NJHealth
New Jersey Department of Health
Office of Health Care Affordability and Transparency

Mathematica
Progress Together

Health Care Spending Trends for New Jersey Residents with Commercial Insurance, 2017–2022

Office of Health Care Affordability and Transparency

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Contents

Exhibits

Executive Summary

The New Jersey Health Care Affordability, Responsibility, and Transparency (HART) Program aims to build a stronger, fairer New Jersey by helping to curb health care spending growth. The HART Program's goals are to facilitate transparent reporting of health care spending, to leverage data to understand the causes of rising health care spending, and to inform strategies to reduce health care spending growth. Data-informed actions can help to make health care more affordable, sustainable, and equitable for New Jersey families, businesses, and communities.

To advance these goals, the HART Program is examining health care spending trends in the commercial population. Specifically, this report focuses on health care spending, trends in health care spending growth, and drivers of health care spending growth for New Jersey residents with employer-sponsored insurance (ESI) between the ages of 18–64 at the time of service, covering the years 2017–2022.

Findings in the report come from an analysis of data from the Health Care Cost Institute (HCCI), a multi-payer, longitudinal claims database that includes data for ESI plans from select health insurance carriers that have voluntarily submitted data to HCCI.

This study's population includes approximately 40 percent of New Jersey residents with ESI, and the trends shown only reflect this population and should not be generalized to all residents with ESI.

More specifically, following an introduction, this report contains the following chapters:

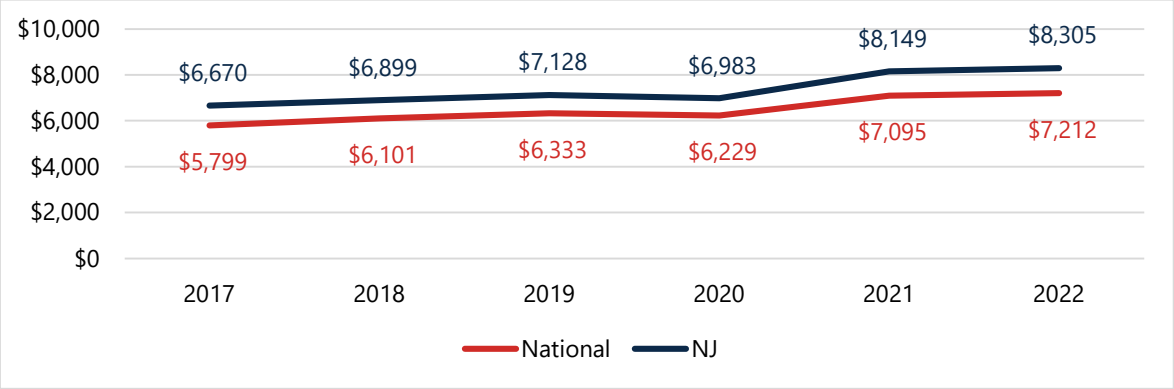
- **Chapter I** provides an overview of spending trends within the New Jersey study population.
- **Chapter II** explores spending trends for four major categories of service: inpatient services, outpatient services, professional services, and retail pharmacy.
- **Chapter III** explores the drivers of health care spending growth, distinguishing between the effects of changes in quantity of services per person and the prices of those services.
- **Chapter IV** summarizes spending for primary care and urgent care and shows trends in avoidable hospital use that could suggest unmet need for care.
- **Chapter V** reviews potential cost drivers of interest – medical pharmacy and behavioral health – to assess current spending levels and monitor changes over time.
- **Chapter VI** presents geographic variation in spending trends within the state and characterizes outmigration for inpatient care and behavioral health services.

Key Findings

Over the study period, per-person health care spending in New Jersey was higher than the national value and increased at the same average annual rate.

- For New Jersey residents with employer-sponsored insurance, health care spending increased at an average annual rate of 4.5 percent, from $6,670 in 2017 to $8,305 in 2022.
- In 2022, per-person health care spending in New Jersey was $8,305, 15 percent higher than the national value of $7,212.
- New Jersey residents with employer-sponsored insurance had lower per-person out-of-pocket spending compared to the national average.

Exhibit ES.1. Average annual total health care spending per person in New Jersey, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022. ◢

Health care spending grew in all service categories, primarily driven by price increases.

- Spending for retail pharmacy grew at the highest rate, 5.7 percent. Outpatient facility services spending grew at 5.3 percent, professional services spending grew at 4.1 percent, and inpatient services spending grew at 2.1 percent.
- The per-person quantity of services increased for retail pharmacy, remained relatively stable for professional services, and *decreased* for both inpatient and outpatient facility services.
- On a percentage basis, relative to other service categories, prices increased the most for outpatient facility services, growing by 39 percent over the study period. Prices for inpatient facility services increased 32 percent, retail pharmacy prices grew 19 percent, and professional services prices grew 13 percent. ◢

Primary care spending was lower in New Jersey than nationally.

- In 2018, spending for primary care in New Jersey was 14 percent lower than nationally, and this gap widened to 31 percent in 2022.

Areas of rapid spending growth in the state include urgent care, mental health services, and medical pharmacy.

- Per-person spending on urgent care increased 137 percent from 2017 to 2022.
- Per-person spending on mental health services increased 58 percent from 2017 to 2022.
- Per-person spending on medical pharmacy increased 50 percent from 2017 to 2022. ◢

Introduction

A. HART Program Background

In March 2022, New Jersey Governor Phil Murphy released the blueprint for the Health Care Affordability, Responsibility, and Transparency (HART) Program, which aims to build a stronger and fairer New Jersey by helping to curb health care spending growth within the state.

Signed in January 2021, Executive Order 217 established the Office of Health Care Affordability and Transparency (OHCAT) which was tasked with launching a health care cost growth benchmark program. The goal of OHCAT is to ensure that health care is affordable for New Jersey residents, promoting policies to advance affordability, accessibility, and cost transparency in the health care market. Recent surveys have shown that up to 85% of New Jerseyans worry about affording healthcare in the future, and nearly half of New Jerseyans have delayed or skipped care due to cost.[1] The centerpiece of OHCAT's affordability efforts is the HART Program, which it manages in close collaboration with the New Jersey Department of Banking and Insurance.

The work of the interagency group established by Executive Order 217 culminated in Executive Order 277, signed in December 2021, that outlined the implementation of the program. Executive Order 277 was accompanied by a compact between stakeholders throughout the state, including hospitals and other health care providers, insurers, employers, consumer groups, unions, and policy organizations. Under the compact, the signatory stakeholders committed to working to meet a series of targets to curb health care spending growth and to provide data to monitor progress in meeting those targets. In January 2025, the Governor signed Executive Order 377 to transition the HART Program within OHCAT from the Governor's Office to the New Jersey Department of Health to support sustainable and continued implementation of the Administration's consumer-focused health care affordability work.

The HART Program centers on five pillars: (1) stakeholder engagement, (2) aligning health cost growth with growth in the economy and individual incomes, (3) transparency, (4) market-based solutions, and (5) iteration and learning.

To work toward the goals of making health care more affordable, facilitating the transparent reporting of health care spending in the state, and leveraging data to understand the causes of rising health care spending and inform strategies to reduce health care spending growth, the HART Program will regularly produce two sets of reports: (1) reports on the cost growth benchmark that track the state's progress in meeting its annual target for health care spending and (2) cost driver reports that shed light on factors driving spending growth and identify opportunities to curb that growth. This report reviews cost drivers for a segment of the New Jersey population with commercial health care coverage.

[1] Altarum Healthcare Value Hub. "New Jersey Residents Struggle to Afford High Healthcare Costs; Worry about Affording Healthcare in the Future; Support Government Action across Party Lines." Data Brief No. 140. January 2023. Available at: https://healthcarevaluehub.org/consumer-healthcare-experience-state-survey/new-jersey/

B. Overview of the Cost Driver Report

Within the framework of the HART Program, this report aims to shed light on health care spending, including trends in spending and spending growth, and factors driving spending growth for New Jerseyans. Its purpose is to create a foundation of evidence to guide stakeholders as they innovate to improve health care value and affordability. The data and analysis included here are intended to inform New Jersey stakeholders as they fulfill their commitment to curb spending growth and meet the benchmark target.

In this report, we provide a detailed look at trends in spending growth. Following this introduction, we present an overview of spending **(Chapter I),** examine spending by service category **(Chapter II)**, discuss the role of quantity and price in driving spending growth **(Chapter III)**, review current spending for primary care and urgent care and assess performance on measures of avoidable hospital use **(Chapter IV)**, explore two topics of special interest, behavioral health and medical pharmacy **(Chapter V),** and summarize geographic variation and outmigration, defined as the rate at which patients leave the state for care **(Chapter VI)**. Appendices list acronyms and define terms **(Appendix A)**, describe the population **(Appendix B)**, summarize methods **(Appendix C)**, and provide the data that underly figures **(Appendix D).**

What's New in the 2025 Cost Driver Report

- Advances the study period forward one year to 2017-2022
- Expands the study population included in most exhibits to include almost 1 million additional New Jersey residents (see Appendix B)
- Includes focused analysis of:
  - Primary care and urgent care
  - Avoidable hospital use
  - Spending for behavioral health
  - Spending for medical pharmacy (biologic drugs and infusions) ◢

C. Data and Methods

This analysis uses claims data from the Health Care Cost Institute (HCCI), a multi-payer, longitudinal claims database that includes data for employer-sponsored insurance (ESI) plans from select carriers that have opted in to submitting data. For more information on the HCCI, go to https://healthcostinstitute.org/.

HCCI coverage varies by state, and for New Jersey, the HCCI database includes several large carriers covering approximately 40 percent of residents with ESI. This study is further limited to claims from 2017 to 2022 and to residents who were 18 to 64 years of age when service delivery occurred.[2] An overview of this sample is presented in **Appendix B**. A description of methods can be found in **Appendix C**. The main narrative emphasizes graphics, and the underlying data are presented in **Appendix D**.

[2] For retail pharmacy spending metrics, the report includes NJ residents with full benefit coverage by carriers who submit data to HCCI – this means having both medical and pharmacy coverage. Approximately half of New Jersey residents in the HCCI data are full benefit enrollees.

D. Comparison to Other Research

We compared the results of this study to other research on cost trends and drivers and found that our results were consistent with other authors' results. For example, using data from MarketScan, the Commonwealth Foundation found that spending in New Jersey was higher than the national average for enrollees with ESI.[3] Drawing on data from all-payer claims databases, state agencies in Massachusetts and Oregon also concluded that increasing prices, as opposed to increases in the quantity of services delivered, were the primary driver of rising health spending.[4,5]

[3] Radley, David C., Jesse C. Baumgartner, Sara R. Collins, and Laurie C. Zephyrin. "2023 Scorecard on State Health System Performance: Americans' Health Declines and Access to Reproductive Care Shrinks, but States have Options." New York: The Commonwealth Fund, June 2023. Available at https://www.commonwealthfund.org/publications/scorecard/2023/jun/2023-scorecard-state-health-system-performance.

[4] Massachusetts Health Policy Commission. *2024 Annual Health Care Cost Trends Report and Policy Recommendations*. October 2024. Available at: https://masshpc.gov/sites/default/files/2024_Cost_Trends_Report.pdf

[5] Oregon Health Authority. *2024 Sustainable Health Care Cost Growth Target Annual Report*. August 1, 2024. Available at: https://www.oregon.gov/oha/HPA/HP/Cost%20Growth%20Target%20documents/2024-Oregon-Cost-Growth-Target-Annual-Report.pdf

I. Overview of Health Care Spending Trends

Introduction

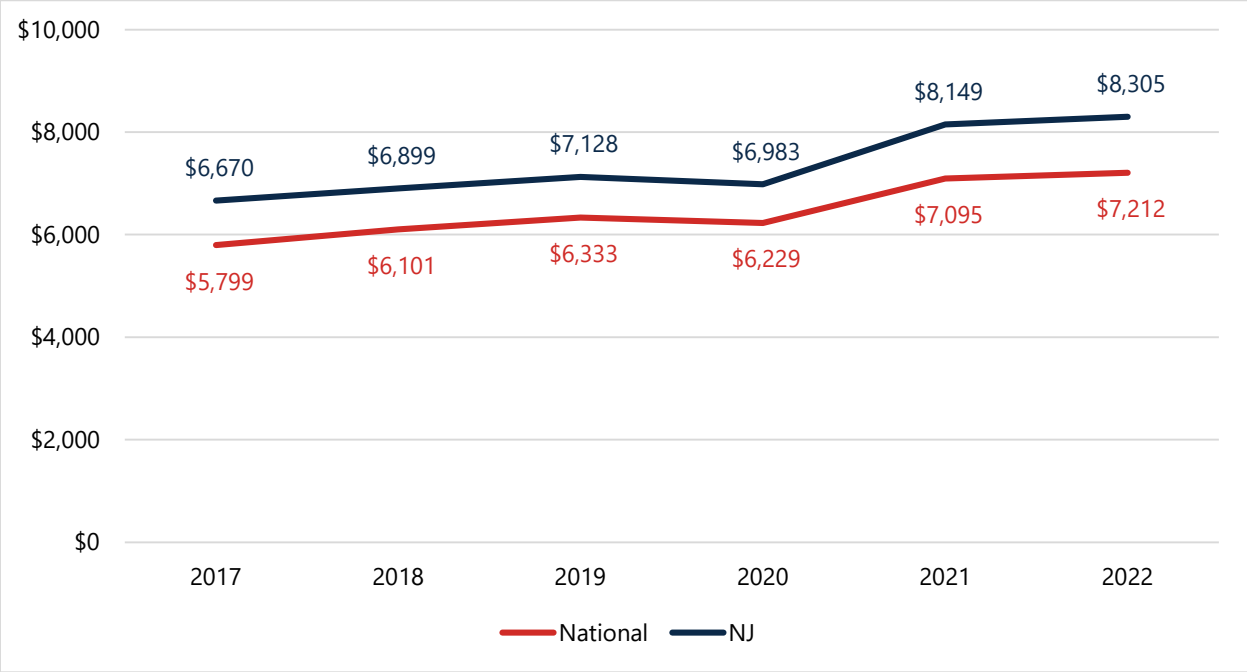
This section compares state and national trends in total health care costs, highlighting how spending has changed over time. It also examines trends in out-of-pocket spending for services covered by insurance, a key measure of financial burden for individuals. ◢

A. Total Health Care Spending Trends

1. Multi-year Trend

From 2017 to 2022, per-person total health care spending increased at an average annual rate of 4.5 percent for adult New Jersey residents with ESI from a carrier that submits data to HCCI.[6] This growth rate was the same as the corresponding national rate, also 4.5 percent. In 2022, New Jersey's per-person spending was $8,305 per year, which was 15 percent higher than the national average of $7,212 per year **(Exhibit I.1).** During the study period, per-person spending in New Jersey consistently exceeded the national average by 12 to 15 percent.

Exhibit I.1. Average annual total health care spending per-person in New Jersey compared to national, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022

Note: See Appendix D for data underlying this figure.

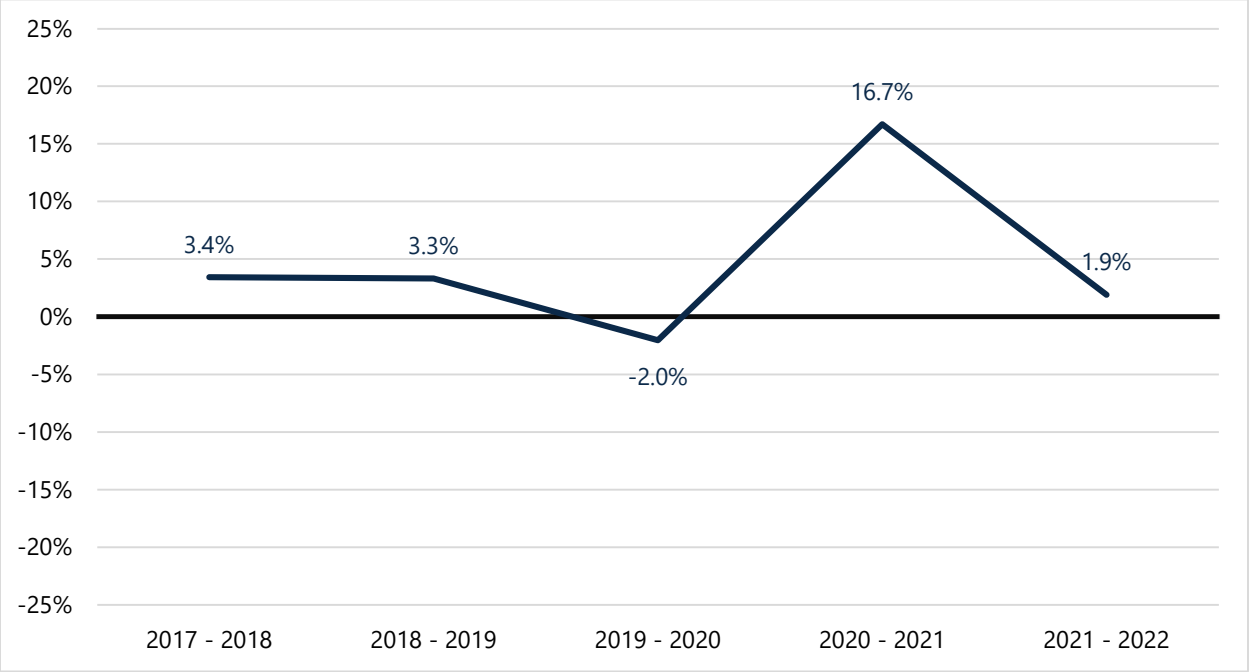
The New Jersey HART Program team will continue to closely monitor both the gap between New Jersey and the national average, as well as changes in spending within the state.

[6] All results in this report pertain to adults with ESI included in the HCCI sample, unless otherwise noted. Metrics specific to retail pharmacy include a limited sample of the study population with full benefit insurance as characterized in Appendix B.

2. Year-to-Year Trend and the Impact of COVID-19

In the first two years of the study period, single-year spending growth in New Jersey was stable: 3.4 percent between 2017 and 2018 and 3.3 percent between 2018 and 2019. Between 2019 and 2020, spending decreased by 2.0 percent, due to reduced utilization during the COVID-19 pandemic. Between 2020 and 2021, spending grew sharply by 16.7 percent as utilization increased relative to 2020 levels **(Exhibit 1.2)**. From 2021 to 2022, spending continued to rise but at a slower pace, increasing by 1.9 percent.

Exhibit I.2. Single-year change in per-person spending, 2017–2022

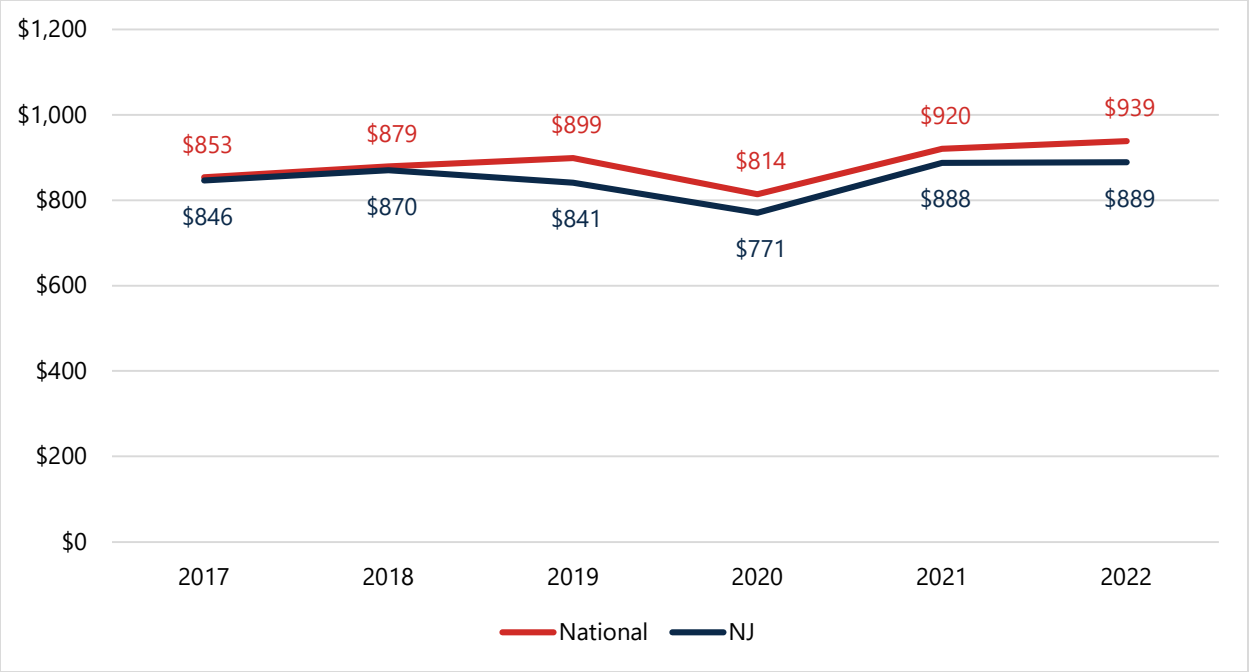


Source: Mathematica analysis of HCCI claims, 2017-2022.
Note: See Appendix D for data underlying this figure.

