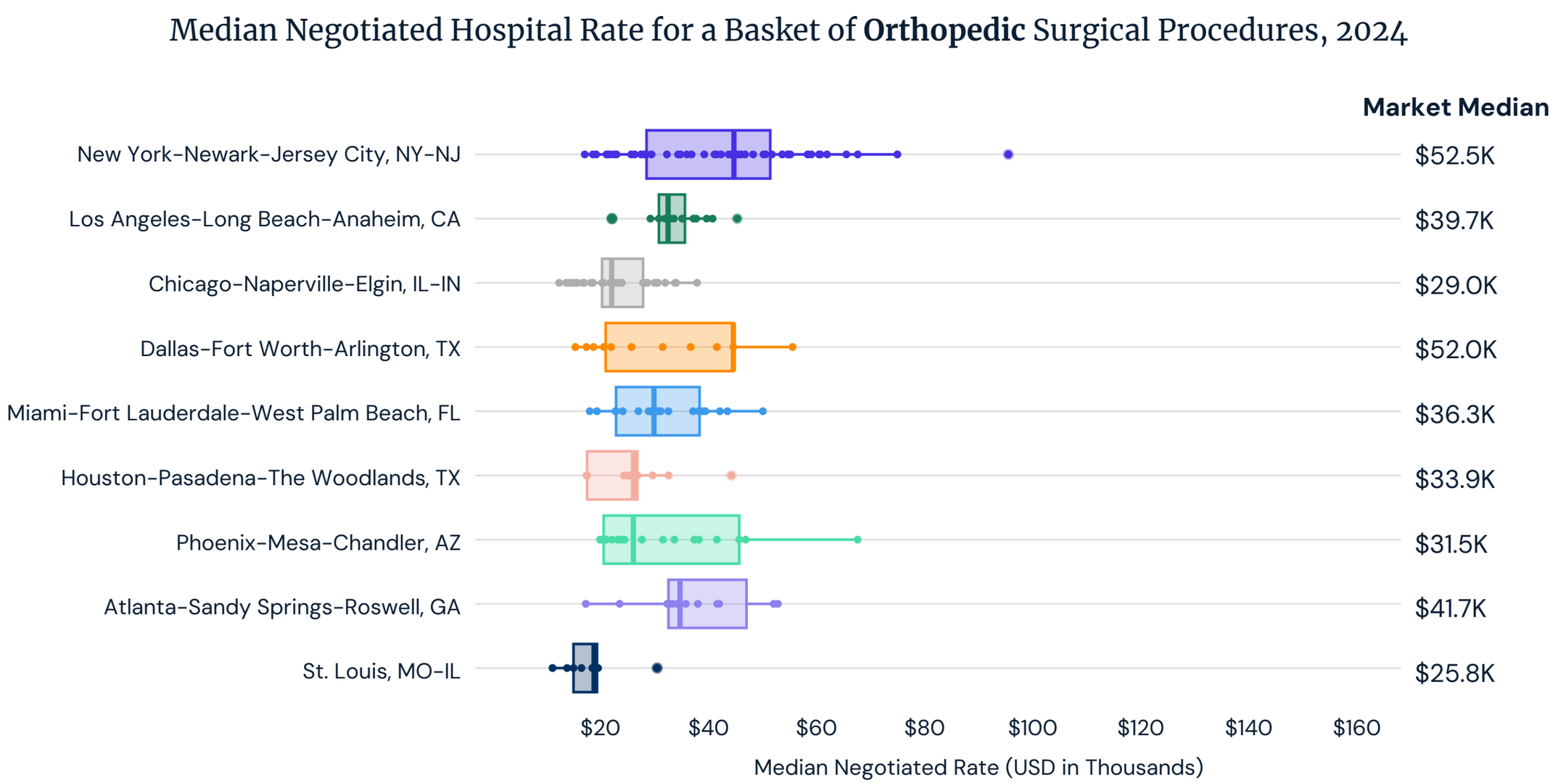
Orthopedic Surgical Rates Differ by $85.9K Across Competitive Markets

Across a basket of three common orthopedic surgical procedures, the hospital-level median negotiated rate ranged from $17.9K in St. Louis to $103.2K in New York City. Even within the same market, there is significant variation, which is indicative of wasteful spending.