B. Out-of-Pocket Spending Trends

From 2017 to 2022, New Jersey residents' per-person out-of-pocket spending (such as deductibles, co-pays, and coinsurance) for covered services increased at an average annual growth rate of 1 percent. Per-person out-of-pocket spending grew more slowly in New Jersey than nationally, where the average annual growth rate was 2 percent. In addition, New Jersey residents' out-of-pocket spending of $889 in 2022 was less than the national average of $939 for that year **(Exhibit I.3)**. In contrast, as noted above, New Jersey's total spending in 2022 exceeded the national average.

Exhibit I.3. Average annual out-of-pocket spending per person in New Jersey compared to national, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017-2022.

Note: See Appendix D for data underlying this figure.

II. Health Care Spending Trends by Service Category

Introduction

This report analyzes spending in terms of four mutually exclusive major service categories: inpatient facility, outpatient facility, professional, and retail pharmacy. These categories, which are standard in claims analysis, are defined by the place of service and how the service is billed. Analyses in Chapters IV and V of the report address spending topics that are sub-categories or cross-cutting categories of these four primary service categories.

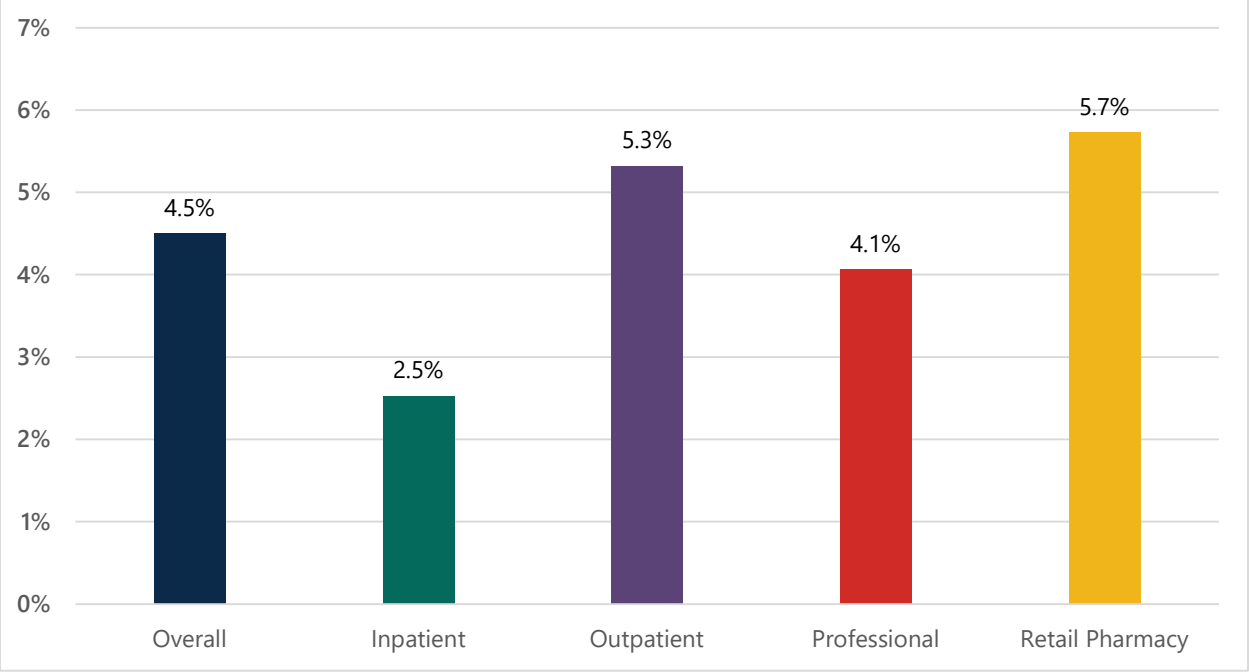
Service Categories Descriptions

Inpatient facility services	Hospital-based inpatient care and emergency department (ED) spending immediately prior to an inpatient admission. Examples include childbirth and complex surgeries. This category includes drugs that are administered to patients admitted in a hospital.
Outpatient facility services	Services provided in clinic settings including ED services. This category includes outpatient procedures such as cataract surgery and vasectomy, imaging such as X-rays, and the facility fees associated with clinician visits. This category includes drugs that are administered to patients at an outpatient facility.
Professional services	Services provided by independent and hospital-affiliated clinicians, such as physicians, nurse practitioners, and physician assistants. This category includes both inpatient and outpatient professional services provided in offices, clinics, and hospitals. This category includes fees paid to providers for office visits, surgeries, ED visits, mental health therapy, and most other health care services.
Retail pharmacy	Retail drugs obtained at a pharmacy. This category does not include clinician-administered medications. ◢

A. Spending Growth by Service Category

Per-person spending for each service category grew between 2017 and 2022. The average annual growth rate for retail pharmacy was 5.7 percent, while outpatient facility, professional, and inpatient spending for New Jersey residents increased at average annual rates of 5.3 percent, 4.1 percent, and 2.5 percent, respectively **(Exhibit II.1).**

Exhibit II.1. Average annual per-person spending growth rate overall and by service category, 2017–2022

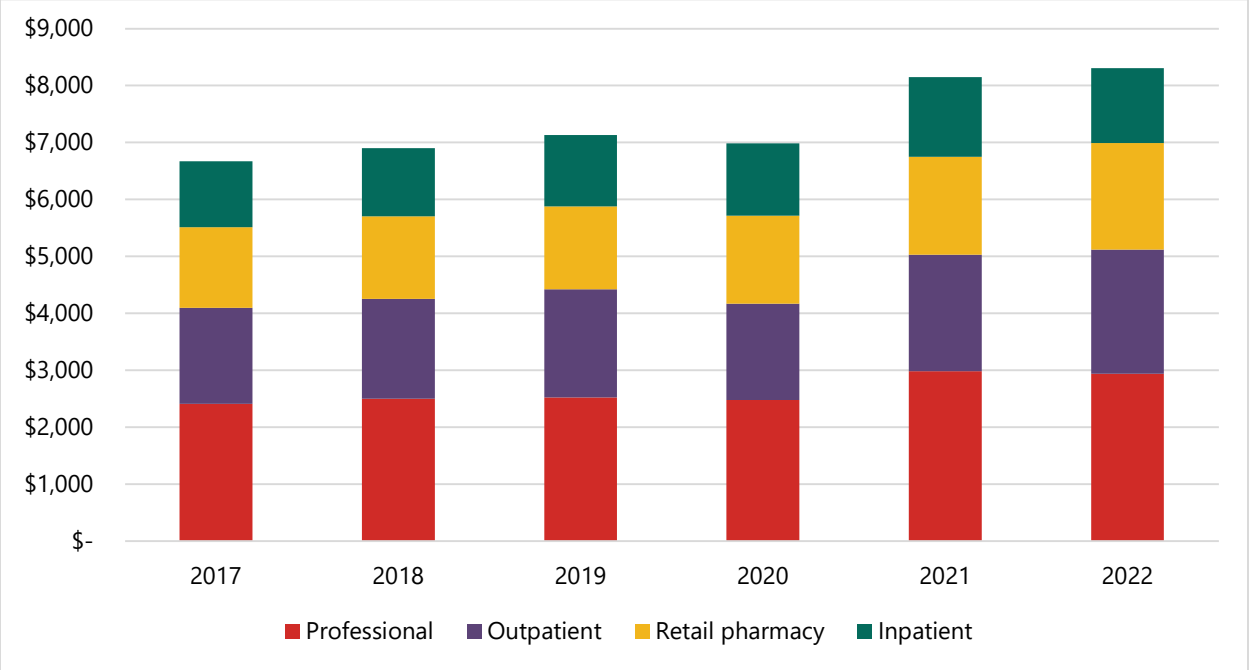


Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

B. Spending Levels by Service Category

In 2022, among the four major service categories, professional services had the highest level of spending at $2,941 per person, representing 35 percent of the total per-person spending of $8,305. Outpatient facility services represented the second largest portion, $2,179 or 26 percent of total per-person spending, followed by retail pharmacy, at $1,872 or 23 percent, and inpatient facility services, at $1,313 or 16 percent **(Exhibit II.2).**

Exhibit II.2. Average annual total health care spending per person by service category, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

C. Contribution of Categories to Overall Spending Growth

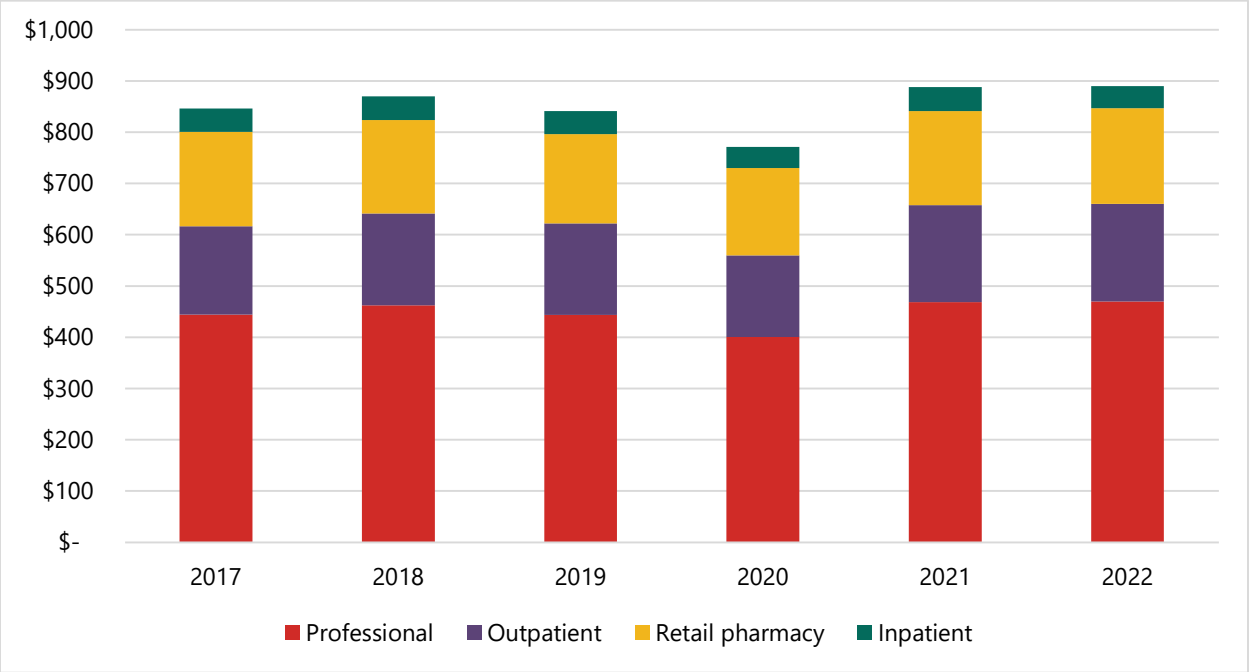
Between 2017 and 2022, professional services, outpatient facility services, and retail pharmacy each contributed approximately 30 percent to the $1,635 increase in per-person total health care spending. Professional services increased $531 per person, representing 32 percent of total growth. Outpatient facility spending increased $496, representing 30 percent of total growth. Retail pharmacy spending increased $455, representing 28 percent of total growth. Inpatient spending contributed the least to spending growth with a $154 increase per person which contributed 9 percent to total growth.[7]

[7] The contribution to spending growth depends on both the base level of spending in the category and the rate of growth. For example, a 1 percent increase in a $200 service category and a 10 percent increase in a $20 service category would each add $2 to spending growth.

D. Out-of-Pocket Spending by Service Category

Out-of-pocket payments for professional services, $470 in 2022, represented more than half of the overall out-of-pocket spending of $890. In 2022, residents paid for about 16 percent of their professional services spending out-of-pocket; the corresponding percentages for retail pharmacy, outpatient services, and inpatient services were 10 percent, 9 percent, and 3 percent, respectively **(Exhibit II.3).**

Exhibit II.3. Average annual out-of-pocket spending per person by service category, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

III. Drivers of Health Care Spending: Quantity and Price

Introduction

Health care spending is a function of both the price and quantity of services, though it is primarily prices that have driven recent increases in spending in the commercial insurance market.[8] In this section, we discuss how changes in these two factors contributed to the growth in health care spending in New Jersey from 2017 to 2022. ◢

Measuring Quantity and Price

The HART Program team measured the per-person quantity of services by counting the number of patient care encounters in each category of service according to the following criteria:

- For the inpatient facility category, an encounter is defined as an inpatient discharge.
- For the outpatient facility and the professional services categories, an encounter is defined as a visit for care or treatment for a given health issue.[8]
- For the retail pharmacy category, an encounter is a day's supply of a single drug.

The HART Program team measured price as spending per encounter; both changes in the prices of specific services and changes in the mix of specific services within the category affect this measure.

As shown in the example in **Exhibit III.1**, per-person spending on Service A is $200 with two encounters per person and an average price per encounter of $100 in 2018. In 2019, the per-person spending on service A is $216 with 1.92 encounters per person and average price of $112.50. The total change in per-person spending is 8 percent, which is the net effect of a 4 percent decrease in quantity and a 12.5 percent increase in price.

Exhibit III.1. Example calculation of the effect of quantity and price

Year	Total per-person spending	Quantity (encounters per person)	Price (spending per encounter)
2018	$200	2.00	$100.00
2019	$216	1.92	$112.50
Percent change between 2018 and 2019	8.0	-4.0	12.5

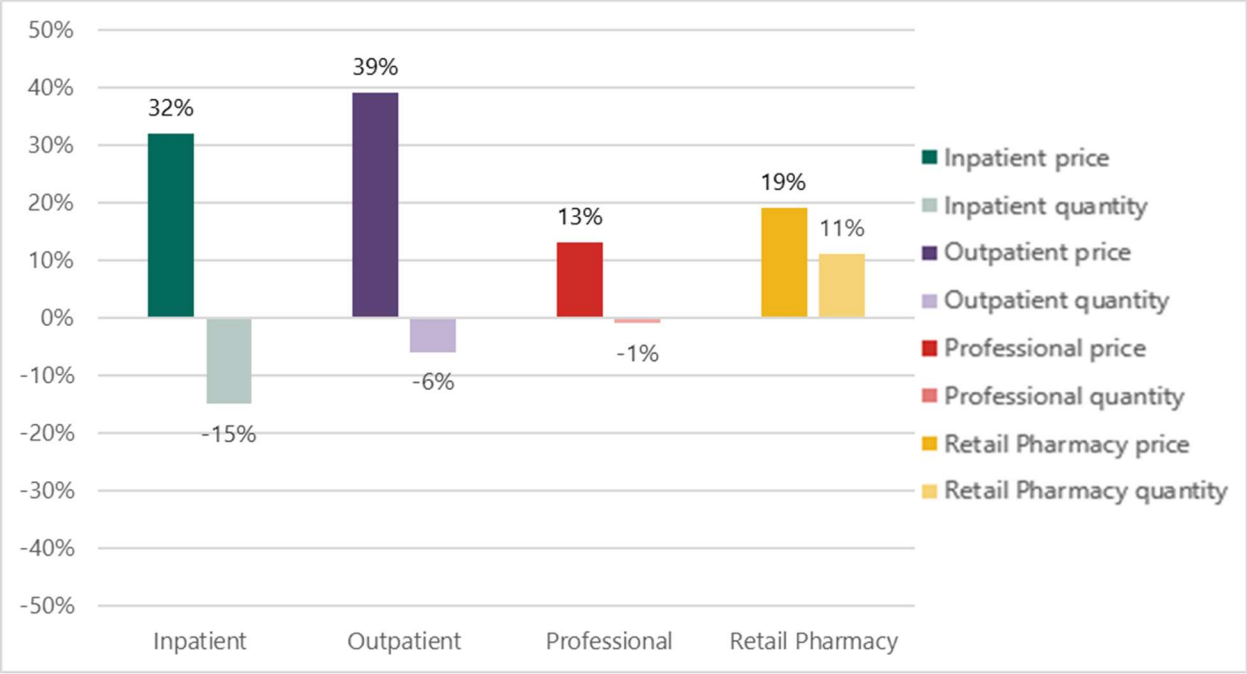
[8] For example, see the most recent report from the HCCI, available at: https://healthcostinstitute.org/health-care-cost-and-utilization-report/annual-reports

[8] For outpatient facility, we limited encounters to three types of encounters that make up the largest share of spending: (1) visits to an outpatient facility for surgery, (2) visits to a hospital ED that do not subsequently result in an inpatient admission, and (3) visits to an outpatient facility for radiation or chemotherapy treatment. For professional services, we limited the analysis to professional encounters in practitioner offices, outpatient hospitals, and inpatient hospitals as these are the three settings that make up the largest share of professional spending. See Appendix C3 for methodology details.

A. Analysis of Quantity and Price

Between 2017 and 2022, the average price per encounter rose across all service categories. Outpatient facility encounters saw the largest price increase, rising by 39 percent. Prices for inpatient facility, retail pharmacy, and professional services increased by 32 percent, 19 percent, and 13 percent, respectively. Retail pharmacy was the only category that had increases in both price and per-person quantity over the study period, with quantity rising by 11 percent. At the same time, the number of encounters declined for both inpatient and outpatient facility services by 15 percent and 6 percent, respectively. Volumes for professional services remained relatively stable, with professional encounters decreasing by 1 percent **(Exhibit III.2)**.

Exhibit III.2. Total percentage change in price and per-person quantity by category of service, 2017–2022



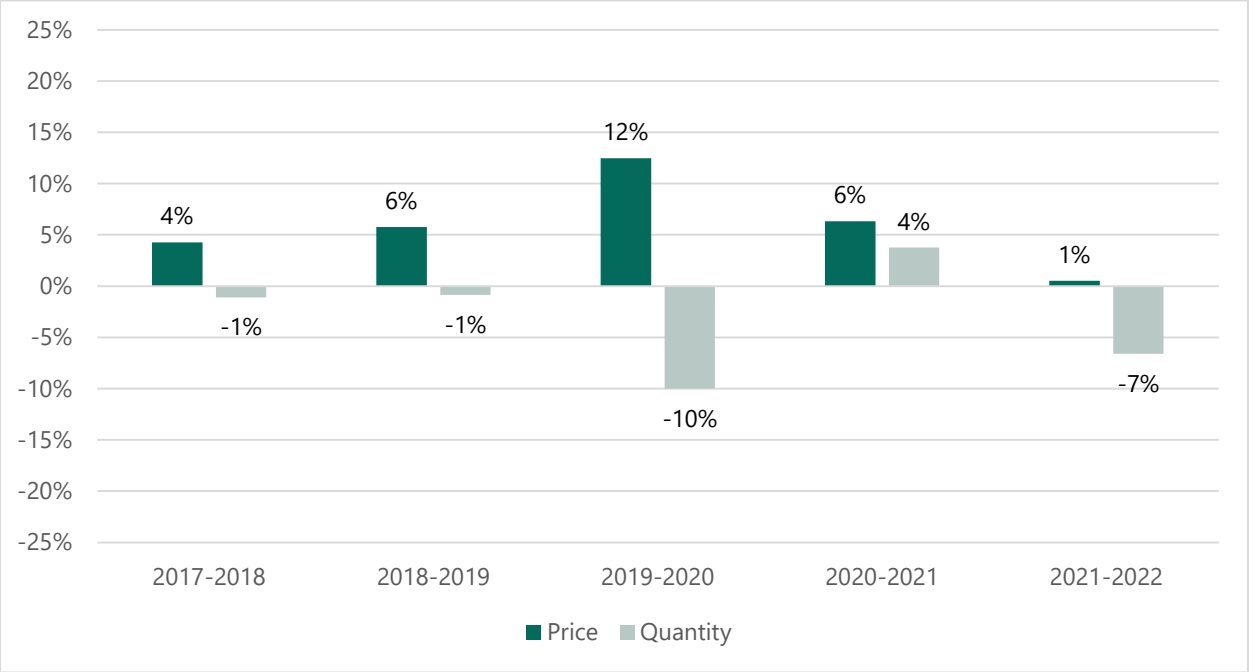
Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

For every service category except retail pharmacy, the number of encounters per-person dropped sharply between 2019 and 2020 due to COVID-19, then rebounded between 2020 and 2021 **(Exhibits III.3, III.4, III.5, and III.6)**. A year-over-year review of encounters per person and average prices showed that prices increased consistently across all categories during the study period. In contrast, trends in the number of encounters were more mixed following the pandemic. Overall, increases in average price outpaced changes in utilization over the study period.

1. Inpatient Facility Services

Price per inpatient discharge increased each year between 2017 and 2022, with a 12 percent increase between 2019 and 2020. Between 2021 and 2022 the growth of price per discharge slowed to 1 percent. Before 2020, the number of inpatient discharges changed minimally, decreasing by 1 percent each year. However, the pandemic led to a sharp 10 percent decline in inpatient admissions in 2020. In 2021, admissions rose relative to 2020, with the number of discharges increasing by 4 percent. Between 2021 and 2022, there was a notable decrease in inpatient admissions **(Exhibit III.3)**.[8]

Exhibit III.3. Annual percentage change in price and per-person quantity for inpatient services, 2017–2022



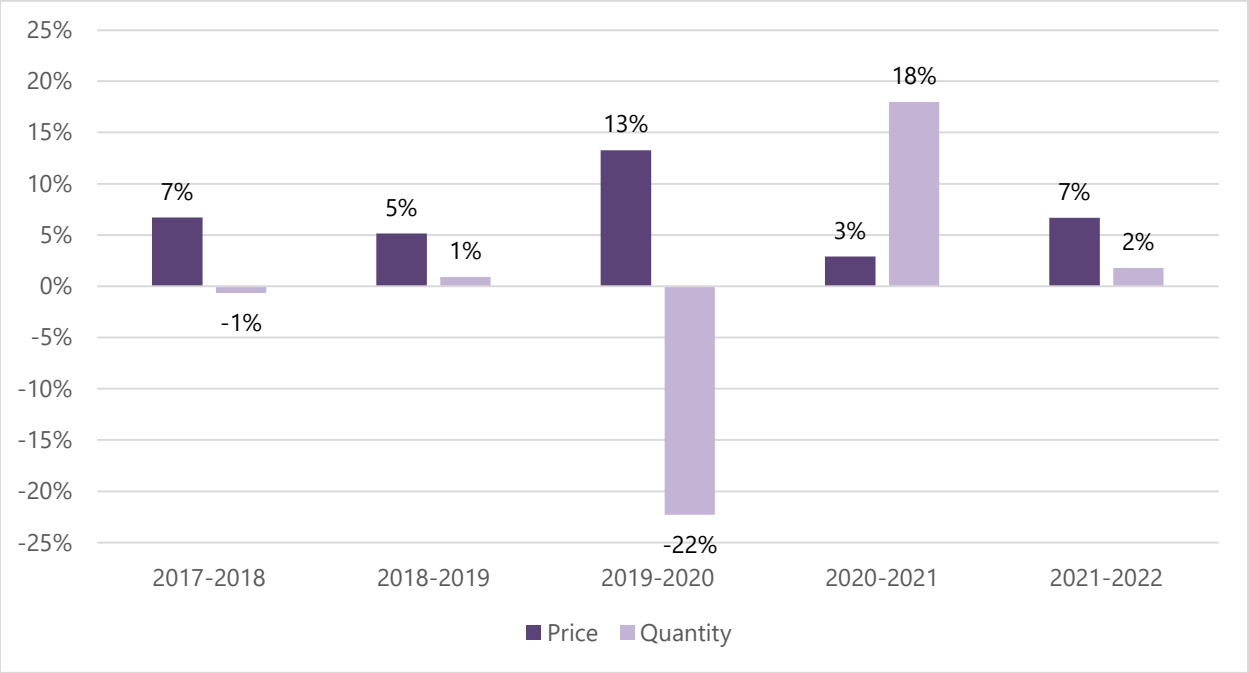
Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

[8] The decline in inpatient stays in New Jersey is also seen nationally in HCCI's 2022 annual report. The report shows a decline in inpatient utilization nationally, with an 11 percent decline since 2018 and a 6 percent decline from 2021 to 2022. Available at: https://healthcostinstitute.org/health-care-cost-and-utilization-report/annual-reports

2. Outpatient Facility Services

The average price of an outpatient encounter increased every year, with the greatest increase seen between 2019 and 2020, when the price increased by 13 percent. The average price continued to grow in subsequent years and rose 7 percent between 2021 and 2022. Outside of the shifting of services seen during the COVID-19 pandemic, the number of outpatient encounters remained steady during the study period **(Exhibit III.4)**.

Exhibit III.4. Annual percentage change in price and per-person quantity for outpatient services, 2017-2022



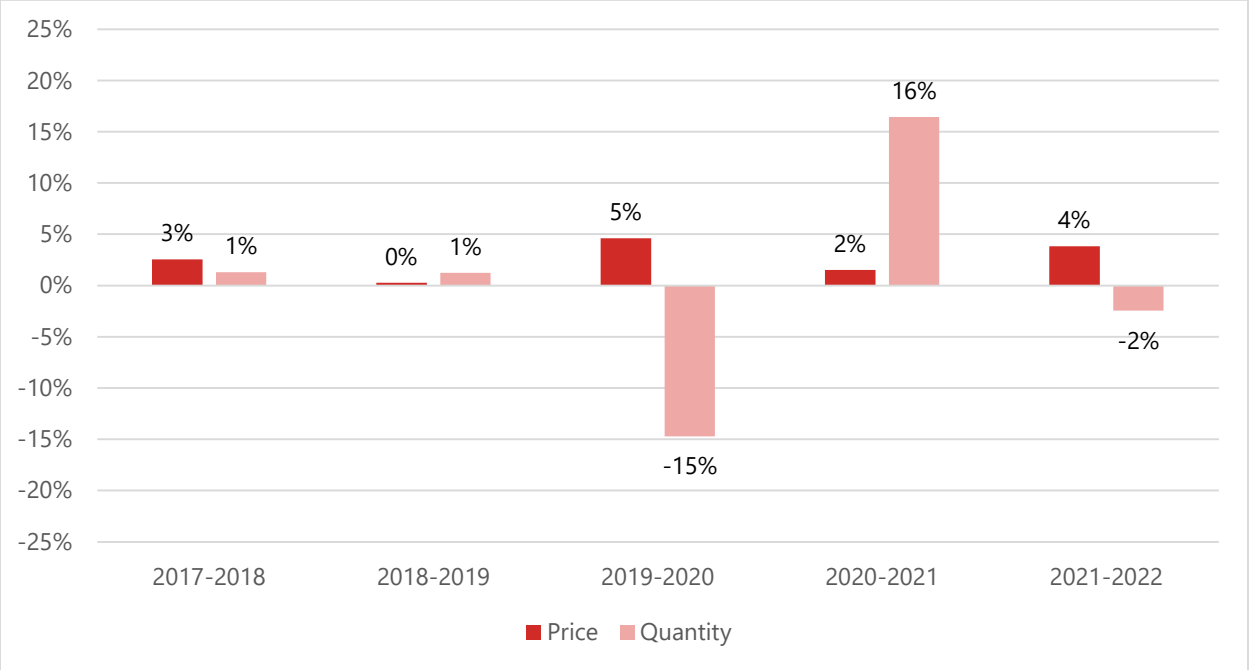
Source: Mathematica analysis of HCCI claims, 2017–2022.

Note: See Appendix D for data underlying this figure. This analysis is limited to surgery, ED, and radiation/chemotherapy encounters only. See Appendix C for a description of the methodology.

3. Professional Services

The price of services in the professional category increased each year, but to a lesser extent than the other service categories examined. Consistent with the outpatient facility category, quantity was relatively flat prior to the disruption in services seen during the COVID-19 pandemic. Per-person quantity of services decreased between 2021 to 2022 by 2 percent **(Exhibit III.5)**.

Exhibit III.5. Annual percentage change in price and per-person quantity for professional services, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.

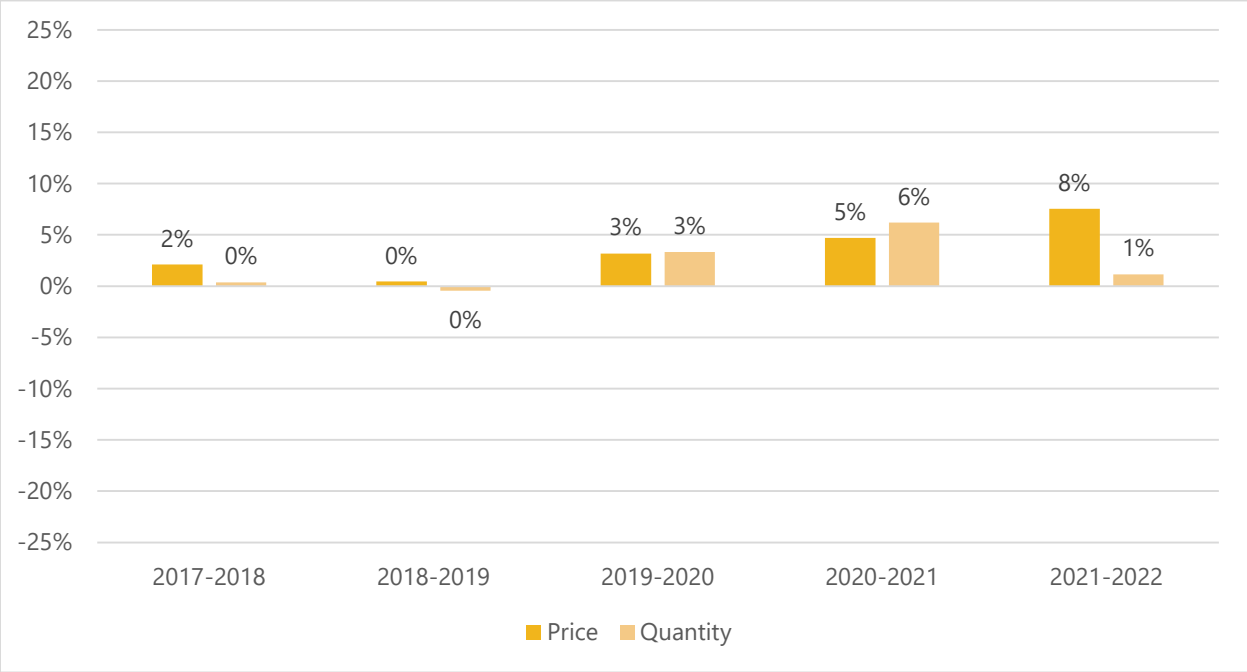
Note: See Appendix D for data underlying this figure.

This analysis is limited to professional encounters in offices, inpatient hospitals, and outpatient hospitals only. See Appendix C for a description of the methodology.

4. Retail Pharmacy

Retail pharmacy trends stand out from the other service categories because spending increases were driven by growth in both the per-person quantity of services and the average price. Since 2019, the per-person quantity of retail pharmacy increased between 1 and 6 percent each year. During the same period, the average price of retail pharmacy drugs increased between 3 and 8 percent. Between 2021 and 2022, price increases outpaced increases in per-person quantity to drive spending growth in this category **(Exhibit III.6)**.

Exhibit III.6. Annual percentage change in price and per-person quantity for retail pharmacy services, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

IV. Primary Care and Measures of Avoidable Hospital Use

Introduction

Primary care plays a critical role in maintaining health and preventing costly complications, making it central to understanding health care spending patterns. Recognizing the importance of primary care, in recent years New Jersey has invested in a number of initiatives to expand and support primary care in the state. The Department of Health and the Department of Human Services developed a proposed integrated license for providers that will enable them to deliver primary care, mental health, and addiction treatment services together in the same facilities to coordinate physician and behavioral health services together, addressing a need long identified in the state. The Department of Health's Office of Primary Care and Rural Health has also reimbursed Federally Qualified Health Centers through a state uncompensated care fund to provide primary care services to vulnerable New Jerseyans, and supports a program to encourage international physicians to practice in the state, further expanding access to primary care.

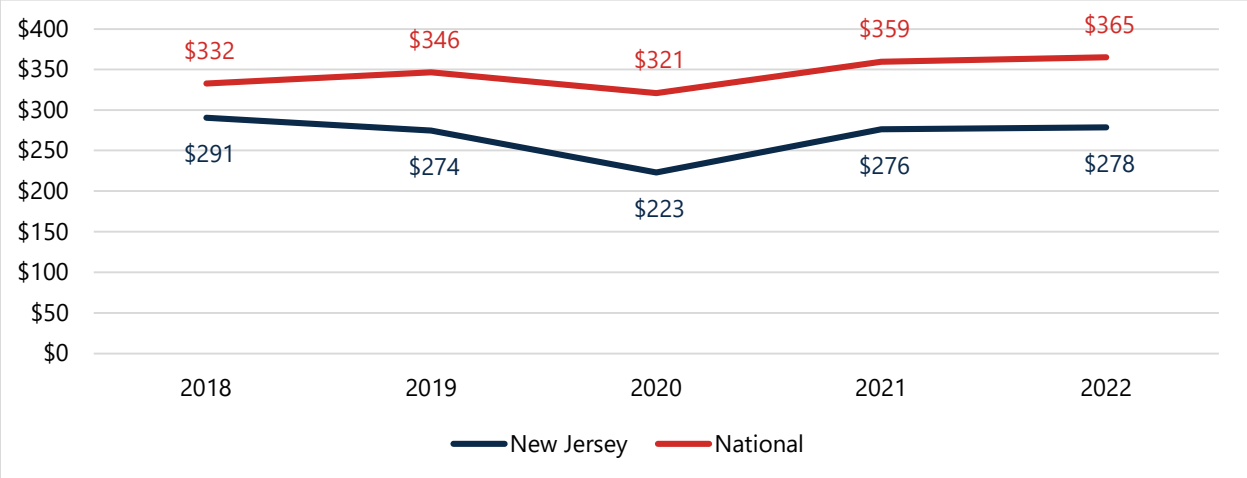
This section examines trends in per-person spending on primary and urgent care – services that can help reduce the need for more expensive hospital care when used effectively. It also explores avoidable hospital use, including ED visits and admissions that timely, high-quality outpatient care may have prevented.◢

A. Primary Care Spending

1. Per-person Spending

Per-person spending for primary care services in New Jersey remained relatively consistent over the study period and was $278 in 2022. Spending was higher in 2018 and dipped to a low in 2020, likely due to the impact of the COVID-19 pandemic **(Exhibit IV.1)**. In a similar population using national data, per-person spending for primary care was higher than in New Jersey and growing modestly. In 2018, the national spending was 14 percent higher than in New Jersey and this gap widened to 31 percent in 2022.

Exhibit IV.1. Per-person spending for primary care in New Jersey and nationally, 2018–2022[9]



Source: Mathematica analysis of HCCI claims, 2018–2022.

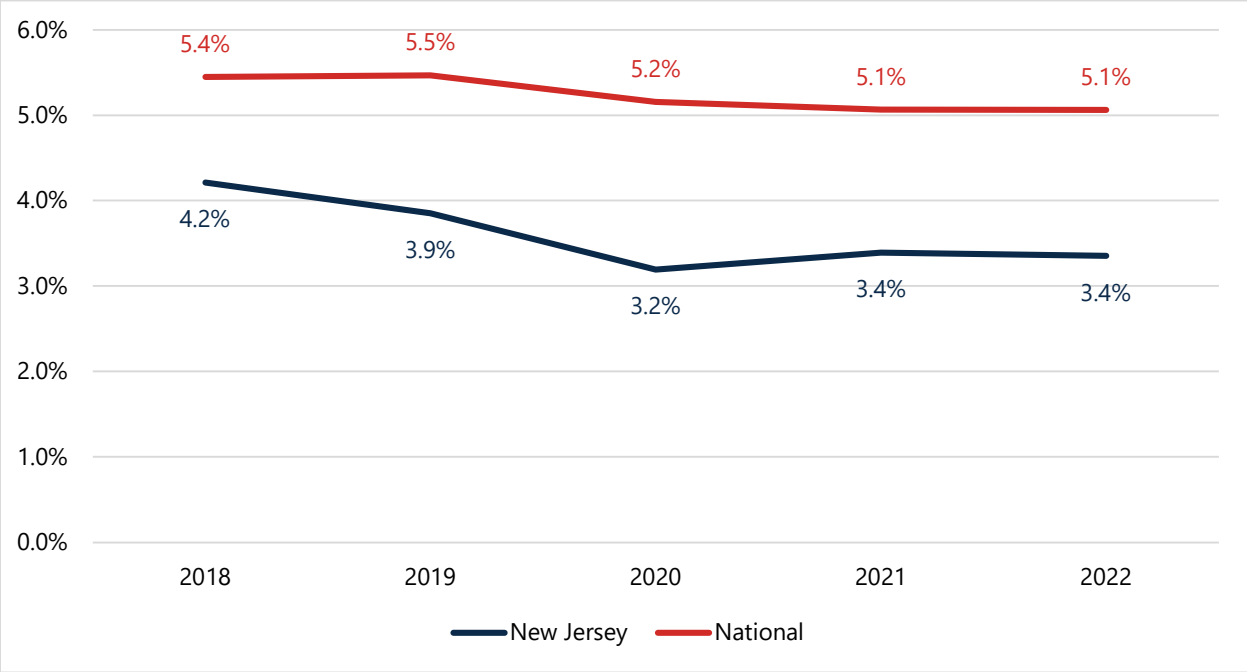
Note: See Appendix D for data underlying this figure.

[9] The primary care spending study period is 2018 through 2022. The analysis excludes 2017 due to data limitations in identifying primary care provider taxonomy codes prior to 2018. Taxonomy codes are used to identify a provider's specialty.

2. Primary Care as a Percent of Total Health Care Spending

Primary care continues to account for a small share of total health care spending in New Jersey. From 2018 to 2020, the share of spending on primary care declined by 1 percentage point, before stabilizing at 3.4 percent in 2021 and 2022. Primary care made up 5.1 percent of total health care spending nationally during the same period **(Exhibit IV.2)**. New Jersey consistently trailed the national average, and the gap between state and national primary care spending widened in recent years, highlighting a potential area for continued focus.

Exhibit IV.2. Primary care spending as a percentage of total health care spending in New Jersey and nationally, 2018–2022[10]



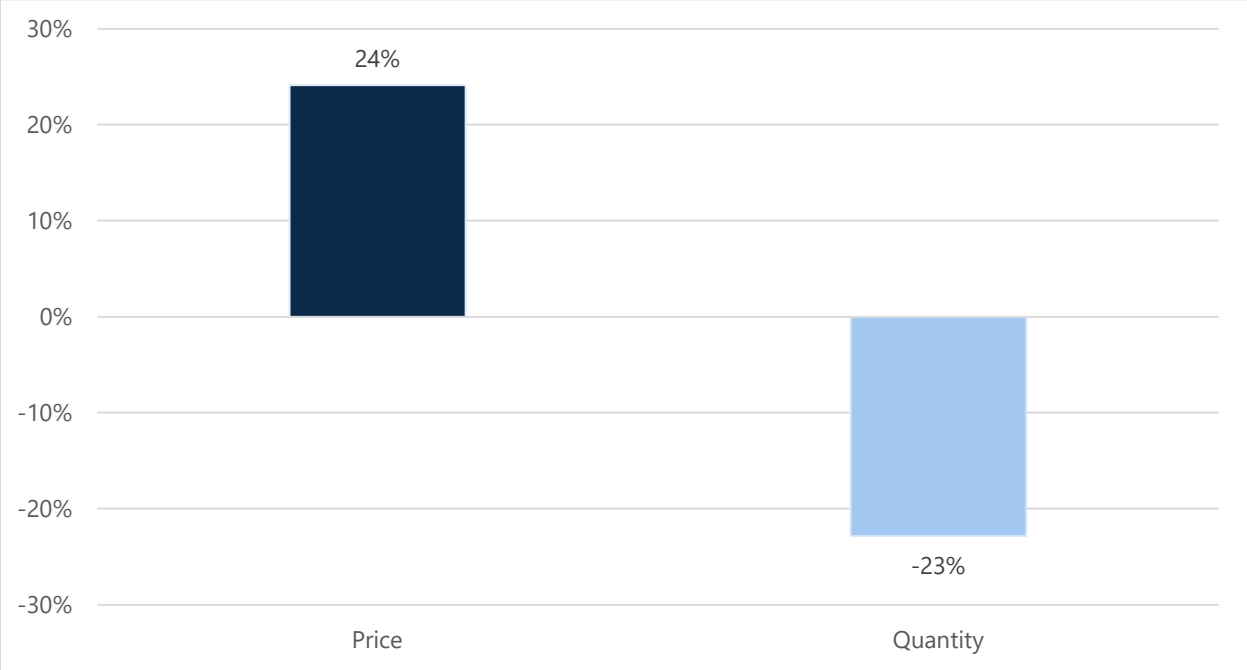
Source: Mathematica analysis of HCCI claims, 2018–2022.
Note: See Appendix D for data underlying this figure.

[10] The primary care spending study period is 2018 through 2022. The analysis excludes 2017 due to data limitations in identifying primary care provider taxonomy codes prior to 2018. Taxonomy codes are used to identify a provider's specialty.

3. Analysis of Quantity and Price

The relatively flat trend for primary care spending reflects two off-setting factors. Between 2018 and 2022, the average price of primary care services rose by 24 percent, while the per-person quantity of services declined by 23 percent **(Exhibit IV.3)**. Visits per person for primary care decreased every year of the study period, except from 2020 to 2021, when they increased by 13 percent due to higher utilization in 2021 relative to 2020 and the height of the COVID-19 pandemic **(Exhibit IV.4)**. These trends could reflect growing investment in primary care as a state policy priority and reinforce the continued need for improved patient access to primary care services.