Note: Analysis includes only short-term acute care hospitals in competitive markets. Analysis was conducted using negotiated rates for a single national payer — UnitedHealthcare. Traditional HHI is the standard measure of market concentration and competition, inclusive only of inpatient settings. Competitive markets are defined as markets with an HHI below 1,500, whereas a monopoly market has an HHI of 10,000. Two Los Angeles hospitals are not plotted on the chart due to them being outside of the relative range, with a median negotiated rate of $210.1K.
Source: Trilliant Health national all-payer claims database, Provider Directory and health plan price transparency dataset.

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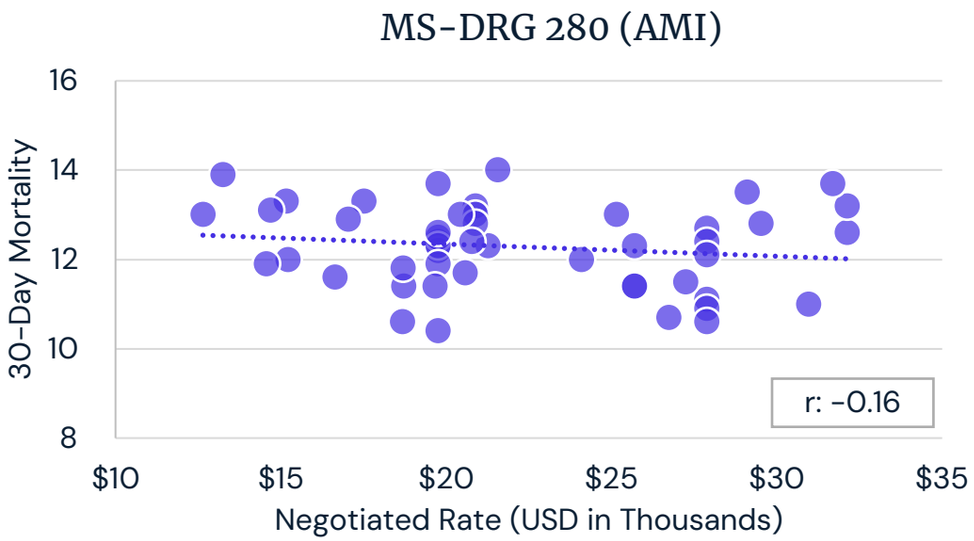
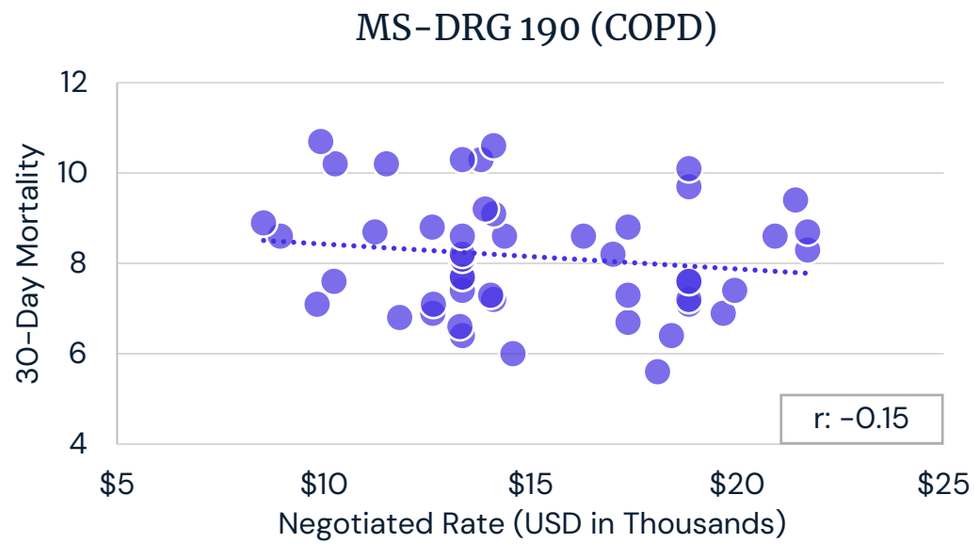
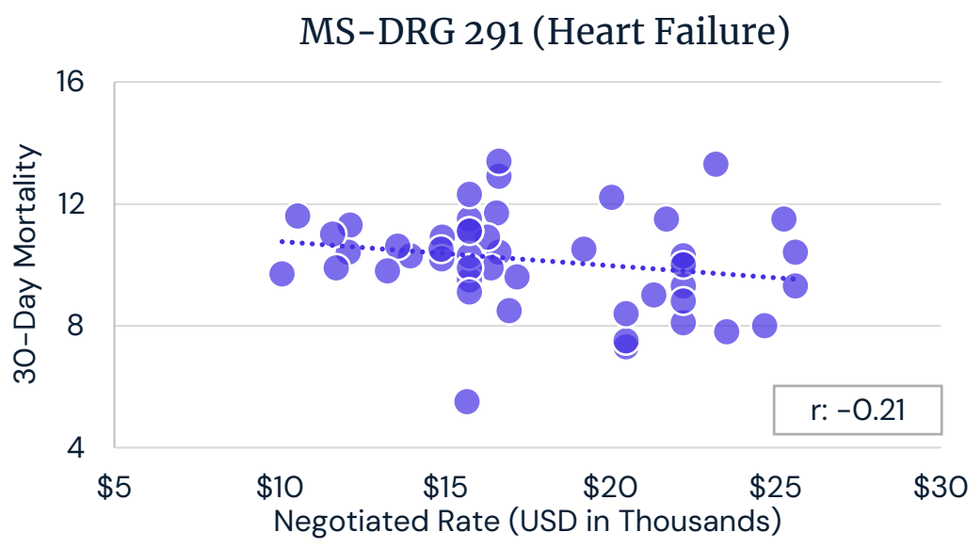
Price and Quality for Common Services in Chicago Are Not Correlated