Exhibit IV.3. Total percentage change in price and per-person quantity for primary care, 2018–2022[11]

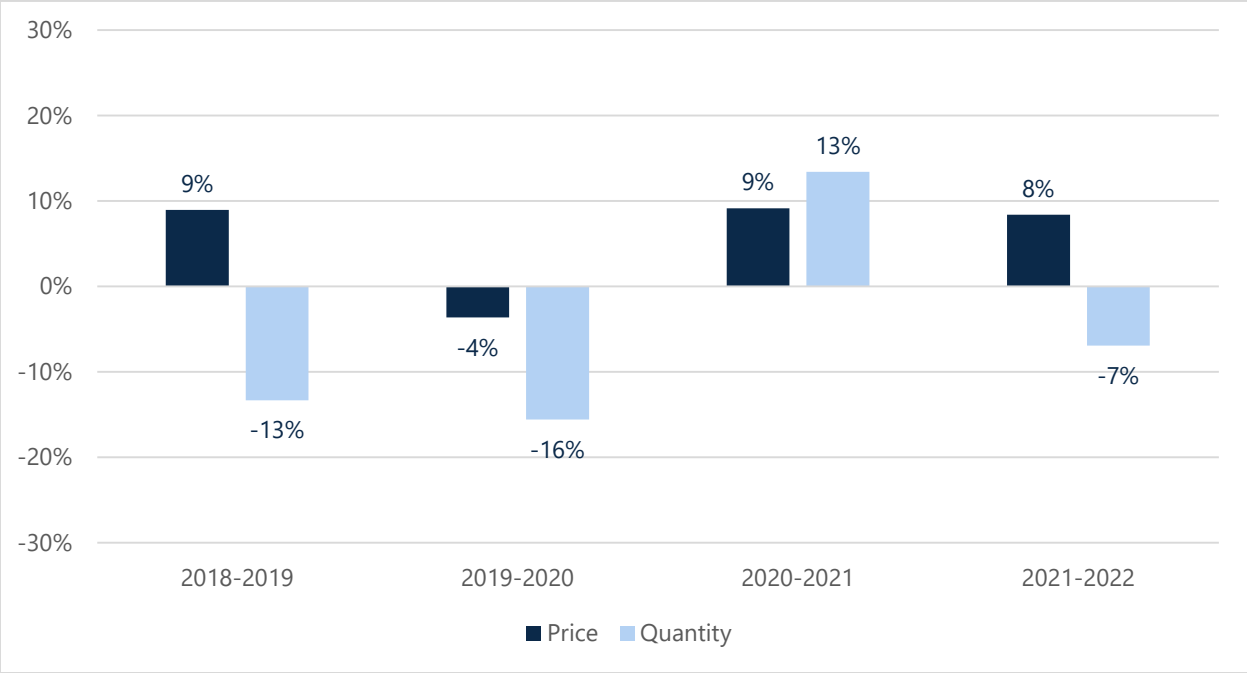


Source: Mathematica analysis of HCCI claims, 2018–2022.

Note: See Appendix D for data underlying this figure.

[11] The primary care spending study period is 2018 through 2022. The analysis excludes 2017 due to data limitations in identifying primary care provider taxonomy codes prior to 2018. Taxonomy codes are used to identify a provider's specialty.

Exhibit IV.4. Annual percentage change in price and per-person quantity for primary care, 2018–2022[12]



Source: Mathematica analysis of HCCI claims, 2018–2022.

Note: See Appendix D for data underlying this figure.

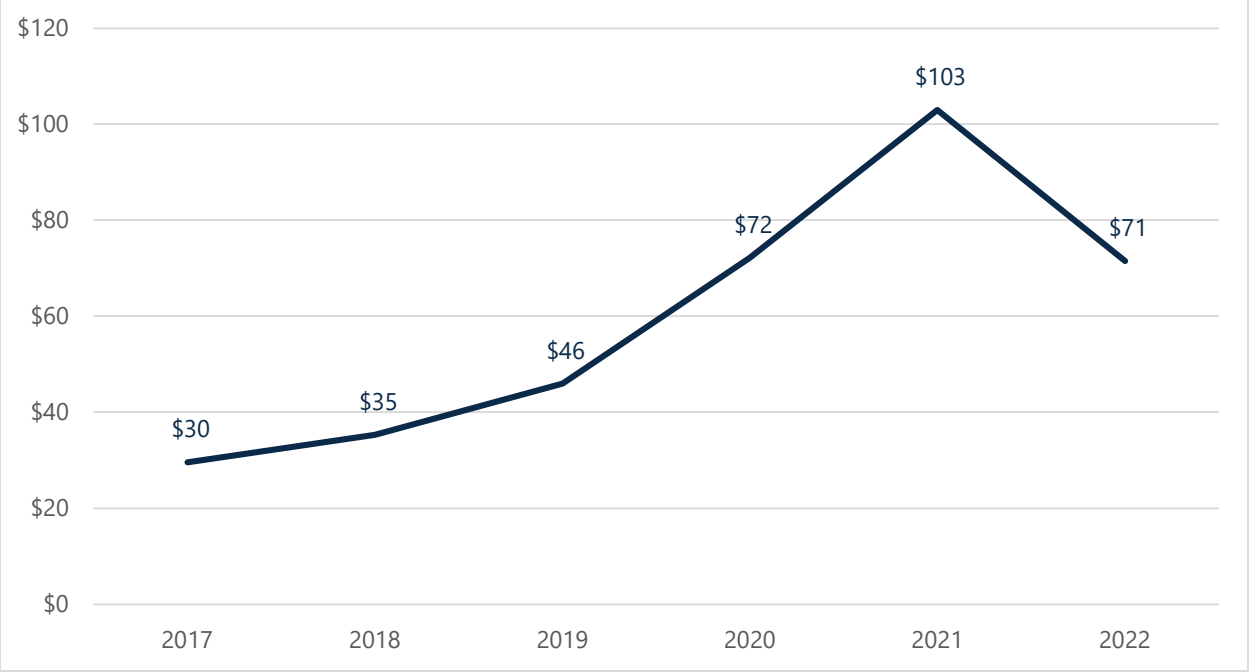
[12] The primary care spending study period is 2018 through 2022. The analysis excludes 2017 due to data limitations in identifying primary care provider taxonomy codes prior to 2018. Taxonomy codes are used to identify a provider's specialty.

B. Urgent Care Spending

1. Per-person Spending

Urgent care centers have become an increasingly prominent component of the health care system, offering accessible and cost-effective services for non-emergent medical issues. In New Jersey, per-person spending for urgent care rose sharply between 2017 and 2021, by 248 percent.[13] Urgent care was one of the few services where spending remained steady – and even grew – in 2020, unlike most health care sectors affected by the COVID-19 pandemic. This is consistent with national trends that show urgent care utilization grew sharply in recent years.[14] Per-person spending peaked in 2021, at $103, and dipped back to 2020 levels in 2022 **(Exhibit IV.5)**.

Exhibit IV.5 Per-person spending on urgent care, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

[13] We identify urgent care visits by restricting to claims where the place of service code on the claim is 20, "Urgent Care Facility". This method only includes urgent care provided in an urgent care facility, and not in settings that use a different place of service code, such as retail clinic or outpatient hospital. Spending for urgent care is not included as part of the primary care spending metric in this report.
[14] FAIR Health. *FH® Healthcare Indicators and FH® Medical Price Index 2024*. FAIR Health, 2024. Available at: https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/FH%20Healthcare%20Indicators%20and%20FH%20Medical%20Price%20Index%202024%20-%20A%20FAIR%20Health%20White%20Paper.pdf.

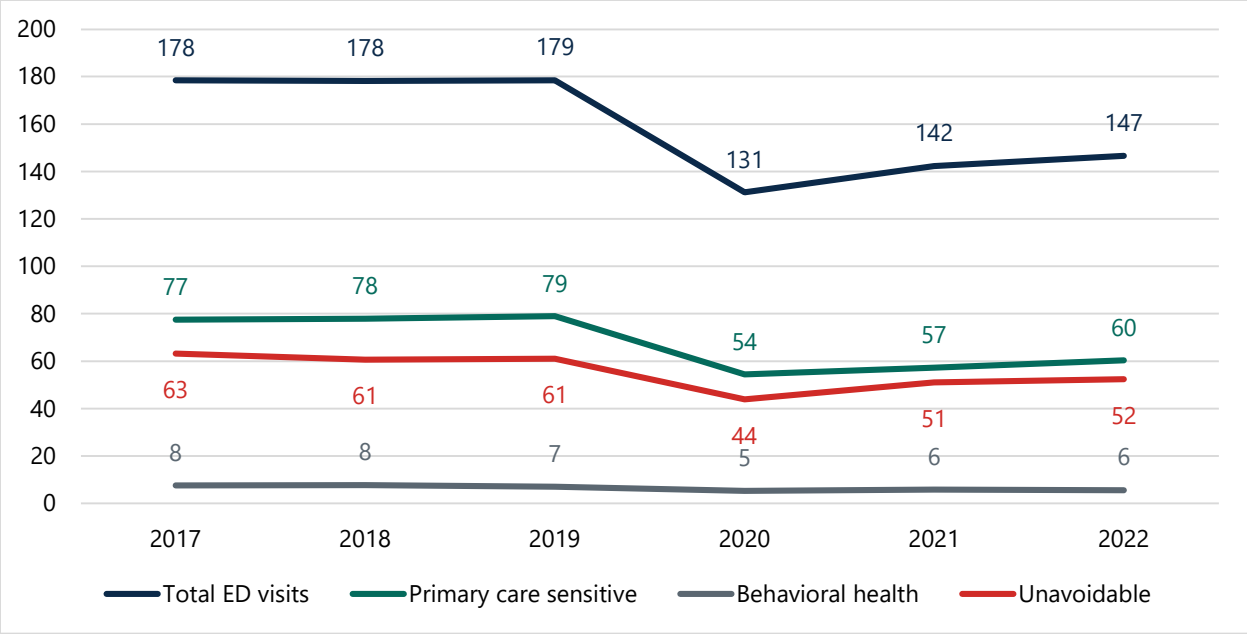
C. Potentially Avoidable Hospital Use

1. Primary Care Sensitive ED Visits

Many preventable ED visits result from conditions that could be managed effectively with timely, high-quality primary care. Strengthening primary care can reduce ED use by improving chronic disease management and access to preventive services.[15] In this analysis, we measured the overall rate of ED visits, and the rate of visits considered avoidable with primary care. We used the New York University (NYU) ED Algorithm, to assign each ED visit a probability of being avoidable. Primary care sensitive ED visits include non-emergent visits that could be treated in a non-ED setting, as well as visits that might have been prevented with timely, appropriate primary care.

The rate of ED visits per 1,000 people in the study population declined during the COVID-19 pandemic and, while the rate increased slightly since 2020, it remained below pre-pandemic levels **(Exhibit IV.6)**. Between 2017 and 2022, all ED visit types declined; however, primary care sensitive visits saw a larger reduction of 22 percent compared to a 17 percent decrease in visits classified as unavoidable. The data suggest that primary care sensitive ED visits are trailing pre-2020 levels and may represent a change in patient behavior to seek alternatives to the ED for non-emergent care in recent years. There is still an opportunity to reduce avoidable ED visits, with 41 percent of ED visits in 2022 classified as primary care sensitive. ED visits for behavioral health remained a small proportion of total ED visits during the study period.

Exhibit IV.6. ED visits per 1,000 people in the study population, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.

Note: See Appendix D for data underlying this figure. A subset of total ED visits are unclassified using the NYU ED algorithm and not included as a data series in this exhibit

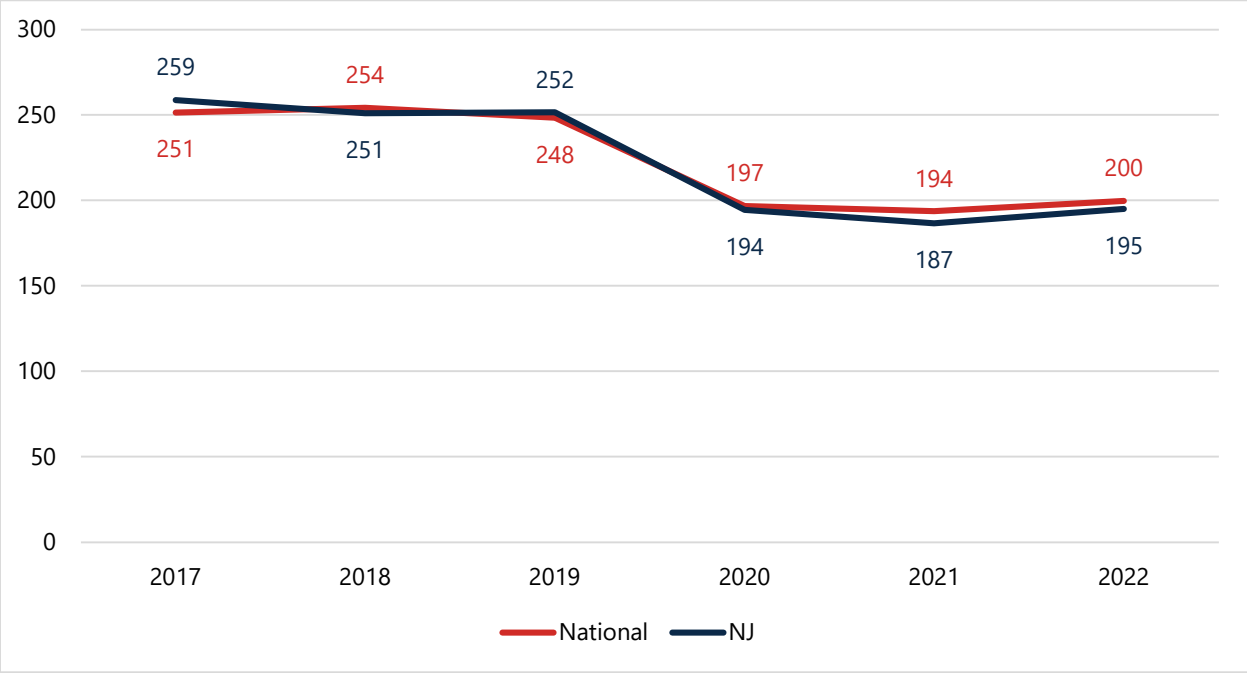
[15] Friedberg MW, Hussey PS, Schneider EC. *Do Patient-Centered Medical Homes Reduce Emergency Department Visits?* Health Serv Res. 2015;50(1):146–161. doi:10.1111/1475-6773.12191. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC4369216/

2. Avoidable Hospitalizations

Like preventable ED visits, timely, high-quality primary care treatment can support management of chronic conditions, which may reduce hospitalizations.[16] In this analysis, we measured the rate of hospitalizations that were potentially preventable with effective outpatient care. We used the Agency for Healthcare Research and Quality's Prevention Quality Overall Composite measure, which calculates the rate of hospitalization for a list of specific ambulatory care sensitive conditions, such as complications from diabetes and asthma. We compared New Jersey's performance to the national rate for a similar population.

Similar to the trend seen with ED utilization, potentially avoidable hospitalizations decreased by 23 percent between 2019 and 2020 in New Jersey and remained at the lower level in subsequent years. New Jersey's rate of potentially avoidable hospitalizations tracked very closely with the national rate over time **(Exhibit IV.7)**. In 2022, there were 200 potentially avoidable hospitalizations per 100,000 people in the national cohort and 195 for New Jersey residents in the study population.

Exhibit IV.7. Rate of potentially avoidable hospitalizations, per 100,000 people in the study population, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

[16] Matsil A, Shenfeld D, Fields C, Yao A, Clair J. *Primary Care Visit Cadence and Hospital Admissions in High-Risk Patients*. Am J Manag Care. 2024;30(6):263-269. doi:10.37765/ajmc.2024.89509. Available at: https://www.ajmc.com/view/primary-care-visit-cadence-and-hospital-admissions-in-high-risk-patients

V. Areas of Focus: Behavioral Health and Medical Pharmacy

Introduction

This section assesses the role of areas of interest in health care spending in New Jersey to better understand and characterize spending patterns over time. First, it covers spending for behavioral health, including substance use disorder and mental health. Understanding behavioral health spending is essential as insurance coverage, access to services, and treatment approaches continue to evolve and create a shifting cost landscape. Second, this section covers spending for medical pharmacy, which includes medications administered in a clinical setting. This area warrants close study as it includes innovative and leading-edge treatments for which policymakers and insurers are still establishing effective coverage and reimbursement strategies. ◢

A. Behavioral Health Spending

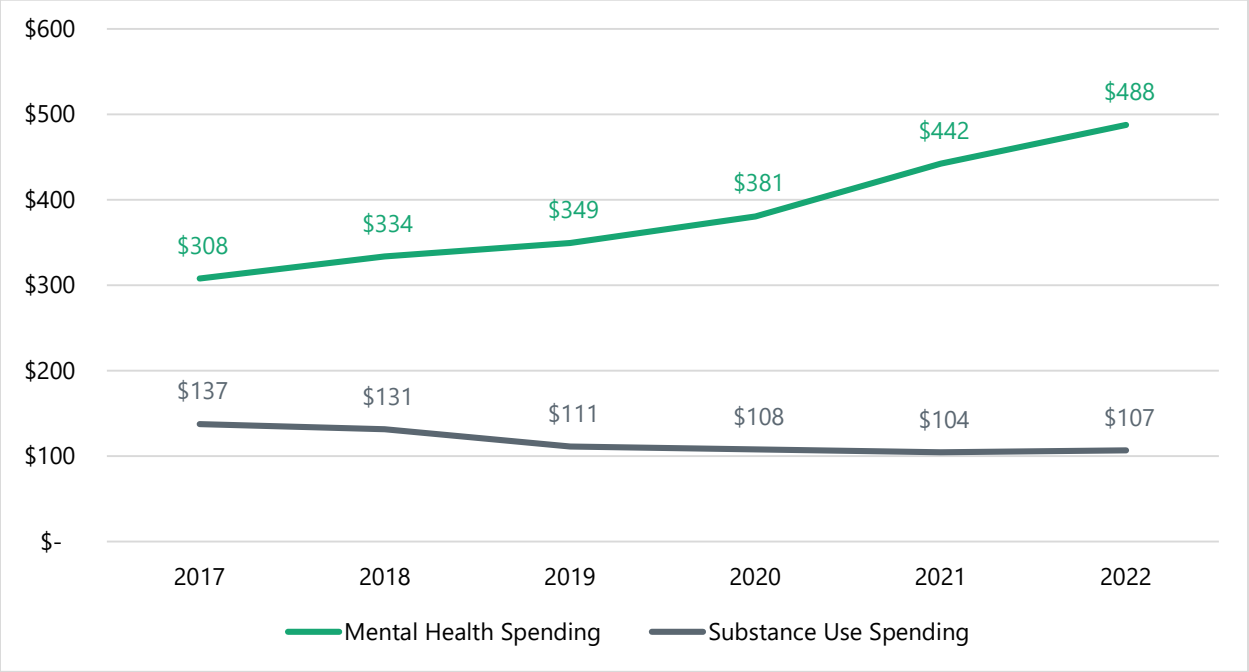
Behavioral health spending – which includes spending for both mental health and substance use disorder – is an important contributor to overall health care cost growth, particularly as access expands and new treatment models emerge. Expanding access to substance use disorder treatment has been a key priority for New Jersey, demonstrated by significant investments to enhance prevention, treatment, and recovery services. In 2024, Governor Phil Murphy announced over $95 million from the Opioid Recovery and Remediation Fund to support these efforts statewide.[17] In addition, New Jersey has launched a range of behavioral health initiatives in recent years, including efforts to integrate primary and behavioral health care, expand trauma-informed services, and promote recovery-oriented models, all aimed at strengthening access and outcomes across the state's mental health system.[18]

[17] Office of the Governor, State of New Jersey. "Governor Murphy Announces $95 Million Investment in Opioid Recovery and Remediation Fund," February 16, 2024. Available at: https://www.nj.gov/governor/news/news/562024/20240216a.shtml

[18] New Jersey Department of Human Services, Division of Mental Health and Addiction Services, *Initiatives*. Available at: https://www.nj.gov/humanservices/dmhas/initiatives/

Our analysis showed that per-person spending on mental health services grew sharply reaching $488 in 2022, an increase of 58 percent over the study period **(Exhibit V.1)**. Spending was going up before the COVID 19 pandemic with a 13 percent increase between 2017 and 2019. That trend accelerated post-pandemic with a 28 percent increase in per-person mental health spending from 2020 to 2022. Per-person spending for services related to substance use disorder declined slightly and then remained stable, with per-person spending at $107 in 2022, down 22 percent from 2017 levels. This section provides a closer look at the distribution of behavioral health spending across care settings.

Exhibit V.1. Per-person spending for mental health and substance use services, 2017–2022

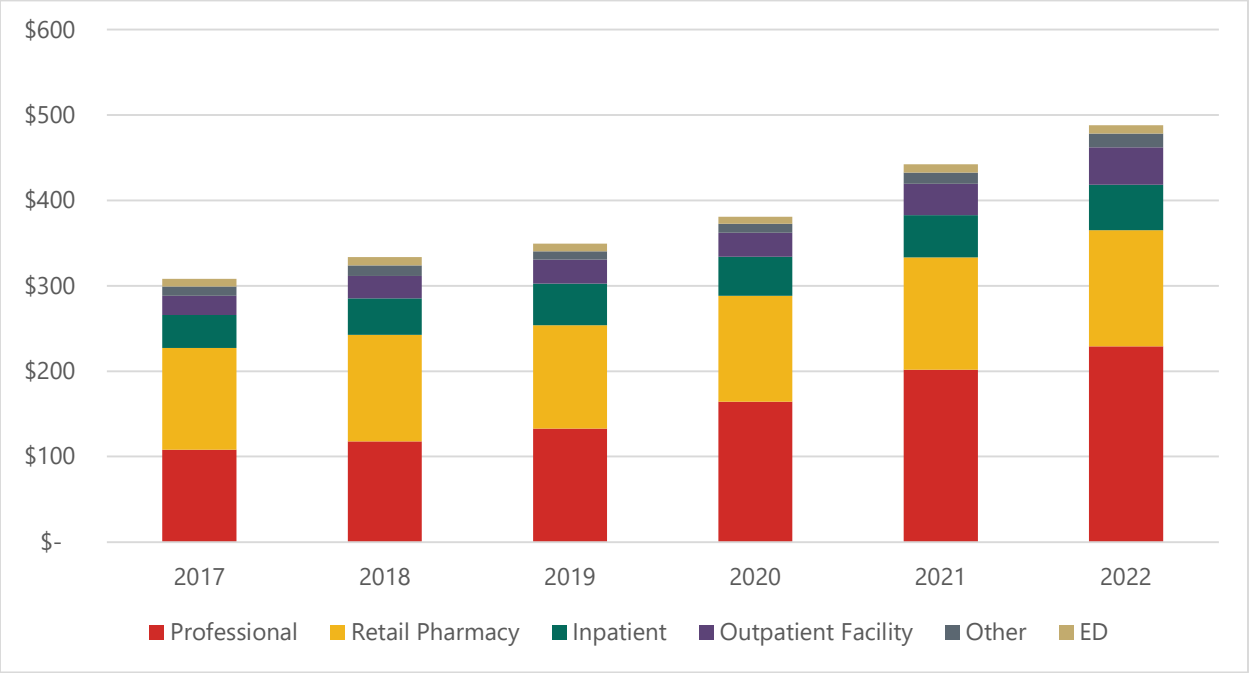


Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

1. Mental Health

To understand what may be driving rising mental health spending, we analyzed trends in per-person spending across different care settings over time. Spending on care in all settings increased over the study period **(Exhibit V.2)**. Spending on professional services increased the most on a percentage basis at 112 percent during the period from 2017 through 2022. This care setting includes visits with mental health therapists, psychiatrists, primary care providers, and other clinicians who evaluate and treat patients for mental health diagnoses. Outpatient facility was the care setting with the second fastest-growing mental health spending, a 96 percent increase over the study period. Professional services and retail pharmacy accounted for most of the spending on mental health diagnoses, together making up 75 percent of total mental health spending in 2022.

Exhibit V.2. Per-person spending for mental health services by care setting, 2017–2022

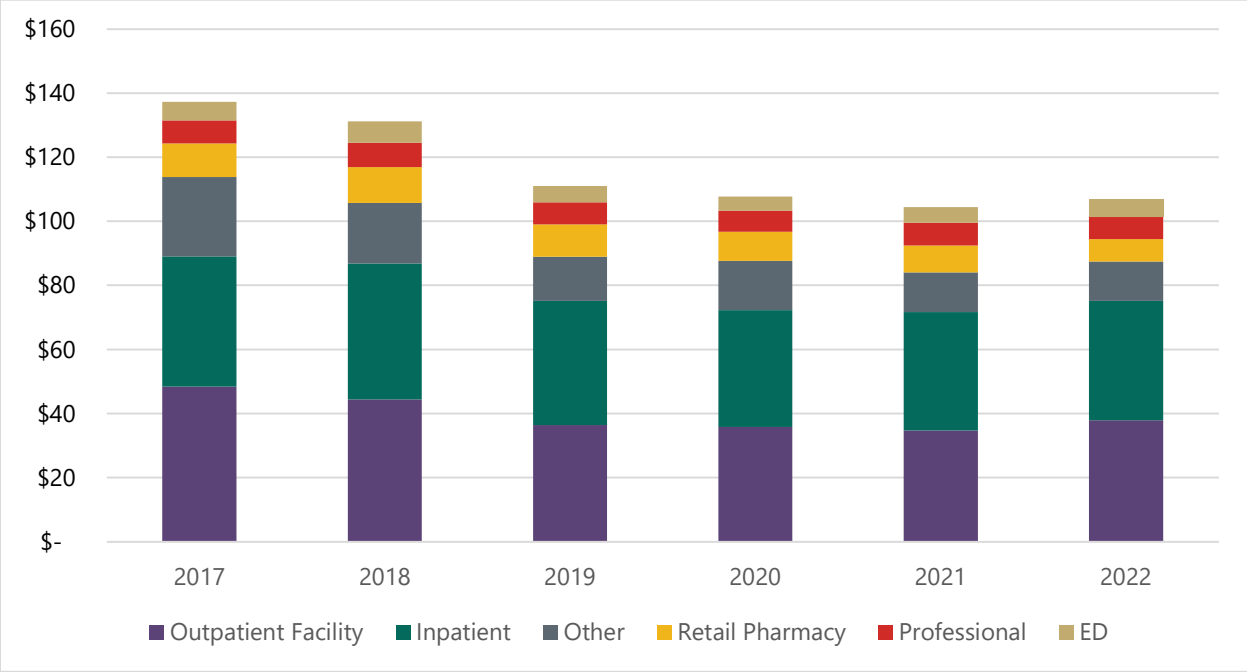


Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

2. Substance Use Disorder

We also reviewed spending for diagnoses related to substance use disorder by care setting. We found that per-person spending decreased across all care settings, with the largest reductions in the other category, with a 50 percent decrease. This category includes services provided by a mobile unit, long term care facility, residential facility, or in some other setting. The second largest decrease was in the retail pharmacy category, with a 33 percent decrease **(Exhibit V.3)**. This category includes spending for medication-assisted treatment options or other drugs used to treat substance use disorder. Most spending related to substance use disorder diagnoses occurred in the inpatient and outpatient facility settings, which made up 70 percent of spending in 2022. Outpatient facility care for substance use disorder includes counseling, medication-assisted therapy, or partial hospitalization programs. Some residential treatment facilities, detoxification services, and hospital stays are included in the inpatient facility setting.

Exhibit V.3. Per-person spending for services related to substance use disorder by care setting, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

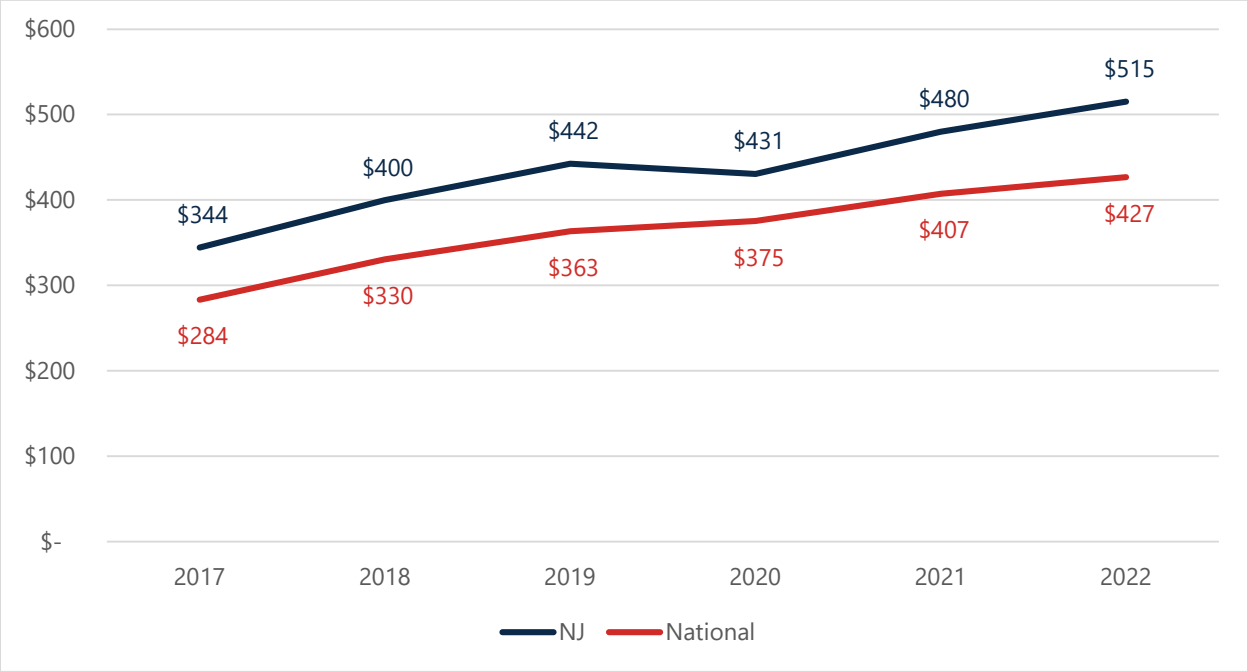
B. Medical Pharmacy

Medical pharmacy refers to prescription drugs that require professional administration, such as intravenous infusions or injections, in clinical settings like physician offices, hospital outpatient departments, or infusion centers. These medications are typically covered by medical insurance rather than pharmacy benefit plans and are used to treat conditions like cancer, autoimmune diseases, and rare genetic disorders. The growing availability of high-cost biologics, rising demand for specialty treatments, and shifting site-of-care trends may contribute to higher expenditures. This section examines per-person spending on medical pharmacy in New Jersey and nationally and provides the ten drugs associated with the highest spending during the study period.

1. Per-Person Spending

Per-person spending for medical pharmacy increased in New Jersey and nationally since 2017. In New Jersey, spending increased by 50 percent between 2017 and 2022, with an average annual growth rate of 8.4 percent. This is similar to national spending, which grew 51 percent during the study period, with an average annual growth rate of 8.5 percent. New Jersey's per-person spending was higher than the national average; in 2022, per-person spending for medical pharmacy in New Jersey was $515, 21 percent higher than nationally, at $427 per person **(Exhibit V.4)**.

Exhibit V.4. Per-person spending for medical pharmacy, 2017–2022



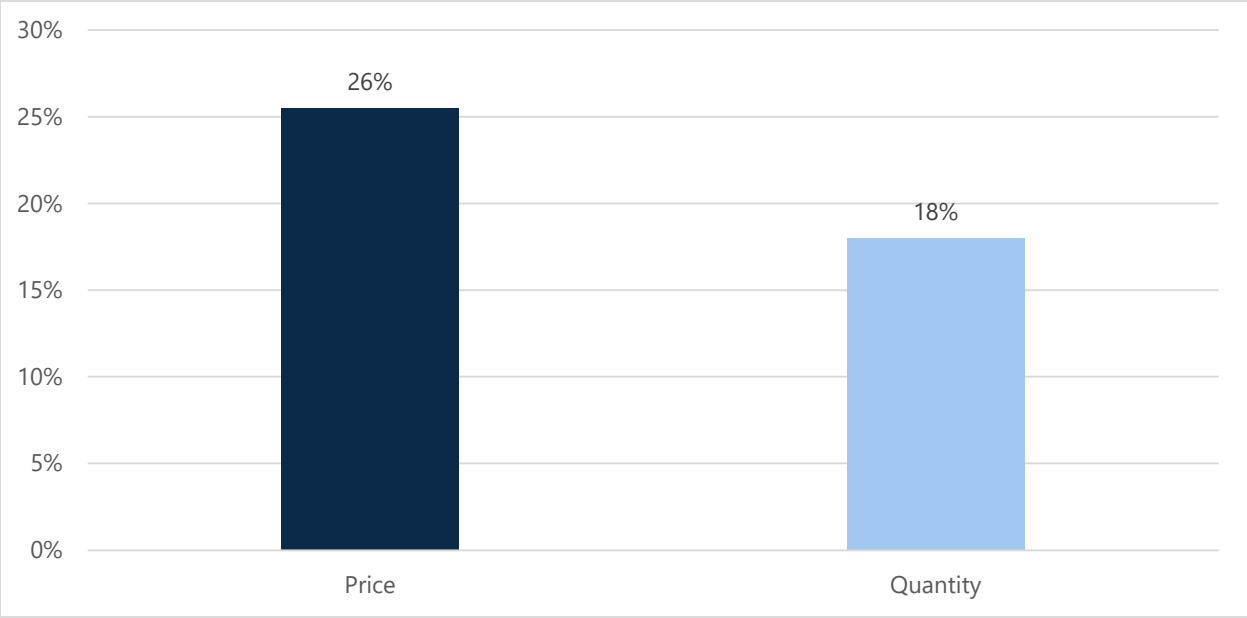
Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

2. Analysis of Quantity and Price

Between 2017 and 2022, the average price of a medical pharmacy encounter increased by 26 percent **(Exhibit V.5)**. This could be the result of both increases in the price of individual drugs or changes in the mix of drugs, where more expensive drugs are used relatively more frequently over time.[19] The number of encounters where a patient received a medical pharmacy drug increased by 18 percent. This simultaneous growth in both price and utilization suggests rising demand and expanded use of medical pharmacy treatments over the period. Looking year-by-year, the price per encounter increased every year except between 2020 and 2021. Per-person quantity also increased every year, except for between 2019 and 2020 due to reduced utilization during the COVID-19 pandemic **(Exhibit V.6)**.

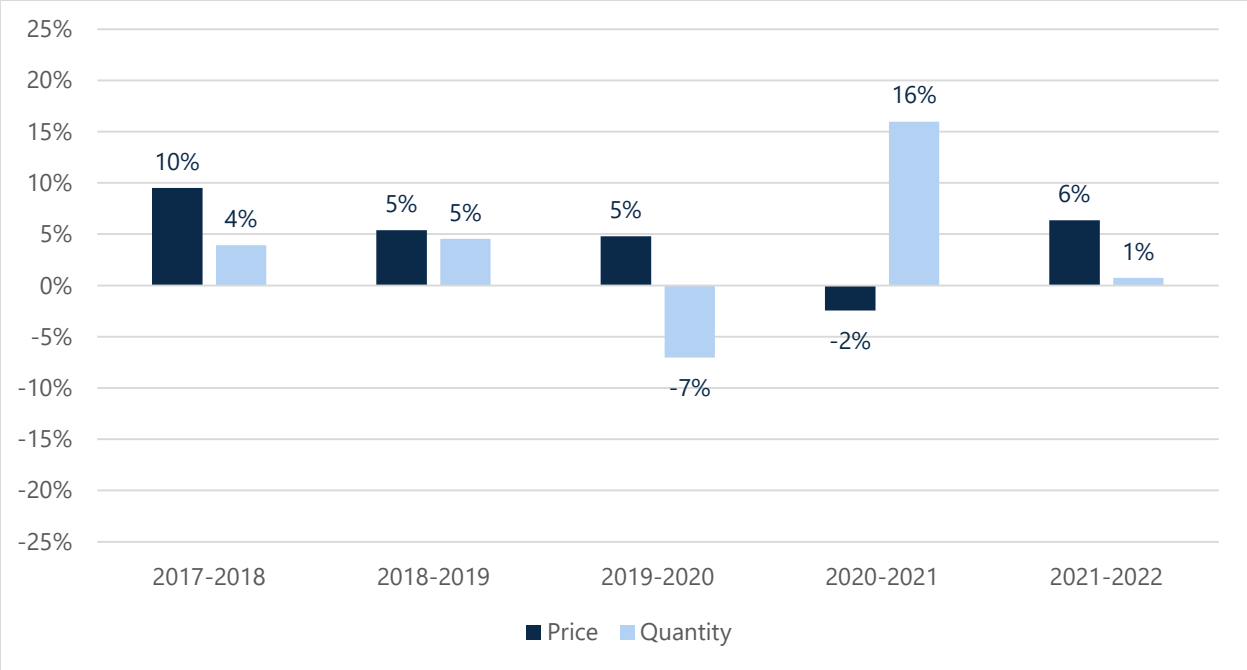
[19] This analysis reviews the average price per encounter where a qualifying drug is administered. This includes the amount spent to administer the drug and other services or drugs provided during the same encounter.

Exhibit V.5. Total percentage change in price and per-person quantity for medical pharmacy, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

Exhibit V.6. Annual percentage change in price and per-person quantity for medical pharmacy, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

3. Top Medical Pharmacy Drugs

Exhibit V.7 lists the medical pharmacy drugs associated with the most spending in New Jersey during the study period. As noted in the Drug Use column, these medications usually treat serious health conditions such as cancer, multiple sclerosis, and autoimmune diseases. Many of these therapies, particularly those used for cancer treatment, are administered over a limited course of care rather than as ongoing maintenance, meaning spending is concentrated within short treatment episodes. The landscape for medical pharmacy is evolving, driven by new drug approvals and shifting regulatory and reimbursement policies. Continued monitoring is important, as changes in treatment options or payment structures may significantly affect future spending trends. The table shows the average annual spending per drug, the average annual number of users, and the spend per user per year.

Exhibit V.7. Top 10 drugs by spend for medical pharmacy, 2017–2022

Drug Name (Brand Name)	Drug Use	Average annual spending	Average annual number of users	Spend per user per year
Infliximab (Remicade)	Treats autoimmune diseases	$44,218,224	1,419	$31,162
Ocrelizumab (Ocrevus)	Treats multiple sclerosis	$36,800,565	439	$83,924
Pegfilgrastim (Neulasta)	Treats neutropenia caused by chemotherapy	$27,248,433	1,026	$26,567
Pembrolizumab (Keytruda)	Immunotherapy for cancer	$25,193,478	232	$108,437
Vedolizumab (Entyvio)	Treats autoimmune diseases	$23,964,223	593	$40,446
Rituximab (Rituxan)	Immunotherapy for cancer or autoimmune diseases	$22,696,043	526	$43,121
Trastuzumab (Herceptin)	Immunotherapy for cancer	$21,694,947	308	$70,514
Pertuzumab (Perjeta)	Immunotherapy for cancer	$18,513,366	249	$74,351
Nivolumab (Opdivo)	Immunotherapy for cancer	$16,018,129	164	$97,672
Immune Globulin (Gamunex-C/Gammaked)	Treats immunodeficiency	$15,542,752	290	$53,627

Source: Mathematica analysis of HCCI claims, 2017–2022.

VI. Geographic Variation and Outmigration in Health Care Spending

Introduction

While statewide trends in health care spending growth are important for informing policy, understanding variation across regions can offer more targeted insights. This section examines per-person spending growth and levels across New Jersey's eight hospital market areas (HMAs), and also explores outmigration trends, including the extent to which residents seek inpatient or behavioral health care outside the state.[20]

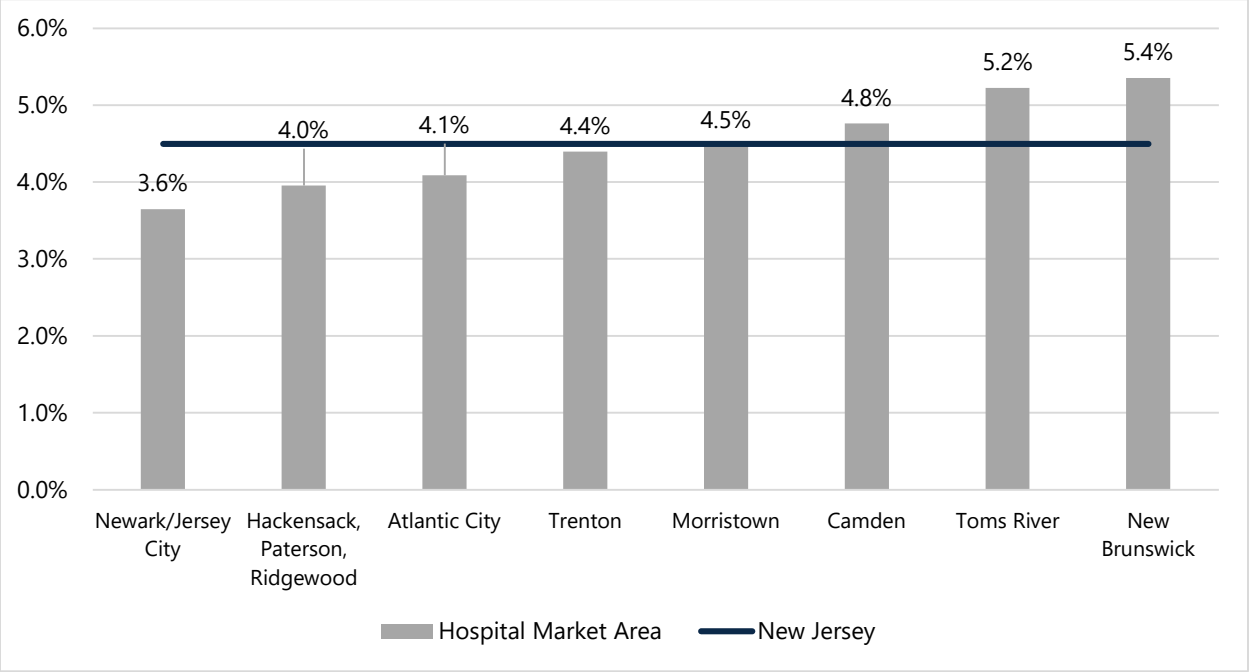
New Jersey Hospital Market Areas

[20] HMAs reflect markets and referral patterns for specialized hospital care. They were developed by the New Jersey Commission on Rationalizing Health Care Resources as a modified version of Hospital Referral Regions from the Dartmouth Atlas. For more information, see Appendix 2 of the Commission's Final Report, available at https://www.nj.gov/health/rhc/documents/entire_finalreport.pdf.