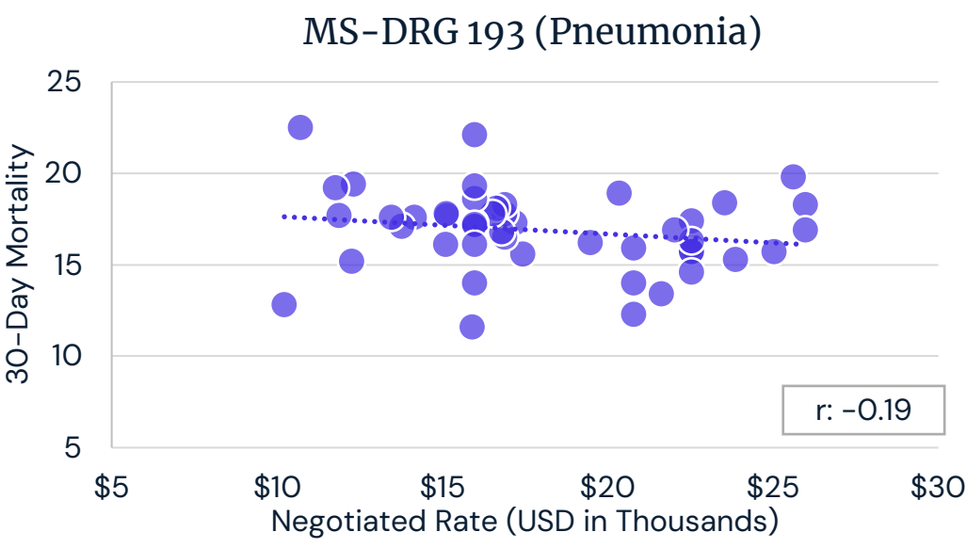
While the median negotiated rate for COPD in Chicago is $14.1K, the provider receiving the highest rate has a higher mortality rate than 66.7% of all other hospitals. Additionally, for these four common MS-DRGs, the correlation coefficient ranges from -0.15 (COPD) to -0.21 (heart failure), reflective of a weak negative correlation between price and quality.

Negotiated Hospital Rate vs. 30-Day Mortality in Chicago-Naperville-Elgin, IL-IN, 2024









Note: Analysis was conducted using negotiated rates for a single national payer — UnitedHealthcare. AMI denotes acute myocardial infarction; COPD denotes chronic obstructive pulmonary disease. Correlation is a measure of the relationship, or lack thereof, between two things. Our analysis used the Pearson correlation coefficient (r) to examine the strength of the linear relationship between measures of hospital quality and hospital negotiated rate.
Source: Trilliant Health national all-payer claims database, Provider Directory and health plan price transparency dataset; CMS Hospital Readmissions Reduction Program data.

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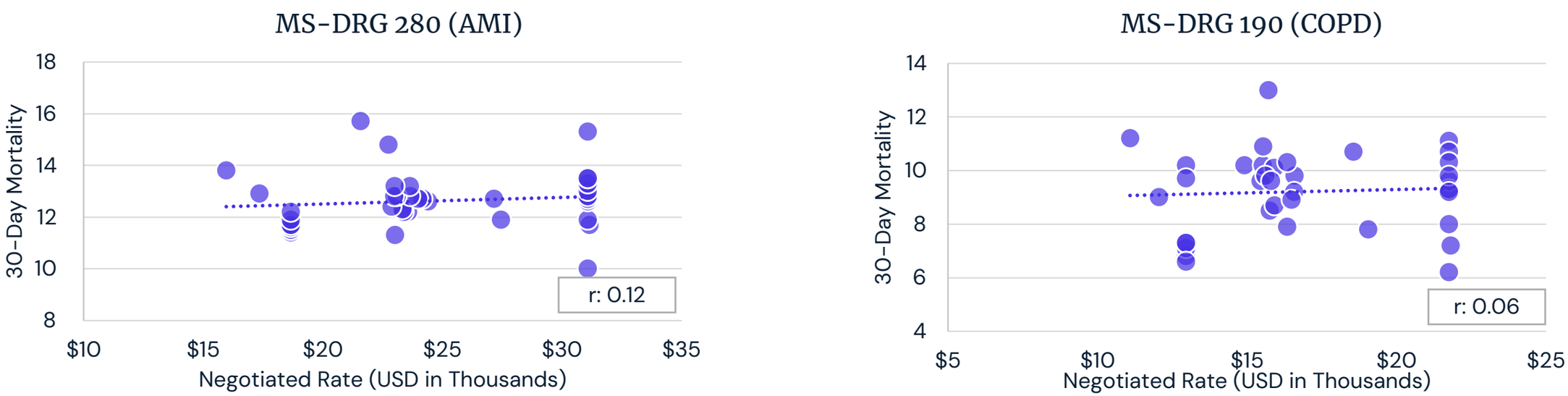
Price and Quality for Common Services in Dallas Are Not Correlated

While the median negotiated rate for AMI in Dallas is $23.6K, the provider receiving the second highest rate also has the second highest mortality rate. Additionally, for these four common MS-DRGs, the coefficient ranges from -0.00 (pneumonia) to 0.12 (heart failure and AMI), reflective of a weak correlation between price and quality.

Negotiated Hospital Rate vs. 30-Day Mortality in Dallas-Fort Worth-Arlington, TX, 2024



Note: Analysis was conducted using negotiated rates for a single national payer — UnitedHealthcare. AMI denotes acute myocardial infarction; COPD denotes chronic obstructive pulmonary disease. Correlation is a measure of the relationship, or lack thereof, between two things. Our analysis used the Pearson correlation coefficient (r) to examine the strength of the linear relationship between measures of hospital quality and hospital negotiated rate.
Source: Trilliant Health national all-payer claims database, Provider Directory and health plan price transparency dataset; CMS Hospital Readmissions Reduction Program data.

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Macro Trend #8

Employers Are Better Equipped To Demand Value for Money

COMPASS+ EXCLUSIVE

Micro Trends

Within the same market, how do UnitedHealthcare and BCBS rates compare for the same basket of surgical services?

Across select CBSAs, what is the variation in BCBS hospital rates for select heart/vascular, digestive, neuro/spine and orthopedic surgical services?