A. Spending Trends by Hospital Market Area

From 2017 to 2022, the rate of increase of per-person total health care spending for New Jersey residents with ESI varied by geographic area, with a high of 5.4 percent in the New Brunswick HMA and a low of 3.6 percent in the Newark/Jersey City HMA **(Exhibit VI.1).** In addition to New Brunswick, Camden and Toms River had an average rate of spending growth higher than the state average of 4.5 percent. Toms River also had the highest level of per-person spending in 2022, at $9,220. Newark/Jersey City had the lowest level of per-person spending, at $7,817 **(Exhibit VI.2)**.

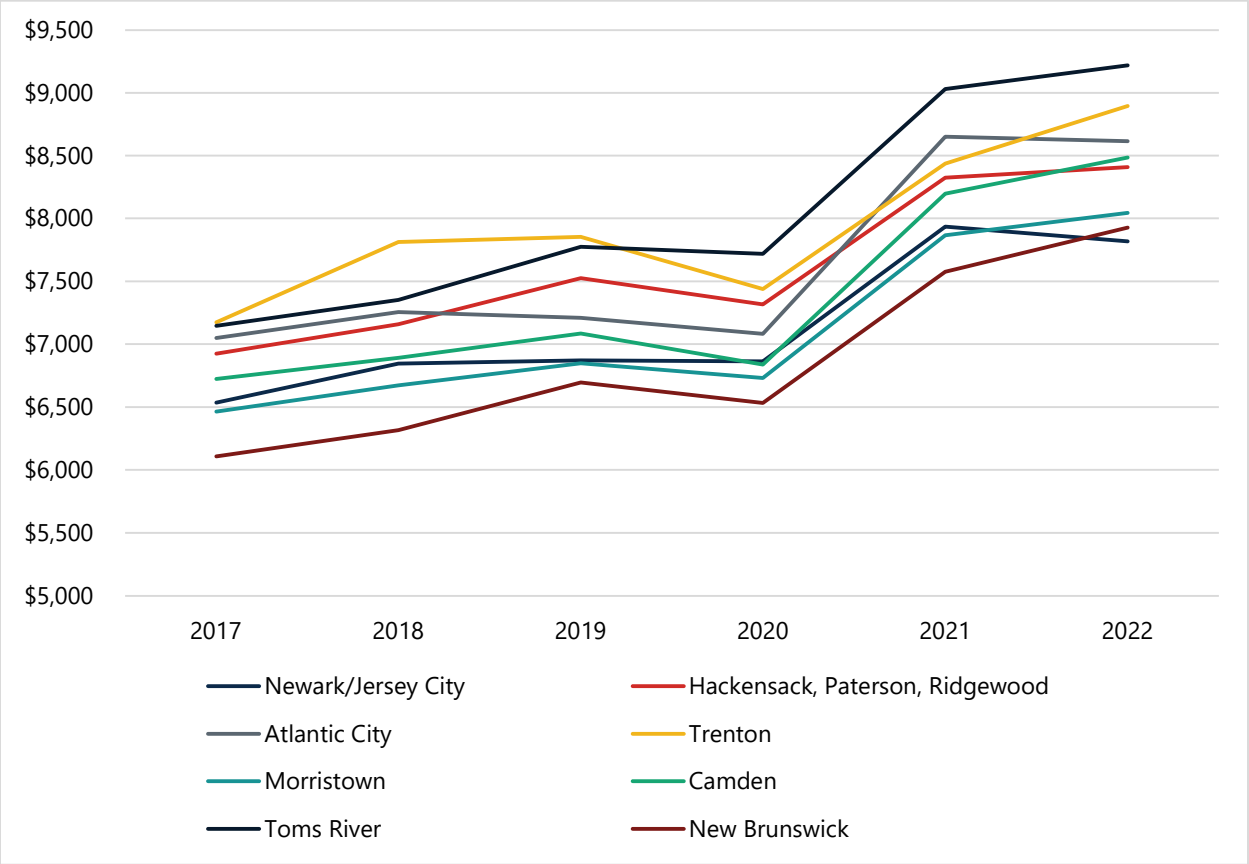
Exhibit VI.1. Average annual per-person spending growth rate overall by HMA, 2017–2022



Source: Mathematica analysis of HCCI claims, 2017-2022.

Note: See Appendix D for data underlying this figure.

Exhibit VI.2. Annual total health care spending per person by Hospital Market Area, 2017–2022



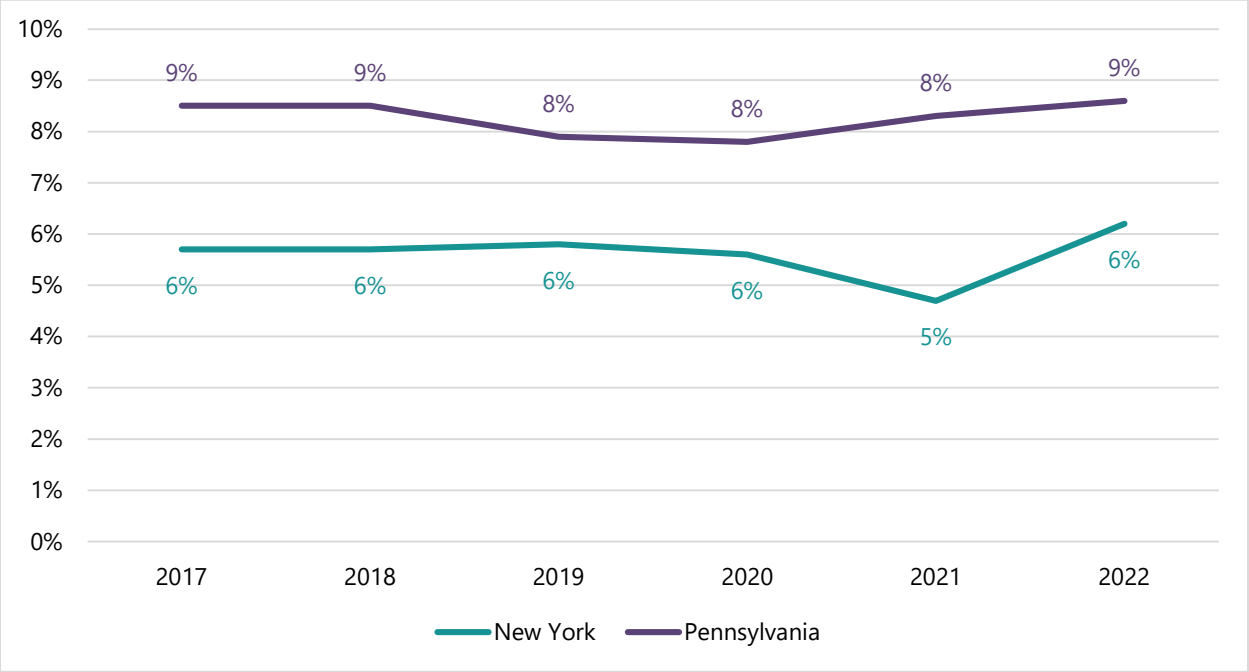
Source: Mathematica analysis of HCCI claims, 2017-2022.
Note: See Appendix D for data underlying this figure.

B. Outmigration

1. Outmigration for Inpatient Care

For New Jersey residents, a small proportion of hospitalizations took place at out-of-state hospitals. The percent of hospitalizations occurring in Pennsylvania remained at 8 to 9 percent since 2017. Around 6 percent of hospitalizations were in New York, with a dip in 2021 to 5 percent. (**Exhibit VI.3**).

Exhibit VI.3. Percentage of inpatient stays for NJ residents that occurred in NY and PA, 2017-2022



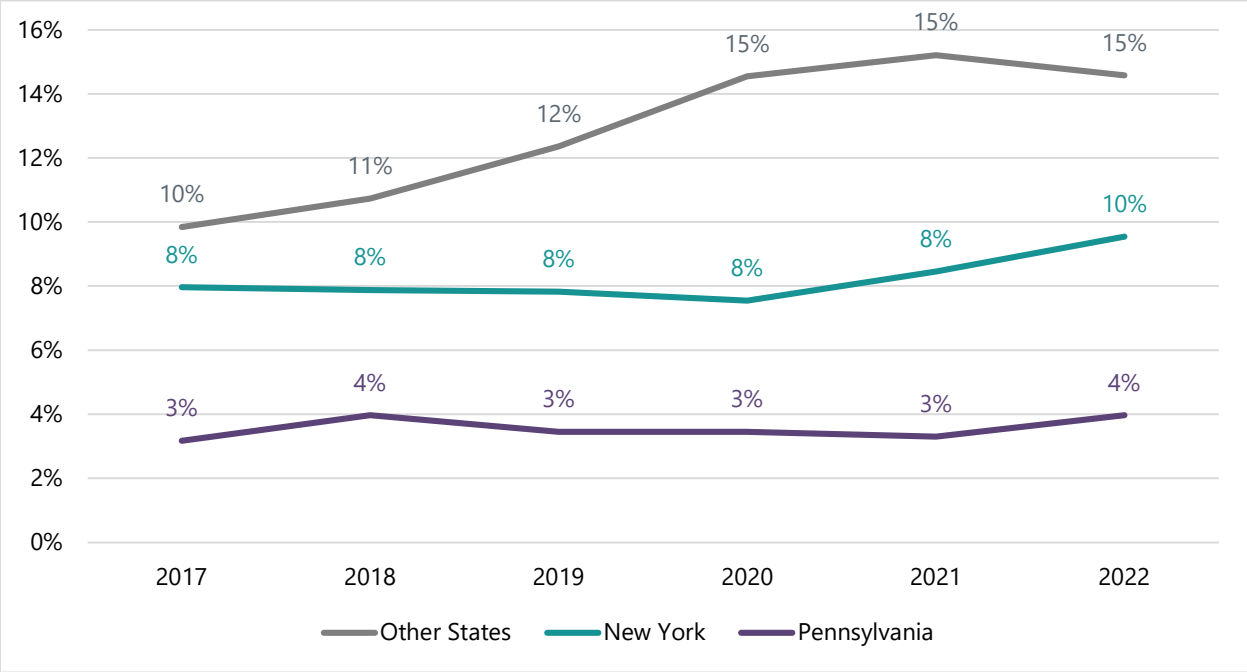
Source: Mathematica analysis of HCCI claims, 2017-2022.

Note: See Appendix D for data underlying this figure.

2. Outmigration for Mental Health Services

During the study period, the share of mental health spending for services from clinicians or facilities based outside of New Jersey rose from 21 percent to 29 percent. In 2022, 10 percent of mental health spending occurred with providers based in New York, 4 percent with providers based in Pennsylvania, and 15 percent occurring in other states **(Exhibit VI.4)**. The data include mental health care provided via telehealth which may contribute to the growth in out-of-state care. Patients can receive services from providers located outside of New Jersey, but those providers must be fully licensed in New Jersey.

Exhibit VI.4. Percentage of spending occurring with out-of-state providers for mental health diagnoses, 2017-2022

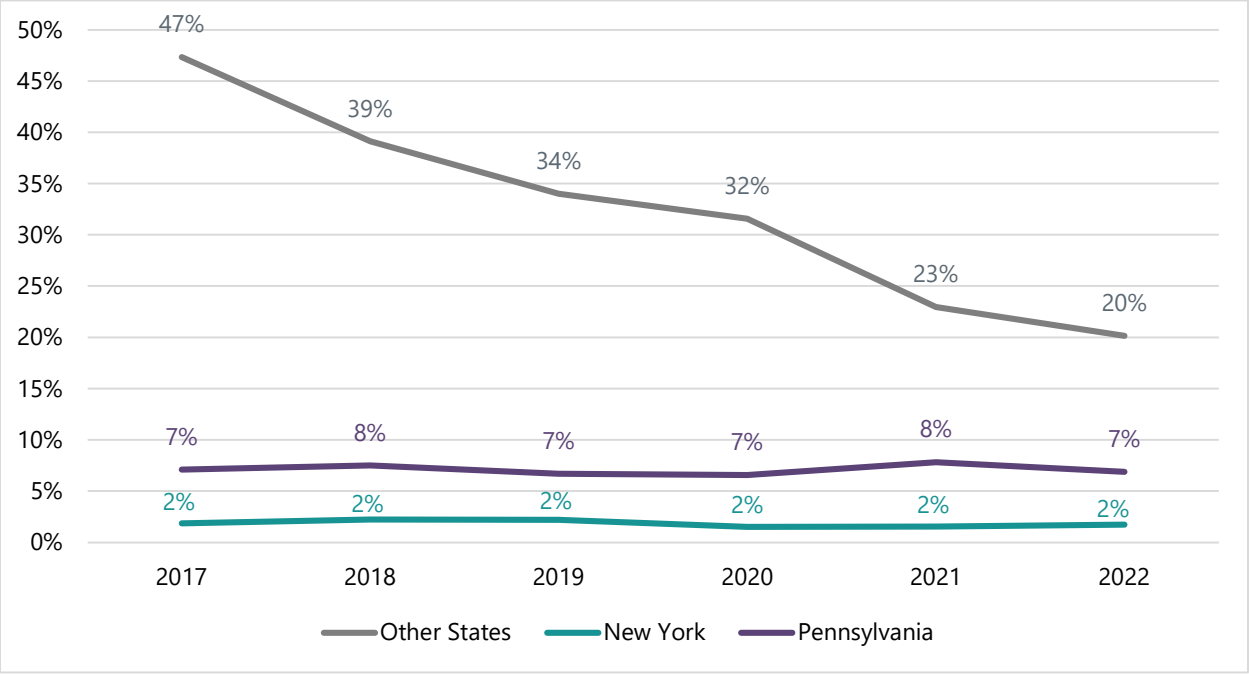


Source: Mathematica analysis of HCCI claims, 2017–2022.
Note: See Appendix D for data underlying this figure.

3. Outmigration for Services Related to Substance Use Disorder

In contrast to mental health services, the share of spending for substance use related diagnoses directed to out-of-state providers declined from 56 percent to 29 percent from 2017 to 2022 **(Exhibit VI.5)**. Spending for care provided by clinicians or facilities in Pennsylvania and New York remained consistent, while the proportion of care provided in other states decreased from 47 percent to 20 percent. This trend indicates a notable shift in the location of the facility or clinician that is providing services related to substance use disorder to New Jerseyans, with care concentrating more within the state.

Exhibit VI.5. Percentage of spending occurring with out-of-state providers for substance use diagnoses, 2017-2022



Source: Mathematica analysis of HCCI claims, 2017–2022.

Note: See Appendix D for data underlying this figure.

Appendix A

List of Acronyms and Definitions

Acronyms

CMS Centers for Medicare & Medicaid

ED Emergency Department

ESI Employer-Sponsored Insurance

HART New Jersey Health Care Affordability, Responsibility, and Transparency

HCCI Health Care Cost Institute

HMA Hospital Market Area

OOP Out-of-pocket

Definitions

Chapter I

- Total spending. Total payments to providers from both commercial carriers and patients. Calculated using the allowed amounts recorded on claims.
- Out-of-pocket spending. Total payments to providers from patients. Includes deductibles, coinsurance, and copayments as recorded on claims.
- Average annual growth rate. The compound annual growth rate (CAGR); if spending had grown steadily at this annual rate of growth for the entire multi-year period, then we would achieve the level of spending observed in the final year.
- Employer-sponsored insurance (ESI). Health insurance provided by an employer to its employees as part of their benefits package.

Chapter II

- Inpatient facility services. Hospital-based inpatient care and ED spending immediately prior to an inpatient admission.
- Outpatient facility services. Services provided in clinic settings including ED services. This category includes outpatient procedures, imaging, facility fees associated with clinician visits, and drugs administered at an outpatient facility.
- Professional services. Services provided by independent and hospital-affiliated clinicians.
- Retail pharmacy. Retail drugs obtained at a pharmacy.

Chapter III

- Quantity of service. The number of patient care encounters in a category of service.
  - For the inpatient facility category, an encounter is defined as an inpatient discharge.
  - For the outpatient facility category and the professional services category, an encounter is defined as a visit for care or treatment of health issue with a single provider on a single day.
  - For the retail pharmacy category, an encounter is a day's supply of a single drug.

- Price of service. The average spending per encounter within a category of service; both changes in the prices of specific services and changes in the mix of specific services within the category can affect this measure.

Chapter VI

- Primary care. The first point of contact in the health care system, focusing on comprehensive, continuous, and preventive care.
- Urgent care. Care provided in an urgent care center for conditions that need prompt attention.
- Primary care sensitive ED visits. ED visits that could be treated in another setting or avoided with timely and appropriate primary care.
- Potentially avoidable hospitalizations. Hospital admissions that effective outpatient care could potentially prevent, such as admissions for complications from diabetes or asthma.

Chapter V

- Behavioral health spending. Health care spending to pay for the evaluation, management, and/or treatment of diagnoses related to mental health or substance use.
- Medical pharmacy. Prescription drugs that require professional administration – such as intravenous infusions or injections – in clinical settings like physician offices or outpatient departments. These medications are typically covered by medical insurance and used to treat serious or chronic conditions.

Chapter VI

- Hospital market area (HMA). Areas that reflect health care markets and referral patterns for specialized hospital care in New Jersey. Mutually exclusive and collectively exhaustive.
- Outmigration. Outmigration is when a New Jersey resident seeks care outside the state.

Appendix B

Sample Overview

This appendix shows the demographic characteristics of the study population – adult residents of NJ with ESI from a carrier that submits data to HCCI **(Exhibit B.1)**. For data points specific to spending for retail pharmacy **(Exhibits II.1, II.2, II.3, III.1, III.5, V.2, V.3)**, the study population includes only beneficiaries with full benefit ESI, meaning the person has both medical and pharmacy coverage with a carrier that submits data to HCCI **(Exhibit B.2)**.

Note: The 2024 report included only members with both medical and pharmacy claims data in HCCI **(Exhibit B.2)**. In this 2025 report, this restriction was removed for most analyses which resulted in an expanded study population.

Exhibit B.1. Overview of the study population, adult NJ residents with ESI and medical claims in HCCI

Demographic Type	Demographic	2017	2018	2019	2020	2021	2022
	Unique Members	1,626,915	1,610,835	1,832,951	1,793,586	1,598,909	1,429,308
Gender	% Female	51%	51%	52%	52%	52%	52%
	% Male	49%	49%	48%	48%	48%	48%
Age	% Age 18 - 24	15%	15%	15%	15%	15%	15%
	% Age 25 - 34	19%	20%	20%	20%	20%	21%
	% Age 35 - 44	20%	20%	20%	20%	21%	21%
	% Age 45 - 55	24%	23%	22%	22%	22%	21%
	% Age 55 - 64	22%	22%	23%	23%	22%	22%
Product Type	% HMO or Exclusive Provider Organization	27%	26%	24%	22%	24%	24%
	% PPO	27%	27%	30%	32%	33%	35%
	% Indemnity	0.2%	0.2%	0.5%	1%	1%	1%
	% Point of Service	45%	47%	46%	45%	42%	39%

Exhibit B.2. Overview of the study population, adult NJ residents with ESI and both medical and pharmacy claims in HCCI

Demographic Type	Demographic	2017	2018	2019	2020	2021	2022
	Unique Members	940,744	903,027	882,040	868,987	846,168	765,777
Gender	% Female	51%	51%	51%	52%	52%	51%
	% Male	49%	49%	49%	48%	48%	49%
Age	% Age 18 – 24	14%	14%	14%	15%	15%	14%
	% Age 25 – 34	20%	21%	21%	21%	21%	22%
	% Age 35 – 44	20%	20%	20%	21%	21%	21%
	% Age 45 – 55	23%	23%	22%	22%	21%	21%
	% Age 55 – 64	22%	22%	22%	22%	22%	21%
Product Type	% HMO or Exclusive Provider Organization	39%	38%	39%	39%	36%	36%
	% PPO	30%	29%	29%	29%	30%	30%
	% Indemnity	0.1%	0.1%	0.4%	0.2%	0.2%	0.1%
	% Point of Service	31%	32%	31%	30%	33%	34%

Appendix C

Methods

This appendix presents methods and is organized according to the chapters of the report.