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CONCLUSION

CONCLUSION

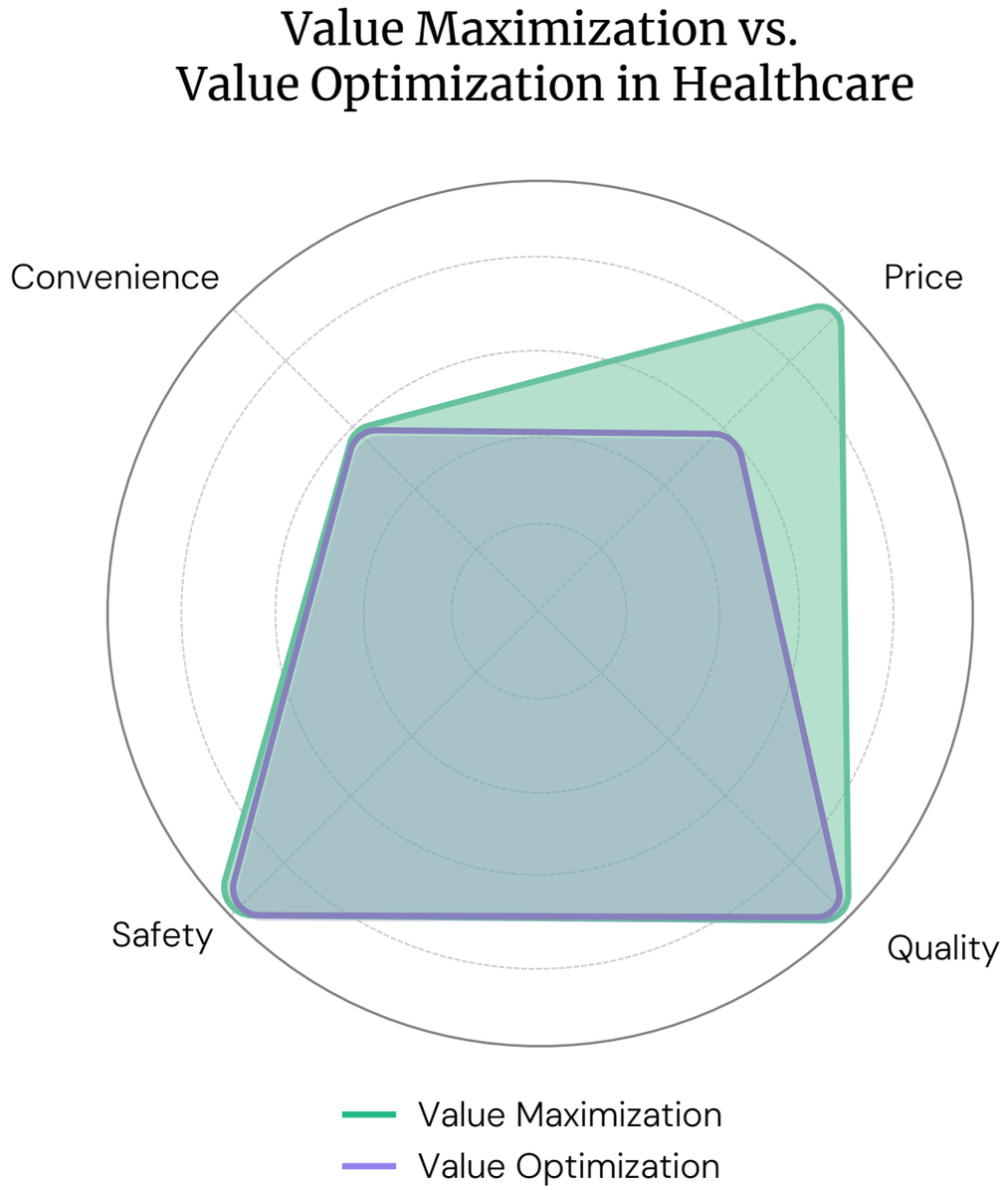
Health Economy Stakeholders Who Focus on Optimizing Value Will Have a Competitive Advantage

The laws of economics teach that when supply exceeds demand, price (or yield) decreases. How much longer the health economy can continue to defy the laws of economics is a question that every stakeholder should consider. Analysis of negotiated rates at the market level reveals the true "market price," and providers whose rates or quality are outliers will likely be forced to meet that market price to maintain market share. Importantly, there is no **value for money** proposition in offering worse than average quality at any rate, especially one that is higher than the median market rate.

The combination of regression to a lower market price with policy initiatives like site-neutral payments, continued reductions in the inpatient only list and price caps would further reduce yield. Health plan price transparency should catalyze unprecedented competition to win the hearts and minds of consumers and employers. If it does, the winners in healthcare's negative-sum game will be those who deliver value for money.

Health economy stakeholders who shift their focus from value maximization for themselves to value optimization for their customers will gain a significant competitive advantage. The unsustainable practice of extracting maximum revenue without regard to cost or quality must give way to a model that prioritizes either better outcomes at equivalent costs or equivalent outcomes at lower costs or the long-hoped-for better outcomes at lower costs.

To do so, stakeholders must focus on becoming more productive by getting more output out of every unit of input rather than by raising prices. **The future of the health economy belongs to those who prioritize optimizing value for their customers by considering price, quality, safety and convenience.** By adopting specialized, efficient and consumer-centered care models, stakeholders can achieve a sustainable competitive advantage.



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CONCLUSION

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Authors
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- **Maggie Jackson**, Director of Data Visualization
- **Allison Oakes, Ph.D.**, Executive Director of Research

Gratitude
The fourth annual collection of emerging and evolving health economy trends, informed by both primary and secondary data sources, would not have been possible without the significant contributions of our Trilliant Health colleagues who carved out time for this research in addition to their primary responsibilities.

Distilling more than 100B medical and pharmacy claim lines into longitudinal data insights, and ingesting, cleaning and analyzing thousands of newly released machine-readable files from national health plans and self-insured employers is no easy feat. The tremendous efforts of our colleagues in data science and engineering built the foundation upon which we could conduct an analysis of this scale with precision and speed.

We greatly appreciate the expertise and assistance of Jim Browne, Matt Fili, Matt Ikard, Chris Rash and Stephen Tilstra in navigating the intricacies of the data. Marina Kheyfets, Grace Kitsteiner and Nancy Organ were key contributors in the development of data stories from gathering secondary sources to conceptualizing visuals. The “fresh” eyes of Jeff Goldsmith, Ph.D., Anna Jordan, Allaire Kirk, Sean Knisely, Matt Leatherwood, Porter Morton, Hannah Pike, Kendra Rodgers and Lindsey Swearingen played a critical role in narrative review and copyediting.

Jason Nardella and David Taylor were thought partners throughout the entire process from the initial conceptualization of this series in 2021 to framing the 2024 trends that will have the most significant impact on health economy stakeholders. Above all, this research would not have been possible without the support and encouragement of Hal Andrews, who continuously challenges us to question the status quo.

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COMPASS+ ENTERPRISE EXCLUSIVE

The Eight Macro Trends Are Not Intended to Provide All of the Answers

The *2024 Health Economy Trends Report: Micro Edition* reveals eight microeconomic trends that will impact all stakeholders across the U.S. health economy. Because healthcare is local, putting these trends into practice requires that each stakeholder understand how the trends impact their sector, local markets and patient populations.

2024 Health Economy Trends Report Series

Macro Edition

- Eight macro trends shaping the national health economy

Micro Edition

- Granular insight into the eight macro trends by geography, patient characteristics and payer
- Interactive data visualizations for self-service exploration
- Enables stakeholders to develop strategies tailored to local market dynamics

Discover how these trends affect your organization with **Compass+ Enterprise**.

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METHODOLOGY

METHODOLOGY

Analytic Approach

A variety of data sources were leveraged as part of this research, with most insights gleaned from Trilliant Health's proprietary datasets with visibility into patients and providers across the country. Trilliant Health's national all-payer claims database combines commercial, Medicare Advantage, traditional Medicare and Medicaid claims, providing a nationally representative sample on a deidentified basis. Claims-based data analyses use data through Q4 2023.

Trilliant Health's Provider Directory enables a direct view into providers and their practice patterns. Trilliant Health's health plan price transparency dataset is comprised of health plan machine-readable files that have been parsed. Trilliant Health leverages its Provider Directory and claims data against the health plan price transparency dataset to reveal the negotiated reimbursement rate between any health plan and any provider for any service rendered at any location.

Additional data were obtained from a variety of publicly available sources (and are noted in respective source notes), including individual health system, health plan and company financial statements, Census Bureau, KFF, the Congressional Budget Office, American Hospital Association, American Medical Association, Centers for Disease Control and Prevention, Healthcare Cost Report Information System and the Bureau of Labor Statistics.