C1.Chapter I. Spending Trends

We sum up the allowed amount field by year in each claims file (inpatient facility, outpatient facility, professional, and retail pharmacy) to calculate total spending. We also add up the deductible, coinsurance, and copay fields by year in each claims file to calculate out-of-pocket spending.

Average Annual Spending Growth Rates

We calculate average annual spending growth rates using the compound annual growth (CAGR) formula. To calculate this growth rate, we use spending from the beginning and end of our study period. This corresponds to spending in 2017 and 2022 respectively. We use the following formula. In this context t is the number of years over which we are calculating the growth in spending which is 5.

$$Growth\ Rate = \left(\frac{Spending_{2022}}{Spending_{2017}}\right)^{1/5} - 1$$

We report the average annual growth rate in spending for overall spending, and for each service category: inpatient facility, outpatient facility, professional, and retail pharmacy.

C2.Chapter II: Spending Trends by Service Category

There are four different service categories: (1) inpatient facility (2) outpatient facility (3) professional (4) retail pharmacy. Inpatient facility includes all hospital-based inpatient care and ED spending immediately prior to an inpatient admission. Outpatient facility includes all services provided in clinic settings including ED visits that do not result in an admission. Professional services are claims for services provided by independent and hospital-affiliated clinicians in both inpatient and outpatient settings. Finally, retail pharmacy refers to retail drugs obtained at a pharmacy. We calculated per-person spending separately for each service category and year.

C3.Chapter III: Drivers of Spending: Quantity and Price

Measuring Quantity and Price

We measure quantity by counting units within each service category.[21] For each service category described below we calculate the total number of units and the total spending each year. We divide total spending by the number of units to calculate the average spending per unit in the year which is a proxy for price.

Inpatient Facility

The unit for inpatient facility is an admission. We define an admission by leveraging a unique identifier in the inpatient facility data that groups together all claims for a specific admission. We sum together the allowed amount field to calculate total spending, and the spending on the deductible, coinsurance, and copay fields to calculate out-of-pocket spending. We drop all admissions where total spending is $0 as these indicate cancelled claims.

[21] In this more technical appendix, we use the term "units," although the main text uses the term "encounters."

Outpatient Facility

The unit for outpatient facility is a visit. We group together all claims in the outpatient facility file that have the same (a) Patient ID (b) Date (c) Provider ID. A visit is a unique combination of these three variables. We sum together the allowed amount field to calculate total spending, and the spending on the deductible, coinsurance, and copay fields to calculate out-of-pocket spending. We drop all visits where total spending is $0 as these indicate cancelled claims.

Outpatient facility services is a broad category of different types of visits. For the purpose of analyzing the number of encounters per person and the average price of an encounter, this report limits the category of outpatient encounters to three types of encounters that make up the largest share of spending: (1) visits to an outpatient facility for surgery, (2) visits to a hospital ED, and (3) visits to an outpatient facility for radiation or chemotherapy treatment.

To assign the outpatient facility category, if an encounter has multiple revenue codes, we assign it to the category that is highest in the below hierarchy **(Exhibit C.1)**. As an example, if an outpatient facility visit includes revenue codes for Emergency Department and Imaging then we will classify that visit under the Emergency Department category.

Exhibit C.1. Revenue codes used for creating outpatient service categories

Hierarchy	Outpatient Facility Category	Revenue Codes
1	Emergency Department	0450 – 0459, 0762
2	Surgery	0360 – 0369, 0490 - 0499
3	Ambulance	0540, 0542, 0543, 0545, 0549
4	Behavioral Health	0900 – 0907, 0911 – 0919, 1001 - 1003
5	Dialysis	0820 – 0822, 0824, 0825, 0829, 0831, 0841, 0845, 0851, 0853, 0855, 0881
6	Radiation & Chemotherapy	0330 – 0333, 0335, 0339
7	Hospice	0650 – 0652, 0655 – 0658, 0690 - 0691
8	Home Health	0023, 0560, 0561, 0569 – 0572, 0580 – 0582, 0589, 0601, 0640, 0649
9	Skilled Nursing Facility	0022, 0550 – 0552, 0559
10	Physical Therapy	0420 – 0424, 0429
11	Occupation Therapy	0430 – 0434, 0439 – 0444, 0449
12	Clinic	0510 – 0529
13	Laboratory	0300 – 0312, 0314, 0319
14	Imaging	0320 – 0324, 0329, 0340, 0341, 0350 – 0352, 0359, 0400 – 0404, 0409, 0610 – 0612, 0614 – 0616, 0618, 0619, 0921
15	Telemedicine	0780

Professional

The unit for professional is a visit. As with the outpatient facility we group together all claims in the professional file that have the same (a) Patient ID (b) Date (c) Provider ID. A visit is a unique combination of these three variables. We sum together the allowed amount field to calculate total spending, and the spending on the deductible, coinsurance, and copay fields to calculate out-of-pocket spending. We drop all visits where total spending is $0 as these indicate cancelled claims.

Like outpatient facility services, professional services are a broad and diverse category of services. To analyze the number of encounters per person and the average price of an encounter, we limited the professional services category to professional encounters in practitioner offices, outpatient hospitals, and inpatient hospitals as these settings make up the largest share of professional spending. The place of service codes in **Exhibit C.2** are used to identify the setting.

Exhibit C.2. Place of service codes used to measure quantity and price

Professional Category	Place of Service Code
Office	11
Inpatient Hospital	21
On-Campus Outpatient Hospital	22

Retail Pharmacy

The unit for retail pharmacy is a prescription drug day supply. Each retail pharmacy prescription is for a specific number of days (for example 14 days, 28 days, 30 days, 60 days). To standardize the spending per unit we calculate it for a single day supply. We sum together the allowed amount field to calculate total spending, and the spending on the deductible, coinsurance/copay[22] fields to calculate out-of-pocket spending. We drop all visits where total spending is $0 as these indicate cancelled claims.

Identifying the Role of Quantity and Price in Spending Growth

In the two-factor decomposition section we calculate the year-over-year change in number of units and in spending per unit. This allows us to decompose the change in spending into these two factors. In section C2 we outlined how we calculated the number of units and the spending per unit for each service category. We simply calculate the percentage change in number of units and spending per unit from one year to the next. We can then relate the percentage change in spending (total effect) to the percentage change in the number of units (quantity effect) and spending per unit (price effect) as follows:

$$1 + \text{total effect} = (1+\text{quantity effect}) * (1+\text{price effect})$$

C4.Chapter IV: Primary Care and Measures of Avoidable Hospital Use

Identifying primary care claims

We identify primary care visits in the professional files by flagging three sets of codes: (1) provider specialty (2) place of service (3) primary care procedure codes. If a visit meets criteria for all code types, then we classify it as being a primary care visit. All codes used are listed in **Exhibits C.3 and C.4** below. For outpatient facility, we identify primary care visits by flagging all claims with primary care procedure codes **(Exhibit C.4)**, except for those that occur in an emergency room (POS code 23). Once we have identified all primary care visits, we use the same rules as above to count the number of units and sum up the allowed amount field to calculate the total spending.

[22] Unlike the inpatient facility, outpatient facility, and professional visit files, the retail pharmacy files contain a single variable that sum up coinsurance and copay amounts.

Exhibit C.3. Primary care visit codes

Field	Description	Code
Provider Category	Family Practice	0026
	Internal Medicine	0046
	Preventive Medicine	0079
	Physician Assistant	0111
	Geriatric Medicine	0031
	Pediatrics	0070
	Registered Nurse Practitioner	0088
Place of Service	Telehealth	02
	School	03
	Indian Health Service – Free-Standing Facility	05
	Indian Health Service – Provider-Based Facility	06
	Tribal 638 Free-Standing Facility	07
	Tribal 638 Provider-Based Facility	08
	Office	11
	On Campus Outpatient Hospital	22
	Independent Clinic	49
	Federally Qualified Health Center	50
	Inpatient Psychiatric Facility	51
	State or Local Public Health Clinic	71
	Rural Health Clinic	72

Exhibit C.4. Primary care procedure codes

Procedure Code	Description	Reporting Procedure Category
99201	OFFICE OUTPATIENT NEW 10 MINUTES	Office Visits
99202	OFFICE OUTPATIENT NEW 20 MINUTES	Office Visits
99203	OFFICE OUTPATIENT NEW 30 MINUTES	Office Visits
99204	OFFICE OUTPATIENT NEW 45 MINUTES	Office Visits
99205	OFFICE OUTPATIENT NEW 60 MINUTES	Office Visits
99211	OFFICE OUTPATIENT VISIT 5 MINUTES	Office Visits
99212	OFFICE OUTPATIENT VISIT 10 MINUTES	Office Visits
99213	OFFICE OUTPATIENT VISIT 15 MINUTES	Office Visits
99214	OFFICE OUTPATIENT VISIT 25 MINUTES	Office Visits
99215	OFFICE OUTPATIENT VISIT 40 MINUTES	Office Visits
99381	INITIAL PREVENTIVE MEDICINE NEW PATIENT <1YEAR	Preventive Medicine Visits
99382	INITIAL PREVENTIVE MEDICINE NEW PT AGE 1-4 YRS	Preventive Medicine Visits
99383	INITIAL PREVENTIVE MEDICINE NEW PT AGE 5-11 YRS	Preventive Medicine Visits
99384	INITIAL PREVENTIVE MEDICINE NEW PT AGE 12-17 YR	Preventive Medicine Visits
99385	INITIAL PREVENTIVE MEDICINE NEW PT AGE 18-39YRS	Preventive Medicine Visits
99386	INITIAL PREVENTIVE MEDICINE NEW PATIENT 40-64YRS	Preventive Medicine Visits
99387	INITIAL PREVENTIVE MEDICINE NEW PATIENT 65YRS&>	Preventive Medicine Visits

Procedure Code	Description	Reporting Procedure Category
99391	PERIODIC PREVENTIVE MED ESTABLISHED PATIENT <1Y	Preventive Medicine Visits
99392	PERIODIC PREVENTIVE MED EST PATIENT 1-4YRS	Preventive Medicine Visits
99393	PERIODIC PREVENTIVE MED EST PATIENT 5-11YRS	Preventive Medicine Visits
99394	PERIODIC PREVENTIVE MED EST PATIENT 12-17YRS	Preventive Medicine Visits
99395	PERIODIC PREVENTIVE MED EST PATIENT 18-39 YRS	Preventive Medicine Visits
99396	PERIODIC PREVENTIVE MED EST PATIENT 40-64YRS	Preventive Medicine Visits
99397	PERIODIC PREVENTIVE MED EST PATIENT 65YRS& OLDER	Preventive Medicine Visits
99241	OFFICE CONSULTATION NEW/ ESTAB PATIENT 15 MIN	Consultation Services
99242	OFFICE CONSULTATION NEW/ ESTAB PATIENT 30 MIN	Consultation Services
99243	OFFICE CONSULTATION NEW/ ESTAB PATIENT 40 MIN	Consultation Services
99244	OFFICE CONSULTATION NEW/ ESTAB PATIENT 60 MIN	Consultation Services
99245	OFFICE CONSULTATION NEW/ ESTAB PATIENT LEVEL 5	Consultation Services
G0466	FEDERALLY QUALIFIED HEALTH CENTER VISIT NEW PT	HCPC Visit Codes
G0467	FEDERALLY QUALIFIED HEALTH CENTER VISIT ESTAB PT	HCPC Visit Codes
G0468	FEDERALLY QUALIFIED HEALTH CENTER VISIT IPPE/ AWV	HCPC Visit Codes
T1015	CLINIC VISIT/ ENCOUNTER ALL-INCLUSIVE	HCPC Visit Codes
S9117	BACK SCHOOL VISIT	HCPC Visit Codes
G0402	INIT PREV PE LTD NEW BENEF DUR 1ST 12 MOS MCR	HCPC Visit Codes
G0438	ANNUAL WELLNESS VISIT; PERSONALIZ PPS INIT VISIT	HCPC Visit Codes
G0439	ANNUAL WELLNESS VST; PERSONALIZED PPS SUBSQT VST	HCPC Visit Codes
G0463	HOSPITAL OUTPATIENT CLIN VISIT ASSESS & MGMT PT	HCPC Visit Codes
99401	PREVENT MED COUNSEL&/ RISK FACTOR REDJ SPX 15 MIN	Preventive Medicine Services
99402	PREVENT MED COUNSEL&/ RISK FACTOR REDJ SPX 30 MIN	Preventive Medicine Services
99403	PREVENT MED COUNSEL&/ RISK FACTOR REDJ SPX 45 MIN	Preventive Medicine Services
99404	PREVENT MED COUNSEL&/ RISK FACTOR REDJ SPX 60 MIN	Preventive Medicine Services
99406	TOBACCO USE CESSATION INTERMEDIATE 3-10 MINUTES	Preventive Medicine Services
99407	TOBACCO USE CESSATION INTENSIVE >10 MINUTES	Preventive Medicine Services
99408	ALCOHOL/ SUBSTANCE SCREEN & INTERVEN 15-30 MIN	Preventive Medicine Services
99409	ALCOHOL/ SUBSTANCE SCREEN & INTERVENTION >30 MIN	Preventive Medicine Services
99411	PREV MED COUNSEL & RISK FACTOR REDJ GRP SPX 30 M	Preventive Medicine Services
99412	PREV MED COUNSEL & RISK FACTOR REDJ GRP SPX 60 M	Preventive Medicine Services
99420	ADMN & INTERPJ HEALTH RISK ASSESSMENT INSTRUMENT	Preventive Medicine Services
99429	UNLISTED PREVENTIVE MEDICINE SERVICE	Preventive Medicine Services
99341	HOME VISIT NEW PATIENT LOW SEVERITY 20 MINUTES	Home Visits
99342	HOME VISIT NEW PATIENT MOD SEVERITY 30 MINUTES	Home Visits
99343	HOME VST NEW PATIENT MOD-HI SEVERITY 45 MINUTES	Home Visits
99344	HOME VISIT NEW PATIENT HI SEVERITY 60 MINUTES	Home Visits
99345	HOME VISIT NEW PT UNSTABL/ SIGNIF NEW PROB 75 MIN	Home Visits
99347	HOME VISIT EST PT SELF LIMITED/ MINOR 15 MINUTES	Home Visits
99348	HOME VISIT EST PT LOW-MOD SEVERITY 25 MINUTES	Home Visits
99349	HOME VISIT EST PT MOD-HI SEVERITY 40 MINUTES	Home Visits

Procedure Code	Description	Reporting Procedure Category
99350	HOME VST EST PT UNSTABLE/ SIGNIF NEW PROB 60 MINS	Home Visits
99374	SUPVJ PT HOME HEALTH AGENCY MO 15-29 MINUTES	Hospice/ Home Health Services
99375	SUPERVISION PT HOME HEALTH AGENCY MONTH 30 MIN/>	Hospice/ Home Health Services
99376	CARE PLAN OVERSIGHT/ OVER	Hospice/ Home Health Services
99377	SUPERVISION HOSPICE PATIENT/ MONTH 15-29 MIN	Hospice/ Home Health Services
99378	SUPERVISION HOSPICE PATIENT/ MONTH 30 MINUTES/>	Hospice/ Home Health Services
G0179	PHYS RE-CERT MCR-COVR HOM HLTH SRVC RE-CERT PRD	Hospice/ Home Health Services
G0180	PHYS CERT MCR-COVR HOM HLTH SRVC PER CERT PRD	Hospice/ Home Health Services
G0181	PHYS SUPV PT RECV MCR-COVR SRVC HOM HLTH AGCY	Hospice/ Home Health Services
G0182	PHYS SUPV PT UNDER MEDICARE-APPROVED HOSPICE	Hospice/ Home Health Services
99339	INDIV PHYS SUPVJ HOME/ DOM/ R-HOME MO 15-29 MIN	Domiciliary, Rest Home Multidisciplinary Care Planning
99340	INDIV PHYS SUPVJ HOME/ DOM/ R-HOME MO 30 MIN/>	Domiciliary, Rest Home Multidisciplinary Care Planning
99495	TRANSITIONAL CARE MANAGE SRVC 14 DAY DISCHARGE	Transitional Care Management Services
99496	TRANSITIONAL CARE MANAGE SRVC 7 DAY DISCHARGE	Transitional Care Management Services
99497	ADVANCE CARE PLANNING FIRST 30 MINS	Advance Care Planning E/M Services
99498	ADVANCE CARE PLANNING EA ADDL 30 MINS	Advance Care Planning E/M Services
99366	TEAM CONFERENCE FACE-TO-FACE NONPHYSICIAN	Case Management Services
99367	TEAM CONFERENCE NON-FACE-TO-FACE PHYSICIAN	Case Management Services
99368	TEAM CONFERENCE NON-FACE-TO-FACE NONPHYSICIAN	Case Management Services
99487	CMPLX CHRON CARE MGMT W/O PT VST 1ST HR PER MO	Chronic Care Management Services
99489	CMPLX CHRON CARE MGMT EA ADDL 30 MIN PER MONTH	Chronic Care Management Services
99490	CHRON CARE MANAGEMENT SRVC 20 MIN PER MONTH	Chronic Care Management Services
99491	CHRON CARE MANAGEMENT SRVC 30 MIN PER MONTH	Chronic Care Management Services
G0506	COMP ASMT OF & CARE PLNG PT RQR CC MGMT SRVC	Chronic Care Management Services
99358	PROLNG E/M SVC BEFORE&/ AFTER DIR PT CARE 1ST HR	Prolonged Services
99359	PROLNG E/M BEFORE&/ AFTER DIR CARE EA 30 MINUTES	Prolonged Services
99360	PHYS STANDBY SVC PROLNG PHYS ATTN EA 30 MINUTES	Prolonged Services
G0513	PROLONG PREV SVCS FIRST 30M	Prolonged Services
G0514	PROLONG PREV SVCS ADDL 30M	Prolonged Services
99441	PHYS/ QHP TELEPHONE EVALUATION 5-10 MIN	Telephone and Internet Services
99442	PHYS/ QHP TELEPHONE EVALUATION 11-20 MIN	Telephone and Internet Services
99443	PHYS/ QHP TELEPHONE EVALUATION 21-30 MIN	Telephone and Internet Services
99444	PHYS/ QHP ONLINE E&M SERVICE	Telephone and Internet Services
99446	NTRPROF PHONE/ NTRNET/ EHR ASSMT&MGMT 5-10 MIN	Telephone and Internet Services
99447	NTRPROF PHONE/ NTRNET/ EHR ASSMT&MGMT 11-20 MIN	Telephone and Internet Services
99448	NTRPROF PHONE/ NTRNET/ EHR ASSMT&MGMT 21-30 MIN	Telephone and Internet Services
99449	NTRPROF PHONE/ NTRNET/ EHR ASSMT&MGMT 31/> MIN	Telephone and Internet Services
99451	NTRPROF PHONE/ NTRNET/ EHR ASSMT&MGMT 5/> MIN	Telephone and Internet Services
99452	NTRPROF PHONE/ NTRNET/ EHR REFERRAL SVC 30 MIN	Telephone and Internet Services

Procedure Code	Description	Reporting Procedure Category
98966	NONPHYSICIAN TELEPHONE ASSESSMENT 5-10 MIN	Telephone and Internet Services
98967	NONPHYSICIAN TELEPHONE ASSESSMENT 11-20 MIN	Telephone and Internet Services
98968	NONPHYSICIAN TELEPHONE ASSESSMENT 21-30 MIN	Telephone and Internet Services
98969	NONPHYSICIAN ONLINE ASSESSMENT AND MANAGEMENT	Telephone and Internet Services
90460	IM ADM THRU 18YR ANY RTE 1ST/ ONLY COMPT VAC/ TOX	Immunization Administration for Vaccines/ Toxoids
90461	IM ADM THRU 18YR ANY RTE ADDL VAC/ TOX COMPT	Immunization Administration for Vaccines/ Toxoids
90471	IM ADM PRQ ID SUBQ/ IM NJXS 1 VACCINE	Immunization Administration for Vaccines/ Toxoids
90472	IM ADM PRQ ID SUBQ/ IM NJXS EA VACCINE	Immunization Administration for Vaccines/ Toxoids
90473	IM ADM INTRANSL/ ORAL 1 VACCINE	Immunization Administration for Vaccines/ Toxoids
90474	IM ADM INTRANSL/ ORAL EA VACCINE	Immunization Administration for Vaccines/ Toxoids
G0008	ADMINISTRATION OF INFLUENZA VIRUS VACCINE	Immunization Administration for Vaccines/ Toxoids
G0009	ADMINISTRATION OF PNEUMOCOCCAL VACCINE	Immunization Administration for Vaccines/ Toxoids
G0010	ADMINISTRATION OF HEPATITIS B VACCINE	Immunization Administration for Vaccines/ Toxoids
96160	PT-FOCUSED HLTH RISK ASSMT SCORE DOC STND INSTRM	Health Risk Assessment, Screenings, and Counselings
96161	CAREGIVER HLTH RISK ASSMT SCORE DOC STND INSTRM	Health Risk Assessment, Screenings, and Counselings
99078	PHYS/ QHP EDUCATION SVCS RENDERED PTS GRP SETTING	Health Risk Assessment, Screenings, and Counselings
99483	ASSMT & CARE PLANNING PT W/ COGNITIVE IMPAIRMENT	Health Risk Assessment, Screenings, and Counselings
G0396	ALCOHOL &/ SUBSTANCE ABUSE ASSESSMENT 15-30 MIN	Health Risk Assessment, Screenings, and Counselings
G0397	ALCOHOL &/ SUBSTANCE ABUSE ASSESSMENT >30 MIN	Health Risk Assessment, Screenings, and Counselings
G0442	ANNUAL ALCOHOL MISUSE SCREENING 15 MINUTES	Health Risk Assessment, Screenings, and Counselings
G0443	BRIEF FACE-FACE BEHAV CNSL ALCOHL MISUSE 15 MIN	Health Risk Assessment, Screenings, and Counselings
G0444	ANNUAL DEPRESSION SCREENING 15 MINUTES	Health Risk Assessment, Screenings, and Counselings
G0505	COGN & FUNCT ASMT USING STD INST OFF/ OTH OP/ HOME	Health Risk Assessment, Screenings, and Counselings
99173	SCREENING TEST VISUAL ACUITY QUANTITATIVE BILAT	Preventive Medicine Services
G0102	PROS CANCER SCREENING; DIGTL RECTAL EXAMINATION	Preventive Medicine Services
G0436	SMOKE TOB CESSATION CNSL AS PT; INTRMED 3-10 MIN	Preventive Medicine Services

Procedure Code	Description	Reporting Procedure Category
G0437	SMOKING & TOB CESS CNSL AS PT; INTENSIVE >10 MIN	Preventive Medicine Services
58300	INSETION OF IUD	Contraceptive Insertion/ Removal
58301	REMOVAL OF IUD	Contraceptive Insertion/ Removal
57170	DIAPHRAGM OR CERVICAL CAP FITTING WITH INSTRUCTIONS	Contraceptive Insertion/ Removal
S4981	INSERTION OF LEVONORGESTREL-RELEASING INTRAUTERINE SYSTEM	Contraceptive Insertion/ Removal
11981	INSERTION, NON-BIODEGRADBLE DRUG DELIVERY IMPLANT	Contraceptive Insertion/ Removal
11982	REMOVAL, NON-BIODEGRADABLE DRUG DELIVERY IMPLANT	Contraceptive Insertion/ Removal
11983	REMOVAL WITH REINSERTION, NON-BIODEGRADABLE DRUG DELIVERY IMPLANT	Contraceptive Insertion/ Removal
S0610	ANNUAL GYNECOLOGICAL EXAM, ESTABLISHED PATIENT	Gynecological Services
S0612	ANNUAL GYNECOLOGICAL EXAM, NEW PATIENT	Gynecological Services
S0613	ANNUAL GYNECOLOGICAL EXAM, BREAST EXAM W/O PELVIC	Gynecological Services
G0101	CERV/ VAGINAL CANCER SCR; PELV&CLIN BREAST EXAM	Gynecological Services
Q0091	SCREEN PAP SMEAR; OBTAIN PREP &C ONVEY TO LAB	Gynecological Services

Identifying urgent care claims

We identify urgent care visits in the professional files by restricting to claims where the place of service code on the claim is 20, "Urgent Care Facility". This only includes urgent care provided in an urgent care facility and not in settings that bill using different place of service codes such as retail clinic or outpatient hospital.

Categorizing ED visits

The New York University (NYU) Emergency Department (ED) Algorithm is a widely used tool for classifying ED visits based on whether care is urgent and/or preventable. Developed using chart review data from ED records, the algorithm assigns probabilities to diagnosis codes indicating the likelihood that a visit falls into several predefined categories **(Exhibit C.5)**. The algorithm uses the primary diagnosis code from ED claims to categorize visits based on the medical necessity of emergency care, the potential for treatment in a primary care setting, and the preventability of the condition. It is designed to analyze ED utilization at the population level, supporting policy analysis and health system planning.

To apply the algorithm, we matched ED claims to the publicly available list of ICD-10 codes and their probabilities relative to the categories listed below. Each diagnosis can be associated with more than one category (e.g., 40% non-emergent, 60% emergent/primary care treatable). Statewide rates are calculated by summing probabilities across the sample. The algorithm groups trauma, alcohol, drug-related, and mental health diagnoses separately. The following table outlines the NYU ED Algorithm categories and their definitions and maps them to the larger Reporting Category used in **Exhibit IV.5**.

Exhibit C.5. NYU algorithm ED categories

Category	Definition	Reporting Category
Non-Emergent	Treatment not required within 12 hours; care could have been safely delayed or provided in a non-ED setting.	Primary Care Sensitive
Emergent, Primary Care Treatable	Required care within 12 hours, but care could have been provided safely and effectively in a primary care setting.	Primary Care Sensitive
Emergent, ED Care Needed – Preventable/Avoidable	ED care was required, but the condition could potentially have been prevented with timely and effective outpatient care.	Primary Care Sensitive
Emergent, ED Care Needed – Not Preventable/Avoidable	ED care was required and the condition was not avoidable or preventable with prior care.	Unavoidable
Unclassified	Cases where the available data were insufficient to assign probabilities.	Unclassified
Injury	ED visits with injury-related diagnoses.	Unavoidable
Mental Health	ED visits with mental health–related diagnoses.	Behavioral Health
Alcohol	ED visits with alcohol-related diagnoses.	Behavioral Health
Drug (Substance use)	ED visits with drug-related diagnoses.	Behavioral Health

Calculating the rate of avoidable hospitalization

The Agency for Healthcare Research and Quality (AHRQ) Prevention Quality Indicator (PQI) 90, Overall Composite is a composite measure that summarizes hospital admissions for ambulatory care sensitive conditions (ACSCs) – conditions for which effective outpatient care may reduce the need for hospitalization. The PQI 90 composite includes a set of individual PQIs that represent potentially avoidable hospitalizations, providing a high-level indicator of access to and quality of primary care in a population.

To apply the measure, we identified inpatient claims where the principal diagnosis matches one of the specified conditions in the component PQIs. Each admission is counted once, and conditions are identified using ICD-10-CM diagnosis codes as defined in the AHRQ technical specifications. The PQI 90 measure is reported as a rate per 100,000 population, using the total report population as a denominator. **Exhibit C.6** lists the individual indicators included in PQI 90 and their associated conditions.

Exhibit C.6. Components of avoidable hospitalizations composite

Component PQI	Condition
PQI 01	Diabetes Short-Term Complications Admission Rate
PQI 03	Diabetes Long-Term Complications Admission Rate
PQI 05	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate
PQI 07	Hypertension Admission Rate
PQI 08	Heart Failure Admission Rate
PQI 10	Dehydration Admission Rate
PQI 11	Bacterial Pneumonia Admission Rate
PQI 12	Urinary Tract Infection Admission Rate

Component PQI	Condition
PQI 14	Uncontrolled Diabetes Admission Rate
PQI 15	Asthma in Younger Adults Admission Rate
PQI 16	Rate of Lower-Extremity Amputation Among Patients with Diabetes

C5. Chapter V: Areas of Focus: Behavioral Health and Medical Pharmacy

Identifying medical pharmacy spending

Medical pharmacy spending refers to drug costs covered under the medical benefit, typically for clinician-administered therapies. To measure medical pharmacy spending, we identify separately payable drugs – those reimbursed on their own claim lines. Under Medicare's Outpatient Prospective Payment System (OPPS), drugs that exceed a cost-per-day threshold are generally classified as separately payable. Many commercial and Medicaid payers use similar criteria.

For this analysis, we identify separately payable drugs using the HCPCS codes included in this separately payable drugs list based on Medicare's OPPS Addendum B. For these claim lines, we sum the allowed amounts to determine spending. This method will capture a large share of medical pharmacy spending, however, some medical pharmacy drugs are billed as part of a bundled payment. We do not include drugs that are paid as part of a bundle medical pharmacy spending.

For **Exhibits V.5 and V.6**, we identified all spending for an encounter where a patient receives a medical pharmacy drug. This included professional and/or outpatient facility spending. To determine total spending for the encounter, we summed the allowed amounts for the drug and any other line items that were part of the encounter.

For **Exhibit V.7,** to isolate the specific drugs that were associated with highest spending during the study period, we summed spending for each medical pharmacy drug at the HCPCS code level. We then identified the 10 drugs that made up the most spending for the study period. We divided the annual total spending for the drug by the number of patients who received the drug during a year to calculate the total annual spending per user.

Identifying behavioral health care spending

To identify claims related to behavioral health, including mental health and substance use disorder diagnoses, we follow a standardized methodology outlined by the Milbank Memorial Fund. We identified claims of interest based on specific behavioral health diagnosis codes. We allocate spending to either mental health or substance use disorder services based on the primary diagnosis associated with the claim. We further group claims into care settings using the data element included in **Exhibit C.7.**

Exhibit C.7. Behavioral health care settings

Care Setting	Definition	Data Element(s) Used to Identify
Inpatient	Hospital admissions requiring an overnight stay for behavioral health conditions.	Revenue codes
Institutional Outpatient Care	Non-admitted, hospital-based services provided in an outpatient setting for behavioral health treatment.	Revenue codes, place of service codes, CPT/HCPCS codes

Care Setting	Definition	Data Element(s) Used to Identify
ED Care	Urgent behavioral health care delivered in an emergency department setting.	Revenue codes, place of service codes
Residential Treatment	Behavioral health care provided in dedicated residential facilities such as psychiatric hospitals or group homes.	Revenue codes, place of service codes
Long-Term Care	Extended care provided in long-term care facilities (e.g., nursing homes).	Revenue codes, place of service codes
Professional	Behavioral health services delivered in a professional office setting by mental health practitioners.	Place of service codes, CPT/HCPCS codes
Retail Pharmacy	Prescription drugs filled by the patient at a pharmacy.	NDC codes
Mobile/Community-Based Services	Services provided outside traditional facilities, such as home visits or community-based care programs.	Place of service codes
Other Ambulatory Services	Ambulatory services that do not fall under the above categories but still provide behavioral health care.	Various procedure codes, place of service codes

C6.Chapter VI. Geographic Variation

Hospital Market Areas and outmigration

To examine area-level variation, we use Hospital Market Areas (HMAs) as our geographic units. The New Jersey Commission on Rationalizing Health Care Resources developed HMAs, which are meant to reflect health care markets and referral patterns for specialized hospital care. We obtain patient zip code from the patient demographics and eligibility file. Please refer to the report for a full list of zip codes mapping to HMAs.[23]

For the outmigration analyses, we use the provider zip code on the claim to characterize the encounter as being conducted in New Jersey or in a different state.

[23] Refer to Appendices 1, 2, and 3 in the report from the New Jersey Commission on Rationalizing Health Care Resources.

Appendix D

Data Tables

This appendix presents data included in the exhibits in the body of the report as well as other relevant data.

Exhibit D.1. Data Table for Exhibit I.1. Average annual total health care spending per person in New Jersey compared to national, 2017-2022

Year	New Jersey	National
2017	$6,670	$5,799
2018	$6,899	$6,101
2019	$7,128	$6,333
2020	$6,983	$6,229
2021	$8,149	$7,095
2022	$8,305	$7,212

Exhibit D.2. Data Table for Exhibit I.2. Single-year change in per-person spending, 2017–2022

Year	Per-person spending
2017 - 2018	3.4%
2018 - 2019	3.3%
2019 - 2020	-2.0%
2020 - 2021	16.7%
2021 - 2022	1.9%

Exhibit D.3. Data Table for Exhibit I.3. Average annual out-of-pocket spending per person in New Jersey compared to national, 2017–2022

Year	New Jersey	National
2017	$846	$853
2018	$870	$879
2019	$841	$899
2020	$771	$814
2021	$888	$920
2022	$889	$939

Exhibit D.4. Data Table for Exhibit II.1 Average annual per-person spending growth rate overall and by service category, 2017–2022

Service Category	Per-person spending growth rate
Overall	4.5%
Inpatient	2.5%
Outpatient	5.3%
Professional	4.1%
Retail Pharmacy	5.7%

Exhibit D.5. Data Table for Exhibit II.2. Average annual total health care spending per person by service category, 2017–2022

Year	Inpatient facility	Outpatient facility	Professional	Retail pharmacy
2017	$1,159	$1,683	$2,410	$1,417
2018	$1,195	$1,753	$2,498	$1,452
2019	$1,253	$1,898	$2,525	$1,452
2020	$1,268	$1,687	$2,479	$1,548
2021	$1,399	$2,049	$2,980	$1,721
2022	$1,313	$2,179	$2,941	$1,872

Exhibit D.6. Data Table for Exhibit II.3. Average annual out-of-pocket spending per person by service category, 2017–2022

Year	Inpatient facility	Outpatient facility	Professional	Retail pharmacy
2017	$45	$172	$444	$184
2018	$46	$179	$462	$183
2019	$45	$178	$443	$174
2020	$41	$159	$400	$171
2021	$47	$189	$468	$183
2022	$43	$190	$470	$187

Exhibit D.7. Data Table for Exhibit III.2. Total percentage change in price and per-person quantity by category of service, 2017–2022

Service category	Price effect (%)	Quantity effect (%)
Inpatient Facility	32%	-15%
Outpatient Facility	39%	-6%
Professional	13%	-1%
Retail Pharmacy	19%	11%

Exhibit D.8. Data Table for Exhibit III.3. Annual percentage change in price and per-person quantity for inpatient services, 2017–2022

Year	Price effect (%)	Quantity effect (%)
2017 – 2018	4%	-1%
2018 – 2019	6%	-1%
2019 – 2020	12%	-10%
2020 - 2021	6%	4%
2021 – 2022	1%	-7%

Exhibit D.9. Data Table for Exhibit III.4, Annual percentage change in price and per-person quantity for outpatient services, 2017-2022

Year	Price effect (%)	Quantity effect (%)
2017 – 2018	7%	-1%
2018 – 2019	5%	1%
2019 – 2020	13%	-22%
2020 - 2021	3%	18%
2021 – 2022	7%	2%

Exhibit D.10. Data Table for Exhibit III.5, Annual percentage change in price and per-person quantity for professional services, 2017–2022

Year	Price effect (%)	Quantity effect (%)
2017 – 2018	3%	1%
2018 – 2019	0%	1%
2019 – 2020	5%	-15%
2020 - 2021	2%	16%
2021 – 2022	4%	-2%

Exhibit D.11. Data Table for Exhibit III.6. Annual percentage change in price and per-person quantity for retail pharmacy services, 2017–2022

Year	Price effect (%)	Quantity Effect (%)
2017 – 2018	2%	0%
2018 – 2019	0%	0%
2019 – 2020	3%	3%
2020 - 2021	5%	6%
2021 – 2022	8%	1%

Exhibit D.12. Data Table for Exhibit IV.1. Per-person spending for primary are in New Jersey and nationally, 2018–2022

Year	New Jersey	National
2018	$291	$332
2019	$274	$346
2020	$223	$321
2021	$276	$359
2022	$278	$365

Exhibit D.13. Data Table for Exhibit IV.2. Primary care spending as a percentage of total health care spending in New Jersey and nationally, 2018–2022

Year	New Jersey	National
2018	4.2%	5.4%
2019	3.9%	5.5%
2020	3.2%	5.2%
2021	3.4%	5.1%
2022	3.4%	5.1%

Exhibit D.14. Exhibit IV.3. Total percentage change in price and per-person quantity for primary care, 2018–2022

Year	Price	Quantity
2018 - 2022	24%	-23%

Exhibit D.15. Data Table for Exhibit IV.4. Annual percentage change in price and per-person quantity for primary care, 2018–2022

Year	Price	Quantity
2018 - 2019	9%	-13%
2019 - 2020	-4%	-16%
2020 - 2021	9%	13%
2021 - 2022	8%	-7%

Exhibit D.16. Data Table for IV.5 Per-person spending on urgent care, 2017–2022

Year	Per-person spending
2017	$30
2018	$35
2019	$46
2020	$72
2021	$103
2022	$71

Exhibit D.17. Data Table for Exhibit IV.6. ED visits per 1,000 people in the study population, 2017-2022

Year	Total ED visits	Primary care sensitive	Behavioral Health	Unavoidable	Unclassified
2017	178	77	8	63	30
2018	178	78	8	61	32
2019	179	79	7	61	31
2020	131	54	5	44	28
2021	142	57	6	51	28
2022	147	60	6	52	28

Exhibit D.18. Data Table for Exhibit IV.7. Rate of potentially avoidable hospitalizations, per 100,000 people in the study population, 2017–2022

Year	New Jersey	National
2017	259	251
2018	251	254
2019	252	248
2020	194	197
2021	187	194
2022	195	200

Exhibit D.19. Data Table for Exhibit V.1. Per-person spending for mental health and substance use services, 2017–2022

Year	Mental Health	Substance Use
2017	$308	$137
2018	$334	$131
2019	$349	$111
2020	$381	$108
2021	$442	$104
2022	$488	$107

Exhibit D.20. Data Table for Exhibit V.2. Per-person spending for mental health services by care setting, 2017–2022

Year	Inpatient	ED	Outpatient Facility	Retail Pharmacy	Other	Professional
2017	$39	$9	$22	$119	$11	$108
2018	$43	$10	$26	$124	$12	$118
2019	$49	$9	$28	$121	$10	$133
2020	$45	$8	$28	$124	$10	$164
2021	$50	$10	$37	$131	$13	$202
2022	$53	$10	$44	$136	$16	$229

Exhibit D.21. Data Table for Exhibit V.3. Per-person spending for substance use services by care setting, 2017–2022

Year	Inpatient	ED	Outpatient Facility	Retail Pharmacy	Other	Professional
2017	$41	$6	$48	$11	$25	$7
2018	$42	$7	$44	$11	$19	$8
2019	$39	$5	$36	$10	$14	$7
2020	$36	$4	$36	$9	$15	$7
2021	$37	$5	$35	$8	$12	$7
2022	$37	$5	$38	$7	$12	$7

Exhibit D.22. Data Table for Exhibit V.4. Per-person spending for medical pharmacy, 2017–2022

Year	New Jersey	National
2017	$344	$284
2018	$400	$330
2019	$442	$363
2020	$431	$375
2021	$480	$407
2022	$515	$427

Exhibit D.23. Data Table for V.5. Total percentage change in price and per-person quantity for medical pharmacy, 2017–2022

Year	Price	Quantity
2017-2022	26%	18%

Exhibit D.24. Data Table for Exhibit V.6. Annual percentage change in price and per-person quantity for medical pharmacy, 2017–2022

Year	Price	Quantity
2017 - 2018	10%	4%
2018 - 2019	5%	5%
2019 - 2020	5%	-7%
2020 - 2021	-2%	16%
2021 - 2022	6%	1%

Exhibit D.25. Data Table for Exhibits VI.1. Average annual per-person spending growth rate overall by HMA, 2017–2022 and VI.2. Annual total health care spending per person by Hospital Market Area, 2017–2022

Hospital Market Area	2017	2018	2019	2020	2021	2022	Average annual growth rate (%)
Atlantic City	$7,050	$7,256	$7,209	$7,083	$8,651	$8,615	4.1%
Camden	$6,725	$6,890	$7,084	$6,838	$8,198	$8,485	4.8%
Hackensack/Paterson/ Ridgewood	$6,926	$7,158	$7,525	$7,317	$8,325	$8,409	4.0%
Morristown	$6,464	$6,673	$6,849	$6,731	$7,866	$8,046	4.5%
New Brunswick	$6,109	$6,315	$6,696	$6,532	$7,577	$7,929	5.4%
Newark/Jersey City	$6,536	$6,846	$6,872	$6,862	$7,937	$7,817	3.6%
Toms River	$7,148	$7,351	$7,775	$7,718	$9,029	$9,220	5.2%
Trenton	$7,175	$7,813	$7,854	$7,438	$8,437	$8,897	4.4%

Exhibit D.26. Data Table for Exhibit VI.3. Percentage of inpatient Stays for NJ Residents that occurred in NY and PA, 2017-2022

Year	NY (%)	PA (%)
2017	6%	9%
2018	6%	9%
2019	6%	8%
2020	6%	8%
2021	5%	8%
2022	6%	9%

Exhibit D.27. Data Table for Exhibit VI.4. Percentage of spending occurring with out-of-state providers for mental health diagnoses, 2017-2022

Year	NY (%)	PA (%)	Other States (%)
2017	8%	3%	10%
2018	8%	4%	11%
2019	8%	3%	12%
2020	8%	3%	15%
2021	8%	3%	15%
2022	10%	4%	15%

Exhibit D.28. Data Table for Exhibit VI.5. Percentage of spending occurring with out-of-state providers for substance use diagnoses, 2017-2022

Year	NY (%)	PA (%)	Other States (%)
2017	2%	7%	47%
2018	2%	8%	39%
2019	2%	7%	34%
2020	2%	7%	32%
2021	2%	8%	23%
2022	2%	7%	20%

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