This research does not include data from self-pay encounters or encounters provided at no cost through commercial insurers.

Most data are presented with a national view, while some were exclusively focused on counties or the largest markets – defined as the core-based statistical areas (CBSAs) – to illustrate local variation. Most analyses in the *2024 Trends Shaping the Health Economy Report* are limited to the commercially insured population, which generates most of the health economy's revenue. Corresponding all-payer analyses and extended geographies (i.e., micro trends) can be accessed via a Compass+ subscription.

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Study Data

Data Source	Feature	Category	Description
Trilliant Health National All-Payer Claims Database	Volume	**Inpatient**	Visits associated with medical and surgical care delivered inpatient on the campus of a hospital, reflective of all payers.
		Outpatient	Visits associated with medical and surgical care delivered in the outpatient setting, separating care delivered on the campus of a hospital and in non-hospital settings, reflective of all payers.
		Primary Care	Visits with providers characterized as general practice, family, internal, geriatric, adolescent and pediatric medicine, excluding hospitalists, reflective of all payers.
		Behavioral Health	Visits categorized into the Major Diagnostic Categories 19 (Mental Diseases and Disorders) and 20 (Alcohol/Drug Use & Alcohol/Drug Induced Organic Mental Disorders), reflective of all payers.
		Urgent Care	Visits delivered at medical facilities where the site of service was identified as urgent care, reflective of all payers.
		Telehealth	Synchronous audio-video, audio-only, chat-based and asynchronous chat-based and store-and-forward encounters, delivered off the campus of a hospital, reflective of all payers.
		Home Health	Visits delivered at a patient's home with the place of service categorized as home health, reflective of all payers.
		COVID-19	Visits associated with the prevention, testing, treatment or immunization of COVID-19.
	Competition	**Herfindahl-Hirschman Index (HHI)**	The Federal government utilizes the HHI as the standard measure of market concentration. HHI is calculated by squaring the market share of each firm competing in a market and then summing the resulting numbers. It approaches zero when a market is occupied by several firms of relatively equal size and reaches its maximum value (10,000) when a market is controlled by a single firm (i.e., monopoly). HHI increases both as the number of firms in the market decreases and as the disparity in size between those firms increases. The U.S. Department of Justice (DOJ) and Federal Trade Commission (FTC) generally consider markets in which the HHI is between 1,500 and 2,500 points to be moderately concentrated and consider markets in which the HHI is in excess of 2,500 points to be highly concentrated. Traditional HHI, which refers to the standard measure of market concentration, inclusive only of inpatient settings, is used throughout the report unless stated otherwise.
	Pharmacy	**Utilization**	Prescription utilization measures the count of pharmacy fills using corresponding pharmacy claims data, which can be crosswalked back to the medical claims on a de-identified basis. Specific medications are identified using a combination of name, NDC code and GPI category.

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METHODOLOGY

Study Data

Data Source	Category	Description
Trilliant Health Provider Directory	**Net Provider Change**	The year-over-year delta between providers that stopped practicing and providers that started practicing compared to the total board-certified physician count between 2019 and 2023.
	Changed Practice Location	The primary address that a provider performed E&M services in 2019 was different than the primary address where the provider performed these services in 2023, excluding telehealth visits.
	Changed Provider Organization	Instances where the billing organization is different for a provider in 2021 compared to 2022 for E&M services.
Trilliant Health Health Plan Price Transparency Dataset	**Negotiated Rates**	Minimum, median, average or maximum in-network negotiated rates for UnitedHealthcare. Whether the negotiated rates are for professional or institutional services is specified on individual analyses. The MS-DRG or CPT service is specified on individual analyses.
Centers for Medicaid and Medicare Services QualityNet	**Mortality**	CMS mortality measures exclude index admissions for patients with inconsistent or unknown vital status or unreliable demographic data, such as age and gender. They also exclude patients who were enrolled in the Medicare or Veterans' Affairs hospice programs at any point in the 12 months prior to the index admission, including the day of admission. Additionally, patients discharged against medical advice or with a principal diagnosis of COVID-19 (ICD-10-CM code U07.1) or a secondary diagnosis of COVID-19 coded as present on admission (POA) are excluded from the measures, specifically for AMI, COPD, heart failure and stroke.

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